ARROWHEAD
BUSINESS AND INVESTMENT DECISIONS

Due Diligence and Valuation Report

Arrowhead Code:	83-02-01
Coverage initiated:	February 24, 2020
This document:	February 24, 2020
Fair share value bracket-DCF:	EUR 35.51–EUR 53.62
Share price (February 21, 2020):	EUR 37.90

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EURONEXT

PARAGON ID

Company:	Paragon ID
Ticker:	PID
Headquarters:	Sophia Antipolis, France
CEO	Clem Garvey
CFO	Olivier Doye
CCO	Konstantinos Lagios
Website:	www.paragon-id.com

Market Data

52-Week Range:	EUR 19.0 – EUR 38.6[i]
Average Daily Volume (3M Avg.):	1,057[ii]
Market Cap (February 21, 2020):	EUR 71.5 million (mn)[iii]

Financial Forecast (in EUR) (FY Ending – June)

EUR mn	'20E	'21E	'22E	'23E	'24E	'25E
High NI	3.4	5.0	6.7	10.3	12.6	15.5
High EPS	1.70	2.53	3.37	5.18	6.36	7.81
Low NI	2.0	3.1	5.2	7.7	9.5	11.8
Low EPS	1.02	1.58	2.63	3.86	4.78	5.93

Company Overview: France-based Paragon ID was created in its current form by a reverse takeover in May 2017 of technology company ASK SA. The company designs and manufactures radio-frequency identification (RFID) antennas, cards, tickets and tags, and develops software for their deployment. The company has production sites in the U.S. and Europe and manufactures 400 mn RFID products every year. The company's products are used in public transport, access control, object and people identification, payment, and electronic documents, such as e-driver's licenses and biometric passports.

FY 2019 results and Q1 2020 sales: Paragon ID's revenue increased 7.0% year-on-year (YoY) from EUR 100.9 mn in FY 2018 to EUR 108.0 mn in FY 2019 on a better performance in the second half of the year across all product lines, as well as new tenders. The operating income turned positive at EUR 0.2 mn (vs. a loss of EUR 2.2 mn in FY 2018), driven by a higher top line and a decline in non-recurring expenses. The adjusted EBIT stood at EUR 2.5 mn in FY 2019 compared with EUR 1.5 mn in FY 2018. The company's net loss decreased from EUR 5.1 mn to EUR 1.8 mn in FY 2019. The company earned revenue of EUR 56.3 mn in H1 2020, increasing by 12.2% YoY. Organic growth for H1 2020 was 7% YoY on a like-for-like basis and 8% YoY after including the impact of the organic growth within Thames Card Technology.

Key Highlights: (1) The company recently entered the Payment segment and acquired Thames Card Technology Limited, a specialist in manufacturing and personalization of smart cards, to expand its Payment business; **(2)** Smart Packaging Solutions (SPS) entered into a patent license agreement with Paragon ID to use Paragon ID's inductive coupling technology; **(3)** Réseau de Transport de la Capitale (RTC, Quebec) signed a five-year contract worth approximately EUR 980k with Paragon ID to implement mobile ticketing solutions in Quebec; **(4)** The company signed a contract with Air France to be the exclusive supplier of 40 mn RFID-enabled luggage tags; **(5)** In FY 2019, Ingenico signed a partnership agreement with Paragon ID to develop new contactless readers for deployment in mass transit; **(6)** Paragon ID invested in Airweb SAS, a specialist in mobile ticketing applications, to strengthen its leadership position in ticketing solutions; **(7)** Paragon acquired the intellectual property and assets of RFID Discovery, an asset management and tracking solution in the healthcare sector; **(8)** Paragon ID extended its partnership with Biolog-id to combine strategies in the connected healthcare solutions segment; **(9)** Paragon ID was chosen by NXP Semiconductors as a MIFARE Premium Partner, for its contribution to and involvement in ticketing solutions; **(10)** The company acquired AmaTech Group Limited, which specializes in the development and production of RFID applications; **(11)** The company raised capital through a private placement of shares worth EUR 0.5 mn, and its primary shareholder, Grenadier Holdings, expressed its willingness to convert the bonds it holds (worth EUR 10 mn) into equity shares.

Key Risks: (a) In a dynamic industry evolving rapidly, technology obsolescence poses a threat; (b) The company has high leverage with a debt-to-equity ratio of more than 2x.

Valuation and Assumptions: Given the due diligence and valuation estimates, Arrowhead believes that Paragon's fair share value lies in the EUR 35.51 to EUR 53.62 bracket, calculated using the discounted cash flow (DCF) method.

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1. Summary and Outlook

We are initiating coverage on Paragon ID. The company, based in France, specializes in providing innovative RFID-technology-based solutions primarily for the purpose of Transportation, electronic identification (e-ID), Tracking, Brand Protection and Payment.

Key Highlights[iv]:

1. Paragon ID develops RFID and near-field communication (NFC) technology applications to provide identification and traceability solutions. The company offers a range of products, such as RFID-enabled identity documents, contactless tickets, RFID tags, RFID labels and contactless cards for payment, and offers them through its four divisions: Mass Transit, e-Id, Track and Trace, and Payment.
2. The company earned revenue of EUR 108.0 mn in FY 2019, up by 7.0% from EUR 100.9 mn in FY 2018. It also reported operating income of EUR 0.2 mn in FY 2019. The company reported a net loss of EUR 1.8 mn in FY 2019, down by EUR 3.3 mn from EUR 5.1 mn in FY 2018. The gross margins were lower on a higher cost of sales, but lower other operating expenses resulted in positive operating income and higher operating margins. The company's revenue continued to grow in H1 2020, increasing by 12.2% YoY to EUR 56.3 mn, with EUR 4.7 mn coming from the Payment segment.
3. Paragon ID raised capital through a private placement of EUR 0.5 mn in February 2020, cancelling the preferential subscription rights, via an issue of 14,286 ordinary shares at a price of EUR 35 per share. Grenadier (shareholder of the company) also communicated its willingness to convert its bonds, which are worth EUR 10 mn, into equity shares, post the settlement and rise in capital via the private placement. After the completion of the two transactions, the total number of shares outstanding for the company will be 1,965,337.
4. The company acquired Thames Card Technology Limited in November 2019. Thames Technology is a manufacturer of personalized smart cards, such as payment cards, gift cards and loyalty cards, and its acquisition will help Paragon ID increase its scale of activities in the Payment segment and expand quickly in a growing market. In October 2018, Paragon ID acquired AmaTech Group Limited, which specializes in the production of contactless and dual interface payment cards, generating its first revenues in the Payment space.
5. The company secured seven new contracts and renewed over 12 contracts in the Mass Transit segment in FY 2019. The company recently launched its new ticketing platform-as-a-service (PaaS) solution to further strengthen its position in the segment. The company entered into several partnerships in FY 2018 and FY 2019 to build on its expertise in this area. A partnership with Ingenico Group was signed to develop new contactless readers. The company also collaborated with Wizway Solutions and acquired a stake in Airweb SAS, which helped it to offer improved mobile ticketing solutions for small, medium and large transport networks.
6. Smart Packaging Solutions (SPS) entered into a patent license agreement with Paragon ID that allows SPS to use the copper-wire embedded inductive coupling technology of AmaTech Group for plastic payment cards. Paragon ID benefits from quicker deployment of this technology in the Payment and e-ID markets and will focus its efforts on commercializing its technology in the metal payment card market.
7. In FY 2019, Réseau de Transport de la Capitale (RTC) in Quebec selected Paragon ID to implement mobile ticketing solutions on a 5-year contract worth around EUR 980k, which can be renewed for two more years. The solution deployed will be based on the platform of Airweb SAS, in which Paragon ID has a 50% stake.
8. In July 2019, Paragon ID signed a 3-year contract with Air France to supply 40 mn RFID luggage tags each year to track luggage and avoid the misplacement of bags. The contract may be renewed for a further two years at the end of this period. The company is now investigating the potential supply of RFID labels to Air France's affiliated airlines within the Skyteam alliance and to other aviation companies. Paragon ID designed an antenna in collaboration with NXP Semiconductors around their UCODE 8 chip to meet the quality and safety requirements of Air France. Paragon ID has also joined the International Air Transport Association (IATA) 's strategic partnership program and will work in the RFID sub-working group to optimize baggage operations.
9. In FY 2018, the company acquired the intellectual property rights and assets of RFID Discovery, which offers tracking and tracing solutions in the healthcare space. Also, Paragon ID extended its partnership with Biolog-Id, which caters to the healthcare industry.

10. In FY 2018, the company renewed its partnership with Régie des Transports Métropolitains (RTM) and Aix-Marseille-Provence to supply 10 mn contactless cards each year for another five years.

Key risks: a) In a dynamic industry evolving rapidly, technology obsolescence poses a threat; (b) The high leverage with the debt-to-equity ratio at more than 2x.

2. Business Overview[v]

France-listed Paragon ID provides identification solutions, particularly in Transportation, electronic identification (e-ID), Tracking, Brand Protection and Payment. The company recently entered the Payment segment by acquiring Amatech Group. The company uses the latest technologies such as RFID and NFC to provide smart and secure solutions to its global clients, which are present in diverse sectors including logistics, retail, health and pharma, mass transit and gaming.

Paragon ID operates RFID solutions and components to customers around the world based on a B2B2C model, through its own distribution channels and through its partners.

The company has more than 750 employees working across the different regions it operates in. The company has five manufacturing sites in the U.S. and Europe. It has a strong and experienced team of experts who are focused on developing solutions to meet client requirements in the areas of traceability, tracking, document identification and brand protection, etc. Its clients are from various sectors, such as smart cities, aviation, automotive, agriculture/food, retail, health, logistics, payments, manufacturing, mass transit and transport, parking, sports and leisure, and pharmaceutical and luxury products.

The group's primary focus is on providing innovative solutions and services like contactless tickets, secure services, stock management, document identification, contactless smart cards, magnetic tickets, labels, passport e-covers, RFID (high frequency (HF)-ultra high frequency (UHF)), customer relationship management, RFID technology, 'advertickets', brand protection, operational maintenance, terminals, dual-interface smart cards, secure application modes, access control, tracking of returnable transport items, mobile ticketing and consumables.

The company has completed its restructuring phase and has closed its factories in Mouans-Sartoux (France), China, Boston and Wisbech (the UK). Its industrial base now comprises factories in Argent-sur-Sauldre (France), Hull (the U.K.), Burlington VT (US) and Bucharest (Romania). Its recent acquisition of Thames Technology provides a further Europay Mastercard Visa (EMV) certified secure card manufacturing facility in Rayleigh in the U.K. The company has increased the outsourcing of its dual-interface smart cards. Through several acquisitions and alliances, the company has rearranged its activities from two segments (People ID and Product ID) into four segments, namely, Mass Transit, e-ID, Track and Trace and Payment. This restructuring and consolidation of activities has rationalized the fixed costs and, together with the launch of new technologies, accelerated the growth of the company, leading to an increase in the EBITDA margin from 7.2% in FY 2018 to 7.6% in FY 2019 and 9% in the second half of FY 2019.

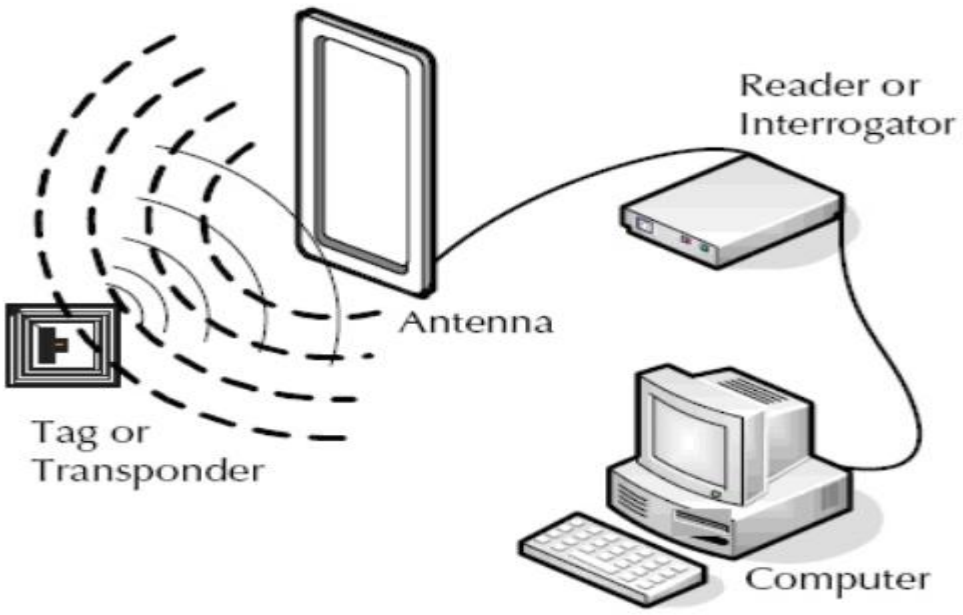
Paragon ID in its current form was created in May 2017 through a reverse takeover of ASK SA, in which it merged with the Identification and Traceability divisions of the Paragon group. The newly formed entity emerged as a leader in the identification and traceability market, with a strong presence globally. Under this transaction, Paragon Group delivered all the Paragon ID companies' shares in return for which ASK delivered:

- 45,706,119 new ordinary shares
- 10,000,000 bonds convertible into ordinary shares of ASK with a nominal value of EUR 1 each, and therefore an obligation to issue shares of EUR 10 mn
- 10,000,000 non-convertible bonds with a nominal value of EUR 1 each, and therefore an obligation to issue shares of EUR 10 mn

Paragon ID and Paragon Group Limited

Paragon Group Limited is the parent company of Paragon ID. The group (parent company) provides technology solutions for communication purposes and reports pro-forma revenues in excess of EUR 1.25 billion. The group was incorporated in FY 2004 and is based out of London, U.K. Paragon Group employs around 8,000 people who are involved in providing solutions such as print, data, strategy and insight services, digital, managed and secure documents, and graphic, direct marketing and other services. The group has a majority stake in Paragon ID via Grenadier holdings.

