

Due Diligence and Valuation Report

Arrowhead Code: 76-01-13
 Coverage initiated: December 01, 2015
 This document: July 08, 2019
 Fair share value bracket: EUR 2.10 and EUR 2.40
 Share price (July 05, 2019): EUR 1.03ⁱ

Analysts

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Market Data

52-Week Range: EUR 0.76 - EUR 1.25ⁱⁱ
 Average Daily Volume: 4,461ⁱⁱⁱ
 Market Cap. (05-July-19): EUR 24.3 million (mn)

Financial Forecast (in EUR) (FY ending - Dec)

EUR	'19E	'20E	'21E	'22E	'23E	'24E	'25E
High PBT '000	1,113	1,417	1,692	2,741	3,226	4,129	4,857
High NI '000	646	859	1,069	1,873	2,100	2,773	3,289
High EPS	0.03	0.04	0.05	0.09	0.10	0.13	0.15
Low PBT '000	1,060	1,336	1,581	2,541	2,936	3,696	4,270
Low NI '000	607	798	986	1,722	1,883	2,448	2,849
Low EPS	0.03	0.04	0.05	0.08	0.09	0.11	0.13

Company Overview: Keyware Technologies (herein referred to as "Keyware", "KEYW", "the company", or "the group") is a Belgium-based independent network service provider in the electronic payments industry. Keyware primarily operates in Belgium, with a small presence in Netherlands. The company was formed in 1996 and got listed on Euronext Brussels in September 2003 with the stock symbol of "KEYW". Prior to 2003, Keyware was listed on NASDAQ Europe (also known as EASDAQ) since June 2000.

The group currently operates in three segments: the terminal rentals/sales segment, the authorizations/transactions segment and the software segment. KEYW has collaborated with world leaders in payment terminal manufacturing, like Worldline, Ingenico, Verifone, to offer its customers a wide range of solutions for payment terminals. It also provides transaction services and has partnered with Worldline, Six Pay, PaySquare, EMS and Bancontact to enhance the quality of its services. The company has been strategically transitioning to Fintech. The company's traditional payment terminals segment has been diminishing in importance to the benefit of the software segment. The software segment of the company provides software for payment transaction for banks and financial institutions, tokenization, instalment payment, ordering and payment.



Company: Keyware Technologies NV
 Ticker: EBR: KEYW
 Headquarters: Zaventem, Belgium
 CEO: Mr. Stéphane Vandervelde
 CFO: Mr. Alain Hubert
 COO: Mr. Wim Verfaillie
 CCO: Mr. Joris Maes
 CCO: Mr. Laurent Vandervelde
 Website: www.keyware.com

Arrowhead is updating coverage on Keyware Technologies NV with a fair value bracket of EUR 2.10 (Low-Bracket estimate) and EUR 2.40 (High-Bracket estimate).

Key Highlights: (1) The top line increased by 1.3% year-on-year (YoY) to EUR 4,689k in Q1 2019 from EUR 4,629k in Q1 2018; (2) Revenue contributions from terminal, authorization and software segments were 42.6%, 41.4% and 16.0%, respectively; (3) EBITDA for Q1 2019 declined by 2.7% YoY to EUR 1,010k owing to higher salaries, employee benefits and other expenses during the quarter; (4) EBIT increased by 67.3% YoY to EUR 450k in Q1 2019 compared with EUR 269k in Q1 2018 due to higher gross margin and lower write-downs on debtors and inventories; (5) Net profit increased by 50.2% YoY to EUR 368k in Q1 2019 from EUR 245k in Q1 2018; (6) Financial debt on the books was lower by EUR 375k YoY at EUR 6,075k in the quarter ending March 31, 2019; (7) Keyware updated on its share buy-back transactions stating that the company held a total of 703,994 treasury shares on June 21, 2019; (8) On June 28, 2019, Powergraph exercised 1,000,000 warrants at a strike price of EUR 0.569 as result of which outstanding shares and capital increased to 23,543,793 and EUR 8,728k respectively; (9) In FY 2019, Keyware incorporated a subsidiary Keyware SARL in Luxembourg (on April 04, 2019) and an office in Paris.

Key Risks: Key risks include lower than expected increase in the terminal base, excessive contract terminations and slow adaptability to the ever-changing technology. Also, there are a few pending legal disputes against the company and its subsidiaries which lie outside the scope of normal business operations as per the group.

Valuation and Assumptions: Based on due diligence and valuation estimates, Arrowhead believes that Keyware's fair share value lies in the EUR 2.10 - EUR 2.40 bracket. We have valued the company using the Blended valuation method, with equal weightage to Discounted Cash Flow (DCF) method and EV/EBITDA (2020E) multiple based valuation. Our DCF model suggests a fair value bracket^{iv} of EUR 2.74 to EUR 3.21, while relative valuation provides fair value of EUR 1.46 to EUR 1.59.

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1. Summary and Outlook

We are updating coverage on Keyware Technologies NV, headquartered in Zaventem, Belgium, an independent network service provider in the electronic payment industry. It has its own transaction platform and several strategic partners for payment terminals, acquiring services, e-commerce, m-commerce and airtime.

Key Highlights:

- (1) Keyware Technologies extended its operations in Luxembourg by incorporating a subsidiary Keyware SARL there in April 2019. Keyware SARL will offer its payment solutions from Q2 2019 onwards. Keyware also opened an office in Paris. The opening of an office in the French capital will help to provide quick response to the various commercial opportunities, both at partners and at customers.
- (2) In Q1 2019, the group earned revenue of EUR 4,689k compared with EUR 4,629k in Q1 2018, thus registering a growth of 1.3 % on a YoY basis. Higher gross margins and lower provision for debtors led to increase in the EBIT margin from 5.8% in Q1 2018 to 9.6% in Q1 2019. This led to an increase in the Net profit margin from 5.3% in Q1 2018 to 7.8% in Q1 2019. However, EBITDA margin declined from 22.4% in Q1 2018 to 21.5% in Q1 2018.
- (3) The net shareholder's equity of the company amounted to EUR 27,886k on March 31, 2019 and represented 65% of the liabilities. Keyware's financial debt stood at EUR 6,075k on March 31, 2019, compared with EUR 6,450k on March 31, 2018. On March 31, 2019 cash and cash equivalents were at EUR 2,586k.
- (4) Keyware had filed an appeal regarding Court Case Prosecution / Keyware Smart Card Division that condemned Keyware to pay the fine of EUR 750k On February 5, 2019, the company announced that it had been acquitted by the court of appeal for alleged fraud and irregular advertising practices. However, the public prosecutor has filed a request for cassation, for which hearings are scheduled in June 2019.
- (5) On June 28, 2019, Powergraph exercised 1,000,000 warrants at a strike price of EUR 0.569. This led to an increase of EUR 370k in capital and EUR 199k in share premiums. Also, the number of shares increased to 23,543,793.
- (6) On August 30, 2018, the company management announced launch of a new share buy-back program which started from October 1, 2018, for a maximum period of one year. As part of this buy-back program, 157,072 treasury shares have been purchased for an amount of EUR 157k. Further, the board of directors declared the distribution of interim dividend at an amount of EUR 0.03 gross per share which corresponds to a gross dividend of EUR 659k.
- (7) Keyware's revenue remained flat for FY 2017 at EUR 18,730k. Revenues from payment terminal segments fell by EUR 2,666k because of the lower number of new signed contracts whereas revenues from authorization segment increased by EUR 904k. The software segment, which comprises Magellan and EasyOrder, contributed EUR 1,561k to the total revenues. EBITDA for FY 2017 stood at EUR 3,725k compared to EUR 5,224k in FY 2016, which was mainly because of lower profitability of the segment from payment terminals and the start-up of the activities in Germany and EasyOrder. Profit before tax (PBT) decreased to EUR 2,050k in FY 2017 because of decline in EBIT. Net profit for FY 2017 stood at EUR 1,174k compared to EUR 3,101k in FY 2016. Higher depreciation charges and poor profitability of payment terminals segment are among the reasons behind low net profit. For the first time, authorization segment surpassed payment terminals segment in terms of revenue contribution. In FY 2017, the authorization segment contributed 45.4% to the total revenues whereas payment terminals segment contributed 45.1% to total revenue.
- (8) In December, Keyware added contactless technology-based payment terminal - Ingenico ICT 250 - to its existing range of terminals. The device is certified for both MasterCard PayPass and Visa payWave contactless technologies, along with the option of conventional payment.
- (9) Keyware Transactions & Processing GmbH, a Germany-based subsidiary which is 50% held by Keyware Technologies NV and 50% by Keyware Smart Card Division, started offering payment terminals and transaction services in the German market beginning from the fourth quarter of 2016.
- (10) Keyware signed an agreement with Bancontact Company, making the company a Certificate Holder in the "Terminal Provider" and "POS Gateway" categories.
- (11) In Q4 2016, Keyware had purchased 40% stake in French Fintech Company Magellan SAS by paying EUR 3,000k in cash and Keyware shares worth EUR 1,000k. On June 30, 2017, Keyware purchased the remaining 60% shares of Magellan by using EUR 1,500k of own funds and by raising a bank loan of EUR 4,500k.
- (12) In FY 2017, Keyware acquired EasyOrder VOF from Kortrijk for a maximum price of EUR 700k with a fixed component of EUR 500k (cash of EUR 400k was paid and Keyware shares worth EUR 80k were issued on June

30, 2017. The variable part of maximum EUR 200k was paid in tranches, based on the achievement of pre-specified results.

Key Risks: Key risks include lower-than-expected increase in the terminal base, weak business environment in Belgium, excessive contract terminations and slow adaptability to the ever-changing technology.

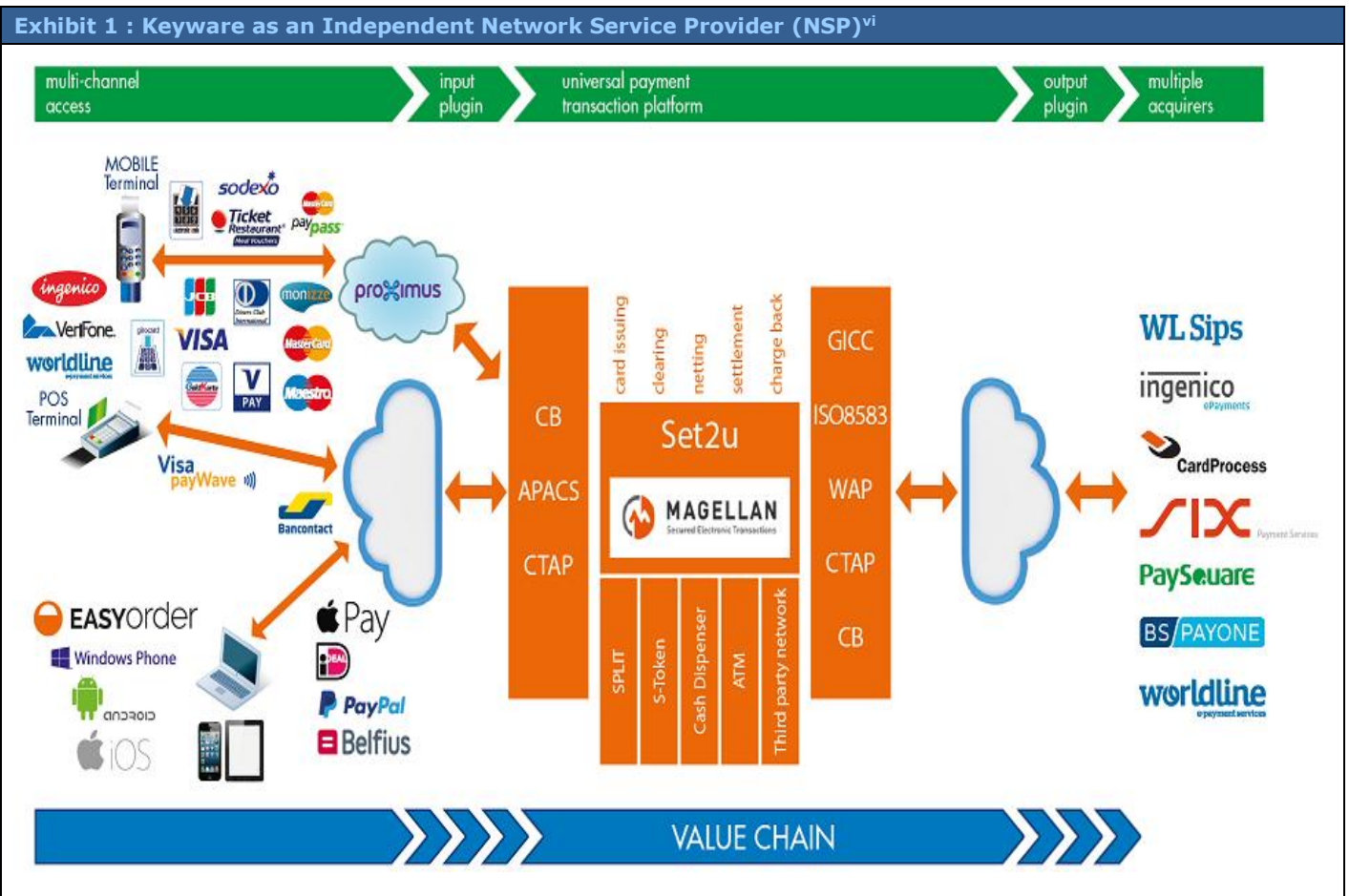
Industry Overview: The electronic payment industry's value chain comprises of several services - providing terminals, transaction services, telecommunication services, etc. Keyware is an active player in providing terminal installation, maintenance and repair services as well as transaction services to its clients. In terms of the number of terminals in the market, the Belgian industry posted an increase of c. 7% CAGR over a period of 4 years from 2010-2014. With the government eliminating the use of paper food coupons like Sodexo and introducing electronic coupons, the industry is poised to witness a significant increase in the number of terminals as many retailers accepting the food coupons do not currently own a payment terminal. In another significant development, the government has reduced the cash transactions from earlier EUR 5k to EUR 3k which favorably impacts the volume of payment transactions on terminals. Therefore, the industry is well poised to grow through both the volume of transactions as well as the number of terminals over the coming years.

