HARDMAN & CO.

3 May 2021

ARTIFICIAL SOLUTIONS

Customer acquisition acceleration in prospect

The arrival of the new CEO, Per Ottosson, and the new CFO, Fredrik Törgren, was accompanied by a series of strategic decisions seeking to accelerate new customer acquisition and significantly reduce costs. The strategic shift away from professional services was fully executed as part of the restructuring. 1Q'21 results and management commentary confirm a positive market response to the new recurring revenue model, especially the significant signed contracts and further prospective wins. The company's technology remains market-leading at a time when enterprises are emphatically seeking to automate business processes.

- Our updated revenue forecasts post 1Q'21 results suggest strong growth ahead. The announcement of contract wins with a large US tech company and Telefónica Deutschland/O2 under the new model are highly positive indicators, especially given the scope for high transaction volumes from each.

- The Cloud version of the core AI chatbot platform, Teneo, is built on Microsoft Azure and is designed to work seamlessly alongside the Microsoft suite of cognitive services tools. Adding a sophisticated chatbot platform to Microsoft LUIS and selling this in the Azure Marketplace should unlock customer wins.

- The transition from upfront licences to recurring revenue would typically imply a period of flat revenue as revenue from new deals is deferred. However, a number of existing customers are busy expanding their deployments, in turn generating usage revenue growth; this momentum will support FY'21 revenue.

- The path to breakeven for the business is now clearer, following a series of measures to remove unproductive operations and streamline headcount, which has been reduced from ca.113 at end-2019 to ca.70. We forecast EBITDA breakeven in FY'22 followed by strong EBITDA margin expansion in FY'23.

- **Investment summary**: Artificial Solutions has demonstrated technology leadership by the major deployments achieved to date combined with a long list of tier systems integrators, which have tested and approved the Teneo platform. The company continues to trade at a significant discount to the value of its patent portfolio of ca.$140m. Our DCF model suggests a fair value market value of €160m (SEK1,620m) compared with the current market value of €48m (SEK490m).

Financial summary and valuation

Year-end Dec (€m)	2019	2020E	2021E	2022E	2023
Total income	4.6	5.1	7.2	13.8	28.9
Adjusted EBITDA	-10.6	-7.4	-1.6	4.1	18.5
EBITDA margin	-229%	-145%	-22%	30%	64%
EBIT	-15.0	-9.9	-3.9	1.6	15.8
Pre-tax profit	-17.2	-15.4	-8.9	-2.9	11.7
Net income	-17.2	-15.4	-8.9	-2.9	11.7
EV/revenue (x)	13.4	12.2	8.6	4.5	2.2
EV/EBITDA (x)	-5.9	-8.4	-39.3	15.0	3.4
EV/EBIT (x)	-4.1	-6.3	-15.8	39.0	3.9

Source: Hardman & Co Research

Technology

Source: Nasdaq OMX Nordics

Market data

EPIC/TKR	**ASAI.SE**
Price (SEK)	**9.9**
12m High (SEK)	31.3
12m Low (SEK)	4.2
Shares (m)	49.4
Mkt Cap (SEKm)	489
EV (SEKm)	630
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 70 people.

Company information

CEO	Per Ottosson
CFO	Fredrik Törgren
Chairman	Åsa Hedin

+46 8 663 5450
www.artificial-solutions.com

Diary

10 Aug	2Q'21 earnings
28 Oct	3Q'21 earnings

Analyst

Milan Radia 020 3693 7075
mr@hardmanandco.com

Investment highlights

The change in approach at the company under the new management team is emphatic – the intention is to operate as an innovative and agile software-as-a-service (SaaS) business with a non-hierarchical structure and a focus on expansion of the customer base. A seat-based monthly pricing model, a new LUIS^Teneo Cloud application built on Microsoft Azure, close integration with the Microsoft suite of cognitive tools and clarity with respect to the role of partners are all initiatives designed to increase revenue traction after a prolonged period of relatively flat revenue. Ordinarily, a shift away from upfront licence to recurring revenue would result in a flatter revenue profile. However, existing Teneo customers are generally expected to remain on traditional contracts and many are expanding their deployments and/or seeing escalating usage revenue, in turn, supporting revenue during the transition.

The company's technology leadership and platform scalability are not really in doubt given the large-scale deployments with global enterprises, many of which are expanding the scope and depth of their implementations of Artificial Solutions' Teneo platform. Systems integrators (SIs) typically evaluate third-party technologies rigorously before recommending and implementing in client environments. Deloitte, Cognizant, EY, CSG and Tech Mahindra are examples of SIs that are actively engaged with Artificial Solutions.

The moves to realign the cost base combined with the shift in revenue model conducive to onboarding new customers at an accelerated rate are undoubtedly sensible moves for a smaller vendor such as Artificial Solutions, for which lengthy sales cycles and proof-of-concept phases are uneconomical. A clearer path to breakeven can only be helpful to investor confidence and for the company's discussions with respect to debt refinancing.

Seeking growth acceleration

The past six or so months have seen extensive changes within Artificial Solutions, including the appointment of a new management team with extensive experience of scaling software businesses. A stated primary focus of the new team is to strengthen channel partnerships, develop strategic alliances and expand the international sales presence to accelerate growth.

In recent years, Artificial Solutions has made strong progress with respect to evolving the technology platform, establishing an exceptional roster of systems integrator partners and securing a number of full production deployments of the Teneo platform. However, the pace at which this has translated into revenue growth has been modest with total annual net sales exhibiting a flat profile over the past few years. While a shift away from professional services was taking place within this overall revenue trends, nonetheless, the timing of an upward step change in revenue was unclear. Continued weak order intake in 2020, albeit affected by the pandemic, was also a function of prospective customer aversion to high upfront licence fees.

Shifting to a recurring licence fee model

The new management team has responded with a pronounced shift in the business model away from perpetual licences towards a recurring revenue model. The aim is to remove the initial barriers to adoption of Artificial Solutions' Teneo platform, which will increasingly be delivered "as-a-service". These strategic moves are consistent with the broader evolution of the software industry, with subscription and recurring licence fee models having become prevalent in the enterprise segment, even for non-SaaS delivery models and across the size spectrum of enterprises.

It is difficult to argue with the strategic logic of removing the upfront licence fee hurdles for customers seeking to implement Teneo with a view to testing whether it is able to deliver the promised return on investment. We will return to revenue comparisons between the two models later in this report, but the lifetime values of customers and the profile of usage-based revenues should be similar after five years and should ultimately be greater for the recurring model. Although there is an implied flattening of revenue in the shorter term by deferring licence fees that would have previously been recognised upfront, the impact for Artificial Solutions is mitigated by the following factors:

1) The existing customer agreements and terms will remain intact; migrating existing customers to the new model is not seen as a priority and most are expected to remain on existing arrangements unless they are actively undertaking a transition to cloud applications on a broader basis.

2) A number of existing customers are actively expanding their Teneo deployments to cover additional segments and geographic markets. We describe some case studies later in this report, but the momentum in usage revenue growth is expected to remain strong, in turn supporting group revenue during the revenue model transition despite the shift in revenue recognition approach for usage revenue announced alongside the 1Q'21 results.

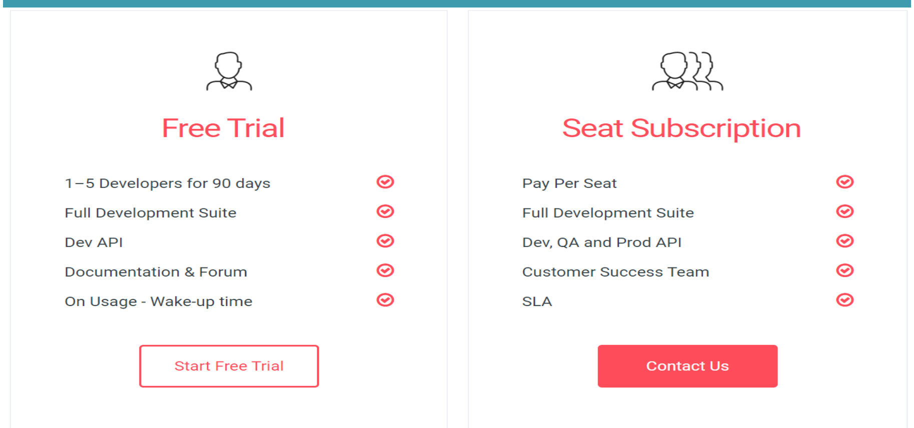
3) The revenue profile of the company has, in any case, been fairly flat over the past three to four years, reflecting the difficulties the companies has experienced in building on the levels of annual licence fees.

Seat-based pricing

The majority of revenue from the new pricing and revenue model over the next 12 to 24 months is expected to be related to the Teneo Developer Suite, which includes the LUIS^Teneo modules. The engagement model commences with a free trial lasting up to 90 days, during which clients can trial the full development suite and APIs. Thereafter, the pricing is seat-based with a base fee typically covering a set number of seats.

The free trial stage applies to all of the Teneo development modules including the LUIS^Teneo offering that was recently launched. As we discuss in a later section on churn assumptions, the free trial period should play an important role in reducing the impact of churn.