Exhibit 1: RFID Technology



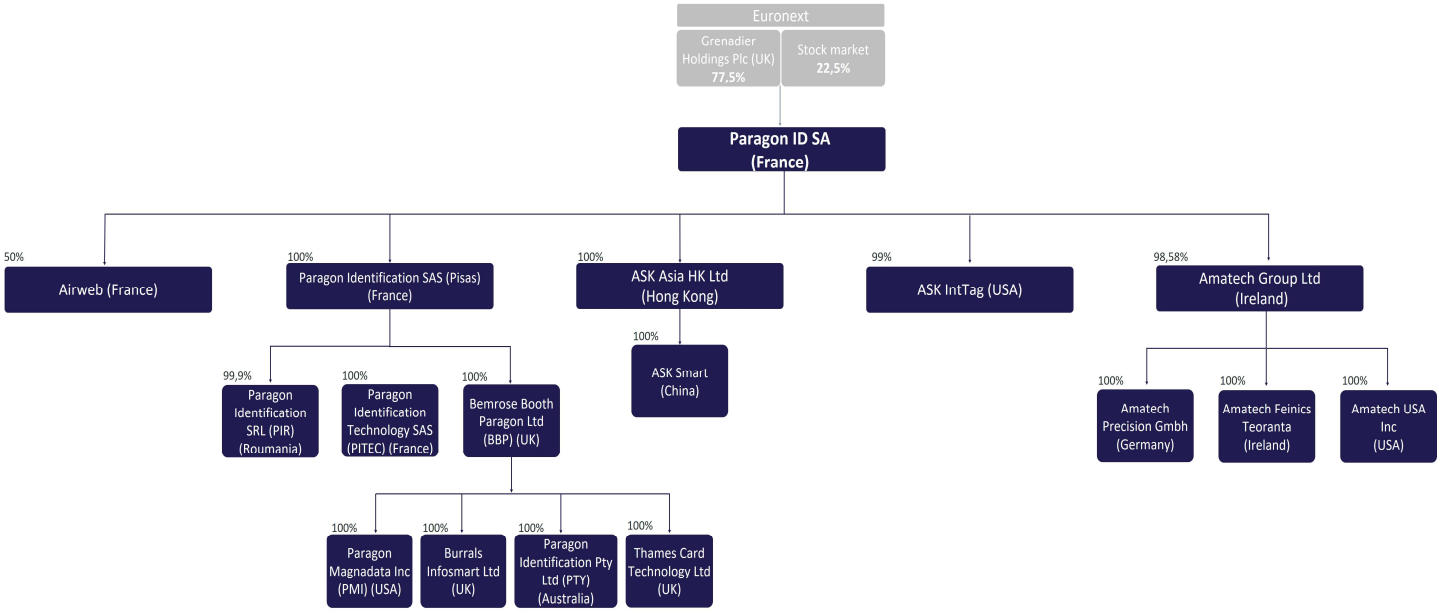
RFID Technology[vi]

RFID technology uses electromagnetic fields for the identification and tracking of objects. Using this technology, radio waves are utilized to read and capture information stored on the tag attached to the object. This tag is readable from several feet away and does not have to be within the direct line of sight of the reader to be tracked.

The RFID inlay/system consists of two parts: a tag or label and a reader. Transmitters are placed within these tags or labels and the RFID components on these tags consist of a microchip (which stores and processes information) and an antenna to receive and transmit a signal. The tag is assigned a specific serial number for one specific project. To access/read this encoded information, an interrogator (two-way radio transmitter) emits a signal to the tag through the antenna. After that, the tag responds with the information written in its memory bank. The read results are then transferred by the interrogator to an RFID computer program.

2.1 Corporate Structure[vii]

Exhibit 2: Corporate Structure[viii]



The company has the following subsidiaries, three of which have holding subsidiaries under them:

Subsidiaries

Paragon Identification SAS

Paragon Identification SAS is a wholly owned subsidiary of Paragon France SAS. It generated revenue of EUR 52.9 mn and profit of EUR 980k in FY 2019, before the restatement of intercompany sales.

It has three subsidiaries:

Paragon Identification Srl (Romania): It operates as a production center for RFID labels, tickets and passport covers. The company generated revenue of EUR 9.0 mn and profit of EUR 115k in FY 2019 (before restatement of intercompany sales). Paragon Identification SAS has a 99.99% stake in it.

Paragon Identification Technology SAS: Paragon Identification Technology SAS is a wholly owned subsidiary of Paragon Identification SAS and is based in France.

Bemrose Booth Paragon Ltd: The company is a U.K.-based supplier of parking and mass-transit tickets. Having played a part in the creation of magnetic technology, it is now the world's leading manufacturer of magnetic tickets, with a capacity to produce a billion paper tickets per year. It generated revenue of EUR 2.7 mn and pre-tax profit of EUR 1.3 mn in FY 2019.

The company has Paragon Magnadata USA Inc, Burrall InfoSmart Limited, Paragon Identification Pty Limited (Australia) and Thames Card Technology Limited as its subsidiaries.

Magnadata USA Inc is a distribution entity for Bemrose Booth Paragon Limited in the North American market.

Burrall InfoSmart Limited was acquired in 2017 and produces smart cards and magnetic tickets. The acquisition was made to strengthen Paragon ID's position in the identification solutions market.

Paragon Identification Pty Limited (Australia) is a distribution entity for the Australian market for the products of Bemrose Booth Paragon, which are produced at its units in Hull and Boston.

Thames Card Technology is a British card manufacturer that specializes in the production of personalized smart cards, such as payment cards, loyalty cards, gift cards, bonus cards and commercial cards. The company sells more than 250 mn cards per year to the financial and retail sectors in more than 60 countries. The company earned revenue of more than GBP 15.0 mn (EUR 17.0 mn) in FY 2019 (before the acquisition).

The company acquired the intellectual property and certain assets of RFID Discovery in 2018. RFID Discovery is a product that uses Internet of Things (IoT) technologies to maintain a record of assets and inventories and is primarily used in the healthcare industry.

ASK ASIA HK Ltd

ASK ASIA HK Ltd is a subsidiary of Paragon Identification SA. The company acts as a holding company for its subsidiary, ASK Smart Technology (China).

ASK Smart Technology (China): The company used to be a production center for passports produced by Paragon ID SA. It stopped its activities in FY 2018.

ASK IntTag (U.S.)

Ask IntTag is a subsidiary of Paragon ID. It is based in the U.S. It has production and technology licenses to distribute products to the U.S. and Canada. It primarily produces passport covers for the Government Printing Office (GPO) and driving licenses for some of the states in the U.S. It generated revenue of EUR 15.2 mn and profit of EUR 837k in FY 2019. Paragon ID holds a 99.0% stake in the subsidiary.

AmaTech Group

AmaTech Group Ltd is an Irish technology firm that specializes in the development and production of RFID applications. It provides the technology to develop applications for contactless transactions in the banking industry. The company was acquired by Paragon ID (98.56% stake) in June 2018 so Paragon could diversify and grow in the banking and payment card space.

The group generated revenue of EUR 1.7 mn and pre-tax profit of EUR 0.8 mn in FY 2019.

The group has AmaTech Feincis Teoranta, AmaTech Precision Gmbh and AmaTech USA Inc as its subsidiaries.

AmaTech Feincis Teoranta: holds all the patents developed for the group.

AmaTech Precision Gmbh: a dormant company held by AmaTech Group that is inactive and in the process of liquidation.

AmaTech USA Inc: The company used to market RFID technologies. It has been dormant since April 2019 after it transferred its contracts to AmaTech Group.

2.2 Segments[ix]

The company operates in four segments, namely Transportation, Electronic Identification (e-ID), Tracking & Brand Protection and Payment. Previously, the company reported its activities under two segments, Product ID and People ID. Over the years, the company has regrouped and restructured its activities, and has clubbed them under the following four divisions.

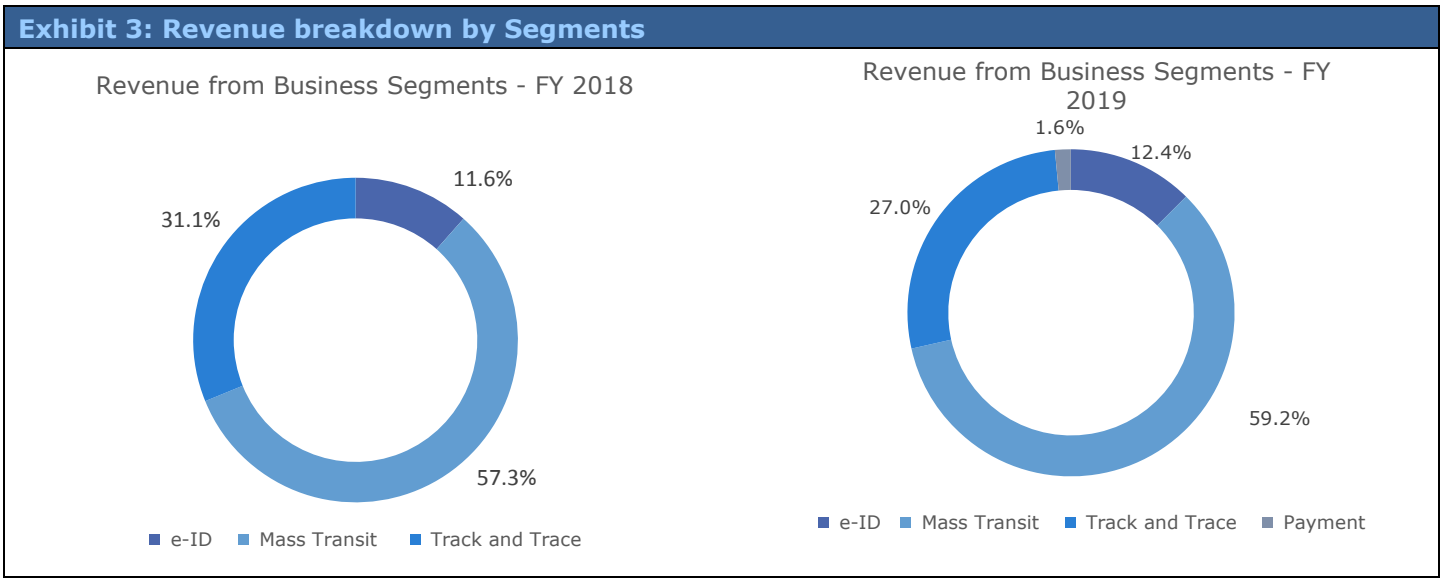
(a) Mass Transit: This segment comprises solutions such as dual cards and mobile applications, contactless cards, contactless tickets, magnetic tickets and customization. Paragon Id provides smartcards and other media globally for the purpose of secure access control. Paragon ID has been providing contactless tickets in France and the rest of the world for the last 10 years by complying with International Organization for Standardization (ISO) 14443 A and B standards, as well as the Integrated Transport Smartcard Organization (ITSO) standard in the U.K. In terms of magnetic tickets, Paragon ID is the leader in the European region and has clients across the globe. The company has been associated with clients such as Régie Autonome des Transports Parisiens (RATP) and British Rail for decades. The segment contributed 59.2% of the total revenues of the company in FY 2019.

(b) e-ID: The company uses contactless technology, comprising a microprocessor chip and an antenna that is embedded in the front/back cover or center page of the passport. Paragon ensures that the data stored electronically in the chip is secured and authenticated. The company makes use of SPiD® inlays for the creation of e-passport covers. The segment contributed 13.2% to the total revenues of the company in FY 2019.
The market for secure ID documents is growing at a rapid pace and it is expected that by FY 2020, 55% of global official documents (driving licenses, health cards, identity cards, passports) will be "smart," i.e., equipped with a chip.

