

Brisk earnings growth ahead

DT has successfully navigated through external obstacles and now has a prime opportunity to concentrate on growth, business development, and profitability. Despite uncertain economic conditions, the underlying demand remains robust.

The widest X-ray detection provider

DT specializes in the development, manufacturing, and marketing of digital X-ray detection solutions for medical, security, and industrial applications. The company adopts an asset-light business model by focusing solely on value-adding processes. With the recent acquisition of Haobo Imaging, DT now offers a complete range of digital X-ray detection technologies, expanding its market exposure to approx. EUR 3bn. DT aims to establish itself as the growth leader in selected X-ray imaging segments. To achieve this, the company consistently invests approx. 11% of its net sales in R&D annually. While keeping the option open for inorganic revenue expansion, DT has made only two acquisitions in its history.

Few obstacles faced, now time to scale up

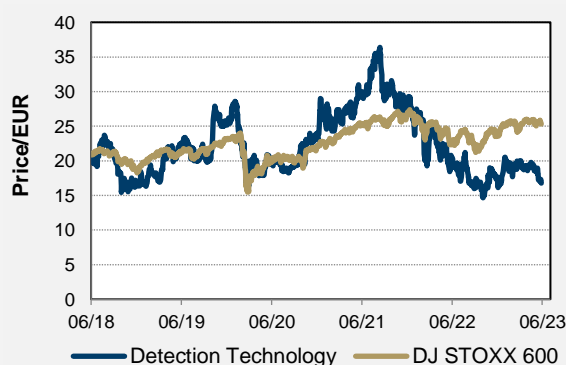
Over its history, the company has demonstrated strong growth, achieving a CAGR of 18% during 2010-22. However, DT has recently faced challenges due to various market disruptions, including the COVID-19 pandemic and component shortages. These factors have constrained the company's growth and negatively impacted its profit margins. Despite global economic uncertainty, the growth outlook for DT appears promising. The growth is supported by increased investments in aviation security and its recent expansion into the TFT FPDs markets. Furthermore, starting from a soft 2022, DT's EBIT is expected to show a significant improvement in the coming years. It is worth noting that some of this positive expectation is already reflected in the stock price.

Valuation little elevated but not challenging

We made no changes to our estimates. DT guides double-digit growth for Q2 and H1 as a group. We anticipate the company delivering y/y growth of 15% and an EBIT margin of 11.8% in 2023. Based on our estimates, we consider the current valuation to be neutral or slightly elevated, with surprises in growth being one of the key drivers of the stock's performance. We retain our HOLD rating and TP of EUR 17.5.

Rating

■ HOLD



Share price, EUR (Last trading day's closing price) 16.80

Target price, EUR 17.5

Latest change in recommendation 24-Apr-23

Latest report on company 28-Aor-23

Research paid by issuer: YES

No. of shares outstanding, '000's 14,656

No. of shares fully diluted, '000's 15,156

Market cap, EURm 246

Free float, % 0.0

Exchange rate 0.000

Reuters code DETEC.HE

Bloomberg code DETEC FH

Average daily volume, EURm 0.0

Next interim report 03-Aug-23

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■ BUY ■ HOLD ■ SELL

KEY FIGURES

	Sales EURm	EBIT EURm	EBIT %	FCF EURm	EPS EUR	P/E (x)	EV/Sales (x)	EV/EBIT (x)	FCF yield %	DPS EUR
2021	89.8	10.6	11.8%	5.8	0.63	46.4	4.5	38.0	1.3	0.35
2022	98.6	5.8	5.9%	-1.9	0.34	46.0	2.3	39.2	-0.8	0.20
2023E	113.4	13.3	11.8%	3.4	0.71	24.4	2.0	16.9	1.4	0.39
2024E	126.8	19.2	15.2%	13.6	1.03	16.3	1.7	11.3	5.5	0.57
2025E	138.5	21.2	15.3%	22.1	1.14	14.7	1.5	9.6	9.0	0.63
Market cap, EURm	246		Gearing 2023E, %	-26.2		CAGR EPS 2022-25, %		46.0		
Net debt 2023E, EURm	-21		Price/book 2023E	3.1		CAGR sales 2022-25, %		12.0		
Enterprise value, EURm	225		Dividend yield 2023E, %	2.3		ROE 2023E, %		13.6		
Total assets 2023E, EURm	109		Tax rate 2023E, %	20.0		ROCE 2023E, %		16.1		
Goodwill 2023E, EURm	0		Equity ratio 2023E, %	74.2		PEG, P/E 23/CAGR		1.1		

Investment summary

The widest digital X-ray detection technology portfolio

Detection Technology (DT) is a global niche player providing digital X-ray detection solutions in medical, security, and industrial applications. Through the strategic implementation of value-adding manufacturing practices and the efficient outsourcing of capital-intensive processes, the company minimizes its capital requirements while maintaining a high degree of production flexibility and adaptability. DT offers both standardized "off-the-shelf" products and customer-tailored solutions. The company boasts one of the broadest digital X-ray detection portfolios in the industry, supported by its leading technological capabilities. In order to enhance its competitiveness, combat price erosion, and introduce new products, DT allocates a considerable portion of its revenue to R&D. In 2022, the company invested 12.7% of its revenue in R&D, with an average annual investment of 10.7%.

Operates in all of the three main segments of X-ray imaging

DT operates through three distinct business units: the Medical Business Unit (MBU), the Security Business Unit (SBU), and the Industrial Business Unit (IBU). The primary customer base for MBU and SBU comprises government entities and public organizations, whereas IBU primarily caters to private-sector corporations. MBU offers predominantly customized solutions, while SBU provides both standard and customized products. In contrast, IBU focuses on providing standardized "off-the-shelf" solutions.

Track of profitable growth

The company has shown a track of profitable growth during its history. DT's group revenue has grown at a CAGR of 18% during 2010-22 while during its time as a public company (2015-21), the company showed annual revenue growth of 13%. The company scored its record EBIT margin of 22% in 2017, but since then the margins have been in a declining trend. The last two years have been tough in terms of relative profitability. However, with revenue growth and scalable cost base, we expect the profitability to improve significantly during the next few years. We note that emphasized investments into business development are limiting DT's scalability potential during the next few years.

The demand for X-ray imaging is supported by several megatrends

DT operates in the imaging markets that are supported by multiple megatrends: the aging population, insecurity concerns, climate change, digitalization, and AI, quality and efficiency requirements, as well as new emerging markets among others. X-ray technology is ever-increasing while the accessibility of imaging technology increases, radiation dosage decreases, and emerging markets are digitalizing their X-ray imaging equipment. Furthermore, DT's emphasis on the beyond hardware principle opens new growth opportunities in the future.

Expecting improving margins during 2023-25

With our estimates intact, we foresee solid net sales development by predicting annual revenue growth of 12% on average during 2023-25. This growth is expected to be driven by all of DT's business units, particularly its security business, benefiting from the recovery of the aviation sector and strong underlying demand. Driven by increased revenue and scaling fixed costs, we anticipate the company to achieve an EBIT margin of 11.8% in 2022. During 2024-25, we expect EBIT margin to exceed the company's medium term target of 15%. With the combination of robust revenue growth and improved scalability, we expect DT to demonstrate strong double-digit EPS growth throughout the period of 2023-2025.

Valuation elevated but not too challenging

During 2020-21, DT's valuation took a notable leap above its historical levels. At best, the company was valued with a P/E multiple above 50x and EV/EBIT near 30x. Currently, we view DT's 23E valuation somewhat elevated which in our view reflects the expected earnings growth. In 2024, the valuation turns quite attractive. This however includes risks considering the magnitude of the expected earnings growth and therefore we are not ready to rely on 2024 estimates yet. With our estimates intact, we retain our HOLD rating and TP of EUR 17.5.

Company overview

X-ray detection solutions for medical, security and industrial applications

Detection Technology (DT) is a global technology company specializing in digital X-ray detector solutions for medical, security, and industrial applications. The company develops, produces, markets, and sells standardized and customized X-ray imaging solutions ranging from sensor components to optimized detector subsystems with ASICs, electronics, mechanics, software, and algorithms for original equipment manufacturers (OEMs), and X-ray equipment integrators.

Background of science-driven technological development

DT was founded in Espoo, Finland in 1991 by three scientists with backgrounds in nuclear research. The company's primary objective was to develop and industrialize ultra-sensitive sensor technology. DT rapidly expanded its operations overseas, establishing a presence in China. In 2015, the company was listed on the Nasdaq First North Growth Market, with the aim of securing capital for future growth.

Industry-leading product portfolio

Through a steadfast commitment to R&D and a singular focus on X-ray detection, DT has earned its position as one of the leaders in the field of X-ray technology. The company provides a comprehensive range of digital X-ray technologies, and its line-scan X-ray detector portfolio is the broadest in the world. DT offers end-to-end detector solutions utilizing standard and scalable building blocks, providing a unique portfolio of products. These products are designed to meet even the most exacting standards, including those for security equipment in aviation, such as ECAC EDSCB C3, ECAC EDS Standard 3.1, and TSA AT-2 TIER II.

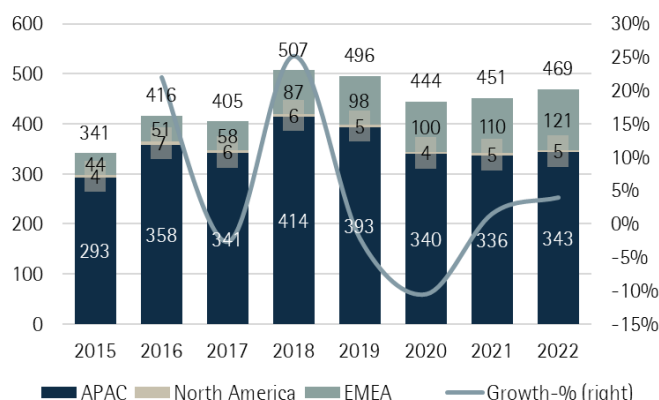
Large emphasis on Asian markets

Operating on a global scale, DT generates approximately 72% (as of 2022) of its net sales in the Asia-Pacific (APAC) region, with the majority of these sales being made in China. The remaining revenue is split, with approximately 19% being generated in the Europe, Middle East, and Africa (EMEA) region, and 9% in the Americas. DT's management has noted that sales in the Americas have been adversely impacted by the trade war between the United States and China.

Some China-production to move to Finland

The company is headquartered in Espoo, Finland. DT has offices in Finland, France, China, and the USA. Volume production mostly takes place in China while R&D centers are located in Finland and France as well as China. In late 2022, DT initiated a process to move a part of its volume production operations from China to Oulu, Finland. The Oulu facility is expected to have a production capacity equivalent to approx. 10% of DT's net sales. The company anticipates that manufacturing will commence in early 2024.

Figure 1: Employees



Source: Detection Technology

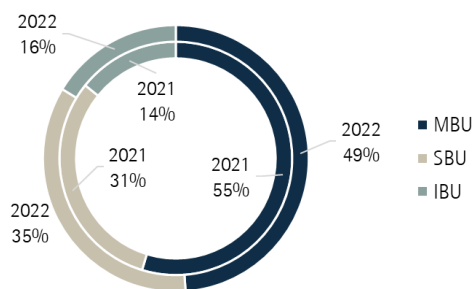
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Medical segment generates approx. half of the net sales

The company operates in three different business segments: 1) medical (MBU), 2) security (SBU), and industrial (IBU). Medical is the company's largest X-ray application area, in which it maintains a solid position, particularly in Asia. Previously, SBU had been the leading business unit, with a robust growth trajectory. However, SBU suffered a significant decline in sales during the COVID-19 pandemic, as investments in aviation and urban security nearly ground to a halt. Furthermore, SBU's growth rate in 2020 was influenced by the spin-off of industrial revenue, resulting in the establishment of the industrial business unit, IBU. As a result, in 2020, MBU exceeded SBU's sales volumes. IBU is a relatively new business unit that focuses on various industrial applications. Although still young, it is a rapidly developing segment. DT prioritizes "beyond hardware" principles, namely software, artificial intelligence (AI), and services in its industrial solutions to better serve its corporate customers. From our perspective, AI is increasingly important in the future of X-ray imaging applications, which is currently most used in the industrial sector, due to the high degree of conservatism among medical and security customers.









Figure 2: Revenue split by business units during 2021-22



Source: Detection Technology

Business model

Figure 3: Business model (all numbers provided concern the fiscal year 2022 unless otherwise stated)

Businesses 		Locations 	Activities 	Technology 
Medical (MBU) <ul style="list-style-type: none"> Traditional medical Dental Surgical Security (SBU) <ul style="list-style-type: none"> Border control (aviation and customs) Transportation Urban security 	Industrial (IBU) <ul style="list-style-type: none"> Food industry Automotive Recycling Mining Other industrial applications 	Volume production <ul style="list-style-type: none"> Beijing and Wuxi, China Oulu, Finland (from 2024 →) R&D and testing <ul style="list-style-type: none"> Oulu, Finland Moirans, France Beijing, China Nanjing, China (Talent Hub) 	R&D (12.7% of net sales) Procurement Manufacturing, testing and assembly Sales and marketing	Computed Tomography (CT) Line Scan Detectors Flat Panel Detectors (FPDs) Multi Energy (ME)
Partners 	Sales channels 	Customer segments 	Cost structure 	Financials 
Key customers Suppliers R&D partners Distributors	Direct sales offices in <ul style="list-style-type: none"> Europe USA China Distributors in other regions	Five largest customers 50.6% of net sales Underlying public customers approx. 70-80% of net sales (Evli estimate) 390 active customers in over 40 countries	Materials and services 54% of net sales Personnel expenses 23% of net sales Other oper. expenses (net) 14% of net sales D&A 3% of net sales	Net sales: EUR 98.6m, +9.8% y/y <ul style="list-style-type: none"> MBU: 49% of net sales SBU: 35% of net sales IBU: 16% of net sales Adj. EBIT margin: 6.2% Adj. EPS: EUR 0.37 DPS: EUR 0.2

Source: Detection Technology, Evli Research

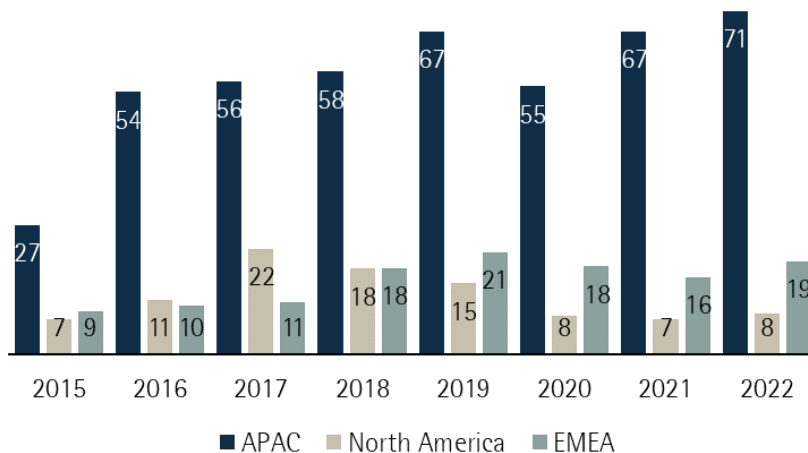
Scalable and asset-light business model

DT focuses on value-adding detector manufacturing operations, such as silicon wafer dicing, chip assembly (chip-on-board, flip chip) on organic and ceramic substrates, wire bonding, scintillator assembly, final assembly (PCBAs, cables, mechanics), as well as final electrical and optical testing. Moreover, the company offers customer relationship-enhancing services (myDT) and leverages digitalization and AI to improve its competitive position. By outsourcing capital-intensive processes, DT can attain greater flexibility, scalability, and the ability to respond quickly to changes in product demand.

OEMs as customers

The company delivers both standardized and customized X-ray imaging solutions for original equipment manufacturers (OEMs) and system integrators, who produce the final product using DT's detectors, components, algorithms, and possibly software. The company offers solutions to more than 40 countries and serves 390 active clients as of 2022. The end customers of the SBU and MBU are typically governments or public entities, including airports, customs agencies, hospitals, and dental care providers, while the IBU provides solutions for private corporations operating in various industries such as food, automotive, life sciences, agriculture, and mining.

Figure 4: Geographical revenue split in EURm



Source: Detection Technology

Growth has been most prominent in the APAC region

DT has been a significant player in the APAC region, particularly in China, where the region accounts for approximately 70% of total net sales. According to multiple market sources, the APAC region is also the fastest-growing market in digital X-ray detection solutions. The company's strong presence in Asia can be traced back to its establishment of operations in China in 1994 in collaboration with the prestigious Tsinghua University. Until 2022, the share of net sales in other regions had decreased, partly due to the strong performance in the APAC region, but also due to tariffs between China and the USA (only affecting the Americas' share). Our understanding is that during 2020-21, non-APAC revenue was also impacted by the COVID pandemic as DT has several security customers in the US and Europe. Nevertheless, the strong performance of IBU helped to mitigate the non-APAC decline to some extent. Ultimately, DT's sales are driven by the demand for end-products, and one should bear in mind that the company's geographical sales figures do not accurately reflect the actual distribution of sales and exposure to different regions since OEMs are also global operators, particularly those in Western countries.

