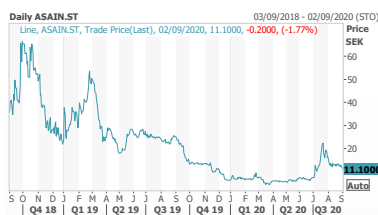


2 September 2020

Technology



Source: Refinitiv

Market data

EPIC/TKR	ASAI.SE
Price (SEK)	11.4
12m High (SEK)	31.3
12m Low (SEK)	4.2
Shares (m)	47.5
Mkt Cap (SEKm)	542
EV (SEKm)	674
Free Float*	30%
Market	Nasdaq First North

*As defined by AIM Rule 26

Description

Artificial Solutions is a leading global vendor of conversational artificial intelligence software to large multinational enterprises for their customer-facing activities and their internal operations. The company counts many of the largest enterprises in the world as customers. Similarly, partners include a number of large systems integrators and software vendors. Headquartered in Sweden, the company currently employs around 111 people.

Company information

CEO	Lawrence Flynn
CFO	Chris Bushnell
Chairman	Åsa Hedin

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www.artificial-solutions.com

Diary

29 Oct 2020	3Q'20 results
4 Feb 2021	FY'20 results

Analyst

Milan Radia	020 7194 7622
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ARTIFICIAL SOLUTIONS

Navigating well through the COVID-19 pandemic

Artificial Solutions' 2Q results confirmed high levels of resilience, posting YoY revenue growth of 22%. Within this metric, usage revenue continued to shine, up 80% YoY in 2Q, representing a six-fold increase in usage revenue over the past 12 months. The COVID-19 impact on order intake in the short term is perhaps to be expected, but major customer wins and partner additions continued during the period. Global enterprise focus on automation is strengthening (discussed further in this report), with systems integrators continuing to play a key role. In 2Q, 53% of revenue came via SI partners, up from 34% in the same period last year.

- **2Q sales up and contract wins:** Net sales rose 22% YoY to SEK15.4m, marginally ahead of 1Q. Order intake was SEK6.5m, reflecting the COVID-19 impact on activity. A major new customer win comprised a fresh food delivery company operating in 14 countries. BPO giant, Tech Mahindra, joined the partner roster.
- **Usage revenue continues to grow strongly:** Up 113% YoY, usage revenue represented 36% of 2Q net sales. As more customers move into production deployments and as transactions are processed through their Teneo platform deployments, usage revenue is scaling quickly.
- **Enterprises embracing digital:** The fundamental drivers of adoption of Artificial Solutions' conversational AI technologies have never been stronger as enterprises accelerate their digitisation programmes. This is reflected in acceleration in Artificial Solutions' qualified new business leads, up 58% in 2Q.
- **SI partner base a source of competitive advantage:** Comprising a tier 1 list of systems integrators, partners remain active in selling Teneo into the global enterprise market, with involvement in most large deals to date, and helping to access major opportunities in existing and new geographies / verticals.
- **Investment summary:** Artificial Solutions is acknowledged as a leading vendor in the global conversational AI market, with a deep portfolio of intellectual property, yet the company remains a relative minnow in market cap terms. Our DCF produces an equity implied fair value of €115m, while the most recent IP valuation analysis, undertaken in 2019, generated a patent valuation range of \$125m to \$153m.

Financial summary and valuation

Year-end Dec (€m)	2018	2019	2020E	2021E	2022E
Total income	6.1	6.5	10.4	15.5	21.5
Adjusted EBITDA	-9.8	-10.6	-5.3	0.3	4.5
EBITDA margin	-160%	-164%	-51%	2%	21%
EBIT	-11.6	-15.0	-6.5	-1.0	3.1
Pre-tax profit	-13.0	-17.2	-8.4	-2.8	1.5
Net income	-13.0	-17.2	-8.4	-2.8	1.5
EV/revenue (x)	10.1	9.5	5.9	4.0	2.8
EV/EBITDA (x)	-6.3	-5.8	-11.5	217.0	13.6
EV/EBIT (x)	-5.3	-4.1	-9.4	-58.8	20.0