2. Business Overview:

Keyware Technologies NV was established in June 1996 as a public limited company and is headquartered in Zaventem, Belgium. The company’s shares have been trading on Euronext Brussels under the symbol “KEYW” since June 2000. Keyware is an independent network service provider offering electronic payment solutions in the regions of Belgium and Netherlands. It has more than 15 years of experience in programming, installation, personalization, maintenance, rental and sale of payment terminals. It offers payment services for e-commerce and m-commerce and solutions for loyalty cards. It has partnered with leading global terminal builders like Ingenico, Verifone and Worldline and transaction partners - Worldline, Six Pay, PaySquare, Bancontact and EMS - to offer its customers the most suitable and updated payment solutions.

In FY 2017, the group implemented a fintech strategy according to which it would transition from a pure service company to a software developer. The terminal division is currently at a mature stage and is witnessing lower number of signed contracts on a YoY basis. In the future, the contribution of this segment to revenues is expected to decline in favour of the fast-growing software division. The authorizations and transactions division is expected to remain a key division in the following years. The company is also diversifying its strategy by focusing on sectors that are considered more stable or less cyclical in nature, such as Tier 2 companies. This, in turn, is expected to bring stability in the revenues in the long run and hence, reduce the risk of defaults.

Further, with Keyware’s presence in Belgian, French and German markets, growth is expected to be realized across borders.



In June 2016, Keyware Transactions & Processing GmbH was incorporated as a 100% subsidiary, which started operations in the last quarter of FY 2016. Its activities are into rental and sale of payment terminals.

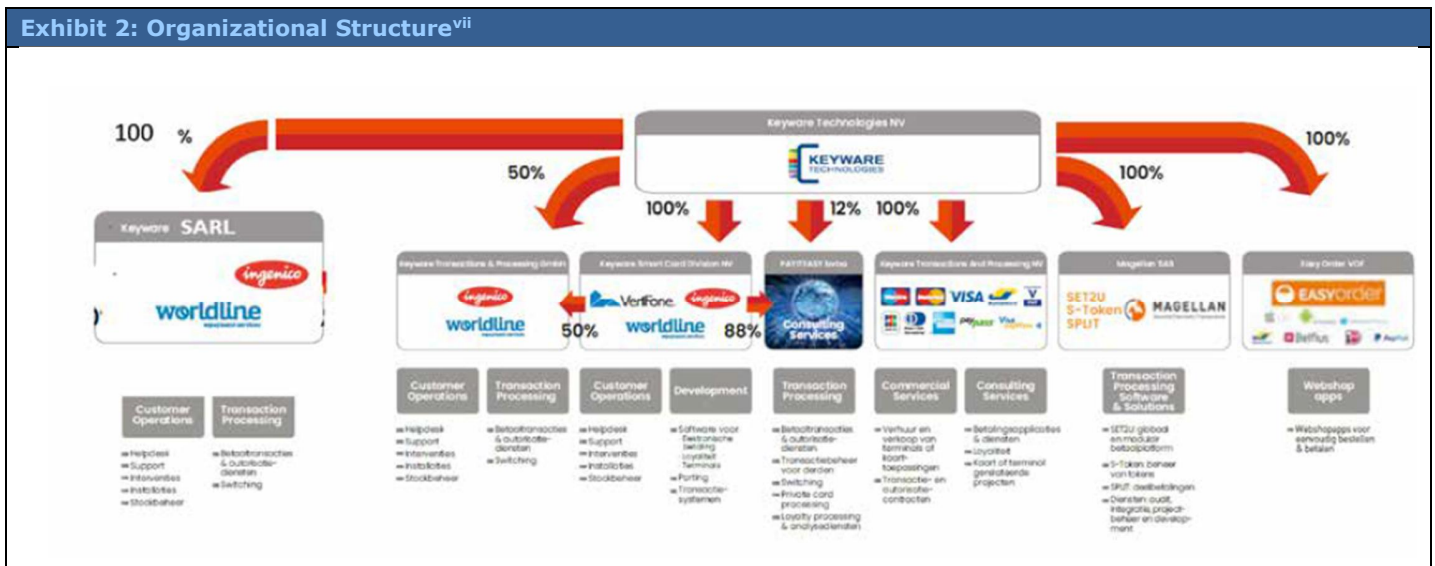
In September 2016, a participation of 40% was acquired in Magellan SAS to gain access to Magellan’s electronic solutions for physical environments, e-commerce and m-commerce. Magellan offers innovative solutions for the maintenance of electronic transactions through the existing software solutions like S-TOKEN (payment data anonymization), SET2U (payment platform) and SPLIT (a form of micro credit offered by merchants consisting of payment through instalments). Keyware acquired further 60% stake in Magellan by paying EUR 6,000k and reported consolidated financials on June 30, 2017.

In January 2017, Keyware acquired 100% shares of VOF EasyOrder. This takeover is expected to combine the expertise of both companies and offer a web shop app to merchants, thus a possibility to personalize own web shop on smartphone, tablet or PC. Keyware has also made investments in this platform for customer acquisition.

It is expected that the opening of an office in Paris and establishing the Luxembourg subsidiary will help the company to be in close touch with its customers through its sales force and to enhance sales through cross-selling opportunities.

2.1 Ownership Structure

Keyware Technologies NV operates through its fully owned subsidiaries - Keyware Smart Card Division, PayItEasy BVBA and Keyware Transaction & Processing NV. PayItEasy BVBA was established as a 50% joint venture between Keyware Technologies NV and J4S BVBA in mid-2013. Following the acquisition of the remaining 50% of shares in FY 2014, PayItEasy BVBA is now fully consolidated from October 01, 2014. In FY 2017, Keyware Technologies fully acquired and consolidated Magellan and EasyOrder.



2.2 Company Milestones

Exhibit 3: Keyware Milestones	
Year	Events
2003	<ul style="list-style-type: none"> • Keyware shares got listed on Euronext for the first time in September 2003 • Payment Software got certified by Electronic Payment Certificate Institute
2005	<ul style="list-style-type: none"> • The number of customers exceeded 5,000 in the payment terminal segment
2007	<ul style="list-style-type: none"> • Acquired BRV Transactions NV. KEYW benefitted as BRV held license from Royal Bank of Scotland (RBS) for direct offering of credit/debit card authorization for Visa and Master Card in Belgium
2009	<ul style="list-style-type: none"> • Successfully added fixed IP terminals and portable GPRS terminals to its existing offerings • Entered co-operative venture with PaySquare, which enabled KEYW to offer payment authorization services on its own and on third-party terminals
2011	<ul style="list-style-type: none"> • Successfully penetrated higher market segment customers - government schools, municipalities, etc.
2013	<ul style="list-style-type: none"> • Partnership with Worldline allowed Keyware to rent/sell Worldline terminals in the Benelux region
2014	<ul style="list-style-type: none"> • The reduction in the amount of cash permissible for transactions from EUR 5k to EUR 3k by Belgian government added to the already growing volume of transactions for Keyware • Added a record number of terminals crossing the 14,000 mark
2015	<ul style="list-style-type: none"> • Acquired the assets of GlobalPay in January, taking over several purchase and lease contracts • Replacement of paper meal vouchers with electronic version from the last quarter of FY 2015 is set to bring in new growth opportunities for Keyware in FY 2016 • Transition from spread income model to brokering model for authorization services
2016	<ul style="list-style-type: none"> • Partnership with Bancontact, making the company a Certificate Holder in the "Terminal Provider" and "POS Gateway" categories • Keyware opened an office in Germany and started offering payment terminals and transaction services beginning from fourth quarter of FY 2016 • Completed buy-back share for a maximum amount of EUR 1,000k • Keyware signed for 40% participation in French Fintech Company Magellan SAS and held a Call option for remaining 60% of the shares • Keyware received PA DSS 3.1 security certificate for Magellan's SET2U payment software platform • Acquisition of VOF EasyOrder for a EUR 700k investment expected to be paid off in 5 years
2017	<ul style="list-style-type: none"> • EUR 425k paid in cash during the first quarter of FY 2017 and shares worth EUR 75k were issued on June 30, 2017, balance EUR 200k was paid partially in FY 2017 and the balance in FY 2018 • On June 30, 2017, Magellan became 100% subsidiary as Keyware acquired the remaining 60% of Magellan stake. The financing of the acquisition was partially through the internal funds amounting to EUR 1,500k and remaining by bank loans of EUR 4,500k • In May 2017, Keyware's board of directors decided to initiate a share buy-back programme capped to EUR 1,000k of which buy-back worth EUR 700k was repurchased in FY 2017
2018	<ul style="list-style-type: none"> • Keyware completed its share buy-back program initiated in FY 2017 by repurchasing shares worth EUR 200k in FY 2018 • Keyware distributed for the second time a dividend amounting to EUR 0.03 per share. The amount was paid in September 2018 • Keyware announced a third share buy-back programme for a maximum amount of EUR 1,000k
2019	<ul style="list-style-type: none"> • Keyware repurchased 157,072 shares for an amount of EUR 157k as part of the share buy-back program initiated in FY 2018

2.3 Business Model

Keyware provides value addition to its customers by offering personalized payment services - terminals, applications, telecom and transactions, installation, maintenance and repair services. Its tie-ups with the various global players for each part of the payment solution enables it to offer its customers the best solutions available in the industry. Keyware provides personalized and flexible payment solutions through three business segments - Payment Terminals, Transaction Services and Software.

2.3.1 Payment Terminals

It involves renting and selling of fixed, portable and mobile payment terminals from various terminal builders through its Smart Card Division. Approximately 98% of the terminals sold/rented are supplied by Ingenico and Worldline, and the remaining by Verifone. Worldline and Ingenico provide the merchants with secure, extensive and innovative technology; thereby, becoming the first choice for most users.

Keyware has a large presence in the Tier-III market segment, providing terminals to smaller local shops, grocery stores, fashion departments, pharmacies, cafés and restaurants. With the introduction of Worldline terminals to its product portfolio, the company is now looking to penetrate the Tier-II segment, incorporating big corporate houses, government agencies, automotive companies and others.

2.3.2. Transaction/Authorization Services

Keyware commenced providing transaction authorization services from FY 2007. Under this segment, Keyware offers transaction services to acquirers such as banks and payment institutions. It sends the transaction data it receives from the retailer's terminal to the acquirer for payment authorization via the involved debit/credit card schemes and then provides for clearing and settlement of the transactions.

We expect the company to complete the migration to Brokerage Model by FY 2021 (initiated in FY 2015), where it started buying the transactions on a floor fee and charging upper part as a commission based on negotiation with the acquirer. Prior to this, Keyware was following the Spread Income Model where it was charging a fixed percentage as commission per transaction.

2.3.3. Software

The segment comprises activities of Magellan and EasyOrder. Keyware has advanced e-commerce and m-commerce software. The in-house technology of Magellan helps to process transactions and to secure mobile payments. It also helps the consumers to easily split or postpone their payments without the use of credit cards. EasyOrder, an innovative ordering and payment app, available as software as a service (SaaS) for which customers pay monthly fee based on their selected functionalities. The software division is currently becoming Keyware's main division, developing principally in France and in its overseas departments and territories.

2.4 Products and Services^{viii}

- 1. PayFix:** These terminals use a fixed cable connection to communicate from the terminal to the telephone network or internet modem. They are generally found in shops with fixed payment/ check-out counters.
- 2. PayAway:** These are portable terminals consisting of a base station and a portable device. The base station operates via a fixed connection just like a fixed terminal. However, the portable device has a range of approximately 150 meters, which can be used to receive payments from customers in restaurants and cafes without them going to the billing counter.
- 3. PayMobile:** These pocket-sized terminals use the GSM or GPRS communication technology and can be taken anywhere within Belgium to receive the payments. They are mostly used by door-to-door suppliers and taxi drivers to receive payments.
- 4. Pay-E:** This channel is used to assist e-retailers who wish to add the option for electronic payment on their website. It provides transaction services, along with standard templates, that can be integrated into the web-shop of a retailer without any hassle. Keyware can also adapt to the customer's needs and offer customized solutions to an e-retailer depending upon purchases with debit cards or credit cards, average purchase value, purchase frequency, etc. As a back-end support, Keyware also provides the retailer secure access to the payment module on its site, enabling the retailer to view reports, activate options and monitor its payments.
- 5. Pay-M:** The service provided on this channel is like "Pay-E," except that it is provided for the mobile applications.

6. **SET2U:** It is a software platform which interprets, regulates and manages the payment transactions. Initially, it was directed for the businesses such as banks, lending institutions, payment processors and other service providers. Set2U has reduced the complicated conventional payment environment for these businesses while leading to better mobility, comfort and security. It provides a centralized solution in the form of SaaS for every payment method and app.
7. **S-Token:** This software secures sensitive critical data while ensuring that all PCI DSS and EMVCo requirements for the financial sector are met simultaneously. Transactions are kept secure by replacing sensitive data with irreversible tokens with no intrinsic value. This application has substantial potential.
8. **SPLIT:** It helps the customers to spread out the payments for their purchases in three or four instalments via their bank card irrespective of which national law applies. This is referred to as micro-credit. Customers can make the payment without creating any special credit account nor to file a credit request. While these split payments can be observed already in South America and Scandinavia, it is expected that they will become more important on Europe's mainland too.