Artificial Solutions – New seat-based subscription model



Source: Company data

Two major wins under new model have already been announced

Our discussions with management indicate a high level of conviction on its part that these strategic shifts were the right steps for the business. In terms of assessing the effectiveness of the new revenue model, new customer acquisition seems to us to be a primary metric to observe. Lowering the entry cost for the initial implementation is expected to accelerate penetration of the Teneo platform. Certainly, the underlying trends with respect to chatbot adoption by enterprises as part of a broader trend in favour of automation are highly positive. That said, our initial overall assumption had been that, despite the favourable customer response to the new model, meaningful sales momentum under the new pricing model would not be seen until 2H'21E, reflecting a relatively brief period of adjustment.

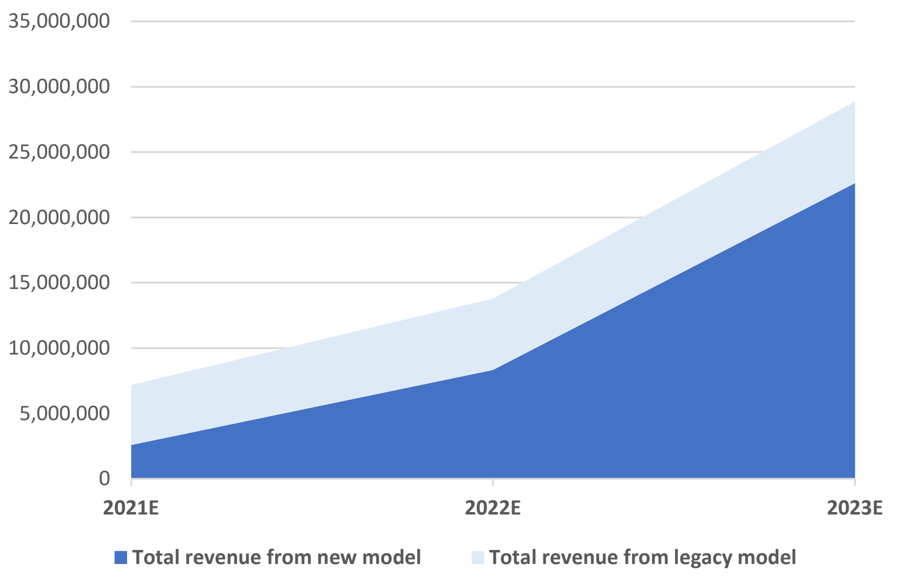
However, two major customer wins under the new model have already been secured and represent highly positive developments. The first of these was signed just after the end of 1Q'21 – it is noteworthy that the customer is a large North American technology company, which has selected Artificial Solutions' new LUIS^Teneo runtime and development environment, running on Microsoft Azure. The solution will support both chat and voice customer channels. The initial value of the agreement is SEK650,000 (ca.€65,000) p.a. in recurring subscription revenue – Artificial Solutions' management notes the scope for this customer to generate, over time, 2.5m API calls (i.e. usage transactions) per month, resulting in projected annual recurring revenue (ARR) of SEK6.2m (ca.€600,000) by the third year of the contract.

The second contract win was announced on 30 April 2021, and is another large contract with Telefónica Deutschland/O2, one of the leading German integrated telecoms providers, which has entered into a three-year contract for the German market, initially catering for the German and Turkish languages. This contract is again for the new LUIS^Teneo runtime and development environment, running on Microsoft Azure.

In the Financials section, we discuss the implications of this type of contract further; however, suffice to say, from a cumulative recurring revenue perspective, this is a compelling example of an early contract win under the new model.

Nonetheless, overall, we would anticipate an intensive period of dialogue with systems integrator and other partners, which will welcome the move by Artificial Solutions to fully hand over the services elements of engagements with enterprise customers to partners. The pace at which the new revenue becomes dominant within the revenue mix is expected to be relatively accelerated, as set out in the chart below. The revenue share of the new recurring revenue model is expected to grow from 36% of total net sales in FY'21 to almost 80% by FY'23.

Artificial Solutions – Revenue from new and legacy models 2021-23E (€)



Source: Hardman & Co Research

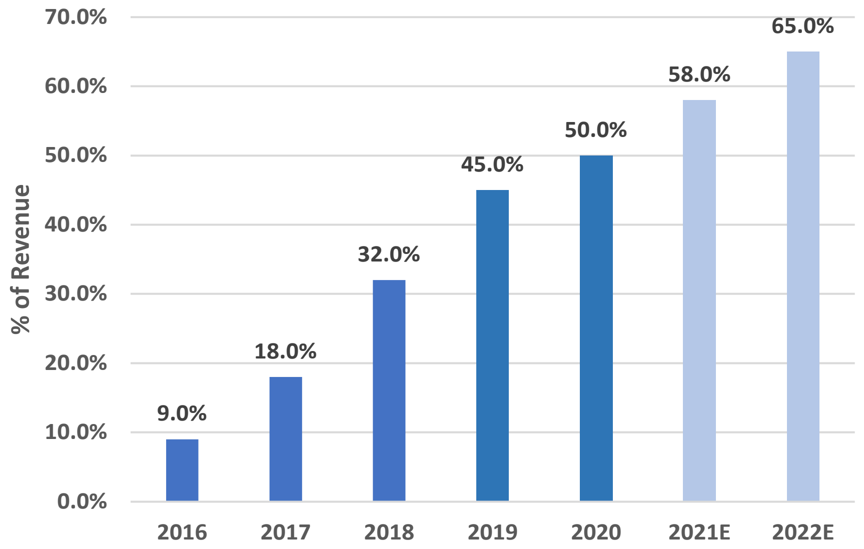
Full reliance on partners for services

Moving away from in-house delivery of Professional Services in favour of leaving implementation and related services to systems integrator partners has been a strategic imperative for the company for several years. While strong progress has been made in terms of building the partner base and the partner contribution to order intake, significant services headcount, until recently, has remained in place within Artificial Solutions. This shift has been accelerated under the new management team, with 22 heads in this segment reduced to five. The latter have been tasked with supporting partners and customer projects to help them make faster progress.

The growing adoption of chatbot platforms such as Teneo is part of a wider enterprise focus on Enterprise Automation, which can entail a relatively complex migration of business processes on to automated platforms, including robotic process automation (RPA) platforms (supplied by the likes of Blue Prism and UI Path). The systems integrators are well placed to manage the integration requirements and to advise on platform selection. In this respect, it is notable that Artificial Solutions continues to attract strong recognition from partners for the depth and scalability of its Teneo technology despite being a relative minnow in a wider industry context.

Albeit in the context of a modest revenue base, the partner share of Artificial Solutions' net sales has grown consistently over the past few years as set out in the chart below. With the company now fully reliant on third-party implementation, there is an even greater incentive for partners to drive sales of Teneo. One other aspect that is noteworthy is the growing focus of Teneo as an add-on to Microsoft LUIS deployments, which we discuss in more detail in a subsequent section.

Artificial Solutions – Share of net sales from partners



Source: Company data, Hardman & Co Research

Realigning the cost base

Over the past few years, the cost base has been configured for a business with a much higher revenue profile versus what was actually delivered in 2019 and 2020 based on weak order intake trends. Examples of higher-cost endeavours included the opening of new offices in Asia, adding to the large number of existing locations. These types of initiatives remained at odds with a software business yet to achieve EBITDA breakeven. While it could be argued that the long-term growth potential of the market lent itself to high levels of investment to exploit the opportunity, for Artificial Solutions, the ongoing losses had, in our view, been impeding the company's ability to restructure its debt facilities.

The cost reduction measures have been emphatic with 40%-45% of the company's total headcount removed in recent months. Total headcount at the end of 1Q'21 stood at 69 people, up from 63 at the end of FY'20. As discussed above, the move away from Professional Services has been accelerated, with 22 heads in this segment reduced to five, and the latter tasked with supporting partners and projects to help them along. In addition, the UK and French operations have been shuttered, while the Singapore entity has been divested to the local MD.

An announcement from the company on 9 December 2020 stated that the annualised net cost reductions after taking into account planned reinvestments, would be approximately SEK35m. The upfront costs of the cost reductions were indicated at SEK6m in each of 4Q'20 and 1Q'21, with the full run rate benefit to quarterly cashflow coming through by the end of 1Q'21. The cost base reported for 1Q'21 was consistent with this guidance, with total operating expenses for the quarter coming in at SEK26.3m, very much in line with the expected annualised run rate of SEK105m.

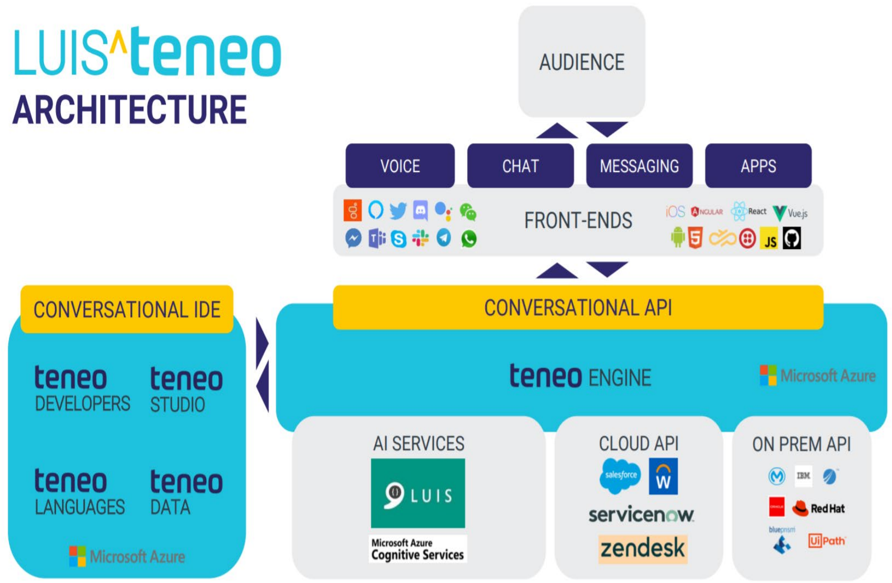
Growing focus on Microsoft

One of the strategic decisions made by the company to accelerate the expansion of the user base is to focus on Microsoft deployments. SI interest in the LUIS language understanding system developed by Microsoft is significant and, by seeking to embed itself into this ecosystem, Artificial Solutions is targeting experience-enhanced adoption rates of Teneo.