Source: Hardman & Co Research

Investment highlights

Premium growth reflects leading technology

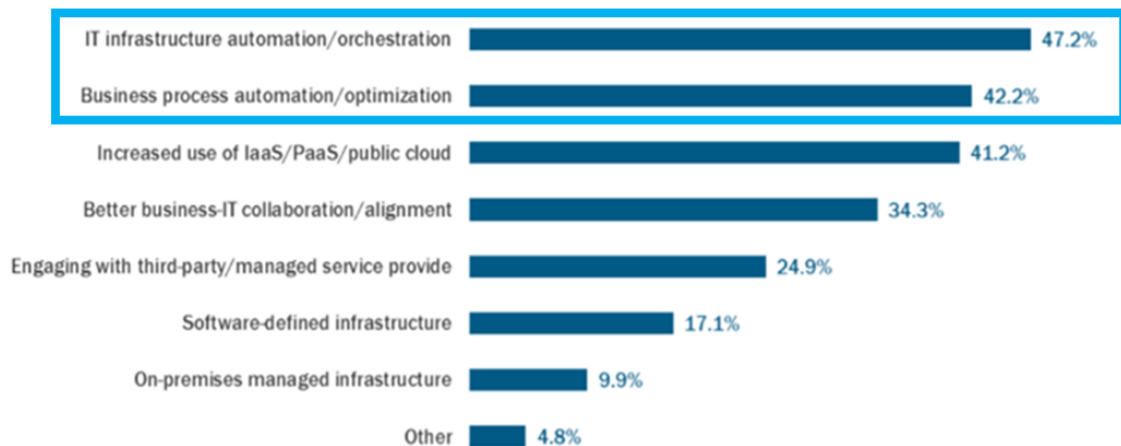
The continued premium revenue growth delivered by Artificial Solutions in 2Q'20 is testimony to the strength of the company's market position in the conversational Artificial Intelligence (AI) segment. Artificial Solutions is established as a leading global vendor of platforms that allow customers to deploy chatbots to automate customer service across multiple channels. Headquartered in Stockholm, Sweden, the company employs around 111 people across 12 international offices, including 50 experts in the areas of artificial intelligence, machine learning and linguistics. This expertise has allowed the company to build a highly scalable conversational AI platform (Teneo), which delivers high levels of performance in terms of resolving customer queries and is available in 36 languages.

Long-term trends are firmly intact

Conversational AI is a sweet spot in terms of enterprise digitalisation. In previous research reports on the segment, we have referenced "Hyperautomation", which is a term coined by Gartner to cover the broader theme of enterprises accelerating the automation of their business processes, including customer-facing functions. In fact, the COVID-19 pandemic has resulted in a step change in consumer and enterprise digitisation, as individuals and organisations adjusted to the technology requirements of working from home in a productive manner.

A variety of enterprise surveys conducted since the start of the pandemic have confirmed enhanced focus on infrastructure and process automation. The 451 Research survey is a good example in this regard, with more than 40% of respondents prioritising these initiatives within their IT spending budgets.

451 Research: Top IT Spending Priorities: Focus on Automation (n=566)



Source: 451 Research: Voice of the Enterprise: Digital Pulse, Budgets & Outlook 2020

Several other enterprise surveys have attracted similar responses, suggesting that the pandemic is prompting companies to seek out more resilient approaches to delivering continuity of customer service. It is evidently unsustainable for major telecoms and utilities providers, for example, to be unable to respond to customer enquiries at times of crisis.

Shorter-term impact of COVID-19

Despite the favourable secular drivers at work, a healthy dose of realism is required when considering the timescales over which these priorities will manifest in licence revenue traction for AI platform vendors such as Artificial Solutions. The current reality is that companies, governments and citizens alike are reeling from the impact of COVID-19. The scale of the impact of the lockdown and the extent of further lockdowns that may become necessary are unknowns today. The unprecedented GDP contractions reported in many major economies are causing a hiatus in spending decisions and resulting in reviews of enterprise budgets cast earlier in the year. The prevalence of people working from home combined with the summer recess are unhelpful in getting enterprise deals over the line to signature.

In this context, the resilience displayed by Artificial Solutions year to date is noteworthy. That said, the month of September and the early part of 4Q will be key periods in signalling the pace at which order intake can return to more normalised levels consistent with long term end-market trends. Management is relatively confident that sales cycles will start to come to fruition in 4Q, based on its current discussions with existing and prospective customers.

Usage revenue progressively coming to the fore

Usage revenue is a component of Artificial Solutions' revenue that we have repeatedly highlighted as being key to its future growth. Usage refers to the element of the pricing model for Teneo that is dependent on the number of sessions, transactions, connections or period of usage. The specific details will be agreed with each individual customer, together with the pricing structure that will apply.

Transaction fee structures are generally based on a volume-driven sliding scale. Examples of usage-based pricing arrangements that Artificial Solutions has in place with its customers include the following:

- ▶ **success-based:** some agreements are based around the number of successful interactions (i.e. does the automated chatbot resolve the customer's enquiry without requiring any manual intervention from a customer services member of staff);
- ▶ **number of sessions:** the number of different occasions on which customers contact the chatbot; and
- ▶ **interaction-based:** this is the most granular approach, whereby, within a session, the number of interactions that a customer has with the chatbot feeds into a pricing structure.