2.5 Company Premiums^{ix}

- 1. Growth through diversification into software activities:** Keyware's software segment comprises Magellan and EasyOrder which has contributed nearly EUR 752k to the total revenue in Q1 2019. The Magellan acquisition allows merchants in Belgium market to have their customers paying in instalments and in a secured way.
- 2. Partnership with world leaders in terminal manufacturing and transaction services:** Keyware has collaborated with leaders in the terminal builders' segment - Verifone, Ingenico and Worldline - to offer its customers a wide range of world class terminals to choose from. It has transaction partners like Worldline, Six Pay, PaySquare, Bancontact and EMS. This allows Keyware to offer its customers the latest up-to-date services and maintain Keyware's competitiveness in the fast-changing technological market.
- 3. New market of electronic meal vouchers:** The social partners united in the Nationale Arbeidsraad (NAR) (National Labour Council) agreed to abolish paper meal vouchers and introduce electronic meal vouchers from October 01, 2015. With more than 1.3 mn employees receiving meal vouchers in Belgium, this opened a new market for the payment terminal providers. As per FY 2018 annual report of Keyware, approximately 39% of sector accepts related traders' electronic meals and the remaining 61% did not have the necessary infrastructure to handle such payments. Keyware has introduced low-cost card readers to tap this new market as well as integrate the existing terminals to accept the e-vouchers, we expect it to be positive for the company.
- 4. Increasing profitability and lower debt in future:** Based on our estimates, we expect the company to register top line growth of 6.0%-7.0% during FY 2019-2028 period. Supported by strong operating performance and no tax payments in the near term, we expect the company to generate strong free cash flows. Thus, Keyware's financial leverage will continue to decline and balance sheet will be totally debt free once the Magellan acquisition related loans will have been reimbursed.
- 5. Diverse portfolio of customers:** KEYW is a company with over 17k customers contributing to its top line. According to the company, its most important customers contribute less than 1% to the group's turnover. This isolates the company from any significant risk arising from concentrated group of customers.

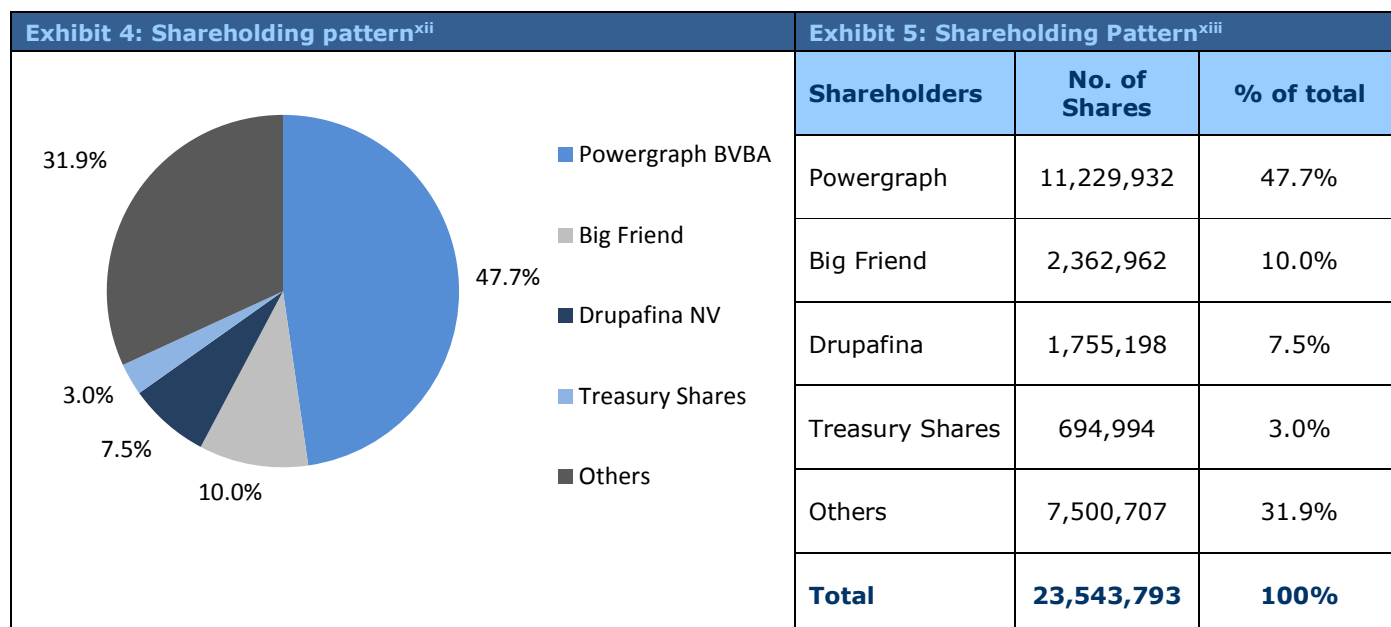
2.6 Company Risks^x

- 1. Pace of technology adoption:** Keyware's market of operations, especially its payment terminals segment, is characterized by frequent new developments in the field of technology, changing customer needs, upcoming new mode of payments through internet and mobile, changing industry standards etc. To stay ahead of its peers, Keyware needs to respond to these changing circumstances in a swift and timely manner without compromising on the quality of services offered to its customers. Not being able to adapt to the fast pace of this industry can result in negative consequences for the company.

The company is making attempts to limit this risk through initiatives such as diversifying of its range of products, associating with in a technologically innovative company (Magellan), and the commercializing of its payment app (Easy Order) from FY 2017.
- 2. Less than expected swaps or renewals:** Keyware enters into a 5-year long lease contract with its customers and it remains crucial for the company to have higher renewals. An increase in attrition rate will not only decrease the revenues but also serve as a negative performance indicator for the other prospective customers.
- 3. Dependency on acquirer:** At any point of time, an acquirer can decide to terminate or discontinue its contract with Keyware which a risk to organization is. In such a case, company must try to find a new acquirer to maintain the flow of revenue from these terminals.
- 4. Obsolescence of payment terminals:** The company has witnessed a higher inventory obsolescence because some of the returned terminals no longer comply with PCI standards.
- 5. Supplier dependency:** Keyware sources its payment terminals from Worldline and Ingenico. Having a limited number of suppliers lowers the company's bargaining power with its suppliers; and puts greater pricing power in the hands of the supplier.
- 6. Litigation:** The company operates in an environment which isn't entirely free from litigation. Although, the company saw a favorable outcome of a prosecution lawsuit in February 2019 involving its Keyware Smart Card Division, it remains exposed to an appeal request filed by the prosecution. Moreover, the company is also involved in several minor legal cases that could be considered under IFRS as contingent liabilities or contingent assets.

2.7 Keyware’s Shareholding Pattern

On July 08, 2019, the number of shares outstanding were 23,543,793^{xi}.



2.8 Listing and Contact Details

The ordinary shares of Keyware Technologies are listed on Euronext Brussels (EBR) (Ticker: EBR: KEYW, Date of Listing –September 3, 2003)

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Phone: +32 2 346 25 23

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3. Financial Overview:

Keyware has been transitioning from being a hardware player to a software player. Though the revenue from the software segment has been increasing at a fast pace and is expected to continue to do so in the future, the current operating profitability has seen a significant decline due to the substantial rise in cost parameters.

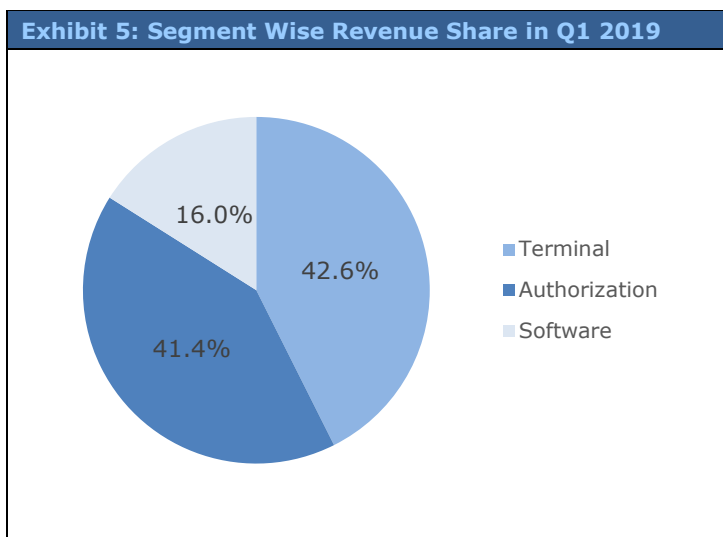
Keyware registered a revenue growth of 1.3% YoY to EUR 4,689k in Q1 2019 from EUR 4,629k in Q1 2018. Revenue from the terminal segment increased by 1.8% YoY to EUR 1,997k in Q1 2019 from EUR 1,962k in Q1 2018, whereas revenue from authorization segment decreased by 7.2% YoY to EUR 1,940k in Q1 2019 from EUR 2,091k in Q1 2018. The software segment provided an acceleration to the overall revenues of the company by contributing EUR 752k to the total sales in Q1 2019, compared with EUR 576k in Q1 2018. Revenue contributions from terminals, authorization and software segments were 42.6%, 41.4% and 16.0% of the total revenues, respectively, in Q1 2019.

Revenue in the terminal segment increased due to the higher number of new contracts signed in Q1 2019, in comparison with Q1 2018. Revenues in the authorization segment decreased due to a lower number of contracts generating commissions. The software segment witnessed significant growth of 30.6% YoY owing to a strong quarter for EasyOrder and gradual improvement in Magellan business. Since the incorporation of the software segment, Magellan received the largest contract for its software 'S-TOKEN'. Revenue contribution from the software segment increased from 12.4% in Q1 2018 to 16.0% in Q1 2019.

An increase in the salaries and other operating charges led to an EBITDA decline of 2.7% YoY to EUR 1,010k in Q1 2019. The cost of personnel and services rose mainly on account of the Magellan acquisition and additional hiring for EasyOrder for its research and development (R&D) and sales divisions.

The operating profit of the company saw a substantial increase of 67.3% YoY to EUR 450k in Q1 2019 from EUR 269k in Q1 2018, owing to better gross margins and lower impairments on inventories and debtors. Net profit too increased by 50.2% YoY in Q1 2019 to EUR 368k from EUR 245k in Q1 2018. As a result, the net profit margin saw an improvement from 5.3% in Q1 2018 to 7.8% in Q1 2019.

The net shareholder's equity of the company amounted to EUR 27,886k on March 31, 2019 and represented 65.0% of the liabilities. Keyware's financial debts stood at EUR 6,075k on March 31, 2019, compared with EUR 6,450k on March 31, 2018, lower by EUR 375k. On March 31, 2019, the company had cash and cash equivalents of EUR 2,586k.



4. Key Variable Analysis^{xiv}

4.1 Variable 1 – Revenue from payment terminals

Keyware’s major source of revenue is the number of terminals it sells/ leases. Considering developments such as partnership with Worldline, requirement of new terminals in the market for electronic meal vouchers, limit on the amount of cash for transactions, we forecast the number of terminals to increase for Keyware. The installed base of terminals of the company was 17,350 terminals in FY 2018. The following are our estimates for components of revenue from payment terminals for the forecast period under two scenarios, Low bracket and High bracket:

Exhibit 6: Payment Terminal Revenue Breakdown											
In EUR mn		2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Low Bracket	Rental revenues	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8
	Terminal sales	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	Rendered services	3.1	2.6	2.4	2.2	2.0	1.8	1.7	1.6	1.5	1.4
	Cancellation pay	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
	Total	6.6	6.2	6.0	5.8	5.7	5.6	5.5	5.4	5.3	5.2
High Bracket	Rental revenues	2.6	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8
	Terminal sales	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	Rendered services	3.1	2.6	2.4	2.2	2.0	1.8	1.7	1.6	1.5	1.4
	Cancellation pay	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
	Total	6.7	6.3	6.1	5.9	5.7	5.6	5.5	5.4	5.4	5.3

4.2 Variable 2 – Revenue from authorization services

As per the new reporting methodology from 2016 onwards, the segment revenue is disaggregated into gross revenues and related cost components. Such a disaggregated presentation would only affect the presentation of the income statement, i.e., higher revenue and cost of goods sold and a lower overall gross profit margin. However, the other KPIs (EBIT, EBITDA, PBT and NI) would remain largely the same.

On December 31, 2018, Keyware offered transaction/ authorization services on 95% of the total installed base of terminals. These terminals form a source of revenue for the authorization services’ segment. Given that the company holds strong partnerships with transaction service providers like Six Pay, PaySquare, EMS and Worldline, we estimate the number of terminals offering transaction services to increase in the future. Also, the agreement with Charleroi Airport will also contribute to the revenue from authorization services. Following is the estimated revenue from authorization services during the forecast period for the low bracket and high bracket:

Exhibit 7: Authorization Services Revenue										
In EUR mn	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Low Bracket	9.3	9.3	9.3	9.3	9.2	9.1	9.1	9.1	9.1	9.1
High Bracket	9.6	9.7	9.8	9.7	9.7	9.6	9.6	9.6	9.7	9.7

4.3 Variable 3 – Revenue from software services

After the acquisition of Magellan and EasyOrder during FY 2017, software services have been added as a new revenue stream to the company’s business model. Following is the estimated revenue from software services during the forecast period for the low bracket and high bracket:

Exhibit 8: Software Services Revenue										
In EUR mn	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Low Bracket	3.6	4.7	5.6	6.6	7.7	8.7	9.8	10.9	11.9	12.9
High Bracket	3.6	4.9	5.9	7.0	8.3	9.6	11.0	12.4	13.9	15.3