In mid-February 2021, Artificial Solutions announced the launch of the LUIS^Teneo runtime and development environment, running on Microsoft Azure and integrated with the Microsoft suite of cognitive services. Microsoft Azure offers a wide-ranging set of AI and related tools for enterprises, including APIs to connect to third-party providers of complementary technologies. LUIS^Teneo offers a more advanced developer environment than what is built into Azure, and allows bots to be built with relative ease compared with alternative options with the benefit of Teneo's proven scalability at the level required by global enterprises.

Azure is an open platform that provides interfaces (APIs), which enable third-party application developers, of which Artificial Solutions is an example in this context, to connect with the Microsoft LUIS services. Similarly, Teneo is able to connect with a range of Cloud-based applications for CRM, service management, etc. using cloud APIs, as set out in the schematic below. The Microsoft LUIS user base stands at over 1,700 enterprises and is growing quickly.

Artificial Solutions – LUIS^Teneo runtime and development environment



Source: Company data

The role that Teneo plays is an important one, providing i) a layer (Teneo Engine) between customer-facing the various core enterprise applications, which also include process automation platforms – this layer is able to materially improve accuracy and understanding of the customer requirements as they are delivered to these other applications, and ii) an advanced chatbot that operates at the customer interface using natural language processing to maximise effectiveness by understanding the context of the customer discussion. Until earlier this year, the platform was deployable in 36 languages and, at the end of March 2021, the company announced some 48 additional languages had been added to the languages supported by the platform, taking the total to 84 languages and making Teneo the most extensive conversational AI language solution available. Artificial Solutions estimates that the built-in language support in the platform now covers close to 40% of the world's population. The company's analysis suggests that it now has far greater language coverage than any of its competitors, which are a combination of the technology giants (Amazon, Google, Microsoft and IBM) and small, local competitors.

Beneficial for new customer acquisition

Over time, Artificial Solutions has benefited from taking on clients that have tried chatbot creation solutions from Microsoft and Google but ultimately found these technologies to be inadequate in terms of factors such as success rates and scalability. One likely benefit of Artificial Solutions' Microsoft-centric products is the ability to access these opportunities for more advanced chatbot requirements at a far earlier juncture without the need to seek to displace Microsoft. Given that enterprise adoption of Azure increasingly spans a broad range of applications, it is far more likely that Artificial Solutions' Teneo will be adopted by enterprises if it is actively positioned as complementary to the Microsoft cognitive solutions suite rather than seeking to displace components.

An additional corollary of the new approach is that Artificial Solutions is no longer confined to large multinational enterprises, which has been the company's previous stated focus. The low initial pricing and monthly recurring model combined with the ability of enterprises to trial Teneo without any upfront cost is likely to generate take-up from mid-sized companies, which ultimately face the same customer service challenges as larger companies, in many cases with greater resource constraints in terms of the headcount that can be allocated to customer-facing roles.

Microsoft's acquisition of Nuance is not an impediment

On 12 April 2021, Microsoft announced the acquisition of Nuance, a Nasdaq-listed vendor of AI-based solutions for a consideration of $19.7bn. The focus of the transaction appears to be the end-vertical on which Nuance has long had a focus, which is the healthcare sector. Over the past few years, the company has streamlined itself, shedding non-core activities, a process that is ongoing. This leaves the company with a substantial Healthcare division and an Enterprise division focusing on speech recognition, natural language processing and related AI tools, again with a focus on the healthcare vertical. Nuance has developed customer service automation tools but, as we understand matters, does not compete directly with Artificial Solutions. The overall message from this transaction is affirmation of the strategic value of scalable technologies in this technology segment.

Microsoft offerings do not preclude AWS or Google variants

While we do see Microsoft as a sensible starting point for Artificial Solutions' platform-specific offerings given the depth of Microsoft's enterprise customer base globally and the extent of the well-established channels, we would expect, over time, to see some support for the Google and AWS platforms if sufficient enterprise interest were to emerge. Alternatively, a growing number of orchestration technologies, such as Kubernetes, allow data and computing workloads to be shuttled between clouds, which would allow Teneo running on Azure to be used, for example, by AWS and Google cloud platform users.

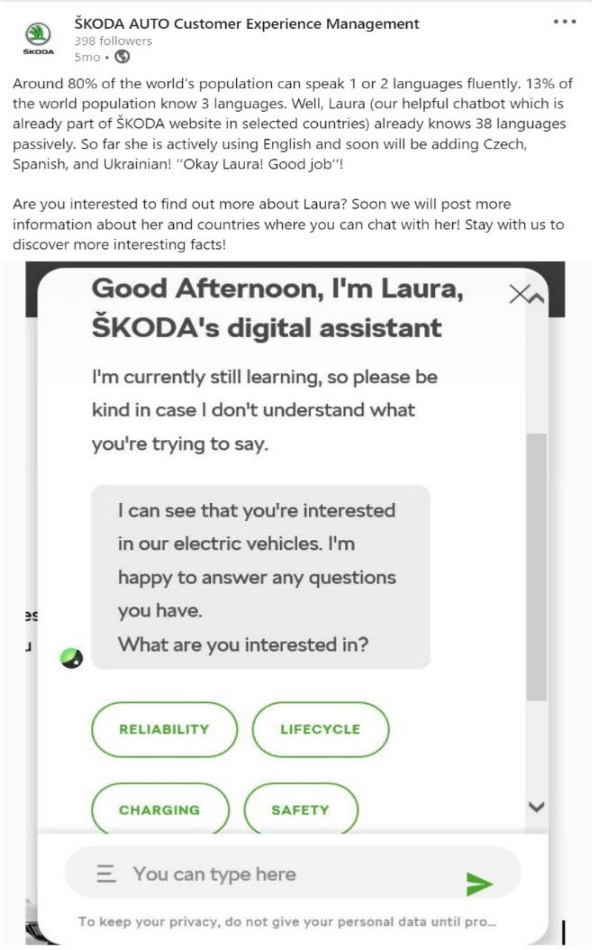
Škoda case study

One of the Artificial Solutions customers that we have been following closely is the Volkswagen Group, and its Škoda business, in particular. Škoda has an enterprise-wide focus on applying advanced AI-based technologies across its business. Under the "Simply Clever" moniker, new technologies consistent with an *Industry 4.0* theme have been explored and adopted in the manufacturing process, including large-scale automation and robotisation.

AI is central to many of these initiatives. For example, the use of AI to analyse machinery sounds to predict maintenance requirements (this is now being extended into vehicles for the same purpose). From a customer-facing perspective, Škoda has opted to standardise on Artificial Solutions' Teneo for its online chatbot requirements. Online activity by customers to configure vehicles and book test drives is conducted with the assistance of Laura chatbot, which was created on the

Teneo platform. Laura delivers advice on car specifications based on information requests about the customer's requirements.

Artificial Solutions – Škoda marketing highlighting Laura chatbot



Source: SKODA

Where the real value is added is that Laura then guides the customer through a vehicle configurator workflow, adding warranties and future service packages. The end-objective is to book a test drive at a time and location that are convenient for the customer. Our understanding is that Škoda has experienced a substantial increase in website conversion rates, primarily a function of a much-improved rate of website visits turning into test drives of vehicles that have been identified as suitable for the customer.

The success of the initial implementations of the Laura chatbot has persuaded Škoda to embark on a major expansion of her presence into incremental countries. The LinkedIn post below, published in December 2020, is an example of marketing initiatives by the company's customer experience management team highlighting the capabilities of the chatbot. Cognizant is Škoda's partner for this initiative and has been a key Artificial Solutions' partner for some time. The quote from the lead of the AI strategy consulting practice at Cognizant is interesting:

"Teneo allows enterprises to deliver outstanding conversational AI applications that drive customers through optimized business processes. The best part is the wealth of information and analytics from conversations that are providing insights used to further improve the customer experience and drive revenue."