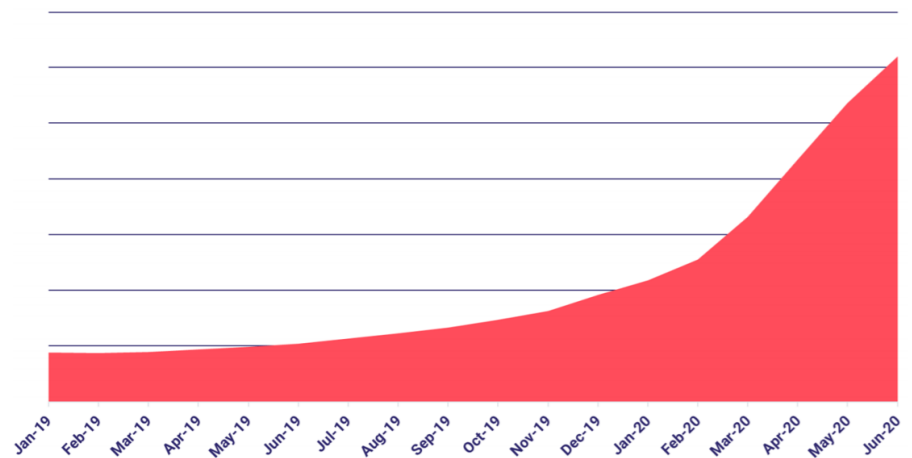
Each of these approaches will, of course, have differing unit pricing parameters, and discounts apply once volume thresholds are crossed. However, it should be readily apparent that, due to the complexity and differing nature of the various agreements, the correlation between usage volumes and usage revenue is not a direct one.

It should also be noted that only a limited portion of usage revenue will feature within backlog as the majority of usage revenue is currently paid in arrears by customers on the basis of actual reported transaction volumes processed through the Teneo platform. As deployments mature, a growing number of customers are expected to purchase blocks of transactions in advance, which will be included in contracted backlog.

Consistent with the key role that usage revenue will play in the financial performance of the company going forward, a new guidance metric was introduced earlier in the year – usage revenue is expected to represent at least 80% of total net sales by the end of 2022.

This guidance is inherently customer-driven and based on the run rates being seen for live production deployments of Teneo at major customers. In order to provide data that offers an insight into usage trends, the chart below has been included in the company's recent earnings presentations. Management notes that these metrics are an amalgamation of the different ways in which customers classify usage (and only transactions for customers on usage-based contracts are included), so a degree of interpretation has been required. However, the underlying trend is unambiguous. Importantly, the steep trajectory is expected to continue during the balance of FY'20.

Artificial Solutions – 12-month total interactions for usage-based customers



Source: Company data

RPA partnerships yet to be exploited

One of the most significant revenue opportunities awaiting Artificial Solutions, in our view, is the addressable market comprising enterprises that have adopted Robotic Process Automation (RPA) technologies from vendors such as UI Path and Blue Prism. Artificial Solutions has entered into partnerships with these and other RPA vendors.

The opportunity to partner is beneficial to both Artificial Solutions and the RPA providers. The RPA vendors are striving to capture more automated conversations at the front end of business processes, in turn driving more transaction flow through their process platforms. There is an obvious interface between a chatbot and an RPA engine, whereby the chatbot feeds inputs into the RPA engine. AI is becoming an integral element of RPA solutions in order to inject more intelligence into the process automation, in turn allowing more complex processes to be automated.

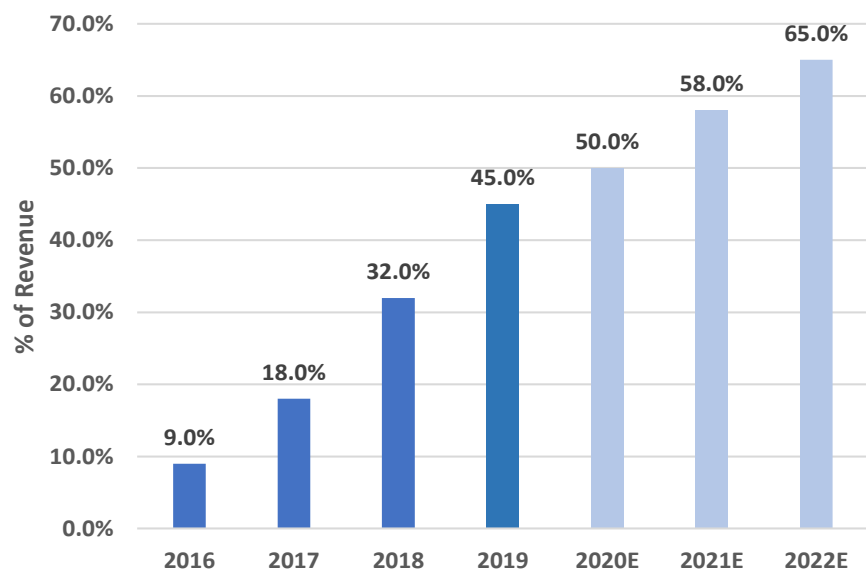
RPA has been widely deployed across a range of processes, serving to create a customer base into which Teneo can be sold, driven by Artificial Solutions' base of systems integrator partners. The latter have cultivated extensive process automation practices, recognising the secular adoption trends at work. A key attribute of the Teneo Fusion module, which was launched in 2019, is easier integration with RPA platforms.