5. News^{xv}

- 1. Keyware increased its capital by Warrant Exercises:** On June 28, 2019, the company announced that Powergraph exercised 1,000,000 warrants at a strike price of EUR 0.569 per warrant. As a result, capital and share premiums increased by EUR 370k and EUR 199k respectively, and 1,000,000 shares without any nominal value were issued, with the same rights as the existing shares.
- 2. Update on the share buy-back program:** On June 24, 2019, Keyware reported on the progress of its share buy-back program. As a result of the buy-back transactions and the three disposals for an aggregate of 90,610 shares, the company held a total of 703,994 treasury shares on June 21, 2019 or 3.1% of the actual number of shares issued (i.e., 22,543,793).
- 3. Q1 2019 results announced:** On May 16, 2019, Keyware announced its Q1 2019 results, registering a growth of 1.3% YoY from EUR 4,629k in Q1 2018 to EUR 4,689k in Q1 2019. This increase was majorly driven by the software segment revenues, followed by payment terminals segment while revenue from authorization segment registered a decline. Profit before tax improved by 30.4% from EUR 592k in Q1 2018 to EUR 454k in Q1 2019. Net profit grew by 50.2% from EUR 245k in Q1 2018 to EUR 368k in Q1 2019.
- 4. Announced FY 2018 financial results:** On March 14, 2019, the company announced its financial results for FY 2018. Keyware generated revenue of EUR 19,635k in FY 2018. The decrease in the revenue from payment terminals was offset by a healthy increase from the authorizations and software segment. Authorization segment contributed 49.1% to total revenue in FY 2018 compared to 45.4% in FY 2017. Contribution from the payment terminals segment to the total revenue declined to 36.5% in FY 2018 from 45.1% in FY 2017. EBITDA decreased to EUR 3,178k in FY 2018 from EUR 3,725k in FY 2017. Net profit for the year FY 2018 fell to EUR 626k compared with a net profit of EUR 1,174k in FY 2017.
- 5. Verdict of the court with respect to the court case against Keyware Smart Card Division:** On February 5, 2019, Keyware announced that it had been acquitted by the court of appeal for alleged fraud and irregular advertising practices. This brought an end to the lawsuit in which the public prosecutor's office instituted a claim on the basis of a complaint from a number of customers lodged with FPS Economy.
- 6. Announced FY 2017 financial results:** Keyware generated revenue of EUR 18,730k in FY 2017. For the first time, authorization segment surpassed payment terminal segment in terms of revenue contribution. Authorization segment contributed 45.4% in FY 2017 compared to 40.6% in FY 2016. Revenue contribution from payment terminals segment declined to 45.1% from 59.4% in FY 2016. Net profit for the year FY 2017 fell to EUR 1,174k compared to Net profit of EUR 3,101k in FY 2016. EBITDA decreased by EUR 1,499k to EUR 3,725k in FY 2017 from EUR 5,224k in FY 2016. The software segment, comprising Magellan and EasyOrder, contributed EUR 1,561k to the total revenue.
- 7. Acquired remaining 60% stake in Magellan SAS:** On June 30, 2017, Keyware purchased the remaining 60% shares by raising a bank loan amounted to EUR 4,500k comprising of EUR 2,000k which would be settled as a bullet loan on June 30, 2019, and the second portion of EUR 2,500k shall be reimbursed by 48 monthly instalments.
- 8. Acquisition of EasyOrder a part of Keyware's omnichannel strategy:** The objective is to combine expertise and develop a web shop app, which will provide retailers the feasibility of personalization into own web shop for smartphones, tablets, PCs. This is expected to give tough competition to international mega web shops like Zalando and Bol.com. Keyware's electronic payment expertise is expected to be an important asset for EasyOrder's web shop app while the latter brings in existing client portfolio and partners. The acquisition is a step towards completion of Keyware's omnichannel strategy. Keyware expects to become a central payment hub for its customers which may be selling online or in stores.

6. Management and Governance^{xvi}

The company has a team of experienced professionals with expertise in the field of technology, operations, sales and marketing and finance. These highly qualified professionals have been with the firm for a long time, signifying the stability of the firm's management. The management's focus is on improving profitability and creating shareholder value.

Exhibit 9: Management Team		
Name	Designation	Background
Stéphane Vandervelde	President & CEO	<ul style="list-style-type: none"> Stéphane is the co-founder of Keyware, with over 25 years of experience in technology organizations He has been a Board Member in firms across multiple industries, such as Hybrid NV and US, Pinnacle Investments NV, Immo David NV, Big Friend NV, among others He is an electronics engineer. He has completed specialization in micro-electronics and chip design from Catholic University of Leuven (KUL) He has been the President and CEO of Keyware since 2001
Wim Verfaillie	COO	<ul style="list-style-type: none"> Wim has over 20 years of work experience in streamlining operations. He worked as Operations Manager at Modular Lighting Industries from 1994 to 2003 Since 2003, he has worked as an Operational Business Consultant and Interim Manager. He was involved in long-term projects at Tenovis (Telecom) and Maxeda (Retail) He is an industrial electricity engineer and joined the firm in 2007
Joris Maes	CCO	<ul style="list-style-type: none"> Joris has over 20 years of experience in international sales and marketing positions at Alcatel-Lucent, KPN, AT&T and Balta He has completed his master's in industrial engineering (electronics) and is an MBA in General International Management from the Vlerick Leuven Gent Management School He has been associated with Keyware since 2010
Alain Hubert	CFO	<ul style="list-style-type: none"> Alain joined Keyware in 2013 and has over 20 years of experience in financial management, taxation and accounting Previously, he worked with Ernst & Young as an Executive Director of Transaction Advisory Services (TAS) He has been a certified auditor since 1998; until 2008 he was an audit partner at Constantin Bedrijfsrevisoren He has proficiency in due diligence, quality and risk management He completed Licentiate Applied Economic Sciences (UG) and Special Licentiate in Accountancy work from Vlerick School of Management
Laurent Vandervelde	CCO EasyOrder Country Manager Germany	<ul style="list-style-type: none"> Master Commercial Engineer @ Solvay Business School Sales and marketing development at Readz Experienced in international sales and marketing strategies Market analysis for technology start-ups At Keyware since 2016
Franck Willmann	CEO Magellan	<ul style="list-style-type: none"> He has more than 20 years of experience in payments applications He was co-founder of Magellan and Caravel payment solutions He has been associated with Magellan for 16 years He served as director of products and services at Magellan for five years

7. Industry Characteristics

7.1 Industry Overview^{xvii}

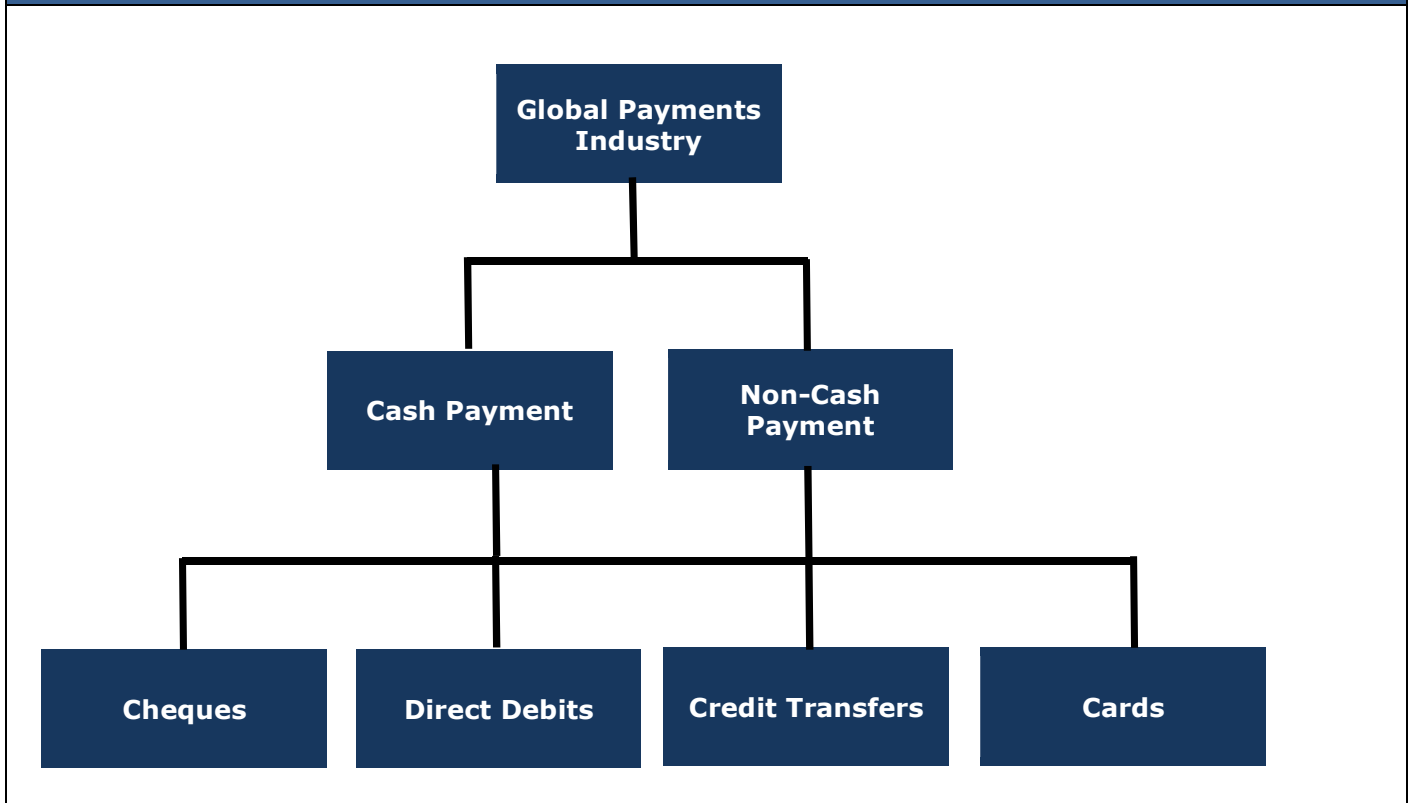
The global FinTech market is expected to be worth EUR 258.9 billion (bn) by FY 2023, growing at a CAGR of 22.17% during 2018-2023. The high penetration of mobile devices and usage of technology-based solutions is creating greater demand for financial and banking solutions. FinTech covers a wide range of services such as robotic trading, peer-to-peer lending platforms, crowdfunding, robo-advice, virtual currencies and cashless payments.^{xviiiix}

The electronic payment industry involves multiple stakeholders, including terminal providers, banks and payment institutions, transaction service providers, infrastructure telecommunication companies, and government agencies, which create a strong payment services ecosystem. The industry is fast eliminating the use of cash and cheques as modes of payment and moving towards technologically enhanced methods such as Debit/Credit Cards, Credit Transfers and Direct Debits. Various European countries have also formulated laws limiting the use of cash for any transaction. Since January 2014, for example, the Belgian authorities have revised the limit on cash transactions for the purchase of goods and services from EUR 5,000 to EUR 3,000. This bodes well for the players involved in the electronic payment industry as this will bolster the volume of transactions occurring through the non-cash modes of payment.

7.2 Industry Segments

The payment industry broadly comprises two segments – Cash payments and Non-Cash payments. Non-Cash Payments are further divided depending upon the payment methods.

Exhibit 10: Industry Classification



1. **Cash Payments:** Transactions happening using paper money form a part of this segment.
2. **Non-Cash Payments:**
 - a. **Cheques:** A written consent where the person signing the cheque obliges to pay the drawer the amount of money stated on the cheque.

- b. Direct Debits:** An arrangement that allows the banks to transfer the funds from a customer’s account to a third party on previously agreed fixed dates. This mode of payment is especially used to pay bills.
- c. Credit Transfers:** It is a direct mode of transfer of money from one account to another.
- d. Cards:** Use of credit/debit/loyalty cards for making payments for the goods and services purchased.

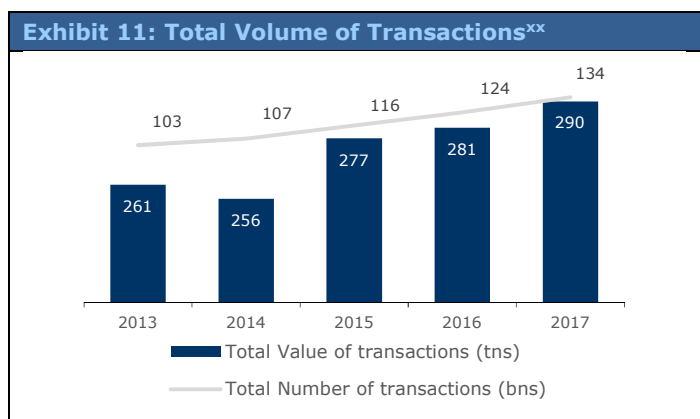
Keyware Technologies forms a part of the non-cash payment system by providing services to facilitate the card payments. For this, it provides infrastructure support in the form of renting/selling of payment terminals, along with maintenance support. It also provides transaction services required to transmit, authorize and verify the card data used during the transaction. Since the company’s major revenues come from renting of terminals, which are used to complete the card transactions offline, the more the number of transactions, the better the company’s performance in terms of revenue.

7.3 Market performance

Total Volume of Non-Cash Payment Transactions^{xxi}:

As per the European Central Bank, the total number of transactions increased to 134 bn in FY 2017 compared to 124 bn in FY 2016, a 7.9% hike on a YoY basis. Card payments contributed 52% of all the transactions followed by credit transfers (24%) and direct debits (19%).

Total Value of Transactions increased from EUR 261 trillion (tn) to EUR 290 tn at a CAGR of 3% for the period 2013-2017.



7.4 Payment Process Participants^{xxii}

Various stakeholders play an important role in ensuring successful electronic transactions. A high level of collaboration is required to ensure the safe and seamless transfer of funds from one bank account to another. Following are the various participants in an electronic payment process:

- 1. Cardholders:** They are the consumers who use the electronic mode of payment for purchasing goods and services. The transactions are carried out via plastic/physical cards - debit cards, credit cards, loyalty cards, gift cards or virtual cards – and Smartphones.
- 2. Retailers:** They sell goods or services and accept the non-cash payment methods. Retailers use fixed, portable or mobile payment terminals to carry out the transactions and receive the payment via a non-cash payment method such as a card.
- 3. Payment acceptance processing providers:** These provide the retailers with means to operate and execute the card payment. They arrange for necessary infrastructure such as installation of point-of-sale (POS) terminals, online payment gateways to collect and transmit the card data and receive payment authorization.
- 4. Acceptance-related service providers:** They provide additional features to retailers such as coupon, loyalty or ticket functionalities on the payment terminal, electronic meal vouchers, etc.
- 5. Acquirers:** These are the banks and payment institutions that facilitate the transfer of funds from the consumer’s bank (issuing bank) to the retailer’s bank account after charging a service fee. The acquirers give the retailers access to various card schemes such as Visa, MasterCard, Maestro, Bancontact/Mister Cash, JCB, Diners, etc., and a “merchant account.” The payment received from the customer is then transferred into this merchant account.
- 6. Acquiring Processors:** They provide transaction processing services to the acquirers, which include transmitting the card data from the retailer’s terminal to acquirers’ for receiving payment authorization via the credit/debit card schemes and clearance and settlement of all the transactions.