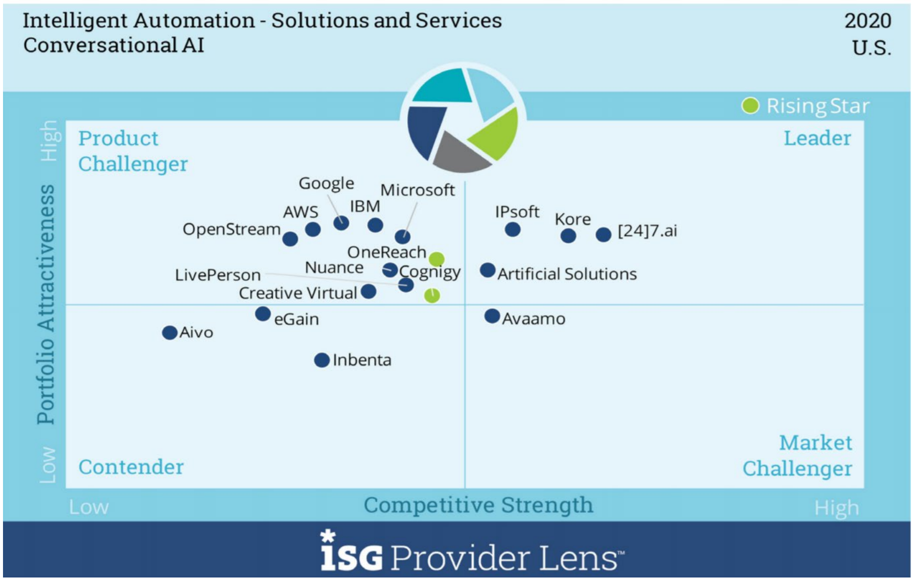
Industry recognition for Teneo remains high

It has long been a feature of Artificial Solutions profile that the company has achieved a reputation for being a trusted vendor for mission critical AI solutions to the largest global enterprises. The core technology platform, Teneo, has consistently been ranked a market leader in the conversational AI segment.

ISG

A report from ISG published in 2020 looked at the broader enterprise process automation market across conversational AI, RPA, machine learning and natural language processing. These are all elements that are directly relevant to the components of the Teneo platform and, in the case of RPA, an important element of the medium-term growth story.

ISG conversational AI quadrant: US – 2020



Source: ISG Provider Lens

Its market participant quadrant for the conversational AI segment places Artificial Solutions in the Leader segment, the constituents of which are defined as having "a highly attractive product and service offering and a very strong market and competitive position… they fulfil all requirements for successful market cultivation. They can be regarded as opinion leaders…". Artificial Solutions is seen as a leader in the US market by virtue of its strong platform capabilities. This is impressive validation of the company's market position based on a detailed analysis of the market landscape by a well-regarded research and advisory firm.

ISG provides a succinct summary of the drivers for adoption by enterprises of intelligent automation tools.

"With the COVID-19 pandemic, enterprises across industries worldwide are embracing digital transformation to future proof their businesses. Intelligent automation, at the heart of this transformation, combines robotic process automation (RPA) with artificial intelligence (AI), cognitive optical character recognition (OCR), machine learning (ML), natural language processing (NLP), advanced analytics and other digital technologies for improved productivity, data accuracy and customer experience, alongside reduced costs."

Gartner

Artificial Solutions has also been recognised as an Innovator in conversational AI in an industry report published in January 2021 by Gartner entitled *Emerging Technologies: Tech Innovators in Conversational AI and Virtual Assistants*. The report anticipates a proliferation in virtual assistants (i.e. chatbots) and increasing usage of neural machine translation.

Gartner also predicts tighter integration of these tools with back-end enterprise systems, facilitating more complex conversations. This is consistent with our long-held view that an immense growth opportunity for Artificial Solutions lies in its existing integrations with other elements of the enterprise automation ecosystem; for example, in the RPA segment. These trends are likely to unfold over the next few years.

This is yet another example of Artificial Solutions punching well above its weight in terms of industry recognition, confirming the quality of the company's product platform and strength of innovation.

New management team members

Per Ottosson

(CEO)

The new CEO, Per Ottosson, joined the company in November 2020, having previously been Chief Revenue Officer at IPSoft, where he spent more than 10 years. IPSoft is a US headquartered vendor of enterprise AI solutions. Prior to IPSoft, Per was responsible for HP's Western European software division, with prior roles at BMC and EMC.

Fredrik Törgren

(CFO)

Fredrik joined Artificial Solutions in October 2020, having previously been CFO at Inteno Group. Previously, Fredrik spent 20 years in senior financial, business development, M&A and capital markets roles at Ericsson (where he led the IT & Cloud Services Finance operations) and Handelsbanken Capital Markets.

Daniel Eriksson

(Chief Innovation and Customer Success Officer)

Daniel joined Artificial Solutions in December 2020. He has 15 years of Business Development and Technology Leadership experience, the past seven of which have been spent in the automation and conversational AI space. He has a Master of Science in Engineering Physics from the Royal Institute of Technology and a Master's in Business and Economics from the Stockholm School of Economics.

Marie Angselius-Schönbeck

(Chief Impact & Corporate Communications Officer)

Marie joined Artificial Solutions in April 2021 having previously held the position of Head of Corporate Communication at Amelia, an IPsoft company. In 2019, she founded Women in AI, a global initiative to help close the gender gap in STEM. Marie has more than 25 years of experience working within the software industry. In 2010, she founded a communications agency. Previously, for eight years, she ran the corporate positioning of Qlik, a US-listed company. She has a Bachelor's degree in Communications.

Market drivers and growth

It is essentially impossible to find market forecasts for the artificial intelligence software and enterprise process automation market segments that do not project very large annual growth over the next few years. The consensus growth rate is 20%-25% for the broader market in which Artificial Solutions operates.

Looking specifically at chatbots, the drivers of enterprise adoption are compelling at a time when many organisations have faltered in their ability to provide continuous customer service. As we summarise in the chart below, the primary drivers centre on cost reduction, revenue expansion (through enhanced customer service and satisfaction) and competitive differentiation (by offering better convenience and customer experience).

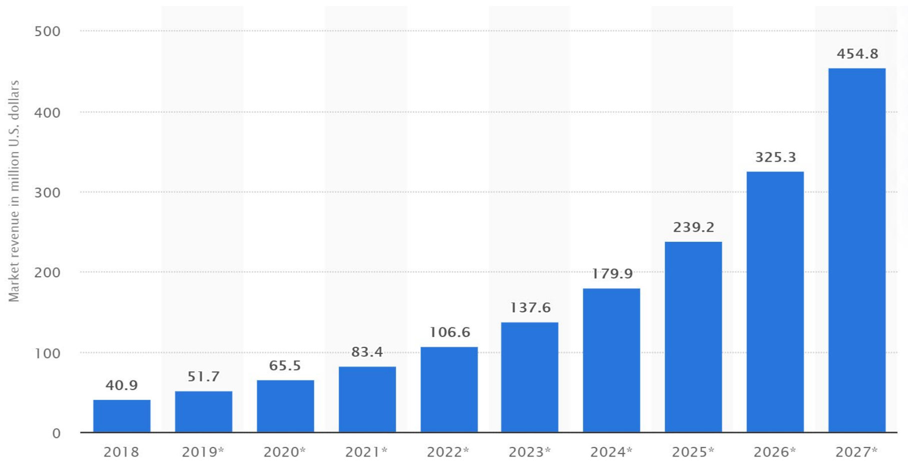
Enterprise drivers of AI chatbot adoption

1. Cost reduction / efficiencies	Substitution of enterprise human interaction with customers with multi-lingual conversational AI / chatbots offers scope to reduce customer service costs, call centre headcount and centralise operations in particular geographies.
2. Revenue expansion	Chatbots, when properly configured and implemented, should have a clear purpose, whether to drive revenue conversion rates or enhance customer service satisfaction ratios. The end-user is guided towards the preferred outcome.
3. Competitive differentiation	Amidst fairly dramatic shifts in how customers are seeking to interact with enterprises (retail banking is a stark example), chatbots and automated services that are available 24x7 signify innovation, convenience and a focus on customer care.

Source: Hardman & Co Research

Statista estimates that the worldwide chatbot market will more than quadruple between 2020 and 2027 in terms of vendor revenue.

Chatbot market revenue worldwide: 2018 to 2027 ($m)

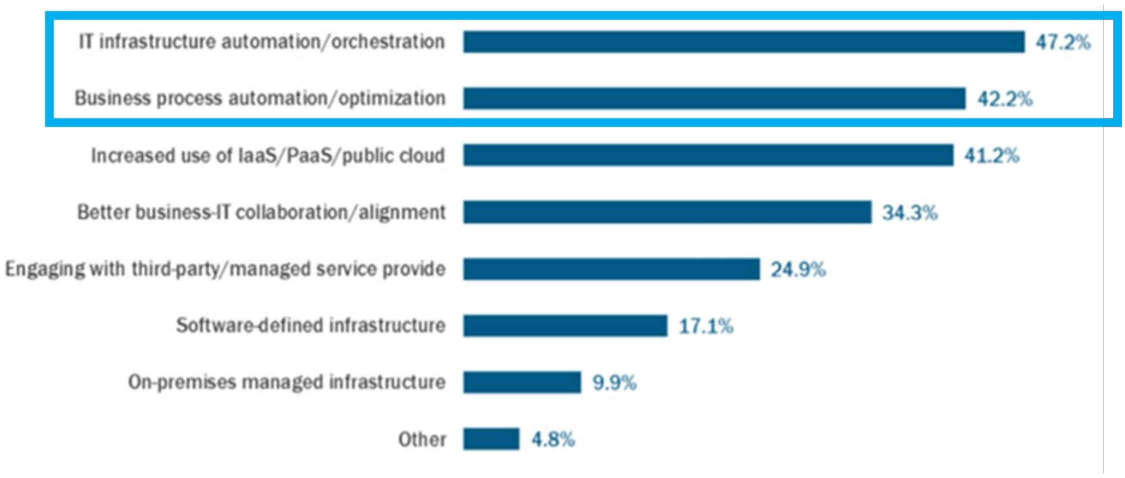


*Note: *forecast figures*

Source: Statista (2021)