While the early results of Artificial Solutions' RPA partnerships are likely to have been interrupted by the pandemic, the longer-term opportunity here is likely to be very substantial and consistent with the company's focus on serving multinational enterprises.

Partner adoption is acknowledgement of Teneo leadership

The extent to which Artificial Solutions punches above its weight is notable. Despite being a small provider in terms of headcount, revenue and market capitalisation, the company has achieved widespread recognition for the quality of its technology. The broad range of partner relationships that have been created is testimony to the proven attributes of Teneo. Importantly, these are active and productive partner relationships as evidenced by the consistent growth in the partner share of net sales, which was 53% in 2Q, comfortably ahead of our estimate for 2020. As we come on to discuss, this shift is having a material favourable impact on gross margin.

Artificial Solutions – share of net sales from partners



Source: Company data

The newest partner addition is Tech Mahindra, which is an Indian IT services and business process outsourcing (BPO) provider. The company has more than 125,000 employees across 90 countries, and for FY'20, total revenue in excess of US\$5bn. Tech Mahindra's BPO focus potentially makes the relationship with Artificial Solutions larger than other integrator partnerships. We can envisage a scenario in which Teneo is knitted into the core BPO platform on which Tech Mahindra delivers its BPO services, in turn creating substantial incremental usage revenue for Artificial Solutions. However, our understanding is that at this early stage in the partnership, no decisions have been made.

Industry analyst recognition

There has also been recognition by industry analysts. In January 2020, Ovum, a leading technology industry analysis provider, recommended Artificial Solutions as a market leader for Intelligent Virtual Assistant solutions. Ovum deems Teneo's innovative technology to be best-of-breed, highlighting the hybrid approach of combining machine learning with a native understanding of language itself.

In 2018, ETR Research published the results of its survey of approximately 700 enterprise CIOs from companies that it calculated represented ca.\$300bn in annual IT spend. Of these participating companies, 229 were in the top Global 2000 IT decision makers (ITDMs), and 66 were in the Fortune 100. The overlap between these enterprises and Artificial Solutions' target market, therefore, is significant. Artificial Solutions was ranked third among all "emerging technology companies to keep an eye on" and, perhaps even more significantly, was deemed to be the best-positioned company in its sector.

New patent application

In mid-August 2020, Artificial Solutions announced a patent application for its newly developed technology that allows multiple chatbots with different architectures to be readily integrated in order to work together. A noteworthy capability of the platform is being able to assess the suitability of the various chatbots deployed in an enterprise to answer particular customer queries. This assessment is based on each chatbot's relative sophistication in terms of depth of knowledge and ability to address more complex scenarios. These developments are consistent with establishing Artificial Solutions as the core platform on which the conversational AI strategy of the enterprise client is evolved to encompass more business functions, both internal and external.

Extensive patent portfolio

Artificial Solutions' issued patent portfolio consists of six patents, all of which are relatively recent, with publication dates ranging between 2013 and 2018, and all are geographically limited to the United States.

The table below, sourced from OxFirst, provides further details of the six issued patents, and sets out information that is key to the evaluation of patents, including claims count and forward and reverse citations. OxFirst notes that the patents relate primarily to natural language interaction and natural language processing, forms of AI that allow humans to interact with computerised applications and electronic devices in free-format, natural language, using speech, text, touch or gesture.

Overall, the patent portfolio has 177 forward citations (when considering only the granted versions, where possible), 53 claims and 30 reverse citations. OxFirst ascribes considerable importance to the first patent, which was published in 2013 and is deemed to be the "core patent", as it is important to more than 100 other patents from key vendors in the natural language processing and related segments. The core patent accounts for 133 of the total forward citations, of which seven are worldwide. Microsoft is the largest source of these citations, at 21. The second patent had been cited 27 times by Apple at the time the analysis was undertaken.