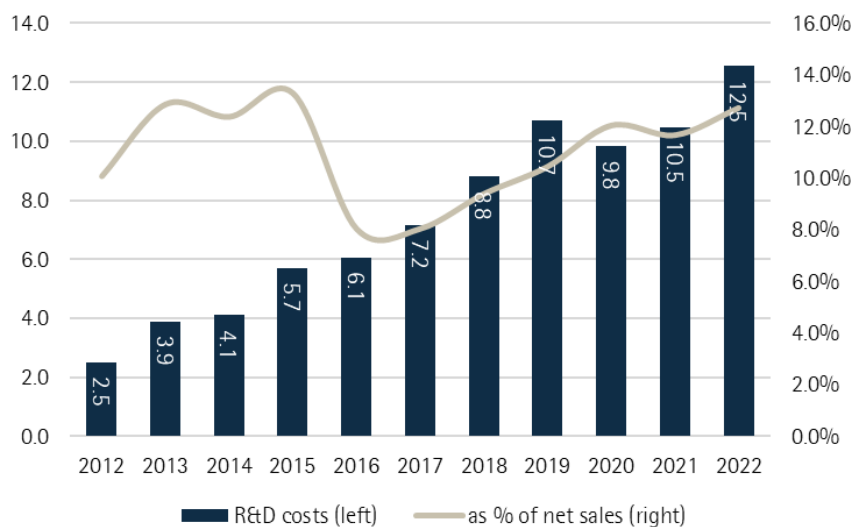
New technologies to secure future growth

DT has increased its focus on the "beyond hardware" principle, where the company is looking for opportunities to commercialize software and services alongside its hardware. Beyond hardware is still a new concept that the company is piloting, but some solutions have already been delivered to IBU customers. In addition, the company sees potential in new but still expensive multi-energy (ME), also known as photon-counting, imaging systems. ME technology is the most accurate X-ray detection method in the markets and DT's management sees future potential in it. At the moment, a rise in the supply of ME technology is necessary for the business becoming profitable according to the company's management. So far, few medical OEMs have come in with their own vertical ME solutions. Meanwhile, DT has delivered some solutions to industrial customers where the applicability and quality might offset the price factor in purchase decisions whereas in medical and security clients usually tender out the supplier. ME is a highly versatile technology that encompasses all X-ray applications, which makes it an extremely promising asset for the company in the long run, especially as the market continues to mature and become more commercially viable.

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Figure 5: Research and development costs in EURm



Source: Detection Technology

Significant investments in R&D

DT places significant importance on R&D, which is crucial in developing its products, fighting against competition, and launching new products to the market. The company's R&D activities involve technology platform road mapping and joint product development projects with its customers. Between 2015-2022, DT's R&D costs ranged between 8-13% of net sales, with an average of around 11%. To our understanding, personnel expenses account for more than half of the total R&D costs. Some R&D costs related to tools, materials, and equipment have previously been capitalized while the majority is written as expenses to P&L.

Acquisitions made to enhance the technology portfolio

DT appears to be actively pursuing M&A opportunities to expand its technology portfolio. In 2018, the company acquired French X-ray technology company MultiX, which focused on multi-energy technology. While the commercialization of multi-energy technology has been slower than expected, DT believes that the decreasing cost of production will result in increased usage of this technology. In March 2023, DT announced that it has agreed to acquire 90% of Shanghai-based X-ray technology company Haobo Imaging, which focuses on TFT flat-panel detectors using a-Si and IGZO technologies. The acquisition will provide DT with access to the remaining available flat-panel detector technologies and will complement its self-developed CMOS detectors, allowing the company to offer a full range of X-ray detector technologies in the market.

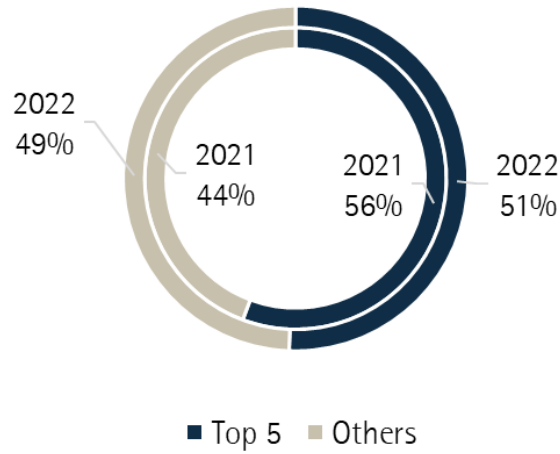
Haobo integration to outweigh acquisitions in short-term

DT's management has stated that their past and potential future acquisitions are intended to broaden their technology portfolio. The company seeks to minimize risks by targeting smaller businesses than itself. Recent declines in valuation levels for fast-growing companies present new M&A opportunities for DT in our view. The company is anticipated to prioritize the integration of Haobo in the near term, although they may contemplate acquisitions that extend their technological capabilities beyond X-ray, given that they already possess all practicable X-ray detection technologies, or that offer increased scale in terms of production volumes. The company may also explore acquisitions that enhance its X-ray software capabilities to support its "beyond hardware" initiative.

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Figure 6: Net sales split by customer size during 2021-22

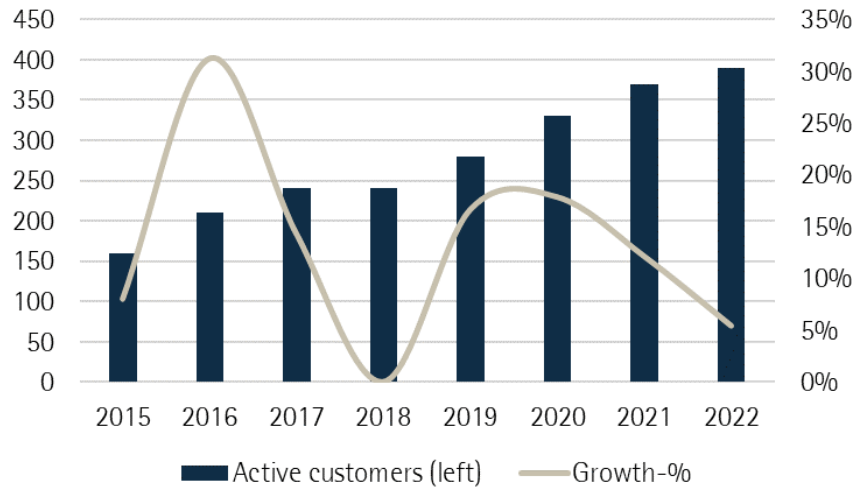


Source: Detection Technology

Yet somewhat centralized customer base

DT's customer base remains relatively centralized, with more than half of the revenue generated by its five largest customers. Nevertheless, the proportion of revenue contributed by the top five customers has decreased in recent years, indicating a broadening customer base. While the centralization of customers is considered a risk factor, the company's track record of constantly growing its customer base and its technological expertise, and well-managed customer relations are supportive factors for customer base expansion.

Figure 7: Number of active customers



Source: Detection Technology

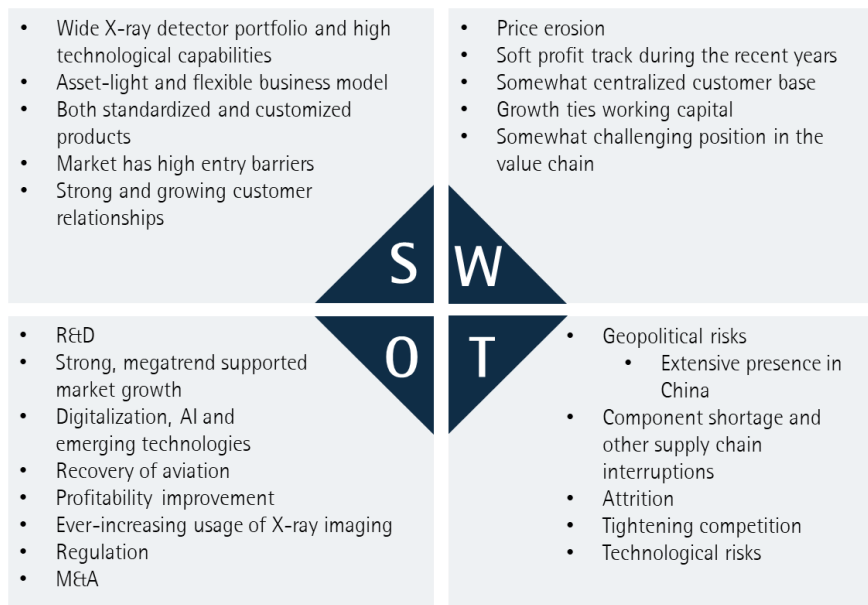
Customer base has shown steady growth over time

DT had almost 400 active customers at the end of 2022, with an average 14% increase in the number of active customers. According to our assessment, MBU serves the largest customers among the company's customer base. DT's management has stated that three out of the four largest medical OEMs (GE Healthcare, Siemens, Philips, Canon) are customers of DT. Additionally, the company serves leading industrial and security OEMs, such as Smiths Detection, Analogic, Leidos, and OSI Systems (named companies not disclosed by DT). As far as we know, there is at least one security customer among DT's top five largest customers.

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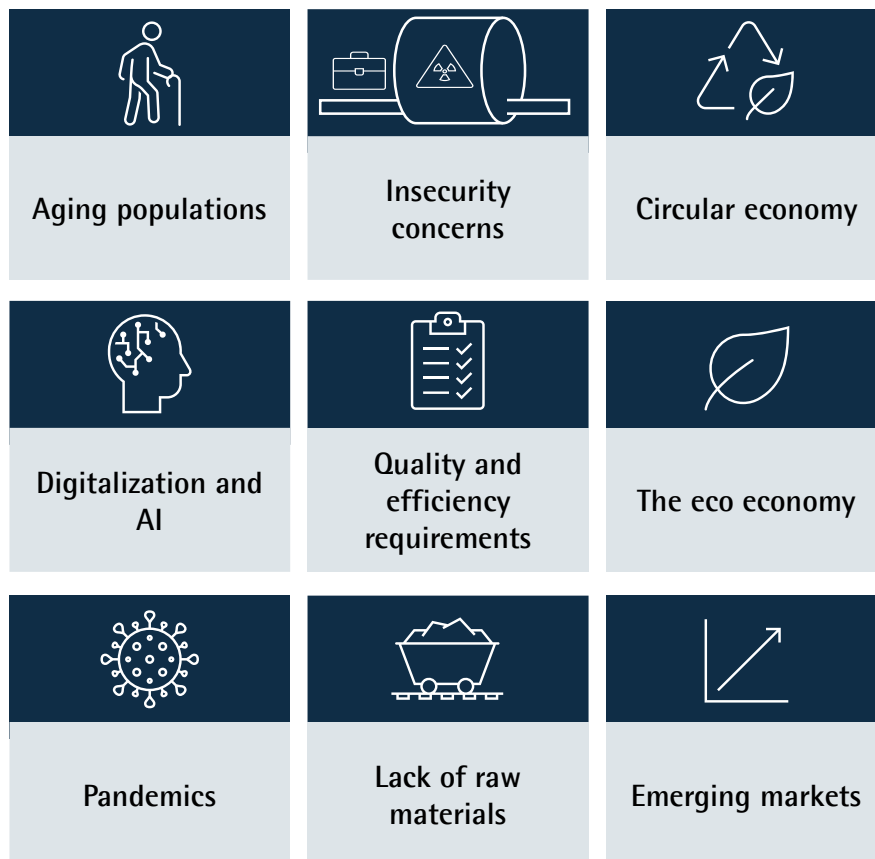
Figure 8: SWOT-analysis (Strengths, Weaknesses, Opportunities, and Threats)



Source: Evli Research

Megatrends

Figure 9: Megatrends



Source: *Detection Technology*

Several megatrends support the underlying growth

DT operates in industries that are highly influenced by megatrends. The growth in the medical sector is driven by the aging population and rising investments in healthcare, particularly in emerging markets. The COVID-19 outbreak has further boosted the demand for high-end medical CT equipment, a trend that has continued during the pandemic. In our view, DT holds a strong position among CT detector producers. The demand for X-ray devices is also increasing in various sectors due to growing insecurity concerns and regulations, including aviation, urban transportation, critical infrastructure, and buildings. For instance, airports are investing in more accurate and expensive CT equipment to meet security standards and enhance productivity. Although the security market in China has developed moderately during the pandemic, the opening of society is expected to drive pent-up demand. The demand for aviation security in Europe and the USA is also expected to benefit from CT device renewal investments. Industrial applications are also experiencing growth, as X-ray imaging is an effective way of ensuring product quality and process efficiency for corporations, for example in the food and pharmaceutical industries. DT's management has highlighted climate change as an indirect driver of sales growth, as requirements for recycling generally increase. Furthermore, digitalization and AI present new opportunities for X-ray imaging. In conclusion, the increasing usage of X-ray imaging offers strong growth prospects for DT.

Strategy

Aims to be the growth leader in digital X-ray imaging markets

DT underwent a strategy renewal in 2019, with the aim of becoming a global growth leader in digital X-ray imaging solutions while also exploring other technologies where the company sees good business opportunities. While previously DT focused only on line-scan and CT X-ray detection solutions, the new strategy expands to cover other X-ray detection technologies as well (see Table 2 on page 21). With this renewed focus, the company has revised its target market size, estimating it to be worth approx. EUR 3bn by the end of 2025, considering the inclusion of these new technologies.

Figure 10: 2025 strategy cornerstones



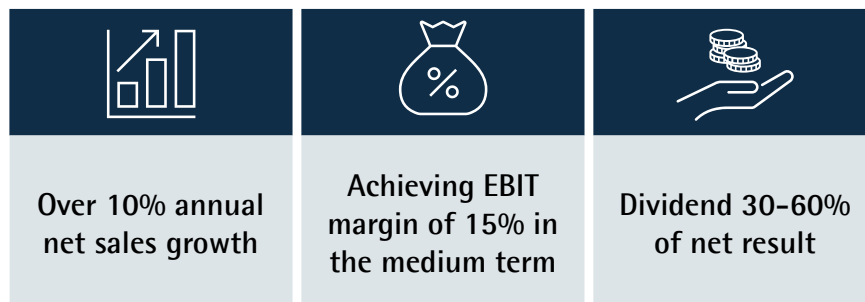
Source: Detection Technology

DT's 2025 strategy's cornerstones are:

- Focusing on X-ray technology:** DT has comprehensive expertise in X-ray imaging far from the 1990s. The company's offering covers all main X-ray industries and DT has the world's widest line-scan X-ray detector portfolio.
- R&D investments:** The company has annually invested ~11% of net sales to R&D to compete against price competition, strengthen its technology base, launch new product families, and mitigate price erosion.
- Customer-specific tailoring:** DT produces modular solutions that can be modified to meet customer-specific applications. DT believes that customization is one of the key competitive advantages of the company. Joint product development projects with customers might offer new perspectives and solutions that can be applied in DT's R&D and product families.
- Geographical reach:** The company will continue to strengthen its operations in its key markets. In addition, DT plans to expand its reseller network, particularly in countries where it does not have its own sales organization.

Financial targets

Figure 11: Financial targets



Source: Detection Technology

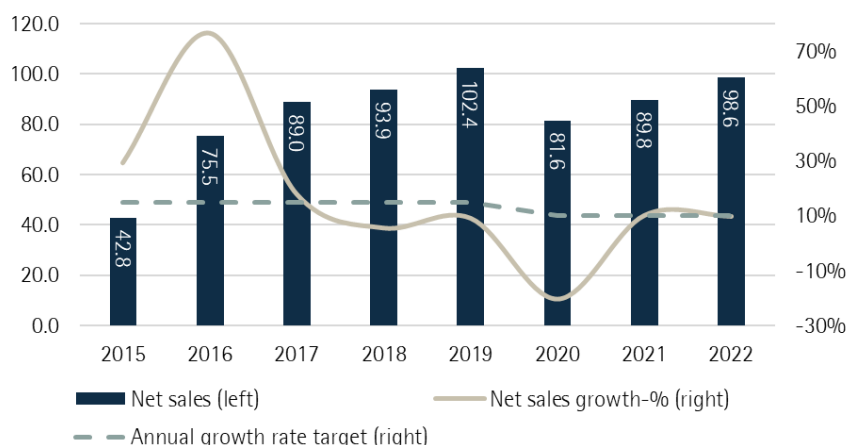
Ambition to grow profitably

DT's medium-term financial targets include gaining market share with an annual growth rate of over 10% on average, running a profitable business with an EBIT margin of 15% in the medium term, and sharing dividends of 30-60% of its net result to its shareholders. Despite recent market turbulence and supply chain disruptions hindering DT's relative profitability, we remain confident that each of these targets is both achievable and realistic in a medium-term.

Growth target has been exceeded few times

At the start of 2020, DT adjusted its net sales growth target from 15% to 10% to better reflect the market situation. From 2015 to 2017, the company exceeded its medium-term target for topline growth. However, the pandemic-driven decline of SBU led DT to a 20% decline in net sales in 2020. In 2021, DT achieved its growth target, recording a y/y growth of 10.1% for the first time since 2017. Despite market issues limiting the company's growth potential in 2022, net sales still increased by 9.8%, although growth would have been stronger without such issues. DT's growth projection for 2023 looks positive, with the company guiding double-digit growth for the DT group in H1'23.

