

Bittium

Extensive report

5/28/2024



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✓ Inderes corporate customer

This report is a summary translation of the report “Puolustuksen kautta menestykseen” published on 5/20/2024 at 8 am EEST

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Gaining success from defense

We raise our target price for Bittium to EUR 7.2 (was EUR 6.5) and our recommendation to Accumulate (previous Reduce). After a long struggle, the company is making a strong profitability turnaround in 2024, and the earnings growth outlook is also very strong for the coming years as the defense sector recovers. The Defense & Security segment has become by far the most valuable business for Bittium, but the Medical segment also offers very good prospects. Given the medium-term outlook, we believe the valuation remains reasonable.

Coming out of a major transformation process and huge investments

Bittium has invested more than 150 MEUR in R&D over the last eight years. The largest investment has been in the Bittium Tough SDR product line, which complements the company's tactical communications offering for the defense sector. Deliveries are still low, but we expect the volume phase for the Finnish Defence Forces to start in 2025, and there is also significant potential in Austria. In addition, the company has invested significantly in the Medical segment, which focuses on biosignal measuring and remote monitoring, and has seen a slowdown in recent years as revenue has continued to be focused on the BSCDx partnership. However, the market drivers are strong and sleep apnea is coming alongside cardiology, so the outlook in this area is also encouraging. In addition to the largely product-based Defense & Security and Medical businesses, Bittium continues to have an Engineering Services segment that provides R&D services and focuses on high value-added connectivity solutions.

Profitability turnaround in full swing, with profitable growth expected in the coming years

Bittium is in the process of making a strong profitability turnaround this year, building on the efficiency and profitability improvement measures taken last year. In a nutshell, the company has transformed from a product development organization to a profitable growth company. We are forecasting revenue growth of more than 15% to around 87 MEUR (guidance 85-95 MEUR) and an operating result of 8.9 MEUR (guidance 7.0-9.5 MEUR) in 2024, which already showed first signs in Q1. The year-on-year improvement is strong and we expect this to kick-start profitable growth in the coming years. We anticipate strong revenue growth in 2025, mainly driven by the projected launch of Tough SDR volume shipments, as profitability scales with product volume. Next year, we also expect FDA approval for Bittium Respiro, which would open up the high-potential sleep apnea market for the Medical segment. The high level of activity and competitive products in the defense sector offer opportunities for new breakthroughs in international markets (Austria and Estonia opened so far).

Valuation supported by defense sector tailwind and strengthening cash flows

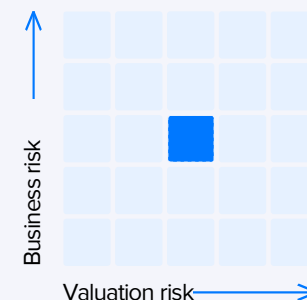
We estimate the fair value of Bittium's share to be in the range of EUR 6.0-8.0 (previously EUR 5.5-7.5). The upper end of the range can be exceeded by new breakthroughs, so there is positive optionality in the stock. On the other hand, the lower end of the range is realistic if earnings growth falls significantly short of expectations in the coming years. The sum-of-the-parts calculation based on the 2025 projections yields a value of around EUR 7.2, with the value concentrated in the Defense & Security segment (~60%) and the Medical segment (~27%). In our view, the biggest risk lies with the largest customers, the Finnish Defence Forces and Boston Scientific, but the risk will decrease further, especially after the partnership agreement with the Defence Forces. As working capital, which has ballooned uncontrollably in recent years, is released and investments decline, cash flow should strengthen significantly in the coming years, and we forecast cash flows well ahead of reported results.

Recommendation

Accumulate
(previous Reduce)

EUR 7.20
(previous EUR 6.50)

Share price:
6.56



Key figures

	2023	2024e	2025e	2026e
Revenue	75	87	103	114
growth-%	-9%	15%	19%	11%
EBIT adj.	-4.2	8.9	14.4	17.2
EBIT-% adj.	-5.6 %	10.2 %	13.9 %	15.0 %
Net Income	-8.6	10.5	16.5	15.5
EPS (adj.)	-0.15	0.22	0.39	0.44
P/E (adj.)	neg.	29.2	16.7	15.0
P/B	1.6	2.0	1.8	1.7
Dividend yield-%	1.2 %	1.7 %	3.6 %	4.7 %
EV/EBIT (adj.)	neg.	26.6	15.2	11.7
EV/EBITDA	89.5	13.0	8.4	6.5
EV/S	2.5	2.7	2.1	1.8

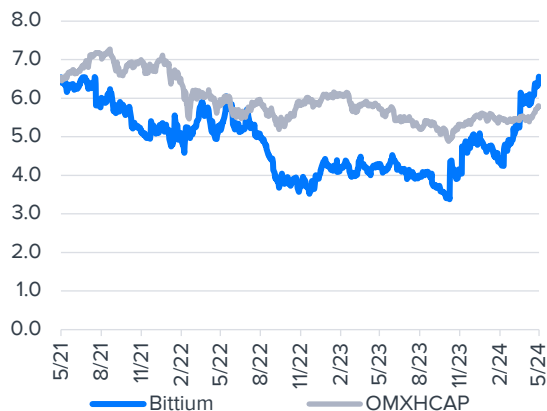
Source: Inderes

Guidance

(Unchanged)

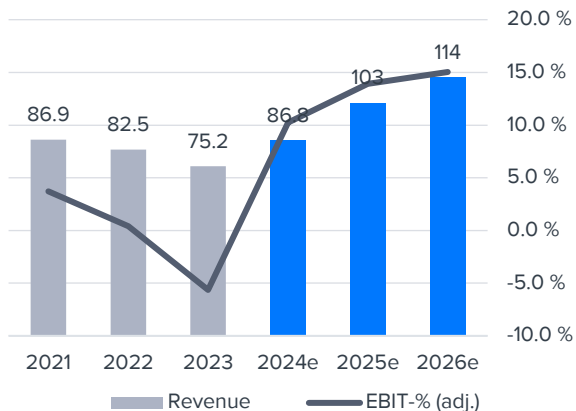
Bittium estimates that 2024 revenue will be 85–95 MEUR (2023: 75.2 MEUR) and the operating result will be 7.0-9.5 MEUR (2023: -4.3 MEUR).

Share price



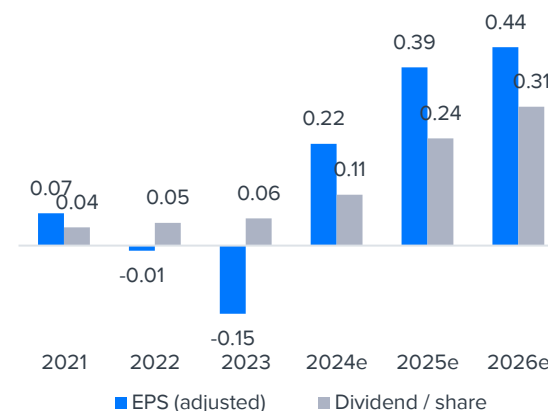
Source: Millstream Market Data AB

Revenue and EBIT-%



Source: Inderes

EPS and dividend



Source: Inderes



Value drivers

- Meeting profitability target (10% EBIT) and maintaining strong earnings growth
- Very strong cash flow as the balance sheet, which has ballooned in recent years, deflates
- International growth in Defense products with strong market tailwinds
- Profitable growth in Medical, with Respiro as new medium-term driver
- Strong cash flows generated by the service business
- The sum of the parts clarifying and M&A transactions can be a significant value driver



Risk factors

- Significant concentration of revenue on a few key customers
- Sustainability of good profitability levels
- Failure in internationalization
- Uncertainty and potential earnings disappointments related to high growth forecasts
- Renewed waning of investor patience
- A decline in the acceptable valuation level, especially in the defense sector, which we believe is justifiably favored at the moment

Valuation	2024e	2025e	2026e
Share price	6.56	6.56	6.56
Number of shares, millions	35.5	35.5	35.5
Market cap	233	233	233
EV	236	219	202
P/E (adj.)	29.2	16.7	15.0
P/E	22.2	14.1	15.0
P/B	2.0	1.8	1.7
P/S	2.7	2.3	2.0
EV/Sales	2.7	2.1	1.8
EV/EBITDA	13.0	8.4	6.5
EV/EBIT (adj.)	26.6	15.2	11.7
Payout ratio (%)	38.1%	50.9%	70.0%
Dividend yield-%	1.7%	3.6%	4.7%

Source: Inderes

Bittium in brief

Bittium specializes in the development of reliable, secure communications and connectivity solutions. Bittium has three business segments and Group Functions segment. The core of the Defense & Security segment is focused around tactical and secure communications, the Medical products focus on biosignal measuring and analysis, and the Engineering Services focuses on R&D services, particularly in the area of wireless connectivity.

1985

Year of establishment

75.2 MEUR (-8.8% vs. 2022)

Revenue 2023

+21% 2016-2023

Product-based revenue growth (CAGR-%)

-4.3 MEUR (-5.7% of revenue)

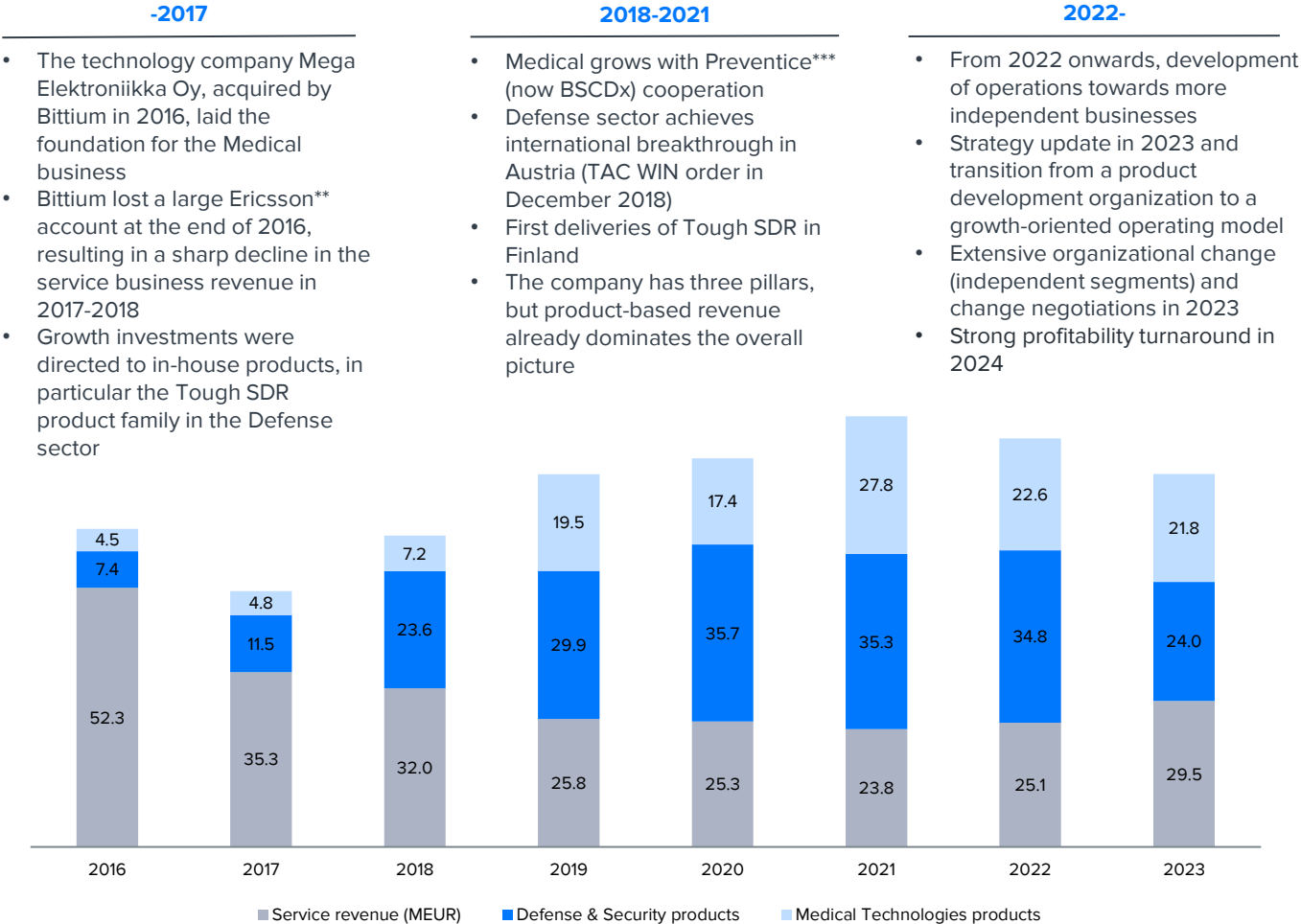
EBIT 2023

526

Personnel at the end of 2023

61% / 39%

Product-based/services-based revenue 2023



Source: Bittium/Inderes. Notes: * Medical revenue combined pro forma ** Inderes estimate, the company only reported a significant network equipment customer account.

*** Boston Scientific bought Preventice (now Boston Scientific Cardiac Diagnostics, BSCDx) in 2021

Contents

Company description and business model	6-9
Investment and risk profile	10-13
Defense & Security	14-19
Medical	20-25
Engineering Services	26-28
Competitive landscape	29-30
Strategy, objectives, and financial situation	31-35
Group forecasts	36-39
Valuation	41-48
Tables	49
Disclaimer and recommendation history	50

Company description and business model 1/3

Company description

Short company description

Bittium provides products and services, customized solutions based on its product platforms, and R&D services. Bittium's business is organized into three business segments: Defense & Security, Medical, and Engineering Services. In the Defense & Security segment, Bittium specializes in the development of reliable and secure communication and connectivity solutions, leveraging its over 35-year legacy of expertise in advanced radio communication technologies. In addition, Bittium offers information security solutions for mobile devices and portable computers.

In the Medical segment, Bittium provides its customers with healthcare technology products and services for biosignal measuring in the areas of cardiology, neurology, and sleep apnea. The common denominator is secure wireless data transfer and analysis. Software is still a small but growing part of the business.

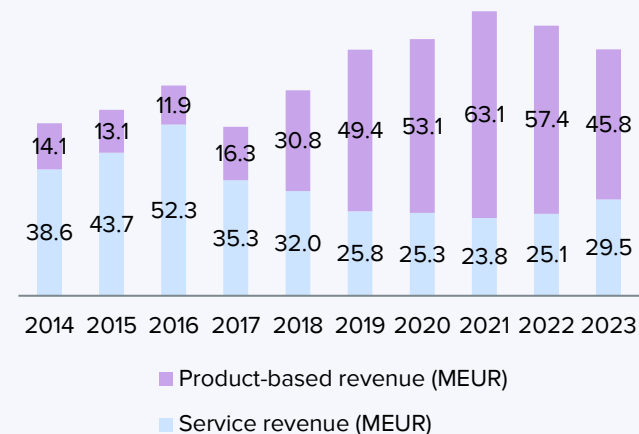
In the Engineering Services segment, Bittium provides R&D services in the areas of wireless telecommunications, medical technology, and manufacturing industry. The outsourcing of R&D services, either fully or partially, brings cost savings and allows customers to scale the volume of product development to their specific needs. Bittium has extensive experience in wireless connectivity, security, and various communication technologies (such as 5G).

Key products

By far Bittium's single most important product solution over the past decade has been the Bittium Tactical Wireless IP Network (TAC WIN) software radio system for tactical communications and related products. We estimate that up to 80% of product revenue in the Defense sector are derived from the TAC WIN backbone network and its supporting products and services. To support the tactical backbone network, the company has been developing Bittium Tough SDR radios for combatants and combat vehicles for the past several years. The first Tough SDR radios were delivered to the Finnish Defence Forces in 2020. The Tough SDR product family is, in our view, the company's main growth driver and will become the company's most important product in the coming years as volume shipments begin. For demanding security and authority use, Bittium's main product is the Tough Mobile smartphone, which the company has versions for different uses (government and combat). Bittium SafeMove and Secure Call software also enable secure communications.

In the Medical segment, Bittium offers products and services for biosignal measurement, mainly in the fields of cardiology and neurology, but in 2022 the product portfolio was expanded to include sleep apnea (Bittium Respiro). The company's main products are the Bittium Faros product family for cardiac measurement (ECG) and monitoring. The sector also includes product families for measuring the electrical activity of the brain (EEG). The company also has software and AI algorithms for analyzing the results.

Revenue breakdown (MEUR)



Key products

- Bittium Tactical Wireless IP Network software radio system (TAC WIN) in use by the Finnish, Estonian, and soon Austrian armed forces
- Bittium has developed Bittium Tough SDR Handheld and Vehicular radios for individual combatants and vehicles to support the backbone network
- Bittium's main product for public authorities is the secure Tough Mobile smartphone
- The main products in the Medical segment include the Bittium Faros family of products for measuring and monitoring the electrical activity of the heart, and Bittium Respiro for testing and analyzing sleep apnea
- Versatile software solutions supporting the products

Core service offering

- R&D services for the development of reliable, secure communications and connectivity solutions
- New wireless solutions enabled by 5G
- Development of different waveforms for tactical communications plays an important role in Defense & Security

Company description and business model 2/3

Coming out of a long period of change and large investments

Bittium has undergone a massive restructuring over the past decade. The transformation started with the creation of the independent Bittium after the sale of Elektrobit's Automotive business in 2015. Setting up Bittium's own product business and developing its own products has required significant R&D efforts. By far the largest investments have been made in the Tough SDR software radios.

After the acquisition of Elektrobit Automotive and the repurchase of own shares, Bittium had a net cash position of 123 MEUR (interest-bearing liabilities included) at the end of 2015, which by the end of 2023 had already sunk well into net debt. Between 2016 and 2023, the company has paid dividends of around 45 MEUR (including the dividend paid for the financial year 2015), but most of the cash has been spent on investments. The reported investments of 111 MEUR include the new headquarters (15-20 MEUR), but we believe that the rest is mostly invested in R&D. By far the largest of these has been the Tough SDR product family, on which an estimated 50 MEUR has been spent in various ways. The investments would be even higher if we were to include working capital and customer development work. In addition, the company also made acquisitions of at least 10 MEUR in the Medical business during the period, which have been very successful in terms of shareholder value.

The amounts are huge for Bittium, but we believe the risk associated with the R&D investments in the Tough SDR product family is limited. The company has a letter of intent from the Finnish Defence Forces

for SDR product deliveries of over 200 MEUR. This also means that there is a virtually guaranteed revenue stream from the products, unless something completely exceptional happens.

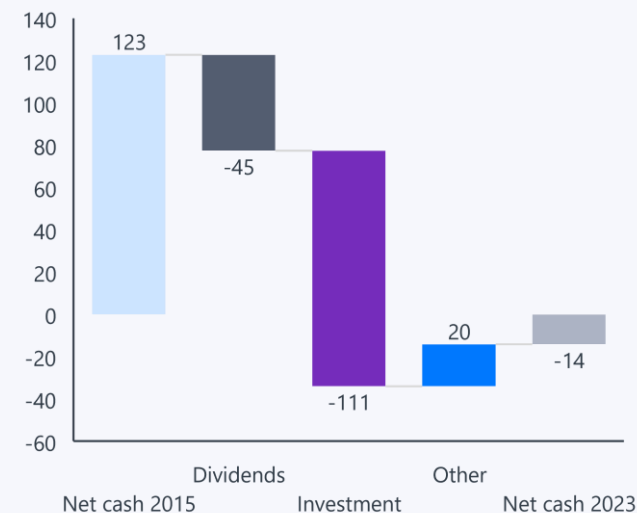
Bittium is in a good position to develop defense market products for the Finnish Defence Forces, as the first customer is already on board. It is our understanding that Bittium's Defense business was originally built with the needs of the Finnish Defence Forces in mind. Yet Bittium controls all rights to the products and the intention has always been to sell products abroad to increase scale.

Business model

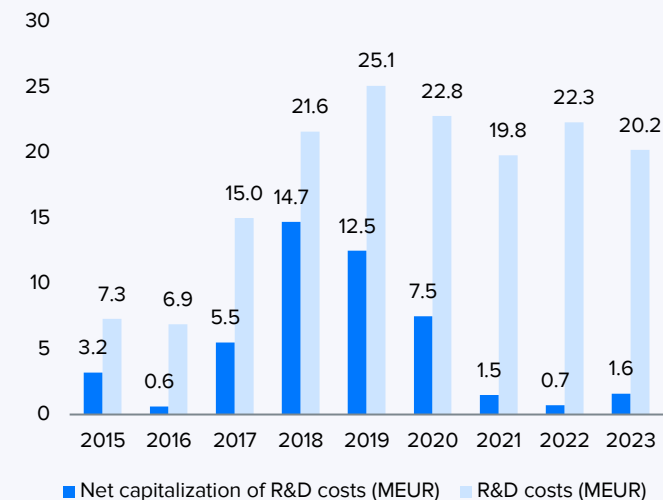
Building growth on the basis of own products

Bittium has its roots in deep expertise in radio technology and R&D services, but its future will be built primarily on its own products. Bittium's business model has been a hybrid of services and products, but thanks to extensive investments, the product business is now clearly outperforming the service business, despite the sluggish development in recent years. Following the strategy reform, the focus has shifted from a "product development organization" to a more profitable and growth-oriented operating model, with the different segments now operating very independently. In the scalable product business, Bittium's earnings potential is significantly higher than in services, but this requires volume growth. In our view, Bittium's investment profile is that of a product company with a significant service business. We see the role of services as ensuring relatively stable cash flow, flexibility, as well as critical expertise.

Main cash flows 2016-2023 (MEUR)



R&D costs and capitalizations (MEUR)





Company description and business model 3/3

Success in the product business is critical to both revenue and profit growth. We believe it is particularly important to succeed in the international commercialization of products, where strong distribution channels and partners are critical. Bittium has been diligently building its distribution network and has acquired partners for defense and government products, but sales cycles are very long and there is still a lot of work to be done.