(c) Track and Trace: Under this segment, the company provides solutions such as Labels, RFID Tags and Brand protection. It has around 50 years of hands-on experience in the labelling business with 15 presses involved in the manufacturing of these labels. The company provides these labels to meet the traceability needs of its clients. The RFID labels manufactured by the company help to improve efficiency in terms of product traceability, stock management accuracy, increased security and customer engagement. Paragon ID, through its NFC technology, has developed its own unique method of protecting products from being counterfeited. This helps customers to authenticate the product. The contribution of this segment to the total revenues of the company was 27.0% in FY 2019.

(d) Payment: Paragon recently entered the payment segment by acquiring AmaTech (Ireland) in FY 2018. The products offered under this segment are traditional bank cards, metal bank cards, and patent licenses. Under this segment, the company reported revenue of EUR 1.7 mn, of which EUR 600k came through a license agreement in the last quarter. The rest of the revenue (EUR 1.1 mn) came through the sale of components for banking cards. The segment contributed 2.0% of the revenues of the company in its first year following its launch (in FY 2019). The company generated revenue of EUR 4.7 mn in H1 2020 from this segment.

Exhibit 3: Revenue breakdown by Segments



2.3 End Users[x]

Exhibit 4: End Users

2.4 Acquisitions and Strategic Investments[xi]

The company has targeted acquisitions and strategic partnerships (inorganic growth) to supplement its organic growth. It aims to diversify and grow in new markets, while strengthening its stake in the existing markets that it operates in, by using the industrial knowledge and know-how of its targets and partners. The major acquisitions and partnerships completed by the company in the last two years have been classified under the various segments they will operate in:

2.4.1 Payment:

AmaTech Group Limited: The company launched its Payment activity with the acquisition of AmaTech Group Limited. AmaTech is a technology firm, based in Ireland, which specializes in the development and production of RFID technology applications for the Banking and Payment cards space. It enables contactless payments through its technology.

The acquisition allows Paragon ID to diversify in the payment cards market and add to its RFID-technology-based solutions.

Paragon ID subscribed to 190,747,500 ordinary shares of EUR 0.01 each to acquire AmaTech Group in FY 2019.

Amatech filed a complaint against Biosmart Corporation (a Korean company) for using its technology to offer cards in the U.S. In court, Biosmart accepted that it had infringed the right to use the technology that belongs to Amatech Corporation without a license. The judgement went in favor of Amatech, leading to a ban on Biosmart offering cards with this technology in the U.S.

Exhibit 5: Patent Information	
Publication Number	WO/2008/141990 A1
International Application No	PCT/EP2008/055902
International Filing Date	May 14, 2008
International Patent Classification (IPC)	G06K 19/007 (2006.01)
International Publication Date	November 27, 2008
Applicant (for all destinations except US)	Advanced Micromechanic and Automation Technology Ltd
Inventor / applicant (only for US)	David Finn Rietzler
Title	DUAL INTERFACE INLAYS

Thames Card Technology Limited: In November 2019, the company completed its second acquisition in the Payment Cards segment with the acquisition of Thames Card Technology Limited, which designs, manufactures, personalizes and distributes payment cards, loyalty cards, gift cards and other cards.

The acquisition will enable the company to expand significantly in the Payment Cards segment and provides the opportunity to capture market share in the global smart-card market.

2.4.2 Track and Trace:

RFID Discovery: In FY 2018, the company acquired the intellectual property rights and certain assets of RFID Discovery, a complete asset management solution that caters to the healthcare industry. RFID Discovery is a platform that uses IoT technologies to track assets and inventories.

The acquisition will help the company not only to strengthen its offering to the healthcare sector, but also to cater to other sectors such as manufacturing, automotive and aviation, and geographic regions such as North America and Europe.

The company completed the acquisition for a price of GBP 30k[xii] (~EUR 34k) in FY 2018.

Biolog-id: Paragon ID extended its strategic partnership with Biolog-id, a leader in connected health solutions, in FY 2019, enabling the company to continue to expand in the healthcare sector. Biolog-id helps to ensure that the right treatment is given to the right patient, along with improving the efficiency of the supply chain, through the use of RFID technology. This collaboration with Biolog-id provides Paragon ID with an opportunity to strengthen its position in the e-health market.

2.4.3 Mass Transit:

Airweb SAS: The company acquired a significant stake in Airweb for EUR 2.0 mn in FY 2019. Airweb SAS is a specialist in mobile ticketing applications. It offers web apps and mobile ticketing solutions primarily in Mass Transit and Leisure markets. It is the most deployed mobile ticketing solution in France, with around 30 transport authorities choosing its QR-code-based ticketing solution. The strategic investment in Airweb SAS provides the company with access to the various functions of its platform, such as its customer management system and its account-based ticketing system, enabling Paragon ID to integrate these functions into its existing mobile ticketing solutions.

Paragon ID, already a leader in ticketing for mass transit and smart cities, aims to offer the most comprehensive mobile ticketing solution and extend its leadership position in the market.

The company also has options to purchase the remaining shares in the company.

Wizway Solutions: The company extended its partnership with Wizway Solutions in FY 2019. Wizway Solutions specializes in providing services relating to the digitization of tickets using NFC technology. The partnership will help Paragon ID to complete its mobile ticketing solutions. Using Wizway Solutions' technology, Paragon ID will be able to allow all NFC-enabled smartphones on large transport networks to act as contactless tickets. The partnership, in

combination with the strategic investment in Airweb SAS, will allow Paragon ID to offer a complete mobile ticketing solution, helping it expand to newer regions in developing markets.

2.5 Company Milestones

Exhibit 6: Paragon Milestones[xiii]	
Year	**Event**
2016	• Paragon Group entered into a memorandum of understanding (MoU) with ASK with a view to merging ASK with Paragon Group's Identification division
2017	• The shareholders of the company adopted Paragon ID as the new name for the company • Paragon ID acquired Burall InfoSmart to strengthen its smart ticketing offer in the U.K.
2018	• Paragon ID invested in Airweb SAS, a specialist in mobile ticketing applications • The company acquired the intellectual property rights and assets of RFID discovery, a complete asset management solution for the healthcare industry • It strengthened its collaboration with Biolog-id, a leader in connected health solutions • Paragon ID's dedication to adopting intelligent and NFC solutions led to NXP Semiconductors selecting Paragon ID as a MIFARE Premium Partner • The company acquired AmaTech Group, a technology firm that specializes in the development and production of RFID applications
2019	• Paragon ID acquired Thames Technology in order to expand its Payment segment • The company entered into a patent license agreement with SPS, which would allow SPS to use the copper-wire embedded inductive coupling technologies of Paragon ID • Delivery of the hundred millionth RFID inlay (embedded chip and antenna) and cover for e-passports • Paragon ID joined IATA's strategic partnership program in order to be a part of the RFID sub-working group within the Baggage Luggage Working Group • The company announced a collaboration with InGenico to develop contactless readers • It joined the Rain RFID alliance • Paragon ID announced a partnership with Wizway solutions, a leading player in the digitization of tickets on NFC smartphones
2020	• Paragon ID partnered with Wizama for the development of its new gaming console

2.6 Company Strengths[xiv]

Leadership position in ticketing solutions: The company is a veteran in ticketing and access control solutions with over 50 years of experience. The company has decades-long relationships with RATP and British Rail. It also signed around seven new contracts and renewed 12 old contracts in FY 2019. The leadership position of the company and its expertise in the industry provide consistency and support to its operations and give it an opportunity to innovate and expand in its other segments. Using its strategic partnership with Airweb SAS, the company launched its ticketing PaaS solution to complete its offerings in the segment. The company is well-positioned to maintain its leadership position in the coming years.

Strong bookings and renewals: The company has some big contracts, which will contribute to its growth. It signed its first significant contract in May 2019 for its payment activity. It renewed its contract with RTM and Aix-Marseille-Provence for another five years. It signed a contract extension of two years at the start of FY 2018 with Rail Delivery Group in the UK, worth GBP 14.0 mn[xv] (~EUR 15.8 mn). The company also secured a three-year contract with Air France to provide around 40 mn RFID luggage tags to the airline on a yearly basis. As a result of its expertise and reputation, Paragon ID has strong bookings and renewals, which suggest a bright outlook for the company.

Penetration of the payment segment: The company entered the payment market in FY 2019 with the acquisition of AmaTech, a firm that specializes in RFID contactless-payment applications. The company earned revenue of EUR 1.7 mn in FY 2019 from the segment. The company also acquired Thames Card Technology Limited, a company based in the U.K. specializing in developing, personalizing and producing more than 250 mn payment cards annually. Thames Card Technology Limited had revenue of around EUR 15.0 mn in FY 2019. Paragon ID management expects the Payment segment to grow significantly over the next two years. The two acquisitions, the company's expertise and know-how in RFID technology, and the resulting synergies it will experience from its existing operations and segments, will lead to sizeable growth in the payment cards market.

Growth strategy, the inorganic way: The company has completed several acquisitions and entered various partnerships in the last two years, which will allow it to strengthen its own competence and knowledge in terms of technological offerings. The alliances and acquisitions provide a solid base to the company for developing new offerings and optimizing its existing offerings to stay ahead of the market and grow inorganically.

2.7 Company Risks[xvi]

Dynamic industry: The company operates in a dynamic industry that evolves very quickly. Disruptive technologies may lead to the displacement of established technology and could impact the company's operations.

High leverage: The company has raised additional debt to fund its growth from its principal shareholder, leading to a high debt-to-equity ratio. The company's total debt increased by EUR 5.5 mn in FY 2019.

2.8 Business Strategy[xvii]

Financial stability: Paragon ID aims to achieve double-digit revenue growth and constantly improving EBITDA margins, having already returned the company to profitability through cost efficiencies and the launch of new technologies. The company has completed its restructuring exercise and expects no further costs of this nature in the coming years. It managed to absorb the fixed costs in the second half of FY 2019, which contributed to its financial growth as it reported an EBITDA margin of 9.5% in H2 2019.

External growth strategy: The company made acquisitions last year as part of its inorganic growth strategy. Paragon ID acquired Amatech to create its Payment segment, which contributed EUR 1.7 mn to the overall revenue in FY 2019. Recently, it acquired Thames Technology, a U.K.-based company, which designs, manufactures and distributes payment cards, loyalty cards, gift cards, and other cards. Paragon ID also acquired RFID Discovery, which utilizes IoT advanced technologies to track equipment and manage stocks in the healthcare sector.

Focus on key areas: Paragon ID is focusing on key growth areas such as ticketing platforms, IoT, RFID baggage tags, the RFID Discovery acquisition and the Payment segment. The company has launched a ticketing platform (PaaS) for small and medium-sized cities, so that the citizens have easy access to transport by using RFID tickets, banking cards or mobile phones to pay for the fare. The company, through RFID Discovery, which it recently acquired, looks to grow in the healthcare sector by providing solutions for the tracking of assets and inventory. Apart from these three areas, the company is very focused on the Payment segment, in which it has recently made two acquisitions.

Strategic alliances: As part of its business strategy, Paragon ID has formed multiple strategic partnerships. The company has joined the IATA strategic partnership program, where it will be working with the RFID sub-working group within the Baggage Working Group. The company has also collaborated with Ingenico in the implementation of new contactless readers that are dedicated to the public transportation sector. In ticketing solutions, the company has entered into a partnership with WizWay Solutions.

2.9 Outlook[xviii]

Paragon ID expects the e-ID business line to remain stable. The company is focusing on maintaining its activity in the U.S. and on bringing new technologies and offerings to market, which will allow it to increase its margins in this area.

An increase in the ticket volumes and RFID cards in the transport sector is expected to increase revenues in the Mass Transit segment. Also, the group has acquired a stake in Airweb SAS and has entered into a partnership with Ingenico, which will provide impetus to growth in the Mass Transit segment.

The group has signed a contract with Air France to provide labels for RFID luggage, which will enhance the growth of the company in the Track and Trace segment. Also, the company will rely on its RFID Discovery acquisition to expand in the healthcare space and utilize the platform to grow in other parts of the world.

Payment activities are expected to grow significantly. The company has signed new licensing agreements for its IP, which should translate into higher revenues with better margins.

The company is keen to increase its revenue and profitability by extending its success in baggage tags to other airlines, by penetrating the banking sector, and by expanding its ticketing PaaS offering to transport networks across the globe.

2.10 Financial Overview[xix]

In H1 2020, the company registered topline growth of 12.2% on a YoY basis. The revenue increased from EUR 50.2 mn in H1 2019 to EUR 56.3 mn in H1 2020. On a like-for-like basis, the organic revenue growth was 7%. The organic growth, including the revenue of Thames Card Technology, was 8%. The Payment segment reported revenue of EUR 4.7 mn in H1 2020, due to royalties received from the licensing of AmaTech's technologies and two months' revenue from Thames Card Technology after its acquisition. The half-yearly results show that the company's performance is ahead of its objective of delivering sustained revenue and margin growth.