Figure 12: Actualized net sales growth vs. medium-term target



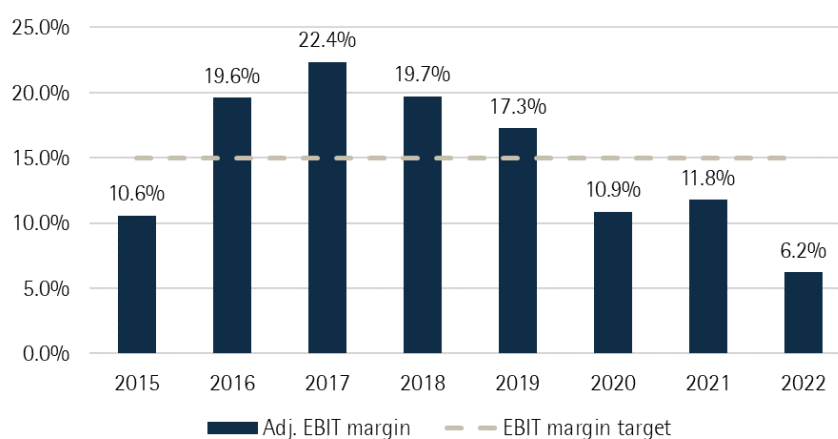
Source: Detection Technology

There's plenty to catch up on the profitability

From 2015 to 2019, DT generated solid profitability, with an EBIT margin above its medium-term target of 15%. However, the drop in demand for aviation solutions due to COVID-19 caused the company's EBIT margin to fall below the target level in 2020. In 2021, with volumes below 2019 and material and fixed costs elevated, DT's profitability

fell short of the medium-term target again. The challenging environment continued in 2022, with low component availability and other disruptions in the supply chain. The spot-component purchases increased DT's material costs, further hampering its margins. The growth pace of fixed costs outpaced the increase in net sales, and the EBIT margin declined to 6.2% in 2022. After the 2022 result, DT's management indicated that achieving the profitability target in 2023 will be challenging, and the EBIT margin will probably remain below 15% but still clearly improves from that of the comparison period.

Figure 13: Actualized EBIT margin vs. targets



Source: Detection Technology

Medical business unit (MBU)

Solutions for traditional medical, dental and surgical imaging

The medical business unit (MBU) specializes in providing X-ray solutions for medical equipment manufacturers and system integrators. The company offers both customized solutions and standardized off-the-shelf X-ray detection solutions. However, DT's management has pointed out that a significant portion of MBU sales comes from customized solutions, as the unit's customers are often large OEMs. The process of customization may involve the use of customer-specific components, such as circuit boards or chips, to meet the specific requirements of its customers. DT provides solutions for a wide range of medical fields, including:

- All medical computed tomography (CT)
- Dental imaging
- Surgical imaging

Medical markets are expected to show decent growth

The demand for medical X-ray solutions is expected to continue strong. According to DT's management, both developed and developing countries have reinforced their healthcare equipment due to low capacity during the COVID-19 infection peaks. In other words, MBU's growth seen during 2020-21 was partly pandemic-driven. Nevertheless, the company views investments in healthcare in emerging economies and the aging population as the primary drivers of growth. This is due to the increasing need for healthcare infrastructure development, both in terms of volume and efficiency, driven by aging populations and healthcare needs in emerging economies.

Security business unit (SBU)

Growth is obtained from CT devices

The security business unit (SBU) is a key player in the X-ray imaging components and systems market for security applications. The range of security solutions provided by the company includes for example aviation, border control, and urban security. The security solutions involve the use of X-ray imaging for people, luggage, parcel, and vehicle inspection. DT provides modular off-the-shelf and customized products for computed tomography (CT), line scan, and multi-energy applications. CT is the fastest-growing technology in security solutions due to the need for more accurate, automated, and faster imaging. However, traditional line scan detector markets are also growing.

The pandemic was a big challenge for security markets

The pandemic had a significant impact on SBU, particularly on its aviation segment. The decline took several quarters while DT saw its net sales improving in Q3'21 for the first time after the pandemic outbreak. Prior to the pandemic, revenue from aviation represented over 50% of the sales in SBU, but following the pandemic, there has been a significant decrease in its share. The shutdown of aviation activity has generated notable pent-up demand, and the excess demand for security X-ray detection solutions is now seen in increased bids and orders, especially in Western economies. In addition, aviation officials and organizations, such as TSA and ECAC, are now allocating resources for aviation security inspection renewals from which significant investments in X-ray systems are expected to materialize in the coming few years. TSA has already begun its renewal program, but a significant number of equipment renewals are still in progress.

Industrial business unit (IBU)

New business unit to emphasize beyond hardware principles

At the end of 2020, DT established a new business unit for its industrial solutions to offer high-tier detector solutions in which software and algorithms play a significant role. Before organization restructuring, IBU sales were reported jointly with SBU sales. IBU offers products from single detector cards to complete detector systems, including readout electronics and interfacing software that sends raw images to the host computer of the imaging equipment for processing. The end products are used for screening for instance in the following industries:

- Agriculture
- Automotive
- Battery industry
- Defence and aerospace
- Food industry
- Forest industry
- Industrial process control
- Mining
- Oil and gas
- Pharmaceutical industry
- Recycling and waste sorting
- Renewable energy

The usage of X-ray to increase in industrial processes

Even though current volumes are relatively low, the usage of X-rays has seen strong growth in industrial applications during the recent years and the trend is expected to continue with X-rays becoming less expensive and effective. Over time, in our view, DT may monetize IBU's intelligent offering in medical and security segments with customers becoming more open-minded for advanced, high-tier imaging. One can argue that IBU also acts as an R&D department for MBU and SBU. However, we note that customers in the medical and security sectors have been relatively conservative in their adoption of AI-enhanced detection applications.

Acquisitions

Table 1: Acquisitions

Year	Company	Origin	Revenue	EBIT margin	EV/Sales	Employees
2018	MultiX	Moirans, France	0.8	-	-	17
2023	Haobo Imaging*	Shanghai, China	3.0	5.2%	4.7x	40

Source: Detection Technology

* Expected closing by the end of June 2023

Multi-energy technology was acquired in 2018

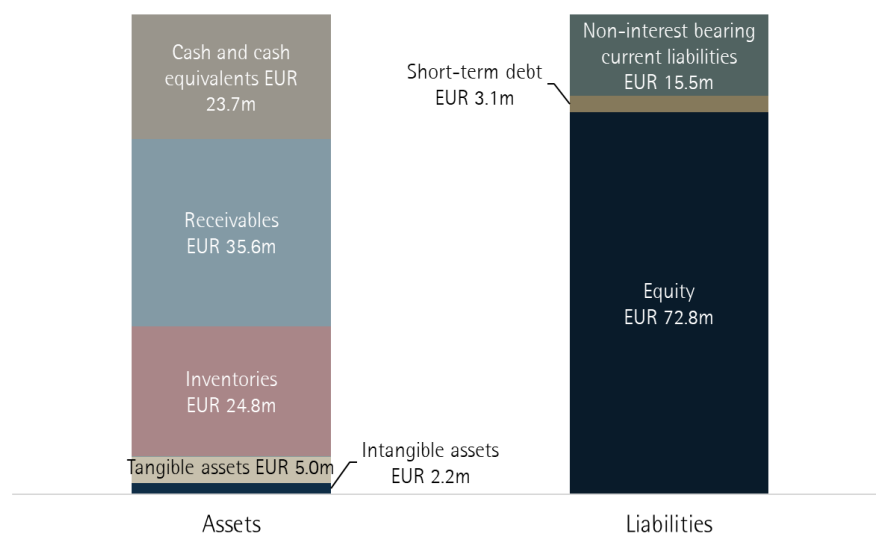
In 2018, DT acquired French firm MultiX through auction sales with the intention of enriching its product portfolio with multi-energy (ME) technology. The transaction was a long-term investment for DT, through which the company gained valuable technology and know-how for research and development. One factor contributing to the limited commercialization of ME technology is the cautious approach of DT's medical and security industries. Furthermore, the technology remains costly and would require a significant reduction in production expenses in order to achieve scale-up. Currently, DT mostly sell its ME technology to its industrial customers to our understanding. Nevertheless, we anticipate that with continued investment in the technology and customer-focused development initiatives, DT will enjoy a competitive advantage in commercializing the technology also in the medical and security sectors.

The latest acquisition to expand DT's market reach

In March 2023, the company agreed on the acquisition of Shanghai-based X-ray detection producer Haobo Imaging. Haobo focuses on flat-panel detectors and through the acquisition, DT gains access to TFT (thin film transistor) flat-panel detector technology. With the acquisition of Haobo, DT's offering now consists of all available X-ray detection technologies. First, DT acquires 90% of Haobo shares, with Haobo's founders and management continuing to hold 10% of the shares. DT has agreed on an option to acquire the rest 10% from Haobo founders and management with certain performance targets met. The acquisition is estimated to be closed by the end of June 2023. In our view, the business rationale behind the acquisition is sound, as it aligns with DT's 2025 strategy for expanding its technological competencies. Despite being a young company, we are confident that Haobo's technology has significant scalability potential, as it can be monetized to DT's existing and new customers in both the medical and industrial segments. However, we note that scaling the acquired business will require some OPEX investments, which probably delay the business' profits until 2025. Nonetheless, we expect that with the resources and expertise of DT, Haobo's technology will ultimately yield positive earnings.

Assets

Figure 14: Balance sheet at the end of 2022



Source: Detection Technology

Asset-light and strong balance sheet

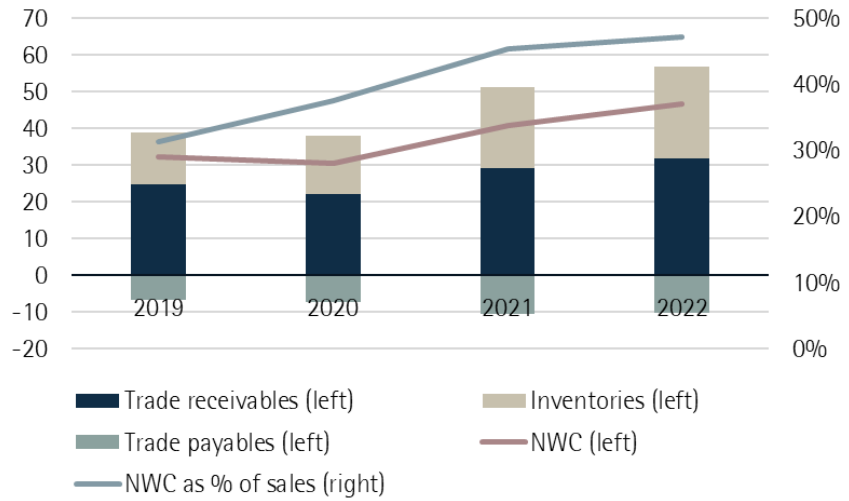
DT's balance sheet is asset-light and strong. The company is holding a relatively large cash position of EUR 23.7m which can be utilized in various investments such as acquisitions. To secure decent delivery times during the regime of low component availability, DT made front-loaded investments in its inventories. At the end of 2022, DT's inventories accounted for EUR 24.8m. Booked receivables amounted to EUR 35.6m and tangible assets accounted for EUR 5.0m at the end of 2022. DT's tangible assets consist of machines, assembly lines, and other equipment located in factories and R&D centers in Finland, China, and France. The company's balance sheet was goodwill-free, and the company had activated intangible assets worth EUR 2.2m at the end of 2022. It is however likely that goodwill will be recognized following the completion of the Haobo acquisition. With a high equity ratio of 80%, the company's equity amounted to EUR 72.8m. In our view, such equity ratio and positive earnings could lend additional room for the usage of debt to targeted investments. Non-interest-bearing current liabilities accounted for EUR 15.5m at the end of 2022 while short-term interest-bearing debt was EUR 3.1m.

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Figure 15: Net working capital in EURm

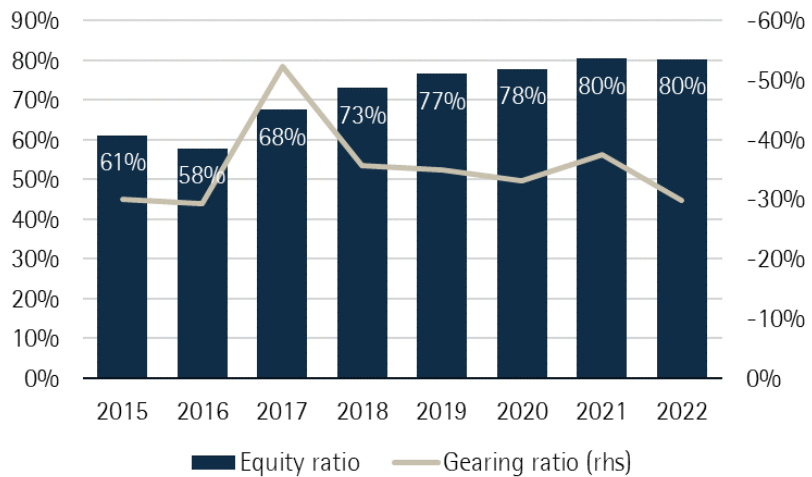


Source: Detection Technology

Elevated net working capital due to growth and position in the value chain

Our view is that the company's focus on growth and its position in the value chain has resulted in elevated net working capital (NWC). Moreover, DT's Chinese customers tend to postpone their payments which have partly resulted in increased trade receivables. To mitigate this issue, DT has intensified its credit control measures to reduce the proportion of trade receivables. In addition, DT has increased its inventories to reinforce its delivery capabilities during the regime of component shortage. As a consequence, DT's working capital has been hovering at approximately EUR 40-60m, with net working capital averaging around EUR 30-50m, which represents over 40% of net sales. Alarming is that the net working capital as a percentage of net sales has increased during the recent few years. Note that DT's sales haven't grown to the extent of its working capital. As the company's operations require no significant investments, we don't find the higher NWC as a worry but by improving its usage of working capital the company would access more efficient cash flows. A growing trend of relative NWC should be mitigated as soon as possible in our view.

Figure 16: Equity and net gearing ratio



Source: Detection Technology

Markets and competition

Market description

Market to grow over 5% annually

DT updated its strategy in mid-2019, and simultaneously expanded its target market to encompass new imaging technologies, specifically in the domain of digital X-ray imaging detector solutions and applications. According to DT's management, the market size is estimated to be approx. EUR 3.1 billion in 2025. Markets have seen some turbulence during the past few years which might have impacted the market development. Based on our estimations, the current market size stands at around EUR 2.8 billion, with an annual growth rate of 5.2%.

Overall digital X-ray imaging markets to reach EUR 3.1bn in 2025

In addition to the CT and line scanning solutions, the new EUR 3.1 billion market includes technologies that have yet to be fully commercialized or in which the company currently holds a relatively low market share. Moreover, for example, in flat-panel detectors, which represent a substantial share of the total X-ray detection markets, DT's market share is yet very marginal. In the past, X-ray detection revenue was primarily generated by plain hardware, but today, detection is increasingly enhanced through digitalization, which may become the most valuable feature of X-ray imaging in the future. DT searches for new revenue sources using the "beyond hardware" principle in which software, data, and services are emphasized alongside the hardware. For now, beyond hardware is most present in DT's industrial applications.

Marginal market share due to large and fragmented market

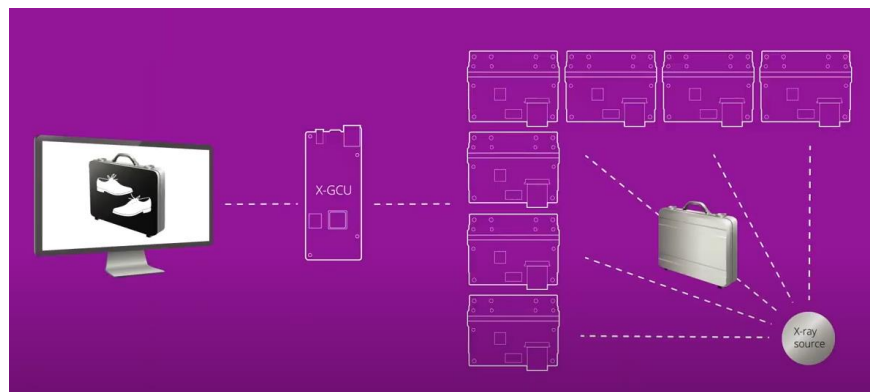
Although the company has not disclosed its current market share in the newly expanded market, it can be surmised that its share is still relatively small, given the substantial share of new technologies (as illustrated in Figure 20) and considering DT's sales in that category (a-Si, IGZO, and CMOS).

X-ray technologies

X-ray to inspect substances

The passage of X-rays through materials can be recorded with photographic films and detectors, which allows one to see inside objects. X-ray imaging can be used in various applications since the strength of X-ray power can be adjusted to fit the features of the examined object.

Figure 17: Detectors and X-ray control unit



Source: Detection Technology

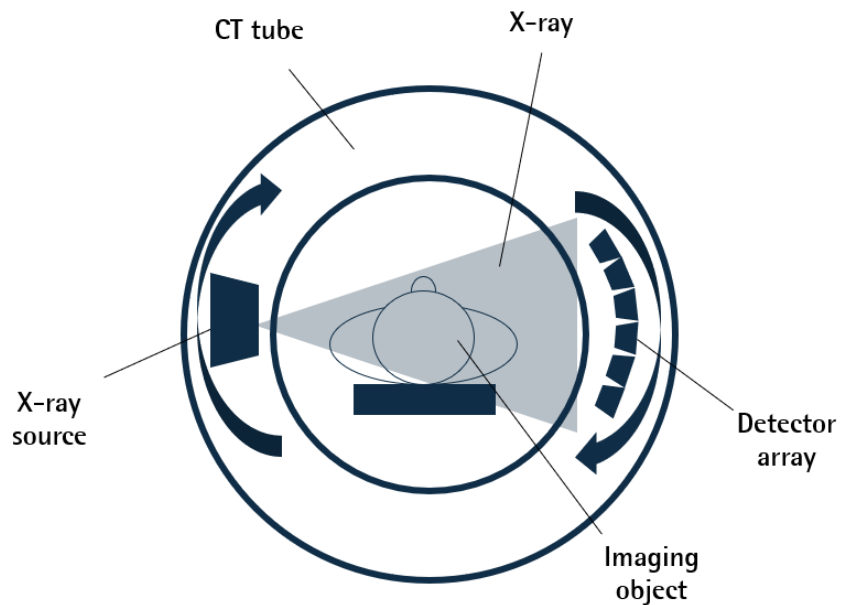
Detector is the most critical component in X-ray equipment

X-ray imaging equipment is composed of various components, including an X-ray generator, a detector, and a host computer for data processing. The detector is the most critical component for image quality, and its cost typically accounts for 12-25% of the total equipment cost. However, the cost range may vary depending on the application and the level of customization required. The number of detectors in X-ray equipment also varies, depending on the size and purpose of the equipment. For example, an airport security inspection line scanner typically has several detectors, while a CT scanner may have over 100 detectors.