Bittium does not have its own manufacturing or factories, but the company often carries out the final assembly of the products itself and is responsible for the lifecycle services of the products. All products are manufactured by subcontractors in Finland, which is important considering the critical profile and security of the products. The business model does not require significant investments in own production or significant fixed costs in this respect. Product margins are inherently high and allow for very good profitability with volume growth. Thanks to high gross margins, the product business is scalable, but the challenge remains to attract significant volumes, especially from international markets.

Bittium's individual deliveries are often very large relative to the scale of the company's business, causing significant fluctuations in both revenue and profit. The timing of product deliveries has a strong impact on profit levels. It is very important for Bittium to have large framework agreements and long-term customer relationships, which give the company a degree of visibility on the volume of product deliveries. Following the current partnership agreement with the Finnish Defence Forces, visibility will continue to improve significantly.

International breakthrough and new opportunities

We think that the biggest opportunities in the coming years are definitely in the international defense market, where the company is still a marginal player. In our view, the large TAC WIN order from Austria can be seen as Bittium's first major international breakthrough in the defense industry. It is extremely difficult to enter new countries in tactical communications, which is a critical part of a vital management system. In addition, it is common in the defense sector to blatantly favor domestic companies for major contracts. Countries want to keep technology development at home, and a foreign supplier is fundamentally at a disadvantage if there is a major domestic player with in-house expertise. On the other hand, the position achieved will be strong and valuable once the systems are up and running, as the threshold for switching is very high.

In the Medical segment, we see a significant medium-term opportunity in sleep apnea. The sleep apnea market is about the same size as the cardiology market, so there is a very significant potential for Bittium. The distributor agreement signed with Resmed in fall 2023 will give Bittium sales power and an important reference for the company's Respiro range, which will pave the way for the company's breakthrough in the sector. However, the processes are lengthy due to the regulatory aspects of medical devices.

Previously

- Bittium's business was predominantly a service business, where the company has done reasonably well thanks to its strong expertise
- The services business has been relatively stable (except for the Ericsson break-up), but the business is not scalable and its earnings potential was limited
- A large single customer (Ericsson, according to Inderes) accounted for a large share of revenue, which was a significant risk that materialized in 2017
- The Defense business was almost entirely dependent on demand from the Finnish Defence Forces, while international demand was very limited

Now

- The focus has shifted strongly to the own product business, which is the growth driver of the future
- The product business is scalable and gross margins are high, but the challenge remains to achieve sufficient delivery volumes
- The profit potential in the product business is much higher than in services, but the profit level varies significantly with the timing of deliveries
- Visibility is provided by significant framework agreements and typically quite long lead times
- International breakthroughs have been made particularly in the defense industry (Austria) and, to a lesser extent, in authority products (Mexico), although volumes in the latter have remained low.
- As of 2023, the focus has been further clarified from an R&D organization to a customer-focused and growth-oriented operating model
- The businesses are now independent and their performance is reported separately

Summary of Bittium's business operations

Common base of expertise and technology & group administration



Sells expert services to customers

Engineering Services
23% of revenue

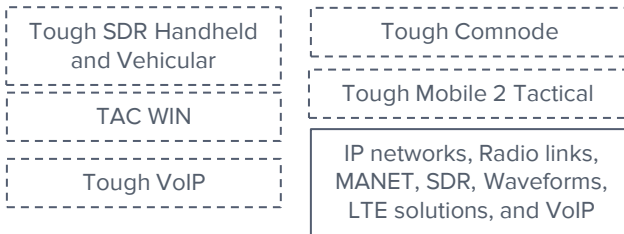
Supports the company's own product development

Defense
~40% of revenue*

Security
~5-10% of revenue*

Medical
29% of revenue

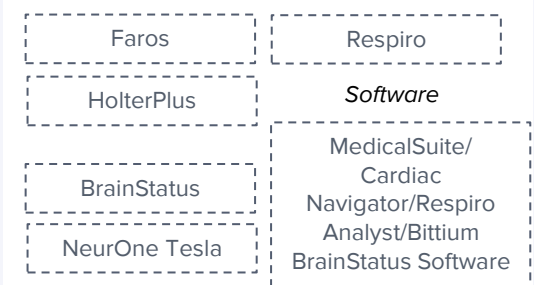
Products and support services



Products and support services



Products and support services



Own sales

Distributors and partners

Own sales and distributors

Partners (also white label)

Own sales and distributor network (USA: BSCDx)

Own sales and partners/distributors (co-branding)

Large customers, such as the armed forces of various countries

Opportunities to become part of larger systems through cooperation

Product and solution sales to public authorities

Using the distribution channels of major partners

Product and solution sales for professionals

Using partners' distribution channels

Very long sales cycles, slow decision making, long test cycles, and finally large one-time orders

The Security sector moves at a rigid pace, but product orders are smaller and therefore sales cycles are shorter than in the Defense sector.

Rapid sales cycles after regulatory approvals (mandatory medical device approvals)

Investment profile 1/2

Investment profile

Towards profitable growth

In our view, Bittium is a technology company with a high potential investment profile and a relatively high risk profile. The turnaround in profitability is slowly being proven, so the profile is changing towards profitable growth. Bittium is primarily a product company with an additional high value-added service business supporting the whole. Most of the potential and profit growth expectations are focused on the company's own products. The main risks relate in particular to the concentrated customer base and the nature of the defense sector, where international breakthroughs are extremely difficult to achieve and sales cycles are very long. On the other side, the company has significant framework agreements in place that will secure its operating conditions also in the future.

A conglomerate

Bittium has three business segments that operate independently, and the new reporting has improved visibility into them. In the long term, the company may conduct strategic reviews of its various businesses, as it has done historically.

The **Defense & Security** business segment has by far the highest potential of all the segments, thanks to its competitive offering and huge market. Realizing the international potential is very challenging, but now the market headwinds, Finland's NATO membership and the procurement of fighter jets are opening up further opportunities. At the same time, a partnership agreement with the Defence Forces will strengthen the "home base".

The **Medical** business segment was for a long time Bittium's growth engine, and the business has been very profitable at times with the growth brought by the Preventice/BSCDx collaboration. In recent years, however, progress has slowed as new growth drivers have not been able to be established. Sleep apnea opens up a lot of new growth potential for the segment.

The **Engineering Services** business segment is the historical core of Bittium but has lost ground as the focus has shifted to the product business. In recent years, the segment has returned to growth, with profitable operations and healthy cash flows. Services also play an important role in maintaining excellence.

Strengths and opportunities

The growth outlook for the product business is strong and profitability scales with volumes, making it a critical driver of earnings growth. However, the product business is in need of continuity and consistency to support large deliveries. A steady revenue stream from software would be particularly valuable.

Strong outlook for earnings growth in the coming years. We expect Bittium's earnings growth to be strong in the coming years as the Tough SDR deliveries to the Finnish Defence Forces finally enter the volume phase. A significant improvement in the company's internal efficiency is also crucial.

The international breakthrough of Defense products has been achieved in Austria thanks to the TAC WIN delivery, which also puts Bittium in a good position for future terminal device deliveries

in Austria (Tough SDR). The order also proved that Bittium's products can hold their own against international competition.

The **Medical** segment has, with the exception of the last few years, developed strongly and has become one of Bittium's pillars. The segment is well equipped for profitable growth in the coming years. There is also significant potential in sleep apnea following FDA approval.

The market situation in the Defense sector has changed dramatically since Russia's large-scale invasion of Ukraine. In Europe, defense budgets are rising sharply and attitudes towards the sector have changed in a substantially more positive direction (ESG). We believe that efforts will also be made towards developing the management system, for instance, once the importance of these competencies is seen in concrete terms. This is an important opportunity for Bittium in the coming years.

Weaknesses and threats

The commercialization of products, especially for international markets, has been a challenge for Bittium as the company has not found a strong strategic partner. Historically, many promising technologies have fallen far short of their potential because the company has not found the right sales channels/strategies for international markets. This is partly due to the challenging business sectors in which the company operates, but it still needs to find new and better solutions for commercialization.

Investment profile 2/2

Long sales cycles and the associated uncertainty are a distinct challenge for Bittium. For example, as we understand it, the company had been pursuing the Austrian TAC WIN order for five years, which gives an idea of the length of sales cycles in the defense industry (3-5 years). In the public authority sector, sales cycles are also long and often dictated by political decisions. The long lead times are due to the long preparation times for purchasing programs under the guidance of national ministries, and the purchases of the selected products are usually spread over several years. We consider Bittium's products to be technically sound and competitively priced, but the threshold to enter the industry is exceptionally high in the Defense market and also high on the Security side. On the other hand, if you can get in, the partnerships are usually very long.

Bittium is a small company in a playing field of giants. Bittium is a very small company, especially compared to the giants in the defense industry. This also creates a certain credibility problem for the company, which we believe will make it difficult for it to win large orders from, for example, defense forces the size of Germany. Successful operation requires building a partner network, which also means more players sharing the revenue streams. The Austrian breakthrough was also made through a local partner, which means significant commissions for the partner (and lower margins for Bittium). The partners are often integrators who also have their own products to sell to the same customer.

In large markets, Bittium is a foreign entrant.

Especially in the defense industry, but also to some extent in the public authority sector, there is a strong tendency to favor domestic operators in large projects. The Finnish Defence Forces is an excellent customer for Bittium, but the domestic defense technology companies in major countries are often in a similar position. This underlines the need for Bittium to build strong partnerships, which is not easy. In this respect, Finland's membership in NATO should improve the situation.

Risk profile

Strong change also increases risks

The customer base is highly concentrated, and we estimate that the company's success relies heavily on a small number of large customers. The company's two largest customers together accounted for almost 50% of its revenue in 2023. We estimate that these are the Finnish Defence Forces and BSCDx (Boston Scientific Cardiac Diagnostics, formerly Preventice). The already very low customer risk associated with the Finnish Defence Forces will be further reduced as the parties enter into a formal partnership agreement. The outlook for the defense budget is also good at the moment. Nevertheless, we note that the cancellation of the Tough SDR deliveries to the Defence Forces, for example, would be a very big blow to both Bittium's future prospects and its balance sheet (significant amount of R&D activations). By far the biggest customer risk in our view is BSCDx, Boston Scientific. In principle, there

is nothing stopping Boston Scientific from developing its own technology that would allow it to displace Bittium. We think this is highly unlikely, but it would be a very hard blow for the Medical business and would put significant pressure on Bittium's value.

Failure to internationalize is a material risk for Bittium in the long term. International growth, especially in the Defense & Security business, is challenging, and if Bittium were to fail here, the growth outlook would become significantly weaker.

Reputation risks Bittium's business involves various risks related to reputation and trust. For example, allegations of corruption or data leaks could destroy Bittium's integrity and credibility, which could significantly damage the business.

Risks related to earnings expectations are significant, especially considering that Bittium's earnings development has been weak in recent years due to various challenges (such as the COVID pandemic and component shortages). This year, the company is expected to show a strong improvement in profitability and results, with the best years of performance still ahead. The high expectations for earnings growth will have to be met in the coming years, when market conditions are expected to provide a tailwind. The winds of change are blowing in the company, which should enable it to make a clear and sustained improvement in its results. At the same time, rapid changes can also lead to negative surprises.

Investment profile

- 1. Strong growth in the product business, which also scales quite well**
- 2. Launch and scale-up of volume deliveries of Tough SDR products**
- 3. Global growth in remote diagnostics supports Medical's growth outlook**
- 4. The transition phase is coming to an end and internal efficiency has improved**
- 5. Business is currently dependent on a few key customers**

Potential



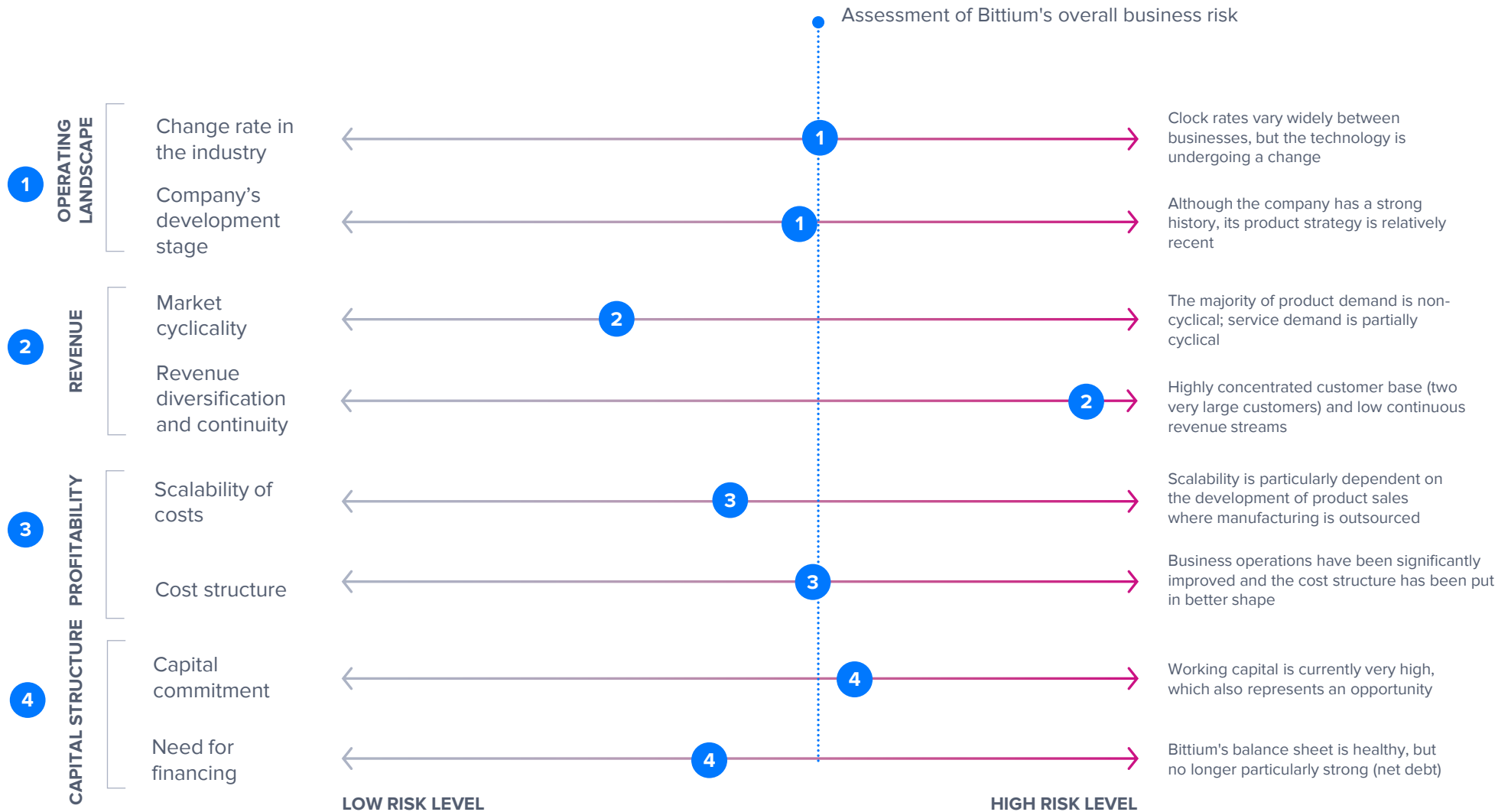
- Strong growth prospects in product business, with potential for scalable profitability in products
- Defense products have huge international potential, but market entry is difficult and slow
- Global growth in remote diagnostics supports Medical's growth outlook
- We expect Bittium's earnings growth to be strong in the coming years, driven in large part by the start of volume shipments of Tough SDRs to the Finnish Defence Forces.

Risks



- Bittium's customer base is highly concentrated, and in particular the Finnish Defence Forces and Preventice are crucial customers for the company.
- Bittium's international growth requires strong sales channels or strategic partnerships
- High earnings growth expectations will have to be met in the coming years, which the company has not been able to do in the past.
- The company has made a rapid and strong turnaround, but there are still risks to its success

Risk profile of the business model



Defense & Security 1/5

High potential business area

The Defense & Security segment consists of three business areas: (1) Defense Products, (2) Defense Services, and (3) Security products and services. Bittium provides products and services to the global defense, security and public authority markets. We believe that this business has the greatest potential due to the very large international market and Bittium's competitive products. In recent years, this business has seen the highest investments, especially for the development of the Tough SDR product family. In 2023, the Defense & Security segment's revenue was 36.2 MEUR.

The Defense & Security business, and in particular its potential, is mainly based on systems and software, but services still play an important role in supporting the overall offering. As the business is predominantly product-based and product margins are high, the profitability of the business is largely very scalable. However, capitalized R&D costs will initially weigh on earnings from the new Tough SDR products due to high depreciation. Services in this area are mainly related to product development and lifecycle services for products and systems, as, for example, software radios require continuous development (e.g. waveforms). Recurring revenue is estimated at 5-10% of the total annual order value, but varies considerably from one delivery package to another. This can include further development, hardware maintenance, and replacement of broken equipment.

Main Defense products

Bittium has focused on tactical communications in the defense sector, where the company's product portfolio meets all the needs. The standout main product has been the Tactical Wireless IP Network (TAC WIN), a backbone network for the strategically important wireless communications. We estimate that up to 80% of Defense's revenue in the long term has come from TAC WIN products. Interestingly, TAC WIN products have also found a new application area in weapon systems (air defense systems).

In the future, most attention will be concentrated on the Tough SDR product family, which has the potential to be an even bigger earnings driver. The backbone network is estimated to account for approximately 30% of the total delivery value, so the potential market grows dramatically with the Tough SDR product family. The company's products also include Tough VoIP and Tough Comnode terminals, which play a more supportive role. Software solutions include the Bittium Tactical Management Suite.

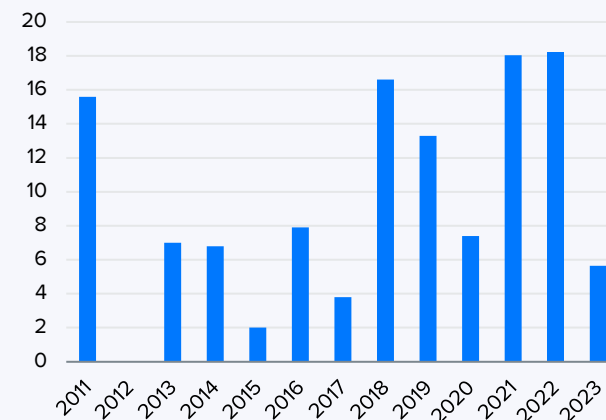
The Finnish Defence Forces a key customer

Bittium's Defense business was born out of R&D projects for the Finnish Defence Forces, and the Defence Forces are a crucial customer for the company. Bittium has not disclosed how much revenue the Finnish Defence Forces bring to the company, but we believe this has been in the range of at least 10-20 MEUR annually since 2012. Going forward, we expect this to increase significantly as we estimate that the volume phase of Tough SDR deliveries will start from 2025 onwards.

Bittium TAC WIN Tactical Router



TAC WIN deliveries to the Finnish Defence Forces (MEUR)



TAC WIN revenue 2011-2023 (MEUR)

Products	98 MEUR
Development work/services	24 MEUR
Total	122 MEUR

* Includes only separately announced orders, but also some accompanying products (not specified in the announcements)

Source of images: Bittium

Defense & Security 2/5

The cooperation with the Finnish Defence Forces is efficient and mutually beneficial. It is an excellent partnership in terms of product development and reference for the global market and will be further deepened in 2024 with a formal partnership agreement.

The partnership agreement provides Bittium with visibility into the Defence Forces' procurement plans far into the future, enabling, among other things, systematic business development, rational resourcing, and better management of working capital. It will also further strengthen Bittium's position within the Defence Forces and provide continuity. Finland has a very good reputation in the international community, which is a major strength. In addition, Finland's NATO membership and the procurement of fighter jets will further open up new opportunities for cooperation.

Bittium has a 10-year letter of intent worth over 200 MEUR with the Finnish Defence Forces for the procurement of Tough SDR products from 2018. The product development of the range has taken longer than expected, but a period of field testing and training is now underway. During this period, the Defence Forces will build the capacity for wider use of the radios. According to Bittium's current estimates, the annual order volumes set out in the letter of intent will be reached from 2025 onwards, but deliveries will also be made in 2024 ([press release](#)).

Potential for very large individual orders

Although there is currently no "steady" demand for Bittium's defense industry products outside of Finland, individual large orders can be financially very

important for Bittium. A single order can be worth tens of millions, with significant maintenance and new opportunities in the longer term. Partnerships in the defense sector tend to be very long and profitable, so the real value of orders is usually higher than the monetary value of the first order. A good example is Austria, where the delivery of the TAC WIN backbone network opens up the possibility of Tough SDR radios.

Defense market

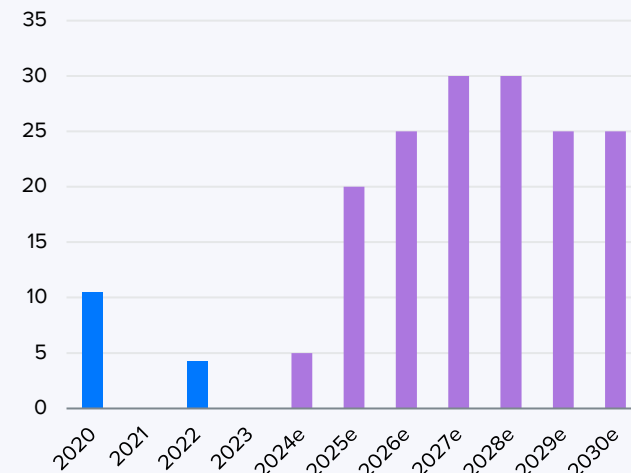
By far the largest buyer in the defense market is the United States, which has historically been a larger purchaser in the sector than the rest of the world combined. The US is followed by China and Russia, both of which are, however, on Bittium's blacklist. In Europe, defense budgets are soaring after Russia's massive invasion of Ukraine. It is not relevant to discuss the exact amounts, as the size of the market is not the limiting factor for Bittium's potential. What is critical is market entry, which is extremely difficult in large countries without a strategic partner.