The U.K. grew strongly and accounted for 30% of revenues in H1 2020, while the Europe, Middle East & Africa (EMEA) region accounted for a 54% share of the total revenue, with the U.S. contributing the remaining 16%.

Revenue from the company's eID, Mass Transit and Track & Trace segments collectively grew by 3% YoY in H1 2020, with a strong double-digit performance in Mass Transit.

In FY 2019, Paragon ID generated revenue of EUR 108.0 mn in comparison with EUR 100.9 mn in FY 2018, up by 7.0% on a YoY basis. The EBITDA margin of the company improved by 40 basis points (bps) from 7.2% in FY 2018 to 7.6% in FY 2019. The operating income turned positive at EUR 0.2 mn (vs. a loss of EUR 2.2 mn in FY 2018). The net loss of the company decreased from EUR 5.1 mn to EUR 1.8 mn in FY 2019.

Strong growth in H2 2019 contributed to the jump in revenue in FY 2019. After finalizing the restructuring of activities, the group managed to register growth of 2.4% in the second quarter of the year before posting growth of 17.2% over the second six-month period. This huge growth of 17.2% in the second half, over the prior year, was led by a better performance in the Mass Transit segment (which grew by approximately 17.0% in the second half of the year), strong growth of approximately 13.0% in the e-ID segment for the complete year, and the first revenue contribution from the Payment segment, which was introduced in FY 2019. The Payment segment earned revenues from the delivery of payment cards and royalties earned by AmaTech Group on its technology licensing agreements.

The restructuring and consolidation of the activities undertaken by the company over the last few years, along with the launch of new technologies, contributed positively as the EBITDA margin reached 7.6% in FY 2019, up from 7.2% in FY 2018. Also, in H2 2019, strong growth in activities led to a higher EBITDA margin of 9.5%, compared with 5.6% in H1 2019.

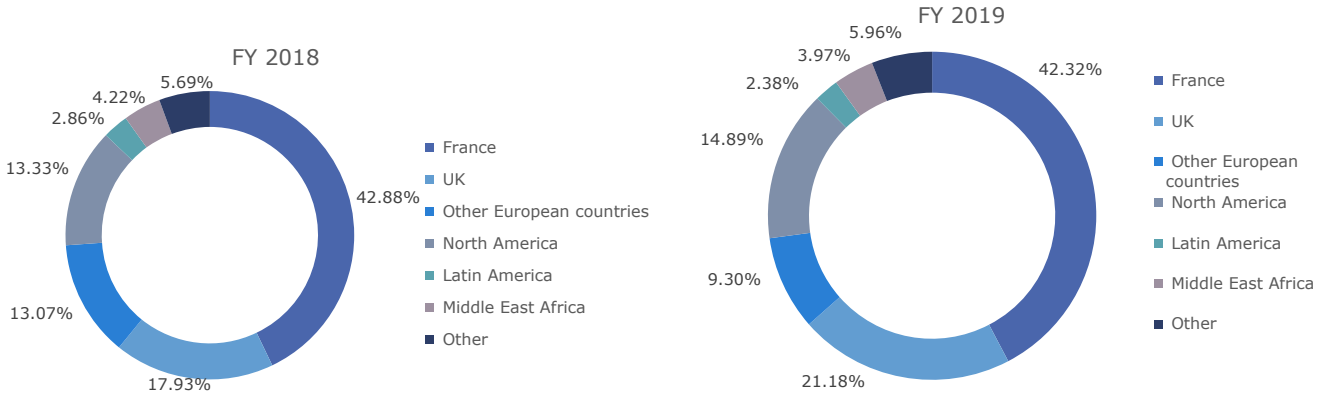
The company witnessed a decline in non-recurring expenses from EUR 3.4 mn in FY 2018 to EUR 2.3 mn in FY 2019. These costs arose from the restructuring exercises and closure of businesses during the year. The company does not expect any such costs to be incurred in FY 2020.

The net loss of the company decreased from EUR 5.1 mn in FY 2018 to EUR 1.8 mn in FY 2019 and included a EUR 0.2 mn loss in FY 2019 from the shutdown of the China operations. The improvement in the net results was due to the strategic measures taken by the company, such as the closure of loss-making activities and its entry into new business segments, such as payments.

The company's trade receivables declined from EUR 16.6 mn in FY 2018 to EUR 10.4 mn as on June 30, 2019, because of the non-recourse factoring exercise across the Paragon ID group. The increase in the group's inventories was due to an increase in raw material purchases and an increase in the activities planned in the coming months. The preparation for Brexit also contributed to the increase in stocks of materials and finished products in the U.K.

The decline of EUR 2.8 mn in cash and cash equivalents was due to payments made against full-and-final settlements to employees who were affected by the French restructuring. On June 30, 2019, the shareholder equity of the company stood at EUR 26.2 mn. The financial debt of the company increased slightly by EUR 0.9 mn over FY 2018 and reached EUR 16.3 mn in FY 2019; the increase in debt was utilized to fund the investments and growth during the year.

Exhibit 7: Revenue breakdown by geography



2.11 Shareholding Pattern[xx]

The company had 1,965,337 shares of common stock issued and outstanding on February 24, 2020.

Exhibit 8: Shareholding Pattern (as of February 24, 2020)

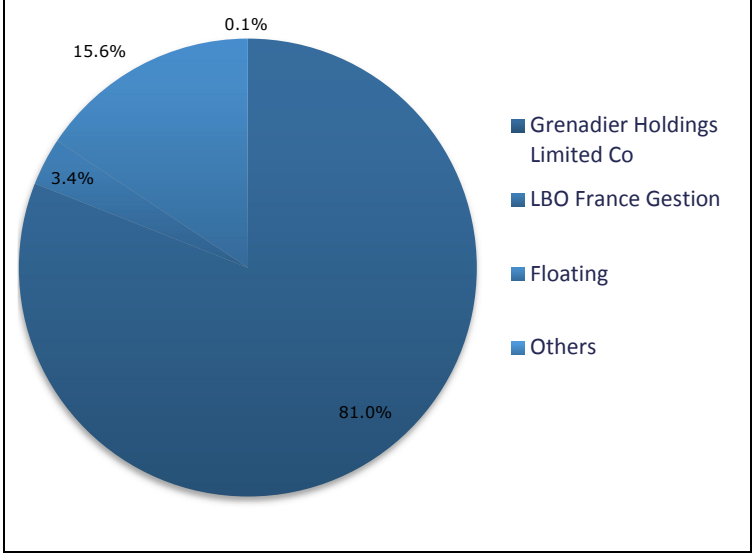


Exhibit 9: Shareholding Pattern as of February 24, 2020

Shareholders	No. of Shares	% of total
Grenadier Holdings Limited Co.	1,305,889	77.8%
LBO France Gestion	66,298	4.0%
Floating	291,984	17.4%
Others	15,452	0.92%

2.12 Listing and Contact Details[xxi]

Paragon ID is listed on Euronext Paris (Ticker: PID).

Company Contacts

Address: Paragon ID, 1198, Dr. Maurice Donat Av, 06250 MOUGINS, Cannes, France
Contact No: +33 2 48 81 61 00
Email Id: info@paragon-id.com

3. News[xxii]

- **Strengthening of balance sheet:** On February 07, 2020, the company announced that it had completed the private placement of EUR 0.5 mn of shares by issuing 14,286 new shares at a price of EUR 35 per share. Paragon ID also announced that its major shareholder, Grenadier Holdings, had shown its willingness to convert the convertible bonds (worth EUR 10 mn) it holds into equity shares of the company.
- **Announcement of H1 2020 sales numbers:** On January 30, 2020, the company announced its H1 2020 sales numbers. The consolidated revenue for H1 2020 amounted to EUR 56.3 mn, increasing by 12.2% YoY from EUR 50.2 mn in H1 2019. The total organic revenue growth was 8%, including the performance of Thames Card Technology, which was acquired in the second quarter of FY 2020, while the organic revenue growth on a like-for-like basis, excluding the acquisition, was 7%.
- **Wizama announced development of new console in partnership with Paragon ID**: On January 01, 2020, Wizama announced that it had developed a new generation of its SquareOne gaming console in partnership with Paragon ID. The console combines board games and video games and uses various playing cards developed using Paragon ID's NFC and RFID technology.
- **ISKN has chosen Paragon ID's contactless technology:** On December 25, 2019, the company announced that its contactless technology had been chosen by ISKN for a new gaming platform. The company has partnered with Bandai Namco Entertainment to launch this platform.
- **Acquired Thames Technology:** On November 04, 2019, Paragon ID acquired Thames Technology, which designs, manufactures and distributes gift cards, loyalty cards and other cards. The acquisition will help Paragon ID to expand its Payment segment's activity (which was launched in FY 2018).
- **Announced annual results for 2019:** On October 30, 2019, Paragon ID published its FY 2019 results. Revenue increased by 7.0% YoY to EUR 108.0 mn in FY 2019, from EUR 100.9 mn in FY 2018. The company's EBITDA margin improved by 40 bps to 7.6% in FY 2019, from 7.2% in FY 2018. The company's net loss dropped to EUR 1.8 mn in FY 2019, from EUR 5.1 mn in FY 2018. The company had cash and cash equivalents of EUR 8.6 mn on June 30, 2019.
- **New important contracts secured in smart city segment:** On October 28, 2019, the company announced that it had secured new significant contracts and renewed several others with smart cities worldwide for the supply of contactless and magnetic tickets, and smartcards. The company also announced that it had launched its new ticketing PaaS to strengthen its mobile ticketing area with the help of Airweb SAS.
- **Patent license agreement with SPS:** On October 03, 2019, Paragon ID announced that it had entered into a patent license agreement with Smart Packaging Solutions (SPS) that would allow SPS to use Paragon ID's copper-wire embedded inductive coupling technology.
- **Public tender won for Quebec City's public transport network:** On September 05, 2019, Paragon ID announced that it had won a public tender worth CAD 1.44 mn (~EUR 980k) to implement mobile ticketing solutions for Réseau de Transport de la Capitale (RTC), Quebec.
- **Multi-year contract signed with Air France:** On July 31, 2019, Paragon ID announced that it had signed a global, multi-year contract with Air France to supply RFID luggage tags. An estimated 40 mn RFID luggage tags are to be supplied by Paragon ID to Air France each year.
- **Paragon ID became IATA's strategic partner:** On July 31, 2019, Paragon ID announced that it had joined IATA's strategic partner program and will contribute to the RFID sub-luggage working group.
- **Collaboration with Ingenico to develop ticketing and payment solutions:** On June 11, 2019, Paragon ID announced that it had entered into a collaboration with Ingenico, a leader in payment solutions, for the implementation of new contactless readers, dedicated to the public transport sector.
- **Contracts won in payment activity:** On May 05, 2019, Paragon ID announced that its subsidiary, AmaTech Group Limited, had concluded a number of contracts in Q4 2019 that will positively impact the company's performance. The contracts are the first significant wins in payment activity since the company entered the market in FY 2018.