Algorithms and AI to enhance imaging

Nowadays, digital X-ray technology heavily depends on algorithms and AI that analyze and interpret the data acquired by the detector. These algorithms have the capability to detect objects that may not be visible to the human eye, such as diseases and drugs. The incorporation of algorithms and AI allows for the X-ray inspection process to be automated, making it a clear advantage in industries where time is a critical resource.

Figure 18: Computed tomography equipment



Source: Evli Research

Table 2: Digital X-ray detector technologies

	FPDs					
	CT	Line Scan	CMOS	IGZO	a-Si	ME/PC
For what	<ul style="list-style-type: none"> • Medical • Security • Industrial 	<ul style="list-style-type: none"> • Security • Industrial 	<ul style="list-style-type: none"> • Medical • Vet • Dental • Industrial 	<ul style="list-style-type: none"> • Medical • Vet • Dental • Industrial 	<ul style="list-style-type: none"> • Medical • Vet • Dental • Industrial 	<ul style="list-style-type: none"> • Now: mainly for industrial • Future: applicable for all industries
Functionalities	<ul style="list-style-type: none"> • High-end solution for X-ray imaging • Fast dynamic motion • Accurate 3D images 	<ul style="list-style-type: none"> • Traditional X-ray for security and industrial inspection • Less expensive than CT and FPDs • Fast dynamic motion 	<ul style="list-style-type: none"> • High-end FPD • Most efficient in performance wise • Higher cost • Fast dynamic motion 	<ul style="list-style-type: none"> • Second best FPD in performance wise • Lower cost than CMOS • Dynamic motion 	<ul style="list-style-type: none"> • Most cost efficient • Most suitable for industrial imaging • Static and dynamic motion 	<ul style="list-style-type: none"> • Most accurate and efficient X-ray technology • Very high cost for now • Both 2D and 3D images
DT's position	<ul style="list-style-type: none"> • Strong market position in high-end medical and security 	<ul style="list-style-type: none"> • Strong market position in security and solid in industrial 	<ul style="list-style-type: none"> • Developing market position in medical and industrial 	<ul style="list-style-type: none"> • Acquiring the technology from Haobo Imaging 	<ul style="list-style-type: none"> • Acquiring the technology from Haobo Imaging 	<ul style="list-style-type: none"> • Markets yet to commercialize • Strong technological background

Source: *Detection Technology, Evli Research*

Four different sub-technologies of X-ray imaging

As separated above, X-ray detection technologies can be divided into four groups: computed tomography (CT), line scan, flat-panel detectors (FPDs), and multi-energy. While CT and line scanners represent DT's established technologies, we now emphasize the analysis of emerging technologies in DT's portfolio, namely FPDs, and ME.

Haobo to bring the remaining technologies of FPDs

In general, flat-panel detectors are categorized into three technology types: CMOS (complementary metal-oxide semiconductor), a-Si (amorphous silicon), and IGZO (indium gallium zinc oxide). DT had already introduced and commercialized CMOS flat-panel detectors for surgical, dental, and industrial applications. Recently, in March 2023, the company acquired Haobo Imaging, a Chinese company that specializes in TFT flat-panel detector technologies, including a-Si and IGZO, as well as CMOS.

DT has all flat-panel technologies to support different kind of customer needs

While CMOS detectors have strong performance characteristics (resolution, speed, and sensitivity), the cost of technology becomes higher with panel size increasing. CMOS technology is suitable for applications that prioritize image resolution, such as surgical imaging. Amorphous Silicon (a-Si) is a key technology in entry-level displays that are produced in high volumes. Although boasting a lower detector cost, a-Si has a few drawbacks that limit its uses in dynamic X-ray imaging to more niche situations. A-Si does not perform as well in low dose exposures compared to CMOS detectors, is slower in pixel readout speeds, and cannot support the smaller pixels as may be used in CMOS detectors, which restricts very high resolutions. The third alternative on the market is the recent indium gallium zinc oxide (IGZO) flat-panel detectors. IGZO TFT's can be made smaller than a-Si TFT's and offer significantly improved switching performances. As a consequence, pixels become more sensitive (lower noise), can provide faster readout, and detector panel resolution can be further increased. IGZO panels are also just as available in cost-effective and versatile options as the a-Si panels for medical applications. Unlike the a-Si panels, they can acquire a usable image at equal or lower X-ray doses at faster acquisition speeds and with higher resolution. Performance-wise, IGZO detectors are second best to CMOS detectors, but their expected price point puts them in a favorable position.

Multi-energy to bring growth some day

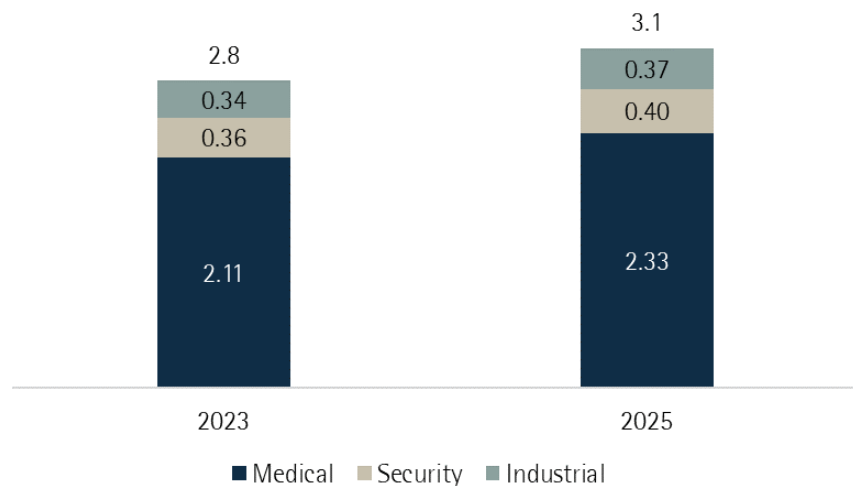
DT entered the multi-energy technology market with the acquisition of MultiX in 2018. Although the commercialization rate of ME technology is currently low, DT sees potential business opportunities in ME's high level of accuracy and applicability across various industries. OEMs are currently developing vertical solutions for their ME equipment which limits DT's market opportunity to some extent for now. As the supply and usage of ME technology increases, its production cost decreases, which thereby reduces the end-price. At this moment, DT has ME solutions for industrial and security applications.

Market size

Market amounts to EUR 3.1bn in 2025

According to DT's estimate, the market size approximates to EUR 3.1bn in 2025. In our estimates, the present market size varies around EUR 2.8bn. However, the COVID-19 pandemic and component shortage have disrupted the market dynamics and estimates might change over time.

Figure 19: Digital X-ray detector market by segments in EURbn



Source: *Detection Technology, Evli Research*

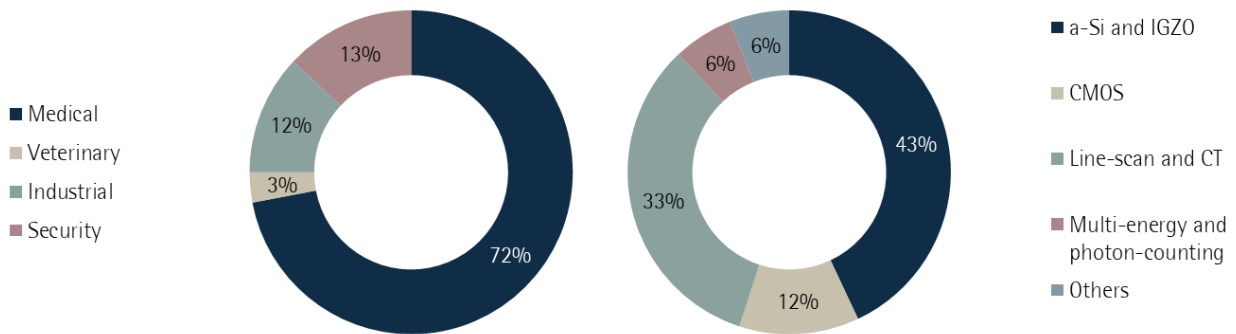
Medical to dominate other industries volume-wise, security to grow most prominently

The X-ray technology is predominantly utilized in the medical sector, wherein the market size for medical X-ray detectors is projected to reach a value of approx. EUR 2.3bn by the year 2025. In comparison, the market sizes for security and industrial applications are relatively lower, with security estimated to be around EUR 400m and industrial expected to reach a value of EUR 370m by 2025. The global X-ray detector market is expected to face an annual growth rate of 5.2%. DT forecasts an average annual growth rate of 5% for the medical and industrial sectors, while estimating a CAGR of 6% for the security market. It is noteworthy that the security market is currently experiencing a higher growth rate temporarily, owing to the recent setback caused by the COVID-19 pandemic.

Freshly established technologies to cover the majority of the market

In 2025, the share of original CT and line scan detectors from the overall digital X-ray detector market is estimated to be around 33% while DT's recent establishments (ME and FPDs) will dominate the market by a share of 72% with TFT flat-panel technologies (a-Si and IGZO) representing the majority.

Figure 20: Estimated market shares by segments and technologies in 2025



Source: Detection Technology

Competitors

DT stand out from competitors with its strict focus on digital X-ray imaging components

DT competes with well-established, large corporations focusing on optoelectronic-related products. DT differs from most of its competitors with its pure focus on X-ray detector solutions. In our view, it enables the strict focus to execute targeted investments in developing a single branch of technology. To our understanding, DT's products are more expensive than the average cost of a detector which in turn is reflected in high-end quality. However, DT has also some entry-level, off-the-shelf components through which DT can serve also more cost-aware clients. Higher cost levels should be visible in wider gross margin levels, but as shown in Figure 25, DT nears its peers in terms of gross margin. Direct comparison is however biased due to peer group companies' X-ray detection unrelated businesses.

Table 3: Positioning of competitors in the X-ray imaging markets

	Medical	Security	Industrial
HAMAMATSU	✓	✓	✓
amul OSRAM	✓	✗	✗
OSI	✓	✓	✓
ANALOG DEVICES AHEAD OF WHAT'S POSSIBLE™	✓	✗	✗
First Sensor TE is now part of	✓	✗	✓
VAREX IMAGING	✓	✓	✓
Regina	✗	✓	✓
X-SCAN IMAGING	✗	✗	✓
SENS-TECH SENSOR TECHNOLOGIES	✗	✓	✗

Source: Evli Research

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Analog Devices is an American multinational semiconductor company that specializes in data conversion and signal processing technology. Analog Devices sells signal processing technologies for medical imaging. The company produces both standard and application-specific components for CT scanners and digital X-rays.

AMS OSRAM is an Austrian-based designer and manufacturer of optical solutions. The company sells various sensors, interfaces, LiDARs, etc. to industrial, security, and medical customers. AMS competes with DT in flat-panel and CT scan detectors. Through the acquisition of Osram Licht AG in 2020, AMS almost doubled its revenue.

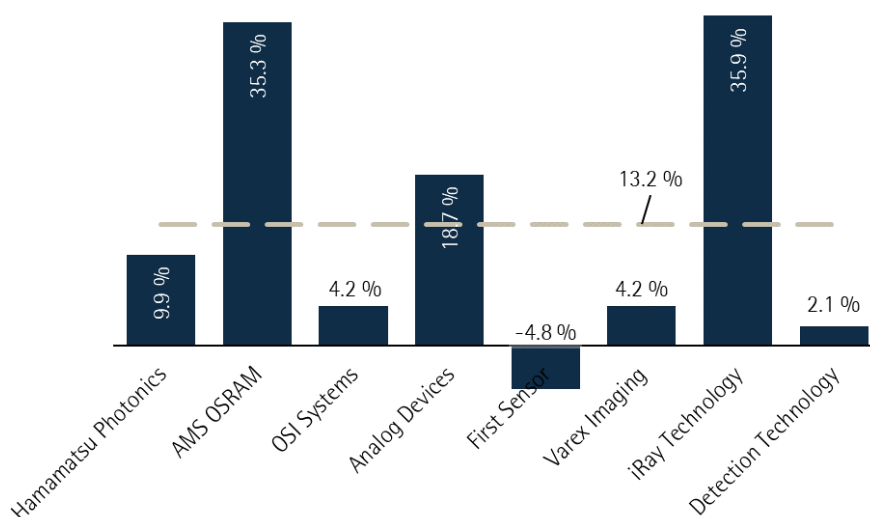
Hamamatsu Photonics is a Japanese company manufacturing photomultiplier tubes, imaging devices, light sources, Opto-semiconductors, imaging, and analyzing systems. Hamamatsu competes with DT in all its business segments and is a clear leader in the medical detector market.

Sens-Tech headquartered in Egham, United Kingdom, develops and manufactures high-sensitivity solutions for the detection of light and X-rays. In terms of detectors, Sens-Tech operates in security applications, but it also has other solutions for the medical and industrial fields.

iRay Technology engages in the research, development, production, and sale of digital X-ray detectors. It offers universal cables, universal radios, mammography detectors, radiography detectors, dynamic detectors, and linear detector arrays. iRay operates in security and industrial applications.

X-Scan Imaging Corporation is a US-based manufacturer of high-performance, CMOS Linear Diode Arrays, CMOS & CCD Time Delayed Integration detectors, and line-scan camera systems designed for both visible and radiographic imaging applications. X-Scan competes against DT in industrial applications.

Figure 21: Sales CAGR (5-year)

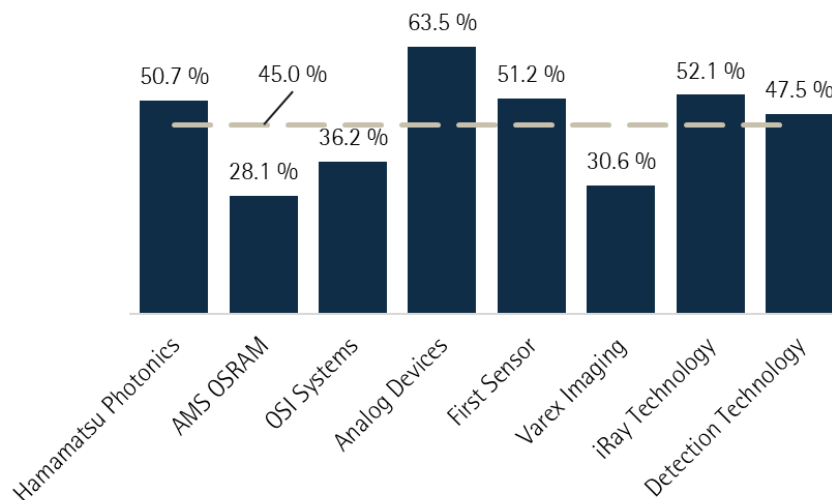


Source: Bloomberg

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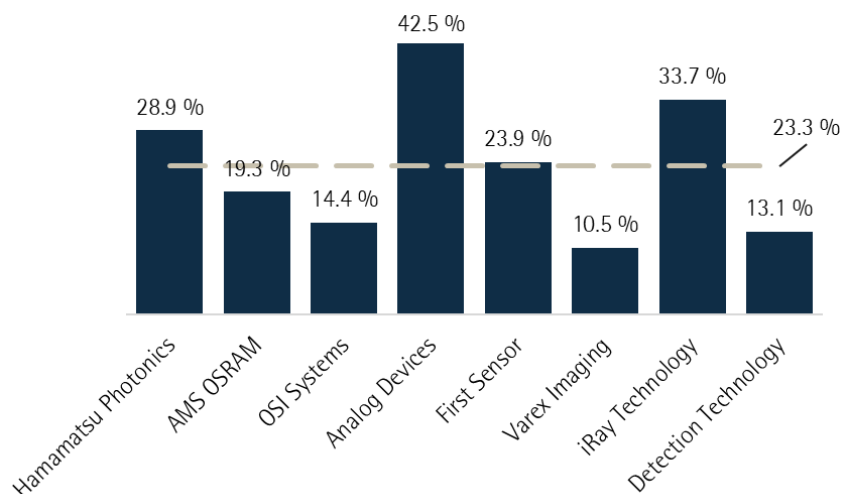
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Figure 22: Average gross margin (2020-22)



Source: Bloomberg

Figure 23: Average EBITDA margin (2020-22)



Source: Bloomberg

Competitive landscape

Competition tight in each business area

In our view, the competition is tight in each business area. Governments and public entities, which are the predominant end-customers in medical and security applications, tend to prioritize price when making procurement decisions. While the medical market is relatively mature and has become more concentrated among a select number of players, the security and industrial markets remain more fragmented. We believe that DT has established a solid position in the security market with approximately 10% market share, and the company is well positioned for future growth in the medical market. In our view, DT has quite a strong position in Asian medical markets. With the fragmented and new market, DT's share in the industrial market is marginal at present.