In the defense sector, almost all countries prefer domestic companies, which is justified given the potential for a conflict situation. Local support for systems is essential for security of supply. We consider it far-fetched that Bittium could make a breakthrough in the US (massive domestic industry), France (significant domestic industry), or other countries where local alternatives are available. However, Bittium has already achieved the near-impossible, as it is the only company that we know of that has made an international breakthrough in tactical communications as a new company in the last 50 years.

Bittium Tough SDR Handheld and Vehicular tactical radios



Tough SDR delivery development scenario (MEUR)



Source of images: Bittium

Defense & Security 3/5

Despite the huge overall market, we therefore believe that Bittium's reach is limited, at least for the next few years. The role of a challenger is difficult in an industry that is inherently very skeptical of new entrants. In general, Bittium is also a very small company compared to the industry giants. Sales cycles in the industry take years, and reputation and the right contacts are extremely valuable. The sector is also characterized by political interference, which was partly responsible for Bittium losing a substantial order in Spain a few years ago. Bittium's Tough SDR vehicular radios were included in Spain's large 8x8 procurement program for a tactical communications solution for tanks as the choice of the supplier General Dynamics, but the purchase was redirected after France and Thales, among others, got involved in the process (Elbit was the final choice).

In general, it is important to understand that the dynamics of the industry make it extremely difficult to enter a new country. That's why it is essential to be extremely patient and persistent when operating in this sector. Conversely, once a company has become a supplier, its position is usually very strong. For example, Bittium's backbone system binds the country firmly to the company's products and services.

The most potential new customers

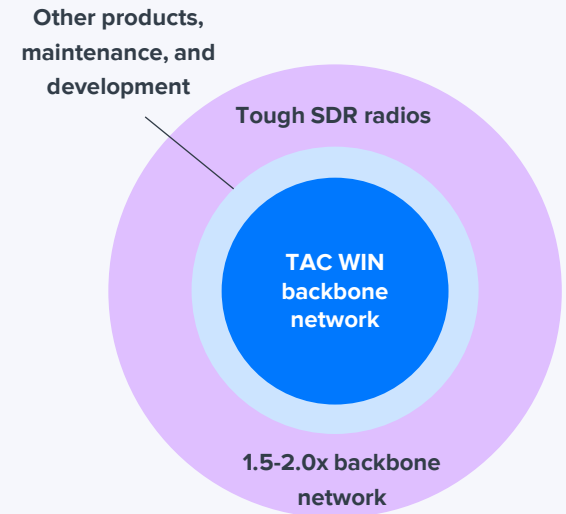
In our view, the most potential new customers are small countries like Finland that do not have a particularly strong industry in the region. Good examples are Austria and Estonia, both Bittium customers. It is our understanding that there are currently many ongoing or upcoming restructuring processes of tactical communication and

management systems. The most significant of these is the German D-LBO, whose procurement project has been continuously delayed along the way. At the end of 2022, Rohde & Schwarz was formally selected as the winner of the first procurement round for the ESSOR project, after an appeal by Thales was overturned in court. The major Dutch tender, which we believe was also relevant to Bittium, was reportedly won by L3Harris in 2023.

There are smaller projects in Eastern European countries, including Estonia, a current customer of particular interest to Bittium. L3Harris, which has made deliveries to the country, is also likely to be a strong contender. In addition, the most important projects for Bittium in the coming years outside of Finland are the expected follow-up projects in Austria (Tough SDR-style radio procurement). Austria is the only place where we expect Bittium to be successful, as the company has already delivered a backbone network in the country. The company has the potential to participate also in larger countries through integrator and system vendors, but it would be a positive surprise if it succeeds.

An interesting new opportunity is in weapons systems (air defense), where Bittium's products (TAC WIN and possibly Tough SDR) seem very well suited. In weapon systems, we understand that Bittium's customers are suppliers of air defense systems. Air defense systems are manufactured in Europe by companies such as Rheinmetall (Germany), Saab (Sweden), and MBDA (backed by Airbus, BAE Systems and Leonardo). Bittium will not disclose the names of its customers, but they are more likely to be European, because of such issues as certifications and export licenses required

Tactical communication overview (Inderes' outline)



Example: Austria

- The 30 MEUR TAC WIN backbone network order was received in the fall of 2018 and we understand that the related deliveries have now been made.
- Potential terminals 1.5-2.0x the value of the backbone network, so Tough SDR potential 45-60 MEUR
- In addition, other terminals, system maintenance, and development are needed
- Bittium's competitive position as a supplier will be significantly strengthened after the approval and deployment of the backbone network

Defense & Security 4/5

Public authority market

The public authority market has been a strategic priority area for Bittium, and the company has made significant investments in, for example, Tough Mobile and the Secure Communications software solution built around it. In 2019, the company launched the new Tough Mobile 2 smartphone, and in the spring of 2022, the Tactical version of Tough Mobile, which is targeted at tactical communications in the defense sector.

Initially, we believe the investment drivers in this segment were the dedicated networks for public authorities, for which Tough Mobile was intended to be the terminal. However, expectations of authority networks have been dampened by the fact that, at least so far, they have been implemented as part of commercial networks and the terminals have been predominantly commercial (Apple/Samsung) without significant security requirements. Tough Mobile has remained in a niche market of users with particularly strong security requirements. These include various ministries, defense force personnel, police, security and intelligence services, and other relevant government bodies. The target groups are operators who value reliability and continuity.

Although Tough Mobile has not been a commercial success, it integrates well with the overall offering of Bittium's Defense & Security segment. Communication of the highest security requirements has strong links to the defense sector, where Tough Mobile can also serve as a differentiator from competitors.

Tough Mobile

Although Tough Mobile's sales are sluggish for the reasons mentioned above, we estimate that the

different product variants have generated revenue of around 5-10 MEUR in recent years. Software is a very important part of the overall solution, as it also generates vital customer loyalty and ongoing income for Bittium. The importance of data security is growing strongly and there is increasing investment in it, but no separate authority networks seem to be emerging. We suspect that Tough Mobile is increasingly positioning itself towards the defense sector, where "defense bubbles" may be built around the 5G network in the future. We do not expect significant growth from the product, but at current volumes and as a differentiator, Tough Mobile is still a very important product for Bittium.

Mexsat satellite phone

The Android-based Mexsat phones developed by Bittium for the Mexican government are designed as part of the government's Mexsat satellite communications system. Mexsat as a whole has been an extremely frustrating project for Bittium. The order flow has remained low, mainly due to administrative problems in Mexico. As a result, the implementation of the system in different organizations was delayed for years. Finally, the situation reached an impasse, which Bittium tried to resolve with a new local partner. In April 2021, Bittium signed a distribution agreement with the Mexican company Inmosat for Mexsat satellite phones and received the first contract order of 5 MEUR. After a period of silence, the orders announced in March 2024 amounted to a total of 2.4 MEUR. Overall, the outlook for phone demand seems reasonable, but volumes are not particularly high for a company of Bittium's size.

Bittium Tough Mobile 2



Mexsat satellite/4G hybrid phone



Defense & Security 5/5

Economic development and forecast basis

In 2023, the Defense & Security segment achieved an EBIT of -3.1 MEUR on a revenue of 36.2 MEUR. The result was distinctly negative in Q1-Q3'23 but recovered in Q4 in line with product volumes. In Q1'24, operating result amounted to 0.5 MEUR, as revenue was brought to a reasonable level of 9.3 MEUR. Profitability has been poor so far at current volumes, but this should change once volume deliveries of Tough SDR products start.

Our forecast model for the Defense & Security segment is based on the Q1'24 cost structure and the assumption of a gross margin of around 50%, with the business being predominantly product-based. As a result, we have split Q1 expenses into fixed (about 3.0 MEUR) and variable (about 4.6 MEUR). This would indicate that a zero EBITDA would require a current revenue of around 6 MEUR, after which there would be significant depreciation before EBIT. EBIT break-even would require revenue of around 8 MEUR, after which the result would scale up thanks to a very high gross margin. The gross margin varies with the sales mix, but there is no visibility on this. The difficulty of forecasting is further increased by the additional depreciation of capitalized Tough SDR R&D costs with deliveries, the impact of which we cannot yet accurately estimate.

Although the forecasting model is crude and simplistic, we believe it works reasonably well. The biggest challenge in forecasting is estimating the level of revenue, as revenue fluctuates strongly with the timing of product deliveries.

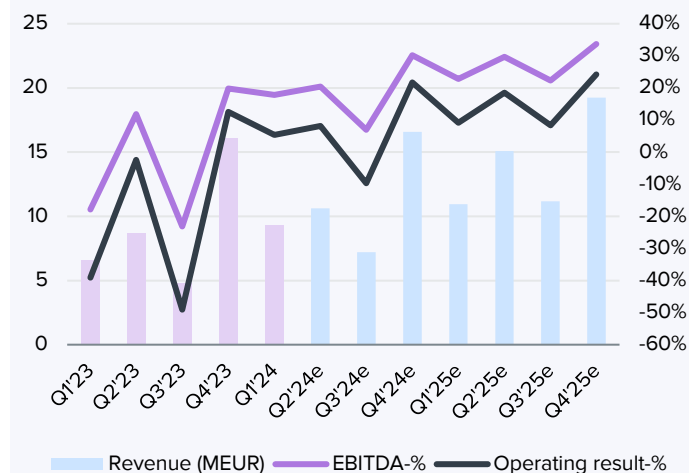
Estimates for 2024-2026

We expect the Defense & Security segment's 2024 revenue to be around 44 MEUR, an increase of more than 20%. We expect the largest revenue to come from the TAC WIN backbone network and related equipment. Tough Mobile sales are estimated to be 5-10 MEUR. We think that Tough SDR deliveries will remain low this year. We estimate that a significant part of the revenue will come from services, including new routing protocol and traditional waveform development. We expect profitability to increase significantly thanks to the scalability offered by revenue as well as cost savings. We expect EBITDA margin in 2024 to be around 21% (2023: 5.3%).

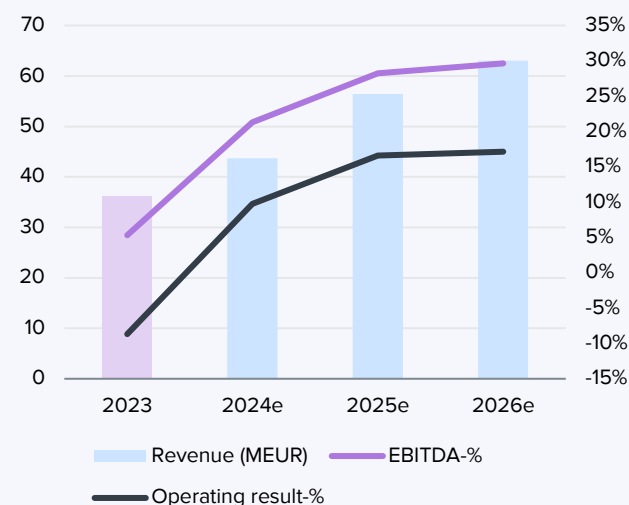
In 2025, we expect the segment's revenue to increase by 29% to the level of approximately 54 MEUR. This will be driven by the anticipated start of the volume phase of Tough SDR for the Defence Forces and a revenue of around 20 MEUR from the product family. Otherwise, we do not expect revenue growth above the 2024 level. We forecast fixed costs to increase by 7%, but with a gross margin assumption of 50%, profitability will still scale strongly as product deliveries increase. We expect the EBITDA margin to be around 28%, but we also expect depreciation to increase significantly.

In our forecasts for 2026, Tough SDR volumes will continue to grow (forecast 25 MEUR). In theory, deliveries could also start in Austria this year, but there is currently no visibility on this. With slowing growth, profitability will no longer improve substantially in our forecasts.

Defense & Security: quarterly forecasts



Defense & Security: yearly forecasts



Defense & Security: The core of the product business

Defense

TAC WIN

(Tactical Wireless IP Network)

- Defense's main product, where the Finnish Defence Forces have been the largest customer
- Backbone network for wireless communications.
- The establishment of the backbone network will allow for significant equipment deliveries over time (such as Tough SDR)
- International breakthrough in Austria in 2018 (formerly Estonia as a customer)
- New application: air defense systems

Tough SDR product family

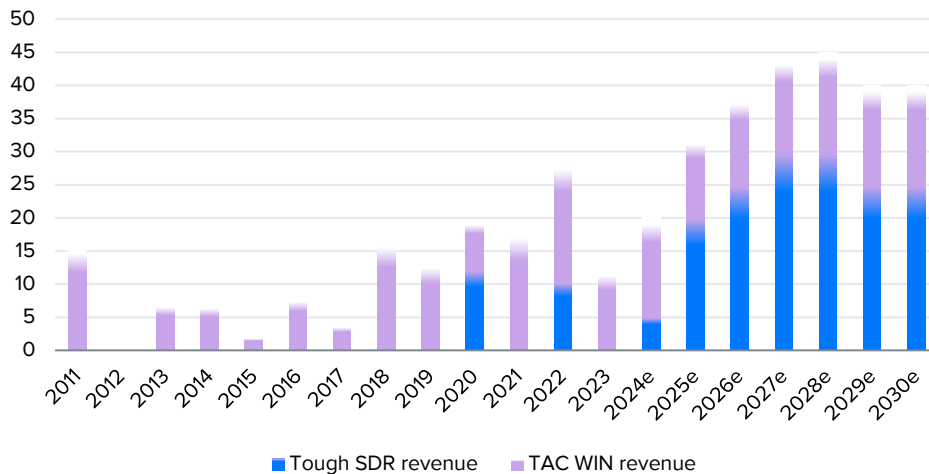
- Tactical radios for military use
- Significant investments in recent years
- Deliveries started to the Finnish Defence Forces
- Significant opportunities elsewhere

Others

(VoIP, Comnode & others)

- Playing a smaller role in Defense's product sales, but supporting the whole

Outline of key product deliveries (MEUR)



Security

Tough Mobile product family

- Android-based smartphone for users with high security requirements
- The volumes have been low due to the small size of the target group

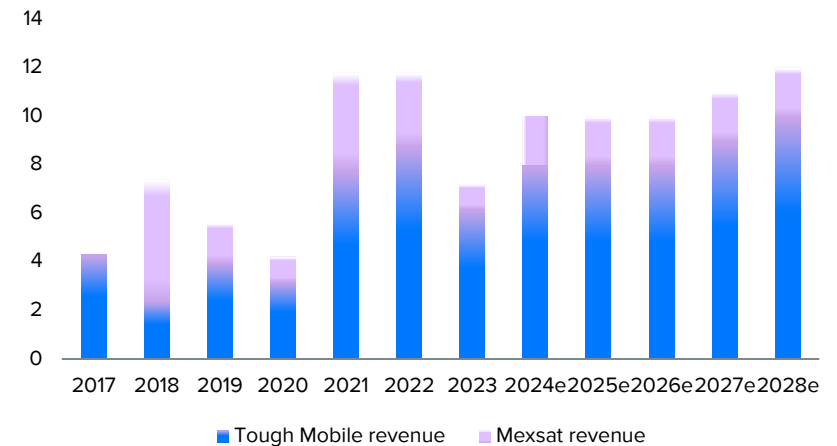
Mexsat cooperation

- Satellite telephones designed for the Mexican satellite communications system
- Cooperation has progressed very slowly and deliveries have been limited

Secure Communications

- Software platform for device management and encryption system
- The software solution binds the customer to Bittium
- Small continuous revenue stream

Outline of Security's key product deliveries (MEUR)



Medical 1/5

Biosignal measurement and analysis

The Medical segment (formerly Medical Technologies) consists of three business areas: 1) measuring and analyzing the electrical activity of the heart (ECG), 2) measuring and analyzing the electrical activity of the brain (EEG), and 3) measuring and analyzing sleep apnea at home. As such, the measurement and analysis of biosignals is at the heart of the segment's products and services. In November 2016, Bittium acquired the healthcare technology company Mega Elektronik Oy, on which the Medical business is largely built. The business has since become an important pillar for Bittium. Last year, the Medical segment had a revenue of 22 MEUR, which is about 29% of Bittium's total revenue.

The overall growth outlook for the segment is strong due to the underlying trends. There is an increasing focus on the prevention of diseases and health problems through early diagnosis, and patient discharge is sought at an earlier stage to reduce the number of days spent in hospital and in treatment. These trends are creating demand for biosignal measurement, digitalization of services, wireless technology, and secure connectivity. Bittium's long-term experience and know-how in biosignal measurement, wireless communication, and security technologies gives the company a strong competence base in this sector. Traditional medical device manufacturers typically lack expertise in wireless technology and security, which supports Bittium's competitive advantage. At the highest level, the common thread is remote diagnostics.

Medical has been Bittium's main growth driver over the last five years. This is in particular due to the

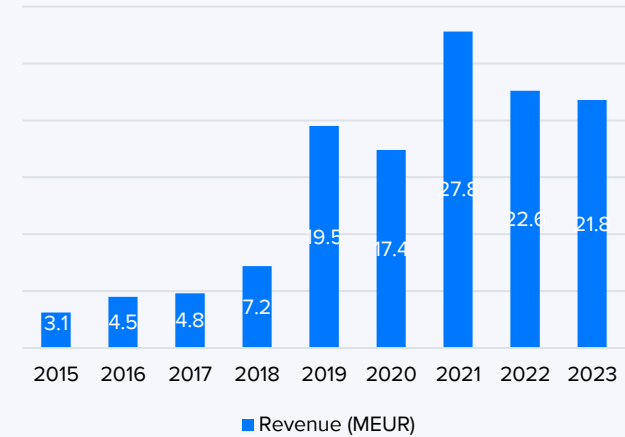
breakthrough in the US made possible by the cooperation with Boston Scientific Cardiac Diagnostics (BSCDx, formerly Preventice). However, revenue has taken a step backwards in 2022-2023, partly because component shortages have limited production. In the long term, the company is looking to sleep apnea as another pillar of growth, but device approvals and especially commercialization are expected to take years.

Main products: cardiology

By far the most important part of the segment today is the Bittium Faros product family for heart measurement and monitoring, which accounts for the lion's share of the segment's revenue. This is the result of a successful collaboration with BSCDx in the US. BSCDx, formerly Preventice, acquired by Boston Scientific in 2021, is one of the largest providers of remote heart monitoring services in the US. This has given Bittium a strong partner/distribution channel on the cardiology front, resulting in high product volumes.

The spearhead is the Bittium Faros 360, a tool for monitoring Holter ECG with 1-3 channels, heart rate variability (HRV), stress, recovery, and general well-being in various applications. The device can be used for both long-term ECG recordings and real-time measurements. The range is CE approved in the EU and FDA approved in the US. An integral part of the Faros product range is the Bittium OmegaSnap family of adhesive electrodes for ECG measurements. The cardiology offering is combined in the Bittium HolterPlus solution, which combines the Bittium Faros ECG device, the Bittium Medical Suite mobile application, and the Medical Suite remote monitoring service platform.

Bittium Medical product-based revenue (MEUR)



Bittium Faros 360 (ECG, HRV)



Medical 2/5

Main products: sleep apnea

Bittium Respiro is a new sleep apnea screening device and analysis service solution for service providers, hospitals, clinics, and health centers. The solution focuses on home testing for sleep apnea and aims to record standard PG-level data and analyze typical sleep-related breathing disorders (night polygraphy). Bittium Respiro is a complete solution with its own software, which also utilizes artificial intelligence to accelerate analysis work. The Bittium Respiro Analyst software conducts a preliminary analysis of the data, transforming it into a visually informative format. This simplifies and accelerates the clinical team's work. The solution is integrated with Bittium MedicalSuite software, which provides the same cloud backend system for all products and services in the Medical segment.

Bittium launched Bittium Respiro in early 2021, and the company received MDR approval for the solution in Europe in late 2022. In the US, the FDA approval process has been significantly delayed from initial expectations and we currently expect FDA approval in 2025. Therefore, there will be no significant sales from the US in the near future (sales for research use possible), but European sales will be supported by the 2023 cooperation with Resmed. The distributor agreement gives Resmed the right to distribute Respiro in the UK, Ireland, Switzerland, Finland, Norway, and Sweden. Although the cooperation is initially relatively limited, if successful it can provide Bittium with sales power and an important reference.

Main products: neurology

The product portfolio also includes the Bittium BrainStatus and Bittium NeurOne products for neurological (EEG) measurement. On the neurological side, it is still early days and volumes are low. The challenge is that for Brainstatus, for example, the company has to practically create the market itself, as there are no comparable products on the market yet.

The BrainStatus product family is a wireless (EEG) measurement system for the brain's real-time electrical activity monitoring. It is designed for emergency, acute, and intensive care use. Bittium BrainStatus is small, simple to use, and usually easy to install, allowing the device to be used in intensive care units, for example. The measurement results are less accurate than traditional devices (usually relatively heavy hospital systems) or, for example, Bittium's NeurOne product line, but the device is intended to provide a "sufficient picture" of brain activity to support rapid diagnosis. The BrainStatus product family received medical device approval in Europe in May 2020.

The much more powerful Bittium NeurOne is one of the quickest and most accurate EEG measuring devices in the world designed for clinical research use. The Bittium NeurOne system enables fully synchronized group measuring. The system is optimized for use with transcranial magnetic stimulators (TMS-EEG). Sales of the NeurOne product family have so far been low and the customer base is limited.

