

EXPERT SYSTEM

Cogito, Ergo Sum

3 August 2020

BUY

 Target Price: **€3.8**

 Upside: **+32%**

Enviably Positioning within the AI Megatrend

Expert System is one of the world leaders in artificial intelligence (AI) specializing in the analysis and understanding of textual content. The group has established itself as a major player in the sector and is cited in the most influential journals such as Forrester and Gartner. Its powerful reputation has enabled it to win contracts with leading clients (ING, Thales, Dow Jones, ENI, etc.) that are diversified by sector and outstandingly loyal (churn <2%). The world market for Natural Language Processing (NLP) is expected to grow by 31.9% CAGR over the period 2019-2025, representing a 5.4-fold increase in market size. This megatrend is driven by the increase in worldwide data generation and the technology's simplicity, which favours mass adoption. Expert System is ideally positioned to take advantage of this structural megatrend thanks to 15 years of having a competitive advantage in this field.

A Strategic Shift Towards Recurring License Sales

The group's ambition is to move to a business model based on recurring contracts. The majority of new customers have opted for a recurring license (76% of license sales in 2019) at the expense of perpetual licenses. In order to achieve this objective, ES has invested in simplifying its technology and launched a new free solution with limited functionalities in order to promote the mass adoption of its innovative offer and encourage up-selling. The deployment of the Software as a Service (SaaS) platform, launched in July 2020 and fully released in March 2021, will significantly improve the visibility of the company's revenue, which should become more predictable.

Rapid Business Scale Up With Strategic Partnerships

The group intends to build strategic partnerships to gain visibility and accelerate its business development. Expert System allies himself with Tier 1 systems integrators and consulting firms such as Atos, Capgemini or Deloitte and regional mid-market players (Tier 2). This indirect marketing method is expected to represent approximately 35-40% share of revenue (vs. 10% in 2019) by 2024E. Expert System wishes to extend its presence in the U.S. and expects CAGR revenue growth of around 70% in this high-potential region. The recent success of its €25 million capital increase provides the Group with the necessary funding to fully implement its 2020-2024 "Path to Lead" strategic plan.

Still an inconsistent discount vs. peers

Expert System shares are trading at a significant discount vs. peers with a multiple EV/Sales 2021E @3.4x (vs. average peers @5.1x), despite being a best-in-class in terms of technology offered to customers as well as its overall competitive advantage.

Following our valuation (50% DCF, 50% EV/Sales) we **are upgrading our 12-month target price to €3.8 (vs. €3.0)** and reiterating our **Buy rating**.

Market Data

Sector	AI
Share price (€)	2.85
Market Cap. (€m)	125.36
Market Segment	AIM Italia
Bloomberg	EXSY IM

Ownership structure

Founders & mgmt	21.8%
Free Float	68.7%
ERGO	9.5%

€m (31/12)	2019	2020E	2021E	2022E
Sales	31.7	31.0	33.5	46.5
<i>Change</i>	<i>10.3%</i>	<i>-2.0%</i>	<i>8.0%</i>	<i>38.8%</i>
EBITDA	5.5	1.2	-5.2	-0.8
<i>Margin</i>	<i>17.2%</i>	<i>3.8%</i>	<i>-15.6%</i>	<i>-1.7%</i>
Net Income	-1.0	-1.6	-12.7	-9.9
EPS (€)	-0.03	-0.04	-0.25	-0.20
<i>Change</i>	<i>n.m.</i>	<i>n.m.</i>	<i>n.m.</i>	<i>n.m.</i>
Dividend (€)	0.00	0.00	0.00	0.00
<i>Dividend Yield</i>	<i>0.0%</i>	<i>0.0%</i>	<i>0.0%</i>	<i>0.0%</i>
FCF	0.0	-5.4	-13.9	-9.7
ROCE	-12.7%	-25.4%	-48.9%	-36.4%
EV/Sales (x)			3.4	2.7
EV/EBITDA (x)			-21.8	-156.0
P/E (x)			-9.9	-12.7
Net Debt	2.8	-25.1	-11.4	-1.8
<i>Net Gearing</i>	<i>14%</i>	<i>-52%</i>	<i>-31%</i>	<i>-7%</i>

Midcap Partners estimates

Next event

09/28/2020 Résultats S1 2020

Recommendation history

17/01/2019 Buy

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SUMMARY

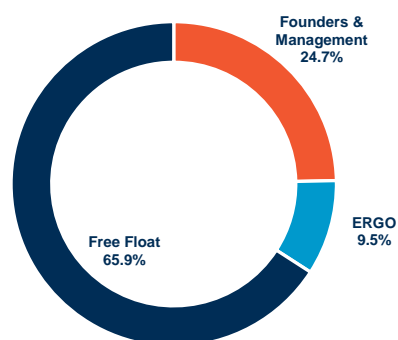
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OVERVIEW

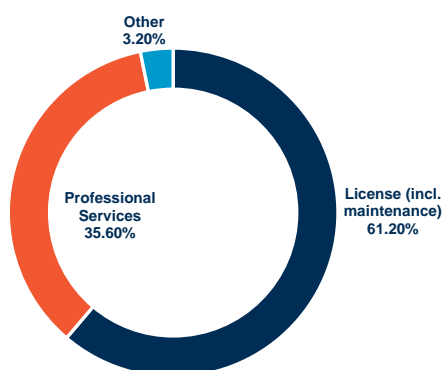
Description

Founded in Modena (Italy) in 1989, ES is a world leader in artificial intelligence, developing and marketing cognitive analysis software based on artificial intelligence algorithms (Robotic Process Automation or RPA segment). Its software is capable of reading and understanding the content of textual documents in 12 different languages. Its flagship platform offers a unique mix of natural language comprehension algorithms and machine learning to help organizations bring understanding to any type of text with a view to accelerating business processes, improving knowledge discovery and decision making.

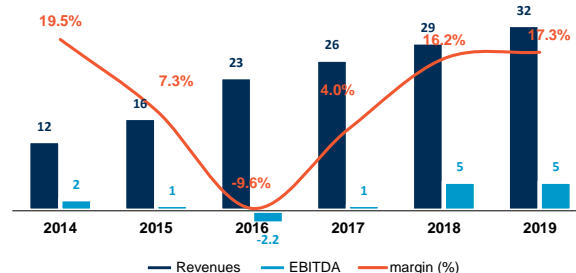
Shareholders



Revenue breakdown by segment (FY 2019)



Published revenue and EBITDA trends (€M)



SWOT Analysis

Strengths

- Independent leader in semantic cognitive AI
- Market validation (company mentioned in the most prestigious industry journals such as Gartner & Forrester)
- Strong know-how and possibility to implement tailor-made solutions
- Protected and patented technologies also in the U.S.
- The majority of the revenue is recurring thanks to its licenses and maintenance.
- Migrating to an annual vs. previously perpetual licensing model
- Good stock liquidity vs. sector

Opportunities

- Strong growth in the addressable market
- Aggressivity in terms of Pricing Power
- X-sell and up-sell strategies
- Centralise R&D in a country offering significant tax savings
- Could spark the interest of tech giants

Weaknesses

- Low margins despite high Pricing Power
- Significant investments in R&D and business

Threats

- Risk of dilution following a potential capital increase
- Competition from tech giants, even if the ES offering is not part of their core business

Sources: Company, Midcap Partners

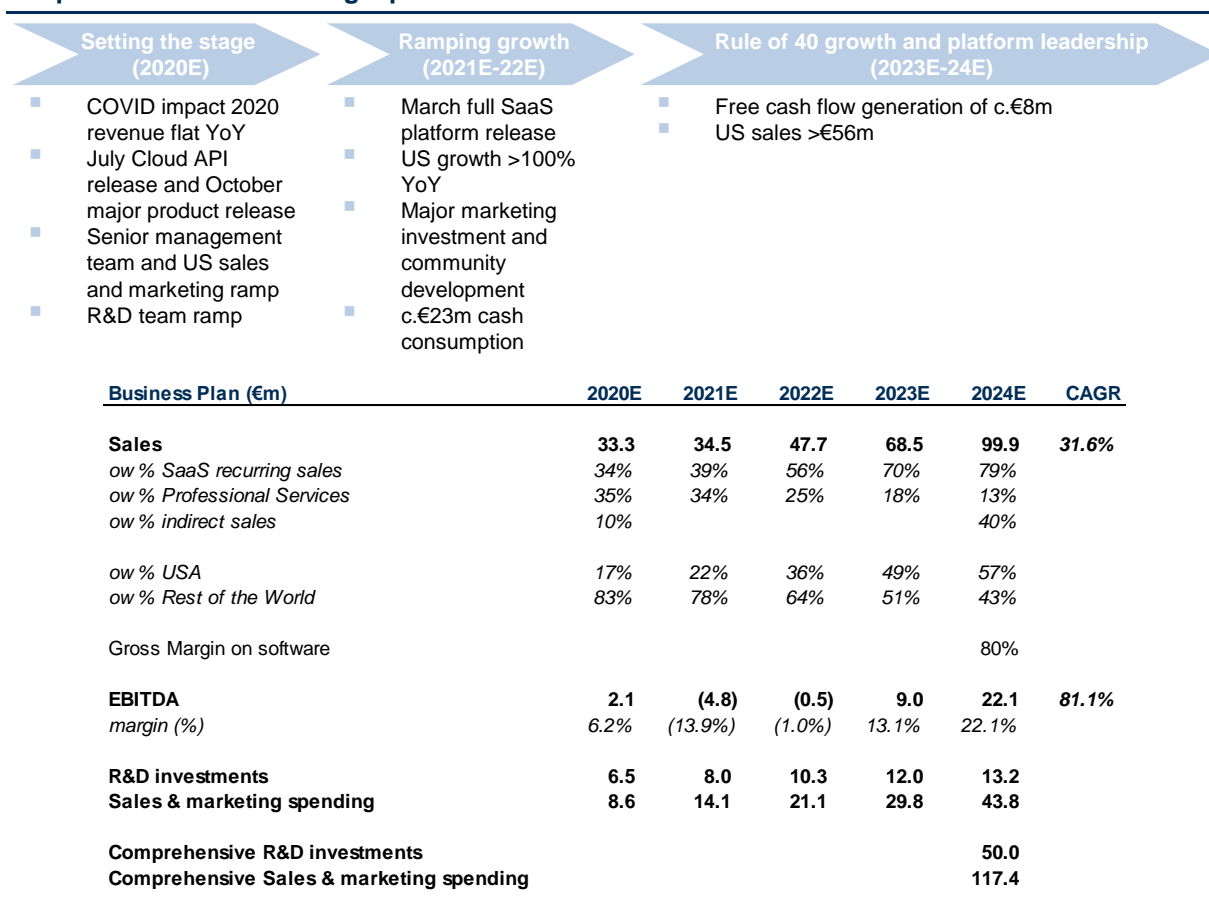
Expert System: Cogito, Ergo Sum

A new strategic plan for 2020-2024: "Path to Lead"

ES released its new strategic plan 2020-2024 approved by the BoD on 9 June 2010, showing a strong acceleration of the company's growth in the Artificial Intelligence (AI) market, with a 2024E revenue of €100m associated with an EBITDA of €22m (22% margin). This success is based on three pillars, (i) R&D investment to maintain a technological lead, (ii) sales & marketing investments in the U.S. to fuel the group's growth and consolidate their strong and growing customer base in Europe, and (iii) developing major business partnerships extending its reach and in order to serve its customers as part of its broader digital transformation.