Artificial Solutions – patent portfolio

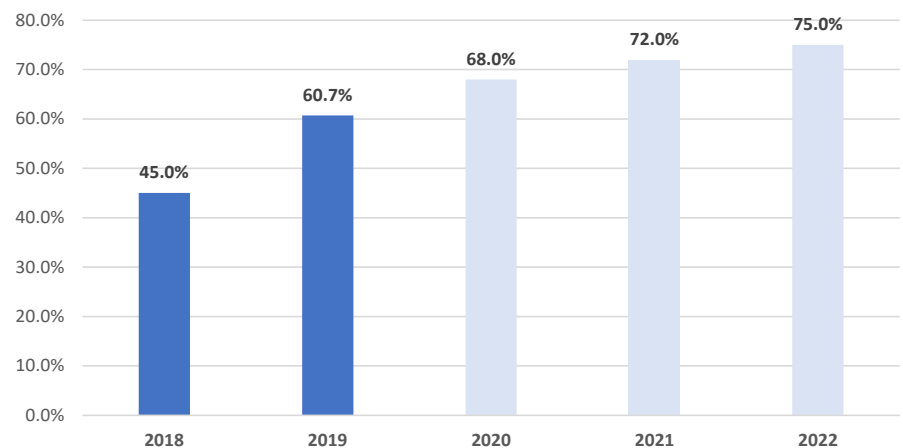
Patent Number	Published	Claims Count	Reverse Count	Forward Count	Keywords
US8346563B1 ⁶	01/01/2013	3	6	133	Natural Language, Virtual Assistant, Interaction
US20130268260A1	10/10/2013	2	5	76	NL, VA, User Interface, Analytics Framework
US8892419B2	18/11/2014		6	21	
US20140019116A1	16/01/2014	2	5	38	NL, VA, User Interface, Analytics Framework
US8903711B2	12/02/2014		6	15	
US20140244712A1	28/08/2014	6	5	54	VA Network, VA brokers, connected-devices
US9172747B2	27/10/2015		5	5	
US20150339376A1	26/11/2015	20	2	2	NL Analytics, Data Analytics, Machine Learning
US20180089572A1	29/03/2018	20	0	0	NL, Machine Learning, User-provided, Hybrid
US10068174B2	04/09/2018		5	1	

Source: OxFirst

Gross margin continues to trend upwards

The margin benefit of Artificial Solutions migrating away from delivering services has already been emphatic. The 2Q'20 gross margin came in at 69%, consistent with the consistent uplift in revenue generated by systems integrator partners. Further upside is anticipated, as reflected in management guidance of a gross margin in excess of 70% by 2020, which now appears to be quite conservative. The gross margin associated with backlog is 82%, with over half of the backlog due to be recognised in the current year.

Artificial Solutions – gross margin trends



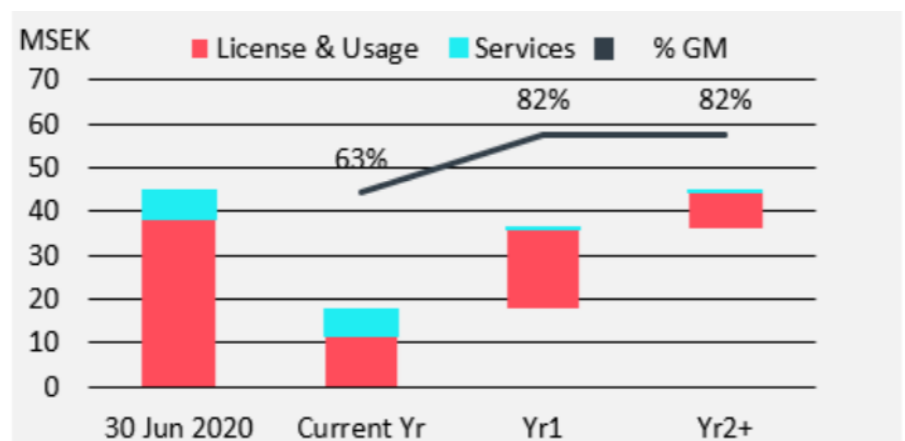
Source: Hardman & Co., Company data

Order intake and backlog

The company continues to expect growth to exceed the overall growth of the natural language processing market segment over the medium term. While 2Q saw a lower-than-expected level of order intake, a number of transactions that fell beyond the end of 2Q have since been closed, lending some support to the 3Q outturn.

The weaker order intake in 2Q resulted in a modest reduction in backlog to SEK44.6m, from SEK50.7m in the prior year as summarised in the chart below.

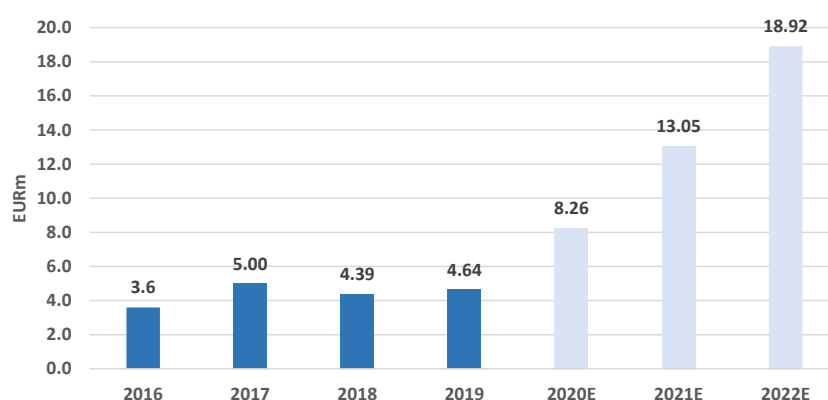
Artificial Solutions – 2Q'20 order backlog as at end-June 2020



Source: Company data

However, as noted earlier, 3Q is typically seasonally quiet, an issue that has been exacerbated in the current quarter by lockdowns across most of the company's key markets.