Price competition has been present

The escalation of price competition in recent years has compelled DT to discontinue certain products and substitute them with lower-cost alternatives to compete with customer turnover. For instance, the replacement of X-Card2 with Aurora was aimed at addressing this issue. According to DT's management, Aurora has not only reclaimed lost customers but has also attracted new ones. Our assessment suggests that price competition is more intense in the medical and security markets than in the industrial sector.

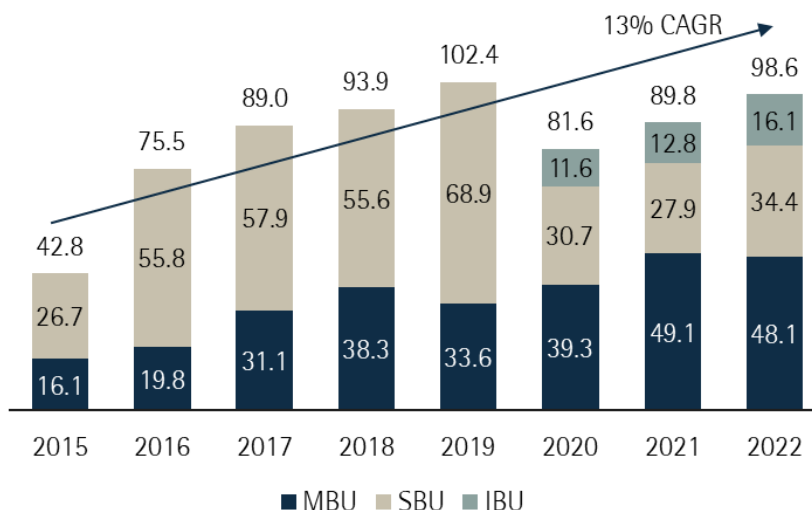
High entry barriers with high-end technology

In our view, the X-ray imaging market presents high entry barriers for new entrants. DT's investments in research and development activities and technological expertise underpin the company's competitive position in this industry. DT's capacity to provide customized solutions and its comprehensive product range further enhance its competitiveness. In addition, the company's innovative technology is safeguarded by patents, providing protection against competition.

Financial performance

Net sales

Figure 24: Net sales in EURm



Source: Detection Technology

Track record of strong growth

Detection Technology has a commendable track record of achieving profitable growth. Over the period between 2010 and 2022, the company demonstrated an annual revenue growth of 18%. Meanwhile, during its tenure on Nasdaq First North Helsinki (2015-22), DT exhibited average annual growth rates of 13%. The growth has been mostly organic since only one marginal acquisition has been made during the inspection period.

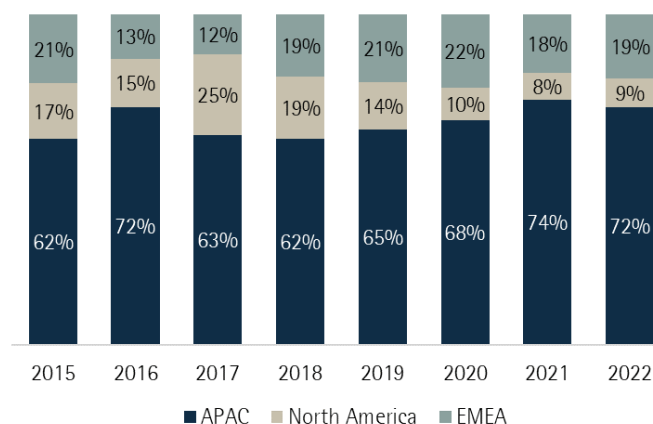
MBU has been the growth leader

In recent years, MBU has been the fastest-growing unit recording a CAGR of 20% between 2015 and 2022. SBU experienced a significant drop in demand during the COVID-19 pandemic, with the aviation segment starting to recover not until late 2021. Between 2015 and 2019, the combined SBU and IBU grew by an average of approx. 27% annually. Although IBU operates currently as an independent business unit, its track record thus far is also encouraging, growing annually by 18% on average during 2020-22.

The company has returned on the growth track

DT's FY 2020 was difficult due to the globally spread pandemic. SBU saw a tremendous drop in sales in 2020 which continued also in 2021. IBU and SBU were reported as one business unit until 2020 and for that reason, the exact decline in SBU sales is hard to estimate. Together, SBU and IBU declined by 39% y/y in 2020. The medical business overtook SBU in sales in 2020. Despite strong growth, MBU wasn't enough to offset the decline in SBU and the group revenue declined by 20% in 2020. DT returned back to its growth path in 2021. Drivers behind the 2021 increase were MBU and IBU which both showed double-digit growth figures. While MBU was a bit soft, both IBU and SBU boosted DT's 2022 growth rate near 10%. The growth would have been stronger without the component shortage since DT saw some postponed sales during each quarter of 2022.

Figure 25: Net sales by region in EURm



Source: Detection Technology

Strong market presence in China

In recent years, DT has established itself as a strong competitor in the APAC region, particularly in China. The company's expansion into Asia began in 1994 with the establishment of its silicon wafer processing operations in China and its cooperation with Chinese scientists, universities, and authorities. While this strong presence in China presents geopolitical risks in light of current tensions, we acknowledge that the APAC region is a key market for DT given that several major medical OEMs operate in the region. The company is taking steps to mitigate these risks by moving a portion of its China-based production to Finland in the coming years to provide EU-origin products for some of its Western customers.

Not so favorable trend in Americas

DT has faced declining sales in the Americas since 2018. The decrease in revenue observed during 2020–21 can be partially attributed to a reduction in demand for SBU's products, as some security OEMs are situated in North America. In 2022, Americas' sales saw a strong 17% y/y increase. DT's products are mainly produced in China, and the trade war between the US and China has had a direct impact on sales in the Americas. DT's management has noted that the tariffs imposed on the company are currently at full capacity, but certain procedures are implemented to mitigate the impact of tariffs, for instance, selling detectors made in China internally through its subsidiaries.

Decent development also in the EMEA

The sales in the EMEA region experienced strong double-digit growth until 2020 when the region's revenue faced a slight decline due to the COVID-19 pandemic. Some security OEMs, such as Smiths Detection, operate from Europe, which could partially explain the decline in the sales of EMEA in our view. On the other hand, we view that the majority of industrial customers are based in the EMEA region, which suggests that there could be upside potential in the region's sales if the usage of imaging among industrial companies increases. Overall, we view the EMEA region as an important market for DT and will closely monitor the company's performance in the region going forward.

Non-APAC growth only 8% annually

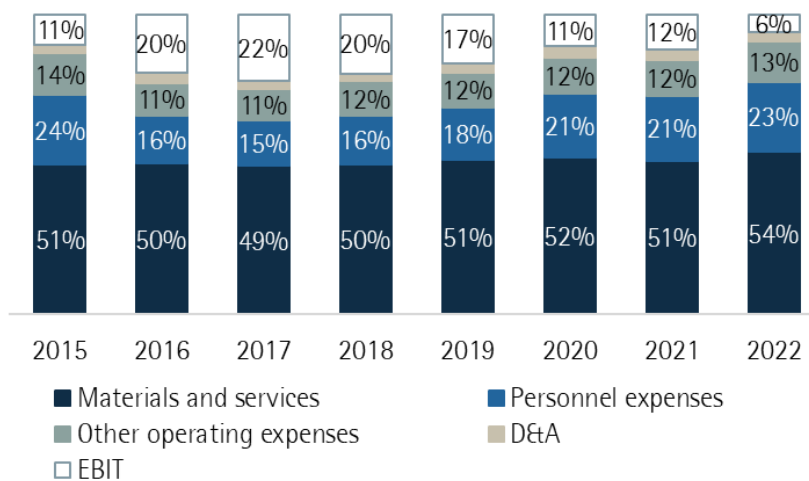
DT has shown the most favorable growth in the APAC region, with sales growing at a CAGR of 15% from 2015 to 2022. In comparison, non-APAC revenue has increased by 8% on average during the same period. However, in 2020, sales in the APAC region declined by 17%, which may be partly due to exposure to the security segment. The share of sales from the APAC region has also grown in relative terms, increasing year after year from 2017 to 2021. As of 2022, the APAC region represents 72% of DT's sales, with China being the majority contributor.

Cost structure

Current cost structure should support for higher volumes

The company's cost structure is straightforward and quite stable, allowing for scalability with high revenue growth. Over 50% of the total operating expenses are variable costs, which include materials and services. In 2022, the company experienced an increase in material expenses due to more expensive spot-component purchases caused by the component shortage. Personnel expenses have remained relatively stable at approximately 20% of net sales, but in 2022, they were 23% due to elevated salary inflation and overtime compensations paid to production personnel in China at the end of the year. The company's management has indicated that salaries among talented personnel face some upward pressure. Other operating expenses, including other operating income, have typically varied between 11-14% of net sales. The depreciation and amortization expenses are relatively low at around 3% of net sales due to the scarcity of in-/tangible assets.

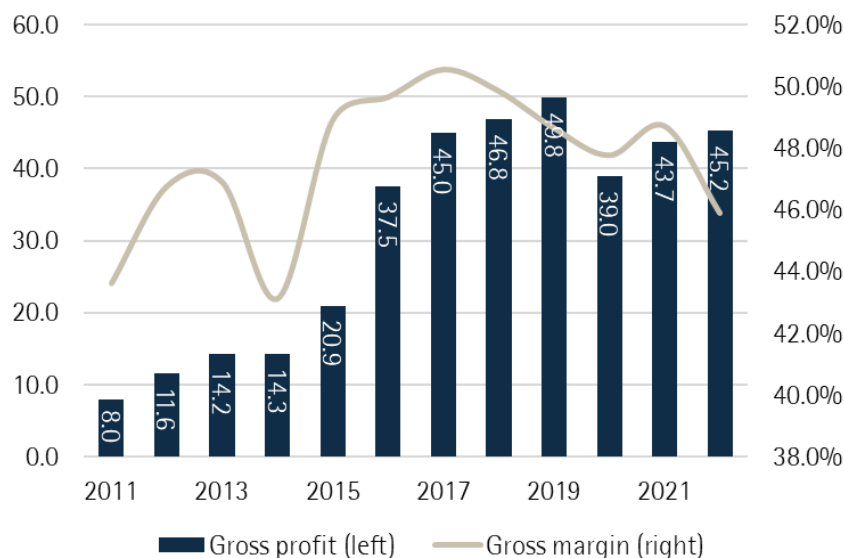
Figure 26: DT's cost structure during 2015-2021



Source: Detection Technology

Gross margin and profitability

Figure 27: Gross profit in EURm and gross margin

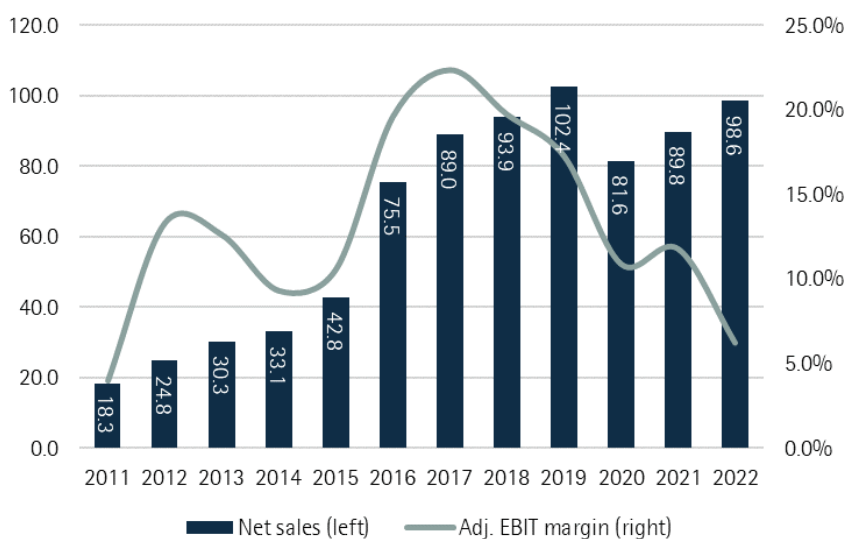


Source: Detection Technology

Gross margin was impacted by the component shortage

According to the company's management, product margins vary depending on customer profile, and prices are usually agreed upon on a binding basis for the following year. The gross margin has been impaired since 2017. Our understanding is that the gross margin has weakened due to increased price competition starting from 2017-18 as well as later by the impact of global supply chain issues. In early 2022, DT started an R&D program to decrease its exposure to a component shortage. The R&D program was mostly completed by the end of 2022 which was seen in improved lead times. We expect to see a slight improvement in margins as a result of reduced spot-component purchases, but the primary impact of the R&D program will likely be directed to topline growth.

Figure 28: Net sales in EURm and adj. EBIT margin.



Source: Detection Technology

Soft trend in EBIT margin

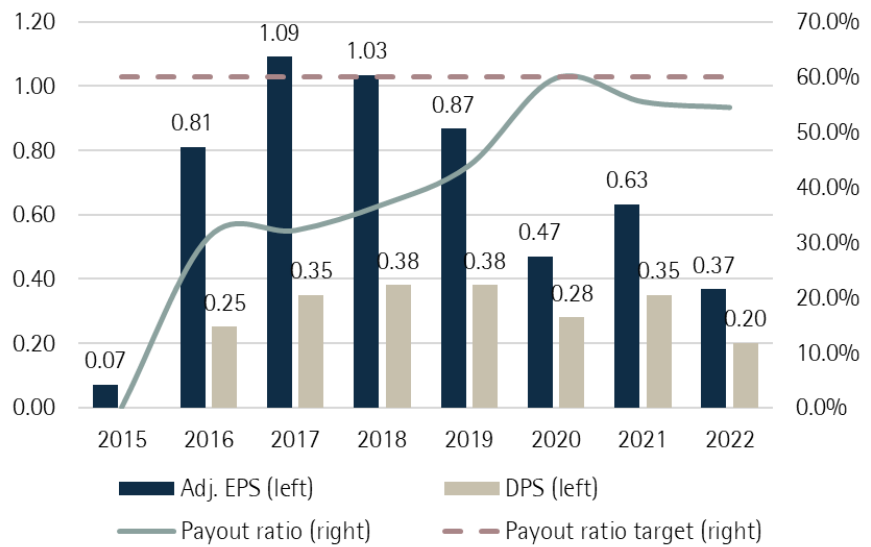
DT is targeting an EBIT margin of 15%. During 2016-19, the company generated solid profitability exceeding its target level. The downgrade of EBIT margin during 2018-2019 was mainly caused by worsened gross margin and increased investments in future growth and R&D. DT’s scalable business model levers in both ways. In this case, when volumes are lower, profitability faces pressure from high relative fixed costs. During 2020-21, lower volumes, higher material costs, and elevated fixed costs have resulted in an EBIT margin below 15%. The margin impaired further in 2022 due to increased fixed costs and softer gross margin. However, with component availability improving, we foresee the company enhancing its profitability should volumes continue in solid growth.

R&D is hampering EBIT potential

The company invests aggressively in R&D and a major part of the costs are written off during the financial year. R&D costs are constantly pushing the margins, but the company has shown its capability of developing its product portfolio profitably. In addition, R&D drives future topline growth quite explicitly. The year 2022 was exceptional in terms of R&D investments. The company invested a substantial amount in R&D to modify its products and gain access to components that are readily available. In 2022, R&D costs represented 12.7%, clearly above an average of 10.7% (2015-2022).

Earnings

Figure 29: Earnings and dividend per share in EUR



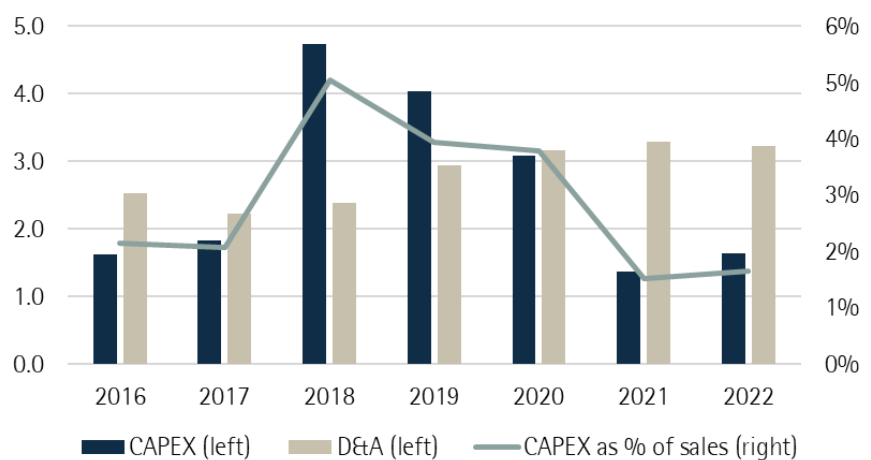
Source: Detection Technology

DT has been quite consistent with dividends

DT made its record EPS in 2017 when the relative profitability was also at the highest level in recorded history. Since 2018, earnings have declined in line with worsening margins. The company has increased the relative dividend consistently. In 2020, DT distributed almost 60% of its net result to shareholders, while in 2021 and 22, the figure was 50 basis points lower. DT's target is to annually distribute dividends or returned capital worth 30-60% of the net result.