Bittium BrainStatus (EEG)



Bittium Respiro (sleep apnea)



Medical 3/5

Software and accessories

For the time being, most of Medical's revenue comes from devices, but the role of software and later artificial intelligence is growing. In our view, software is a critical part of Bittium's competitiveness: it enables the company to offer complete solutions that tie customers into the Bittium ecosystem. When we look at the Medical business in the really long term, a significant part of the revenue and an even larger part of the value of the business can come from software. But before that, the company has many challenges to overcome and, for example, artificial intelligence for biosignal analysis is still at a very early stage (unlike imaging, for example).

The main single software product in the sector is Bittium MedicalSuite, which we understand is intended to form the basis of a common software platform for the sector. The system currently supports cardiac electrical activity monitoring services, but the company says the same technology can be applied to any biosignal measurement, such as brain monitoring and home sleep apnea testing services. In essence, the MedicalSuite is a remote consultation platform that uses wireless data transfer. Bittium MedicalSuite is primarily aimed at service providers to facilitate the secure exchange and management of data between providers, clinics, and medical specialists. The platform allows specialists to conduct remote consultations regardless of location.

Bittium has many other software solutions for a variety of fields. These include Bittium Cardiac Navigator and Bittium Respiro Analyst. Bittium also uses third-party software products such as the Cerenion C-Trend analysis tool on the neurological side.

It should be noted that Bittium's product-based revenue includes all revenue from the sale of products: actual product sales, product maintenance, extended warranties, and licensing income. So software is also part of product-based sales. In addition to software, disposable accessories used to measure biosignals also generate significant recurring revenue for the segment. Their importance increases with volume.

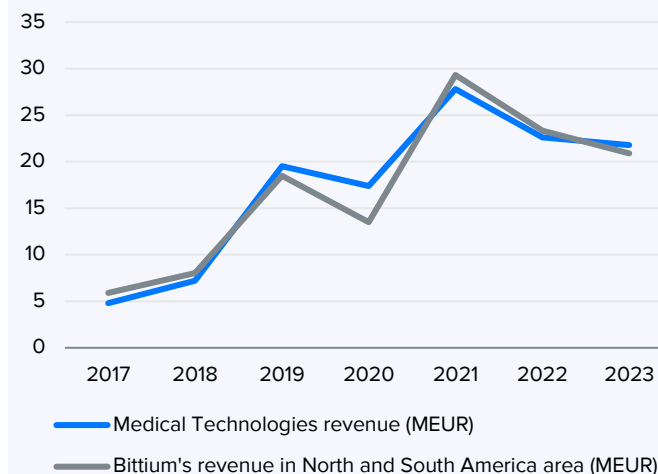
The emergence of large service providers in a critical role

So far, Bittium has had excellent success in the cardiology side of the Medical business, where especially the BSCDx cooperation has provided strong support for sales of the Faros product family. The revenue generated by BSCDx is not directly reported, but the size can be estimated from the large cooperation agreements. The total value of the latest BSCDx contract was approximately 40-45 MUSD for the period 2022-2025. The value of the contract has been calculated based on the minimum volumes required for US exclusivity, and we estimate that actual volumes have historically been well above the required minimums. In fact, we estimate that BSCDx has accounted for 60-80% of total Medical business revenue in recent years, which is also reflected in Bittium's sales in the Americas.

Example of the role of software (sleep apnea)



Bittium group sales in the Americas and Medical Technologies



Medical 4/5

The US is by far the largest market in this segment, but the most important factor for success in the country is a highly developed and concentrated network of service providers. BSCDx is one of the major players in the US remote diagnostics market on the ECG side, together with iRhythm (Nasdaq: IRTC) and BioTelemetry (now part of Philips).

BSCDx has exclusive US rights for the commercial use of Bittium's Faros product family (Bittium can still sell to research institutions, for example). On the other hand, it is also the only major player in the market that uses an external supplier for its equipment (others have their own technology). This made the company the obvious ideal partner for Bittium. Another important factor for the market development is the fact that the United States is a large and unified country with reimbursement for the types of treatments offered.

A fragmented European market

In Europe, the market is more dispersed, with each country having its own players. Challenges arise from such things as varying treatment recommendations and reimbursement practices in different countries, as well as challenges posed by different languages. In Europe, the role of public health is much greater, and selling individual devices to hospitals is not cost-effective. As a result, the market is fragmented, with no single pivotal partner or large distribution channel in sight. This is a major obstacle to Bittium's success in Europe, although in principle the market potential is similar in size to the US.

Bittium has sought to support the development of private service providers in Europe by investing in service companies that could achieve a significant position in the market. Bittium has minority holdings in evismo, a Swiss provider of remote medical diagnostic services (initially 25%) and Coronaria Analyysipalvelut Oy, a Finnish provider of analysis services for cardiac arrhythmias, sleep apnea, and hypertension (25%). Evismo AG is still small but is presumably aiming to grow in the German-speaking Europe in the long term.

While there is no new BSCDx on the horizon, the cooperation with ResMed in the area of sleep apnea looks promising. ResMed has plenty of sales power and, if successful, the cooperation could become significant, but for the time being it is too early to predict. In the future, however, growth will have to come from persistent building of distribution channels and from relatively small streams through brute sales efforts. This has partly been reflected in a slowdown in growth in 2022-2023 after a very strong year of growth in 2021.

Sleep apnea services may fit the range of existing partners

Bittium's Respiro product family will face a similar challenge in building distribution channels. On the positive side, the target group for sleep apnea is similar to that of the Faros product family, for example, so the potential base is already there. We believe that sleep apnea would fit into the service offering of remote diagnostic service companies, as the same network could be used more widely and synergies could be achieved. Bittium already has

customers operating in both ECG monitoring and sleep apnea (notably Coronaria in Finland and Technomed in the UK). So far, BSCDx has not extended its offering to sleep apnea. Ideally, Bittium would probably hope to find another major partner for sleep apnea in the US, especially from a risk management perspective.

Boston Scientific is Medical's largest risk factor

As BSCDx is Bittium's key partner, it is also by far the biggest risk in the Medical segment. BSCDx is owned by Boston Scientific (NYSE: BSX), and as one of the industry's giants, Boston could choose to develop its own technology and displace Bittium. While this would be a major blow to the Medical segment as a whole, we believe the likelihood of this risk materializing is low. We understand that there are very few alternative device competitors, and developing a proprietary device would require a lengthy FDA process, of which there is no indication. As a result, we expect the cooperation with Bittium to continue beyond the currently estimated end of the contract in 2025. Boston is also not just a threat, as it could at least theoretically be interested in buying Bittium's Medical business. In between, there are various possibilities for cooperation. For the time being, the most likely scenario is that the cooperation will continue as before in the coming years.

Medical 5/5

Economic development and forecast basis

In 2023, the Medical segment achieved a weak EBIT of -1.0 MEUR on a revenue of 22.0 MEUR. Due to the segment's high gross margins, volume changes have a strong impact on profitability, and last year's volumes were low due to component shortages. In addition, the segment's Q4 results included exceptional items (including inventory write-downs and efficiency improvements).

There is no historical data on the segment's profitability, but the financial statements of the subsidiary Bittium Biosignals Oy give an idea of the development. According to our estimates, the Medical segment delivered strong operating results in 2019-2021, but has been under pressure since then. This is against the backdrop of significant growth investments outside the US, cost inflation (which may have weighed on gross margins), and component shortages.

Our forecast model for the Medical segment is based on the Q1'24 cost structure and the assumption of a gross margin of around 50%, with the business being almost entirely product business. As a result, we have split Q1 expenses into fixed (about 1.9 MEUR) and variable (about 2.6 MEUR). The most significant fixed expense item is probably personnel (about 100). We expect a small increase in depreciation (Q1'24: -0.5 MEUR). The gross margin varies with the sales mix, but there is no visibility on this. Although the forecasting model is simplified, we believe it holds up reasonably well as long as the revenue forecasts are on target. This will be helped by the order book

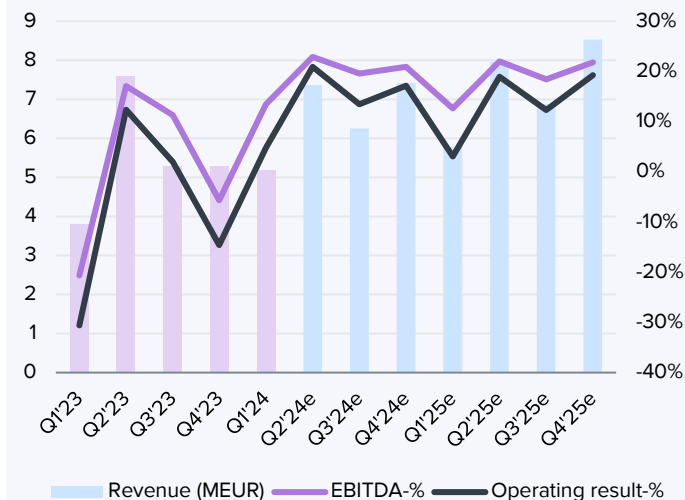
(Q1'24: 6.4 MEUR), which is expected to be relatively busy in this business. Seasonal variations are still likely to be significant.

Estimates for 2024-2026

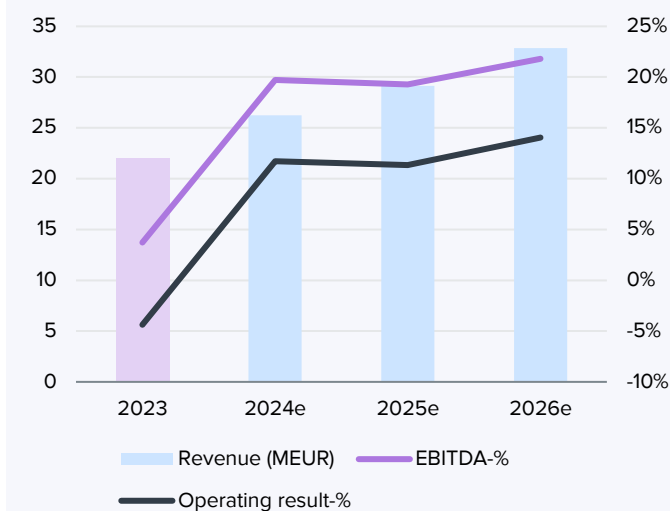
We expect the Medical segment's 2024 revenue to be around 26 MEUR, an increase of about 19%. The main growth driver in our view is the significant increase in BSCDx volumes after the outlier year 2023. We expect a small boost from sleep apnea through the ResMed collaboration, especially in the latter part of the year, but we still expect Respiro to contribute less than 10% of Medical's revenue. On the neurological side, we anticipate even lower sales. We expect profitability to increase significantly thanks to the scalability offered by revenue as well as cost savings. We predict the 2024 EBITDA margin to be around 20%.

After the "normalization" in 2024, we expect revenue growth in 2025-2026 to be around 11-13%. It would be essential to see growth on the cardiology side also beyond BSCDx. This would gradually reduce Medical's dependence on Boston Scientific. Growth rates are highest in sleep apnea (Respiro), but the starting level is also low. We expect Respiro to receive FDA approval in 2025, which will support sales in the US. This will also mean significant sales efforts, which is why we do not expect profitability to improve in 2025. In 2026, we expect profitability to improve again, but we still expect fixed expenses to increase by around 8%. We forecast the EBITDA margin to be around 22% in 2026 and to gradually improve from there in line with growth.

Medical: quarterly forecasts



Medical: yearly forecasts



Medical: An outline of a long-term vision*

2016-2024 (history and present)

Current state of the Medical business

- The business consists primarily of device sales, of which cardiology devices are the largest product group
- The majority of revenue comes from the BSCDx (Boston Scientific Cardiac Diagnostics, formerly Preventice) cooperation

Cardiology

- Cardiology devices by far the largest product group in Medical (>80% of revenue*)
- The Faros (ECG) product family is the clear leader
- BSCDx is a major partner in cardiology
- Bittium HolterPlus remote monitoring solution (cardiology)

Neurology

- Products: Bittium NeurOne and Bittium Brainstatus
- The market for neurophysiology devices is still emerging and the company has pilots of BrainStatus EEG devices underway
- No major breakthroughs yet in neurology products

Sleep apnea

- Bittium Respiro (MDR approval received in Europe and FDA submission pending in the US)
- Artificial intelligence supporting the analysis of measured data
- Bittium Respiro Analyst Software
- Bittium MedicalSuite also has sleep apnea support

2024-2030 (medium term)

Software, artificial intelligence & accessories

- An increasing share of the revenue streams comes from the analysis of the measured data and from accessories for the use of the devices
- Revenue stream becomes more continuous
- The company aims to increase the role of AI in its solutions

Development of product areas

- Cardiology products remain the largest product area
- Sleep apnea an important product area alongside cardiology
- Significant revenue expected from Respiro after FDA approval (expected during 2025)
- In sleep apnea, Bittium seeks to partner with service providers similar to BSCDx
- Neurology likely to continue its moderate growth
- Developing new products and solutions in all product areas

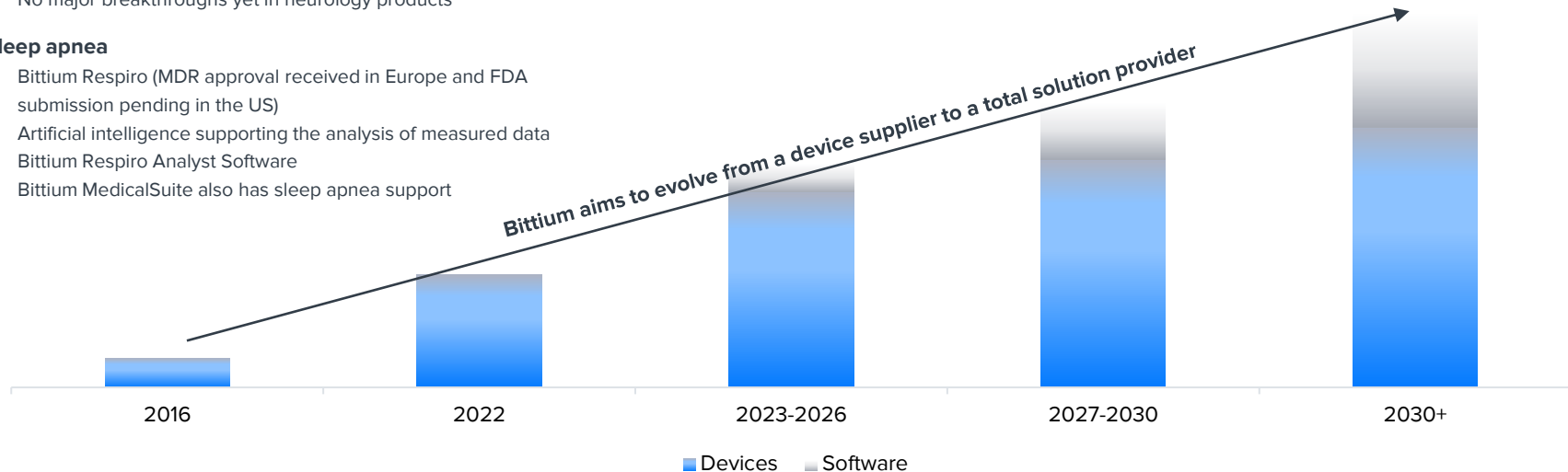
2030+ (long term)

Software & artificial intelligence

- Increasing role of AI: potentially autonomous
- Revenue streams more evenly distributed between devices, software and AI
- Recurring revenue playing an important role
- The company aims to be able to offer complete solutions (devices, software and AI)

Expanding the product range

- In the long term, the expansion of the product range will be an important factor in both existing and potentially new product areas
- Focus on remote patient monitoring devices, software, and AI



*Inderes' estimate

Engineering Services 1/3

The historical core has become a support function

Bittium is specialized in the development of reliable and secure communication and connectivity solutions, leveraging its over 35-year legacy of expertise in advanced radio communication technologies. The related product development business used to form the hard core of Bittium, but since 2016, the focus has shifted to the own product business. This has left the Engineering Services segment (formerly Connectivity Solutions) somewhat on the sidelines at Bittium. Bittium's structural transformation was accelerated by the loss of a long-standing and very important Ericsson customer (the cooperation ended in Q2'17 and revenue dropped significantly). In recent years, sales in this segment have started to show an upward trend again.

Engineering Services is a service business (partly using own platforms), so the development could have been driven by changes in the product/service mix. However, services are also provided in other businesses, in particular in the Defense sector. Nevertheless, prior to the new segment reporting, the profitability of the Engineering Services segment could only be guessed at.

The service business is strongly personnel-driven, with skilled staff at its core. This also means that profitability does not scale significantly but tends to develop more in line with personnel utilization. On the other hand, the business does not require significant front-loaded investment and is normally relatively stable in nature. Engineering Services has some fixed-price projects, but these are also broken down into smaller units. Billing is mainly on an hourly basis, which makes margins very predictable while

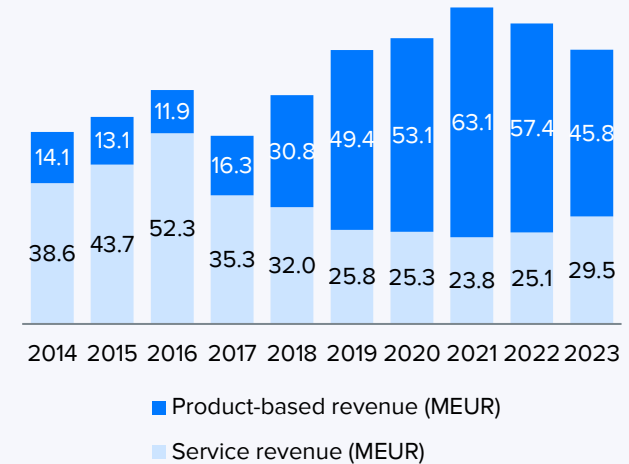
keeping utilization rates under control. Utilization rates are determined by successful client acquisition and systematic capacity management.

R&D services and competitive landscape

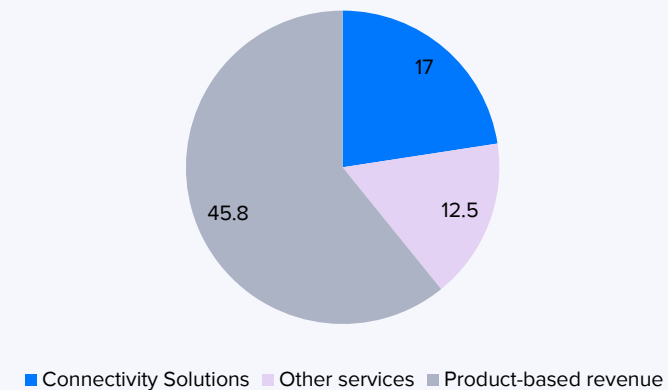
Bittium provides R&D services and wireless connectivity solutions to its customers, for which demand is expected to grow in the coming years. 5G remains one of the key drivers in the industry, and the connectivity of various devices is still at a relatively early stage. With the advent of digitalization, a secure Internet of Things (IoT) is a major area of development in almost all industries. The need to digitize operations, collect data wirelessly, and transfer data to the internet and cloud services is creating demand for Bittium's services. 6G technology is also likely to emerge sooner or later. In wireless communications in general, investment in the development of new features will continue, creating demand for Bittium's offerings. The goal of Western companies to shift the focus of design and manufacturing increasingly, e.g., to Europe is one of the factors creating more demand for companies providing product development services and wireless connectivity solutions. This is likely to happen first in sectors where reliability is an important factor.

Bittium's competitiveness is based on technological and security expertise, reliability, and quality. The more critical the system, the more important Bittium's strengths become. For price-sensitive customers, Bittium's offerings are usually limited, as Asian competitors are able to undercut the company's prices.

Revenue breakdown (MEUR)



Revenue breakdown (MEUR, 2023)



Engineering Services 2/3

However, this competition does not exist in all segments, and as a specialized player, Bittium has been competitive. In our view, it is essential to find specific focus areas where excellence is paramount or reliability is a critical factor. For the company, the areas of interest are critical applications where the standards of protection and reliability are high. The general improvement in technology capabilities has, in our view, pushed Bittium into a smaller niche at the high end of the sector where there is less competition.

Product development resources for own products

After the loss of the Ericsson account, Bittium focused strongly on its own product development and allocated a significant part of the R&D engineers who would normally do customer work to its own R&D projects (especially Tough SDR). This significantly distorts the economic development of this area and is also reflected in the economic figures for Bittium as a whole. Large R&D costs were significantly capitalized on the balance sheet, which is why the reported earnings development does not tell the whole truth about the depth of Bittium's losses during the transition period (see chart). We understand that at most over 200 people were involved in the R&D projects, which is a huge effort for a company of Bittium's size.

The former Connectivity Solutions business has thus historically balanced between Bittium's own R&D projects, the staffing needs of the group's various businesses, and customer work. In the past, Connectivity has also partly served as a buffer to balance the load of the product business. However,

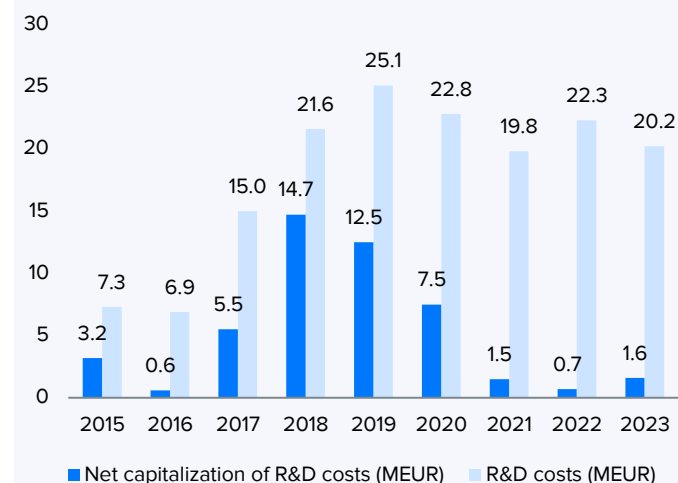
in the current organizational model, the segment operates much more distinctly as an independent business than before, and in general, the major R&D projects in other segments are already starting to be completed. Nevertheless, Bittium's R&D costs remain high, and we understand that much of the work is done in-house. For example, the development of the Tough SDR software radios does not stop, but is a continuous process. Today, however, the group's human resources are organized in such a way that Engineering Services operates independently, and the head of the business allocates resources according to the profitability of the business.