The 2020E-24E strategic plan is subdivided into three distinct phases, as presented below.

Graph 1: 2020E-24E Strategic plan



Sources: Company, Midcap Partners

- Sales:** Revenue forecasts are primarily based on high-potential markets, particularly in the U.S., which offer significant growth margins and a thriving innovative ecosystem that can support the ES plan to expand, develop and succeed. Key investments will focus on the overall go-to-market strategy, where the company plans to hire qualified marketing and sales professionals;



- **Significant shift in sales:** The target for SaaS is to reach 79% of total sales in 2024E (+63% CAGR), of which 52% will come from the U.S. (+116% CAGR). As a result, professional services revenue is expected to decline significantly from 36% of total revenue in 2019A to <13% in 2024E;
- **Substantial structuring investments:** R&D (c.€50.0m), and sales and marketing activities (c.€117.0m);
- **Substantial financing needs:** Need for c.€30.0m of cash to finance the plan, which will be mobilized through various financial instruments, including the capital increase conducted in july 2020 for an amount of c.€25.0m.

Modification of our estimates

We have opted for a more conservative approach than management's BP in order to reach our estimates, which have since been revised downwards. This has led us to modify our estimates.

Specifically, we have factored in:

- The effect of COVID-19 on business;
- The high potential for U.S. development;
- Investments in sales, marketing and R&D;
- The sale of the 17% stake in Cy4Gate (IPOed in June 2020) for €5.4m for an investment of €0.25m;
- The dilutive effect of the capital increase amounting to €25.0m at €2.7 in july 2020 (9.26 NoSHm).
- The dilutive effects of the 2020E-23E stock grant (3.2 NoSHm - potential dilution of 7.2%) and stock option plans (1.8 NoSHm - potential dilution of 4.2%), for a total potential dilution of c.11.4%.

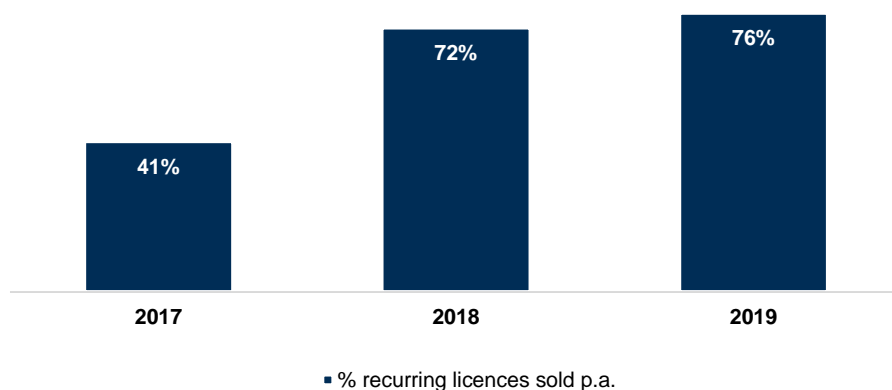
Estimates (€m)	FY2020E			FY2021E		
	OLD	NEW	Δ N/O	OLD	NEW	Δ N/O
Sales	33.0	31.0	(6%)	37.0	33.5	(9%)
EBITDA	5.7	1.2	(79%)	7.0	(5.2)	(175%)
<i>margin (%)</i>	<i>17.3%</i>	<i>3.8%</i>	<i>(13 pt)</i>	<i>18.9%</i>	<i>(15.6%)</i>	<i>(35 pt)</i>
NI	(2.0)	(1.6)	23%	(0.6)	(12.7)	(2115%)
<i>margin (%)</i>	<i>(6.1%)</i>	<i>(5.2%)</i>	<i>1 pt</i>	<i>(1.6%)</i>	<i>(37.9%)</i>	<i>(36 pt)</i>
Fully diluted EPS (€)	(0.05)	(0.03)	47%	(0.02)	(0.23)	(1173%)
ND / (cash rich)	5.9	(25.1)		9.4	(11.4)	
<i>Leverage ratio</i>	<i>1.0x</i>	<i>(21.2x)</i>		<i>1.3x</i>	<i>2.2x</i>	

The plan's outcome will naturally depend on (i) new product launches and offers (including OEMs), (ii) the GM on the software (c.80%), (iii) the NDR target, (iv) the contribution of the indirect distribution channel to revenue, (v) the variations and integration of HC (Sales & Marketing and R&D), and (vi) the conversion rate of Freemium to the pay model (which we consider to be the most important risk factor).

A strategic shift towards recurring license sales

- ES is the independent market leader in cognitive analytics technology for unstructured content management and has a strong growth profile;
- **A complete and distinct products & services offer:** Cogito, the software developed by ES is different from existing traditional technologies that generally treat texts as strings of characters (keywords) or by approaches based on statistics;
- **Continuity of the shift in the licensing offer:** In 2019, the vast majority of new customers opted for a recurring license (76% of total licenses sold in 2019 vs. 72% and 41% in 2018 and 2017 respectively) vs. perpetual. These results confirm the efforts made by ES in implementing a new business model based on recurring contracts. The group's objective is also to fully move to recurring licenses and to launch their new SaaS (Software as a Service) platform to directly serve all companies or individual users who decide to implement Cogito in their platforms, applications and IT systems. The SaaS platform will be launched in July 2020 for full delivery of the solution by March 2021. The deployment of this offering will significantly improve the visibility of ES revenues, which will be more predictable.

Graph 2: A shift towards recurring license sales

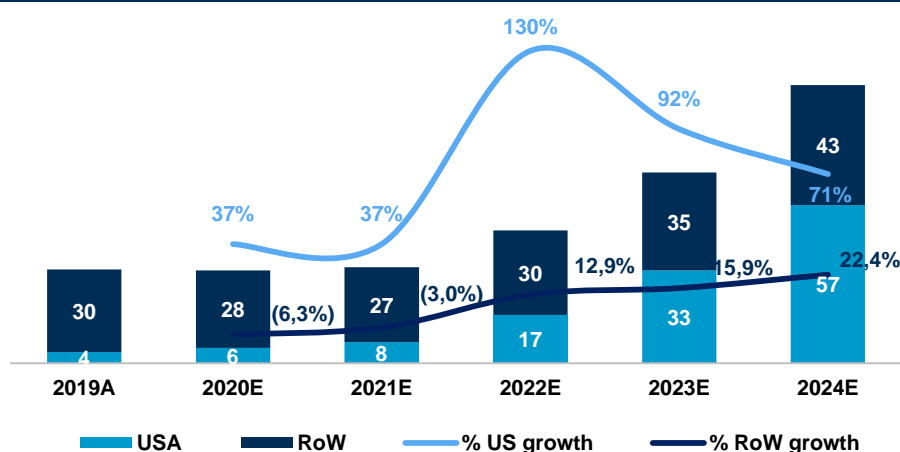


Sources: Company, Midcap Partners

Ambitions for international growth

- The Group is present in seven countries: Italy, France, Spain, Germany, United Kingdom, United States, Canada, United States and France;
- The group's gradual internationalisation: the revenue share generated from exports represented 54% in 2019 vs. only 17% in 2013;
- FY2019 revenue up +15% YoY in Italy, flat in Europe including +41% YoY in FR, and up +15% in the US;
- The company wishes to extend its U.S. presence and plans to concentrate on the banking and insurance sectors, as well as on the information, publishing and media sectors;
- ES has also recently opened an office in Switzerland with a focus on finance, insurance, pharmaceuticals and international institutions.

Graph 3: The U.S. represents the strongest growth driver (€M)



Sources: Company, Midcap Partners

A sophisticated business organization

- **The group’s gradual internationalisation:** as mentioned above, the revenue share generated from exports represented 54% in 2019 against only 17% in 2013;
- **Priority of development focused on the U.S.:** where the group has been able to build up a high level sales and management team and remains confident about its development in this area with a significant track record and an enriched pipeline;
- Opening of a branch in Switzerland;
- **The group’s commercial optimisation:** The indirect marketing method is expected to represent a significant share of revenue at MT (vs. 10% 2019A), through key partnerships with (i) systems integrators (ATOS, Cap Gemini, Sopra Steria, Cloudera, etc.), and (ii) consulting firms (Deloitte, Accenture, etc.), enabling the group to improve its visibility and working capital. We believe, however, that it is particularly complicated to rapidly develop such large partnerships (it is time consuming in terms of certifications and training to be implemented - in 18 months, this represents only 10% of sales) in addition to the competition with other more experienced RPAs (Blue Prism, UiPath, Automation Anywhere, etc.), potentially more interesting to commercially distribute using these partners, and the solution’s low pricing;
- **Customer re-targeting strategy:** oriented towards strategic customers with significant stakes such as multinationals with a larger AI budget, being more capable of technological change, with a view to better invoicing throughout the year and thus reduce the seasonality effect on H2;
- **Optimisation of the revenue mix:** The above-mentioned migration towards an annual licence offer to the detriment of perpetual licences;
- **Loyal customer base** (churn <2%), sectorally diversified and not very concentrated, the top #1 customers and #10 customers contributed 4% and 32% to 2018A revenue respectively (vs. top #10 @32% in 2018). It should be noted that on this type of technology, churn is very low since the associated cost in terms of change management is high.