Capital expenditures

Figure 30: Capital expenditures in EURm



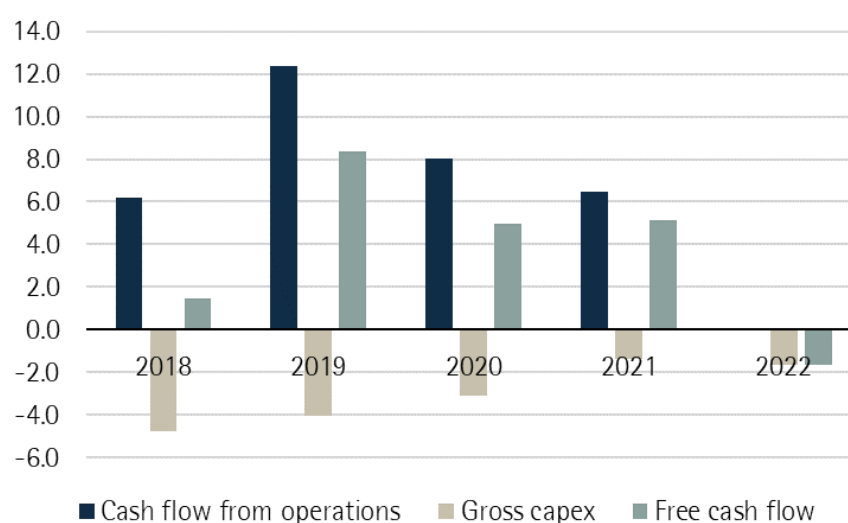
Source: Detection Technology

Low CAPEX needs

DT's capital expenditures typically consist of investments in factories, IT systems, or equipment. During 2015-2022, DT acquired a new technology company MultiX (2018), invested in new production facilities in Peking, China (2015) and Wuxi, China (2019-2020) as well as established a new talent hub in Nanjing, China (2021) of which materialize rather as P&L costs than CAPEX according to our estimations. CAPEX as a percentage of net sales illustrates the low capital intensity of DT's business model. In recent years, the annual capital expenditures have varied between ~2-5% of total net sales.

Cash flow

Figure 31: Free cash flow in EURm



Source: Detection Technology

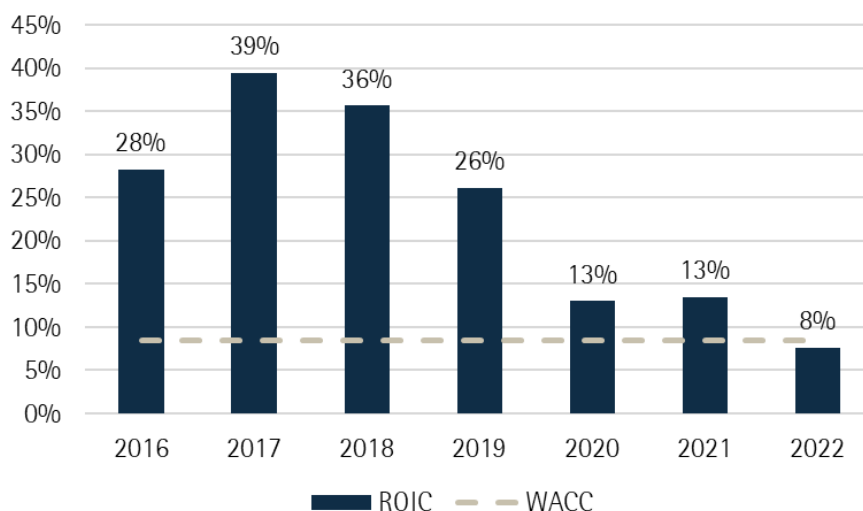
Decent cash flow profile on a good day

The company has a decent cash flow profile with an average cash conversion¹ of 41% (2018-2022). During 2019-20, cash conversion exceeded 60% while the ratio saw a drop in 2022 with soft EBITDA and increased working capital. To our understanding, the company's management has initiated actions for improving its cash flow, especially through enhanced management of working capital. It however requires higher EBITDA in order to achieve cash flow levels seen during 2018-20.

¹ Cash conversion = Cash flow from operations / EBITDA

Selected key figures

Figure 32: Return on invested capital (ROIC)*



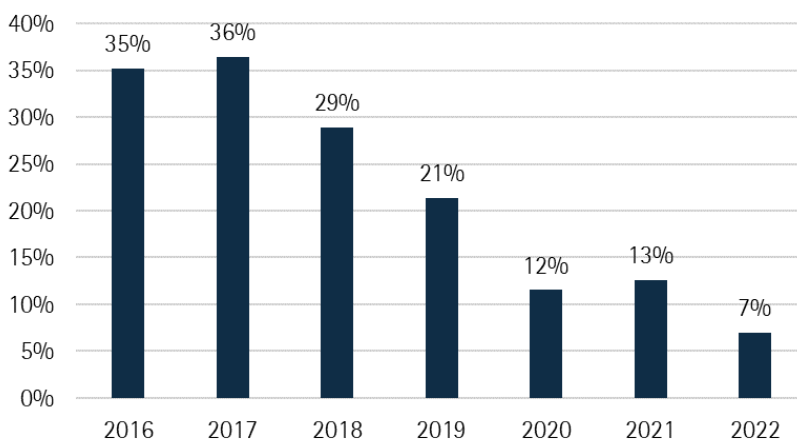
Source: Detection Technology, Evli Research

* ROIC = Net operating profit after tax / (interest bearing debt + total equity + non-operating cash flow)

Negative trend in return on capital should be pivoted

During 2015-21, DT's return on invested capital (ROIC) exceeded its weighted average cost of capital (WACC) which indicates DT's ability to create value over time. However, in 2022, the company's ROIC fell below WACC due to poor profitability. Moreover, the company's ROIC figure has declined since 2017 which is not a preferable trend in our view. DT has a scalable business model, but the power of scale might have decreased during recent years with increased cost pressures. The topline is still below that of 2019 which in part explains soft scalability. With DT growing in volumes, we foresee potential in scalability improving. In line with ROIC, also return on equity (ROE) has seen a downward trend.

Figure 33: Return on equity



Source: Detection Technology

Estimates

Challenges should be behind now

After the pandemic year of 2020, DT has managed to record decent growth, which however has been impacted by several slowing factors. First, SBU declined for seven consecutive quarters mainly due to decline of the aviation sector. In addition, disruptions in supply chains caused delays in DT's delivery times, which was visible in postponed sales. Due to component shortage, DT redesigned a significant number of its products. Consequently, the company's R&D costs increased above normal levels and profitability weakened.

Expecting very high EPS growth

We made no changes to our estimates. The outlook for the near future seems favorable with supply chain challenges easing and security investments increasing in the industry of aviation. In addition, the underlying demand in industrial and medical segments is expected to continue solid. We expect DT to record ~11% annual revenue growth during 2023-25 and adj. EPS growth of 46%. EPS growth centers around years 2023 and 2024.

Table 4: Estimates

Estimates	2017	2018	2019	2020	2021	Q1'22	Q2'22	Q3'22	Q4'22	2022	Q1'23	Q2'23E	Q3'23E	Q4'23E	2023E	2024E	2025E
Net sales	89.0	93.9	102.4	81.6	89.8	20.3	22.8	27.3	28.2	98.6	22.8	26.3	31.9	32.4	113.4	126.8	138.5
Medical	31.1	38.3	33.6	39.3	49.1	10.5	10.1	14.8	12.7	48.1	12.0	11.8	16.0	14.3	54.1	58.3	61.8
Security	57.9	55.6	68.9	30.7	27.9	6.3	8.6	8.5	10.9	34.4	7.3	10.3	11.3	13.1	41.9	49.5	56.4
Industrial	-	-	-	11.6	12.8	3.5	4.0	3.9	4.6	16.1	3.4	4.2	4.6	5.1	17.3	19.0	20.3
EBITDA	22.1	20.9	19.9	12.0	13.9	2.3	1.7	1.5	3.6	9.1	2.3	3.5	4.7	6.3	16.8	22.6	24.9
EBIT	19.9	18.5	17.0	8.7	10.6	1.5	0.9	0.6	2.8	5.8	1.5	2.6	3.8	5.4	13.3	19.2	21.2
Adj. EBIT	19.9	18.5	17.7	8.9	10.6	1.5	1.2	0.6	2.8	6.1	1.5	2.3	3.8	5.4	13.0	19.2	21.2
Adj. EPS	1.09	1.03	0.87	0.47	0.63	0.09	0.07	0.05	0.16	0.37	0.06	0.11	0.22	0.29	0.69	1.03	1.14
<i>Net sales growth-%</i>	<i>17.9%</i>	<i>5.5%</i>	<i>9.1%</i>	<i>-20.4%</i>	<i>10.1%</i>	<i>10.9%</i>	<i>-3.3%</i>	<i>17.5%</i>	<i>14.1%</i>	<i>9.8%</i>	<i>12.0%</i>	<i>15.4%</i>	<i>16.9%</i>	<i>14.9%</i>	<i>15.0%</i>	<i>11.8%</i>	<i>9.3%</i>
<i>Medical</i>	<i>57.5%</i>	<i>23.1%</i>	<i>-12.4%</i>	<i>17.0%</i>	<i>25.1%</i>	<i>4.5%</i>	<i>-25.2%</i>	<i>24.0%</i>	<i>-6.6%</i>	<i>-2.0%</i>	<i>14.6%</i>	<i>16.6%</i>	<i>8.0%</i>	<i>12.7%</i>	<i>12.5%</i>	<i>7.6%</i>	<i>6.0%</i>
<i>Security</i>	<i>3.8%</i>	<i>-4.0%</i>	<i>23.9%</i>	<i>-55.4%</i>	<i>-9.1%</i>	<i>7.5%</i>	<i>25.4%</i>	<i>14.6%</i>	<i>41.0%</i>	<i>23.1%</i>	<i>16.2%</i>	<i>19.2%</i>	<i>32.4%</i>	<i>19.4%</i>	<i>22.0%</i>	<i>18.0%</i>	<i>14.0%</i>
<i>Industrial</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>10.1%</i>	<i>45.2%</i>	<i>29.3%</i>	<i>2.8%</i>	<i>34.5%</i>	<i>25.8%</i>	<i>-3.0%</i>	<i>4.0%</i>	<i>16.9%</i>	<i>10.5%</i>	<i>7.5%</i>	<i>10.1%</i>	<i>7.0%</i>
<i>EBITDA margin</i>	<i>24.9%</i>	<i>22.2%</i>	<i>19.4%</i>	<i>14.7%</i>	<i>15.4%</i>	<i>11.4%</i>	<i>7.3%</i>	<i>5.5%</i>	<i>12.7%</i>	<i>9.2%</i>	<i>10.2%</i>	<i>13.2%</i>	<i>14.8%</i>	<i>19.4%</i>	<i>14.8%</i>	<i>17.9%</i>	<i>18.0%</i>
<i>EBIT margin</i>	<i>22.4%</i>	<i>19.7%</i>	<i>16.6%</i>	<i>10.7%</i>	<i>11.8%</i>	<i>7.4%</i>	<i>3.8%</i>	<i>2.3%</i>	<i>9.9%</i>	<i>5.9%</i>	<i>6.5%</i>	<i>10.0%</i>	<i>12.0%</i>	<i>16.6%</i>	<i>11.8%</i>	<i>15.2%</i>	<i>15.3%</i>
<i>Adj. EBIT margin</i>	<i>22.4%</i>	<i>19.7%</i>	<i>17.3%</i>	<i>10.9%</i>	<i>11.8%</i>	<i>7.4%</i>	<i>5.2%</i>	<i>2.3%</i>	<i>9.9%</i>	<i>6.2%</i>	<i>6.5%</i>	<i>8.8%</i>	<i>12.0%</i>	<i>16.6%</i>	<i>11.5%</i>	<i>15.2%</i>	<i>15.3%</i>

Source: Evli Research

Guidance

Due to short lead-times and order book, the visibility to DT's future performance is somewhat blurry. As a result, DT does not offer full-year guidance but instead provides a forward-looking statement specifically for the next one to two quarters. Following the Q1 result, DT is expecting:

- Group net sales to grow by double-digit in both Q2 and H1
- Quarterly improving profitability in 2023
- MBU and SBU to grow by double-digit and IBU to grow in Q2

2023 estimates

2023 growth supported by strong underlying demand

In 2023, we expect DT to reach a revenue of EUR 113.4m, reflecting y/y growth of 15%. The growth is driven by all business units, with SBU having the strongest impact. We anticipate SBU to record y/y growth of 22% with net sales amounting to EUR 41.9m. Our view is that there still exists some pent-up demand which is currently seen in new orders coming in. TSA is commencing a new wave of detector orders, which, as we understand, will materialize more prominently in 2024 and 2025. We expect MBU to show y/y growth of 12.5% with net sales accounting for EUR 54.1m. The growth is driven by solid underlying demand and soft comparison figures. We foresee IBU's growth pace to slow down to 7.5% from record year of 2022 with net sales amounting to EUR 17.3m. The growth centers to H2 while IBU declined in Q1 due to strong comparison figures and customer inventory corrections. The underlying demand in the industrial markets is expected to continue as good.

Margin to improve but not reaching the company's target

DT's cost base faced some pressure in the comparison year. In 2023, we expect cost base starting to scale with the revenue growth and increase in fixed costs slowing down. We anticipate gross margin to slightly improve from that of the comparison period with lower spot-component usage. The scalability is however limited by the acquisition of Haobo Imaging since DT is planning significant operative investments into the business. DT noted that the business of Haobo is expected to be EBIT positive by the end of 2025. The company had previously indicated that reaching the medium-term target of 15% EBIT margin in 2023 is unlikely. We expect DT to record EBIT of EUR 13.3m which turns to margin of 11.8%.

2024-25 estimates

Growth to continue also during 24-25

For 2024 and 2025, we expect the company's decent growth to continue. In 2024, we foresee net sales landing at EUR 126.8m, reflecting y/y growth of 11.8%. The growth is driven by all business units, but we foresee SBU contributing the most. Meanwhile, in 2025, we anticipate DT to record net sales of EUR 138.5m, which is equivalent to y/y growth of 9.3%. Likewise, we foresee each business to grow but security business is expected to see the most prominent increase. Our expectations of SBU's growth are supported by TSA's aviation security investments. Furthermore, we expect the scaleup of Haobo to bring new sales to both industrial and medical segments with the new market area of FPDs.

Scalability to kick largely in 2024 and 25

We expect small improvements in 24-25E gross margins, assuming no spot-component purchases and correct pricing actions. With moderate growth in fixed costs, we expect DT's growth to scale and the company to overtake the boundary of 15% EBIT margin. In 2024, we expect the company to reach an EBIT of EUR 19.2m, reflecting a margin of 15.2%. We further expect EBIT to increase to EUR 21.2m, and a small 0.1%-p. improvement in the margin in 2025.

Valuation

Table 5: Estimates

Valuation			
Method	23	24	Weight
DCF	19.9	19.9	10%
EV/EBITDA	18.1	19.2	10%
EV/EBIT	17.4	17.8	40%
P/E	16.9	17.5	40%
Target price (EUR)	17.5	18.0	

Source: Evli Research

Valuing DT with several methods

We adopt a comprehensive approach to evaluating DT's valuation, taking into consideration both earnings-based multiples and the company's net cash position utilizing EV-based multiples. We also consider DCF-model's intrinsic value as an alternative to value the company. Justified multiples are established by examining the company's historical performance as well as the valuation of its peers in the industry.

Extraordinary high valuation levels are now behind

On average, DT has historically traded at NTM EV/EBIT and P/E multiples of approximately 17x and 23x. However, between 2019 and 2021, DT's multiples reached levels that were even 70% higher than the current levels. We interpret these higher valuation levels as a result of zero interest rates and a thriving economy. Presently, the company is valued at 23-24E EV/EBIT and P/E multiples of 17-11x and 24-16x respectively, which are quite in line with its historical averages. These valuation levels also reflect a more normalized macroeconomic environment.

Trading with a slight premium to peers

Compared to its peer group of large semiconductor and optoelectronics designers, DT trades with a slight premium with 2023 estimates. DT's peer group is valued with 23-24E EV/EBIT and P/E of 17-17x and 23-18x. The premium however pivots in 2024 with the expected earnings growth which in turn makes DT's valuation quite moderate. We however note that the expected earnings growth includes notable uncertainties.

2024 valuation modest, but risks are elevated

We made no adjustments to our estimates. Our 12-month target price value DT with 23-24E EV/EBIT and P/E of 18-12x and 25-17x. DT's valuation for 2023 seems somewhat elevated which in our view reflects the expected EBIT growth. The valuation turns modest and quite attractive in 2024 which however includes some risks considering the magnitude of earnings growth. Therefore, we are not yet comfortable relying on the 2024 estimates.

Dividend yield of 2%

Considering DT's recent trend of declining profitability and ROIC, it would be challenging to justify multiples above the median of its peer group. Furthermore, the current share price offers a modest 2% dividend yield, which, combined with the associated risks and the neutral valuation, does not provide sufficient short-term upside to warrant additional investments in DT at this point in our view.

HOLD with a target price of EUR 17.5

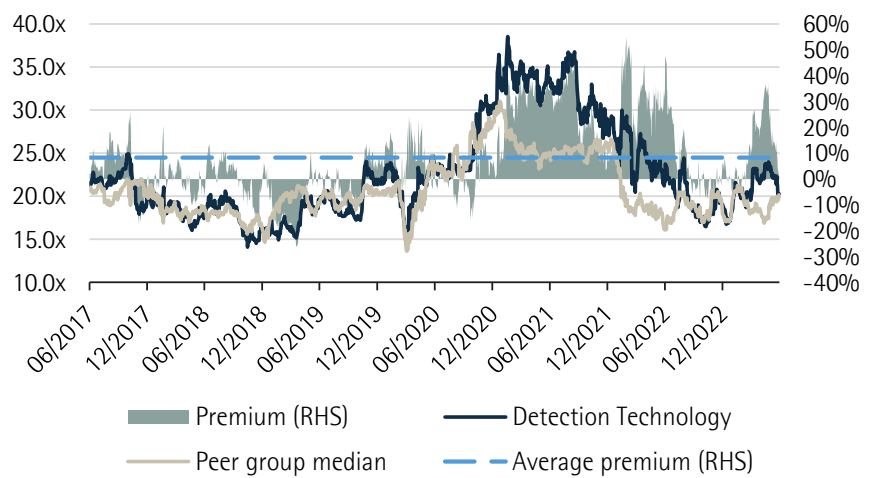
We currently view DT's overall valuation as neutral or slightly elevated with surprises in growth driving the development of the share price. We retain our HOLD rating as we remain waiting for further evidence on the success of EBIT growth. With our estimates intact, we reiterate our TP of EUR 17.5.