From an investor's perspective, we believe that most of Bittium's potential is focused on the Medical and Defense & Security product businesses, but the importance of services and the underlying expertise should not be underestimated. In our view, the Engineering Services business has a healthy base and creates shareholder value, but its potential is limited compared to Bittium's product business.

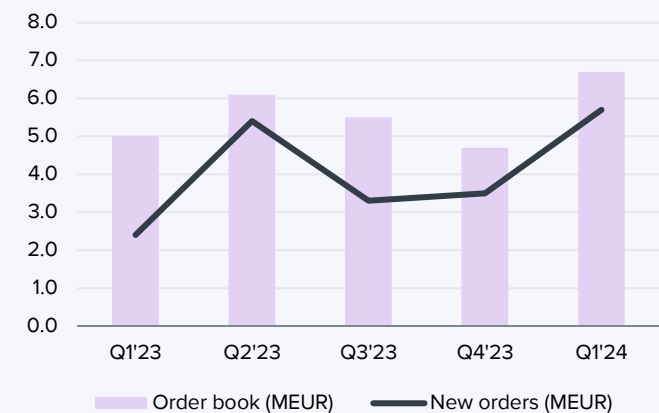
Economic development

There are no official long-term earnings figures for the Engineering Services segment, but we expect the profitability of the business to have improved in 2022-2023 as revenue started to grow after a long downward trend. In 2023, Engineering Services achieved an EBIT of 1.7 MEUR on a revenue of 17.0 MEUR, which means a good margin of 9.8%. The profitability of the Engineering Services segment was a positive surprise when segment reporting started in connection with the Q1'24 review.

R&D costs and capitalizations (MEUR)



Engineering Services: order book and new orders



Engineering Services 3/3

In Q1'24, the Engineering Services segment's revenue decreased by almost 20% from a strong comparative period. Despite what we consider a low revenue of EUR 3.7 MEUR, the EBIT margin of the business was quite good at 8.3%. This indicates that the underlying earnings position of the segment is good as revenue levels recover. Although the current market situation is difficult, with customers tending to slow down their R&D projects, new orders in Q1 were still at a strong level of 5.7 MEUR.

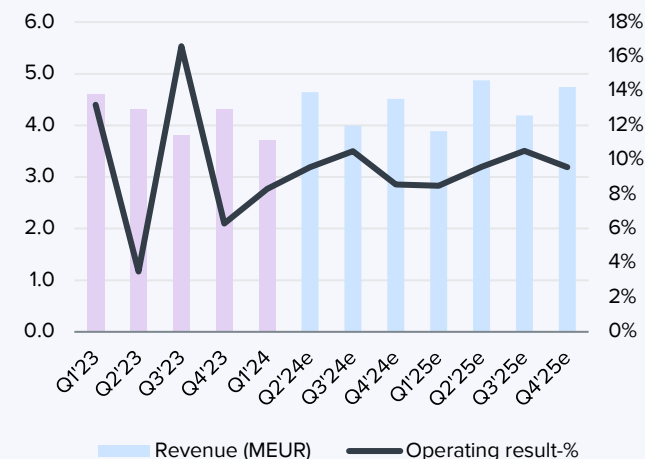
Estimates for 2024-2026

We expect the Engineering Services segment's revenue in 2024 to be around 17 MEUR, which would mean a slight decrease in revenue compared to the previous year. Due to a weak Q1, the segment is already about 0.9 MEUR behind the previous year's level, which in fact we expect to deliver a clear growth of 5-8% in the coming quarters. In a difficult market environment, this optimism is backed by a significant increase in new orders and order book in Q1, indicating that the company has found projects despite the market.

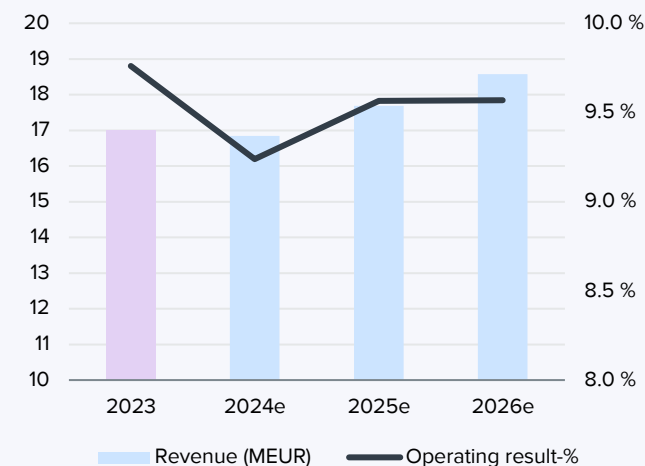
We expect profitability to improve from the Q1 level in line with revenue growth, but we still forecast the EBIT margin for the full year 2024 to fall to around 9.2% (2023: 9.8%). While we expect last year's strong seasonal variation to diminish, Q3 is still likely to be the best in terms of profitability as the holiday season unfolds. Historically, quarterly differences have been very large (cf. Q2'23 and Q3'23), so surprises should be expected also in the future.

For 2025-2026, there is currently no visibility due to the nature of the business, but we expect moderate revenue growth (forecast at 5%) and an increase in the EBIT margin to around 9.6%. We think this is a rather high target, but in 2023 the company managed to do a little better (9.8%) in the midst of considerable turmoil. As the company focuses on its core areas (in simple terms, 5G, 6G, and IoT) and the high-end segment of the market, where reliability is valued, we believe there is scope for even better profitability. For the time being, however, we are waiting for further evidence of both revenue growth and sustainability of profitability. On the other hand, we are quite confident that the Engineering Services segment will continue to perform well in the coming years as well.

Engineering Services: quarterly forecasts



Engineering Services: yearly forecasts



Competitive landscape in different segments

Defense sector's competitors

Bittium's competitive field in the defense sector is fragmented, consisting of both very large international and large (national) companies. Many giants offer tactical communication products like those offered by Bittium, but there are also companies in the sector that specialize in this area. These include Elbit Systems (Israel), Rohde & Schwarz (Germany), and Rafael (Israel). Among the large companies, the most relevant are Harris (US), which has a wide range of communication solutions for the defense and government sectors, and Thales (France), a very large player in Europe. Italy's Leonardo is also looking to join the competition. Thales, Leonardo, and Rohde & Schwarz also have ESSOR waveforms on their equipment, while an ESSOR requirement would eliminate Elbit, Rafael, and Harris from the competition.

The competitive dynamics in the industry are unusual, with cooperative arrangements being an important part of the industry and a blatant preference for domestic players. Large orders, for example, are often accompanied by various types of cooperation, and large fighter jet procurements in Finland may also provide opportunities for Bittium as a partner of the Finnish Defence Forces. Finland opted for the Lockheed Martin F-35A Lightning II multi-role combat aircraft, which has led to a small-scale cooperation with Lockheed Martin. Another source of interest is Finland's NATO membership, which could open up new opportunities for cooperation. Projects in the industry move very slowly, so progress needs to be monitored patiently over the long term.

Public authority market

Bittium Tough Mobile's main competitors were to be primarily Motorola Solutions and Harris, who especially dominated the old P25 network authority market. Bittium had a cooperation with Harris (Tough Mobile white label version), but this did not result in substantial sales volumes. Public authority networks did not emerge as expected when the security requirements for the networks were low. As a result, the market fell into the hands of the major smartphone manufacturers (Samsung and Apple). Bittium's Tough Mobile has remained a niche product for those areas where the standards are genuinely high (such as high-level public authorities and military leaders). The focus now seems to be particularly on areas related to defense.

On the security side, competitors include Sectra and Secusmart, which, like Bittium, offer secure solutions for the authority sector and other sectors (cf. Secure Suite and SafeMove solutions). Secusmart is a subsidiary of BlackBerry. The companies do not offer actual devices (except for BlackBerry), but the solutions are built on top of other commercial devices. In principle, the competitive field also includes security companies offering software-based solutions.

Medical

In the Medical segment, Bittium's products can be divided into three main categories. By far the largest of these are the Faros products for measuring and monitoring the electrical activity of the heart (ECG). There are several competitors in this sector, some of which are large service

providers with their own equipment manufacturing. According to Bittium, we estimate that the main competitors in the sector are iRhythm (Zio), Biotelemetry (part of the Philips group), BardyDX (part of the Baxter group), Nuvant, Zoll Medical, Spacelabs Healthcare, GE Healthcare, and Schiller.

Bittium's NeurOne for neurological measurement (EEG) is, according to Bittium, one of the world's most accurate and fastest EEG measurement devices for clinical and research use. The company cites competitors such as BrainProducts, ANT Neuro, G-Tech Medical Engineering, and Compumedics. Competitors to the BrainStatus product family include at least Ceribell as well as Nihon Kohden, and companies such as Lifelines Neuro, Masimo, Cadwell, Deymed, and BrainScope are potential competitors based on capabilities.

In the company's newest area, sleep apnea (Bittium Respiro), we think that competitors include at least Nox Medical, Itamar, Philips Respironics, Ectosense, and Somnomedics.

Engineering Services

On the service side, Bittium has, in principle, many competitors. On Nasdaq Helsinki, Tietoevry and Etteplan deserve a mention. Both also have some elements that compete directly with Bittium, although they are a small part of the overall package. We also see Unikie and Sigma Group as competitors. General Asian ODM manufacturers are, in our view, the biggest competitive threat, but with the right sector choices they will ultimately not be encountered much.

Competitive landscape

Business segment	Importance for Bittium (as estimated by Inderes)	Main competitors	Other competitors
Defense: tactical communication products and related services	✓✓✓	   	  
Security: public authority sector products for secure communications (e.g. Tough Mobile)	✓	   	  
Medical: measuring and analyzing biosignals in a secure manner	✓✓	   	    
Engineering services: R&D services relating to connectivity	✓	 	  Asian ODMs <i>(Original Design Manufacturing)</i>

Strategy, objectives, and financial situation 1/4

Transformation from a product development organization to a profitable growth company

Bittium updated its strategy in the fall of 2023, with three key priorities:

1) Change from a product development organization to a customer-centric, growth-oriented operating model through its segment organizations, which is a huge change process for the company. Our understanding is that the level of employee engagement has been surprisingly high, which is encouraging for the company's evolution. However, it is difficult to measure progress from the outside.

2) The company focuses strongly on its current products and increasing their market shares, and the development work focuses mainly on further improving the competitiveness and productivity of these products. With this, the company is seeking a clearer focus and thus savings. From the beginning, the company's new CEO has emphasized focus and efficiency improvement. We believe that this is absolutely the right approach and that significant improvements in results can be achieved through focus.

3) The company seeks to increase efficiency in its own operating methods and has notably streamlined its cost structure, which is expected to significantly improve the company's profitability and cash flow. The most significant measure in this respect is the 6 MEUR savings program and the change negotiations that have been carried out. A significant proportion of the redundancies were in group administration, which was cut severely (employees over 120 -> over 50). Some of these are transfers to business operations, but the organization has still been

significantly lightened. This will be reflected in a significant earnings improvement in 2024.

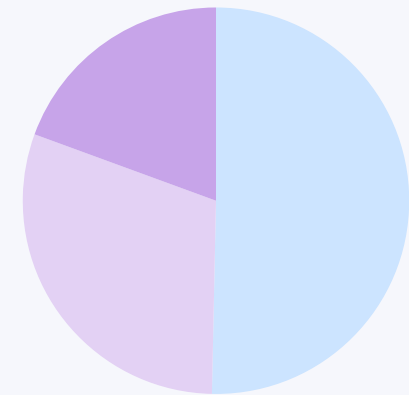
Businesses will become independent

Bittium's three business segments are Medical focused on biosignal measuring and remote monitoring, Defense & Security that provides products and services for the defense and public authorities markets, and Engineering Services that provides product development services and wireless embedded solutions. The three focus areas mentioned above will be the main focus areas for all business segments during the next two-year strategy period.

At the beginning of 2022, Bittium began developing its operations toward more independent businesses. All businesses need similar technology expertise, but the customers and market dynamics of the businesses are very different. Therefore, it is important to make decisions close to the customer in an efficient and customer-oriented manner. The segments are already virtually independent, although synergies within the group are certainly encouraged.

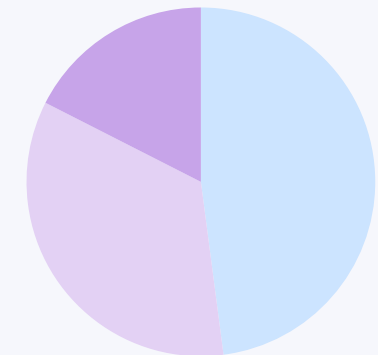
At the same time, the group's role has been drastically reduced. The previously centralized group functions are now largely divided into business segments to best meet the needs of each segment. This change enables the optimization and efficiency of the businesses. Bittium started segment reporting based on the new structure as of the Q1'24 business review, after which the visibility into the development of the various businesses has improved significantly. This also enables a plausible sum of the parts analysis, generally better valuation and more accurate estimates as visibility improves.

Revenue distribution (2024e)



■ Defense & Security ■ Medical ■ Engineering Services

Revenue distribution (2024e)



■ Defense & Security ■ Medical
■ Engineering Services ■ Group Functions

Strategy, objectives, and financial situation 2/4

Huge investments completed for a company of its size

Between 2016 and 2023, the Defense & Security and Medical segments have invested heavily in the development of their own products. On average, Bittium has invested approximately 20 MEUR annually in product development, which has been a staggering average of about 25% of the company's annual revenue. We estimate that the investments have been mainly focused on expanding the tactical communications offering in the defense sector to include terminals for individual combatants and vehicles, namely in the Tough SDR product family. While these investments have cost, according to our estimates, more than 50 MEUR, the company now has a comprehensive offering of the main tactical communication products. In addition, significant investments have been made in recent years in the Defense sector to meet the customization requirements of the Austrian TAC WIN order. In the public sector, Bittium has invested particularly in the development of the Tough Mobile smartphone. Significant investments have also been made in the Medical business, most recently in the new Bittium Respiro product family for sleep apnea.

In both product-oriented businesses, new product development projects have now been completed and entered the commercial phase. In the next few years, product development will focus on continuous improvement of the quality and functionalities of existing products, which is likely to a significant reduction in R&D levels (the company has not disclosed this). At least relative to revenue, R&D investments will decrease, which supports profitability and especially cash flow.

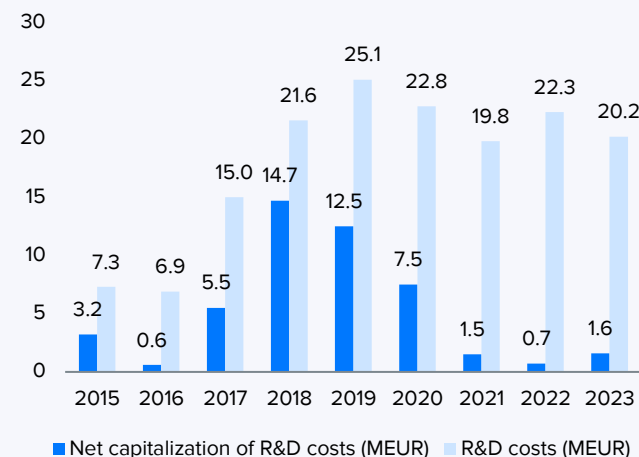
Bittium's capitalization of R&D costs has historically had a very large impact on the company's profitability. Of course, cash flows have always reflected the large investments, but just looking at the income statement, investors might have thought that profitability was relatively stable during the transition period. Without the large capitalization, driven by the use of its own staff in R&D efforts, the earnings slump would have been very large. The situation improved steadily until 2021, and today the EBIT margin is relatively well aligned with the EBIT adjusted for net capitalization. On the other hand, in 2022-2023, reported profitability also started to weaken, which had a negative impact on cash flows, too.

High cost structure has already been cut

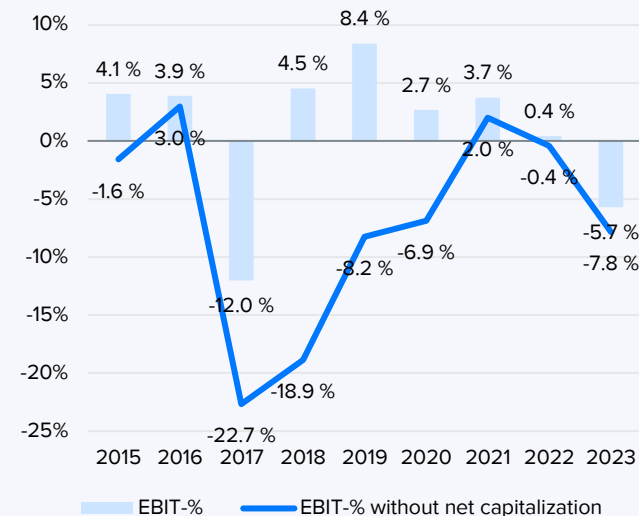
In the previous product development-driven operating model, the cost structure was very high due to R&D projects, according to the company. Additionally, there was clearly room for improvement in the company's focus and efficiency was unsatisfactory in our opinion.

In line with the updated strategy, the company is focusing on significantly lightening its cost structure. This is supported by the change negotiations already completed in the company in the fall of 2023, which resulted in redundancies of 61 people and temporary layoffs of 8 people. In addition, the company has initiated further efficiency measures and the annual savings impact of the already largely implemented measures is estimated at approximately 6 MEUR. The company expects to achieve these in full during 2024 and we are confident that this will be achieved. We don't have a clear understanding of what the savings will consist of, but there are many streams and they have formed a significant current. The work is still ongoing, and we think it is also partly a change of mindset within the company.

R&D costs and capitalizations (MEUR)



Impact of capitalization of R&D costs on profitability (%)



Net capitalization: the difference between capitalization and depreciation from capitalization.

Strategy, objectives, and financial situation 3/4

Financial targets

Bittium's long-term financial targets remained unchanged in the strategy update: the company aims for an average annual revenue growth of more than 10% and an EBIT margin of 10%. Historically, Bittium has achieved its growth target in some years, but has never achieved its profitability target. At the end of 2022, the company expected to reach its targets in 2024, which was a significant milestone for the company, especially in terms of profitability. We see this as a signal of the company's shift in focus to profitable growth and of its own confidence in its transformation and strategy.

The guidance for 2024 expects revenue to be 85-95 MEUR and operating result to be 7.0-9.5 MEUR. In terms of growth, this would mean an increase of 13-26%, so the growth target is essentially being met. The profitability target is tougher, but it may be achievable if the operating result is around the upper end of the range and revenue is slightly below the upper end. More importantly, in our view, is that the company is definitely on track to achieve a significant turnaround in profitability and earnings this year. This is crucial after several years of lackluster performance. In the coming years, the profitability target should be well within reach, while cash flow will also turn around.

There is no more surplus cash left

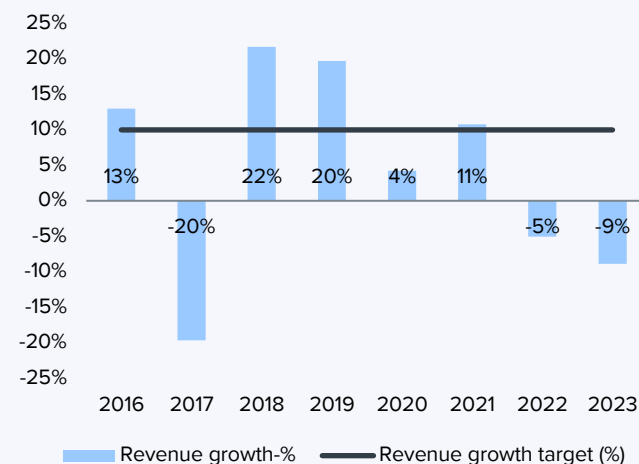
Bittium's extensive and lengthy restructuring process is now largely behind it. After the acquisition of Elektrobit Automotive and the repurchase of own shares, Bittium had a net cash position of 122 MEUR at the end of 2015, which by the end of 2023 had already sunk well into net debt. Between 2016 and

2023, the company has paid dividends of around 45 MEUR, but by far the largest part of the cash has been spent on investments (around 111 MEUR). Investments are even higher if we also take into account the change in working capital and the R&D work paid for by customers. The cash burn has been further accelerated by the weak earnings development in 2022-2023. In 2023, cash flow from operating activities was barely positive and free cash flow was clearly negative. This year, cash flow should recover in line with profitability.

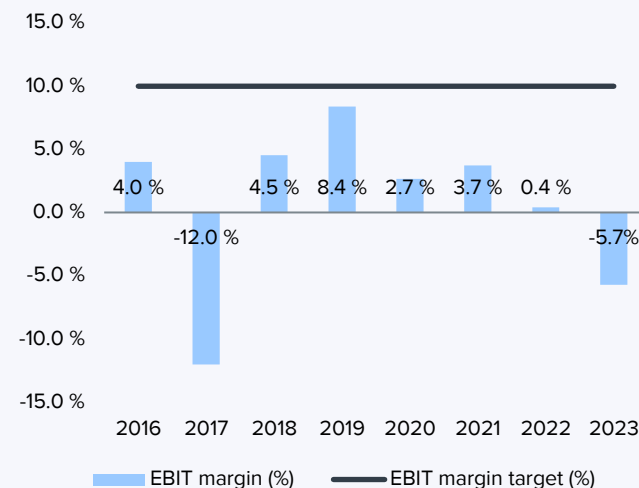
Bittium's balance sheet is still in relatively good shape, but it no longer offers the company significant room for maneuver. In practice, we estimate that the balance sheet structure can no longer be weakened when growth ties up significant working capital and customers demand a strong balance sheet. We do not believe it is worth growing the current business with debt until there is a sustained and clear positive turnaround in the business.