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

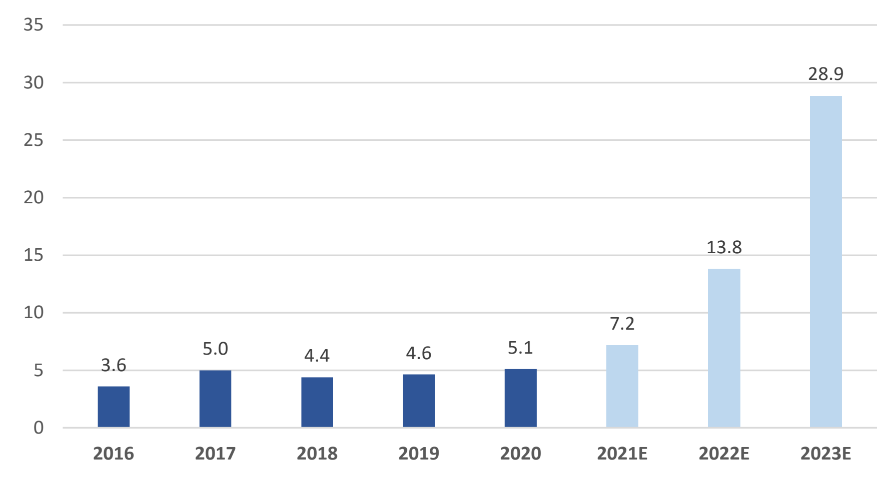
Several other enterprise surveys have attracted similar responses, suggesting that the pandemic is prompting companies to seek out more resilient approaches to delivering continuity of customer service. It is evidently unsustainable for major telecoms and utilities providers, for example, to be unable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

Financials

Reducing impediments to customer acquisition

The COVID-19 pandemic has been a restraining feature on growth and this is likely to remain a factor during 2021. However, a more fundamental issue identified through analysis of previous win rates has been the pricing model and the large upfront licence payments that customers were being asked to make in order to move to production licences. Against a backdrop of growing penetration of software subscription pricing models in the enterprise segment globally, it is perhaps unsurprising that there has been a degree of resistance to pronounced upfront commitments. The approach that is being adopted is to address new business opportunities from this point with a recurring price model based on a combination of user seats and transaction-based revenue.

Artificial Solutions – Net sales 2016-23E (€m)



Source: Company data, Hardman & Co Research

Change in revenue model

The company's analysis of recent tender outcomes indicates that customers are seeking to deploy the Teneo platform with a lower initial outlay. This manifested in weak order intake in 2020, particularly when compared with the number of opportunities. Moving to a recurring revenue model that does not require a substantial upfront licence fee and maintenance contract commitment will remove a major impediment to growth. When considered alongside the 90-day free trial and the availability of LUIS^Teneo on the Azure Marketplace at a time when enterprise interest in these types of automation solutions is high, it is unsurprising that management expects a material acceleration in new customer acquisition.

Under the old mode, new customers typically undertook a pilot deployment of some description for the Teneo platform, which required services engagement by Artificial Solutions. Once the pilot or proof-of-concept had delivered on the customer's requirements, it was then migrated to a full production licence, which triggered the payment of full licence fees and support contracts. This resulted in a lumpy revenue profile and an ongoing requirement to consistently win new large licence deals to deliver revenue growth. The company was unable to deliver the requisite level of order intake to drive revenue growth and this is reflected in the relatively flat revenue profile over the past few years, as set out in the chart above.

Transitional revenue resilience

The transition between perpetual and recurring models is never going to be an easy one in mid-flight given the dampening impact of deferring revenue from new customer wins compared with perpetual licence revenue recognition. However, for Artificial Solutions, this could be an easier transition to make for a number of reasons:

- **(i)** existing large customers will remain on their existing contracts, with many continuing to expand their Teneo deployments;
- **(ii)** underlying usage revenue trends have been strong over the past 12 to 18 months, which will continue to grow; and
- **(iii)** the flat revenue profile seen in 2019-20 is a helpful backdrop for the transition to a recurring revenue model.

Our assumption is that, despite the favourable customer response to the new model and the sizeable recent contract win (which fell into the second quarter), the true underlying sales momentum under the new pricing model will not be seen until 2H'21E, reflecting a period of adjustment. We would anticipate an intensive period of dialogue with systems integrator and other partners, which should welcome the move by Artificial Solutions to fully handover the services elements of engagements with enterprise customers to its partners.

Revenue considerations

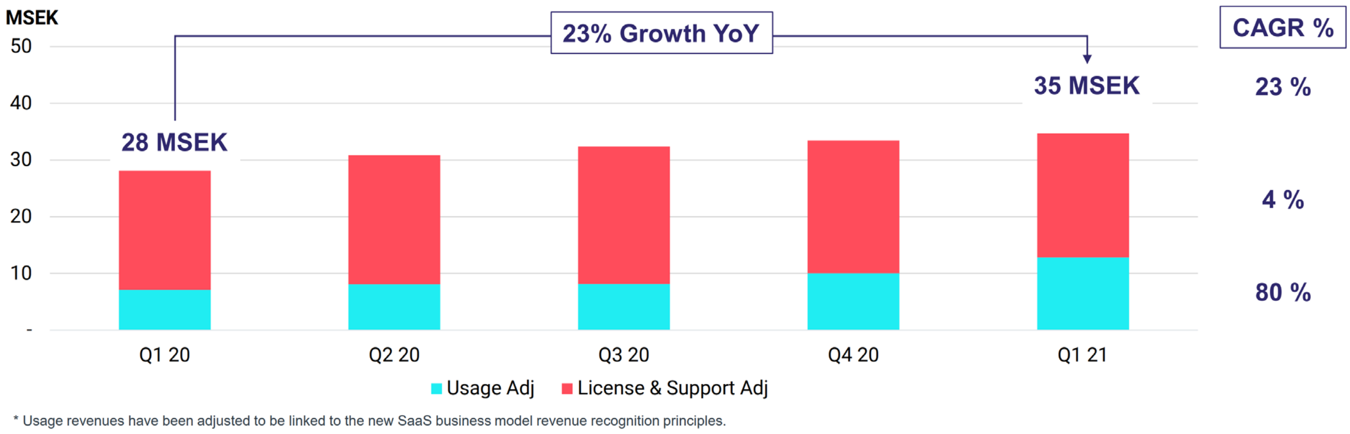
Legacy revenue model

Our overall revenue estimates comprise a blend of the legacy and new revenue models. Legacy may be a slightly inaccurate term as existing customers will remain on their existing contracts unless they opt to migrate to the Cloud-based product and recurring revenue model. In order to facilitate financial modelling, the company has provided data (presented in the chart below) on the profile of recurring revenue with a breakdown between licence/support and usage revenue.

It should be noted that these figures are adjusted for the change in revenue recognition with respect to usage revenue. Previously, a committed and invoiced usage contract was fully recognised as revenue at the time of invoicing regardless of the length of the contract or the period over which those usage credits would be used up. Under the new model and the new revenue recognition policy, the usage revenue will be recognised as consumed or pro-rata over the lifetime of the contract period. This approach will ensure consistency of recognition policies across the company's revenue streams under the new model.

At the end of 1Q'21, total contracted recurring revenue under the new usage revenue recognition policy amounted to SEK34.7m, a figure that grew by 23% year-on-year. As confirmed by the Škoda example, certain existing customers are expanding their Teneo deployments significantly, driving both licence revenue and especially usage revenue. This positive impact is captured in the growth in recurring revenue that we forecast for 2021, driven by usage revenue.

Artificial Solutions – Recurring revenue 1Q'20 to 1Q'21



Source: Company data

New revenue model

With respect to the new revenue model, the key drivers will be the total number of customers and the mix between the large and small, which will affect the number of seats per customer on average and, more importantly, the quantum of usage volumes per customer, which will be measured as API calls, i.e. the number of "transactions" that are delivered to recipient platforms.

In order to provide a modelling framework, management has provided a starting point in terms of what is envisaged as typical profiles for large and small customers. These assumptions are set out in the chart below.

1. **Seat-based revenue**: It can be seen that the expected differential in monthly seat-based pricing between large and smaller customers is modest at €10,000 vs. €7,500. This partly reflects the limited number of users within a company who will typically require access to the Teneo Developer Suite, which is used to build and configure the chatbots.

2. **API calls:** A much larger differential can be found in the volume and revenue anticipated from API calls, which are expected to range from €2,000 per month for smaller customers to €24,000 per month on average for large customers.

The additional components of the new revenue model will be smaller and more customer-specific. These are:

3. **Data**: Artificial Solutions will manage customer data if that is a requirement, and will also be able to sell analytical information on transactions if customers are seeking to gain greater insights into the nature of transactions being handled by the Teneo chatbots. The working assumption is that these data services will represent only ca.10% of the revenue from API calls.

4. **Training and expert services**: While the professional services headcount has been substantially reduced from over 20 heads to nearer five, the company maintains the capability to deliver training and domain experts as required on a chargeable basis. Smaller users are expected to take, on average, two days of training and zero days of expert services, whereas it is anticipated that larger users, whose chatbots will be addressing thousands of customers enquiries daily, will require several days of training and 15 days of expert services.

Both of these revenue streams are included in our model but, by year three of the revenue forecast, together represent only a modest proportion of total revenue.