- 7. Card Schemes:** Various schemes – MasterCard, Maestro, Visa, V-Pay, Diners, JCB, etc. – are available for the retailer to choose from. Each card scheme has different processing costs, which the retailer has to pay depending upon the service he adopts.
- 8. Clearing and Settlement Institutions** Generally, the national banks who provide clearing and settlement services between the acquiring bank and issuing bank.

Keyware, as a participant, is active in payment acceptance processing, acceptance-related services and transaction services as described in points 3, 4 and 6 above.

7.5 Payment Card Industry Security Standards^{xxiii}

Payment Card Industry Security Standards Council (also referred to as PCI SSC), formed in 2006, is responsible for the development, management, education and awareness of PCI Security Standards. It includes Payment Application Data Security Standard (PA-DSS), Personal Identification Number (PIN) Transaction Security (PTS) and Data Security Standard (DSS).

- 1. PA-DSS:** It applies to software vendors and others who develop payment applications that store, process or transmit cardholder data and/or sensitive authentication data.
- 2. PTS:** These standards contain the set of requirements for the secure management, processing and transmission of PIN data during online and offline payment card transaction processing at ATMs and POS terminals. The requirements are applicable to all the acquiring institutions and agents responsible for PIN transaction processing on payment card industry participants’ denominated accounts.
- 3. DSS:** These standards apply to all the participants in payment card processing, including merchants, acquirers, service providers and all the entities that store, process or transmit the cardholder’s data and sensitive authentication data. Cardholder data include cardholder name, expiration date, service code, Primary Account Number (PAN), amongst others. The cardholder data, except PAN, must be protected in compliance with the PCI DSS requirements. Sensitive authentication data include Card Verification Value (CVV), Card Verification Code (CVC) or Personal Identification Number (PIN) codes and must not be stored in any form after authorization.

Exhibit 12: PCI-DSS Compliance Requirements



7.6 Growth Drivers

1. Digitalization of Financial Services^{xxiv}: Digitalization has changed the interface between the customers and service providers, leading to increased expectations by the customers. Historically, customers relied on physical bank branches for carrying out deposits, withdrawals and to fulfill their other financial needs. However, with digitalization, the customers usually access the automated versions of these services as per their convenience. The emergence of new technologies such as distributed ledger technology, big data, the Internet of Things (IoT), cloud computing, artificial intelligence (AI) and biometric technologies have transformed activities such as payments, planning, lending, funding, trading and investment, insurance, security, operations and communications.

However, digitalization brings with itself two key challenges for the traditional banking sector, which offer opportunities to the firms in the FinTech sector. Firstly, traditional firms need to develop quality websites and applications in addition to automating the services. This requires a large amount of money to be spent from their pockets. It is anticipated that globally, financial services industry will be spending EUR 389.4 bn in FY 2019 and this expenditure is expected to rise to EUR 442.5 bn by FY 2021. While a portion of this expenditure will be concentrated on hiring IT employees and developing proprietary software platforms, a significant portion is expected to be spent in the FinTech space.

The second challenge brought by digitalization is competition. Along with traditional firms, entirely new firms with unique business models have entered the digital space. These are digital-only banks and insurance companies, as well as peer-to-peer lending and crowdfunding platforms. As a result, the competition has increased manifold in the segment.

2. Real-Time Payments (RTP)^{xxv}: A new phase of evolution has been introduced in the FinTech sector with the innovation of RTP. These payments are drastically different from conventional payment methods in terms of speed, value-added messaging capabilities and immediate availability of transaction status. These also facilitate greater precision in budgeting by businesses and help in smoothening their overall cash management due to the early availability of funds.

It is forecasted that the global market for RTP will grow from EUR 5.7 bn in FY 2018 to EUR 21.9 bn in FY 2023, representing a CAGR of 30.6%.

As from the consumers' point of view, faster payments are often linked with increased consumer satisfaction, especially when consumers are becoming increasingly comfortable with technology. In this growing era of convenient mobile and digital services, RTP often generate positive consumer sentiment for businesses. In addition to speed, RTP provide more security and reliability in comparison to the alternatives, such as cheques and cash, which are responsible for RTP's increased popularity.

3. Rising Number of Payment Options^{xxvi}: Nowadays, there are multiple payment options available to the customers, apart from traditional options such as cash and credit. Online and mobile payments are becoming popular among the customers. Online payments include online banking and electronic commerce and payment services. Mobile payments basically include transactions connected through mobile network operators and cards linked to mobile phones. It is anticipated that the mobile payment market will grow at a CAGR of 33.8% from FY 2017 to FY 2023, to attain a value of EUR 4.1 bn by FY 2023. It is essential that all these payments occur instantaneously while ensuring security, reliability and integration.

A variety of firms offering such a complex structure of payment options are required to work in collaboration with third-party FinTech organizations that provide POS hardware, cloud-based software solutions and payment infrastructure to smoothen these transactions.

Conclusively, it can be said that payment firms are entrenched as an essential component of retail business operations around the world.

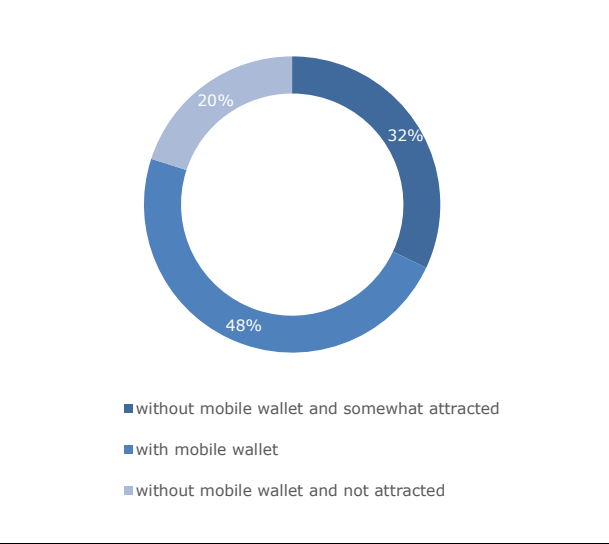
4. Increasing usage by Millennials^{xxviii}: FinTech’s adoption is higher among millennials. They have a growing requirement of financial services and are the core future consumers of the industry. As per the Global Payments Report by Worldpay, in FY 2018, 28% of millennials globally have made use of a mobile wallet at a **POS**.

Overall, 48% of millennials are well acquainted with the mobile wallets system, while 32% are not active users currently but are inclined towards the usage of the wallets. Only, 20% of the millennials have no interest in the usage of an e-wallet. This trend has mainly arisen due to the time-consuming nature of the conventional methods in providing various financial services.

China and India account for the two largest youth populations worldwide in FY 2017, within which 74% of Chinese millennials and 75% of Indian millennials have made payments with a mobile wallet at the POS.

In **Belgium**, around 47% people make use of mobile payments and it is expected to increase by 68% over the next five years because of the rise in smartphone penetration. About 63% of the people under the age of thirty use mobile payment systems. Around eight out of ten Belgians under the age of forty are inclined to use mobile payments in the next five years. These datapoints indicate the tremendous scope of growth in online payments in Belgium and the potential for companies like Keyware to tap into and to grow and expand their business.

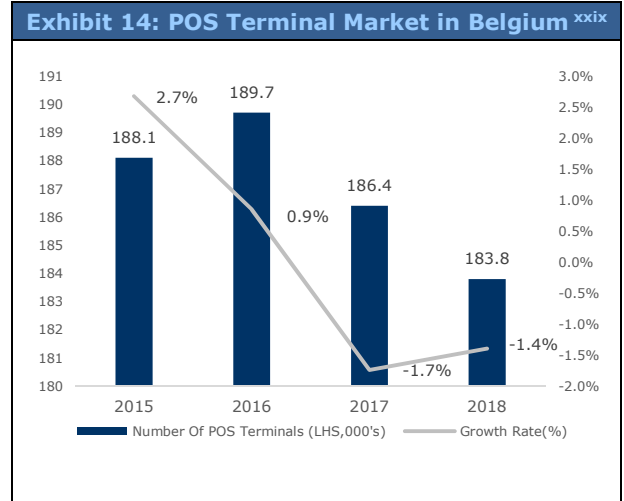
Exhibit 13: E-wallet popularity among Millennials (2019)^{xxvii}



7.7 Products and Services

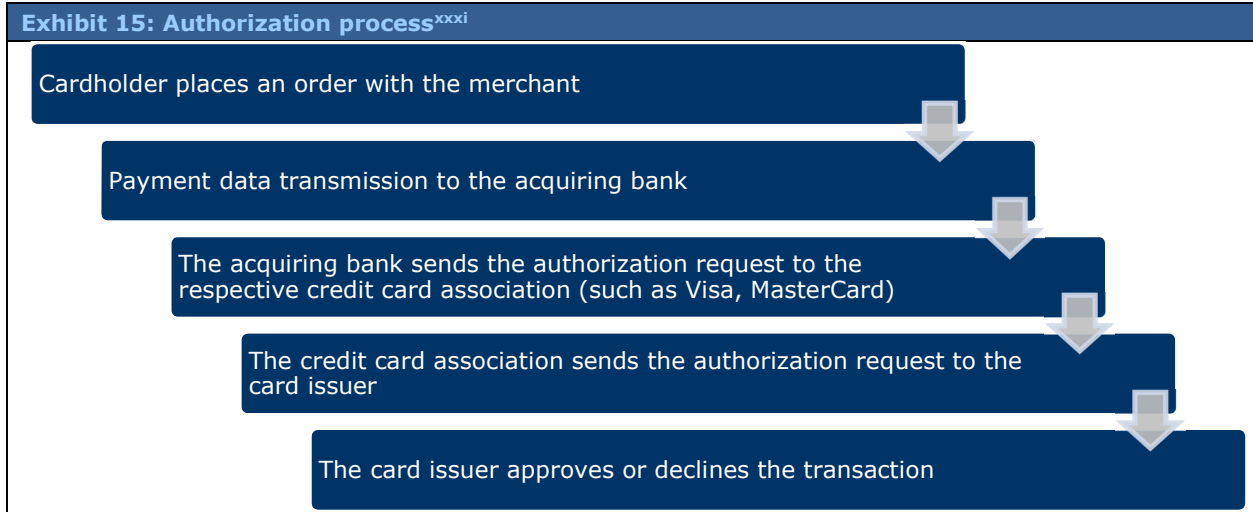
1. Point of sale (POS) terminals:

POS or Payment Terminals constitute the interface needed to process the electronic transactions. These terminals are basically a combination of software and hardware which allows retail locations to accept card payments without updating their cash registers to read cards directly. In Belgium, the number of POS terminals declined to 183,800 in FY 2018 compared to 186,400 in FY 2017 at a negative annual growth rate of 1.4%. This shows that the market for POS terminals in Europe has saturated and profitability has begun to decline which is because of increasing acceptability of digital payments, m-POS systems and mobile wallets. Apart from these products, new technologies such as cloud, AI, Software as a Service (SaaS) and IoT have entered into the payment market and have brought new trends in the industry



2. Authorization Services / Processing

This is essentially a process where permission is granted by the customers’ card issuing bank to the merchant to accept the card payment. Globally, the authorization services market is expected to reach EUR 1.4 bn by FY 2022 from EUR 0.5 bn in FY 2017, representing a CAGR of 21.1% in the period from FY 2017 to FY 2022. The activities involved in the authorization process vary from one card network to another. However, the general process involved in authorization is as follows:

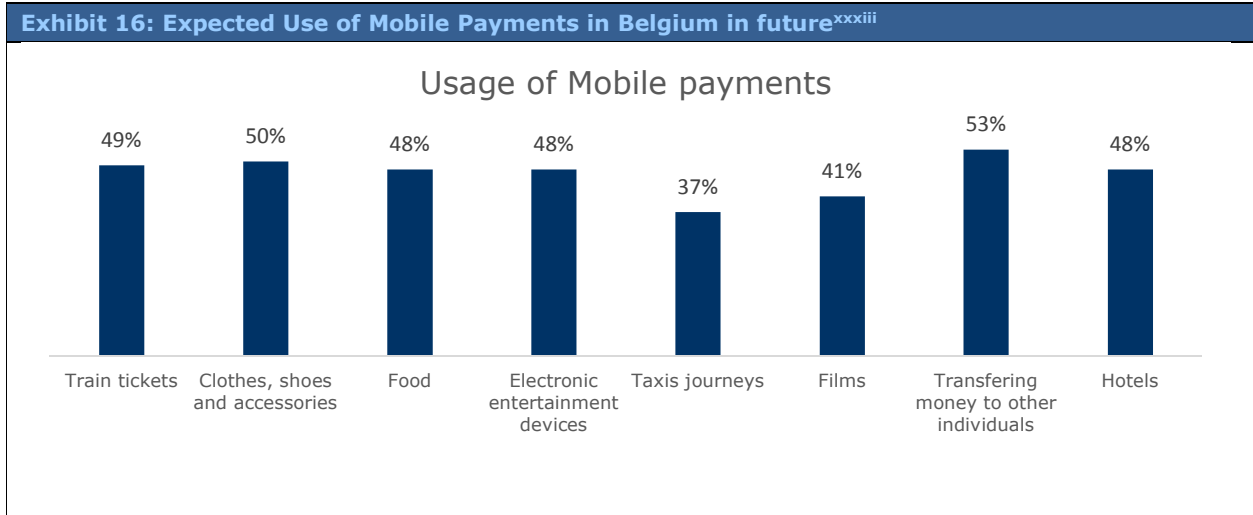


3. Payment Applications

Payments which are made through mobiles for goods and services purchased are referred to as mobile payments and the technology which is used to make these payments is mobile payment technology. The market size of this market was EUR 109.1 bn in FY 2017 and is expected to reach EUR 2,983.3 bn by FY 2024 at a CAGR of 60% between 2018-2024. Owing to the changing lifestyles, increasing smartphone usage and internet prices dropping, the companies are rapidly investing in mobile payments technology. However, a major challenge being faced in this industry is how to close the gap between awareness and adoption of this technology.