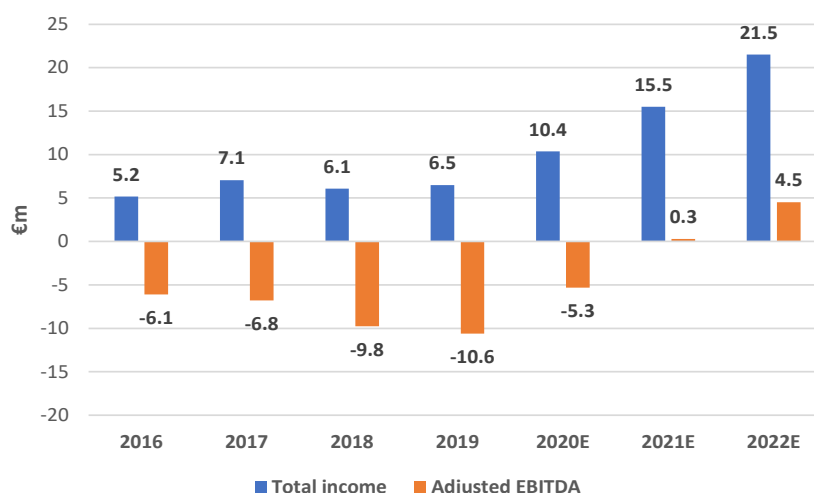
Nonetheless, we are not changing our FY'20 forecasts until we have a sense for the scale of the bounce back in activity in late-3Q and 4Q.

Artificial Solutions – net sales


Source: Company data

The net sales figures exclude capitalised costs and other operating income. The capitalised R&D element will vary between quarters and will depend on the nature of the R&D being undertaken. Research into new products is typically not capitalised, whereas development of new products (that are expected to yield revenue over a period of time) is a cost element that is capitalised.

Other operating income (SEK0.6m in 2Q) generally includes R&D tax credits when applicable, and in the current period includes government support funding received in Sweden, where the company is headquartered.

Artificial Solutions – total income and adjusted EBITDA


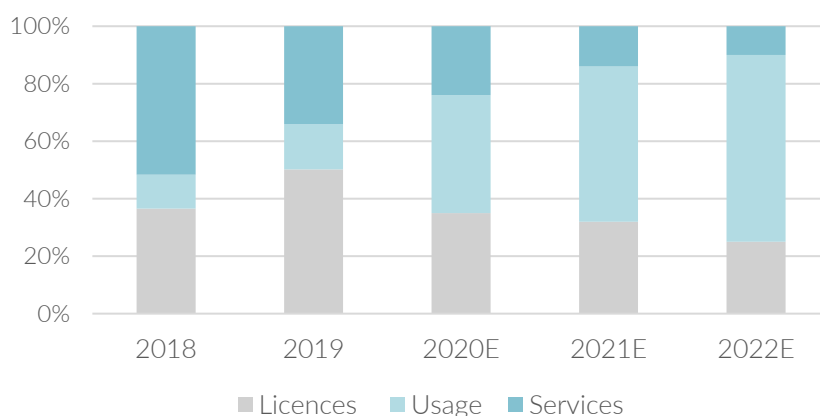
Source: Company data

The revenue mix has been trending towards licences over the past three years. As we have noted, since completing the initial development of the core Teneo platform in 2013, the company has focused on reducing its proportion of services revenue through engaging with partners to sell and implement its Teneo platform. The benefits to Artificial Solutions of this shift have included significantly enhanced margins and improved revenue scalability.

Going forward, the revenue mix is expected to shift significantly in favour of usage revenue, as discussed earlier in this report. As noted, for FY'22, we are forecasting 65% of total reported revenue from usage (i.e. transactions processed through the

customer applications built on Teneo). This compares with 12% of total revenue comprising usage fees in 2017. It is noteworthy that our 65% forecast for usage revenue is lower than the 80% metric cited by Artificial Solutions, but we also note that this guidance refers to 80% by the end of 2022, implying a 4Q'20 run rate of 80% rather than 80% of total revenue reported for FY'20.

Artificial Solutions – revenue mix



Source: Company data

Profit and loss

Artificial Solutions – profit and loss account

Year-end Dec (€m)	2017	2018	2019	2020E	2021E	2022E
Income						
Net sales	4.95	4.39	4.64	8.26	13.05	18.92
Capitalised costs	0.87	1.19	1.14	1.20	1.27	1.30
Other operating income	1.23	0.52	0.70	0.91	1.18	1.30
Total income	7.06	6.09	6.48	10.37	15.50	21.52
Operating expenses						
Other external costs	-4.28	-5.02	-7.18	-3.63	-3.41	-3.23
Personnel costs	-9.57	-10.33	-11.13	-10.99	-10.85	-12.91
Other operating expenses	0.00	0.00	-2.13	-1.06	-0.96	-0.86
Total operating expenses	-13.85	-15.35	-20.43	-15.68	-15.22	-17.00
EBITDA (reported)	-6.79	-9.26	-13.95	-5.32	0.28	4.52
Adj. EBITDA, excl. capitalised costs	-6.79	-9.76	-10.61	-5.32	0.28	4.52
Depreciation & amortisation	-2.64	-2.32	-1.09	-1.20	-1.32	-1.46
EBIT (reported)	-9.44	-11.58	-15.05	-6.52	-1.04	3.06
Adj. EBIT, excl. capitalised costs	-9.44	-12.08	-11.70	-6.52	-1.04	3.06
Net financial income	-1.49	-1.44	-2.11	-1.90	-1.71	-1.54
Pre-tax profit	-10.93	-13.02	-17.16	-8.42	-2.75	1.52
Adj. PTP, excl. capitalised costs	-10.93	-13.52	-13.81	-8.42	-2.75	1.52
Taxation	0.00	0.00	0.00	0.00	0.00	0.00
Net income	-10.93	-13.02	-17.16	-8.42	-2.75	1.52

