

The background of the advertisement features three arrows in shades of purple and white, all of which have hit the bullseye of a target on the right side. A large, semi-transparent white number '10' is superimposed over the center of the image, partially covering the arrows and the text.

KILLER LANGUAGE UNDERSTANDING INNOVATIONS

COMING TO A PLACE NEAR YOU

ABBYY®



Top 10 Machine Learning, Natural Language Processing & Text Analytics Predictions for 2017

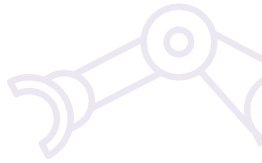
80% of data in the world is inaccessible to machines. It is “dark”. Computers struggle to make sense of human language and real-world imagery, because, well, they don’t have a brain, and they don’t have a pair of eyes. Or do they? Pioneering advances in natural language processing and machine vision are re-defining the computing landscape. And disrupting every single industry in the process.

In this eBook we look at how natural language understanding significantly broadens the analytic scope, addressing the problematic 80% of data that is typically unorganised, unknown and unexploited – giving life to new trends, new markets, new apps and new services.

Where does the future lie? We’ve collected the opinions and observations of our experts, who serve thousands of customers across the globe. Here are our top 10 innovations and predictions for 2017.



01



Machine learning and robotic process automation.

Supervised learning combines with reinforcement learning to supercharge robotic process automation. Previously difficult and time-consuming data extraction projects, at the core of RPA, are fast-tracked in the design phase (supervised learning), and amplified in the live environment (reinforcement learning). Fast-ramp AND continuous improvement. Win-Win. But make no mistake, the human element remains, guiding algorithms in real-time to learn by experience. “Remember this, so you don’t have to make the same mistake again, Mr. I.Robot.” Click train button, once. Done. Likely outcome; robots do 70% of highly repetitive tasks (orders, invoices, payments...), humans the more difficult 30%, but the automation rate drives up over time. An ever-increasing ROI. Nice.



Further reading: [Thoughts on Robotic Process Automation \(RPA\) in 2017](#)



02

From bots to domain experts.

The self-service economy begins in earnest as apps use natural language to drive automated question-answer systems. Simple (dumb) chatbots can only get you so far. Until you hit a brick wall. Keyword analysis cannot compete with language understanding. It's like having a 7 year old respond to your customer service queries. Some things will be grasped, others will not, and you'll spend more time teaching (training) your child (bot) the necessary language, that you wished you'd just done it yourself. Unless you embed real language understanding capability that is. Now bots become experts (in their field of choice), and the automation rate, and service-level, just got significantly higher...



Further reading: [What to do about the Chatbot dilemma](#)

Big brother is watching.

Geospatial data combines with language data to give new power to intelligence agencies around the globe. The locations of objects and people are matched to the language they use, unlocking new super powers, to track, anticipate and prevent emerging threats, such as hunting down crime, countering terrorism, and identifying fraud. Tracking and tracing relationships across datasets is hard.

Even for humans. Now multiply that dataset by millions and it just got a whole lot harder. If not impossible. Until now, machines struggled as much as humans, to “join the dots”.

Who did what when and why? Track the footsteps of a known terrorist (entity recognition). Identify who he interacted with (linked entity), where he was located (geo mapping), and what the topic was (topic identification). Thanks bro.



Further reading: [How Peter Thiels Palantir helped the NSA spy on the whole world](#)



A close-up photograph of a man with a beard and short brown hair, wearing a purple V-neck shirt. He is looking down at a tablet computer he is holding with both hands. The background is blurred, suggesting an outdoor setting.

04



From M2M to H2M communications.

Machine-to-machine communications is on the rise, with billions of internet- and other-network enabled devices talking to one another, which promises much from the Internet of Things (IoT). But what about the human element? Human-to-machine communications is the missing link, and thanks to the emergence of machine-based language understanding, the first forays into seamless human-machine interactions will be made. Devices, objects and people will be interconnected via small pockets of innovation that stitch multiple technologies together. “Lights on, curtains closed, please Jeff”, “Oh and make me a coffee whilst you are at it”.



Further reading: [Understanding the different voices in the Internet of Things space](#)