As per a PWC mobile payment report for 2019, nearly 47% of the Belgian population uses mobile payment as a payment option. Currently, mobile payment is the most popular among people when they are transferring money to other people

(35%) which is expected to reach a level of 53% in the next five years. Also, about 28% of the people in Belgium make payments using mobile services for purchasing clothes, shoes and accessories and entertainment electronics.



In Belgium, Paypal is the most well-known payment application as 37% people prefer to use it. Paypal is ahead of the global giants such as Google, Facebook and Amazon.

4. Installment Solutions^{xxxiv}:

It is essentially a credit system in which payment for the product or service is made in terms of installments over a fixed period. These applications have services such as invoicing and automatic payments already built in. Some of these applications pay the vendors for the purchase on behalf of the customer and assume risk for the customer. Other applications provide an option to integrate an installment plan in the payment options.

Moreover, these kinds of applications also allow retailers to choose how they prefer to use the system: with no prior conditions, with immediate receipt of full payment from the financial intermediary or with guaranteed receipts of deferred payments.

5. Payment tokenization^{xxxv}:

Tokenization is a process that adds an extra layer of security and protects sensitive data by replacing it with an algorithmically generated number called the token. For instance, in credit card tokenization, credit card fraud is prevented by replacing the customers’ permanent account number with a randomly generated series of numbers.

The global market size of this segment is estimated to represent a growth from EUR 0.83 bn in FY 2018 to EUR 2.3 bn by FY 2023, representing a CAGR of 22.1% during the forecast period.

Before tokenization, encryption with reversible cryptographic algorithms was the preferred method to protect sensitive data. However, because of the random assignment of tokens, it is almost impossible to reverse engineer a token. As a result, tokenization is a stronger method of preventing frauds. The ultimate motive underlying the process is to enable these tokens to be passed through internet or other wireless paths to initiate processing of payments without confidential bank details being exposed. This process is carried out to fight against online or digital breaches of security.

7.8 New Technological Trends in Payment Industry

1. IoT^{xxxvi}:

IoT has introduced a change to how businesses and consumers interact with connected devices. It is expected that 20.4 bn connected devices will be installed in the market in FY 2020. Similarly, IoT is expanding to the payment industry and is providing an opportunity to players to move beyond mobile phones, cards and POS devices. IoT is enabling payments to become a component of connected devices such as fitness bands, wearables, and cars. This development has led to the need for tokenization, embedded commerce and Application Programming Interfaces (APIs).

- 1) Tokenization programs have been launched to enable security and prevent data breaches.
- 2) To enable these payments, devices require embedded applications.
- 3) APIs: These APIs are required to communicate the request from the device for a service and to receive payment.

2. AI^{xxxvii}:

AI is being used to identify fraud cases. The payment industry has undergone many reforms. Market players are also eagerly looking forward to implementing AI for efficient payment processing. As per International Data Corporation, a market intelligence firm, companies will spend around EUR 9.7 bn on AI in FY 2020. AI is a valuable tool for payment companies and financial institutions as it helps to reduce fraud in the transaction space, specifically in E-Commerce transactions.

3. Blockchain and Cryptocurrency^{xxxviiixxxix}:

Globally, the blockchain market is expected to grow from EUR 1 bn in FY 2018 to EUR 20.6 bn by FY 2023 at a CAGR of 80.2% during 2018-2023. Blockchain technology facilitates fast, secure, low-cost payment processing services by using encrypted forms of data. There are a large number of start-ups which are present in the market, which makes the market more fragmented. These start-ups accounted for 60% of the total market share in FY 2017. The key providers of the blockchain technology are IBM, AWS, Microsoft, Sap, Ripple, Apple, etc.

Cryptocurrency is the other new application of technology which is being used as a mode of payment. It provides the feasibility of improving the speed and security of international payments. The cost of holding a cryptocurrency in a wallet is mostly zero unless someone choose to transact. The acceptance of cryptocurrency has grown worldwide at a very nominal rate. Even accepting the cryptocurrency online has become convenient. Various vendors have started accepting cryptocurrency as a mode of payment.

4. E-Wallets^{xi}:

E-wallets are basically digital forms of debit cards, credit cards and prepaid card information on mobile. The size of global mobile wallets was EUR 780.5 bn in FY 2017 and expected to reach EUR 8.3 tn by FY 2026 growing at a CAGR of 30% from FY 2017 to FY 2026. Rising smart phone penetration and increasing awareness of mobile wallets along with their multiple benefits are the key drivers for the mobile wallet market. Mobile wallets are being used for regular payments such as utility payments and groceries, and are widely acceptable across sectors such as retail, utilities, telecom and transportation, etc. Giants like Amazon, Apple, Google, PayPal and Alibaba already offer wallet services.

5. Digital banking^{xli}:

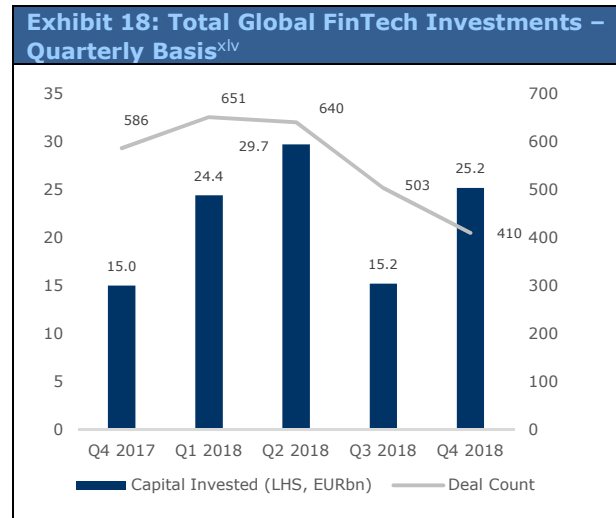
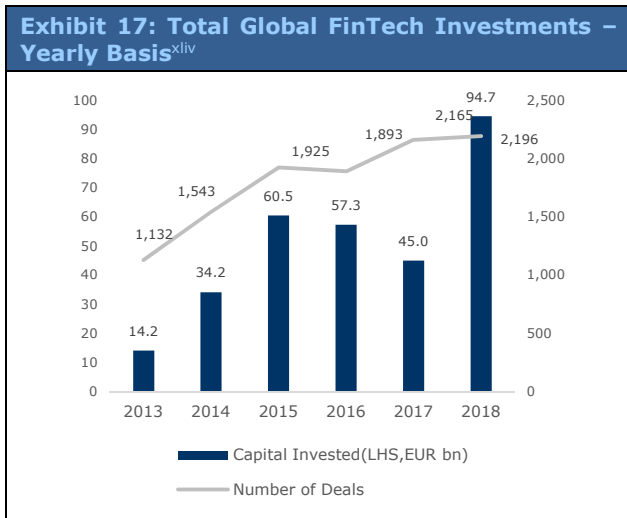
As per Zion market research, the size of digital banking market was approximately EUR 5.5 mn in FY 2018 and expected to reach EUR 7.6 mn by FY 2025, growing at CAGR of around 3.8% from FY 2019 to FY 2025. Rising internet penetration has led to an increase in the use of digital devices such as mobiles and computers, which has further led to betterment of digital services in the banking space. The continuous developments in the technology, such as AI, Cloud services, SaaS, are driving the digital market by providing more comfort and ease to the customers.

6. Embracing the Regulatory Technology (RegTech)^{xlii}: RegTech helps the financial services providers to deal with regulations in a better way. It also helps to reduce the fixed cost and increases the efficiency. RegTech strengthens the compliance element and reduces risk. It makes use of technologies such as advanced analytics, robotic process automation, cognitive computing and cloud services to manage compliance and regulatory issues effectively and efficiently. RegTech spending is expected to reach EUR 67.2 bn by FY 2022, up from EUR 9.4 bn in FY 2017.

7.9 Global Landscape^{xliii}

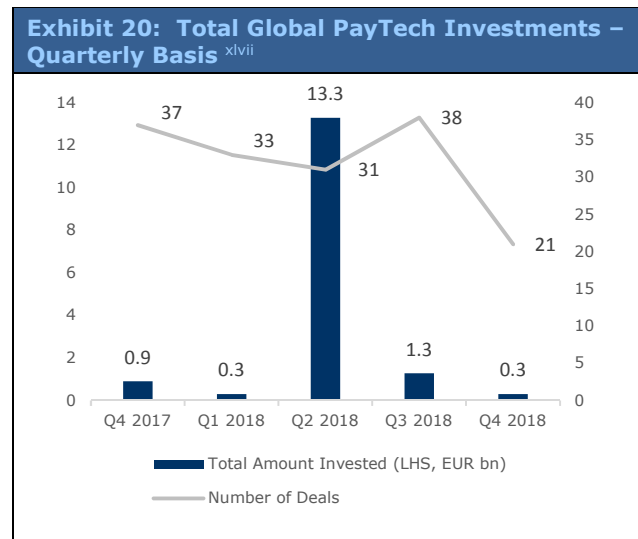
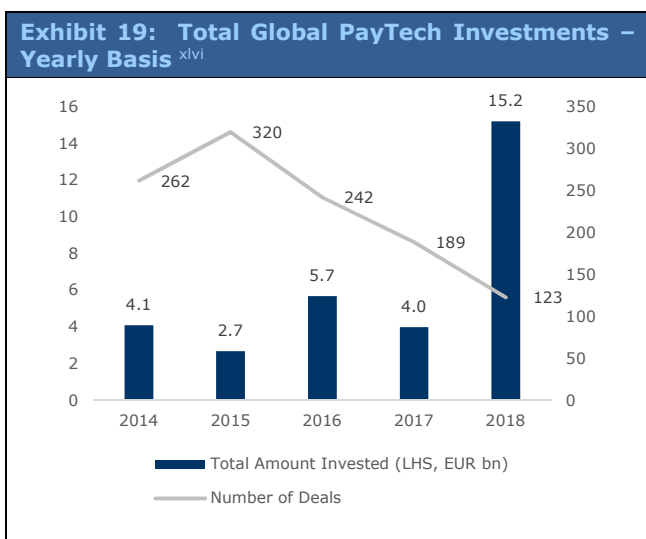
In FY 2018, global investments in the FinTech sector hit EUR 94.7 bn with approximately 2,196 deals. The sector is growing on a tremendous scale with deals outside the core market (UK, China and US) contributing to 39% of the totals deals. However, US maintained its niche and continued being the top market for deals with 659 investments worth EUR 10.1 bn.

The transaction value in the sector is expected to increase rapidly and represent a CAGR of 13.2% from FY 2019 to FY 2024. FinTech investments more than doubled in FY 2018 on YoY basis, driven by a small amount of mega deals including EUR 11.8 bn venture capital funding raised by Ant Financial and the acquisition of WorldPay by Vantiv in the first half of FY 2018. The second half of the year also encountered a significant number of mega deals, including EUR 2.9 bn acquisition by Silver Lake & P2 Capital Partners of prepaid card company Blackhawk Network and an investment of EUR 14.4 bn in Refinitiv by private equity (PE) firm Blackstone. Conclusively, it can be stated that FY 2018 was a year of multiple record highs across FinTech.



a. Top PayTech Investments in FY 2018

In FY 2018, PayTech investments reached EUR 15.2 bn with a total of 123 deals, which is almost 4 times the FY 2017 statistics. However, the deal activity has been on a continuous decline from 320 deals in FY 2015 to 123 deals in FY 2018. The immense rise in FY 2018 was due to Ant Financial’s deal worth EUR 11.8 bn, which was a huge FinTech transaction.



In Asia, Europe and Rest of the World (ROW) the largest chunk of investments has been in the Mobile Payments subsector with companies in this sector accounting for 50.1% of the total deal activity on an average. However, companies in the P2P payments and B2B payments sectors are experiencing a slowdown, having not attracted more than a quarter of deal activity since the past five years.

In the last quarter of FY 2018, EUR 327.7 mn was invested. However, this is a 63% decrease when compared to Q4 of FY 2017. Moreover, deal activity also declined from 34 deals in Q4 2017 to only 21 deals in Q4 2018. In Q4 2018, the biggest deal was worth EUR 67.7 mn, raised by Toss.