Source: Company data, Hardman & Co Research

Balance sheet

Artificial Solutions – balance sheet					
@ 31 Dec (€m)	2018	2019	2020E	2021E	2022E
Assets					
Fixed intangible assets					
Capitalised expend. for licences & software	2.9	3.0	3.2	3.2	3.2
Goodwill	0.0	0.0	0.0	0.0	0.0
Total intangible assets	2.9	3.0	3.2	3.2	3.2
Fixed tangible assets					
Equipment, furniture & fittings	0.2	0.2	0.3	0.4	0.6
Total tangible fixed assets	0.2	0.2	0.3	0.4	0.6
Total fixed assets	3.0	3.2	3.4	3.7	3.9
Other non-current receivables	0.5	0.5	0.5	0.5	0.5
Total non-current assets	3.6	3.7	3.9	4.2	4.4
Current assets					
Accounts receivable – trade	0.6	0.9	1.0	1.3	1.5
Tax receivable	0.9	1.2	1.2	1.2	1.2
Other receivables	0.3	0.2	0.3	0.3	0.3
Prepaid expenses & accrued income	0.5	0.7	0.9	1.0	1.2
Total current receivables	2.2	3.1	3.4	3.8	4.3
Cash & bank balances	4.6	0.4	4.5	4.3	7.4
Total current assets	6.8	3.5	7.9	8.1	11.7
Total assets	10.4	7.2	11.8	12.3	16.0
Equity & liabilities					
Equity					
Share capital	3.6	4.2	6.0	6.0	6.0
Share premium reserve	75.6	106.8	115.4	115.4	115.4
Other equity, including result for year	-87.6	-129.3	-137.7	-140.5	-138.9
Total equity	-8.4	-18.2	-16.3	-19.1	-17.6
Long-term liabilities					
Liabilities to other lenders	5.1	10.2	10.2	10.2	10.2
Total long-term liabilities	5.1	10.2	10.2	10.2	10.2
Current liabilities					
Liabilities to other lenders	9.1	11.2	11.2	11.2	11.2
Accounts payable – trade	0.4	0.6	1.0	1.6	2.4
Other liabilities	0.3	0.4	0.4	0.4	0.4
Accrued expenses & deferred income	3.9	3.1	4.7	7.1	8.1
Total current liabilities	13.7	15.3	18.0	21.2	23.4
Total equity & liabilities	10.4	7.2	11.8	12.3	16.0

Source: Company data, Hardman & Co Research

Cashflow

Artificial Solutions – cashflow statement					
Year-end Dec (€m)	2018	2019	2020E	2021E	2022E
Operating loss	-11.58	-15.05	-6.52	-1.04	3.06
Depreciation	2.32	1.09	1.20	1.32	1.46
Other items excluded from cashflow	0.03	3.60	0.00	0.00	0.00
Adjusted operating loss	-9.23	-10.36	-5.32	0.28	4.52
Net financial income	-1.44	-2.11	-1.90	-1.71	-1.54
Taxation paid & received	0.00	0.30	0.00	0.00	0.00
Op. cashflow before working capital changes	-10.67	-12.17	-7.21	-1.43	2.98
Changes in working capital					
(Increase)/decrease in receivables	-1.96	-0.81	-0.34	-0.41	-0.49
Increase/(decrease) in liabilities	0.82	-0.49	2.01	2.95	1.79
Net change in working capital	-1.14	-1.30	1.67	2.55	1.31
Cashflow from operating activities	-11.81	-13.46	-5.54	1.12	4.29
Investing activities					
Purchases of tangible fixed assets	-0.09	0.17	0.22	0.28	0.36
Purchases of intangible fixed assets	-1.24	-1.40	-1.47	-1.54	-1.62
Change in fixed assets	0.00	0.00	0.00	0.00	0.00
Cashflow from investing activities	-1.33	-1.23	-1.25	-1.26	-1.26
Financing activities					
Issue of new shares	12.82	5.00	10.91	0.00	0.00
Costs of new share issues	-0.35	-0.93	-0.60	0.00	0.00
Issue of new non-registered shares	0.00	0.00	0.00	0.00	0.00
Change in loans	4.68	7.11	0.00	0.00	0.00
Cashflow from financing activities	17.15	11.18	10.31	0.00	0.00
Net change in cash & cash equivalents	4.01	-3.52	3.51	-0.14	3.03
Cash & cash equivalents at start of year	0.49	4.50	0.98	4.49	4.35
Cash & cash equivalents at end of year	4.50	0.98	4.49	4.35	7.38