Historical valuation

Characteristics of a growing technology company has been visible in the multiples

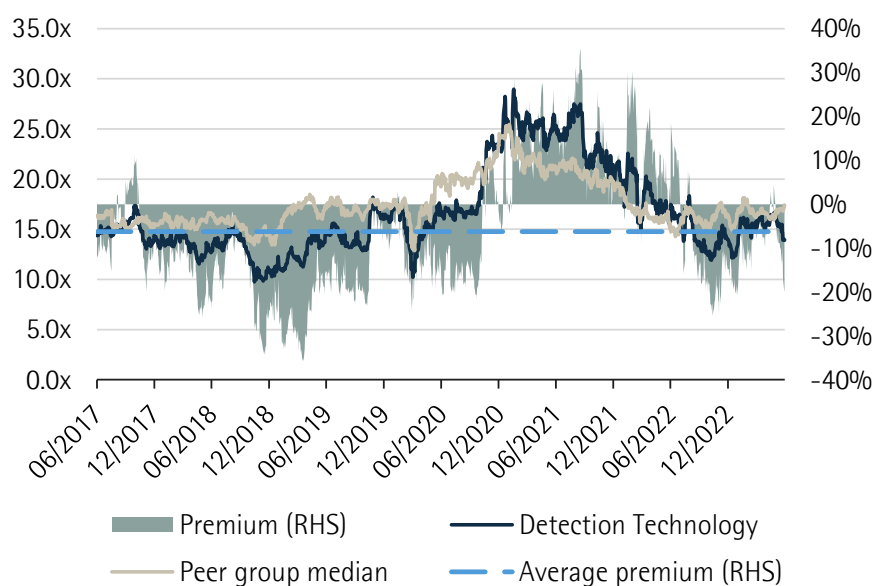
On average, DT has been valued at quite in line with its peer group. However, some variation existed. From 2017 to 2020, DT was valued under its peers while during 2020-6/2021, DT was trading with a premium to its peer group. This is somewhat surprising since during the first period DT was experiencing quite solid growth and very strong margins. Meanwhile, in the second period, DT faced multiple challenges such as slowing aviation and component shortage, which however has been quite same for each participant. The phenomenon might be explained by temporarily lower earnings which in turn has elevated the multiples. Another factor contributing to DT's valuation is low trading volumes of the stock. This might create some temporal variation in the multiples.

Figure 34: Historical 12-month forward P/E



Source: FactSet

Figure 35: Historical 12-month forward EV/EBIT



Source: FactSet

Peer group

Peer group consist also of competitors

Detection Technology's peer group comprises R&D-focused semiconductor and optoelectronic component producers, including direct competitors of DT. While most of the peers operate in various areas beyond X-ray detection, DT solely concentrates on X-ray detection components. A shared characteristic among the peer group is their utilization of both hardware and software, coupled with a lightweight capital structure.

- **Hamamatsu Photonics** is Japan-based, multinational company specializing in the field of optoelectronics, such as optical sensors, imaging devices, and related technologies. Hamamatsu is considered a direct competitor to DT and is widely recognized as a market leader in medical X-ray detectors.
- **OSI Systems** is a global company that specializes in providing advanced solutions for security screening and inspection systems, healthcare systems and platforms, and optoelectronics. OSI Systems' subsidiary OSI Optoelectronics directly competes with DT in medical, security, and industrial segments.
- **Varex Imaging** is a global manufacturer of X-ray imaging components and solutions for medical, industrial, and security applications. Varex offers a wide range of products, including X-ray tubes, digital detectors, high-voltage connectors, image processing software, and other imaging accessories. Varex stands out as a competitor to DT in the production of flat-panel detectors for all key X-ray market segments and photon-counting detectors specifically designed for industrial and dental requirements.
- **ams-OSRAM** is a global provider of advanced sensor solutions and photonics products, including optical sensors, image sensors, spectral sensors, and laser diodes, among others. While ams-OSRAM primarily focuses on flat-panel detectors, they also actively engage in providing CT detection solutions. In the realm of medical solutions, ams-OSRAM stands as a direct competitor to DT.
- **Analog Devices (ADI)** is a global player in the design, manufacturing, and marketing of high-performance semiconductors, such as converters, amplifiers, and sensors in various industries. ADI also engage in digital X-ray solutions, namely flat-panel detectors, as well as CT. ADI is a direct competitor of DT in medical solutions.
- **Keysight Tech** is a global technology company that specializes in electronic measurement and testing solutions. While not a direct competitor of DT, Keysight possesses similar characteristics and serves as an appropriate peer for DT.
- **National Instruments** is a global software-centric test and measurement system provider. While NI may not directly compete with DT, its business model shares similar characteristics, including significant investments in R&D.
- **Texas Instruments** is a global semiconductor producer known for its broad portfolio of analog and embedded processing solutions. While TI's offerings include components applicable to X-ray detectors, their role in this context is primarily that of a supplier to DT, rather than a direct competitor.
- **Oxford Instruments** develops and supplies a wide range of advanced technology solutions, including scientific instruments, analytical tools, and systems for research and industrial applications. While OI engages in the production of X-ray cameras, they do not directly compete with DT. Instead, OI and DT may share common customers who rely on their respective technologies and solutions for their specific needs.
- **Trimble** provides intelligent, software-enhanced measurement, scanning, and navigating tools for industries such as construction, agriculture, forestry, logistics, transportation, and more. Trimble is not a competitor of DT.

- **Hexagon** is a Swedish headquartered, global provider of information technology solutions that drive productivity and quality across geospatial and industrial landscapes. While Hexagon does not directly compete with DT, they do offer certain solutions for X-ray imaging.
- **Konica Minolta** is a global technology company that offers a wide range of solutions and services in the fields of imaging, printing, and business processes. Konica Minolta also provides X-ray imaging solutions, including flat-panel detectors, specifically tailored to meet the needs of the healthcare industry. Considering its presence in the same market and their offerings in X-ray imaging, Konica Minolta can be viewed as a direct competitor to DT.
- **Iray Technology** engages in the research, development, production, and sale of digital X-ray detectors. Its offering ranges from universal cables, universal radios to mammography, radiography, dynamic, and linear detector arrays. Iray operates in the domains of security and industrial applications and is a competitor to DT in the corresponding markets.
- **Vieworks** is a manufacturer of X-ray imaging devices and high-resolution machine vision cameras. Given their focus on medical flat-panel detectors, Vieworks can be regarded as a direct competitor to DT.

Table 6: Peer group

DETECTION TECHNOLOGY PEER GROUP	MCAP MEUR	EV/EBITDA			EV/EBIT			P/E		
		23	24	25	23	24	25	23	24	25
Hamamatsu Photonics	7098	13.5x	12.5x	11.6x	17.0x	16.6x	16.0x	26.2x	25.2x	24.1x
OSI Systems	1872	10.8x	9.3x		15.2x	12.3x		18.6x	15.9x	
Varex Imaging	850	9.4x	8.3x		13.6x	11.3x		21.2x	16.3x	
ams-OSRAM	1718	5.8x	4.1x	3.3x	15.6x	8.8x	6.7x	55.8x	10.4x	5.8x
Analog Devices	85628	15.9x	16.2x		16.2x	16.9x		17.7x	18.0x	
Keysight Tech	26240	16.1x	15.5x	14.1x	17.5x	16.9x	15.4x	19.6x	18.6x	16.6x
National Instruments	6941	17.8x	16.1x	14.7x	20.4x	18.2x	16.8x	22.7x	19.9x	17.7x
Texas Instruments	141248	17.1x	15.2x	13.9x	19.9x	18.3x	17.2x	23.1x	21.2x	20.1x
Oxford Instruments	1811	16.1x	15.3x	14.8x	18.6x	17.8x	17.1x	24.3x	23.7x	22.8x
Trimble	11459	14.0x	12.7x	11.3x	15.1x	13.6x	12.0x	19.4x	17.4x	14.8x
Hexagon	29461	16.6x	15.3x	14.2x	22.0x	20.3x	18.7x	25.0x	22.9x	20.9x
Konica Minolta	1489	9.7x	6.5x	6.1x		19.4x	17.5x		12.7x	10.4x
Iray Technology	3417	29.7x	22.7x	17.7x	30.4x	23.4x	18.3x	31.5x	24.4x	19.1x
Vieworks	234	6.6x	5.7x	5.1x	8.0x	6.8x	5.7x	10.2x	8.7x	7.6x
Peer Group Average	22819	14.2x	12.5x	11.5x	17.7x	15.7x	14.7x	24.3x	18.2x	16.4x
Peer Group Median	5179	14.9x	14.0x	13.9x	17.0x	16.9x	16.8x	22.7x	18.3x	17.7x
Detection Technology (Evli est.)	246	13.4x	9.5x	8.2x	16.9x	11.3x	9.6x	24.4x	16.3x	14.7x
<i>Detection Technology prem./disc. to peer median</i>		-10%	-32%	-41%	-1%	-33%	-43%	7%	-11%	-17%

Source: FactSet, Evli Research

Risk factors

DT's business includes risks that might have an impact on the attractiveness of the investment. We have named potential risk factors in a particular order (most potential first) below:

- 1) **Macroeconomic trends.** Increasing interest rates shouldn't have a direct impact on DT's business since the company operates practically with zero debt. If economic activity further declines and GDP decreases, the demand for detectors might somewhat decrease. However, in recessions, governments usually increase their expenditures to stimulate economies which might on the other hand have a positive impact on the imaging markets.
- 2) **Component shortages** have had a significant impact on the company's sales and profitability during the past two years. Component availability is expected to improve, but further shortages might have an impact on delivery times and margins which eventually lowers the attractiveness of the investment case.
- 3) **Geopolitical risks** have increased with the start of Russia's attack war in Ukraine. In addition, the relationship between the USA and China has long been tense. Further expansion of deglobalization might challenge DT's operations in China. During 2023-24, DT will move some of its mass-production from China to Oulu, Finland to provide EU-origin products to its customers.
- 4) **Increased competition** might put pressure on margins and lead to a loss of market share. However, high entry barriers and high-end technology lower the probability of new rookies gaining a significant amount of market share.
- 5) **COVID-19 and its side effects.** On the one hand, the pandemic boosted demand for MBU solutions, but on the other hand, SBU's topline took a huge hit driven by nearly stopped aviation. While Western economies have been restriction-free for a long, as late as in January 2022 China loosened its zero-COVID policy and withdraw pandemic restrictions. However, this might also provide opportunities in boosted demand in China.
- 6) **Major customer churn.** Over 50% of the revenue is generated by the five largest customers. The top line will take a significant hit in the case of a major customer ship ending. Nevertheless, we find DT's well-managed customer relationships and investments in customer experience to prevent customer churn. To our understanding, the majority of the five largest customers operate in the medical sector but at least one of them engages in the security sector. Currently, all of DT's industrial customers are small and an exit of a single customer has no large impact on group net sales.
- 7) **Sudden changes in megatrends.** X-ray imaging market growth relies on several megatrends and loss of or changes in megatrends might slow down the underlying demand for detection solutions. To maintain its market share and continue growth, DT must be able to respond to even sudden changes in the industry.

VALUATION RESULTS	BASE CASE DETAILS	VALUATION ASSUMPTIONS	ASSUMPTIONS FOR WACC	
Current share price	16.80 PV of Free Cash Flow	107 Long-term growth, %	2.6 Risk-free interest rate, %	2.25
DCF share value	19.89 PV of Horizon value	167 WACC, %	8.5 Market risk premium, %	5.8
Share price potential, %	18.4 Unconsolidated equity	0 Spread, %	0.0 Debt risk premium, %	2.8
Maximum value	19.9 Marketable securities	24 Minimum WACC, %	8.5 Equity beta coefficient	1.10
Minimum value	19.9 Debt - dividend	-6 Maximum WACC, %	8.5 Target debt ratio, %	20
Horizon value, %	60.9 Value of stock	292 Nr of shares, Mn	14.7 Effective tax rate, %	20

DCF valuation, EURm	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	Horizon
Net sales	99	113	127	139	147	154	162	170	178	184	189	194
<i>Sales growth, %</i>	<i>9.8</i>	<i>15.0</i>	<i>11.8</i>	<i>9.3</i>	<i>6.0</i>	<i>5.0</i>	<i>5.0</i>	<i>5.0</i>	<i>5.0</i>	<i>3.0</i>	<i>2.6</i>	<i>2.6</i>
Operating income (EBIT)	6	13	19	21	23	24	25	26	28	28	28	29
<i>Operating income margin, %</i>	<i>5.9</i>	<i>11.8</i>	<i>15.2</i>	<i>15.3</i>	<i>15.5</i>	<i>15.5</i>	<i>15.5</i>	<i>15.5</i>	<i>15.5</i>	<i>15.0</i>	<i>15.0</i>	<i>15.0</i>
+ Depreciation+amort.	3	4	4	4	3	4	4	4	4	4	4	4
EBITDA	9	17	23	25	26	27	29	30	32	32	33	
- Paid taxes	-2	-3	-4	-4	-5	-5	-5	-5	-6	-6	-6	
- Change in NWC	-9	-4	0	5	-3	-2	-3	-3	-3	-2	-2	
<i>NWC / Sales, %</i>	<i>45.6</i>	<i>43.2</i>	<i>38.9</i>	<i>31.9</i>	<i>32.0</i>	<i>32.1</i>	<i>32.1</i>	<i>32.1</i>	<i>32.2</i>	<i>32.2</i>	<i>32.2</i>	
+ Change in other liabs	0	0	0	0	0	0	0	0	0	0	0	
- Operative CAPEX	-2	-7	-5	-3	-4	-4	-4	-5	-5	-5	-5	
<i>opCAPEX / Sales, %</i>	<i>1.7</i>	<i>5.8</i>	<i>3.8</i>	<i>2.4</i>	<i>2.7</i>	<i>2.7</i>	<i>2.7</i>	<i>2.7</i>	<i>2.7</i>	<i>2.6</i>	<i>2.5</i>	
- Acquisitions	0	0	0	0	0	0	0	0	0	0	0	
+ Divestments	0	0	0	0	0	0	0	0	0	0	0	
- Other items	2	0	0	0	0	0	0	0	0	0	0	
= FCFF	-2	4	14	22	15	16	17	18	19	20	21	362
= Discounted FCFF		3	12	18	11	11	11	10	10	10	10	167
= DFCF min WACC		3	12	18	11	11	11	10	10	10	10	167
= DFCF max WACC		3	12	18	11	11	11	10	10	10	10	167