At the end of 2023, Bittium had 21.1 MEUR of short-term debt that needs to be refinanced during the year. We therefore assume that from now on investments will be financed by income and dividends will only be paid out of earnings (or cash flow). The company decided to pay a dividend of EUR 0.03 per share for 2023 despite the loss-making result, but this can be explained by the positive outlook. Nevertheless, we think it is clear that the economic situation also requires a turnaround in the profitability of the business.

Bittium's revenue growth-%



Bittium's EBIT margin (%)



Strategy, objectives, and financial situation 4/4

Working capital commitment far too high

Bittium is now predominantly a product company, which has changed the company's cash flow profile and the role of working capital, for example. Bittium is currently not of a size or in a position to require its subcontractors to account for inventory or to demand long payment terms. Moreover, given the shortage of components in the technology sector and Bittium's product delivery hiccups, the company's working capital has grown strongly in recent years. At the moment, we believe that the level of working capital is far too high, which means that there are also significant opportunities on the balance sheet side to optimize cash flow after an outlier period.

At the end of 2023, Bittium's working capital to revenue ratio was as high as 56%, which is a very high level and requires significant liquidity. We consider the optimal business level to be roughly half of this, although any product business will inevitably tie up working capital. The company's inventories and trade receivables amounted to approximately 65 MEUR while trade liabilities amounted to approximately 22 MEUR, which means that working capital amounted to approximately 43 MEUR (Inderes' calculation).

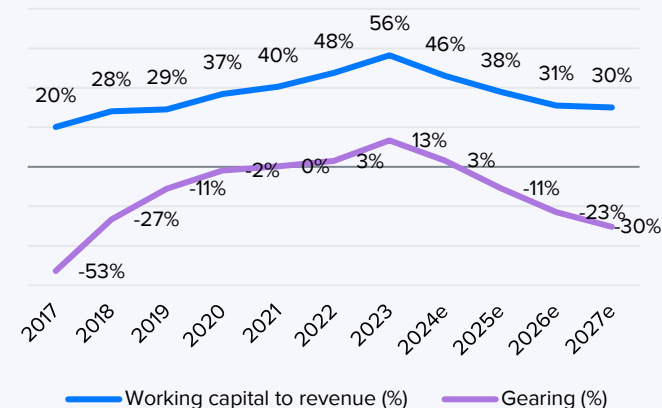
The substantial working capital commitment is explained by the factors mentioned above, but as the component shortage eases and the whole chain returns to normal, working capital should be reduced in the coming years. In addition, the company may still have significant receivables from Austrian TAC WIN deliveries, which should support the release of working capital. The ratio of receivables to revenue

has increased significantly over the last three years, which we believe may be indicative of the role of the Austrian business. While an increase in receivables relative to revenue is always a risk, we do not believe that Bittium's customer base, particularly its large customers, poses a material risk to receivables. In addition, we understand that Austria has been satisfied with the performance of the TAC WIN network, so we suspect this is more about poor capital management, which was also enabled by the previously overcapitalized balance sheet.

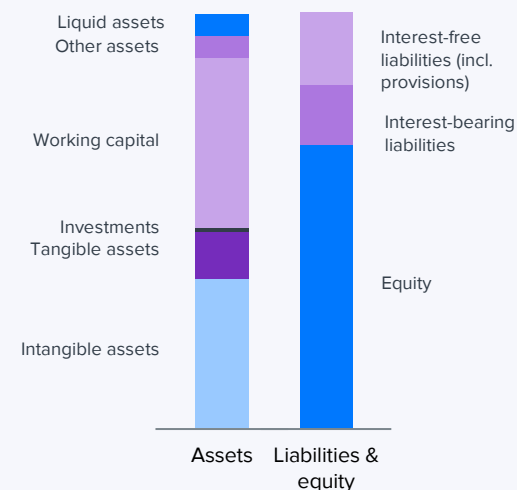
We assume that the ratio of working capital to revenue will decline sharply over the next few years, which will make a significant contribution to cash flow. While our own projections show the working capital/revenue ratio falling to what we believe will be a neutral 30% by 2028, the biggest changes will already take place in the next few years. Although product deliveries tie up a significant amount of working capital, the ratio will change significantly as Bittium optimizes its value chain and streamlines its own operations. Another important factor is the partnership agreement with the Finnish Defence Forces, which provides the company with important visibility on future deliveries and allows it to optimize its own purchases.

As working capital is freed up and investments decline, cash flow is expected to strengthen significantly in the coming years. This would be important for Bittium, as otherwise liquidity could already limit the company's growth plans. Of course, the cash flow turnaround is also important for the company's investment story.

Development of key balance sheet parameters



Simplified balance sheet structure (2023, total 158 MEUR)



Balance sheet

Assets	2022	2023	2024e	2025e	2026e
Non-current assets	85.0	84.6	84.8	80.5	74.0
Goodwill	5.8	5.8	5.8	5.8	5.8
Intangible assets	50.1	51.2	51.9	48.1	42.1
Tangible assets	19.7	18.2	17.7	17.2	16.7
Associated companies	0.0	0.0	0.0	0.0	0.0
Other investments	1.1	1.2	1.2	1.2	1.2
Other non-current assets	0.9	0.8	0.8	0.8	0.8
Deferred tax assets	7.4	7.4	7.4	7.4	7.4
Current assets	84.7	73.1	74.6	88.0	105
Inventories	24.2	26.6	26.0	27.9	28.6
Other current assets	0.0	0.0	0.0	0.0	0.0
Receivables	41.4	38.2	39.0	41.3	40.0
Cash and equivalents	19.0	8.3	9.5	18.8	36.2
Balance sheet total	170	158	159	169	179

Source: Inderes

Liabilities & equity	2023	2024e	2025e	2026e
Equity	108	116	128	136
Share capital	12.9	12.9	12.9	12.9
Retained earnings	67.4	75.7	88.2	95.4
Hybrid bonds	0.0	0.0	0.0	0.0
Revaluation reserve	1.3	1.3	1.3	1.3
Other equity	26.0	26.0	26.0	26.0
Minorities	0.0	0.0	0.0	0.0
Non-current liabilities	6.6	17.7	10.1	10.1
Deferred tax liabilities	0.1	0.1	0.1	0.1
Provisions	4.8	4.8	4.8	4.8
Interest bearing debt	1.5	12.6	5.0	5.0
Convertibles	0.0	0.0	0.0	0.0
Other long term liabilities	0.2	0.2	0.2	0.2
Current liabilities	43.5	25.8	29.9	33.2
Interest bearing debt	21.1	0.6	0.0	0.0
Payables	22.4	25.2	29.9	33.2
Other current liabilities	0.0	0.0	0.0	0.0
Balance sheet total	158	159	169	179

Group forecasts 1/3

Since the company began segment reporting, we have forecast the company's performance by business segment. We discussed the segment forecasts and the assumptions behind them in the discussion of business activities in the previous chapters. The purpose of this section is to combine the segment forecasts at the group level and to summarize the forecasts for the group as a whole.

Group Functions segment

In addition to the three business segments, Bittium has a Group Functions segment, which of course includes the group functions and also manages the real estate owned by Bittium. Bittium owns its headquarters in Oulu and its office in Kuopio, and together they are probably worth somewhere in the region of 15 MEUR. The business segments pay a certain amount for group services and the group functions also receive rental income. The segment does not report any external revenue, as the revenue is internal to the group. What is worth noting is that the operating result of the Group Functions segment in Q1 was 0.0 MEUR, i.e. income and expenses offset each other. We assume that this balance will be maintained, which means that the Group Functions can be given little consideration in the forecasts and valuation.

2024 will be a turning point

Bittium is in the process of making a significant profitability turnaround this year, building on the efficiency measures taken last year and, we believe, price increases. Bittium's Q1 results provided a strong start to the year and further increased our confidence

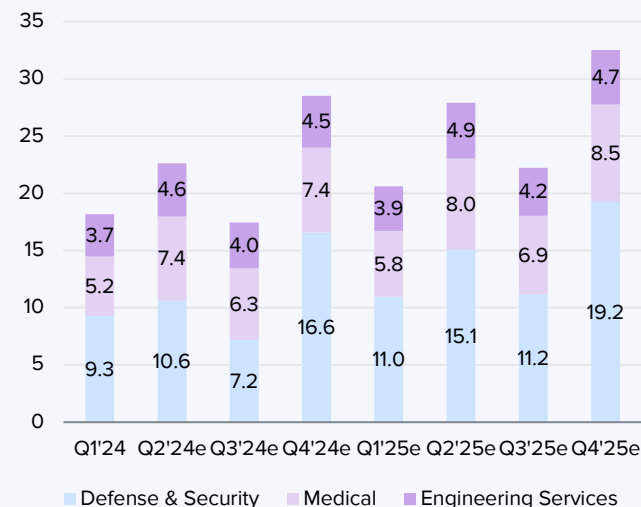
in the realization of a significant improvement in profitability.

During Q1, revenue grew by leaps and bounds in the Defense & Security segment (+40%) and the Medical segment (+37%), resulting in a product-based revenue of 10.7 MEUR (+34%). In Engineering Services, revenue fell sharply (-18%) from a strong comparison period, but profitability was still at a good level. Group revenue in Q1 grew by a healthy 21.5% from a weak comparison period.

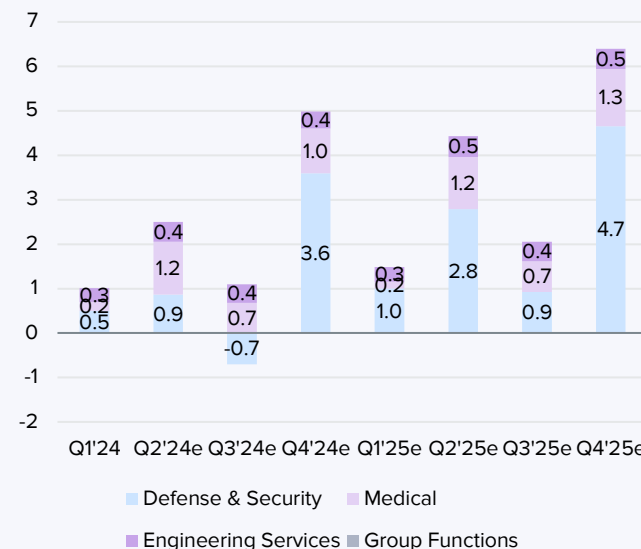
Operating result (Q1'24: 1.0 MEUR) turned positive in a seasonally weak period with product volumes remaining moderate. Solid work has been done on the cost structure side, but we estimate that the company was also able to increase prices last year, thus improving the profitability structure. In addition, cash flow from operating activities in Q1 was an excellent 5.2 MEUR, which also supported the significant cash flow turnaround and the release of working capital. After Q1, the operating result is already some 4.5 MEUR ahead of last year.

As expected, Bittium's guidance for a strong earnings improvement remains unchanged: Bittium estimates that 2024 revenue will be 85–95 MEUR (2023: 75.2 MEUR) and the operating result will be 7.0–9.5 MEUR (2023: -4.3 MEUR). After Q1, we think the doubts regarding the strong profitability turnaround can be put aside, although there are some uncertainties in the outlook. The company cannot control external issues, but internally it seems to be in good shape.

Revenue forecasts (MEUR)



Operating result forecasts (MEUR)



Group forecasts 2/3

We have not made any material changes to our forecasts for 2024: we expect revenue to be around 87 MEUR and operating result to be around 8.9 MEUR, which would imply an EBIT margin of 10.2%. This also seems to allow the company to reach the previously set profitability target in 2024. However, there is plenty to look forward to right up to the end of the year, as Bittium's product deliveries are usually heavily concentrated towards the end of the year. This means that Q4 is easily the strongest quarter in which we expect to see very strong results from Bittium. Visibility into the timing of product deliveries is always limited, which creates significant uncertainty in the forecasts.

We expect profitable growth in 2025

After the profitability turnaround in 2024, we expect strong profitable growth for Bittium in 2025. We expect revenue to grow by around 19% in 2025 and to exceed the 100 MEUR mark. This will mainly be due to strong growth in the Defense & Security segment (+29% forecast), driven by Tough SDR deliveries to the Defence Forces entering the volume phase. We also expect the Medical segment to deliver good revenue growth of around 11%, driven by positive growth in cardiology and sleep apnea. An important milestone for the Medical segment in 2025 is the expected FDA approval of Bittium Respiro, which opens up the US market for growth potential in sleep apnea. However, we assume that the revenue generated by sleep apnea will remain fairly limited, as commercialization will presumably take time. We expect the Engineering

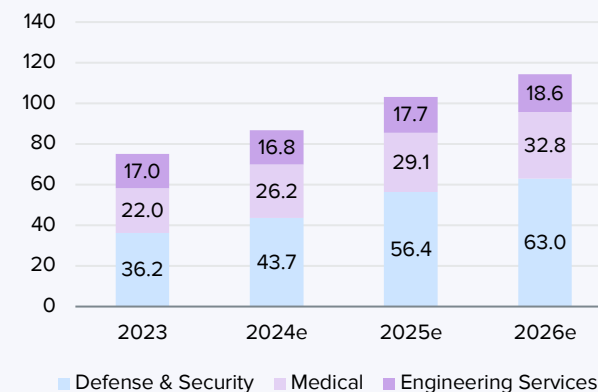
Services segment to perform consistently well (+5% growth forecast), but with scope for even higher performance as the market situation is expected to improve.

With strong revenue and product volume growth, we expect profitability to scale strongly, especially in the Defense & Security segment in 2025. We expect the group's EBITDA margin to increase to around 25% (2024e: ~21%) and the EBIT margin to around 14% (2024e: ~10%). With Bittium's tax rate still expected to be zero in 2025 due to historical losses, our earnings growth forecast is very strong. We forecast EPS of around EUR 0.39 in 2025, compared to a forecast of EUR 0.22 in 2024.

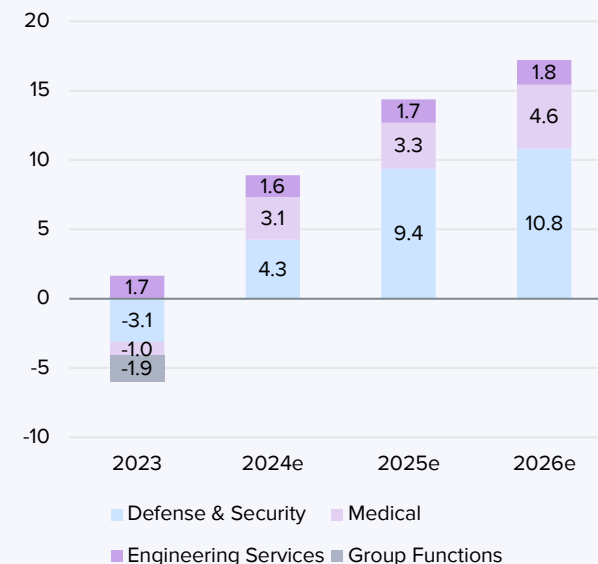
Long-term outlook is also good

There is still limited visibility to 2025, and from then on there are increasing uncertainties in forecasting progress. In principle, however, we expect Bittium to remain on track for profitable growth in 2026, with the drivers largely the same as in 2025. We expect Tough SDR volumes to continue to grow (and also further increase depreciation from previous capitalization), and on the other hand, the commercialization of Bittium Respiro should be a step further. In addition, equipment deliveries to the Austrian armed forces (mainly Tough SDR), where we believe Bittium will be a strong contender after the delivery of the backbone network, could well take place in 2026.

Revenue distribution (MEUR)



Operating result distribution (MEUR)



Group forecasts 3/3

All of Bittium's business segments are driven by strong market trends, which means that the overall growth outlook is good. In the defense market, for tactical data transfer, defense forces of states and other authorities need networks where mobile network users can reliably and securely transfer ever-increasing amounts of data. The Medical segment is driven by strong growth in remote monitoring and remote diagnostics. The Engineering Services segment continues to be driven by the growth of wireless communications (5G, 6G, and IoT) and the increasing data security requirements. So the market will provide some traction and it's more a question of Bittium's ability to deliver.

We now forecast Bittium's revenue to grow by around 11% in 2026. With good revenue growth, profitability should continue to scale, although we also expect fixed costs to grow quite rapidly in the coming years. We expect the EBIT margin to be around 15% in 2026, which would already be a very strong level for Bittium, but there is potential for a significantly higher figure. We forecast that about

80% of the revenue in 2026 will come from product-based businesses, where the potential margins are very high.

Cash flows should be abundant in the coming years

We predict that Bittium's cash flows will be abundant in the coming years, driven by what we believe to be three main factors: 1) a sharp rise in earnings, 2) a significant reduction in investment and a reversal of the depreciation/investment balance, and 3) a release of working capital from unusual levels. As a result, we expect Bittium's free cash flow to be significantly higher than the company's net result in the coming years. It is extremely difficult to accurately estimate cash flows as there are significant uncertainties associated with all of the above factors, but the basic logic should be very clear. The favorable cash flow profile adds further interest to Bittium as an investment opportunity.

The strong cash flows we forecast also mean a significant strengthening of the balance sheet in the coming years. According to our own projections,

Bittium will be free of net debt by the end of 2025 and will have "excess" capital on its balance sheet in the following years despite substantial dividend payments. If these projections come true, it will be interesting to see how the company decides to allocate its capital in the future.

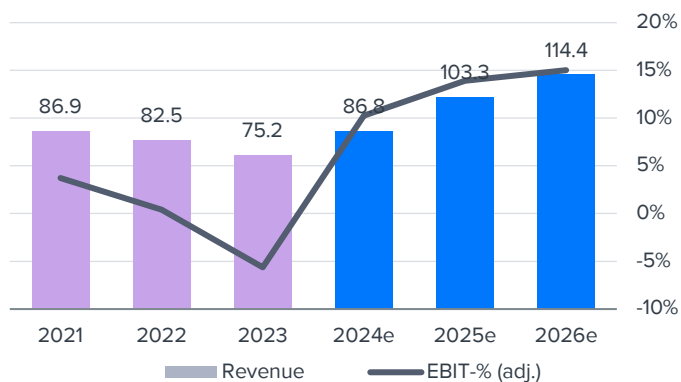
Return on capital is slowly on the way

Bittium's return on capital has historically been poor, with little return on large investments so far and generally poor profitability. This will evolve with profitability in our forecasts, but a strong improvement in profitability in 2024 will not yet reach 10% return on equity due to the heavy balance sheet. We expect ROE to rise to 13-14% in 2025, but to decline slightly in 2026 as the balance sheet becomes much stronger in our projections. As such, we believe that the low ROE forecasts indicate that our projections for the coming years remain moderate relative to the investments made. This is evidence of Bittium's potential in the coming years.