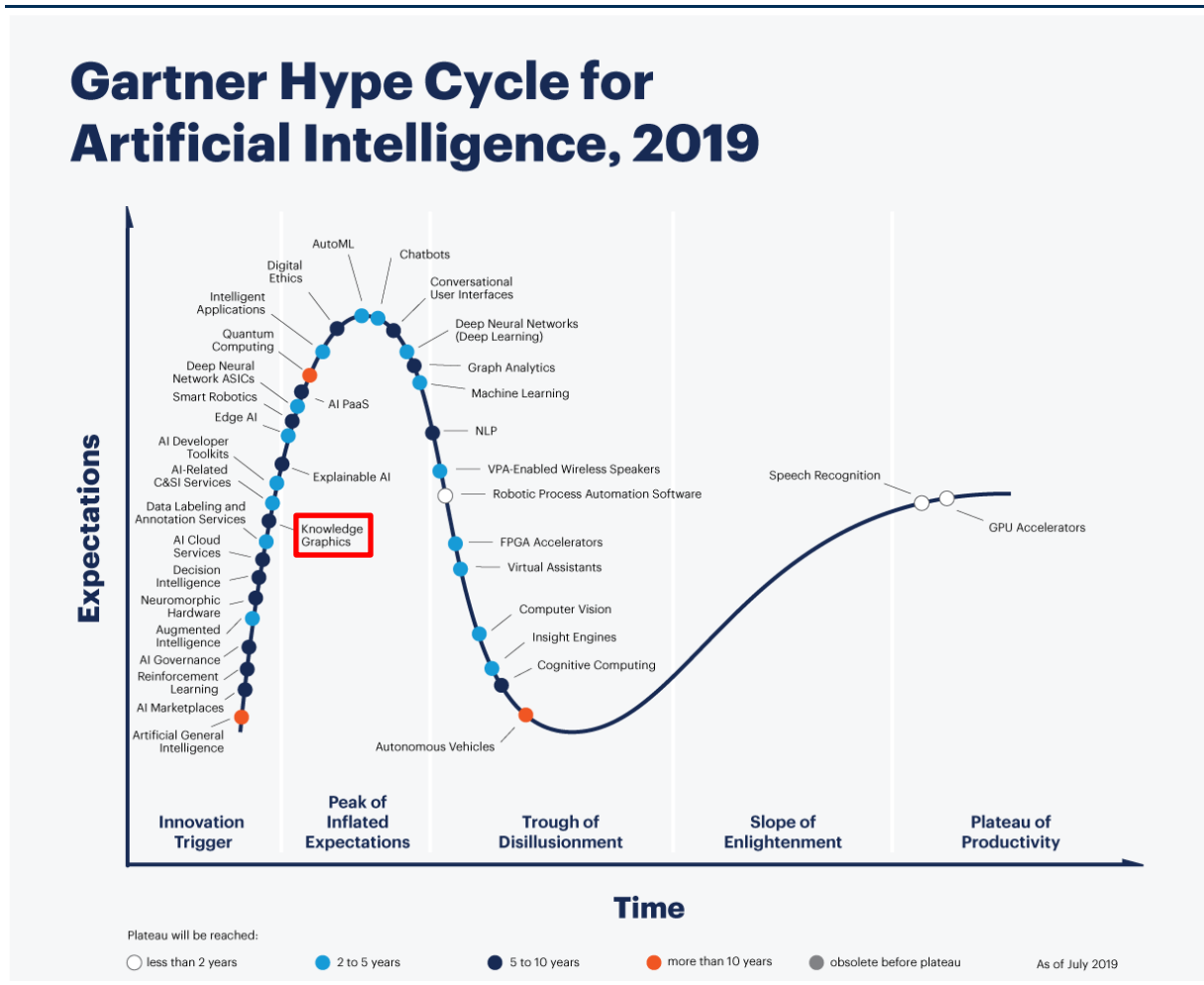
Strong competitive positioning giving access to major contracts that enhance the group's credibility and visibility

- **A solid reputation:** Thanks to its unique offerings and expertise, ES has established itself as an independent leader in the sector, enjoys significant influence, is cited as a reference by the most influential players and sector experts such as Forrester, Gartner, Google, Forbes, etc., and has also won several significant awards, including the S&P 500 Blue Chip;
 - **Forrester:** ES has been included in "Now Tech: AI-Based Text Analytics Platforms, Q1 2020", a report from Forrester Research, Inc. This report is designed to help text analytics professionals understand the value they can expect from a provider of AI-based text analytics platforms;
 - **Gartner:** ES was recognised in Gartner's 2019 Magic Quadrant for Insight Engines for the third consecutive year. "Expert System has a long pedigree in developing AI technologies across a number of use cases and has developed a cache of semantic assets (taxonomies, ontologies, etc.) with a customer base that covers a range of industries for this market";
- **ES with >100+ active clients** has been able to enrich its client base also internationally, for example in France, where the group provides its range of services to the French government, as well as to large groups such as BNP, AXA, Crédit Agricole, Sanofi, Thalès, EDF, Les Echos, SEB, etc.
- In proof-of-concept tenders, ES wins the bid in an average of 70% of cases, demonstrating a high success rate;
- **Competitive environment:** The group's main competitors are mainly private companies of modest size, more specifically by sector, (i) open source libraries/repositories with non-flexible and difficult to deploy platforms (e.g. spaCy, StanfordNLP, NLTJ, etc.), (ii) open source libraries/repositories with non-flexible and difficult to deploy platforms, (iii) open source libraries/repositories with a high degree of flexibility (e.g., spaCy, StanfordNLP, NLTJ, etc.) and (iv) open source software with a high degree of flexibility (e.g., StanfordNLP, NLTJ, etc.), and (v) open source software with a high degree of flexibility (e.g., StanfordNLP, NLTJ, NLTJ, etc.).), (ii) AI (Machine Learning / NLP) companies such as H2O.a1, Data robot, and (iii) companies focused on a proprietary, inflexible environment and infrastructure (e.g. Google, Amazon, and Microsoft), as the offerings of these mastodons are too standardized and inflexible.

As noted above, Gartner emphasizes the importance of knowledge graphs for any AI technology that seeks to implement cost-effective and scalable natural language understanding (NLU).

Cogito was designed from the outset with the knowledge graph as a key component of its features and has 15+ years of competitive advantage in this area. Cogito's rich representation of the ES language provides practical and explainable AI to solve real business problems. ES is one of the pioneers in the development and use of knowledge graphs, highlighting the avant-gardism and uniqueness of its offering.

Graph 4: Knowledge graphs, a substantial megatrend



Source: Gartner

Rapid scaling-up w/ strategic business partnerships

The group also intends to develop strategic partnerships to gain visibility and thus boost its sales with a positive effect on WC management.

- **Development of strategic partnerships:**

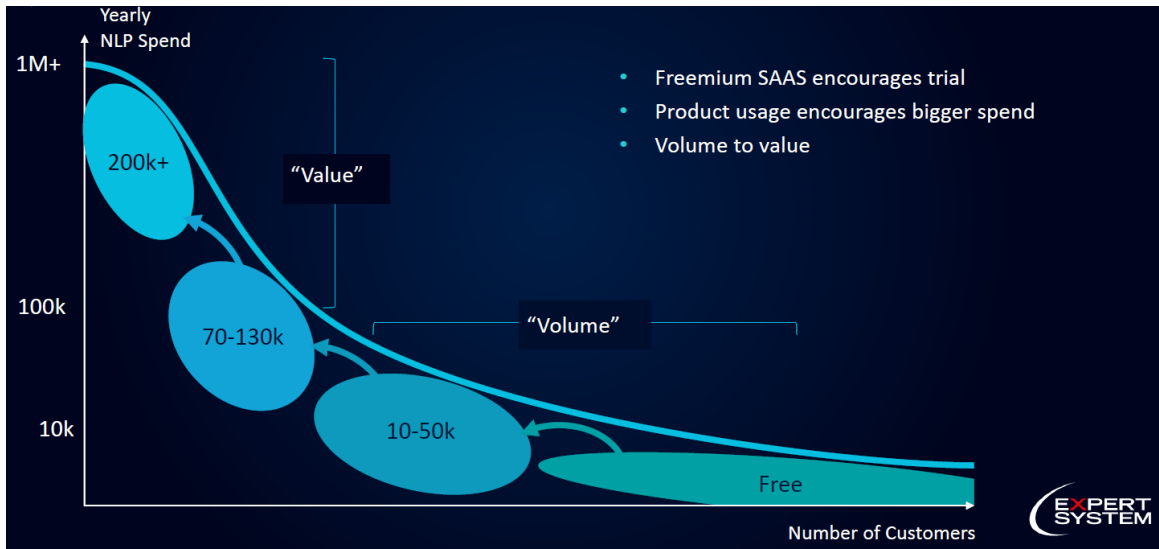
- **Main partners:** System integrators and consulting firms (Tier 1), medium-sized local players (Tier 2);
- **Preliminary results:** €3m in FY2019 for 10% of the revenue;
- **New training and certification program:** 500+ professionals have had access to the program in 40+ companies in 25+ countries;
- **Main transactions through this new channel:** Multi-year defence programmes in two major EU countries, EU Primary Bank automation project, automation project for a UK government agency;

Towards a more profitable business model

■ Commercial model:

- **Future reduction in professional services** (c.36% of 2019A revenue vs. <20% of 2024E revenue): So far, software sales to corporate customers (early adopters), with high customization rates and a gross margin of only c.30% (vs. 80%-100% for software license sales), thus hindering the group's profitability. The aim is to reduce this share to <20% of revenue by 2024E;
- ES considers that the Freemium trial in SaaS mode encourages the technology's testing, that the product's use encourages more spending on the part of the user through a volume-to-value model;
- **Freemium in SaaS mode:** ES aims to attract Open Source software users and encourage trials with free access to SaaS mode, sweetening the deal with a low cost policy, and creating up-sell opportunities through product use. This should enable the group to accelerate the sourcing of new customers and reduce the cost of providing services to qualified prospects. This freemium model offers potential customers the opportunity to test the technology without having to go through a lengthy purchasing and implementation process. Some users may choose to remain on the freemium version of the software, though it only offers limited functionality, while others may choose to unlock premium functionality by upgrading to a paid version;
- **Commercial partnerships:** The indirect marketing method is expected to account for a significant portion of MT's revenue (vs. 10% LFY), through key partnerships with (i) systems integrators (e.g. ATOS, Cap Gemini, Sopra Steria, Cloudera, etc.), and (ii) consulting firms (e.g. Deloitte, Accenture, etc.), enabling the group to improve its technology's adaptation as well as the group's visibility;
- **Focusing on key verticals** (insurance, financial services, information/publication/media) providing industry-specific solutions;
- **Target Audience:** ES targets a large user community consisting of c.100k scientists, >6k companies, 500+ OEMs, and Tier 1 and Tier 2 solution integrators;
- **Pricing policy:** Pricing can vary between \$10k-500k, or even more for more sophisticated infrastructures, depending on the type of consumption (users, volumes, functionalities);
- Unless of course it can be concretely demonstrated, we believe that this pricing policy is particularly complicated especially regarding the shift from free to monetization.