- **Paragon ID entered into partnership with WizWay Solutions:** On January 28, 2019, the company announced that it had entered into a partnership with WizWay solutions, a leader in the digitization of tickets on NFC smartphones. The partnership was expected to enhance Paragon ID's comprehensive mobile ticketing solutions.
- **Investment in Airweb SAS:** On November 13, 2018, the company announced that it had made a strategic investment (50%) in Airweb SAS, a specialist in mobile ticketing applications. The investment will allow the company to complete its mobile offerings and offer the most comprehensive mobile ticketing solution available worldwide.
- **Acquired intellectual property rights of RFID Discovery:** On November 12, 2018, the company announced that it had acquired the intellectual property rights and certain assets of RFID Discovery, a complete asset management solution for the healthcare sector. The acquisition will allow Paragon ID to strengthen its position in the RFID market and grow further in the healthcare sector.
- **Announced FY 2018 results:** On October 26, 2018, Paragon ID published its consolidated results for FY 2018. The revenue increased by 59.9% to EUR 100.9 mn in FY 2018 as compared to EUR 63.1 mn in FY 2017 (12 months). The EBITDA for the year increased by 5.8% YoY to EUR 7.3 mn. However, the EBITDA margin fell from 9.9% to 7.2% in FY 2018. The company ended the year with a net loss of EUR 5.1 mn. The company had cash and cash equivalents of EUR 11.4 mn as on June 30, 2018. The company ended the year with financial debt of EUR 15.4 mn.
- **Extended its strategic partnership with Biolog-id:** On October 11, 2018, the company announced that it had extended its strategic partnership with Biolog-id to combine their commercial strategies in the connected health market. The extended partnership was expected to allow both companies to strengthen their positions as market leaders in the international market in the long term.
- **Selected as NXP MIFARE Premium Partner:** On October 09, 2018, Paragon ID announced that it had been selected by NXP Semiconductors as a MIFARE Premium Partner, highlighting the company's position in ticketing solutions for the transport and smart city sectors. The partners were selected on the basis of their dedication to adopting NFC and intelligent solutions, in addition to their international presence.
- **Announced changes in management:** On July 24, 2018, the company announced that Mr. Julien Zuccarelli had left the company. It was also announced that Mr. Konstantinos Lagios would join as the chief commercial officer (CCO), starting on September 03, 2018. Mr. Clem Garvey was appointed as CEO in December 2018.
- **Acquired controlling stake in AmaTech Group Limited:** On June 15, 2018, Paragon ID announced that it had acquired a controlling interest in AmaTech Group Limited. AmaTech is an Irish technology firm that specializes in the development and production of RFID applications. Through the acquisition, the company plans to expand and grow in the banking and payment card sectors, along with developing RFID applications. The acquisition marked the launch of the company's payment activities.
- **Announced renewal of relationship with RTM:** On April 05, 2018, the company announced that it had renewed its contract with RTM Aix-Marseille-Provence for the supply of contactless tickets. The contract was extended for another five years. Paragon ID won the contract through a European tender process. As per the contract, Paragon ID was to supply around 10 mn tickets each year for the next five years.
- **Secured order from Transport for London (TfL) to supply Oyster cards:** On March 22, 2018, Paragon ID announced that it had secured an order from Transport for London (TfL) for the manufacture and supply of Oyster cards. The contract was worth GBP 2.2 mn[xxiii] (EUR 2.5 mn).
- **Participated in major exhibitions related to logistics and transport:** On March 19, 2018, Paragon ID announced that it was to participate in six major exhibitions related to logistics, transport, smart industry and contactless technologies. The various exhibitions were to be held in multiple international locations.
- **Adoption of Paragon ID as new corporate name:** On December 14, 2017, the company announced that at the ordinary and extraordinary shareholders' meeting held on December 13, 2017, the shareholders of the company adopted ASK's new corporate name – Paragon ID. Paragon ID was created following the merger of ASK Group with Paragon Group's Identification division, which was finalized at the end of April, 2017.

4. Management and Governance[xxiv]

The management and governance team have vast experience in managing operations and finance for multiple businesses. They also have an extensive background in investment matters.

Exhibit 10: Management and Governance

Name	Position	Experience
Clem Garvey	CEO	• Clem has a B. Comm degree and is a chartered accountant • Clem has served as Chairman and CEO of Ricoh France • He has served as Chief Operating Officer of Neopost Group • He also served as Chief Financial Officer and Chief Operating officer of Escher Group Holdings plc from 2016 to 2018
Olivier Doye	Chief Financial Officer	• Olivier completed his MBA from the University of Quebec • He started his career at KPMG in 1991 • He held senior management positions in companies such as Bernardaud and Herlitz and Legrand • He joined Paragon group in 2006 as Deputy Managing Director of Paragon Customer Communications' French subsidiaries
Konstantinos Lagios	CCO	• Konstantinos completed his undergraduate degree in Business Administration and Marketing from Athens University of Economics and Business and MBA from Strathclyde Business School • He has served as CEO of the Information Management Division of Lykos Group • He has served as CCO of AustriaCard AG
Dominique Durant des Aulnois	Secretary General	• Dominique graduated from the Federal Institute of Technology of Lausanne • He began his career at Dutch Océ Group in 1984 holding various positions in sales and operations • He joined Paragon group in 1997 and currently holds the position of Secretary General of the Identification division
Bertrand Brault	Director, Marketing Business Development	• Bertrand has worked on several strategic projects • He worked on Webhelp – Docapost for SNCF projects • He initiated a project in Marseille, which involved the graphic and electrical personalization of 400,000 calypso cards • He was involved in the start-up in FY 2012 of a contactless ticket production site in Bucharest

5. Industry Overview[xxv]

RFID is an important part of the Internet of Things (IoT) and near field communication (NFC) space, as this technology increases the capacity of the devices and makes them more secure for the end users. RFID is used for identifying and tracing the objects to which the RFID tags are attached. Technically, RFID is available in two categories, namely active and passive. Active tags have the capacity to constantly emit signals to readers and have their own independent power source. Passive tags take power from the RFID reader as these have no battery of their own and are cheaper than the active RFID tags.

5.1 Barcode vs RFID[xxvi]

RFID uses radio frequency to identify and transmit data from RFID tags to the RFID reader, whereas a barcode scanner uses light to read the barcode for collecting information. One of the biggest advantages of RFID over barcode is that it can scan multiple tags that are in its range at once, while barcode requires the physical scanning of every code separately. The following are the reasons to shift from barcode to RFID:

- **Range**
  The range of RFID tags is greater than that of barcodes. Barcodes can scan the codes within some inches of the codes, whereas the RFID reader can read the tags from a range of 0 to 100 plus feet. This makes RFID more attractive than barcodes.
- **Line of Sight**
  The barcodes require the code to be in the line of sight with no interference between the scanner and the code, whereas the RFID reader requires the tag to just be in the range of the RFID reader, rather than directly in its line of sight. As a result of this, RFID proves to be more helpful in saving time and manpower as there is no need to find and scan every code separately.
- **Multi-Scan**
  The RFID reader reads multiple tags at a single point of time, but this is not possible in the case of barcode as it only scans a single code at a time. This creates an advantage for the users for RFID as they can collect more information in less time.
- **Security**
  The RFID tags are more secure than barcodes as the RFID tag users can create passwords and encrypt the tags, which helps ensure the safety of the information. Bar code can be copied easily by modern copy machines, hence, it is riskier to use barcode than RFID.
- **Durability and Reusability**
  The RFID tags are more durable than barcode as barcode is printed on paper, which can be damaged or destroyed easily. The RFID tags can be modified according to the environment in which they have to operate, and their durability can be increased by using hard covering, which can protect tags from getting damaged. It is easy to update and modify the information produced by RFID tags, which makes them reusable for the users.
- **Storage Capability**
  The storage capability of RFID tags is more than that of barcode. Barcode can only store limited information, whereas RFID stores the data in non-volatile memory, which makes it possible for RFID to store more data.
- **Read/Write**
  The barcode data can only be read; it cannot be modified. The data collected with the help of an RFID reader can be changed or modified as per the requirement of the users.

5.2 Growth Outlook

The global RFID market is expected to grow at a CAGR of 7.7%[xxvii] to EUR 28.16 bn by FY 2023 from EUR 15.31 bn in FY 2016. The increasing usage of RFID in security access and its adoption by various industries, such as healthcare, manufacturing, aerospace and retail, are the driving factors behind the growth of this industry.

5.3 Near Field Communication[xxviii]

NFC is a technological innovation that uses magnetic field induction to allow communication between devices, i.e., to exchange information when they are tapped together or brought within a few centimeters of each other. It is widely used to pair devices such as headphones and speakers and to exchange data between smartphones/tablets and other NFC-enabled devices. NFC technology has made payments and transactions much more convenient since it enables contactless payments by touching credit cards and electronic ticket smartcards, instead of inserting and entering pins for card payments. The NFC market is gaining traction due to its broad adoption in smartphones and tablets. Because of this, the global NFC market is expected to grow at a significant CAGR of 21.3% from FY 2018 and reach a market size of ~EUR 21.3 bn by FY 2023.

The market is expected to grow at a strong rate as it has made its way into various fields of application, such as retail, transportation, and healthcare. Its wide adoption in systems such as Samsung Pay and Android Pay is expected to make NFC technology commonplace by creating mass awareness.

Based on the end-user industry, the market is segmented into retail, transportation, healthcare, and banking and financial services. Among these segments, the retail segment accounted for the most significant share of the market in FY 2017, as retailers such as Burberry and Harvey Nichols continuously adopted NFC technology to enhance the shopping experiences in their brick-and-mortar stores. Beyond reforming payments, NFC has also created opportunities for retailers to inform and persuade shoppers to use this technology, thus spreading awareness of it.

By product type, the global NFC market is categorized into NFC controller chips, NFC tags, NFC readers, and NFC secure elements. The NFC controller chips are expected to have the highest growth rate owing to their wide adoption in contactless payment systems within various industries.

Exhibit 11: RFID Tags Demand - FY 2017 (units in mn)[xxix]

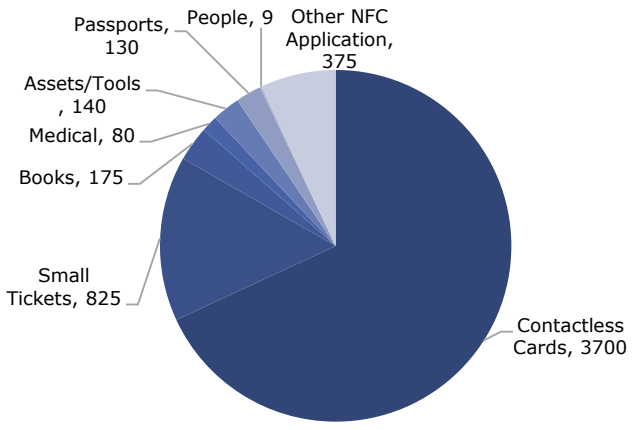
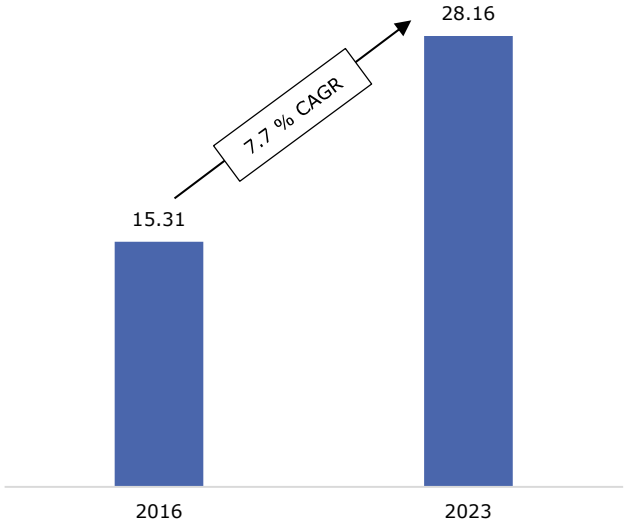


Exhibit 12: RFID Market Growth 2016-2023 (in EUR bn)



The advancement and growth of this industry depends on the willingness of client companies to invest in or spend on this activity. For example, the use of RFID in the manufacturing industry enables the effective management of inventory to meet future demand, the reduction of storage cost and a decrease in the chances of loss from theft. Increasing use

of RFID technology in healthcare has also played an important role in the growth of this industry. RFID is used for patient identification and safety, inventory management of medicines, and for tracking the availability of blood. Growing use of RFID in the retail sector is also contributing to the growth of the RFID industry as it helps to improve the shopping experience for customers by easily tracking products and fetching useful information.

It is expected that the growth of passive tags will be high because of their low-cost structure as they do not require a battery and rely on the RFID tag reader's power to operate. Passive tags are smaller, cost effective and durable, and are used to perform many functions such as inventory management, and tracking and identification of items. As a result of this, they have gained growing attention from customers. The demand for RFID tags is growing faster in the Asia Pacific region and this trend is expected to continue as organizations are increasingly adopting this technology.

5.4 Regional analysis[xxx]

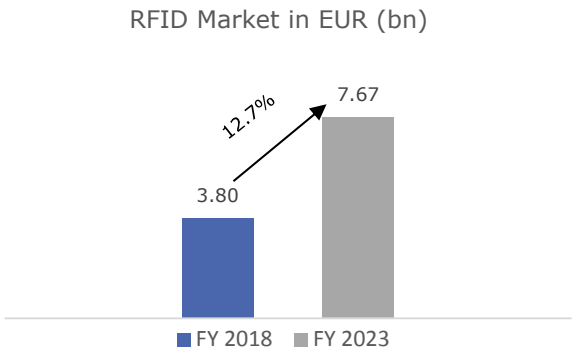
The RFID market has shown a positive momentum in previous years, but the rate of growth for every region varies. In FY 2017, the American region held the largest share of RFID tag demand, followed by Asia-Pacific. In future, the demand for RFID tags is expected to rise worldwide, but Asia Pacific is expected to see higher growth rates.

Paragon ID operates mainly in three geographies - Continental Europe, U.K., and North America; it currently derives 54% of its revenues from Europe, Middle East and Africa and 16% from the U.S. The global growth in the RFID market is expected to favorably impact the revenues of Paragon ID.

The Americas

The Americas hold the largest market share of RFID and this share is expected to remain steady. The RFID market in Americas has reached its maturity stage, and the absorption capacity in this region will therefore rise at a steady pace rather than increasing rapidly. The bigger players in the region are focusing more on research and development activities to gain operational efficiencies through innovation in RFID technology. There are many developed companies in different industries that are driving the demand for RFID technology. Advancement and an increasing number of healthcare services in this region are among the major factors behind this growth. The North American market has also shown significant growth because of the increased use of smart devices and wearables, advancement in the retail sector, and rise in the use of tags for safety and tracing.