INTERIM FIGURES

EVLI ESTIMATES, EURm	2022Q1	2022Q2	2022Q3	2022Q4	2022	2023Q1	2023Q2E	2023Q3E	2023Q4E	2023E	2024E	2025E
Net sales	20.3	22.8	27.3	28.2	98.6	22.8	26.3	31.9	32.4	113.4	126.8	138.5
EBITDA	2.3	1.7	1.5	3.6	9.1	2.3	3.5	4.7	6.3	16.8	22.9	24.9
<i>EBITDA margin (%)</i>	<i>11.3</i>	<i>7.3</i>	<i>5.5</i>	<i>12.7</i>	<i>9.2</i>	<i>10.2</i>	<i>13.2</i>	<i>14.8</i>	<i>19.4</i>	<i>14.8</i>	<i>18.0</i>	<i>18.0</i>
EBIT	1.5	0.9	0.6	2.8	5.8	1.5	2.6	3.8	5.4	13.3	19.2	21.2
<i>EBIT margin (%)</i>	<i>7.4</i>	<i>3.8</i>	<i>2.3</i>	<i>9.9</i>	<i>5.9</i>	<i>6.5</i>	<i>10.0</i>	<i>12.0</i>	<i>16.6</i>	<i>11.8</i>	<i>15.2</i>	<i>15.3</i>
Net financial items	0.1	0.2	0.2	-0.8	-0.3	-0.3	-0.1	0.2	-0.1	-0.3	-0.4	-0.2
Pre-tax profit	1.6	1.0	0.8	2.0	5.5	1.2	2.5	4.0	5.3	13.0	18.8	21.0
Tax	-0.3	-0.3	-0.2	0.4	-0.4	-0.2	-0.5	-0.8	-1.1	-2.6	-3.8	-4.2
<i>Tax rate (%)</i>	<i>20.0</i>	<i>30.3</i>	<i>20.0</i>	<i>-17.9</i>	<i>7.9</i>	<i>20.0</i>	<i>20.0</i>	<i>20.0</i>	<i>20.0</i>	<i>20.0</i>	<i>20.0</i>	<i>20.0</i>
Net profit	1.3	0.7	0.7	2.4	5.1	0.9	2.0	3.2	4.2	10.4	15.1	16.8
EPS	0.09	0.05	0.05	0.16	0.34	0.06	0.13	0.22	0.29	0.71	1.03	1.14
EPS adjusted (diluted no. of shares)	0.08	0.07	0.04	0.16	0.36	0.06	0.11	0.21	0.28	0.67	0.99	1.11
Dividend per share	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.39	0.57	0.63
SALES, EURm												
MBU	10.5	10.1	14.8	12.7	48.1	12.0	11.8	16.0	14.3	54.1	58.3	61.8
SBU	6.3	8.6	8.5	10.9	34.4	7.3	10.3	11.3	13.1	41.9	49.5	56.4
IBU	3.5	4.0	3.9	4.6	16.1	3.4	4.2	4.6	5.1	17.3	19.0	20.3
Total	20.3	22.8	27.3	28.2	98.6	22.8	26.3	31.9	32.4	113.4	126.8	138.5
SALES GROWTH, Y/Y %												
<i>MBU</i>	<i>4.1</i>	<i>-25.2</i>	<i>24.1</i>	<i>-6.6</i>	<i>-2.1</i>	<i>14.6</i>	<i>16.6</i>	<i>8.0</i>	<i>12.7</i>	<i>12.5</i>	<i>7.6</i>	<i>6.0</i>
<i>SBU</i>	<i>8.1</i>	<i>25.4</i>	<i>14.6</i>	<i>41.0</i>	<i>23.3</i>	<i>16.2</i>	<i>19.2</i>	<i>32.4</i>	<i>19.4</i>	<i>22.0</i>	<i>18.0</i>	<i>14.0</i>
<i>IBU</i>	<i>47.0</i>	<i>29.3</i>	<i>2.8</i>	<i>34.5</i>	<i>26.1</i>	<i>-3.0</i>	<i>4.0</i>	<i>16.9</i>	<i>10.5</i>	<i>7.5</i>	<i>10.1</i>	<i>7.0</i>
<i>Total</i>	<i>11.0</i>	<i>-3.3</i>	<i>17.5</i>	<i>14.1</i>	<i>9.8</i>	<i>12.0</i>	<i>15.4</i>	<i>16.9</i>	<i>14.9</i>	<i>15.0</i>	<i>11.8</i>	<i>9.3</i>
EBIT, EURm												
MBU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.4
SBU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.6
IBU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1
Group	1.5	0.9	0.6	2.8	5.8	1.5	2.6	3.8	5.4	13.3	19.2	21.2
Total	1.5	0.9	0.6	2.8	5.8	1.5	2.6	3.8	5.4	13.3	19.2	21.2
EBIT margin, %												
<i>MBU</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>15.3</i>
<i>SBU</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>15.3</i>
<i>IBU</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>15.3</i>
<i>Total</i>	<i>7.4</i>	<i>3.8</i>	<i>2.3</i>	<i>9.9</i>	<i>5.9</i>	<i>6.5</i>	<i>10.0</i>	<i>12.0</i>	<i>16.6</i>	<i>11.8</i>	<i>15.2</i>	<i>15.3</i>

INCOME STATEMENT, EURm	2018	2019	2020	2021	2022	2023E	2024E	2025E
Sales	93.9	102.5	81.6	89.8	98.6	113.4	126.8	138.5
<i>Sales growth (%)</i>	<i>5.5</i>	<i>9.2</i>	<i>-20.4</i>	<i>10.1</i>	<i>9.8</i>	<i>15.0</i>	<i>11.8</i>	<i>9.3</i>
EBITDA	20.9	19.9	11.9	13.9	9.1	16.8	22.9	24.9
<i>EBITDA margin (%)</i>	<i>22.3</i>	<i>19.5</i>	<i>14.6</i>	<i>15.4</i>	<i>9.2</i>	<i>14.8</i>	<i>18.0</i>	<i>18.0</i>
Depreciation	-2.4	-2.9	-3.2	-3.3	-3.3	-3.5	-3.6	-3.7
EBITA	18.5	17.0	8.7	10.6	5.8	13.3	19.2	21.2
Goodwill amortization / writedown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EBIT	18.5	17.0	8.7	10.6	5.8	13.3	19.2	21.2
<i>EBIT margin (%)</i>	<i>19.7</i>	<i>16.6</i>	<i>10.7</i>	<i>11.8</i>	<i>5.9</i>	<i>11.8</i>	<i>15.2</i>	<i>15.3</i>
Reported EBIT	18.5	17.0	8.7	10.6	5.8	13.3	19.2	21.2
<i>EBIT margin (reported) (%)</i>	<i>19.7</i>	<i>16.6</i>	<i>10.7</i>	<i>11.8</i>	<i>5.9</i>	<i>11.8</i>	<i>15.2</i>	<i>15.3</i>
Net financials	-0.1	-1.0	-0.6	0.8	-0.3	-0.3	-0.4	-0.2
Pre-tax profit	18.4	16.0	8.1	11.4	5.5	13.0	18.8	21.0
Taxes	-3.6	-3.6	-1.4	-2.1	-0.4	-2.6	-3.8	-4.2
Minority shares	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net profit	14.9	12.5	6.7	9.3	5.1	10.4	15.1	16.8
Cash NRIs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-cash NRIs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BALANCE SHEET, EURm								
Assets								
Fixed assets	9	10	10	9	7	10	11	11
Goodwill	0	0	0	0	0	0	0	0
Right of use assets	0	0	0	0	0	0	0	0
Inventory	13	14	16	22	25	28	30	24
Receivables	27	27	25	31	36	40	38	42
Liquid funds	22	26	25	30	24	30	33	46
Total assets	71	77	76	92	91	109	113	122
Liabilities								
Shareholder's equity	51	58	58	74	73	80	90	98
Minority interest	0	0	0	0	0	0	0	0
Convertibles	0	0	0	0	0	0	0	0
Lease liabilities	0	0	0	0	0	0	0	0
Deferred taxes	0	0	0	0	0	0	0	0
Interest bearing debt	4	6	6	2	3	9	4	4
Non-interest bearing current liabilities	15	12	11	15	14	18	18	19
Other interest-free debt	0	1	1	1	1	1	1	1
Total liabilities	71	77	76	92	91	109	113	122
CASH FLOW, EURm								
+ EBITDA	21	20	12	14	9	17	23	25
- Net financial items	-4	4	-1	3	-6	0	0	0
- Taxes	-5	-5	-3	-1	-2	-3	-4	-4
- Increase in Net Working Capital	-10	-2	0	-6	-9	-4	0	5
+/- Other	4	-5	-1	-3	7	0	0	0
= Cash flow from operations	6	12	8	7	0	10	18	25
- Capex	-5	-4	-3	-1	-2	-7	-5	-3
- Acquisitions	0	0	0	0	0	0	0	0
+ Divestments	0	0	0	0	0	0	0	0
= Free cash flow	1	8	4	6	-2	3	14	22
+/- New issues/buybacks	0	0	-1	10	-1	0	0	0
- Paid dividend	-5	-5	-5	-4	-5	-3	-6	-8
+/- Other	0	2	1	-7	2	6	-5	0
Change in cash	-4	4	-1	5	-6	6	3	13

KEY FIGURES	2019	2020	2021	2022	2023E	2024E	2025E
M-cap	368	344	429	248	246	246	246
Net debt (excl. convertibles)	-20	-19	-28	-21	-21	-29	-43
Enterprise value	348	324	402	227	225	217	204
Sales	103	82	90	99	113	127	139
EBITDA	20	12	14	9	17	23	25
EBIT	17	9	11	6	13	19	21
Pre-tax	16	8	11	5	13	19	21
Earnings	12	7	9	5	10	15	17
Equity book value (excl. minorities)	58	58	74	73	80	90	98
Valuation multiples							
EV/sales	3.4	4.0	4.5	2.3	2.0	1.7	1.5
EV/EBITDA	17.4	27.3	29.0	25.0	13.4	9.5	8.2
EV/EBITA	20.4	37.1	38.0	39.2	16.9	11.3	9.6
EV/EBIT	20.4	37.1	38.0	39.2	16.9	11.3	9.6
EV/OCF	30.0	43.1	56.4	-772.5	22.8	11.8	8.0
EV/FCFF	41.7	65.2	78.5	-139.0	61.9	15.6	9.1
P/FCFE	48.7	77.4	74.5	-128.9	73.4	18.1	11.1
P/E	29.5	51.0	46.4	46.0	24.4	16.3	14.7
P/B	6.3	5.9	5.8	3.4	3.1	2.7	2.5
Target EV/EBITDA	0.0	0.0	0.0	0.0	14.0	10.0	8.6
Target EV/EBIT	0.0	0.0	0.0	0.0	17.7	11.8	10.1
Target EV/FCF	0.0	0.0	0.0	0.0	70.2	16.7	9.7
Target P/B	0.0	0.0	0.0	0.0	3.2	2.9	2.6
Target P/E	0.0	0.0	0.0	0.0	26.3	17.6	15.8
Per share measures							
Number of shares	14,375	14,375	14,656	14,656	14,656	14,656	14,656
Number of shares (diluted)	14,875	14,875	15,156	15,156	15,156	15,156	15,156
EPS	0.87	0.47	0.63	0.34	0.71	1.03	1.14
Operating cash flow per share	0.81	0.52	0.49	-0.02	0.67	1.26	1.74
Free cash flow per share	0.53	0.31	0.39	-0.13	0.23	0.93	1.51
Book value per share	4.06	4.06	5.02	4.96	5.47	6.11	6.69
Dividend per share	0.38	0.28	0.35	0.20	0.39	0.57	0.63
Dividend payout ratio, %	43.9	59.7	55.4	58.0	55.0	55.0	55.0
Dividend yield, %	1.5	1.2	1.2	1.2	2.3	3.4	3.7
FCF yield, %	2.1	1.3	1.3	-0.8	1.4	5.5	9.0
Efficiency measures							
ROE	22.7	11.5	14.0	6.9	13.6	17.8	17.9
ROCE	28.5	13.6	15.1	7.7	16.1	21.0	21.7
Financial ratios							
Inventories as % of sales	13.8	19.5	24.8	25.2	25.0	24.0	17.0
Receivables as % of sales	25.9	30.1	34.8	36.2	35.5	30.0	30.0
Non-interest bearing liabilities as % of sales	12.1	13.4	17.1	14.3	16.0	14.0	14.0
NWC/sales, %	27.0	35.6	41.3	45.6	43.2	38.9	31.9
Operative CAPEX/sales, %	3.9	3.8	1.5	1.7	5.8	3.8	2.4
CAPEX/sales (incl. acquisitions), %	3.9	3.8	1.5	1.7	5.8	3.8	2.4
FCFF/EBITDA	0.4	0.4	0.4	-0.2	0.2	0.6	0.9
Net debt/EBITDA, book-weighted	-1.0	-1.6	-2.0	-2.3	-1.2	-1.3	-1.7
Debt/equity, market-weighted	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equity ratio, book-weighted	76.6	77.9	80.4	80.2	74.2	79.9	80.6
Gearing, %	-34.9	-33.2	-37.6	-28.3	-26.2	-32.3	-43.6

COMPANY DESCRIPTION: Detection Technology is a global provider of off-the-shelf and customized X-ray imaging solutions for medical, security and industrial applications. DT's product portfolio ranges from photodiodes to complete detector systems with ASICs, electronics, mechanics and software. The company was established in 1991 and it listed on Nasdaq First North Finland in 2015. The company is headquartered in Finland and has volume production in Beijing, China. Detection Technology has ~450 employees in Finland, China, France and USA, serving 370 active customers in over 40 countries.

INVESTMENT CASE: Demand for Detection Technology's detector solutions is increasing due to expansion of healthcare to a wider share of population in the emerging economies, aging population, growth in travelling and freight transport, urbanization, increased security concerns and increasing need for X-ray imaging applications in industrial inspection. We see investment case attractive due to strong market drivers, especially in China, as well as DT's compelling strategy and execution capabilities, which should enable DT to grow faster than the market and maintain above target level margins. However, DT is currently valued with quite hefty price tag and thus we don't see much return opportunities in short-term despite bright long-term outlook.

OWNERSHIP STRUCTURE	SHARES	EURm	%
Ahlstrom Capital Bv	5,280,167	88.707	36.0%
OP-Finland Fund	617,376	10.372	4.2%
Sijoitusrahasto Aktia Capital	548,762	9.219	3.7%
Varma Mutual Pension Insurance Company	515,000	8.652	3.5%
Ilmarinen Mutual Pension Insurance Company	435,737	7.320	3.0%
Martola Hannu Veikko	431,690	7.252	2.9%
OP-Finland Small Firms Fund	360,317	6.053	2.5%
Säästöpankki Kotimaa	260,000	4.368	1.8%
Evli Finnish Small Cap Fund	244,920	4.115	1.7%
Veritas Pension Insurance Company Ltd.	243,000	4.082	1.7%
Ten largest	8,936,969	150.141	61%
Residual	5,718,961	96.079	39%
Total	14,655,930	246.220	100%

EARNINGS CALENDAR

August 03, 2023	Q2 report
October 27, 2023	Q3 report

OTHER EVENTS**COMPANY MISCELLANEOUS**

CEO: Hannu Martola	Elektroniikkatie 10, 90590 Oulu
CFO: Petri Hiljanen	Tel: +358 20 766 9700
IR: Johanna Tarkkainen	

DEFINITIONS

P/E	$\frac{\text{Price per share}}{\text{Earnings per share}}$	EPS	$\frac{\text{Profit before extraord. items and taxes} - \text{income taxes} + \text{minority interest}}{\text{Number of shares}}$
P/BV	$\frac{\text{Price per share}}{\text{Shareholders' equity} + \text{taxed provisions per share}}$	DPS	Dividend for the financial period per share
Market cap	Price per share * Number of shares	OCF (Operating cash flow)	EBITDA – Net financial items – Taxes – Increase in working capital – Cash NRIs ± Other adjustments
EV (Enterprise value)	Market cap + net debt + minority interest at market value – share of associated companies at market value	FCF (Free cash flow)	Operating cash flow – operative CAPEX – acquisitions + divestments
EV/Sales	$\frac{\text{Enterprise value}}{\text{Sales}}$	FCF yield, %	$\frac{\text{Free cash flow}}{\text{Market cap}}$
EV/EBITDA	$\frac{\text{Enterprise value}}{\text{Earnings before interest, tax, depreciation and amortization}}$	Operative CAPEX/sales	$\frac{\text{Capital expenditure} - \text{divestments} - \text{acquisitions}}{\text{Sales}}$
EV/EBIT	$\frac{\text{Enterprise value}}{\text{Operating profit}}$	Net working capital	Current assets – current liabilities
Net debt	Interest bearing debt – financial assets	Capital employed/Share	$\frac{\text{Total assets} - \text{non-interest bearing debt}}{\text{Number of shares}}$
Total assets	Balance sheet total	Gearing	$\frac{\text{Net debt}}{\text{Equity}}$
Div yield, %	$\frac{\text{Dividend per share}}{\text{Price per share}}$	Debt/Equity, %	$\frac{\text{Interest bearing debt}}{\text{Shareholders' equity} + \text{minority interest} + \text{taxed provisions}}$
Payout ratio, %	$\frac{\text{Total dividends}}{\text{Earnings before extraordinary items and taxes} - \text{income taxes} + \text{minority interest}}$	Equity ratio, %	$\frac{\text{Shareholders' equity} + \text{minority interest} + \text{taxed provisions}}{\text{Total assets} - \text{interest-free loans}}$
ROCE, %	$\frac{\text{Profit before extraordinary items} + \text{interest expenses} + \text{other financial costs}}{\text{Balance sheet total} - \text{non-interest bearing debt (average)}}$	CAGR, %	Cumulative annual growth rate = Average growth per year
ROE, %	$\frac{\text{Profit before extraordinary items and taxes} - \text{income taxes}}{\text{Shareholder's equity} + \text{minority interest} + \text{taxed provisions (average)}}$		

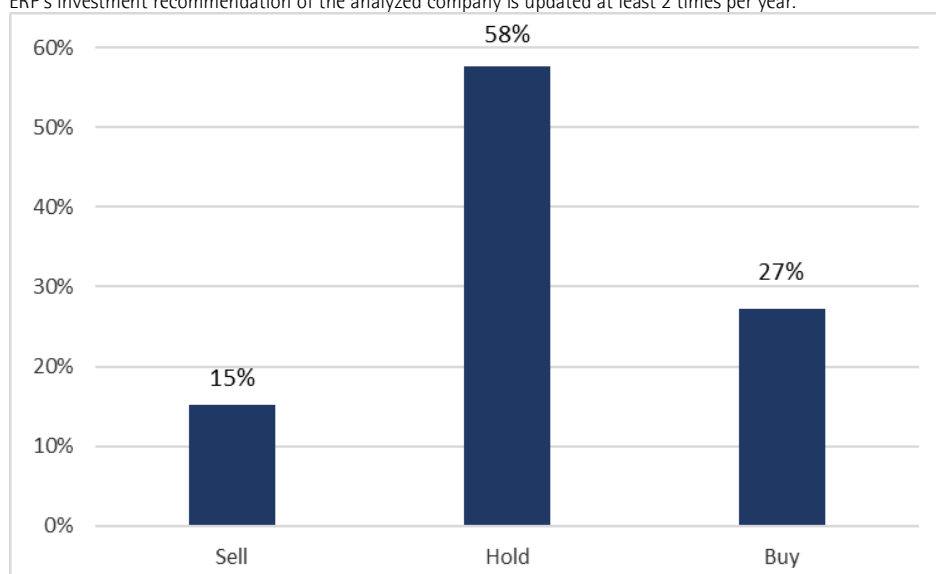
Important Disclosures

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-10 – (+10) %	HOLD
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