Graph 5: Visualization of the group's pricing policy

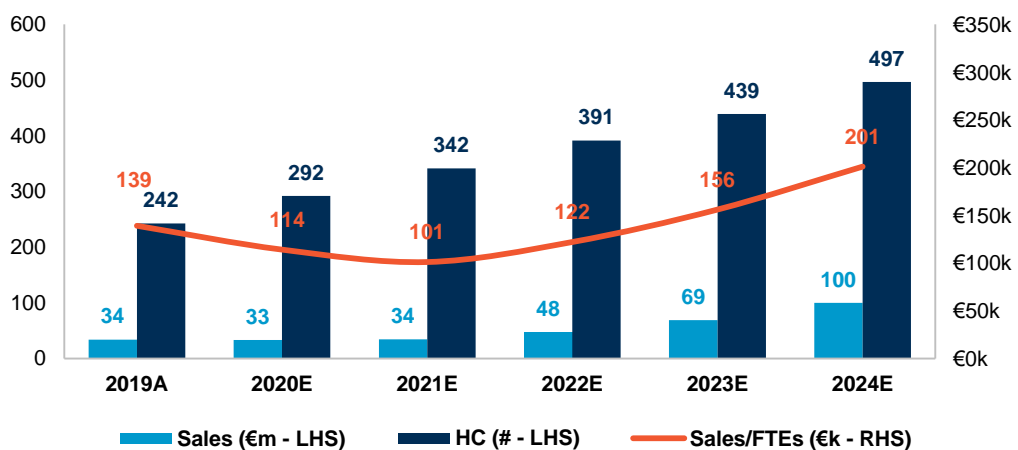


Source: Company

Towards an increase in Sales/Headcount and margins

- The revenue/employee should increase significantly over the next few years as a result of the development of new commercial offerings and a new pricing policy as mentioned above;
- Revenue trend 2019A-24E CAGR: +24.3% or 3.0x ;
- Evolution of the Headcount (HC) 2019A-24E CAGR : +15.5% or 2.1x ;
- Sales/HC 2019A-24E CAGR : +7.7%, i.e. 1.4x ;
- We have noted that the Sales/HC ratio has evolved less quickly than the increase of the HC in CAGR, thus highlighting problems of operational efficiency and/or pricing of the solution.

Graph 6: Forward-looking Sales/HC trends



Sources: Company, Midcap Partners

Strategy and growth model

ES's main objective is to maintain its position as an independent market leader for cognitive analysis technology for managing unstructured content by building on its technological leadership in this area.

ES has defined clear strategic orientations for the coming years, with a strong focus on organic growth, *inter alia* :

- Massive investments in sales & marketing, especially in the U.S. with a focus on the insurance, finance and Information/Publishing/Media sectors;
- Accelerate its expansion through partners, notably through the selection of global and local solution integrators and targeted AI/RPA solution providers;
- Accelerate the adoption of annual recurring, consumption-based pricing that expands opportunities with existing customers, but also through the SaaS offering;
- Software gross margin >80%;
- Services <20% of total revenue in 2024E ;
- Refocusing on high value-added customers;
- Development of distribution through indirect channels at c.40% by 2024E;
- Development of the OEM offer in association with certain software companies operating in cognitive research, sales & marketing, and language comprehension solutions.

ES does not currently intend to engage in M&A, as its latest transactions are in the process of being integrated and rolled out.

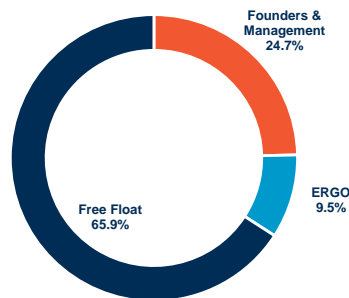
Changes in shareholder and managerial structures with a view to value creation

Successive capital increases constitute a substantial risk of dilution, though it should be noted that ES has raised less capital than its peers. The evolution of the shareholder structure is summarised below:

- **An interested team of founders:** ES benefits from an experienced management team having highly experienced backgrounds. They have been accompanying the group's development since its creation. The latter is also interested through the share they hold in the company (c.22% of the capital).
- **April 2019 capital increase:** ERGO (9.5% of the capital) became part of the group's capital in April 2019 during a Primary ABB. This HoldCo is controlled by influential private investors such as Claudio Costamagna (former Chairman of the IBD of Goldman Sachs EMEA, former CEO of Bulgari, Luxottica, Salini Impregilo, Cassa Depositi e Prestiti (Italian Ministry of Finance), Diego Piacentini (member of Bocconi's Management Board), former VP of Amazon, former GM of Apple Europe), and Francesco Caio (CEO of Saipem, former CEO of Poste Italiane whose IPO he orchestrated in October 2015, former CEO of Avio (partially sold to GE), former VP of Nomura and Lehman Brothers, former CEO of Indesit) - allowing them to infuse their best practices within the group.
- **May 2020 capital increase:** ES carried out a primary ABB in May 2020 for an amount of c.€3m (1.11m shares @€2.7) subscribed by Indaco Venture Partners SGR (1.8% of the capital) and Invesco (0.9% of the capital) in order to accelerate its international development, notably in the USA.

- July 2020 capital increase:** ES carried out a capital increase with subscription rights of 7.9 M€ (2.9m shares @ 2.70€) and a capital increase by ABB of 17 M€ (6.3m shares @ 2.70€) subscribed by institutional investors. This fund raising follows the launch of the new strategic plan 2020-2024 "Path to Lead" which anticipates a funding requirement of around €30 million. The success of the operation (100% subscribed) reflects investors' confidence in the Group's development strategy and in its new CEO, Walt Mayo, to execute it.

Graph 7: Shareholders



Source: Company

The management team has also undergone significant changes over the past year, reflecting the group's planned internationalisation:

- February 2020:** The appointment of the group's new CEO, Walt Mayo, who is based in the U.S. and has a strong background in business development (graduate of Harvard University, held key positions at White House for years, and former GM of Dell for Southern Europe, Australia, Japan, and Asia generating >\$2.5bn in sales). Stefano Spaggiari, one of ES's founders and former CEO, is now CEO of the company's Italian branch.
- March 2020:** Appointment of Gabriele Donino as COO, who recently headed Digital and AI Solutions for Swiss Re.

Covid-19 response

- Intangible Business Model:** ES has an intangible BM (IA software) that offers flexibility with the implementation of an efficient and scalable business continuity plan thanks to the use of remote working. ES has a healthy regional diversification, mitigating the risk of geographical concentration;
- Risk related to the reduction of business activity:** particularly with regard to upsell, as well as new customer prospecting, which generally requires physical travel to carry out proof of concepts. In addition, we expect a temporary slowdown in certain projects with customers and prospects;
- Stable revenue over the period, combined with a favourable calendar effect:** 1) the ES offer is in the form of a licence, the price paid by the customer is not reduced if suddenly the platform happens to be used less frequently due to a general slowdown, and 2) the calendar effect is currently favourable for the group which is subject to strong seasonality (c.60% of revenue generated in H2 of each FY, even if this is partially linked to the marketing efforts made in H1);

- **Product development:** Making their Clinical Research Navigator (CRN) tool available to medical researchers to search, filter and cross-reference essential information with that from major clinical trial registries, publication databases, donor searches and social media feeds. ES offered biomedical researchers free access to the tool worldwide until 1 July. The ES CRN tool is available on the Cloud (SaaS). In addition, the Intelligence Platform for Medical provides a horizontal scan to aggregate data and highlight key indicators of emerging medical threats for the purpose of alerting government emergency management and early warning agencies;
- **Towards a Partial Shift to SaaS:** Empirically during the Covid-19 crisis, SaaS software vendors demonstrated greater resilience than those distributing their licenses live.

Speculative bias on the record

We believe that ES has a significant speculative bias in that the group would be an ideal target for potential buyers wishing to acquire cutting-edge technology in a high-potential market. This effect is further enhanced by the fact that the free float represents 69% of the capital. Management however is necessary for business's continuity and success. In this sense, a possible M&A transaction will only be carried out with management's prior agreement. We understand, however, that the founding shareholders would be prepared to sell their stake at the right price.

- **Sale of ADmantX to IAS (Nov. 2019):** Speculative bias was recently demonstrated in the sale of the group's subsidiary ADmantX to Integral Ad Science (IAS), the world leader in digital ad verification, for an EV of €16.0m (i.e. 8x 2018 revenue);
- **CY4GATE IPO (June 2020):** ES sold its 17% stake in CY4GATE - a company founded in 2014 and operating in the cyber security sector - contribution of €0.1m/year to ES P&L - at its IPO on 24 June 2020 on AIM Italia (@€3.15/share, corresponding to a net gain of c. +€5.3m).

Valuation

Methods used for the evaluation

To determine the intrinsic value of the Expert System shares, we used a multi-criteria approach comprising (i) the intrinsic method of discounting the Free-Cash-Flow to the Firm and (ii) the analog valuation method with the stock market multiple EV/Sales 2021E.

It should be noted that the valuation of Expert System depends also on the conditions of the stock grant and stock option transaction covered by the 2020E-2023E plan.

Number of shares retained

Here is ES's valuation according to a conservative scenario including the 3.2M shares and the 1.8M shares that will be granted following the stock grant and stock option programs by 2023. These additional shares would be in addition to the 1.11M and 9.26M shares issued in 2020 as part of the capital increases.

Graph 8: Number of shares retained 2020E-2024E

	2020E	2021E	2022E	2023E	2024E
Nb of shares BoP	41.1	50.4	50.4	50.4	50.4
Capital increase @2.7€	9.3	0.0	0.0	0.0	0.0
(-) Treasury Shares	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
(+) Stock options	3.2	4.4	5.7	6.9	6.9
Fully diluted Nb of Shares	53.5	54.7	56.0	57.2	57.2

Sources: Company, Midcap Partners

Bridge from Enterprise Value to Equity Value

We have established the bridge on the basis of the information disclosed in the group's consolidated financial statements concerning net debt. As a reminder, the bridge also depends on the terms of the capital increase.