Exhibit 13: RFID US Market



The U.S. is expected to grow at a CAGR of 12.7%[xxxi] to ~EUR 8.57 bn in ~FY 2023 from EUR 4.49 bn in FY 2018. Canada is the leader in the RFID market in terms of growth rate and is expected to grow at a CAGR of 16.1% during the same period, followed by Mexico which is expected to grow at a CAGR of 13.3%.

Paragon ID has a subsidiary named Ask IntTag (based in the U.S.), which designs and distributes contactless products. Due to the robust market growth projected, the company is expected to benefit from these markets in the future.

Asia Pacific

It is expected that Asia Pacific will secure the fastest CAGR of 18.5%[xxxii] during the forecast period 2018-2024. The driving factors behind this growth will be the growing demand in government and medical organizations for better management of stored tools, data files and medication, increased pressure for better asset management solutions in various industries, and increased demand for organized retail. The retail industry in China has been growing at a healthy pace, and as a result, the use of RFID technology has been on the rise as these tags support better inventory management, tracing, and billing, and decrease the overhead costs of the company by reducing the need for manpower to manage the operations. China is the largest producer and exporter of apparel in the world, followed by other Asian countries (Bangladesh, Vietnam and India). Factors such as low labor costs and a vast workforce have contributed to the growth of the apparel industry in this region[xxxiii]. RFID tags are being attached to apparel by the manufacturers to improve their inventory management and supply chain.

Apart from consumption, China already has ~85% of the world's RFID manufacturing capacity, as it is a major exporter of tags. Virtually all RFID products are manufactured in China, especially in Shenzhen, Guangzhou and Dongguan. In addition, the second-generation National Identification Card project in China is the largest RFID order by value and China is delivering it by using Chinese-only resources almost exclusively[xxxiv]. IDTechEx (a leading research brokerage house) finds that the total RFID market in China was worth USD 1.7 bn in 2014, covering chips, tags (including cards, fobs, labels and all other form factors), readers, software/services and system integration. This figure is expected to rise to USD 4.3 bn by 2025. Also, the value of RFID tags was ~USD 430 mn in 2014, about 25% of the total RFID market, and IDTechEx expects the market size to reach USD 952 mn in 2025[xxxv].

Europe[xxxvi]

Europe plays an important role in the world economy and it is expected that its share of the RFID market will grow at a significant CAGR of 15.7% to reach EUR 7.7 bn in FY 2024 from EUR 2.4 bn in FY 2016. The major factors driving this growth will be increasing demand from the retail industry, laws for labelling animals, increasing use of RFID tags in security and access control applications, and increasing installation of RFID technology in manufacturing centers for improving efficiency. However, the high cost of setting up the RFID process may hinder the expected growth. It is expected that Germany will continue to be a dominant market for RFID and will add over EUR 0.89 bn to the European market as a whole. The U.K. will also see increased use of RFID technology in the healthcare sector.

5.5 Drivers for RFID Growth[xxxvii]

- **Tracking Products**
  RFID is increasingly being adopted by a large number of companies to manage their inventory efficiently. Many companies are shifting from barcode scanners to RFID to identify and track inventory as it improves operating efficiency. RFID readers collect information from multiple tags at a single point in time, and as a result, give more information at a faster pace than a barcode scanner. This acts as a motivation for the companies to shift their demand to RFID. These tags are also used at libraries to manage the inventory of books.
- **Toll Road Payment**
  RFID technology is adopted by some countries to collect toll road payments. This technology identifies the vehicle when it passes through the toll plaza and then automatically deducts the toll charges from the owner's prepaid account. This saves time for both the owner and the toll management personnel as there is no need for the owner to stop at the toll booth or the toll personnel to stop and collect the charges from the vehicle owners.
- **Passports**
  There are many countries that are using RFID chips in their passports to track the holder's entry to and exit from the country and to collect essential information about the holders such as photo, name and other details. However, this is not the only reason for adopting RFID in passports. Earlier, criminals would duplicate the passport document and travel easily to another country. However, by using chips in passports, it has become easier to track or stop criminals and people from travelling illegally. Japan, the U.S., Spain and Norway are some of the countries that use RFID chips in passports.
- **RFID in Access Control**
  RFID technology is also increasingly being used for controlling access. Usually, passive RFID tags or tags with low frequency are used for controlling the access of employees to office premises. As the tags used have a low frequency, it is necessary to put the tag close to the reader in order to work properly.

- **Identification and Tracking in Animal Husbandry**
  RFID has proved its efficiency in identifying and tracking the location of animals over time. The RFID tags are attached to animals' ears or the chips are inserted within animals' bodies. With the help of an RFID reader, the users can collect information related to animals to which chips or tags are attached. Sometimes, the users place the tag reader at the gate, and then, with the help of data provided by the reader, the users can check whether all animals have returned to the farm or not.
- **RFID in Shipment**
  RFID technology is increasingly being used to ease the shipment of goods by companies. There are companies that require the transfer of a large number of goods from one place to another, and RFID chips can help them track and identify the content and movement of the goods. By attaching RFID tags to their products, companies can easily identify and track the products in a particular container. Furthermore, use of RFID tags also reduces workload and the chances of losing or misplacing a shipment.
- **Other**
  Apart from the above listed drivers, RFID is also used in various other applications such as measuring race timings and conducting laundry management. It is also placed in car tires to collect information about the road and tire condition, and for real time location of people and assets.
    - IT assets, such as server blades, laptops, tablets, and other peripherals, are costly investments for any company, and the IT asset tags give the IT team the ability to quickly do an inventory count.
    - For industries that rely on a large variety of tools, fasteners, and other items, managing the availability of those assets is a tedious process. Depending on the level of complexity, RFID tool tracking systems track which tools have been taken, which employees have taken the resources, and which resources haven't been returned to the tool crib.
    - Many kiosks use RFID to either manage resources or interact with users. DVD rental kiosks use RFID DVD tags to make sure customers receive their selected movie rental. Other examples of RFID kiosks include interactive media displays where an embedded RFID reader interrogates badges or cards.
    - With an RFID laundry management system, operations can track which uniforms were assigned to specific employees, the age of uniforms, and the number of times washed, and identify missing uniforms. RFID laundry tags provide a new level of visibility for laundry management.

  In many sports events, such as races, the participants must be timed accurately, and the best way to do this is by tagging them and tracking when they pass across control points.

5.6 Impediments to RFID Growth[xxxviii]

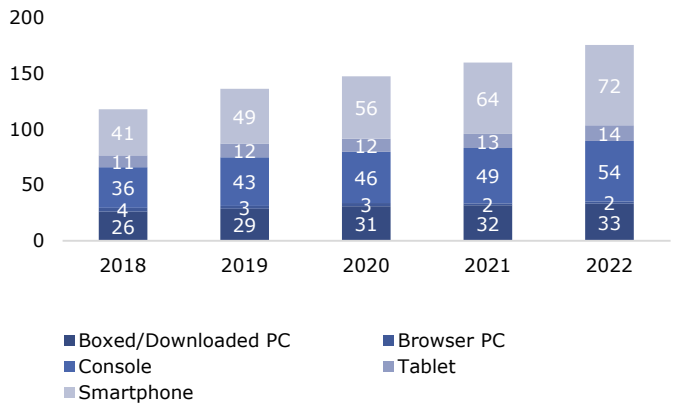
- **Cost**
  Cost is one of the major constraints that many companies face when adopting the RFID technology. The cost of an RFID system depends on its usage, and is higher than the cost of a barcode system as barcodes are directly printed on plastics and paper materials.[xxxix] Although suppliers have managed to reduce the cost over time, it is still very high compared to other options available in the market. Hence, the initial cost involved in setting up the RFID system makes it more suitable for larger companies. Due to the cost factor, the potential users first analyze the costs and benefits of this technology and based on that, make the decision to implement the system or not.
- **Scanning multiple items**
  While RFID is well known for its ability to scan multiple items at once, this isn't always an advantage. In large warehouses, an RFID reader can scan all tags within its range, which doesn't work well if one is only trying to scan items from a specific shipment or in a certain location on the floor. To effectively use RFID in a warehouse or loading dock environment, one may need to use RFID blocks to form barriers between RFID readers, so that the same items aren't scanned multiple times. In some cases, an RFID block may be placed at each dock door to make sure only items at that entrance are being scanned.
- **Limitation on type of material used**
  The RFID has the limitation that certain tags need to be modified based on the type of material for which RFID is used. If it is used with metals, there will be interference in the working of the RFID antenna, and to overcome this, there is a special tag that is used to avoid such interference. The use of RFID with liquid products can also affect the RFID signals.
- **Regulations for RFID[xl]**
  Regulations are for the welfare of the economy, but sometimes become a hurdle for customers to adopt the RFID systems. Every country has its separate set of rules and regulations to manage RFID use. Frequency range differs from country to country, and as a result, a tag designed for the U.S. might have reading problems in Europe. Further, as there are no standards for RFID that are accepted globally, there are trade-related issues.

5.7 End Users of RFID[xli]

Gaming

The NFC and RFID technologies were introduced in the gaming industry in 1997. The technologies help in bridging the gap between physical and virtual gaming. NFC and RFID technologies help to create a more interactive and immersive experience by linking physical games and their aspects to virtual games. The gaming industry is expected to grow by 9.6% YoY and will generate ~EUR 135.83 bn in FY 2019[xliii]. The gaming market is expected to grow at a CAGR of 9% to ~EUR 156.30 bn by FY 2022, and mobile gaming will play the biggest role in this growth.

Exhibit 14: Global Games Market 2018-2022 (in EUR mn)[xlii]



Automotive

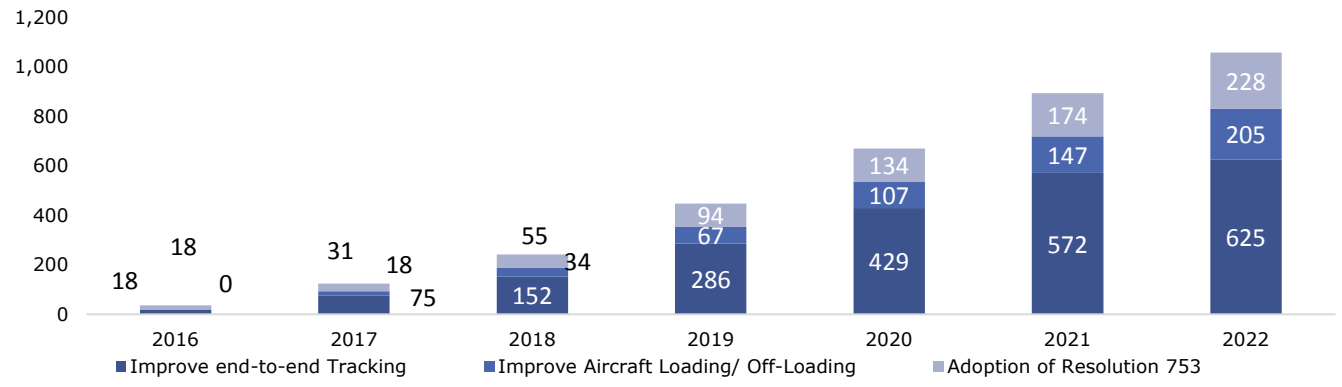
RFID is being increasingly used in the automotive sector as it helps to identify and track vehicles, tools and inventory. It is expected that the automotive RFID tag market will grow at a CAGR of 7% from FY 2018 to FY 2022[xliv]. The RFID market in the U.S. for automotive and aerospace manufacturing accounts for more than EUR 178.6 mn. The rise in demand for navigation systems in cars has subsequently expanded the market for RFID in the automotive sector. Paragon ID, using its expertise in RFID technology, provides various solutions to the automotive sector. Its RFID-enabled tags help manage the flow of parts and improve operational efficiency. This technology has been largely adopted by the tire-producing companies as it increases operating efficiencies, helps with logistics and collects important data,

which can be used to manage the inventory efficiently. RFID tags provide security to the users/manufacturers and help prevent counterfeiting and fraud. Paragon ID's RFID technology also helps in the automation of processes and takes considerably less time and effort than barcode scanners. Impinj INC., NXP Semiconductors, Avery Dennison Corporation, Confidex Ltd., Alien Technology, Smartrac N.V., Invengo technology and Nedap N.V. are market leaders in the RFID automotive market.

Aviation

RFID technology has become popular in the aviation sector as it helps with tracing and identification, secured e-identification, luggage tracking, catering, cargo handling, ground service equipment, passenger ticketing and employee badges. IATA has introduced resolution 753 for baggage tracking, which requires tracking baggage at four key points – when the passenger hands over the luggage, it is loaded to the aircraft, it is delivered to the transfer area and when it is returned to the passenger. RFID tags are used in airports for luggage tracking and also help in managing lost or delayed baggage. This leads to cost savings in managing such issues. The use of RFID in maintenance, repair, and overhaul (MRO) by the airline operators has increased as it improves the services and reduces the cost involved. Paragon ID caters to the aviation industry primarily by providing efficient tracking solutions for luggage, along with several other solutions. The company's solutions are used in various processes in the aviation industry, such as trolley-tracking, promotional literature, in-flight materials, airport signages and warehousing services.