Source: Company data, Hardman & Co Research

Valuation

DCF analysis produces implied fair enterprise value of €128m and equity implied fair value of €116m

Our approach to understanding the potential valuation of Artificial Solutions centres on a DCF analysis. At the same time, we take account of a detailed valuation of the company's intellectual property (IP) assets in the form of patents and software licences.

In summary, our DCF analysis produces an implied fair enterprise value of €127m and an equity implied fair value of €115m, while the most recent IP valuation analysis, undertaken in 2019, generated a patent valuation range of between \$125m and \$153m. These valuation outcomes compare with the current enterprise value of ca.€61m (SEK674m) and market capitalisation of ca.€50m (SEK542m).

DCF valuation

On our base assumptions, which are set out in their entirety in the table below, we derive, as noted, an implied enterprise value for the company of €127m, which, after the current net debt position of ca.€12m, equates to an equity value of €115m. In Swedish Krona, the implied equity fair value is SEK1,276m, which compares with the company's current market capitalisation on the NASDAQ First North Exchange in Stockholm of SEK542m.

Artificial Solutions – Hardman & Co DCF analysis

Key inputs

Terminal FCF growth rate	3.0%
Long-term sustainable EBIT margin	35.0%
Long-term tax rate on EBIT	20.0%
WACC	10.0%

Y/end December, €m	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	Terminal value
Revenues	10.4	15.5	21.5	28.0	35.5	44.4	53.3	59.7	62.7	
yoy growth	2.7%	49.5%	38.8%	30.0%	27.0%	25.0%	20.0%	12.0%	5.0%	
EBIT margin	-62.9%	-6.7%	14.2%	7.5%	12.8%	18.0%	23.5%	29.0%	35.0%	
EBIT	-6.5	-1.0	3.1	2.1	4.5	8.0	12.5	17.3	21.9	
Depreciation & amortisation	-1.2	-1.3	-1.5	-1.5	-1.6	-1.7	-1.8	-1.9	-2.0	
Adj. EBITDA	-7.7	-2.4	1.6	0.6	2.9	6.3	10.7	15.4	19.9	
Tax rate	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	10.0%	15.0%	20.0%	
Tax on EBIT	0.0	0.0	0.0	0.0	0.0	-0.4	-1.3	-2.6	-4.4	
Change in net working capital	1.7	2.5	1.3	0.9	0.6	0.4	0.3	0.2	0.2	
Cashflow from operations	-6.1	0.2	2.9	1.5	3.6	6.3	9.8	13.0	15.7	
Capex	-1.3	-1.3	-1.3	-0.7	-0.2	0.4	0.9	1.5	2.0	
Unlevered free cash flow	-7.3	-1.1	1.7	0.8	3.4	6.7	10.7	14.5	17.7	252.9
Year	1	2	3	4	5	6	7	8	9	10
Discount factor	1.10	1.21	1.33	1.46	1.61	1.77	1.95	2.14	2.36	2.36
Present value	-6.6	-0.9	1.2	0.5	2.1	3.8	5.5	6.8	7.5	107.3

Note: based on medium-term assumptions from 2023E

Implied valuation metrics	EURm
Sum of 9-year cash flow	19.8
Terminal value	107.3
Value of the firm	127.1
Net funds	-12.0
Total equity value	115.1
No. of shares in issue (m)	43.2
Fair value share price (EUR)	2.7
€:SEK exchange rate	11.0
Fair value share price (SEK)	29.3

Source: Hardman & Co Research estimates

Patent valuation range of \$125m to \$153m, derived by independent valuation specialist OxFirst

IP asset valuation

The patent portfolio was revalued during 2019 by OxFirst, an independent valuation specialist.

The valuation conclusions reached by OxFirst are set out in the table below. OxFirst reaches these using a combination of two approaches: net present value and a “top-down approach”, the latter noted to be specific to patent valuation and a methodology that is stated to be used in legal matters relating to patents. Taking into account the value of the licensing opportunity and Artificial Solutions’ software platform market opportunity, OxFirst derives a valuation range of \$125m to \$153m, which, at the mid-point, represents a 44% uplift vs. the valuation reached in 2016.

OxFirst's 2019 patent valuation for Artificial Solutions				
(\$m)	Basis	Upper	Lower	2016 valn.
Patents	Overall market opportunity	100.6	77.3	56.4
Software	Artificial Solutions' market opportunity	52.3	47.3	40.2
Total		152.9	124.6	96.6

Source: OxFirst, Hardman & Co Research

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