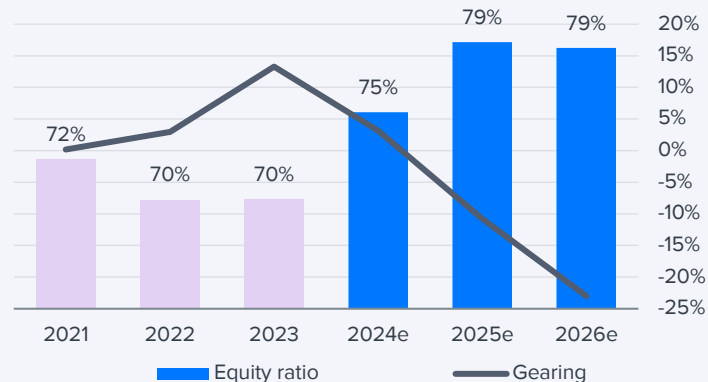
Estimate revisions	2024e	2024e	Change	2025e	2025e	Change	2026e	2026e	Change
MEUR / EUR	Old	New	%	Old	New	%	Old	New	%
Revenue	86.8	86.8	0%	103	103	0%	115	114	-1%
EBITDA	18.2	18.2	0%	25.3	26.2	3%	32.7	31.2	-5%
EBIT (exc. NRIs)	8.9	8.9	0%	14.4	14.4	0%	17.7	17.2	-3%
EBIT	8.9	8.9	0%	14.4	14.4	0%	17.7	17.2	-3%
PTP	8.0	8.0	0%	14.0	14.0	0%	17.8	17.3	-3%
EPS (excl. NRIs)	0.22	0.22	0%	0.39	0.39	0%	0.45	0.44	-3%
DPS	0.11	0.11	0%	0.24	0.24	0%	0.32	0.31	-3%

Forecast tables at group level

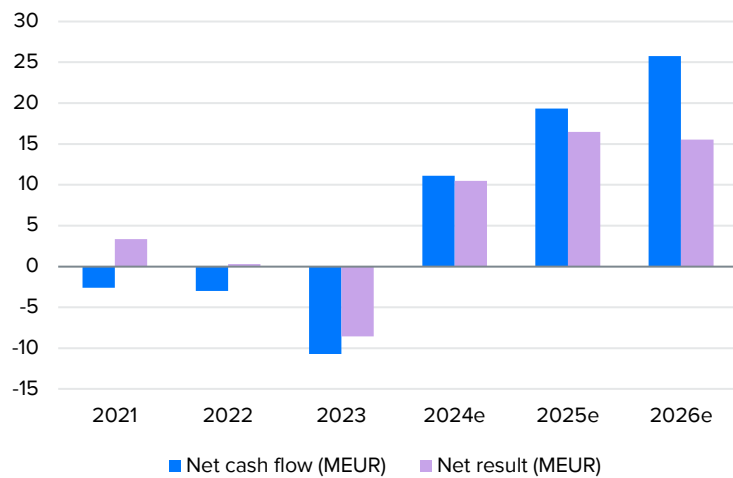
Revenue and EBIT-% development



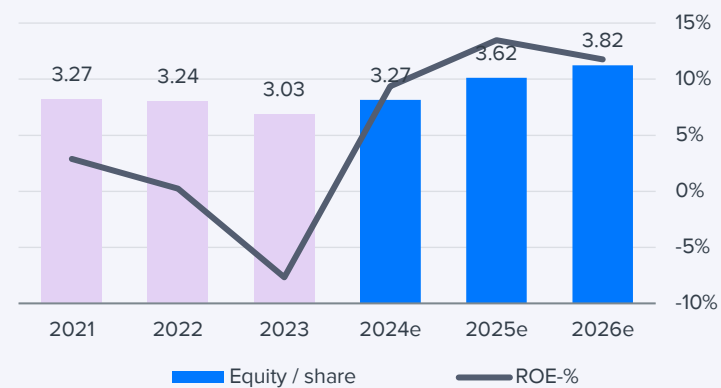
Development of balance sheet key figures



Projected cash flows relative to result



Equity / share and ROE-%



Income statement

Income statement	2022	Q1'23	Q2'23	Q3'23	Q4'23	2023	Q1'24	Q2'24e	Q3'24e	Q4'24e	2024e	2025e	2026e	2027e
Revenue	82.5	14.9	20.7	13.9	25.7	75.2	18.2	22.6	17.4	28.5	86.8	103	114	127
Defense & Security	0.0	6.6	8.7	4.8	16.1	36.2	9.3	10.6	7.2	16.6	43.7	56.4	63.0	71.0
Medical	0.0	3.8	7.6	5.3	5.3	22.0	5.2	7.4	6.3	7.4	26.2	29.1	32.8	36.5
Engineering Services	0.0	4.6	4.3	3.8	4.3	17.0	3.7	4.6	4.0	4.5	16.8	17.7	18.6	19.5
EBITDA	11.0	-1.0	2.6	0.3	0.2	2.1	3.2	4.8	2.7	7.5	18.2	26.2	31.2	35.2
Depreciation	-10.7	-2.5	-2.3	-2.4	-2.3	-9.5	-2.2	-2.3	-2.3	-2.5	-9.3	-11.8	-14.0	-14.0
EBIT (excl. NRI)	0.3	-3.5	0.3	-2.1	1.1	-4.2	1.0	2.5	0.4	5.0	8.9	14.4	17.2	21.2
EBIT	0.3	-3.5	0.3	-2.1	-2.1	-7.4	1.0	2.5	0.4	5.0	8.9	14.4	17.2	21.2
Defense & Security	0.0	-2.6	-0.2	-2.4	2.0	-3.1	0.5	0.9	-0.7	3.6	4.3	9.4	10.8	13.5
Medical	0.0	-1.2	0.9	0.1	-0.8	-1.0	0.2	1.2	0.7	1.0	3.1	3.3	4.6	5.8
Engineering Services	0.0	0.6	0.2	0.6	0.3	1.7	0.3	0.4	0.4	0.4	1.6	1.7	1.8	2.0
Konsernitoinnot	0.0	-0.4	-0.5	-0.5	-3.6	-5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net financial items	-0.8	-0.2	-0.2	-0.3	-0.3	-1.0	-0.3	-0.2	-0.2	-0.2	-0.9	-0.4	0.0	0.2
PTP	-0.4	-3.7	0.1	-2.4	-2.4	-8.4	0.7	2.3	0.2	4.8	8.0	14.0	17.3	21.4
Taxes	0.0	0.0	0.0	0.0	-0.2	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	-1.7	-3.2
Minority interest	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
Net earnings	-0.4	-3.7	0.1	-2.4	-2.6	-8.6	0.7	2.3	0.2	7.3	10.5	16.5	15.5	18.2
Net earnings	-0.4	-3.7	0.1	-2.4	-2.6	-8.6	0.7	2.3	0.2	7.3	10.5	16.5	15.5	18.2
EPS (adj.)	-0.03	-0.10	0.00	-0.07	0.02	-0.15	0.02	0.06	0.01	0.13	0.22	0.39	0.44	0.51
EPS (rep.)	-0.01	-0.10	0.00	-0.07	-0.07	-0.24	0.02	0.06	0.01	0.21	0.29	0.46	0.44	0.51

Key figures	2022	Q1'23	Q2'23	Q3'23	Q4'23	2023	Q1'24	Q2'24e	Q3'24e	Q4'24e	2024e	2025e	2026e	2027e
Revenue growth-%	-5.0 %	-18.6 %	-8.8 %	0.7 %	-7.2 %	-8.8 %	21.7 %	9.5 %	25.5 %	11.0 %	15.4 %	19.0 %	10.8 %	11.0 %
Adjusted EBIT growth-%												61.6 %	19.7 %	23.3 %
EBITDA-%	13.4 %	-6.8 %	12.7 %	2.2 %	0.6 %	2.7 %	17.6 %	21.3 %	15.3 %	26.1 %	20.9 %	25.3 %	27.3 %	27.7 %
Adjusted EBIT-%	0.4 %	-23.6 %	1.6 %	-15.1 %	4.1 %	-5.6 %	5.5 %	11.1 %	2.3 %	17.5 %	10.2 %	13.9 %	15.0 %	16.7 %
Net earnings-%	-0.5 %	-24.9 %	0.6 %	-17.1 %	-10.1 %	-11.4 %	3.8 %	10.2 %	1.1 %	25.5 %	12.1 %	15.9 %	13.6 %	14.3 %

Source: Inderes

Valuation 1/4

We examine the valuation of Bittium through a sum-of-the-parts analysis, valuation multiples, and projected cash flows. There is considerable uncertainty around the forecasts, but we can estimate the fair value of the share with reasonable confidence in the range of EUR 6.0-8.0 (was EUR 5.5-7.5). We set our target price to EUR 7.2 (was EUR 6.5) and raise our recommendation back to Accumulate (was Reduce).

SOTP summary

The visibility into Bittium's various businesses has improved significantly since the new reporting, allowing us to make a credible sum-of-the-parts analysis for Bittium. We have re-examined the value of all business segments in the extensive report.

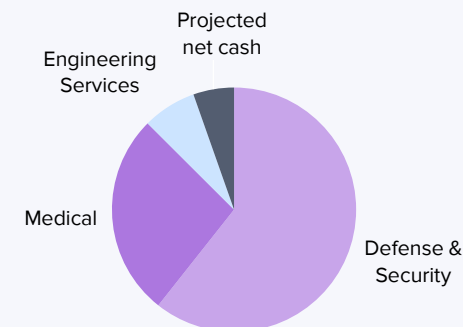
Based on our sum-of-the-parts analysis, the value of the share is around EUR 7.2, which is mainly based on projections for 2025. The 2025 forecasts include significant Tough SDR volumes in the Defense & Security segment and clear growth in the Medical segment, including Bittium Respiro sales, both of which are subject to substantial uncertainty. However, we believe that the 2025 projections better reflect realistic levels for Bittium's current operations, and it is natural to look to next year's projections when setting the 12-month target price. Under different forecast scenarios, the SOTP is between EUR 5.0 and EUR 8.5, so the range is considerable with limited visibility so far. The values will become more concrete as improvements in performance materialize.

Breakdown of value by business segment

Defense & Security. In our opinion, the value of the stock is concentrated in the Defense & Security segment, where we estimate the enterprise value (EV) to be around 155 MEUR (140-200 MEUR). The outlook for the defense sector in particular has improved strongly in recent years, and the outlook for the coming years is very good for players like Bittium that did not benefit from the first wave of increased procurement. So far, the increase in procurement has mainly focused on "consumables" (such as ammunition and missiles) and on strengthening legacy systems. Investment in the latest systems will take time, but there is currently good activity and the potential for further breakthroughs. However, we believe that the present value is largely based on success in Finland, Austria, and Estonia.

We forecast the Defense & Security segment to generate an EBIT of around 9.4 MEUR on a revenue of 56 MEUR in 2025. In our valuation of the segment for 2025, we accept an EV/EBIT multiple of around 15x and an EV/S multiple of around 3x, the combination of which gives us the above EV. The median 2025e EV/EBIT of the fragmented peer group is higher at around 19x, but we believe Bittium's risk profile is relatively high (e.g. highly concentrated customer base) and the 2025 projections already include a strong earnings improvement. On the other hand, the Defense & Security segment has more potential than many of the peers even after 2025.

Breakdown of value SOTP



Peer group

Peer group	2025e		
	EV/EBITDA	EV/EBIT	EV/S
Defense & Security			
Invisio	21.9	25.1	5.9
Thales	11.3	14.8	1.8
L3Harris	13.5	16.8	2.5
Motorola Solutions	18.5	20.3	5.8
Elbit	13.9	18.0	1.5
General Dynamics	13.9	16.2	1.9
Kongsberg	18.3	23.1	2.9
Sectra	61.8	73.2	13.6
Median	16.1	19.1	2.7
Average	21.6	25.9	4.5

Source: Refinitiv / Inderes

Valuation 2/4

The earnings development in the **Medical** segment in recent years has been underwhelming, and the business remains heavily dependent on Boston Scientific (BSCDx), having failed to find the keys to significant growth in Europe. We estimate that there will be a significant potential point of discontinuity in 2025, when we believe BSCDx will be renewed. This is both a threat and an opportunity (pricing), but we see it as more of an opportunity initially, as BSCDx needs Bittium's devices, at least for now. A possible but unlikely proprietary device would require FDA approval, and that is a long way to go (and as far as we know there is no application in the process).

Overall, we think the outlook for the Medical segment is good. In the coming years, we expect demand from BSCDx to return to normal, and the ResMed collaboration and Bittium Respiro in sleep apnea will open up significant growth opportunities. We do not expect significant growth on the neurological side. In our view, growth outside of BSCDx would be particularly crucial, which, in addition to its potential, would also lower the risk profile of the business.

We forecast the Medical segment to generate an EBIT of around 3.3 MEUR on a revenue of 29 MEUR in 2025. In our valuation of the Medical segment for 2025, we also assume an EV/EBIT multiple of around 15x and an EV/S multiple of around 3x, which together give us an enterprise value (EV) of 70 MEUR: The Medical business has a limited number of good peers, but the median 2025e multiples for the narrow peer group are significantly higher (EV/EBIT ~21x and EV/S

over 4x). However, in our view, the Bittium Medical business is at a start-up stage, at least outside of the BSCDx cooperation, which makes it difficult to determine the correct valuation. Currently, the EV of Medical is probably roughly in the range of 50-100 MEUR.

The profitability of the **Engineering Services** segment is at a good level and the outlook is favorable, at least in the medium term. We expect the business to grow moderately and maintain good profitability in the coming years. However, the segment's earnings potential is limited by its lack of scalability, and the valuations currently accepted for service businesses are very low. As a result, the business is sidelined in the SOTP calculation despite its good contribution to the bottom line.

We forecast the Engineering Services segment to generate an EBIT of around 1.7 MEUR on a revenue of 18 MEUR in 2025. Nevertheless, in our 2025 valuation of the segment, we only assume an EV/EBIT multiple of around 10x and an EV/S multiple of around 1.1x, which together give us an enterprise value (EV) of 18 MEUR. There are few similarly focused peers available, but the closest on Nasdaq Helsinki are Etteplan and Tietoevry, which also have similar operations. Their 2025e EV/EBIT multiples are only around 8-9x, but we consider both to be undervalued. We estimate the current EV of the Engineering Services business to be around 15-20 MEUR, but in case of a potential sale we estimate the value to be higher (e.g. customer base).

Peer group	2025e		
Medical	EV/EBITDA	EV/EBIT	EV/S
iRhythm Technologies	50.4		4.4
Masimo	16.7	21.3	3.3
Resmed	18.7	20.4	6.6
Nihon Kohden			
Median	18.7	20.9	4.4
Average	28.6	20.9	4.7

Source: Refinitiv / Inderes

Peer group	2025e		
Medical	EV/EBITDA	EV/EBIT	EV/S
Etteplan	6.5	9.2	0.9
Tietoevry	7.0	8.1	1.1
Vincit	5.1	5.8	0.4
Median			
	6.5	8.1	0.9
Average			
	6.2	7.7	0.8

Source: Refinitiv / Inderes

Valuation 3/4

Group Functions. Normally, in a sum-of-the-parts calculation, group functions are assigned a significant negative value that is subtracted from the total. However, in the case of Bittium, our expectations for the Group Functions segment's operating result are zero, meaning that corporate expenses have already been allocated to the operating segments and are reflected in their valuations. In addition, Group Functions owns real estate (including Bittium's headquarters in Oulu), which we estimate to be worth around 15 MEUR. This means that the segment also has clearly valuable assets that could be sold and rented back. So far, we have assigned a value of zero to the Group Functions segment based on the assumed contribution to the group result. However, it may be that the segment will eventually have value through real estate.

Net cash and summary. The final element in the sum-of-the-parts calculation is the estimated net cash at the end of 2025. We expect very strong cash flows from Bittium in the coming years, which we forecast to result in a positive net cash (cash minus interest-bearing liabilities) of around 14 MEUR at the end of 2025 (2023: -14 MEUR). This value is then added to the SOTP, which brings us to a total value of around 255 MEUR. Bittium has about 35.5 million shares outstanding and we expect the stock to grow slightly before the end of 2025 due to the option schemes, resulting in a value per share of about EUR 7.2. Of course, there is a wide range around this value, much like there was before for the different segments.

Valuation multiples

In our view, the P/E and EV/EBITDA ratios are the most interesting parts of Bittium's valuation multiples to look

at because of the company's cash flow profile. What makes it even more interesting is that the story the numbers tell varies in some respects. The EV/EBIT ratio is also important for the overall picture. We believe that valuation multiples need to be viewed in the context of high earnings growth expectations, in which our confidence has continued to grow. The main risk now, in our opinion, is the timing of earnings growth.

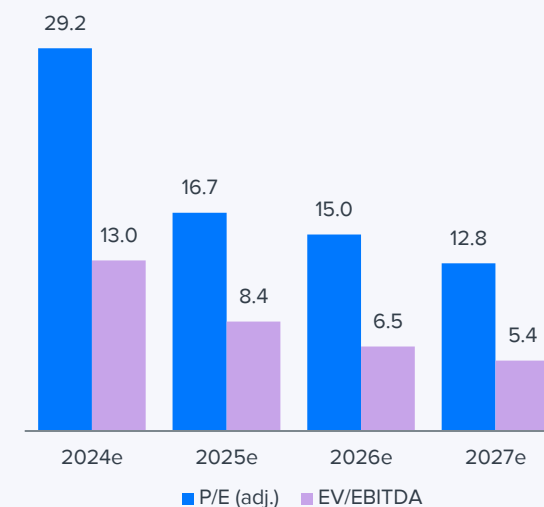
With our 2024 estimates, Bittium's adjusted P/E is 29x. This is a high multiple and suggests that earnings growth expectations have been significantly factored in also for the next few years. After huge investments during a long period of transition, the company has a large depreciation mass, which makes the EV/EBITDA ratio (around 13x) look more attractive. As R&D investments fall and depreciation rises, we expect the investment/depreciation balance to swing towards depreciation in the coming years, which will support the company's cash flow. This makes the EV/EBITDA ratio more meaningful and attractive than normal. However, based on the forecasts for 2024, Bittium cannot be called cheap.

The earnings turnaround in 2024 should, nevertheless, be the starting point for profitable growth in the coming years. In 2025, we expect earnings to rise strongly, especially along the Tough SDR volumes, and at that point, the adj. P/E will be around 17x and the EV/EBITDA will be only around 8x. In our view, these levels are already reasonable and based on projected cash flows, the stock would already be quite cheap (2025e FCFF around 8-9%).

Valuation	2024e	2025e	2026e
Share price	6.56	6.56	6.56
Number of shares, millions	35.5	35.5	35.5
Market cap	233	233	233
EV	236	219	202
P/E (adj.)	29.2	16.7	15.0
P/E	22.2	14.1	15.0
P/B	2.0	1.8	1.7
P/S	2.7	2.3	2.0
EV/Sales	2.7	2.1	1.8
EV/EBITDA	13.0	8.4	6.5
EV/EBIT (adj.)	26.6	15.2	11.7
Payout ratio (%)	38.1 %	50.9 %	70.0 %
Dividend yield-%	1.7 %	3.6 %	4.7 %

Source: Inderes

Development of valuation multiples



Valuation 4/4

Relative to the median of the entire peer group, Bittium is undervalued from 2025 onwards, when the short-term earnings potential starts to materialize. For the time being, it is premature to rely on 2026 projections, but it is estimated that multiples will continue to decline.

The valuation is also supported by the fact that over the next few years Bittium will have several opportunities for new openings through tenders in the defense sector and new partners. The main potential we see is with Tough SDR, TAC WIN, and later Respiro products. This gives the stock some positive optionality, as these opportunities are not included in our forecasts. On the other side, there is a risk that existing customer relationships will be terminated, but we consider this risk to be moderate.

DCF model

We also examine the valuation using the DCF model, which is more important than usual for valuations after large investment. The DCF calculation better captures the likely differences between the result and the cash flows in the coming years. The DCF outcome is still sensitive to the variables of the terminal period and the visibility into Bittium's business is still not particularly good, so there is significant uncertainty in the DCF calculation.

Our DCF model indicates a share value of about EUR 7.4. In our model, the company's revenue growth stabilizes at 3.3% in the terminal period after strong medium-term growth, and the EBIT margin is 15.0%. This is a very high level compared to today,

but should be achievable for a high-tech product company at a mature stage of development. There is now starting to be some evidence of decent profitability, but this is still by far the biggest risk in the calculation.

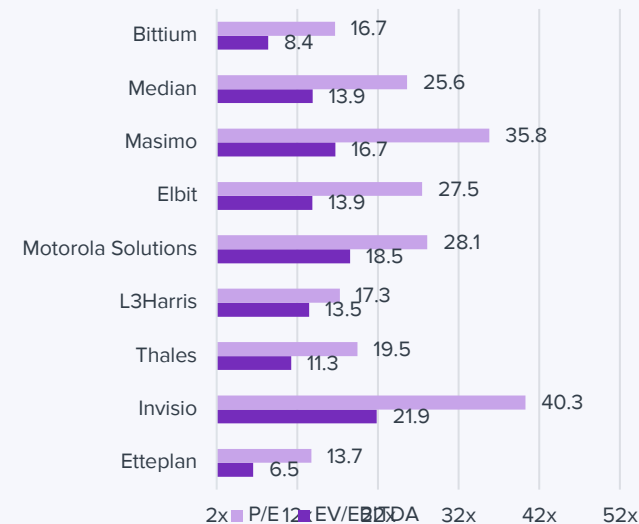
Thanks to the strong cash flows we expect in the coming years, a significant part of the value in the calculation will be realized by 2028, with a moderate weighting of 53% for the terminal period. In the cash flow model, we use a WACC of 9.7% and a cost of equity of 10.0%, which are roughly in line with the general level of Nasdaq Helsinki.

Fair value of the share

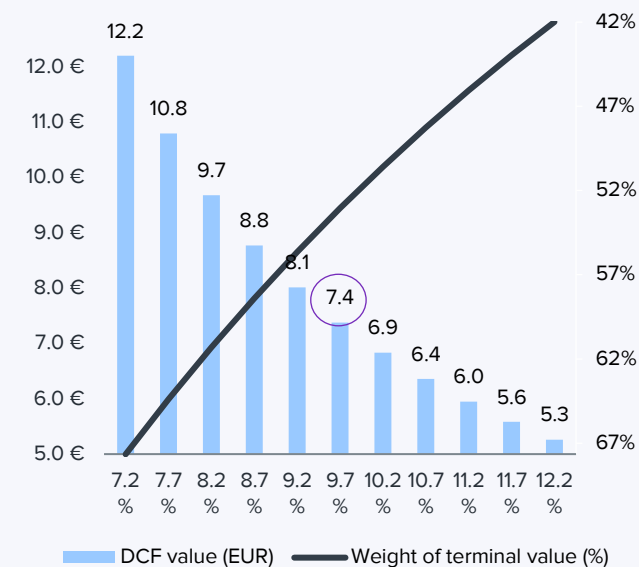
Using different methods, we estimate that the fair value of Bittium's share is around EUR 6.0-8.0. Currently, the market outlook in the Defense & Security segment is exceptionally good, which could support a higher valuation. The upper end of the value range is attainable and can be exceeded with new breakthroughs, which gives the company positive optionality. On the other hand, the lower end of the range is realistic if earnings growth falls significantly short of expectations in the coming years.

We believe that Bittium is also a potential acquisition target, which is an alternative way to realize fair value if the company fails to unlock potential itself. At the moment, however, it seems that the company will be able to do this on its own, with a strong improvement in operational efficiency and profitability in 2024.