Exhibit 15: Projected Savings from the Adoption of RFID at Airports from 2016-2022 (in EUR mn)[xlv]



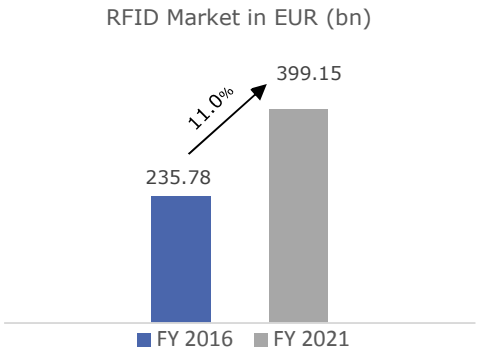
Logistics

Paragon ID's technology is highly relevant and useful for the logistics industry. A company's ability to track and manage stock and automate processes, using RFID technology as opposed to barcoding systems, can have a discernible positive impact on the supply chain, reducing theft, lowering resource investment and preventing work injuries. All of these also help in achieving operational efficiency.

Agriculture/Food

The 'RFID in agriculture' market is set to be a dominant market as this technology has proved its efficiency in livestock management, breeding control, smart farming, and collection of data on animals. The technology is used for tagging animals, through which it becomes easier for farmers to trace their livestock and improve their supply chain efficiency. The RFID market for agricultural applications is expected to grow at a CAGR of 11%[xlvi] to ~EUR 399.15 mn in FY 2021 from ~EUR 235.78 mn in FY 2016. Governments of different countries are helping their farmers by providing funds to increase their production by adopting the latest technologies. Paragon ID has been providing tags to the agricultural/food industry for many years. The company's capabilities are used to tag livestock to track their movement and to ensure proper feed and disease management for them. Bales of hay and entire fields can be tagged to understand, obtain and track data related to the harvest, such as temperature during the harvest period and nutritional information of the harvest. The solutions extend to data management in greenhouses, ranging from weather conditions to employees' efficiency.

Exhibit 16: RFID Agriculture Market



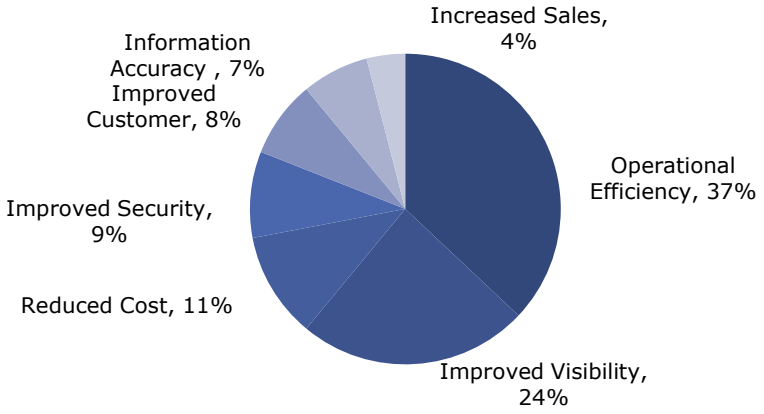
Retail

RFID technology helps with efficient inventory management and this boosts the demand for RFID in the retail industry. The key driver for the growth of RFID in retail is the adoption of an omni-channel approach, which increases the need for better centralized supply chain management. In the retail industry, RFID is used for apparel tagging and it is expected that only this application will create demand for more than 10 bn RFID tags in FY 2019[xlvii]. This technology has helped retailers boost sales without increasing stock levels. This is done by managing stock at optimum levels, reducing the out-of-stock situation, and improving labor productivity.

Walmart has been encouraging its suppliers to use RFID technology. Recently, the company has adopted the use of smart tags for inventory management. It has managed to cut down its 'out of stocks' by 16% since the introduction of RFID technology into its supply chain.[xlviii]

Paragon ID helps retail stores and outlets optimize their operations and protect their brands. The company's solutions are applied to inventory management in warehouses and stores, anti-theft steps, brand protection, and e-commerce and physical stores linkage, with the help of personalized tags and labels. The company also provides loyalty cards and personalized packages for customers.

Exhibit 17: Benefit of RFID in the Retail industry[xlix]



Healthcare

RFID technology in the healthcare industry is helpful for asset tracking, patient identification and tracking, document tracking, and facilities management. The RFID market in the healthcare industry is expected to grow at a CAGR of 22.4% to ~EUR 9.48 bn in FY 2025 from ~EUR 2.19 bn in FY 2018. The key drivers behind this growth are the operational efficiency achieved by the use of this technology, initiatives taken by governments to reduce counterfeit incidents in healthcare, the tackling of theft and management related issues for medical devices and the capability of RFID in reducing operational cost. Counterfeit is a serious concern for any country, and this is a reason for various country's governments to take initiatives to reduce counterfeit cases. North America observed the highest number of counterfeit incidents followed by Asia in FY 2017, and it is expected that in the future, the demand for RFID will come primarily from these regions (Exhibit 13). Powered by its partnership with Biolog-id and its acquisition of the assets of RFID Discovery, Paragon ID's healthcare solutions provide the ability to track patients and their treatment with accuracy, maintain medical records and samples, and keep a track of the stock of medicines and equipment. The solutions can also provide proper labelling of medicines and blood samples and prevent counterfeiting.

Exhibit 18: Counterfeit Incidents Concerning Pharmaceuticals FY 2017[I]

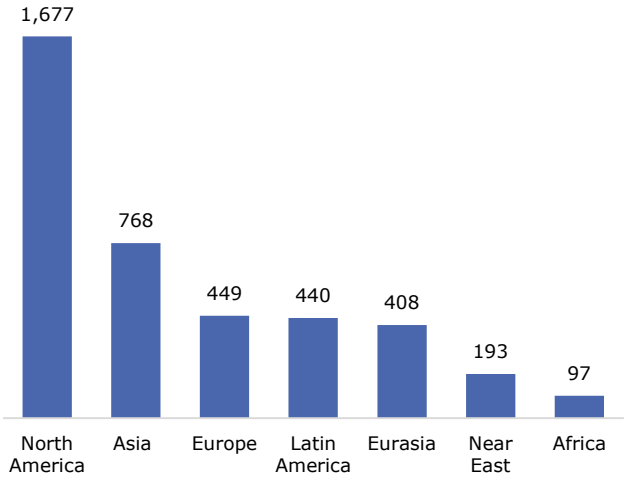
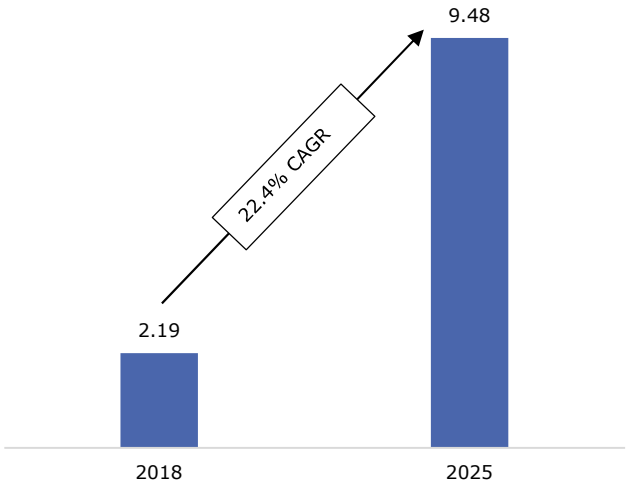


Exhibit 19: Growth in RFID in Healthcare Market (in EUR bn)



Secure Identity

Paragon ID specializes in using its RFID technology to provide inlays that are put in smart cards and government recognized/issued documents like passports, driving licenses and other contactless identity documents. The inlays fitted in the documents match the government standards and protect the identity of citizens. The company uses CoreLam inlays and SPiD inlays to serve the government and regulatory bodies as required.

Payment

RFID technology is widely used in the production of contactless smart cards that facilitate payments. Smart cards are accepted globally because of their convenience and secure payment transactions. It is expected that the smart card market will reach ~EUR 58.1 bn in FY 2025, growing at a CAGR of 9%[Ii] from FY 2019. The increasing demand for secure and reliable payment transactions and the benefit of using contactless cards, such as a reduction in fraud and value-added services are the main factors driving the growth of contactless cards. Additionally, smart cards ensure the safety of the user's private information and protect the information from hacking and privacy threats. The company expanded its presence in this domain with the acquisition of AmaTech, a specialist in the production of RFID applications, and the acquisition of Thames Technology, a specialist in the manufacturing of smart cards. The company's expertise in RFID applications allows it to cater to the evolving banking and payment industry as stakeholders shift to contactless payment solutions. EMV metal bank cards produced by the company contain the world's first inlay with a dual interface chip

module, allowing it to be contactless on both sides. The payment industry is one of the major industries that the company seeks to continue to serve in the future.

Public Transportation and Mobility

The movement of people is one of the biggest challenges that smart cities must deal with. Paragon ID provides ticketing solutions, including contactless tickets and mobile ticketing offerings, to facilitate mobility and counter the problems faced on an everyday basis in smart cities. Magnetic tickets and access control solutions connect railways, metros, buses and even bicycles within smart cities, allowing citizens to use any option for their commute. RFID technology also provides parking tickets and ensures that a flexible car parking system is maintained. The vast experience of the company in this area establishes it as a market leader in the domain. The planned launch of the company's Ticketing Platform-as-a-Service (PaaS) will help it cater to the market successfully in the future as well.

Manufacturing

RFID helps to increase the efficiency of manufacturing companies by tracking and identifying the assets, reducing time wastage and the chance of theft and misuse, and providing quality data to management, which is beneficial for decision making. RFID based asset tracking systems can provide real time data to supervisors and allow efficient tracking of assets and employees. The RFID technology in the manufacturing market will grow at a CAGR of 13% from ~EUR 0.72 bn in FY 2017 to ~EUR 1.93 bn in FY 2025[lii]. Paragon ID's RFID technology solutions are able to withstand tough conditions and are suited to the manufacturing industry.

Leisure and Entertainment

The company's RFID technology caters to the leisure, sports and entertainment industries through the provision of passes and wristbands that ensure that the required security provisions are followed. The wristbands are also used to track data related to the popularity and usage of kiosks/stalls inside the arena and stadium. RFID and NFC technology can also be used to obtain information about artists at a concert or an item/artifact at a museum/historical site by placing a smartphone near the RFID/NFC reader. The reader can give information about the venue and the arrangements in it.

5.8 Competitive Landscape[liii]

Company Name	Country	Market Cap (in EUR mn)	Current Enterprise Value (in EUR mn)	Trailing 12 Months P/S
Europe				
CML Microsystems PLC	Britain	73.96	62.4	2.4
Oesterreichische Staatsdruckerei Holding AG	Austria	187.50	199.3	3.5
Nederland Apparatenfabriek	Netherlands	341.34	368.9	1.7
Bittium Oyj	Finland	212.73	200.1	2.8
Telit Communications PLC	Britain	235.23	204.4	0.6
Rest of the World (ROW)				
On Track Innovations Ltd	Israel	12.2	11.5	0.85
Rexit Bhd	Malaysia	22.1	16.0	4.56
Identiv Inc	US	77.7	86.1	0.97
Impinj Inc	US	721.3	706.5	5.22
ORBCOMM Inc	US	282.9	480.5	1.16
Avery Dennison Corp	US	10337.5	11845.8	1.60
Zebra Technologies Corp	US	11899.4	13125.9	2.87

6. Valuation

The fair market value for the company's shares stood between EUR 69.8 mn and EUR 105.4 mn on February 24, 2020. The fair market value for one of the company's publicly traded shares stood between EUR 35.51 and EUR 53.62 on February 24, 2020. The valuation approach followed is the DCF method.