Graph 9: Equity Bridge

	2020E	2021E
Financial net debt	(25.1)	(11.4)
(+) Net provisions (incl. pensions)	3.2	3.2
(-) Discounted DTA	(2.7)	(2.7)
Equity Bridge	(24.7)	(11.0)

Sources: Company, Midcap Partners

Methods for updating the FCFF

For this approach, we use the following assumptions:

Normative flows

- A normative EBITDA margin rate of 29.7% by 2029E
- Capital expenditure (Capex) stable at 13.5% of revenue
- A stable WC at 18.1% of revenue
- Corporate tax modeling in line with the Italian 24% tax rate

Discount rate

- A risk-free rate of 1.5% (10Y Germany Bond + Country Risk Premium)
- An equity risk premium of 8.5%.
- A beta re-leveraging of 0.90x integrating a 100% equity capital structure
- A size and liquidity premium of 150bps
- An after-tax cost of debt of 2.0%.
- Long-term growth rate of 3.0% given the very strong dynamics of the addressable market
- A 10.7% WACC

Graph 10: Methods of updating the FCFF

FY ending on 31 Dec. (EURm)	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E
Sales	31.0	33.5	46.5	67.5	99.0	137.0	178.0	216.6	245.5	257.8
Δ %	(2.0%)	8.0%	38.8%	45.2%	46.7%	38.3%	30.0%	21.7%	13.3%	5.0%
EBITDA	1.2	(5.2)	(0.8)	8.5	21.7	33.1	46.7	60.5	71.6	76.5
EBITDA margin	3.8%	(15.6%)	(1.7%)	12.6%	21.9%	24.2%	26.2%	28.0%	29.2%	29.7%
D&A	(7.5)	(8.0)	(9.3)	(11.2)	(13.0)	(18.1)	(23.7)	(29.0)	(33.0)	(34.9)
D&A as % sales	(24.2%)	(23.9%)	(20.0%)	(16.6%)	(13.1%)	(13.2%)	(13.3%)	(13.4%)	(13.5%)	(13.5%)
EBIT	(6.3)	(13.2)	(10.1)	(2.7)	8.7	15.0	23.0	31.6	38.6	41.6
EBIT margin	(20.4%)	(39.5%)	(21.7%)	(4.0%)	8.8%	10.9%	12.9%	14.6%	15.7%	16.1%
Taxes on EBIT	0.6	1.3	1.0	0.3	0.0	(3.6)	(5.5)	(7.6)	(9.3)	(10.0)
Tax rate	10.0%	10.0%	10.0%	10.0%	0.0%	24.0%	24.0%	24.0%	24.0%	24.0%
NOPAT	(5.7)	(11.9)	(9.1)	(2.4)	8.7	11.4	17.5	24.0	29.3	31.6
CapEx	(6.7)	(8.2)	(10.6)	(12.2)	(13.4)	(18.5)	(24.1)	(29.3)	(33.2)	(34.9)
% sales	(21.6%)	(24.5%)	(22.8%)	(18.1%)	(13.5%)	(13.5%)	(13.5%)	(13.5%)	(13.5%)	(13.5%)
WC	16.7	18.5	17.8	17.1	17.9	24.8	32.2	39.2	44.4	46.7
% sales	53.9%	55.2%	38.3%	25.3%	18.1%	18.1%	18.1%	18.1%	18.1%	18.1%
Δ WC	(0.5)	(1.8)	0.7	0.7	(0.8)	(6.9)	(7.4)	(7.0)	(5.2)	(2.2)
% sales	(1.5%)	(5.3%)	1.5%	1.1%	(0.8%)	(5.0%)	(4.2%)	(3.2%)	(2.1%)	(0.9%)
Unlevered Free Cash Flow (FCFF)	(5.4)	(13.9)	(9.7)	(2.7)	7.5	4.1	9.6	16.7	23.9	29.4
Time coefficient	0.4	1.4	2.4	3.4	4.4	5.4	6.4	7.4	8.4	9.4
DF	1.0	0.9	0.8	0.7	0.6	0.6	0.5	0.5	0.4	0.4
Cash conversion on EBITDA	(451.3%)	264.8%	1220.6%	(31.9%)	34.4%	12.3%	20.6%	27.5%	33.4%	38.4%
Discounted FCFF	(5.1)	(12.0)	(7.6)	(1.9)	4.8	2.4	5.0	7.8	10.1	11.3
Σ discounted FCFF	14.7									
Terminal trailing EV/EBITDA 2029E	5.1x									
+ Discounted Terminal Value	150.2									
% EV	91.1%									
= Enterprise Value	164.9									
- Equity Bridge	24.7									
= Equity Value	189.6									
Fully diluted NoSHm	53.5									
Price target	3.55									
Potential upside (downside)	24.6%									

		TGR				
		2.0%	2.5%	3.0%	3.5%	4.0%
WACC	9.7%	3.81	4.04	4.30	4.60	4.95
	10.2%	3.49	3.68	3.89	4.14	4.43
	10.7%	3.20	3.36	3.55	3.75	3.99
	11.2%	2.95	3.09	3.24	3.42	3.62
	11.7%	2.72	2.84	2.98	3.13	3.30

Sources: Company, Midcap Partners

Graph 11: Sensitivity analysis - Enterprise Value (in €M)

		TGR				
		2.0%	2.5%	3.0%	3.5%	4.0%
WACC	9.7%	179.2	191.3	205.1	221.2	240.0
	10.2%	161.7	171.9	183.5	196.8	212.3
	10.7%	146.4	155.1	164.9	176.0	188.8
	11.2%	132.9	140.3	148.7	158.1	168.9
	11.7%	120.9	127.3	134.5	142.6	151.7

Sources: Company, Midcap Partners

According to the DCF method, the enterprise value amounts to €165m, representing a price per share of €3.55.

Peer comparison valuation methods - IA / RPA (principal)

We have identified peer companies based of their positioning in the AI sector, more specifically in Robot Process Automation. Differences, however, remain.

Graph 12: Description of peers

Comparable	Description
	Blue Prism Ltd. fournit un logiciel d'automatisation des processus robotiques. Ses produits comprennent Robotic Process Automation et Blue Prism. La société a été fondée par Alastair Bathgate le 26 juillet 2001 et son siège social est situé à Londres, au Royaume-Uni.
	Cloudera, Inc. fournit des plateformes, des services et des solutions de gestion de données globales de niveau entreprise. Elle propose un centre de données d'entreprise, un entrepôt de données, des services de science et d'ingénierie des données, une base de données opérationnelle, Cloudera DataFlow, Hortonworks Data Platform et un atelier de science des données. Il fonctionne par le biais de segments d'abonnement et de services.
	Commvault Systems, Inc. fournit des applications logicielles de protection des données et de gestion des informations ainsi que des services connexes. Ses produits comprennent la sauvegarde et la récupération complètes, l'hyperéchelle, l'activation et l'orchestration. IT propose également des services professionnels, gérés, de support et de formation.
	Elastic NV s'engage à fournir des services de recherche et d'analyse de moteurs à code source ouvert. Elle propose Elastic Stack, un ensemble de produits logiciels qui ingèrent et stockent des données provenant de diverses sources et formats, et effectuent des recherches, des analyses et des visualisations.
	EPAM Systems, Inc. fournit des services de développement de produits logiciels et d'ingénierie de plates-formes numériques. Elle opère à travers les segments suivants : Amérique du Nord, Europe et Russie.
	Nuance Communications, Inc. est le pionnier des innovations en matière d'IA conversationnelle qui apportent l'intelligence au travail et à la vie de tous les jours. Elle propose des solutions qui permettent de comprendre, d'analyser et de réagir aux personnes, en amplifiant l'intelligence humaine pour accroître la productivité et la sécurité.
	Open Text Corp. s'occupe de la conception, du développement, du marketing et de la vente de logiciels et de solutions de gestion de l'information d'entreprise. Elle propose des solutions de gestion de l'expérience client (CEM), d'automatisation des processus numériques, de réseau d'entreprise, de gestion de contenu d'entreprise, de découverte, de sécurité, d'intelligence artificielle (IA) et d'analyse. Elle propose également des services de conseil, de gestion et d'apprentissage.
	Splunk, Inc. s'occupe du développement et de la commercialisation de solutions logicielles. Ses produits comprennent Splunk cloud, Splunk light et Splunk enterprise. Elle propose également des solutions pour les opérations informatiques, la sécurité, l'internet des objets, l'analyse des applications, l'analyse commerciale et les industries.
	Teradata Corp. s'engage dans la fourniture de solutions logicielles hybrides d'analyse des nuages. Elle opère à travers les segments géographiques suivants : Amériques, EMEA et APAC. Le segment Amériques comprend l'Amérique du Nord et l'Amérique latine. Le segment EMEA comprend l'Europe, le Moyen-Orient et l'Afrique.

Source: Companies, FactSet

Below, we compare the growth and EBITDA margin prospects expected by the analyst consensus for 2020E, 2021E and 2022E.

Graph 13: Revenue growth and EBITDA margin rate expected by analyst consensus

Company Name	Ticker	Country	Market Value (€m)		EBITDA margin			CAGR '19A-'22E			
			Equity	EV	Dec-20	Dec-21	Dec-22	Sales	EBIT	Net inc.	
Analytics											
Blue Prism Group Plc	PRSM-GB	United Kingdom	1,210	625				34%	(33%)	(31%)	
Cloudera, Inc.	CLDR-US	United States	2,815	2,472	20%	25%	26%	7%	(267%)	(265%)	
CommVault Systems, Inc.	CVLT-US	United States	1,729	1,395	20%	18%	18%	4%	16%	14%	
Elastic NV	ESTC-US	United States	6,937	4,373				22%	(20%)	(13%)	
EPAM Systems, Inc.	EPAM-US	United States	13,649	10,300	18%	18%	19%	18%	18%	18%	
Nuance Communications, Inc.	NUAN-US	United States	6,506	5,448	25%	24%	28%	(5%)	(9%)	(6%)	
Open Text Corporation	OTEX-CA	Canada	10,339	0	36%	38%	39%	7%	7%	47%	
Splunk Inc.	SPLK-US	United States	28,189	21,464	1%	10%	18%	18%	22%	18%	
Teradata Corporation	TDC-US	United States	1,927	2,878	17%	20%	20%	1%	10%	12%	
					Median Avg.	20%	20%	20%	7%	7%	12%
						19%	22%	24%	12%	(29%)	(23%)
Expert System SpA vs. Peers' Avg.			125	114	4%	(16%)	(2%)	14%	n/a	n/a	
						-1568bps	-3593bps	-2146bps	626bps	n/a	

Sources: Companies, Midcap Partners, FactSet



Thus, we obtain the following EV/Sales multiples based on analysts' estimates.