Artificial Solutions – Potential annual recurring revenue streams under new model

Small customers	Large customers
7,500 EUR p/m for TDS	**10,000 EUR** p/m for TDS
2,000 EURO for API calls p/m	**24,000 EURO for** API calls p/m
Data is **10%** of API calls revenue	Data is **10%** of API calls revenue
2 days training and **no** expert services	**5 days** training and **15 expert** service days

Source: Company data

More transparent usage revenue

Notably, the new approach to usage/transaction revenue will provide a greater degree of transparency – the previously reported usage revenue was affected by the low transaction-based pricing that had been agreed with one or two of the early users of Teneo. This resulted in the correlation between transaction volumes and usage revenue being distorted such that the underlying strong transaction growth did not necessarily map to a similar profile of usage revenue growth.

A second factor was that upfront purchases of transaction bundles created considerable lumpiness in revenue as that revenue was typically recognised upfront. Within the existing customer base, about 35% of customers are the primary drivers of usage revenue growth, while a further one-third are newer customers, earlier in their Teneo journeys and hence not yet generating a material contribution to usage revenue. The remaining customer base are seen as solid customers, benefiting from Teneo, but which are not major usage revenue contributors.

Under the new model, there will be a direct correlation between transaction volumes and transaction-based revenue, which will be recognised in a manner equivalent to a pure consumption model.

Five-year customer value metrics

With the benefit of the company's assumptions on initial revenue per customer, we can calculate the expected value of an average large and small customer over a five-year period.

Artificial Solutions – Customer value metrics for large and smaller users

EUR	Year 1	Year 2	Year 3	Year 4	Year 5	
Large Users						
Seat Fee	120,000	120,000	120,000	120,000	120,000	
Training / Expert Services	30,000	-	-	-	-	
Usage - API Calls	48,000	432,000	960,000	1,728,000	2,400,000	
Data	4,800	43,200	96,000	172,800	240,000	
Total	**202,800**	**595,200**	**1,176,000**	**2,020,800**	**2,760,000**	**6,754,800**
Smaller Users						
Seat Fee	90,000	90,000	90,000	90,000	90,000	
Training / Expert Services	5,000	-	-	-	-	
Usage - API Calls	2,400	9,600	14,400	18,000	24,000	
Data	240	960	1,440	1,800	2,400	
Total	**97,640**	**100,560**	**105,840**	**109,800**	**116,400**	**530,240**

Source: Company data, Hardman & Co Research

We have applied a conservative tilt to these metrics by:

1) Assuming that the progression towards the full run rate annual usage revenue will be a gradual one. For large customers, for example, we assume that by year 3, the usage revenue is less than half of the year 5 run rate set out in the company's estimates, as discussed above.

2) For small customers, our annual usage revenue estimates are, again, conservative and characterised by a gradual upward progression from only €2,400 of usage revenue on average per smaller customer in year 1, €14,400 in year 3 and €24,000 per annum in year 5.

Nonetheless, even under these relatively conservative assumptions, the cumulative five-year revenue expected to be derived from a large customer is almost €7m, while a smaller user is expected to generate ca.€530,000 revenue over the same period. These are healthy expected figures for individual customer contracts in the context of group total annual net sales of €5.10m in 2020.

Churn

Our approach to churn is rather cautious as it is difficult to predict without the benefit of actual historical figures. Subscription software models are inherently flexible and, typically, allow users to readily exit. However, the nature of the Teneo platform is that, once the initial chatbot development and integration steps have been completed, as long as transaction success rates remain high, customer retention should remain high. However, churn is often driven by external factors such as M&A or corporate bankruptcies, so we remain prudent with respect to our churn assumptions.

We assume 15% churn for large users and 25% for smaller users in the initial period, each declining by 5ppts on the basis that awareness and understanding of the Teneo platform within the Microsoft Azure ecosystem will improve progressively over time.

The 90-day free trial should serve to significantly reduce churn, which is another key factor that may render our churn estimates too cautious. We will monitor progress on this front and update our estimates during the course of 2021 accordingly as incremental data is provided by the company.

Revenue estimates

Using the metrics calculated above, we consider these annual revenue estimates per customer alongside (for the new model) our estimated customer acquisition metrics for our forecast period. We are mindful that the current shift in revenue model is likely to take at least a couple of quarters to bed down. The SI partners are evolving to a new model without a share of upfront licence fees and a greater participation in the value of the services engagements. A number of partners will also be seeking to complete sales cycles under the legacy model. Accordingly, our customer acquisition metrics are conservative for 2021, which we consider to be essentially a transition period.

Artificial Solutions – Revenue model

Year-end Dec., (€m)	2021E	2022E	2023E
New Revenue Model	**Year 1**	**Year 2**	**Year 3**
LARGE USERS			
New large users	6	8	10
Revenue per new large user in year 1	202,800	202,800	202,800
Revenue from new large users	**1,216,800**	**1,622,400**	**2,028,000**
Existing large users (year 2)		5	
Large user churn after 1 year		15%	
Revenue per large user in year 2		595,200	
Revenue from large users in year 2		**2,976,000**	
Existing large users (year 3)			11
Large user churn after 2 years			10%
Revenue per large user in year 3			1,176,000
Revenue from large users in year 3			**12,936,000**
SMALLER USERS			
New small user	14	28	46
Revenue per new small user	97,640	97,640	97,640
Revenue from new small users	**1,366,960**	**2,733,920**	**4,491,440**
Existing small users (year 2)		10	
Small user churn after 1 year		25%	
Revenue per small user in year 2		100,560	
Revenue from small users in year 2		**1,005,600**	
Existing small users (year 3)			30
Small user churn after 2 years			20%
Revenue per small user in year 3			105,840
Revenue from large users in year 3			**3,175,200**
Total revenue from new model	**2,583,760**	**8,337,920**	**22,630,640**
Legacy revenue model			
Recurring revenue	3,960,000	4,752,000	5,464,800
yoy growth (%)	*49%*	*20%*	*15%*
Non-recurring revenue	650,000	715,000	772,200
yoy growth (%)	-	*10%*	*8%*
Total revenue from legacy model	**4,610,000**	**5,467,000**	**6,237,000**
Total group net sales	**7,193,760**	**13,804,920**	**28,867,640**
yoy growth (%)	*41%*	*92%*	*109%*

Source: Company data, Hardman & Co Research

The table above sets out our expectations for new customer wins, together with churn estimates. The new revenue model is highly scalable and, despite assuming relatively moderate new customer additions and high churn rates in initial period of the model, we expect total net sales growth of 41% in 2021E, 92% in 2022E and 109% in 2023E.

Notably, the management team's own objective is to achieve annualised recurring revenue of €10m, which it believes is achievable on a run rate basis by the end of FY'21 or early FY'22.

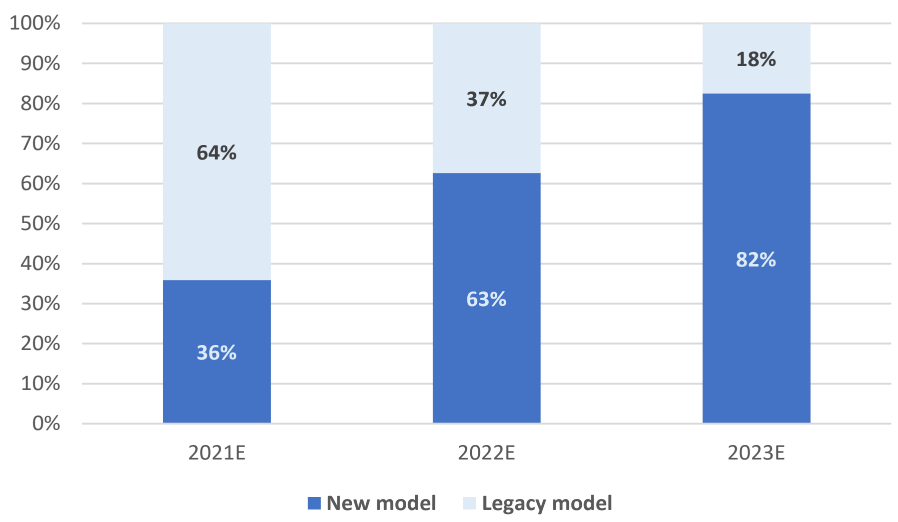
The revenue figures set out above comprise what is described in Artificial Solutions' financial reports as net sales. The net sales figures exclude capitalised costs and other operating income. The capitalised R&D element will vary between quarters and will depend on the nature of the R&D being undertaken. 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.

In FY'20, net sales came in at SEK53.8m compared with total operating income of SEK73.9m. Other operating income was SEK10.4m and generally includes R&D tax credits when applicable, and last year included government support funding received in Sweden, where the company is headquartered. In 1Q'21, net sales were SEK9.8m, representing a year-on-year decline of 36%. Recurring revenue represented 67% of total net sales.

Evolving revenue mix

Our revenue model for Artificial Solutions is clear in its conclusion that there is scope for revenue from the new model to scale significantly over the next few years. Under the previous model, we had expected usage revenue to represent 65% of total revenue by FY'22E (up from only 12% in FY'17).