6.1 Discounted Cash Flow Method

Valuation	
WACC	
Risk-free rate	0.06%[liv]
Beta	0.6[lv]
Equity Market return	9.11%[lvi]
Additional Premium	6.5%[lvii]
Cost of Equity	12.0%
Cost of Debt	2.6%
Terminal Growth Rate	2.0%
WACC (Discount Rate)	10.0%

Year Ending- June	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
FCFF (Low)								
Net cash from operating activities	9.1	9.7	10.7	12.9	14.9	16.2	16.6	18.5
Capital Expenditure	(5.0)	(4.9)	(4.8)	(5.4)	(6.1)	(6.8)	(7.4)	(8.0)
Free Cash Flow to Firm	4.1	4.8	5.9	7.6	8.8	9.4	9.2	10.5
Discount factor	1.0	0.9	0.8	0.7	0.7	0.6	0.5	0.5
Present Value of FCF	4.0	4.2	4.7	5.5	5.8	5.6	5.0	5.2
FCFF (High)								
Net cash from operating activities	10.3	11.5	12.1	15.3	17.8	19.7	20.9	23.4
Capital Expenditure	(5.2)	(5.2)	(5.1)	(5.8)	(6.6)	(7.5)	(8.3)	(9.1)
Free Cash Flow to Firm	5.0	6.3	7.0	9.5	11.2	12.2	12.6	14.3
Discount factor	1.0	0.9	0.8	0.7	0.7	0.6	0.5	0.5
Present Value of FCF	4.9	5.6	5.6	6.8	7.4	7.3	6.9	7.1

Arrowhead Fair Value Bracket	High	Low
Terminal Value (TV)	182.1	133.6
Present Value of TV	90.3	66.3
Present Value of FCF	51.6	40.1
Net Debt[lviii]	36.5	36.5
Equity Value Bracket	105.4	69.8
Shares O/S (mn)	2.0	2.0
Fair Share Value Bracket (EUR)	**53.6**	**35.5**
Current Market Price (EUR)[lix]	36.40	36.40
Upside/(Downside)	47.3%	(2.4%)
Current Market Cap. (EUR mn)	71.5	71.5
Target Market Cap. Bracket (EUR mn)	105.4	69.8

Sensitivity Analysis

Sensitivity Table - High		WACC (%)				
		9.0%	9.5%	10.0%	10.5%	11.0%
GROWTH RATE (%)	0.0%	51.5	47.4	43.7	40.4	37.4
	1.5%	60.8	55.4	50.7	46.5	42.8
	2.0%	64.8	58.8	53.6	49.0	44.9
	2.5%	69.4	62.7	56.9	51.8	47.4
	3.0%	74.8	67.2	60.7	55.1	50.1

Sensitivity Table - Low		WACC (%)				
		9.0%	9.5%	10.0%	10.5%	11.0%
GROWTH RATE (%)	0.0%	34.0	31.0	28.2	25.8	23.6
	1.5%	40.8	36.9	33.4	30.3	27.5
	2.0%	43.8	39.4	35.5	32.1	29.1
	2.5%	47.1	42.2	37.9	34.2	30.9
	3.0%	51.1	45.5	40.7	36.5	32.9

Approach for DCF Valuation

Time Horizon: The Arrowhead fair valuation for PARAGON ID is based on the DCF method. The time period chosen for the valuation is 88 months (2020E-2027E).

Terminal Value: This is estimated using a terminal growth rate of 2.0%.

Prudential nature of valuation: It should be noted that Arrowhead's fair value bracket estimate is a relatively prudent estimate, as it discounts the eventuality of any new products being launched in the market or any significant change in the strategy.

Important information on Arrowhead methodology

The principles of the valuation methodology employed by Arrowhead BID are variable to a certain extent depending on the subsectors in which the research is conducted, but all Arrowhead valuation research possesses an underlying set of common principles and a generally common quantitative process.

With Arrowhead Commercial and Technical Due Diligence, Arrowhead extensively researches the fundamentals, assets and liabilities of a company, and builds solid estimates for revenue and expenditure over a coherently determined forecast period.

Elements of past performance, such as price/earnings ratios, indicated as applicable, are present mainly for reference purposes. Still, elements of real-world past performance enter the valuation through their impact on the commercial and technical due diligence.

Elements of comparison, such as multiple analyses may be to some limited extent integrated in the valuation on a project-by-project or asset-by-asset basis. In the case of this Paragon ID report, there are no multiple analyses integrated in the valuation.

Arrowhead BID Fair Market Value Bracket

The Arrowhead fair market value is given as a bracket. This is based on quantitative key variable analysis, such as key price analysis for revenue and cost drivers or analysis and discounts on revenue estimates for projects, especially for those projects estimated to provide revenue near the end of the chosen forecast period. Low and high estimates for key variables are produced as a tool for valuation. The high-bracket DCF valuation is derived from the high-bracket key variables, while the low-bracket DCF valuation is based on the low-bracket key variables.

In principle, an investor who is comfortable with the high brackets of our key variable analysis will align with the high bracket in the Arrowhead fair value bracket, and likewise in terms of low estimates. The investor will also take into account the company intangibles – as presented in the first few pages of this document in the analysis on strengths and weaknesses and other essential company information. These intangibles serve as supplementary decision factors for adding or subtracting a premium in the investor's own analysis.

The bracket should be understood as a tool provided by Arrowhead BID for the reader of this report and the reader should not solely rely on this information to make his decision on any particular security. The reader must also

understand that on the one hand, global capital markets contain inefficiencies, especially in terms of information, and that on the other hand, corporations and their commercial and technical positions evolve rapidly: this present edition of the Arrowhead valuation is for a short to medium-term alignment analysis (one to 12 months).

7. Appendix

7.1 Paragon ID's Financial Summary

Exhibit 20: Financial Summary

Low Bracket Estimates

Year Ending June	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
Revenue (EUR mn)	125.1	140.7	158.6	178.9	202.3	226.9	247.9	267.1
Operating Profit (EUR mn)	4.5	5.6	8.1	11.2	13.5	16.5	18.0	20.2
Net Income (EUR mn)	2.0	3.1	5.2	7.7	9.5	11.8	13.0	14.6
EPS	1.02	1.58	2.63	3.86	4.78	5.93	6.53	7.37
Growth rates (%)								
Revenue	15.9%	12.4%	12.8%	12.8%	13.1%	12.2%	9.3%	7.7%
Operating Profit	NM	25.0%	44.7%	39.3%	20.5%	22.0%	9.2%	11.9%
Net Income	NM	54.6%	66.8%	46.9%	23.7%	24.1%	10.1%	12.8%
EPS	(101.1%)	54.6%	66.8%	46.9%	23.7%	24.1%	10.1%	12.8%
EBITDA	28.9%	11.7%	22.1%	21.4%	13.1%	15.6%	7.1%	9.4%
Margins (%)								
Gross Margins	46.5%	46.5%	47.0%	47.5%	47.5%	47.8%	47.8%	48.0%
Operating Profit Margin	3.6%	4.0%	5.1%	6.3%	6.7%	7.3%	7.3%	7.6%
Net Profit Margin	1.6%	2.2%	3.3%	4.3%	4.7%	5.2%	5.2%	5.5%
EBITDA Margins	8.5%	8.5%	9.2%	9.9%	9.9%	10.2%	10.0%	10.1%
Ratios								
ROA	1.6%	2.4%	3.8%	5.2%	6.1%	7.1%	7.3%	7.8%
ROE	5.2%	7.5%	11.1%	14.0%	14.8%	15.5%	14.6%	14.1%
Debt/Equity	0.9x	0.7x	0.7x	0.6x	0.6x	0.5x	0.4x	0.3x
Interest Coverage	6.7x	9.5x	12.7x	16.8x	20.7x	26.0x	30.2x	35.6x

Exhibit 21: Financial Summary

High Bracket Estimates

Year Ending June	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
Revenue (EUR mn)	130.6	148.9	170.0	193.9	221.5	250.7	276.7	301.9
Operating Profit (EUR mn)	6.3	8.1	10.0	14.7	17.7	21.5	24.3	26.9
Net Income (EUR mn)	3.4	5.0	6.7	10.3	12.6	15.5	17.6	19.6
EPS	1.70	2.53	3.37	5.18	6.36	7.81	8.88	9.89
Growth rates (%)								
Revenue	21.0%	14.0%	14.2%	14.0%	14.2%	13.2%	10.4%	9.1%
Operating Profit	NM	28.6%	23.3%	46.7%	20.3%	21.3%	12.8%	10.8%
Net Income	NM	48.8%	33.5%	53.6%	22.7%	22.9%	13.7%	11.4%
EPS	(101.8%)	48.8%	33.5%	53.6%	22.7%	22.9%	13.7%	11.4%
EBITDA	52.0%	15.7%	14.2%	28.1%	14.2%	16.3%	10.4%	9.1%
Margins (%)								
Gross Margins	47.0%	47.0%	47.5%	48.2%	48.2%	48.5%	48.5%	48.5%
Operating Profit Margin	4.8%	5.5%	5.9%	7.6%	8.0%	8.6%	8.8%	8.9%
Net Profit Margin	2.6%	3.4%	3.9%	5.3%	5.7%	6.2%	6.4%	6.5%
EBITDA Margins	9.6%	9.7%	9.8%	11.0%	11.0%	11.3%	11.3%	11.3%
Ratios								
ROA	2.6%	3.6%	4.6%	6.5%	7.4%	8.4%	8.7%	9.0%
ROE	8.4%	11.1%	12.9%	16.6%	16.9%	17.2%	16.3%	15.4%
Debt/Equity	0.9x	0.6x	0.7x	0.6x	0.5x	0.5x	0.4x	0.3x
Interest Coverage	8.0x	11.6x	14.5x	20.3x	25.2x	31.8x	38.1x	44.9x

7.2 Paragon ID's Balance Sheet Forecast

Exhibit 22: Consolidated Balance Sheet All figures in EUR mn, unless stated differently *Low Bracket estimates*

Year Ending-June	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
Total current assets	50.4	55.7	62.6	72.5	79.3	88.7	99.2	108.5
Total non-current assets	77.5	76.6	75.5	75.0	75.3	76.2	77.6	79.5
TOTAL ASSETS	**127.9**	**132.3**	**138.1**	**147.5**	**154.6**	**164.9**	**176.8**	**188.0**
Total current liabilities	56.0	60.2	63.3	67.3	66.9	67.3	67.8	65.9
Total non-current liabilities	33.2	30.3	27.7	25.4	23.4	21.6	20.0	18.6
TOTAL LIABILITIES	**89.2**	**90.5**	**91.0**	**92.8**	**90.3**	**88.8**	**87.8**	**84.4**
Total shareholder's equity	38.7	41.9	47.1	54.8	64.2	76.0	89.0	103.6
TOTAL LIABILITIES & EQUITY	**127.9**	**132.3**	**138.1**	**147.5**	**154.6**	**164.9**	**176.8**	**188.0**

Exhibit 23: Consolidated Balance Sheet All figures in EUR mn, unless stated differently *High Bracket estimates*

Year Ending-June	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
Total current assets	53.0	60.8	69.8	82.6	92.7	105.9	121.1	135.5
Total non-current assets	77.7	77.1	76.2	76.1	76.9	78.4	80.5	83.2
TOTAL ASSETS	**130.7**	**137.9**	**146.0**	**158.8**	**169.6**	**184.2**	**201.6**	**218.7**
Total current liabilities	57.4	62.5	66.5	71.3	71.4	72.4	73.7	72.6
Total non-current liabilities	33.2	30.3	27.7	25.4	23.4	21.6	20.0	18.6
TOTAL LIABILITIES	**90.6**	**92.8**	**94.2**	**96.7**	**94.8**	**94.0**	**93.7**	**91.2**
Total shareholder's equity	40.1	45.1	51.8	62.1	74.7	90.2	107.9	127.5
TOTAL LIABILITIES & EQUITY	**130.7**	**137.9**	**146.0**	**158.8**	**169.6**	**184.2**	**201.6**	**218.7**

8. Analyst Certifications

I, Natasha Agarwal, certify that all the views expressed in this research report accurately reflect my personal views about the subject security and the subject Company, based on the collection and analysis of public information and public Company disclosures.

I, Sumit Wadhwa, certify that all the views expressed in this research report accurately reflect my personal views about the subject security and the subject Company, based on the collection and analysis of public information and public Company disclosures.

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[ix] Source: Company Fillings
[x] Source: Company Fillings
[xi] Source: Company Fillings
[xii] Exchange rate extracted from Bloomberg: 1 GBP = 1.130263 EUR (Average of daily closing prices from 01/01/2018 to 12/31/2018)
[xiii] Source: Company Website
[xiv] Source: Company Website, Company fillings
[xv] Exchange rate extracted from Bloomberg: 1 GBP = 1.130263 EUR (Average of daily closing prices from 01/01/2018 to 12/31/2018)
[xvi] Source: Company fillings
[xvii] Source: Company Website, Company fillings
[xviii] Source: Company Fillings
[xix] Source: Company fillings
[xx] Source: Company fillings
[xxi] Source: Company Website
[xxii] Source: Company Fillings, Company Website and Press releases
[xxiii] Exchange rate extracted from Bloomberg: 1 GBP = 1.130263 EUR (Average of daily closing prices from 01/01/2018 to 12/31/2018)
[xxiv] Source: Company Website
[xxv] Exchange rate used are the average exchange rate extracted from Bloomberg.
For converting USD values to Euro, the exchange rate for 2015 is 0.901, 2016 is 0.903, 2017 is 0.885 and for 2018 is 0.847
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See important disclosures on page 37 of this report