Peer group's valuation multiples (2025e)



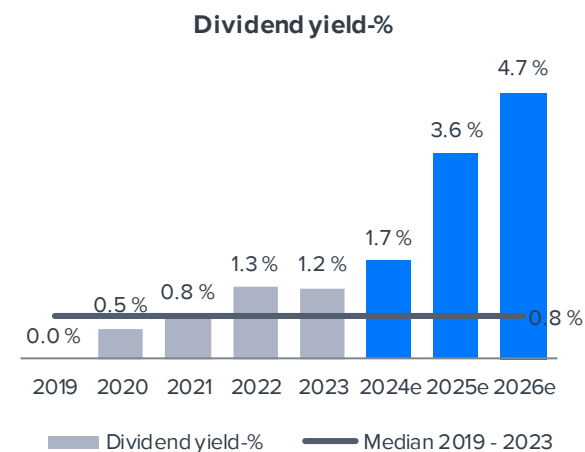
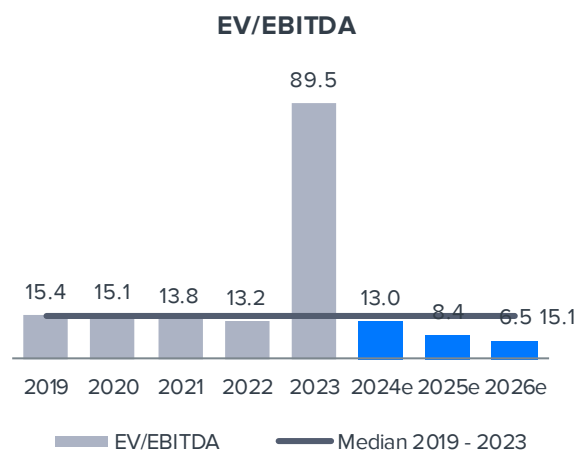
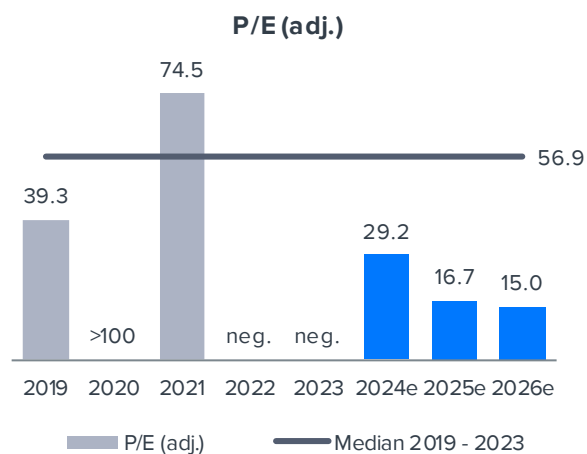
Sensitivity of DCF to changes in the WACC-%



Valuation table

Valuation	2019	2020	2021	2022	2023	2024e	2025e	2026e	2027e
Share price	6.50	5.79	5.30	3.98	4.81	6.56	6.56	6.56	6.56
Number of shares, millions	35.7	35.7	35.7	35.7	35.5	35.5	35.5	35.5	35.5
Market cap	232	207	189	142	171	233	233	233	233
EV	220	205	189	145	185	236	219	202	189
P/E (adj.)	39.3	>100	74.5	neg.	neg.	29.2	16.7	15.0	12.8
P/E	30.5	93.9	56.6	>100	neg.	22.2	14.1	15.0	12.8
P/B	2.1	1.8	1.6	1.2	1.6	2.0	1.8	1.7	1.6
P/S	3.1	2.6	2.2	1.7	2.3	2.7	2.3	2.0	1.8
EV/Sales	2.9	2.6	2.2	1.8	2.5	2.7	2.1	1.8	1.5
EV/EBITDA	15.4	15.1	13.8	13.2	89.5	13.0	8.4	6.5	5.4
EV/EBIT (adj.)	34.8	97.4	58.5	>100	neg.	26.6	15.2	11.7	8.9
Payout ratio (%)	0.0 %	50.5 %	42.8 %	615.6 %	neg.	38.1 %	50.9 %	70.0 %	70.0 %
Dividend yield-%	0.0 %	0.5 %	0.8 %	1.3 %	1.2 %	1.7 %	3.6 %	4.7 %	5.5 %

Source: Inderes



Peer group valuation

Peer group valuation		Market cap	EV	EV/EBIT		EV/EBITDA		EV/S		P/E		Dividend yield-%		P/B
Company		MEUR	MEUR	2024e	2025e	2024e	2025e	2024e	2025e	2024e	2025e	2024e	2025e	2024e
1	Etteplan	345	405	11.1	9.2	7.9	6.5	1.0	0.9	13.7	11.5	2.6	3.7	2.4
	Tietoevry	2320	3198	8.8	8.1	7.3	7.0	1.1	1.1	9.4	8.6	7.7	7.9	1.4
	Vincit	46	35	8.4	5.8	6.8	5.1	0.4	0.4	14.9	10.3	5.4	6.1	1.4
	Invisio	909	892	28.9	25.1	24.7	21.9	6.0	5.9	40.3	34.7	0.9	1.2	11.2
	Thales	35105	39420	16.6	14.8	12.3	11.3	2.0	1.8	19.5	17.5	2.1	2.4	4.6
2	L3Harris	38993	51216	17.4	16.8	14.2	13.5	2.6	2.5	17.3	15.8	2.1	2.2	2.2
	Motorola Solutions	56405	60828	22.0	20.3	19.6	18.5	6.2	5.8	28.1	26.0	1.0	1.1	58.6
	Elbit	8219	8963	20.7	18.0	15.6	13.9	1.5	1.5	27.5	23.2			
	General Dynamics	75435	82996	17.7	16.2	15.0	13.9	1.9	1.9	20.5	18.3	1.9	2.0	3.7
	Kongsberg	13075	12864	24.2	23.1	20.4	18.3	3.2	2.9	29.6	28.9	2.0	2.2	8.4
3	Sectra	3947	3890	89.7	73.2	74.5	61.8	16.1	13.6	112.0	91.6	0.5	0.6	30.6
	iRhythm Technologies	2712	2781			184.5	50.4	5.2	4.4					14.1
	Masimo	6058	6715	24.0	21.3	18.8	16.7	3.5	3.3	35.8	31.6			2.6
	Resmed	29524	30231	22.8	20.4	20.8	18.7	7.0	6.6	28.3	25.3	0.9	1.0	6.6
	Nihon Kohden	2287	1992							23.7	23.0	1.3	1.3	2.1
Bittium (Inderes)		233	236	26.6	15.2	13.0	8.4	2.7	2.1	29.2	16.7	1.7	3.6	2.0
Average				22.5	19.6	29.6	18.6	3.9	3.5	30.0	26.2	2.4	2.6	10.7
Median				19.2	17.4	15.6	13.9	2.6	2.5	25.6	23.1	1.9	2.1	4.1
Diff-% to median				39%	-12%	-17%	-40%	4%	-16%	14%	-28%	-10%	71%	-52%

Source: Refinitiv / Inderes

1 Engineering Services

Median 2025e multiples for the group:

- EV/EBIT 8.1x
- EV/EBITDA 6.5x
- EV/S 0.9x
- P/E 10.3x

2 Defense & Security

Median 2025e multiples for the group:

- EV/EBIT 19x
- EV/EBITDA 16x
- EV/S 2.7x
- P/E 25x

3 Medical

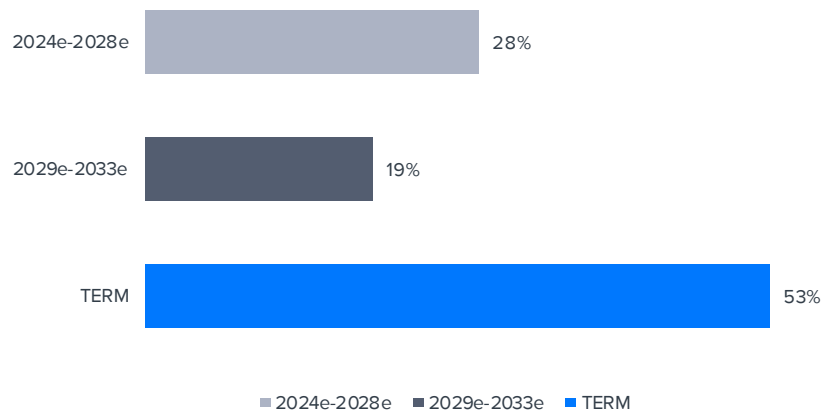
Median 2025e multiples for the group:

- EV/EBIT 21x
- EV/EBITDA 19x
- EV/S 4.4x
- P/E 25x

DCF calculation

DCF model	2023	2024e	2025e	2026e	2027e	2028e	2029e	2030e	2031e	2032e	2033e	TERM
Revenue growth-%	-8.8 %	15.4 %	19.0 %	10.8 %	11.0 %	10.0 %	9.0 %	7.0 %	6.0 %	5.0 %	3.3 %	3.3 %
EBIT-%	-9.9 %	10.2 %	13.9 %	15.0 %	16.7 %	16.5 %	16.0 %	15.5 %	15.0 %	15.0 %	15.0 %	15.0 %
EBIT (operating profit)	-7.4	8.9	14.4	17.2	21.2	23.1	24.4	25.3	25.9	27.2	28.1	
+ Depreciation	9.5	9.3	11.8	14.0	14.0	13.0	11.8	10.7	9.2	8.1	7.3	
- Paid taxes	-0.2	0.0	0.0	-1.7	-3.2	-3.5	-5.0	-5.1	-5.3	-5.6	-5.7	
- Tax, financial expenses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
+ Tax, financial income	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	
- Change in working capital	-3.1	2.5	0.7	3.8	-2.6	-3.8	-3.8	-3.2	-2.9	-2.6	-1.8	
Operating cash flow	-1.3	20.6	26.8	33.3	29.4	28.8	27.5	27.7	27.0	27.3	28.0	
+ Change in other long-term liabilities	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
- Gross CAPEX	-9.1	-9.5	-7.5	-7.5	-6.5	-6.0	-6.0	-6.0	-6.0	-5.5	-6.1	
Free operating cash flow	-10.3	11.1	19.3	25.8	22.9	22.8	21.5	21.7	21.0	21.8	21.9	
+/- Other	-0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
FCFF	-10.7	11.1	19.3	25.8	22.9	22.8	21.5	21.7	21.0	21.8	21.9	357
Discounted FCFF		10.5	16.7	20.2	16.4	14.9	12.8	11.8	10.4	9.8	9.0	147
Sum of FCFF present value		280	269	253	232	216	201	188	176	166	156	147
Enterprise value DCF		280										
- Interest bearing debt		-22.6										
+ Cash and cash equivalents		8.3										
-Minorities		0.0										
-Dividend/capital return		-2.1										
Equity value DCF		263										
Equity value DCF per share		7.4										

Cash flow distribution

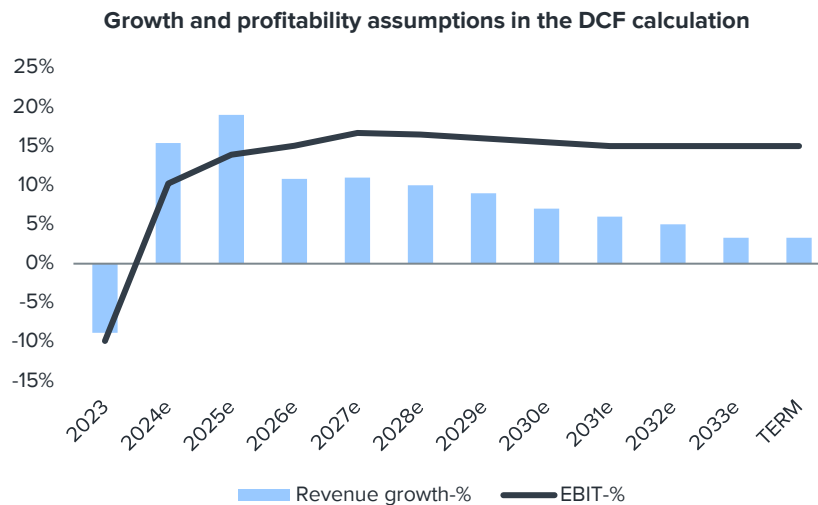
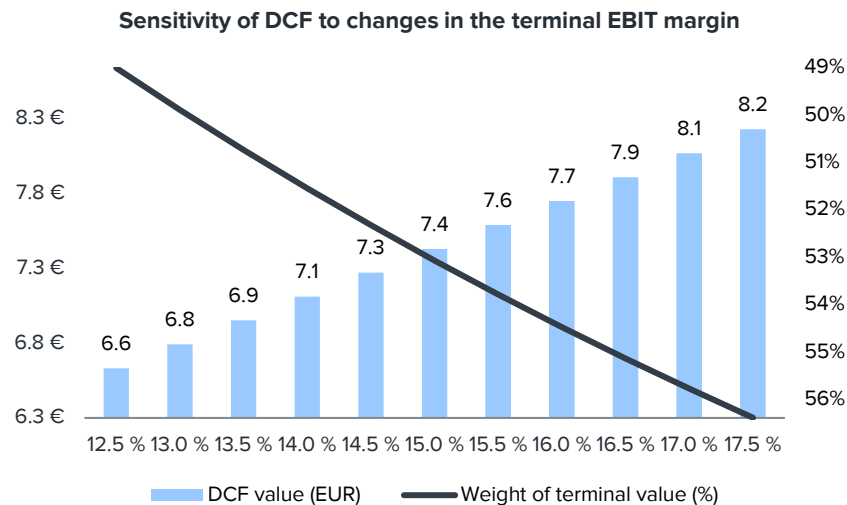
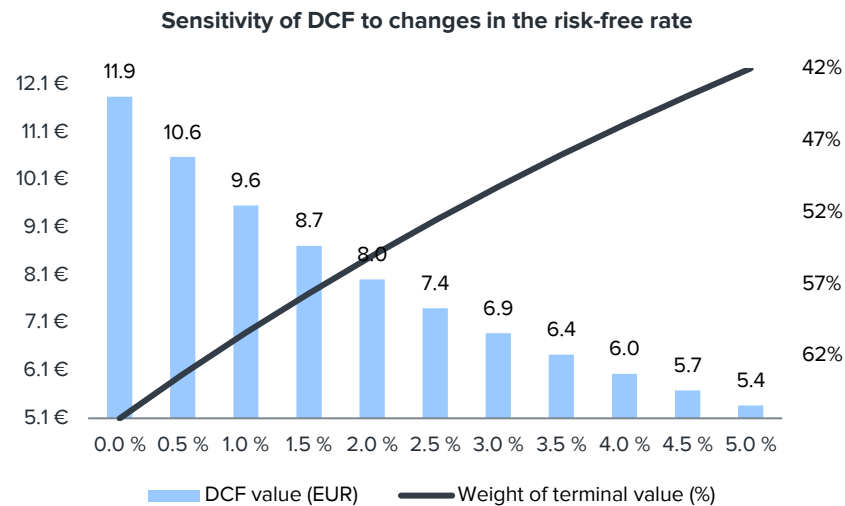
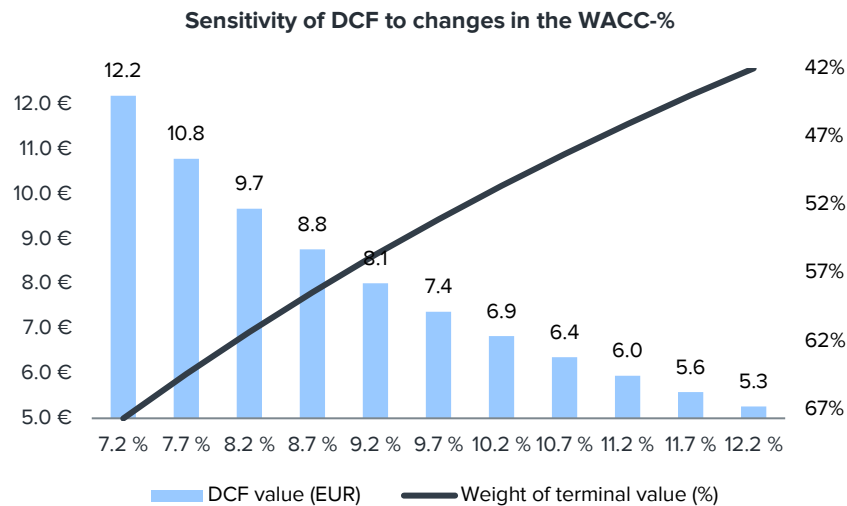


WACC

Tax-% (WACC)	20.0 %
Target debt ratio (D/(D+E))	5.0 %
Cost of debt	4.5 %
Equity Beta	1.52
Market risk premium	4.75%
Liquidity premium	0.25%
Risk free interest rate	2.5 %
Cost of equity	10.0 %
Weighted average cost of capital (WACC)	9.7 %

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	Per share data	2021	2022	2023	2024e	2025e
Revenue	86.9	82.5	75.2	86.8	103.3	EPS (reported)	0.09	0.01	-0.24	0.29	0.46
EBITDA	13.7	11.0	2.1	18.2	26.2	EPS (adj.)	0.07	-0.01	-0.15	0.22	0.39
EBIT	3.2	0.3	-7.4	8.9	14.4	OCF / share	0.18	0.18	-0.04	0.58	0.76
PTP	2.5	-0.4	-8.4	8.0	14.0	FCF / share	-0.07	-0.08	-0.30	0.31	0.55
Net Income	3.3	0.3	-8.6	10.5	16.5	Book value / share	3.27	3.24	3.03	3.27	3.62
Extraordinary items	0.0	0.0	-3.2	0.0	0.0	Dividend / share	0.04	0.05	0.06	0.11	0.24
Balance sheet	2021	2022	2023	2024e	2025e	Growth and profitability	2021	2022	2023	2024e	2025e
Balance sheet total	166.1	169.7	157.7	159.5	168.5	Revenue growth-%	11%	-5%	-9%	15%	19%
Equity capital	116.9	115.8	107.6	116.0	128.5	EBITDA growth-%	2%	-20%	-81%	778%	44%
Goodwill	5.8	5.8	5.8	5.8	5.8	EBIT (adj.) growth-%	54%	-90%	-1345%	-310%	62%
Net debt	0.2	3.4	14.3	3.7	-13.8	EPS (adj.) growth-%	49%	-116%	1216%	-249%	75%
Cash flow	2021	2022	2023	2024e	2025e	EBITDA-%	15.8 %	13.4 %	2.7 %	20.9 %	25.3 %
EBITDA	13.7	11.0	2.1	18.2	26.2	EBIT (adj.)-%	3.7 %	0.4 %	-5.6 %	10.2 %	13.9 %
Change in working capital	-6.3	-4.1	-3.1	2.5	0.7	EBIT-%	3.7 %	0.4 %	-9.9 %	10.2 %	13.9 %
Operating cash flow	6.6	6.3	-1.3	20.6	26.8	ROE-%	2.9 %	0.2 %	-7.7 %	9.4 %	13.5 %
CAPEX	-9.2	-9.2	-9.1	-9.5	-7.5	ROI-%	2.3 %	0.2 %	-5.4 %	6.9 %	11.0 %
Free cash flow	-2.6	-3.0	-10.7	11.1	19.3	Equity ratio	72.4 %	70.1%	70.1 %	75.0 %	79.0 %
Valuation multiples	2021	2022	2023	2024e	2025e	Gearing	0.2 %	2.9 %	13.3 %	3.2 %	-10.7 %
EV/S	2.2	1.8	2.5	2.7	2.1						
EV/EBITDA (adj.)	13.8	13.2	89.5	13.0	8.4						
EV/EBIT (adj.)	58.5	>100	neg.	26.6	15.2						
P/E (adj.)	74.5	neg.	neg.	29.2	16.7						
P/B	1.6	1.2	1.6	2.0	1.8						
Dividend-%	0.8 %	1.3 %	1.2 %	1.7 %	3.6 %						

Source: Inderes

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Buy	The 12-month risk-adjusted expected shareholder return of the share is very attractive
Accumulate	The 12-month risk-adjusted expected shareholder return of the share is attractive
Reduce	The 12-month risk-adjusted expected shareholder return of the share is weak
Sell	The 12-month risk-adjusted expected shareholder return of the share is very weak

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Inderes has made an agreement with the issuer and target of this report, which entails compiling a research report.

Based on a notification received on May 10, 2024, Inderes' analyst Juha Kinnunen and his close circle has a holding of over 50,000 euros in the target company Bittium.

Recommendation history (>12 mo)

Date	Recommendation	Target	Share price
11/18/2019	Accumulate	7.20 €	6.44 €
12/30/2019	Buy	7.20 €	6.04 €
1/24/2020	Reduce	7.20 €	7.13 €
2/14/2020	Reduce	6.50 €	6.50 €
2/27/2020	Accumulate	6.50 €	5.87 €
4/15/2020	Accumulate	5.90 €	5.61 €
5/4/2020	Accumulate	6.00 €	5.58 €
8/7/2020	Accumulate	7.00 €	6.43 €
10/14/2020	Reduce	7.00 €	7.39 €
11/2/2020	Reduce	6.00 €	5.92 €
11/30/2020	Accumulate	5.50 €	5.24 €
1/25/2021	Reduce	6.80 €	7.00 €
2/12/2021	Accumulate	6.80 €	6.43 €
4/30/2021	Accumulate	7.30 €	6.83 €
8/9/2021	Accumulate	6.40 €	5.81 €
10/25/2021	Reduce	6.00 €	5.73 €
1/5/2022	Accumulate	6.00 €	5.25 €
2/11/2022	Accumulate	5.50 €	5.12 €
5/2/2022	Reduce	5.50 €	5.40 €
8/10/2022	Accumulate	5.50 €	4.99 €
10/24/2022	Accumulate	4.40 €	3.78 €
2/13/2023	Accumulate	4.50 €	4.08 €
4/28/2023	Accumulate	4.50 €	4.00 €
8/7/2023	Accumulate	4.50 €	3.95 €
9/18/2023	Accumulate	4.20 €	3.80 €
10/23/2023	Accumulate	4.20 €	3.48 €
10/31/2023	Accumulate	5.00 €	4.39 €
2/12/2024	Accumulate	5.00 €	4.52 €
4/29/2024	Reduce	6.50 €	6.10 €
5/20/2024	Accumulate	7.20 €	6.56 €



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Mikael Rautanen
2014, 2016, 2017, 2019



Sauli Vilén
2012, 2016, 2018, 2019, 2020



Antti Viljakainen
2014, 2015, 2016, 2018, 2019, 2020



Olli Koponen
2020



Joni Grönqvist
2019, 2020



Erkki Vesola
2018, 2020



Petri Gostowski
2020



Atte Riikola
2020

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