Artificial Solutions – Evolving mix by revenue model 2021-23E (€)



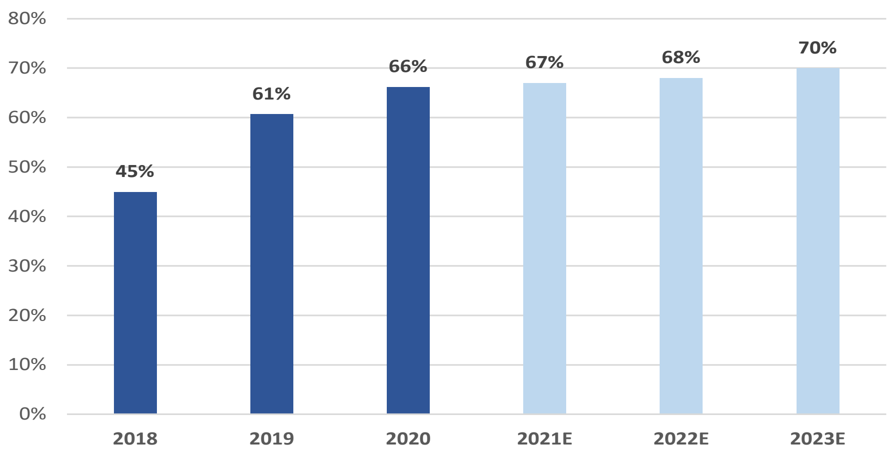
Source: Hardman & Co Research

Within the new recurring revenue model, usage remains the core driver, albeit now referred to as API calls. As discussed earlier, API calls are expected to represent almost 90% of the revenue from large users after the first year (in the first year, the figure is around 70% due to the expert services and training revenue that is typically derived at the outset of the implementation of Teneo). For smaller users, the API calls proportion of revenue is expected to be ca.75% after the first year. So, transactions volumes through the Teneo platform will be the core driver of revenue over time.

Gross margin continues to trend upwards

Over the past two years, the margin benefit of Artificial Solutions migrating away from delivering services has already been emphatic. The gross margin in FY'20 was 66% and increased sharply in 1Q'21 to 72%, reflecting the cost reductions, reduced services activities and contribution of systems integrator partners to order intake. There will be, of course, further upside to this metric now that the professional services headcount at Artificial Solutions has been reduced from more than 20 heads to around five people, and all implementation services are being left to the company's systems integrator partners. We remain conservative on gross margin expansion going forward simply due to the transition between revenue models.

Artificial Solutions – Gross margin trends



Source: Company data, Hardman & Co Research

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. However, this was not achieved in FY'20, which proved to be a relatively weak period for order intake. The pandemic was, of course, unhelpful, and the resistance of prospective customers to large upfront licence fees has been noted. However, much of the cause of the shift can be found in services as part of the strategic shift away from services delivery by Artificial Solutions. Services order intake more than halved year-on-year from SEK22.5m to SEK9.0m. Licences and usage order intake was down 11% against a relatively strong comparative quarter when a number of sizeable deals were signed.

The weaker order intake in 4Q'20, albeit versus a particularly strong 4Q'19, resulted in a significant contraction in order backlog from SEK49.9m at the end of 2019 to SEK 35.5m at the end of 2020, as summarised in the table below.

Artificial Solutions – Order intake and order backlog 2019-2020

SEK m	Jan to Dec 2020	Jan to Dec 2019
Order Intake		
Licences & Usage	35.9	40.2
Services	9.0	22.5
Total Order Intake	**44.9**	**62.7**
Order Backlog		
Licences & Usage	31.6	40.4
Services	3.7	9.5
Total Order Backlog	**35.3**	**49.9**

Source: Company data

Operating expenses

There can be no doubt that the new management team has acted aggressively on costs in a short period of time. Headcount at the end of 2019 stood at 113 and by the end of 1Q'21 had come down to 69. The one-off cost of this personnel restructuring is stated to have been SEK13.3m, including in 4Q'20 personnel costs. In addition, the UK and French operations were liquidated, while the Asia-Pacific division was sold to the VP of the entity, who will be a partner for Artificial Solutions going forward.

An announcement from the company in December 2020 stated that annualised net cost reductions, after taking into account planned reinvestments, would be approximately SEK35m. The upfront costs of the cost reductions were indicated at SEK6m in each of 4Q'20 and 1Q'21, with the full run rate benefit to quarterly cashflow coming through by the end of 1Q'21. The broad indication from the company on costs for 1Q'21 has been that total operating expenses on an annualised basis in the quarter would be ca.SEK105m. As it happens, the opex outturn in 1Q'21 was in line with this guidance, with quarterly expenses coming in at SEK26.3m.

Artificial Solutions – Operating expenses

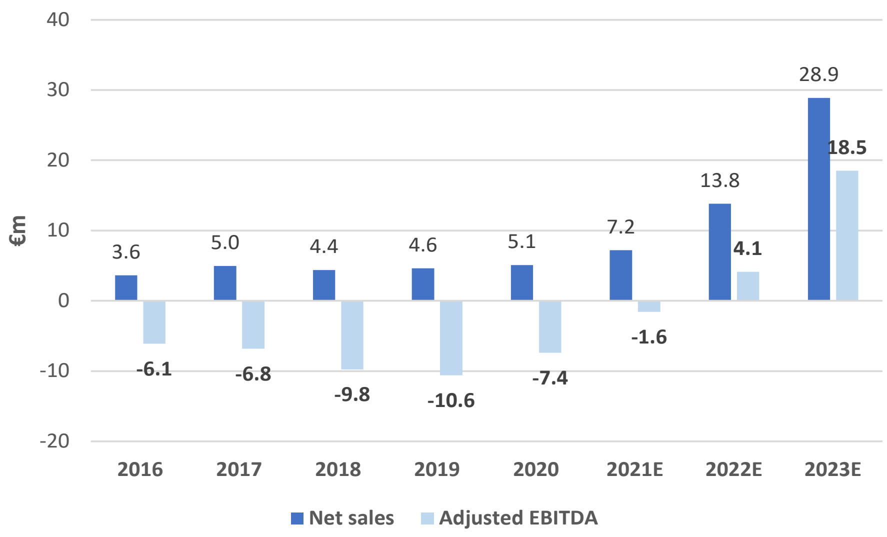
Year-end Dec. (€m)	2019	2020	2021E	2022E	2023E
Operating expenses					
Other external costs	-7.18	-4.30	-2.70	-2.84	-2.98
Personnel costs	-11.13	-11.40	-9.12	-10.03	-10.73
Other operating expenses	-2.13	0.00	0.00	0.00	0.00
Total operating expenses	**-20.43**	**-15.70**	**-11.82**	**-12.87**	**-13.71**

Source: Company data, Hardman & Co Research

Management has noted that the appropriate period for comparison is 1Q'20, which was the last quarter prior to furlough support being received. Total operating expenses in 1Q'20 were SEK44.4m, equating to an annualised sum of SEK178m. We assume SEK10m of additional operating expenses in each of the subsequent three quarters of FY'21 due to reinvestment initiatives, such that the company ends the year with an annualised opex run rate of SEK135m. This implies total reported opex in FY'21 of around SEK120m (€11.8m).

Based on these cost projections, our profit and loss forecasts suggest that EBITDA breakeven will be achieved in 2022E, with a sharp uplift in the adj. EBITDA margin expected in 2023E. The chart below sets out our projections for each of net sales and adjusted EBITDA for the next three years.

Artificial Solutions – Net sales and adjusted EBITDA



Source: Company data, Hardman & Co Research

Interest and taxation

As at 31 March 2021, the company's cash position was SEK22.1m (ca.€2.2m). During the period, an R&D investment rebate of SEK7.3m (ca.€710k) was received from the Spanish tax authority, which is included in the cash position.

A 2019 R&D tax credit of SKE6.1m has been approved by the Spanish tax authorities and it is expected to be received in 1Q'22. No tax is expected to be payable during our forecast period due to accumulated tax losses.

Debt and facilities

In October 2020, the company announced that it had reached agreement with the existing lenders to extend by two years the credit facilities of SEK117.4m (ca.€11.5m) which were due for repayment on 31 March 2021. In addition, a bond of SEK52m (ca.€5.1m) is due for repayment on 5 June 2021. Artificial Solutions is currently in negotiations to extend and refinance this bond. We expect an update on these discussions during the current quarter.

The company currently has an unused convertible notes facility of SEK15m. In 2021, the company announced that the size of each tranche under the programme has been increased from SEK5m up to SEK15m, and that the term during which one tranche may be utilised has been extended from one month to three months.