Graph 14: Multiples of peer companies

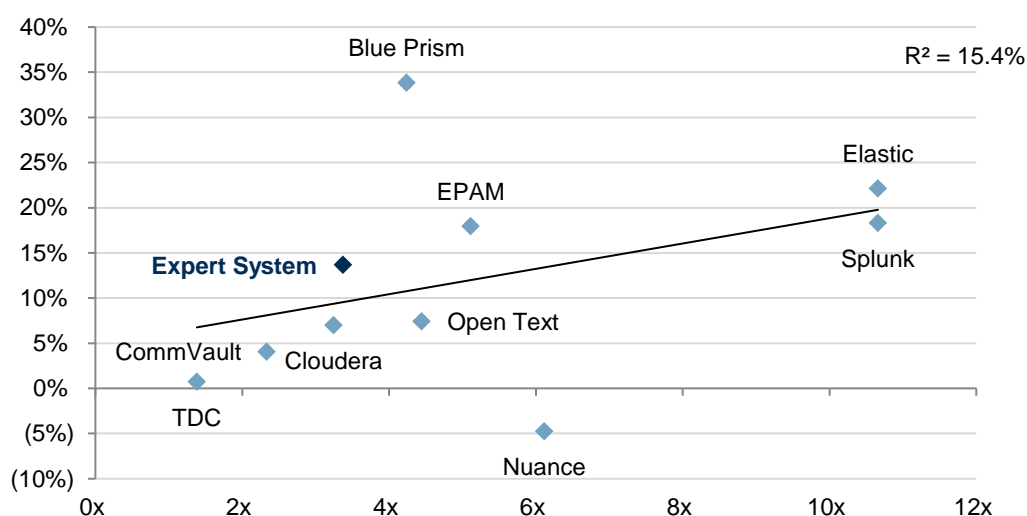
Company Name	Ticker	Country	Market Value (€m)		EV/Sales		
			Equity	EV	Dec-20	Dec-21	Dec-22
Analytics							
Blue Prism Group Plc	PRSM-GB	United Kingdom	1,210	625	5.8x	4.3x	3.4x
Cloudera, Inc.	CLDR-US	United States	2,815	2,472	3.6x	3.3x	3.1x
CommVault Systems, Inc.	CVLT-US	United States	1,729	1,395	2.5x	2.4x	2.2x
Elastic NV	ESTC-US	United States	6,937	4,373	13.6x	10.7x	9.4x
EPAM Systems, Inc.	EPAM-US	United States	13,649	10,300	6.3x	5.2x	4.3x
Nuance Communications, Inc.	NUAN-US	United States	6,506	5,448	6.4x	6.2x	5.8x
Open Text Corporation	OTEX-CA	Canada	10,339	0	4.7x	4.5x	4.4x
Splunk Inc.	SPLK-US	United States	28,189	21,464	13.4x	10.7x	8.4x
Teradata Corporation	TDC-US	United States	1,927	2,878	1.5x	1.4x	1.4x
Median					5.8x	4.5x	4.3x
Avg.					6.4x	5.4x	4.7x
Expert System SpA			125	114	3.2x	3.4x	2.7x
<i>vs. Peers' Avg.</i>					<i>(49%)</i>	<i>(37%)</i>	<i>(43%)</i>

Sources: Companies, Midcap Partners, FactSet

ES trades at a significant discount vs. peers, despite the fact that it is a best-in-class in terms of the technology offered to customers. This is notably reflected in the major contracts won with governments (Italy, France, US in particular) and prestigious institutions (IMF, US Department of Defense). During the various successful bids, ES often found itself up against competitors with greater resources and visibility.

Below we compare the EV/Sales 2021E multiples with the annualized sales growth over the period 2019-2022E of our peer group companies. It emerges that the companies with the highest expected revenue growth tend to have higher valuations. Although this element is not the only determinant ($R^2 = 15\%$), the expected growth in ES sales appears to be currently in line with its valuation.

Graph 15 : Multiples EV/Sales 2021E vs. CA CAGR 19A-22E



Sources: Companies, Midcap Partners, FactSet



We have applied a 20% discount to the average EV/Sales 2021E multiple to account for the lower size and liquidity vs. peers.

It is important to note that the equity bridge is not the same as the DCF. We have taken into account the 2021E equity bridge to move from enterprise value to equity value.

Graph 16: Multiples of peer companies

	EV/Sales
2021E figure (EURm)	33.5
2021E multiple	5.4x
2021E multiple @20% discount	4.3x
2021E EV	144.6
Equity Bridge	11.0
2021E equity value	155.6
Fully diluted NOSHm YE	54.7
FV/share	2.8
% upside/downside	(0.0%)

Source: Companies, Midcap Partners

The peers average multiple shows an enterprise value of €145m, for a price per share of €2.80.

Comparable stock market methods - SaaS (Indicative)

Expert System's 2020E-2024E strategic plan foresees strong business growth in the U.S. with the transition to a SaaS model by 2024. Thus, we have identified companies with a SaaS business model and similar characteristics towards which ES could evolve as its BP progresses. Below we provide the revenue and EBITDA margin growth prospects of the analyst consensus.

Graph 17: Revenue growth and EBITDA margin rate expected by analyst consensus

Company Name	Ticker	Country	Market Value (€m)		EBITDA margin			CAGR '19A-'22E		
			Equity	EV	Dec-20	Dec-21	Dec-22	Sales	EBIT	Net inc.
Analytics										
Atlassian Corp. Plc Class A	TEAM-US	Australia	18,793	38,406	24%	25%	25%	25%	28%	23%
RingCentral, Inc. Class A	RNG-US	United States	18,903	12,568	13%	13%	15%	24%	34%	30%
salesforce.com, inc.	CRM-US	United States	148,203	138,305	30%	30%	31%	18%	25%	20%
ServiceNow, Inc.	NOW-US	United States	71,238	49,103	32%	31%	32%	26%	34%	32%
Workday, Inc. Class A	WDAY-US	United States	26,622	37,509	21%	21%	25%	18%	26%	27%
Square, Inc. Class A	SQ-US	United States	39,860	25,529	8%	17%	21%	22%	118%	25%
Veeva Systems Inc Class A	VEEV-US	United States	30,202	20,011	38%	38%	39%	22%	23%	21%
Splunk Inc.	SPLK-US	United States	28,189	21,464	1%	10%	18%	18%	22%	18%
Twilio, Inc. Class A	TWLO-US	United States	30,201	10,309	6%	6%	7%	28%	-451%	50%
Elastic NV	ESTC-US	United States	6,937	4,373				22%	-20%	-13%
Okta, Inc. Class A	OKTA-US	United States	21,703	13,275		0%	8%	31%	-185%	-223%
Paycom Software, Inc.	PAYC-US	United States	13,812	12,365	40%	42%	43%	17%	17%	17%
Wix.com Ltd.	WIX-US	Israel	12,657	5,253	16%	19%	15%	25%	66%	-60%
Median					21%	20%	23%	22%	25%	21%
Avg.					21%	21%	23%	23%	(20%)	(3%)
Expert System SpA			125	114	4%	(16%)	(2%)	14%	n/a	n/a
vs. Peers' Avg.					-1743bps	-3587bps	-2472bps	-848bps	n/a	n/a

Sources: Companies, Midcap Partners, FactSet

Like before, we deduce the EV/Sales multiple on the basis of analysts' estimates.

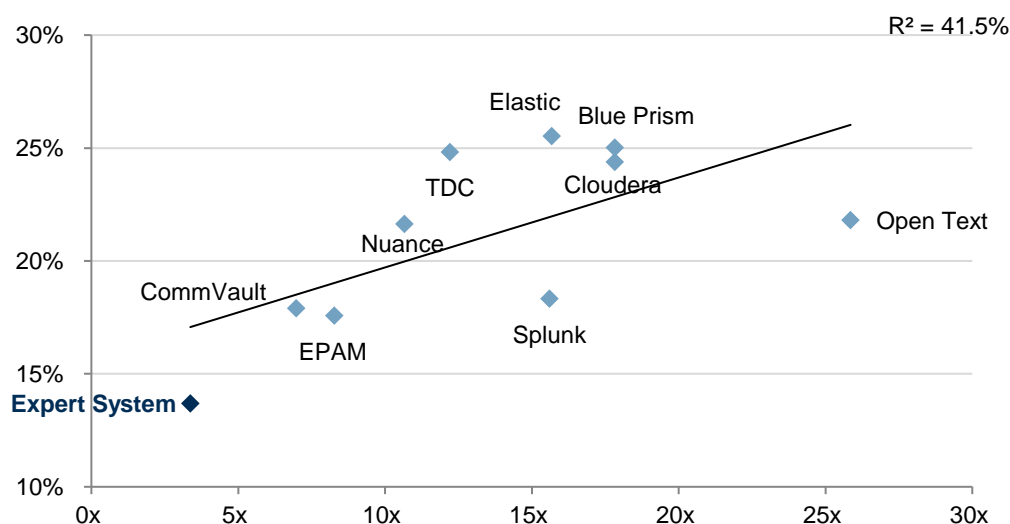
Graph 18: Multiples of peer SaaS companies

Company Name	Ticker	Country	Market Value (€m)		EV/Sales		
			Equity	EV	Dec-20	Dec-21	Dec-22
Analytics							
Atlassian Corp. Plc Class A	TEAM-US	Australia	18,793	38,406	21.9x	17.9x	13.8x
RingCentral, Inc. Class A	RNG-US	United States	18,903	12,568	22.2x	17.9x	14.3x
salesforce.com, inc.	CRM-US	United States	148,203	138,305	8.3x	7.0x	5.9x
ServiceNow, Inc.	NOW-US	United States	71,238	49,103	19.6x	15.7x	12.6x
Workday, Inc. Class A	WDAY-US	United States	26,622	37,509	9.8x	8.3x	7.0x
Square, Inc. Class A	SQ-US	United States	39,860	25,529	24.0x	18.5x	14.3x
Veeva Systems Inc Class A	VEEV-US	United States	30,202	20,011	29.3x	24.5x	20.4x
Splunk Inc.	SPLK-US	United States	28,189	21,464	13.4x	10.7x	8.4x
Twilio, Inc. Class A	TWLO-US	United States	30,201	10,309	24.0x	19.2x	15.3x
Elastic NV	ESTC-US	United States	6,937	4,373	13.6x	10.7x	9.4x
Okta, Inc. Class A	OKTA-US	United States	21,703	13,275	33.7x	25.9x	20.0x
Paycom Software, Inc.	PAYC-US	United States	13,812	12,365	18.6x	15.6x	13.0x
Wix.com Ltd.	WIX-US	Israel	12,657	5,253	15.2x	12.3x	9.8x
Median Avg.					19.6x	15.7x	13.0x
vs. Peers' Avg.					125	114	2.7x
Expert System SpA					3.2x	3.4x	2.7x
vs. Peers' Avg.					(83%)	(78%)	(79%)

Sources: Companies, Midcap Partners, FactSet

ES is trading at a significantly lower valuation level than its SaaS peers due to significantly lower profitability and growth. SaaS peers trade at an average EV/Sales 2021E multiple of 15.1x (vs. 5.1x for EPS peers). Although Expert System has neither a 100% SaaS business model nor growth of more than 40%/year, management's strategic plan aims to achieve this objective by 2024. Thus, if such a plan were to succeed, ES could see its value increase significantly, moving towards multiples more in line with SaaS peers.