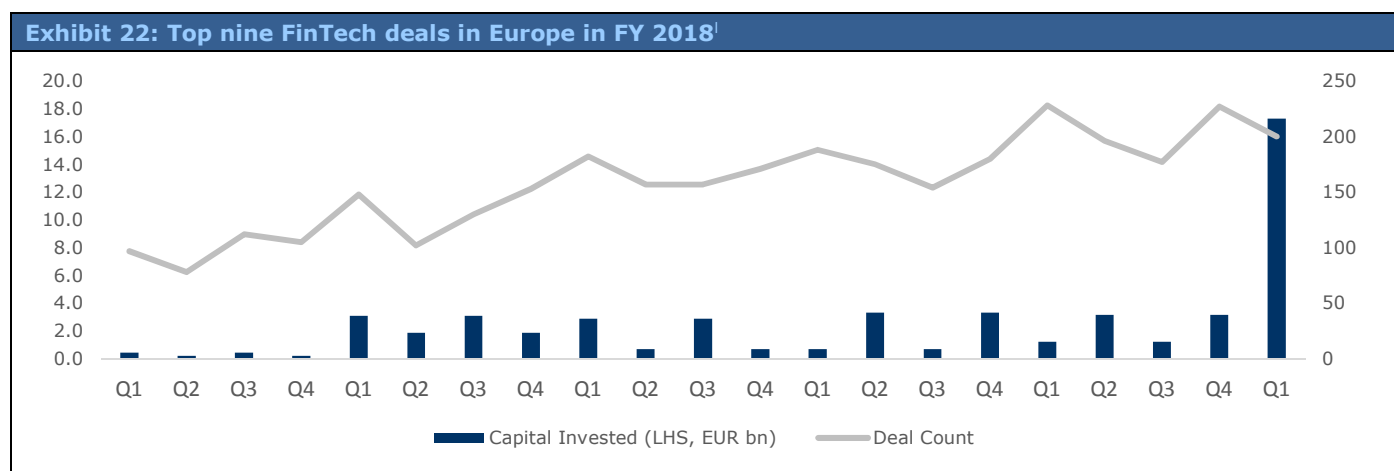
b. Investments in FinTech in Europe (FY 2018)

- 1) In FY 2018, investments in FinTech companies in Europe hit EUR 28.9 bn with 536 deals
- 2) PE FinTech investment rose to EUR 1,376.3 mn in FY 2018
- 3) Median mergers and acquisitions in Europe increased from EUR 21.2 mn in FY 2017 to EUR 53 mn in FY 2018

Exhibit 21: Top nine FinTech deals in Europe in FY 2018 ^{xlviii}			
Company Acquired	Country	Acquirer	Deal Size (EUR bn)
WorldPay	London	Vantiv	10.9
Nets	Denmark	Concardis	4.6
iZettle	Sweden	PayPal	1.8
Fidessa Group	UK	ION Bidco	1.7
IRIS Software Group	UK	Hg Saturn Fund & Intermediate Capital Group	1.5
BGL Group	UK	Canada Pension Plan Investment Board	0.7
Trustly Group	Sweden	Nordic Capital	0.7
Nordax Group	Sweden	Vision Capital	0.4
ETF Securities	UK	WisdomTree	0.5

FinTech investments in Europe significantly rose in FY 2018, reaching a total of EUR 28.9 bn with 536 deals. Some of the major highlights of the year were PayPal’s acquisition of iZettle for EUR 1.8 bn, Vantiv’s acquisition of WorldPay for EUR 10.8 bn and the merger of Denmark payments firm Nets and Germany-based concords worth EUR 4.6 bn.^{xlix}

In FY 2019, Europe is expected to experience more consolidation in the FinTech space. However, consolidation will likely be on the rise due to driving forces both from companies in the sector looking to buy to raise their scale and from traditional banks looking to buy in order to fulfill their strategic objectives.












Also, investments are expected to remain vigorous in the FinTech sector in Europe and investments are likely to increase in fields such as RegTech, Insurtech and wealth management. The main target for FinTech investors is the small business sector due to its latent potential. However, areas such as payment and lending are likely to experience stagnation over the next 6 to 12 months as they have matured.

Across various industries, FinTech companies are exploring ways on how to pick off high-value segment incumbents, with blockchain attracting huge amounts of funding. The threats and opportunities created by disruptive FinTech companies have not been lost on market incumbents – with a whole host of actors, from consultancy firms to accelerators, seeking to get in on the action.

Some groups that are particularly keen to engage with the expanding start-ups are venture capitalists, PE firms and corporate M&As.

7.10 Competition

There are various services offered by the players in the payment terminal market. Different players provide different services along the extended payments value chain. The following table gives an overview of the presence of various players along the wide range of segments in the Payment services industry across Europe.

Exhibit 23: Services offered by various players in the market ⁱⁱ								
Card Payment Services in Europe	Issuing transaction processing	Services to cardholders and issuers	Automated Clearing House	Credit/ Debit transfers	Services to merchants	Acquiring transaction processing	Commercial Acquiring	Acceptance POS/ eCommerce
					✓	✓	✓	✓
	✓	✓	✓	✓	✓	✓	✓	✓
	✓	✓	✓	✓	✓	✓	✓	✓
	✓	✓			✓	✓	✓	✓
					✓	✓	✓	✓
					✓	✓	✓	✓
	✓				✓	✓	✓	✓
	✓	✓				✓		
					✓	✓	✓	✓

* Note: The list of services may not be exhaustive. Additional services may be offered by the individual firms.

8. Valuation

The Fair Market Value (blended) for all the company shares stands between EUR 48.34 mn and EUR 55.22 mn on July 08, 2019. The Fair Market Value for one publicly traded share of the company stands between EUR 2.10 and EUR 2.40 on July 08, 2019, using blended valuation (DCF and EV/EBITDA (2020E) multiple).

8.1 DCF Method

Valuation	
WACC	
Risk-free rate	0.45% ^{lii}
Beta	0.97 ^{liii}
Equity Market premium	8.50% ^{liv}
Country Risk Premium	0.0% ^{lv}
Cost of Equity	8.70%
Cost of Debt	2.53%
Terminal Growth Rate	3.0%
WACC (Discount Rate)	7.51%

Year Ending - Dec	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E
FCFF (High)										
Net cash from operating activities	3,811	3,420	4,371	4,568	5,435	5,939	7,355	7,820	9,133	9,002
Capital Expenditure	(897)	(1,044)	(1,084)	(1,133)	(950)	(996)	(914)	(962)	(1,013)	(1,060)
Free Cash Flow to Firm	2,913	2,376	3,286	3,435	4,486	4,943	6,440	6,857	8,120	7,941
Discount factor	0.97	0.90	0.84	0.78	0.72	0.67	0.63	0.58	0.54	0.50
Present Value of FCF	2,813	2,134	2,746	2,669	3,242	3,323	4,027	3,988	4,393	3,996
FCFF (Low)										
Net cash from operating activities	3,786	3,332	4,206	4,300	5,036	5,392	6,578	6,850	7,870	7,564
Capital Expenditure	(876)	(1,013)	(1,046)	(1,086)	(901)	(936)	(851)	(886)	(922)	(953)
Free Cash Flow to Firm	2,910	2,319	3,160	3,215	4,135	4,455	5,728	5,965	6,948	6,610
Discount factor	0.97	0.90	0.84	0.78	0.72	0.67	0.63	0.58	0.54	0.50
Present Value of FCF	2,811	2,083	2,640	2,498	2,989	2,995	3,582	3,469	3,759	3,326

Arrowhead Fair Value Bracket	High	Low
Terminal Value (TV)	91,219	75,929
Present Value of TV	45,899	38,206
Present Value of FCF	33,332	30,152
Present Value of TV+FCF	79,231	68,357
Net Debt	(3,998)	(3,998)
Deferred Taxes	(1,344)	(1,344)
Equity Value (EUR '000)	73,889	63,015
Shares O/s (000's)	22,986	22,986
Fair Share Value Bracket (EUR)	3.21	2.74
Current Market Price (EUR)	1.03	1.03
Upside/(Downside)	212%	166%
Current Market Cap. (EUR '000)	21,606	23,675
Target Market Cap. Bracket (EUR '000)	73,889	63,015

Sensitivity Analysis

Sensitivity Table - High		Growth Rate (%)				
		2.5%	2.8%	3.0%	3.3%	3.5%
WACC (%)	6.5%	3.96	4.15	4.36	4.60	4.88
	7.0%	3.43	3.56	3.71	3.88	4.07
	7.5%	3.01	3.11	3.21	3.34	3.47
	8.0%	2.67	2.75	2.83	2.92	3.02
	8.5%	2.40	2.45	2.52	2.59	2.66

Sensitivity Table - Low		Growth Rate (%)				
		2.5%	2.8%	3.0%	3.3%	3.5%
WACC (%)	6.5%	3.37	3.52	3.70	3.90	4.13
	7.0%	2.92	3.03	3.15	3.30	3.46
	7.5%	2.57	2.65	2.74	2.84	2.96
	8.0%	2.29	2.35	2.42	2.49	2.58
	8.5%	2.06	2.11	2.16	2.21	2.28

Approach for DCF Valuation

Time Horizon: The Arrowhead fair valuation for Keyware is based on the DCF method. The time period chosen for the valuation is 116 months (2019E-2028E).

Terminal Value: Terminal value is estimated using terminal growth rate of 3.0%.

Prudential nature of valuation: It should be noted that this Arrowhead Fair Value Bracket estimate is a relatively prudential estimate, as it discounts the eventuality of any new products being launched in the market or any significant change in the strategy.

Key variables: The upper and lower bounds in the estimation correspond to the extreme positions taken by the following key variables:

Variable 1 – Installed Base (Terminals)

Exhibit 24: Number of terminals at the end of year										
In '000s	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Low estimate	17.3	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4
High estimate	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4

Variable 2 – Terminals offering Authorized services

Exhibit 25: Number of terminals offering authorization services, at the end of year										
In '000s	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Low estimate	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6
High estimate	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6

8.2 Relative Valuation

The Fair Market Value of one of Keyware's publicly traded regular shares stood between EUR 1.46 and EUR 1.59 on July 08, 2019 according to the relative valuation method.

Exhibit 26: Peer Set (Keyware) ^{lvi}					
Companies	Country	Market Cap (in EUR mn)	Current Enterprise Value (in EUR mn)	EBITDA (FY 2020E) (in EUR mn)	EV/EBITDA (FY 2020E) (in EUR mn)
Worldline	France	11,507	11,751	663	17.7x
Ingenico	France	4,726	6,287	630	10.0x
Global Payments	US	22,690	27,258	1,587	17.2x
Tsys	US	20,685	24,162	1,417	17.0x
Fiserv	US	33,036	38,209	2,561	14.9x
HIQ International AB	Sweden	275	253	26	9.6x
Glintt-Global Intelligent Technologies SA	Portugal	14	52	NA	NA
SysGroup PLC	UK	23	21	4	6.0x
Average					13.2x

	High	Low
Keyware EBITDA ^{lvii} FY 2020E	1,805	1,734
PEER EV/ EBITDA	13.2x	13.2x
Relative Valuation Premium / (Discount)	5%	0%
Adjusted EV/ EBITDA	13.9x	13.2x
FY2020 EV	25,027	22,901

Exhibit 27: Peer Set (Magellan) ^{lviii}					
Companies	Country	Market Cap (in EUR mn)	Current Enterprise Value (in EUR mn)	EBITDA (FY 2020E) (in EUR mn)	EV/EBITDA (FY 2020E) (in EUR mn)
RS2 Software PLC	Malta	316	313	NA	NA
Gresham Technologies PLC	UK	88	82	4	20.1x
B+S Bankssysteme AG	Germany	14	18	2	8.4x
Asseco South Eastern Europe SA	Poland	201	196	37	5.3x
GPI SpA	Italy	136	199	35	5.7x
Inside Secure SA / Verimatrix	France	149	119	27	4.4x
NETinfo Plc	Cyprus	16	20	NA	NA
Vetrya SpA	Italy	50	47	13	3.5x
CPU Softwarehouse AG	Germany	8	7	NA	NA
msg life ag	Germany	99	68	NA	NA
SinnerSchrader AG	Germany	148	139	NA	NA
GHL Systems Bhd	Malaysia	224	200	19	10.6x
Earthport PLC	UK	294	268	NA	NA
Bottomline Technologies DE Inc	US	1,691	1,707	95	18.0x
Silverlake Axis Ltd	Malaysia	918	795	63	12.7x
Wirecard AG	Germany	18,899	17,245	1,031	16.7x
Worldpay Inc	US	35,627	42,382	2,159	19.6x

WEX Inc	US	8,103	10,585	773	13.7x
ACI Worldwide Inc	US	3,435	3,930	385	10.2x
PayPal Holdings Inc	US	1,22,676	1,17,907	4,763	24.8x
Global Payments Inc	US	22,690	27,258	1,587	17.2x
KGMobilians Co Ltd	South Korea	152	265	NA	NA
Visa Inc	US	3,14,255	3,20,550	16,103	19.9x
Mastercard Inc	US	2,47,722	2,47,389	10,406	23.8x
First Data Corp	US	23,700	39,072	3,230	12.1x
Global Payments Inc	US	22,690	27,258	1,587	17.2x
Total System Services Inc	US	20,685	24,162	1,417	17.0x
Average					8.5x

*Only B+S Bankssysteme AG, Asseco South Eastern Europe SA, GPI SpA, GHL Systems Bhd, Inside Secure SA, Vetrya SpA, CPU Softwarehouse AG, Msg life ag, Silverlake Axis Ltd, WEX Inc., First Data Corp and KGMobilians Co Ltd have been used for average calculation

Relative Valuation for Magellan (All figures are in EUR '000, except percentage and multiple data)	High	Low
Magellan EBITDA FY 2020E	1,984	1,896
PEER EV/ EBITDA	8.5x	8.5x
Relative Valuation Premium	0%	0%
Adjusted EV/ EBITDA	8.5x	8.5x
FY 2020 EV	16,856	16,110

Keyware and Magellan (Combined) (All figures are in EUR '000, except per share data)	High	Low
Total EV	41,883	39,011
Adjustment		
Less: Net Debt	(3,998.0)	(3,998.0)
Less: Deferred taxes	(1,344.0)	(1,344.0)
Implied Equity Value	36,541	33,669
Shares o/s ('000s)	22,986	22,986
Intrinsic Value per share	1.59	1.46
Current Market Price	1.03	1.03
Upside / (Downside)	154%	142%

8.3 Blended Valuation

Blended Valuation	High	Low
DCF	3.21	2.74
Relative valuation	1.59	1.46
Blended Value	2.40	2.10
Upside/(Downside)	133%	104%
Target Market Cap. (EUR '000)	55,215	48,342

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 Keyware 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 relevant to 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 consider 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 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 twelve months). The reader should refer to important disclosures on page 35 of this report.