Profit and loss

Artificial Solutions – Profit and loss account						
Year-end Dec (€m)	**2018**	**2019**	**2020**	**2021E**	**2022E**	**2023E**
Income						
Net sales	4.39	4.64	5.10	7.19	13.80	28.87
Capitalised costs	1.19	1.14	0.92	0.97	1.01	1.07
Other operating income	0.52	0.70	0.99	1.04	1.09	1.15
Total income	**6.09**	**6.48**	**7.01**	**9.20**	**15.91**	**31.08**
Operating expenses						
Other external costs	-5.02	-7.18	-4.30	-2.70	-2.84	-2.98
Personnel costs	-10.33	-11.13	-11.40	-9.12	-10.03	-10.73
Other operating expenses	0.00	-2.13	0.00	0.00	0.00	0.00
Total operating expenses	**-15.35**	**-20.43**	**-15.70**	**-11.82**	**-12.87**	**-13.71**
EBITDA (reported)	**-9.26**	**-13.95**	**-8.69**	**-2.62**	**3.04**	**17.37**
Adj. EBITDA, excl. capitalised costs	**-9.76**	**-10.61**	**-7.40**	**-1.58**	**4.14**	**18.51**
Depreciation & amortisation	-2.32	-1.09	-1.20	-1.32	-1.45	-1.59
EBIT (reported)	-11.58	-15.05	-9.89	-3.94	1.59	15.77
Adj. EBIT, excl. capitalised costs	**-12.08**	**-11.70**	**-8.00**	**-2.90**	**2.69**	**16.92**
Net financial income	-1.44	-2.11	-5.53	-4.98	-4.48	-4.03
Pre-tax profit	**-13.02**	**-17.16**	**-15.42**	**-8.92**	**-2.89**	**11.74**
Adj. PTP, excl. capitalised costs	**-13.52**	**-13.81**	**-13.53**	**-7.88**	**-1.79**	**12.89**
Taxation	0.00	0.00	0.00	0.00	0.00	0.00
Net income	**-13.02**	**-17.16**	**-15.42**	**-8.92**	**-2.89**	**11.74**

Source: Company data, Hardman & Co Research

Balance sheet

Artificial Solutions – Balance sheet						
Year-end Dec (€m)	2018	2019	2020	2021E	2022E	2023E
Assets						
Fixed intangible assets						
Capitalised expend. for licences & software	2.9	3.0	3.0	2.7	2.4	2.1
Goodwill	0.0	0.0	0.0	0.0	0.0	0.0
Total intangible assets	**2.9**	**3.0**	**3.0**	**2.7**	**2.4**	**2.1**
Fixed tangible assets						
Equipment, furniture & fittings	0.2	0.2	0.1	0.3	0.5	0.8
Total tangible fixed assets	**0.2**	**0.2**	**0.1**	**0.3**	**0.5**	**0.8**
Total fixed assets	**3.0**	**3.2**	**3.1**	**3.0**	**2.9**	**2.9**
Other non-current receivables	0.5	0.5	0.3	0.3	0.3	0.3
Total non-current assets	3.6	3.7	3.4	3.3	3.3	3.2
Current assets						
Accounts receivable – trade	0.6	0.9	0.0	0.0	0.0	0.0
Tax receivable	0.9	1.2	0.0	0.0	0.0	0.0
Other receivables	0.3	0.2	0.0	0.0	0.0	0.0
Prepaid expenses & accrued income	0.5	0.7	0.0	0.0	0.0	0.0
Total current receivables	**2.2**	**3.1**	**2.2**	**2.9**	**3.8**	**4.9**
Cash & bank balances	4.6	0.4	2.0	0.9	4.0	23.0
Total current assets	**6.8**	**3.5**	**4.2**	**3.8**	**7.7**	**27.9**
Total assets	**10.4**	**7.2**	**7.6**	**7.2**	**11.0**	**31.1**
Equity & liabilities						
Equity						
Share capital	3.6	4.2	8.7	8.7	8.7	8.7
Share premium reserve	75.6	106.8	119.4	119.4	119.4	119.4
Other equity, including result for year	-87.6	-129.3	-145.2	-149.5	-147.7	-130.9
Total equity	**-8.4**	**-18.2**	**-17.1**	**-21.4**	**-19.6**	**-2.9**
Long-term liabilities						
Liabilities to other lenders	5.1	10.2	11.5	11.5	11.5	11.5
Total long-term liabilities	**5.1**	**10.2**	**11.5**	**11.5**	**11.5**	**11.5**
Current liabilities						
Liabilities to other lenders	9.1	11.2	7.0	9.4	9.4	9.4
Accounts payable – trade	0.4	0.6	1.2	1.7	3.2	6.7
Other liabilities	0.3	0.4	0.0	0.0	0.0	0.0
Accrued expenses & deferred income	3.9	3.1	5.1	5.1	5.1	5.1
Total current liabilities	**13.7**	**15.3**	**13.3**	**17.2**	**19.1**	**22.6**
Total equity & liabilities	**10.4**	**7.2**	**7.6**	**7.2**	**11.0**	**31.1**

Source: Company data, Hardman & Co Research

Cashflow

Artificial Solutions – Cashflow statement						
Year-end Dec (€m)	2018	2019	2020	2021E	2022E	2023E
Operating loss	**-11.58**	**-15.05**	**-15.27**	**-3.94**	**1.59**	**15.77**
Adjustment for items not included in cashflow	0.80	2.50	3.98	1.32	1.45	1.59
Taxation paid & received	0.03	0.35	0.52	0.00	0.00	0.00
Operating cashflow before working capital changes	**-10.75**	**-12.20**	**-10.77**	**-2.62**	**3.04**	**17.37**
Changes in working capital						
(Increase)/Decrease in receivables	-1.96	-0.81	1.05	-0.67	-0.87	-1.13
Increase/(Decrease) in liabilities	0.82	-0.49	2.20	0.48	1.53	3.48
Net change in working capital	**-1.14**	**-1.43**	**3.25**	**-0.18**	**0.66**	**2.35**
Cashflow from operating activities	**-11.89**	**-13.63**	**-7.52**	**-2.81**	**3.70**	**19.72**
Investing activities						
Purchases of tangible fixed assets	-0.09	0.17	0.22	0.28	0.36	0.47
Purchases of intangible fixed assets	-1.24	-1.40	-0.96	-1.01	-1.06	-1.11
Change in fixed assets	0.00	0.00	0.00	0.00	0.00	0.00
Cashflow from investing activities	**-1.33**	**-1.23**	**-1.03**	**-0.73**	**-0.69**	**-0.64**
Financing activities						
Issue of new shares	12.82	4.70	15.57	0.00	0.00	0.00
Costs of new share issues	-0.35	-0.93	-1.13	0.00	0.00	0.00
Issue of new non-registered shares	0.00	0.00	0.00	0.00	0.00	0.00
Change in loans	4.68	7.11	-4.35	2.50	0.00	0.00
Cashflow from financing activities	**17.15**	**10.88**	**10.10**	**2.50**	**0.00**	**0.00**
Net change in cash & cash equivalents	3.93	-3.99	1.55	-1.03	3.01	19.08
Cash & cash equivalents at start of year	0.49	4.42	0.43	1.98	0.94	3.95
Cash & cash equivalents at end of year	**4.42**	**0.43**	**1.98**	**0.94**	**3.95**	**23.03**

Source: Company data, Hardman & Co Research

DCF analysis produces implied fair enterprise value of €174m and equity implied fair value of €160m

Valuation

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. The most recent IP valuation analysis, undertaken in 2019, generated a patent valuation range of between $125m and $153m.

DCF

Our base case assumptions are set out in their entirety in the table below. Our DCF analysis produces an implied fair enterprise value of €174m (SEK1,766m) and an equity implied fair value of €160m (SEK1,624m). These valuation outcomes compare with the current enterprise value of ca.€62m (SEK630m) and market capitalisation on the Nasdaq First North Exchange in Stockholm of ca.€48m (SEK487m).

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	**2021E**	**2022E**	**2023E**	**2024E**	**2025E**	**2026E**	**2027E**	**2028E**	**2029E**	**Terminal value**
Revenues	**9.2**	**15.9**	**31.1**	**39.5**	**49.3**	**59.2**	**66.3**	**69.6**	**73.1**	
yoy growth	-	*73.0%*	*30.0%*	*27.0%*	*25.0%*	*20.0%*	*12.0%*	*5.0%*	*5.0%*	
EBIT margin	-42.8%	10.0%	7.5%	12.8%	18.0%	23.3%	28.5%	33.8%	35.0%	
EBIT	**-3.9**	**1.6**	**15.8**	**5.1**	**8.9**	**13.8**	**18.9**	**23.5**	**25.6**	
Depreciation & amortisation	-1.3	-1.4	-1.6	-1.7	-1.8	-1.9	-2.0	-2.0	-2.0	
Adj. EBITDA	**-5.3**	**0.1**	**14.2**	**3.4**	**7.1**	**11.9**	**16.9**	**21.5**	**23.6**	
Tax rate	0.0%	0.0%	0.0%	0.0%	5.0%	10.0%	15.0%	20.0%	20.0%	
Tax on EBIT	0.0	0.0	0.0	0.0	-0.4	-1.4	-2.8	-4.7	-5.1	
Change in net working capital	-0.2	0.7	2.4	1.6	1.2	0.8	0.6	0.4	0.3	
Cashflow from operations	**-5.4**	**0.8**	**16.5**	**5.0**	**7.8**	**11.3**	**14.7**	**17.2**	**18.7**	
Capex	-0.7	-0.7	-0.2	0.2	0.7	1.1	1.6	2.0	2.0	
Unlevered free cash flow	**-6.2**	**0.1**	**16.3**	**5.2**	**8.5**	**12.4**	**16.2**	**19.2**	**20.7**	**296.4**
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	**-5.6**	**0.1**	**12.2**	**3.6**	**5.3**	**7.0**	**8.3**	**9.0**	**8.8**	**125.7**

Note: based on medium-term assumptions from 2024E

Implied valuation metrics	**EURm**
Sum of 9-year cash flow	48.6
Terminal value	125.7
Value of the firm	174.3
Net funds	-13.9
Total equity value	**160.4**
No.of shares in issue (m)	49.4
Fair value share price (EUR)	**3.2**
€:SEK exchange rate	10.1
Fair value share price (SEK)	**32.8**

Source: Hardman & Co Research estimates

IP asset valuation

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

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 conclusions 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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(Disclaimer Version 8 – Effective from August 2018)

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research@hardmanandco.com

1 Frederick's Place
London
EC2R 8AE

+44(0)20 3693 7075

www.hardmanandco.com