Graphique 19 : Multiples EV/Sales 2021E vs. CA CAGR 19A-22E



Sources: Companies, Midcap Partners, FactSet

We are applying a 30% discount to the average 2021E EV/Sales multiple to account for the much smaller size and liquidity vs. peer companies.

Graphique 20 : Multiples EV/Sales 2021E vs. CA CAGR 19A-22E

	EV/Sales
2021E figure (EURm)	33.5
2021E multiple	15.7x
2021E multiple @30% discount	11.0x
2021E EV	368.3
Equity Bridge	11.0
2021E equity value	379.3
Fully diluted NOSHm YE	54.7
FV/share	6.9
% upside/downside	143.7%

Sources: Companies, Midcap Partners, FactSet

Using the peer group's average multiple gives a group valuation of €368m and a price/share of €6.9

By 2021, ES's strategic plan forecasts that approximately 34% of revenue will come from recurring SaaS business. We have therefore established below a weighted average of the stock market multiples of our two samples of peer companies in order to take into account the gradual evolution of the business model towards SaaS.

The application of our EV/Sales 2021E multiple shows an enterprise value of €200m for €4.0/share.

Graphique 21 : Multiples EV/Sales 2021E vs. CA CAGR 19A-22E

	Multiple	Price	Target Weight
2021E EV/Sales IA	4.3x	2.8	75.0%
2021E EV/Sales SaaS	11.0x	6.9	25.0%
2021E EV/Sales	6.0x	3.9	
2021E EV	200.5		
Equity Bridge	11.0		
2021E Equity Value	211.5		
Fully diluted NoSHm	53.5		
FV/share	4.0		
% upside/downside	39.1%		

Sources: Companies, Midcap Partners, FactSet

Summary

We adopt a multi-criteria approach based on 50% DCF and 50% multiple EV/Sales 2021E. At the end of our analysis, **we obtained a TP of €3.8/share and a Buy rating.**

We have derived ES's implied multiples as if the share price were to reach our target price.

Graph 22: Construction de notre Target Price et multiples implicites

Method	2021E	Coefficient	Implied Multiples	2021E	2022E
Discounted FCFF	€ 3.5	50%	EV/Sales	4.9x	3.5x
EV/Sales	€ 4.0	50%			
Target Price	€ 3.8				

Sources: Companies, Midcap Partners Estimations

Thus, the current valuation reflects ES's implicit value according to its characteristics.

We may be required to raise our estimates in the event of (i) an improvement in EBITDA margin landing above our expectations, (ii) a faster transition to recurring license sales and/or (iii) revenue growth above our expectations.

Midcap Partners vs. Consensus

Graph 23: MCP vs. Consensus

	2021E		2022E	
	Midcap Partners	Consensus	Midcap Partners	Consensus
Sales	31.0	35.0	33.5	47.2
EBITDA	1.2	(4.8)	(5.2)	(0.2)
EBIT	(6.3)	(5.6)	(13.2)	(9.2)
EPS	(0.04)	(0.10)	(0.25)	(0.11)

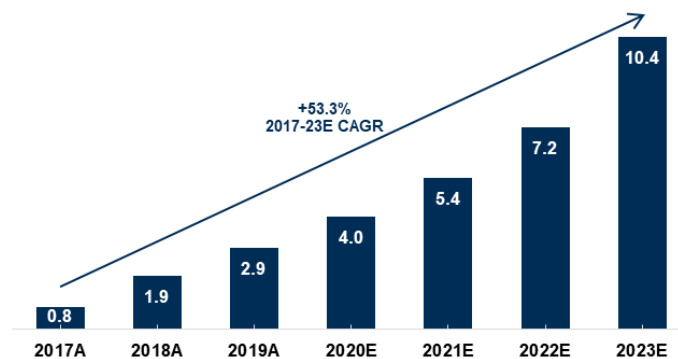
Sources: Companies, Midcap Partners, FactSet

Company Profile

Founded in Modena (Italy) in 1989 and listed on the Milan Stock Exchange in 2014 (@€1.8/share) now with 231 employees, ES is a world leader in artificial intelligence developing and marketing cognitive analysis software based on artificial intelligence algorithms (Robotic Process Automation or RPA segment) that is capable of reading and understanding the content of textual documents in 14 different languages. Its flagship platform offers a unique mix of natural language comprehension algorithms and machine learning to help organizations bring understanding to any type of text with a view to accelerating business processes and improving knowledge discovery and decision making. ES operates in Europe, the Americas, Canada and the Middle East in a wide range of industries (e.g. Banking, Insurance, Government, Defense & Intelligence, O&G, Media & Publishing) and use cases, including content enrichment, customer service, compliance, third-party risk mitigation and intelligence applications. The group has established itself at the forefront of the AI industry, working with >100+ active clients (e.g. AXA XL, Lloyd's of London, Zurich Insurance Group, Generali, Bayer, Bloomberg BNA, BNP Paribas, Rabobank, Dow Jones, Gannett, IMF, EBSCO, etc.).

Underlying Market Exhibits Substantial Bullish Megatrend

Graph 24: Global RPP market (\$BN)

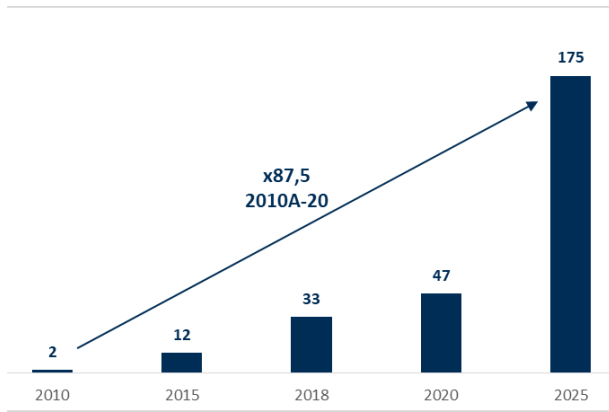


Sources: Companies, Midcap Partners

- RPA (Robotic Process Automation) is a simple and powerful business process automation solution. It provides the tools to create proprietary software robots and automate any business process. Robots are configurable software programs that can be used to perform specific tasks;
- The ROI of RPA is based on several impact areas. Immediately quantifiable benefits include a significant reduction in errors, as well as compliance and audit savings. But the reason RPA delivers even higher ROI is because it enables digital transformation, provides additional revenue opportunities and frees up resources to focus on process improvements and higher value-added tasks;
- The EPS market is marked by a megatrend upward trend (+53% 2017A-23E CAGR or x13).
- The Natural Language Processing market more specifically shows a megatrend (+31.9% 2019E-25E CAGR or 5.4x) driven by data generation (x11 2013A-20A), technological

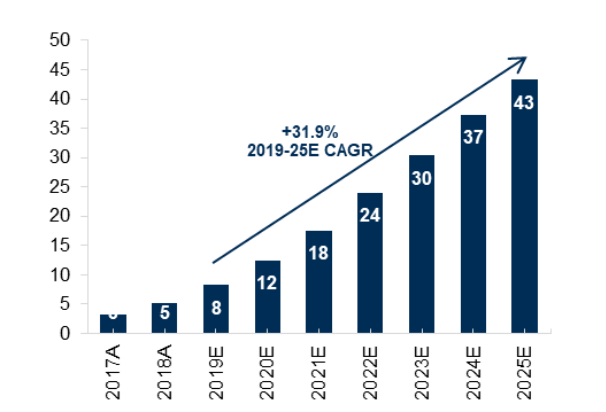
simplification (e.g. continuous enrichment of algorithms through deep learning), the development of SaaS offerings, productivity gains through automation, and the emergence of software companies over the last decade, which we expect to consolidate over the next few years;

Graph 25: Data generation per year (ZB)



Sources: Statista, Midcap Partners

Graph 26: NLP market evolution (\$bn)



Sources: Statista, Midcap Partners

Technology

- R&D**: Ongoing investments in R&D is a key element of the ES strategy and necessary to remain at the forefront of cognitive technologies applied to unstructured data in order to be able to respond to the increasing sophistication of customer demand and thus maintain a competitive edge. The costs incurred for these activities are capitalised and depreciated over five years as well as in the context of certain multi-year national and international research projects. In the case of research projects, the parties involved in the contract participate in the financing of the group's R&D costs for a total amount between c.€1-1.5m/year. These activities involved the Cogito semantic platform and associated products to handle the most common customer use cases. With regard to the development tools used to customize projects, the most important efforts were devoted to the inclusion and development of deep learning approaches, the improvement of knowledge management functions (Sensigrafo) and component integration. The group has strong R&D competencies with, in particular, the 2016 announcement of the creation of two new R&D laboratories in the USA, one located near Washington D.C. and the other in Silicon Valley. The development of Cogito Laboratories is part of ES's strategy to ensure effective cooperation between its engineers and developers and the best expert networks of linguistics professionals, universities, researchers and specialists. The new laboratories based in the USA - reinforcing the network of Cogito Labs already established in Modena, Rovereto and Naples, Italy, in Grenoble, France and Madrid, Spain - have the mission of developing innovative technologies and approaches based on Cogito technology. Finally, it should be pointed out that R&D activities only give rise to insignificant tax credits in Italy. It could be relevant for the group to host these activities in France in order to benefit from a more favourable tax structure;