9. Appendix

9.1 Keyware's Financial Summary

Exhibit 28: Financial Summary		<i>Low Bracket Estimates</i>									
<i>Year Ending - Dec</i>	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	
Revenue (EUR '000)	20,082	20,866	21,535	22,320	23,139	24,017	24,919	25,928	26,962	27,877	
Operating Profit (EUR '000)	572	866	1,110	2,079	2,500	3,289	3,890	4,504	5,208	5,965	
Net Income (EUR	607	798	986	1,722	1,883	2,448	2,849	3,285	3,826	4,372	
EPS	0.03	0.04	0.05	0.08	0.09	0.11	0.13	0.15	0.18	0.20	
Growth rates (%)											
Revenue	(2.3%)	3.9%	3.2%	3.6%	3.7%	3.8%	3.8%	4.1%	4.0%	3.4%	
Operating Profit	117.3%	51.5%	28.2%	87.2%	20.2%	31.6%	18.2%	15.8%	15.6%	14.5%	
Net Income	(3.0%)	31.6%	23.5%	74.6%	9.3%	30.0%	16.3%	15.3%	16.5%	14.3%	
EPS	(3.0%)	31.6%	23.5%	74.6%	9.3%	30.0%	16.3%	15.3%	16.5%	14.3%	
Margins (%)											
Gross Margins	58.4%	60.3%	62.0%	64.0%	66.1%	68.0%	69.8%	71.3%	72.7%	73.9%	
Operating Profit	2.8%	4.2%	5.2%	9.3%	10.8%	13.7%	15.6%	17.4%	19.3%	21.4%	
Net profit Margin	3.0%	3.8%	4.6%	7.7%	8.1%	10.2%	11.4%	12.7%	14.2%	15.7%	
Ratios											
ROA	1.5%	2.1%	2.7%	4.6%	5.1%	6.6%	7.5%	8.4%	9.3%	10.0%	
ROE	2.2%	2.8%	3.5%	6.0%	6.6%	8.5%	9.7%	10.8%	11.9%	12.7%	
Debt / Equity	0.1x	0.1x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	
Interest Coverage	4.4x	9.3x	23.9x	132.7x	357.1x	469.9x	555.7x	643.4x	744.0x	852.1x	
Price / Earnings Ratio	36.7x	27.9x	22.6x	12.9x	11.8x	9.1x	7.8x	6.8x	5.8x	5.1x	

Exhibit 29: Financial Summary		<i>High Bracket Estimates</i>									
<i>Year Ending - Dec</i>	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	
Revenue (EUR '000)	20,565	21,489	22,299	23,265	24,354	25,519	26,747	28,124	29,576	30,932	
Operating Profit (EUR '000)	624	946	1,220	2,279	2,789	3,721	4,476	5,268	6,196	7,222	
Net Income (EUR	646	859	1,069	1,873	2,100	2,773	3,289	3,859	4,568	5,316	
EPS	0.03	0.04	0.05	0.09	0.10	0.13	0.15	0.18	0.21	0.25	
Growth rates (%)											
Revenue	0.1%	4.5%	3.8%	4.3%	4.7%	4.8%	4.8%	5.1%	5.2%	4.6%	
Operating Profit	137.3%	51.6%	29.0%	86.7%	22.4%	33.4%	20.3%	17.7%	17.6%	16.5%	
Net Income	3.3%	32.8%	24.5%	75.1%	12.2%	32.0%	18.6%	17.3%	18.4%	16.4%	
EPS	3.3%	32.8%	24.5%	75.1%	12.2%	32.0%	18.6%	17.3%	18.4%	16.4%	
Margins (%)											
Gross Margins	57.9%	59.9%	61.8%	63.9%	66.2%	68.3%	70.3%	72.1%	73.7%	75.1%	
Operating Profit	3.0%	4.4%	5.5%	9.8%	11.5%	14.6%	16.7%	18.7%	21.0%	23.3%	
Net profit Margin	3.1%	4.0%	4.8%	8.0%	8.6%	10.9%	12.3%	13.7%	15.4%	17.2%	
Ratios											
ROA	1.6%	2.2%	2.9%	5.0%	5.6%	7.3%	8.3%	9.3%	10.3%	11.2%	
ROE	2.3%	3.0%	3.8%	6.5%	7.3%	9.4%	10.7%	11.9%	13.1%	14.0%	
Debt / Equity	0.1x	0.1x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	
Interest Coverage	4.8x	10.2x	26.2x	145.5x	398.5x	531.6x	639.4x	752.6x	885.2x	1031.7x	
Price / Earnings Ratio	34.5x	25.9x	20.8x	11.9x	10.6x	8.0x	6.8x	5.8x	4.9x	4.2x	

9.2 Keyware's Balance Sheet Forecast

Exhibit 30: Consolidated Balance Sheet	All figures in EUR '000, unless stated differently <i>Low Bracket estimates</i>									
Year Ending - Dec	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Total current assets	13,901	12,921	12,213	12,645	13,200	13,888	15,308	16,775	19,068	21,167
Total non-current assets	26,360	25,761	24,920	24,402	23,464	22,945	22,609	22,335	22,141	22,355
TOTAL ASSETS	40,261	38,682	37,133	37,047	36,664	36,833	37,916	39,110	41,209	43,522
Total current liabilities	5,301	4,712	4,335	3,824	3,947	4,079	4,547	4,712	5,241	5,403
Total non-current liabilities	6,997	5,867	4,790	4,575	4,349	4,101	4,030	3,937	3,844	3,786
TOTAL LIABILITIES	12,298	10,579	9,125	8,399	8,296	8,180	8,577	8,649	9,085	9,189
Total shareholder's equity	27,963	28,103	28,008	28,649	28,368	28,654	29,339	30,461	32,124	34,333
TOTAL LIABILITIES & EQUITY	40,261	38,682	37,133	37,047	36,664	36,833	37,916	39,110	41,209	43,522

Exhibit 31: Consolidated Balance Sheet	All figures in EUR '000, unless stated differently <i>High Bracket estimates</i>									
Year Ending - Dec	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Total current assets	14,002	13,101	12,520	13,146	13,995	15,091	17,082	19,248	22,455	25,589
Total non-current assets	26,366	25,767	24,911	24,375	23,402	22,843	22,449	22,112	21,851	22,052
TOTAL ASSETS	40,368	38,868	37,430	37,522	37,397	37,934	39,531	41,360	44,306	47,641
Total current liabilities	5,368	4,799	4,450	3,966	4,129	4,304	4,847	5,072	5,706	5,947
Total non-current liabilities	6,997	5,867	4,790	4,575	4,349	4,101	4,030	3,937	3,844	3,786
TOTAL LIABILITIES	12,365	10,666	9,240	8,541	8,478	8,405	8,877	9,009	9,550	9,733
Total shareholder's equity	28,003	28,202	28,190	28,981	28,919	29,529	30,654	32,351	34,755	37,908
TOTAL LIABILITIES & EQUITY	40,368	38,868	37,430	37,522	37,397	37,934	39,531	41,360	44,306	47,641

10. 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.

Important disclosures

Arrowhead Business and Investment Decisions, LLC received fees in 2015-2019 and will receive further fees in 2019 from Keyware Technologies for researching and drafting this report and for a series of other services to Keyware Technologies, including distribution of this report and investor relations services. Neither Arrowhead BID nor any of its principals or employees owns any long or short positions in Keyware Technologies. Arrowhead BID's principals have a mandate for investment banking services from Keyware and intend to receive compensation for investment banking activities from Keyware Technologies in 2019 or 2020.

Aside from certain reports published on a periodic basis, the large majority of reports are published by Arrowhead BID at irregular intervals as appropriate in the analyst's judgment.

Any opinions expressed in this report are statements of Arrowhead BID's judgment to this date and are subject to change without notice.

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Bracket integrate alongside the rest of their stream of information and within their decision-making process.

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11. Notes and References

- i Source: Bloomberg, retrieved on July 08, 2019.
- ii 52 weeks to June 25, 2019. Source: Bloomberg, July 08, 2019
- iii 3 months to June 25, 2019. Source: Bloomberg, July 08, 2019
- iv Arrowhead Business and Investment Decisions Fair Value Bracket – AFVBTM. See information on valuation on pages 24-27 of this report and important disclosures on page 32 of this report
- v Source: Quarter Report Q1 2017, Company Website and Press Releases
- vi Source: Investor Guide, December 2016, H1 June 2017
- vii Source: Company Management
- viii Source: Annual Report 2014, Company Presentation
- ix Source: Arrowhead BID analysis
- x Source: Arrowhead BID analysis
- xi Source: Company Website
- xii Source: Company Management
- xiii Source: Company Management
- xiv Source: Arrowhead BID estimate
- xv Source: Press Releases, Full year 2016 results report
- xvi Source: Company Reports, Company website and Bloomberg
- xvii Source: <https://www.ofx.com/en-au/forex-news/historical-exchange-rates/yearly-average-rates/>, (Average Annual exchange rates (USD to EUR) used are 0.753 (2013), 0.754 (2014), 0.902 (2015), 0.904 (2016), 0.887 (2017), 0.847 (2018), 0.885(2019 onwards), extracted on June 24, 2019
- xviii Source: [http://www.europarl.europa.eu/RegData/etudes/BRIE/2019/635513/EPRS_BRI\(2019\)635513_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/BRIE/2019/635513/EPRS_BRI(2019)635513_EN.pdf)
- xix Source: <https://www.globenewswire.com/news-release/2019/04/09/1801702/0/en/Global-Fintech-Market-2018-2023-Market-Set-to-Reach-USD-305-7-billion-by-2023.html>
- xx Source: <http://sdw.ecb.europa.eu/reports.do?node=1000001386>
- xxi Source: <https://www.ecb.europa.eu/press/pr/stats/paysec/html/ecb.pis2017.en.html>
- xxii Source: Annual Report 2014
- xxiii Source: <https://www.pcisecuritystandards.org/> and Keyware Annual Report 2014
- xxiv Source: <https://www.globalxfunds.com/whats-driving-fintechs-growth/>, <http://www.oecd.org/finance/Financial-markets-insurance-pensions-digitalisation-and-finance.pdf>
- xxv Source: <https://www.alacriti.com/real-time-payments-business-benefits>, <https://gomedici.com/overview-of-the-payments-industry/>, <https://www.prnewswire.com/news-releases/the-global-real-time-payments-rtp-market-is-estimated-to-grow-at-a-compound-annual-growth-rate-cagr-of-30-6-300755359.html>
- xxvi Source: <https://www.globalxfunds.com/whats-driving-fintechs-growth/>, <https://www.alliedmarketresearch.com/mobile-payments-market>, <http://www.oecd.org/finance/Financial-markets-insurance-pensions-digitalisation-and-finance.pdf>
- xxvii Source: <https://merchantmachine.co.uk/digital-wallet/>

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- xxviii Source: <https://medium.com/@artashesvardanian/6-reasons-why-millennials-adopt-consumer-end-fintech-solutions-ae73a16fb64b>
https://www.paymentscardsandmobile.com/wp-content/uploads/2018/11/Global-Payments-Report_Digital-2018.pdf
<https://merchantmachine.co.uk/digital-wallet/>
- xxix Source: <https://www.statista.com/statistics/444522/number-of-pos-terminals-belgium/>
- xxx Source: <http://blog.unibulmerchantservices.com/transaction-authorization-process/>,
<https://www.prnewswire.com/news-releases/authentication-services-market-to-grow-at-211-cagr-to-2022--reportsnreports-663599803.html>
- xxxi Source: <https://merchantmachine.co.uk/digital-wallet/>
- xxxii Source: <https://www.mordorintelligence.com/industry-reports/mobile-payment-market>
<https://www.globenewswire.com/news-release/2018/11/30/1659943/0/en/Global-Mobile-Payment-Technology-Market-Will-Reach-USD-3-371-Billion-By-2024-Zion-Market-Research.html>
- xxxiii Source: Mobile Payment 2019, PWC report
- xxxiv Source: <https://sellerzen.com/ecommerce-monthly-installments-solutions>, <https://www.keyware.com/split>
- xxxv Source: <https://razorpay.com/blog/tokenization-and-its-impact-on-online-payments/>, <https://www.prnewswire.com/news-releases/2-67-billion-tokenization-market---global-forecast-to-2023--300784939.html>
- xxxvi Source: <https://gomedici.com/overview-of-the-payments-industry/>
<https://learn.na.bambora.com/iot-payments/>
- xxxvii Source: <https://www.virtusa.com/perspective/application-of-artificial-intelligence-in-payment-processing/>
<https://www.fintechnews.org/the-critical-role-of-artificial-intelligence-in-payments-tech/>
- xxxviii Source: <https://www.gminsights.com/industry-analysis/blockchain-technology-market>
<https://gomedici.com/overview-of-the-payments-industry/>
- xl Source: <https://www.globenewswire.com/news-release/2019/01/30/1707681/0/en/Global-Mobile-Wallet-Market-Report-2017-2018-2026.html>
- xli Source: <https://www.globenewswire.com/news-release/2019/03/07/1749604/0/en/Global-Digital-Banking-Market-Will-Reach-USD-8-646-Million-By-2025-Zion-Market-Research.html>
- xlii Source: <https://home.kpmg/content/dam/kpmg/uk/pdf/2018/09/RegTech-revolution-coming.pdf>
- xliii Source: <https://assets.kpmg/content/dam/kpmg/xx/pdf/2019/02/the-pulse-of-fintech-2018.pdf>
- xliv Source: <https://www.consultancy.eu/news/2390/global-fintech-investment-more-than-doubled-to-112-billion>
- xlv Source: <https://assets.kpmg/content/dam/kpmg/xx/pdf/2019/02/the-pulse-of-fintech-2018.pdf>
- xlvi Source: <https://assets.kpmg/content/dam/kpmg/xx/pdf/2019/02/the-pulse-of-fintech-2018.pdf>
- xlvii Source: <https://assets.kpmg/content/dam/kpmg/xx/pdf/2019/02/the-pulse-of-fintech-2018.pdf>
- xlviii Source: <https://www.consultancy.eu/news/2390/global-fintech-investment-more-than-doubled-to-112-billion>
- xlix Source: <https://assets.kpmg/content/dam/kpmg/xx/pdf/2019/02/the-pulse-of-fintech-2018.pdf>
- l Source: <https://www.consultancy.eu/news/2390/global-fintech-investment-more-than-doubled-to-112-billion>
- li Source: Worldline Presentation December 2014 and Arrowhead Estimates
- lii Source: Bloomberg
- liii Source: Arrowhead Estimate
- liv Source: Bloomberg
- lv Source: Arrowhead Estimate
- lvi Source: Bloomberg, Respective Company Results

^{lvii} EBITDA includes EBIT, impairments (on receivables and inventory) and depreciation and amortization

^{lviii} Source: Bloomberg, Respective Company Results