- **A patented technology:** Unlike most competitors, the code (i) does not contain any open source software, (ii) was totally developed in-house, (iii) is entirely owned by ES, and (iv) the technology is also patented in the USA;
- **Concept :** Cogito performs human-like language comprehension for knowledge discovery and intelligent process automation. Cogito has the ability to understand language, to extract data from it, but also to manage interactions in natural language and to process unstructured information. This is a key success factor for all companies, as it is synonymous with a formidable competitive advantage.
- **Cogito, at the forefront of the artificial intelligence revolution:** Cogito is a platform based on AI algorithms that reproduce human understanding of textual information, even complex ones, on a large scale and with high accuracy. Based on a rich representation of knowledge covering all domains (the Cogito knowledge graph), Cogito concentrates the best of Natural Language Understanding (NLU) and Machine Learning (ML) technologies to intelligently automate business processes, gather relevant knowledge and provide indispensable business signals from all the information available to client companies;
- **Knowledge graph:** Cogito's knowledge graph provides a representation of the real world where concepts are defined and connected to each other by semantic relationships. It provides both broad and deep language coverage. Unlike other technologies, which require initial and continuous learning that is both constraining and resource-intensive, Cogito relies on its integrated knowledge graph and ready-to-use algorithms to read, understand and learn from texts. Moreover, unlike "black box" approaches, Cogito is an open system, understandable by human operators, which facilitates its adjustment and the optimization of its performance whatever the target domain;
- **Natural Language Comprehension:** By interpreting their context, Cogito understands the precise meaning of words and expressions and automatically associates them with the attributes of more generic concepts. On the other hand, Cogito also identifies the relationships expressed between concepts. These two powerful mechanisms stem from his ability to conduct in-depth linguistic analysis (morphological, grammatical, logical and semantic analysis) that results in a disambiguation of the meaning of each word. This ability to understand language in a human-like manner is another differentiating feature that sets it apart from other automated language processing solutions because it increases accuracy and speed and allows for the processing of more complex texts;
- **Knowledge Enrichment:** Because precise understanding of textual content requires knowledge specific to the target domains, Cogito's knowledge graph can be enriched according to the specificities of each use case. Unlike other text analysis platforms, Cogito allows the enrichment of knowledge, whether it is contributed by business experts or via our proprietary machine learning algorithms. The latter are based on the analysis of a tagged

training corpus. To ensure that your quality objectives are met, both methods can be used on the basis of comparative tests;

- **Targeted and improved solutions** : for the core needs of the insurance and financial markets, as well as new features and enhancements to information offerings;
- **Publication of Cogito 14.5** : to extend leadership in natural language comprehension for non-English languages, including Arabic and Dutch ;
- **Integration of AI and robotic process automation**: to automate processes and increase comprehension embedded in texts and documents at high-speed and large-scales;
- **Strengths of the ES offer**: (i) Proven AI technology, (ii) Large-scale, accurate, multilingual understanding of texts (in generic areas, such as news, Cogito's accuracy is greater than 90% while other platforms do not support comparison: Accuracy rates are 45-55% for the lowest performance and reach 73-75% only in very specific applications), (iii) predictable and controlled budget, (iv) substantial ROI for client organizations, (v) increased human capacity, (vi) transparent and explainable AI platform because the results of its algorithms are reliable and easily understandable by humans.

Financial Data

Income statement (€m)	2018A	2019A	2020E	2021E	2022E
Sales	28.7	31.7	31.0	33.5	46.5
Δ YoY	9.8%	10.3%	-2.0%	8.0%	38.8%
Gross profit	26.9	30.4	29.1	31.5	44.5
Gross margin	93.7%	96.0%	93.9%	94.0%	95.7%
SG&A	(28.7)	(32.7)	(35.8)	(45.1)	(56.9)
Others	6.5	7.8	7.9	8.4	11.6
EBITDA	4.6	5.5	1.2	(5.2)	(0.8)
margin	16.2%	17.2%	3.8%	(15.6%)	(1.7%)
D&A	(7.8)	(8.3)	(7.5)	(8.0)	(9.3)
Others	(0.1)	(0.0)	0.0	0.0	0.0
EBIT	(3.2)	(2.9)	(6.3)	(13.2)	(10.1)
margin	(11.3%)	(9.1%)	(20.4%)	(39.5%)	(21.7%)
Net interest income/(expense)	0.1	(0.1)	(0.9)	(0.9)	(0.9)
Others	0.0	2.2	5.4	0.0	0.0
EBT	(3.1)	(0.8)	(1.8)	(14.1)	(11.0)
Provision for taxes	(0.6)	(0.2)	0.2	1.4	1.1
Implied tax rate	-21%	-26%	10%	10%	10%
Minority interest	0.0	0.0	0.0	0.0	0.0
Net income	(3.8)	(1.0)	(1.6)	(12.7)	(9.9)

Balance sheet (€m)	2018A	2019A	2020E	2021E	2022E
Net PP&E	0.7	0.7	0.8	1.0	1.2
Net intangibles	14.7	13.1	12.2	12.2	13.3
Investments	5.3	0.3	0.0	0.0	0.0
Other long-term assets	4.2	4.2	4.2	4.2	4.2
Non current assets	24.9	18.3	17.2	17.4	18.7
Inventory	0.1	0.1	0.1	0.1	0.1
Accounts receivable	15.8	20.4	21.2	22.9	23.3
Other current assets	5.9	5.7	5.7	5.7	5.7
Cash & cash equivalents	7.9	21.6	49.6	35.9	26.3
Current assets	29.7	47.9	76.6	64.6	55.4
Total assets	54.7	66.2	93.9	82.0	74.1
Total common equity	15.1	20.9	48.2	36.4	27.5
Minority interest	0.0	0.0	0.0	0.0	0.0
Shareholders' equity	15.1	20.9	48.2	36.4	27.5
LT Debt	14.8	18.6	18.6	18.6	18.6
Other long-term liabilities	3.6	3.9	3.9	3.9	3.9
Non current liabilities	18.4	22.5	22.5	22.5	22.5
ST Debt	5.7	5.9	5.9	5.9	5.9
Other current liabilities	12.7	12.7	12.7	12.7	12.7
Accounts payable	2.8	4.2	4.6	4.5	5.6
Current liabilities	21.2	22.8	23.2	23.1	24.2
Total liabilities & equity	54.7	66.2	93.9	82.0	74.1

Cash flow statement	2018A	2019A	2020E	2021E	2022E
Operating Cash Flow	4.7	5.4	5.8	(4.7)	(0.6)
Δ Working capital	(2.5)	(3.5)	(0.5)	(1.8)	0.7
Cash flow from operations	2.1	1.9	5.4	(6.5)	0.1
CapEx	(5.5)	(6.6)	(6.7)	(8.2)	(10.6)
FCF	(3.3)	(4.7)	(1.3)	(14.7)	(10.5)
Disposals	(0.4)	0.2	0.0	0.0	0.0
Acquisitions	0.0	7.2	0.3	0.0	0.0
Others	0.0	0.0	0.0	0.0	0.0
Cash flow from investing	(5.9)	0.7	(6.4)	(8.2)	(10.6)
Δ Debt	0.4	4.0	0.0	0.0	0.0
Δ Equity	0.0	7.1	25.9	0.9	0.9
Dividends paid (common & pref)	0.0	0.0	0.0	0.0	0.0
Other financing cash flows	0.0	0.0	0.0	0.0	0.0
Cash flow from financing	0.4	11.1	25.9	0.9	0.9
Currency translation effect on cash	0.0	0.0	0.0	0.0	0.0
Δ cash	(3.4)	13.8	24.9	(13.7)	(9.6)
Cash BoP	11.2	7.9	21.6	46.6	32.9
Cash EoP	7.9	21.6	46.6	32.9	23.3

KEY RATIOS	2018A	2019A	2020E	2021E	2022E
Δ Sales	9.8%	10.3%	(2.0%)	8.0%	38.8%
Δ EBITDA	(82.3%)	17.7%	(78.3%)	(541.7%)	(84.8%)
Δ EBIT	(112.4%)	(10.9%)	119.4%	109.8%	(23.8%)
Δ Net income	(114.5%)	(74.0%)	64.8%	683.1%	(22.2%)
Gross profit	93.7%	96.0%	93.9%	94.0%	95.7%
EBITDA margin	16.2%	17.2%	3.8%	(15.6%)	(1.7%)
EBIT margin	(11.3%)	(9.1%)	(20.4%)	(39.5%)	(21.7%)
Net margin	(13.2%)	(3.1%)	(5.2%)	(37.9%)	(21.2%)
EPS	(0.11)	(0.03)	(0.04)	(0.25)	(0.20)
DPS	0.00	0.00	0.00	0.00	0.00
Dividend Yield	0.0%	0.0%	0.0%	0.0%	0.0%
WC in % of sales	45.7%	51.4%	53.9%	55.2%	38.3%
DIO	22	17	17	17	17
DSO	201	236	250	250	183
DPO	46	62	60	45	45
FCF	(3.3)	(4.7)	(1.3)	(14.7)	(10.5)
FCF yield	(2.7%)	(3.8%)	(1.1%)	(11.8%)	(8.5%)
Taux de conversion (FCF/EBITDA)	(72.1%)	(86.5%)	(112.1%)	280.3%	1322.8%
CAPEX/Sales	19%	21%	22%	24%	23%
RoE	(25%)	(5%)	(3%)	(35%)	(36%)
RoA	(7%)	(1%)	(2%)	(15%)	(13%)
RoCE	(15%)	(13%)	(25%)	(49%)	(36%)
Net Gearing	83%	14%	(52%)	(31%)	(7%)
Net leverage ratio	2.7x	0.5x	n.m.	n.m.	n.m.
EV/Sales			3.2x	3.4x	2.6x
EV/EBITDA			83.7x	(21.6x)	(154.3x)
EV/EBIT			(15.7x)	(8.5x)	(12.1x)
P/E			(76.6x)	(9.8x)	(12.6x)

Disclaimer

This document may refer to valuation methods defined as follows:

- 1/DCF method: discounting future cash flows generated by the business's operations. Cash flows are determined using the analyst's financial forecasts and models. The discount rate used is the weighted average cost of capital, defined as the weighted average cost of the company's borrowings and the theoretical cost of its equity as estimated by the analyst.
- 2/ Comparables method: application of stock-market valuation multiples, or multiples observed for recent transactions. These multiples may be used as benchmarks and be applied to the company's financial aggregates to determine its valuation. The sample is constituted by the analyst according to the company's characteristics (size, growth, profitability, etc.). The analyst may also apply a premium/discount based on his perception of the company's characteristics.
- 3/ Asset-based method: estimation of the value of the equity on the basis of the revalued assets and corrected for the value of the liability.
- 4/ Discounted dividend method: discounted future value of estimated dividend flows. The discount rate applied is generally the cost of capital.
- 5/ Sum of the parts method: this method consists of estimating the different activities of a company, by using the most appropriate assessment method for each, then calculating the total.

Recommendation scale:

- Buy: expected over-performance above 10% compared to the market within 6 to 12 months
 Hold: expected to outperform or under-perform the market within a range of +10% and -10%, within 6 to 12 months
 Sell: expected to under-perform the market by more than 10% within 6 to 12 months

Detection of conflicts of interest:

Company	Closing price (€)	Rating	Warning
Expert System SpA	€2.8	BUY	G

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At 1st August 2020, the recommendations issued by the Midcap research team at LOUIS CAPITAL MARKETS – MCP break down as follows:

Rating	Companies covered	of which "Corporate" clients
Buy	64%	74%
Hold	28%	25%
Sell	5%	2%
Under Review	3%	2%

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