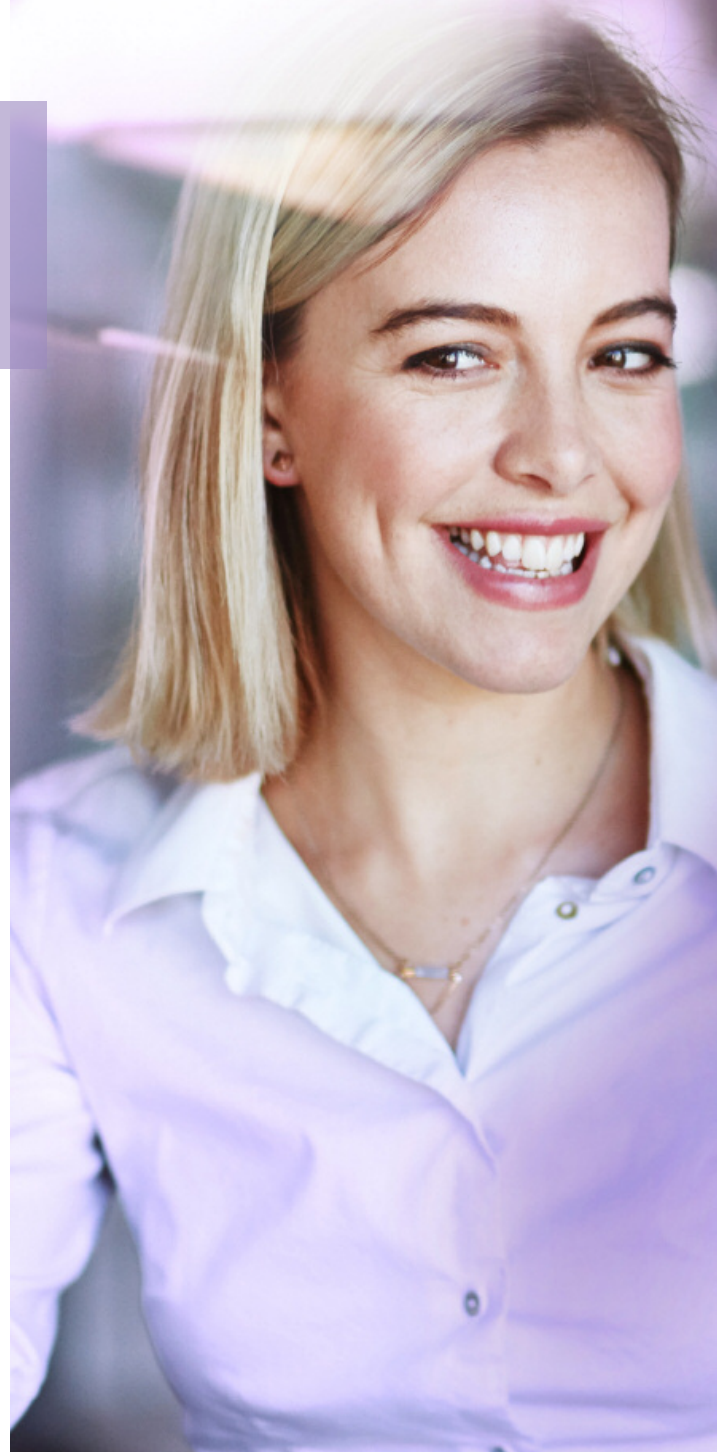
Applications get “smarter”.

The robot revolution is not here. Yet, anyway. There are still numerous tasks and activities that will remain the domain of humans for the foreseeable future. What is more likely is humans leading, ably assisted by machines, so we can get more done, in a shorter timeframe – driving enhanced employee morale and driving superior customer engagement.

Take for example, long, complex documents and multiple connected documents and case files that drive strategic business processes and decision-making. Contracts, M&A due diligence, claims, on-boarding to name but a few. Language understanding and deep text analytics, enables humans to “speed-read” and review complex documents and cases, quickly highlighting and navigating towards critical data points (facts, events, risks, missing data) to assist the decision-making process. Currently, finding the relevant information and understanding the context for an approve/reject decision is manual, error-prone, and open to risk as a result. But smart process applications are here to help. And we think you’ll love them.



Further reading: [Apttus shoots for language-based contract AI with Apttus Intelligent Import, ABBYY partnership](#)



Decision-as-a-Service.

The digital journey is different for every organisation, with different levels of digital maturity across multiple businesses, departments and industries. But one common goal remains – the ability to harness data and turn it into a strategic asset. Data is the abundant new raw material, but knowledge is the final product. The challenge is everything in between and how to go from one state to the other, rapidly.

So you've removed paper (as best you can). You've digitised historical assets. Everything is stored digitally and available for search and collaboration, on demand. You've even optimised and streamlined a number of mission-critical business processes. Now what? Add automated decisioning on top. Connect input streams with output streams, by fusing a smart decision-engine as a type of artificial business brain. Incoming data streams are read, understood and actioned, using a mixture of natural language processing and predictive analytics, creating informed, personalised outputs, decisions and actions. End-to-end, touchless, decisioning and automation – the next wave of intelligence.



Data extraction goes mainstream.

Optical character recognition merges with natural language processing and machine learning to radically simplify extraction projects. Previously the luxury of large enterprises, with big budgets and big resources, data extraction is going mainstream, even for the one-man accountant in his box office.

The fact is everyone has data entry needs. It's just that such a capability has been inaccessible to small companies until now. Too complex to set-up. Too costly to invest in. No justifiable ROI. But with cloud delivery and a shift from CAPEX to OPEX payment schemes, coupled with radically simplified execution, data extraction is here for all. Finally. Those annoying invoices that need to find their way into your Sage, Xero, Quickbooks ERP... give us a call.



Further reading: [Midmarket organizations ready to embrace enterprise-level AP/Invoice Automation strategies](#)



Apps that talk and conversational systems.

Natural language processing integrates with speech recognition and speech synthesis, to give life to apps. Literally. Consumer apps will get a significant facelift, evolving from basic keyword commands, like “open Facebook” or “write email”, to better understanding everyday language, just like you and I. Apps and services will suddenly take on a life of their own, becoming more relevant, more personalised, and increasingly, more valuable as digital personal assistants become the new norm.




Further reading: [Why Facebook and Microsoft say chatbots are the talk of the town](#)

Streaming analytics for unstructured data.

Static data is old and by definition, already out-of-date. Move analytics upstream, into real-time, and imagine the possibilities. Analyse the data as close to the event as possible. In fact, analyse pre-event. Stop crises happening, before they actually happen. Anticipate and react. Action information before the problem escalates. Or alternatively, uncover the killer trend, before your competition gets wise. The possibilities are endless with a little bit of thought and creative imagination.

As a starter for ten, we'll throw some ideas into the mix; medical outbreak warning systems, brand reputation and crisis management systems, stocks and shares digital advisors. What can you see?





Mobile apps grow a pair of eyes, transforming user experiences

An increasing number of apps and services will embed text recognition – a form of machine vision – to kick-start real-time user experiences, driving new levels of self-service. Mobile phones take photos but cannot read images.

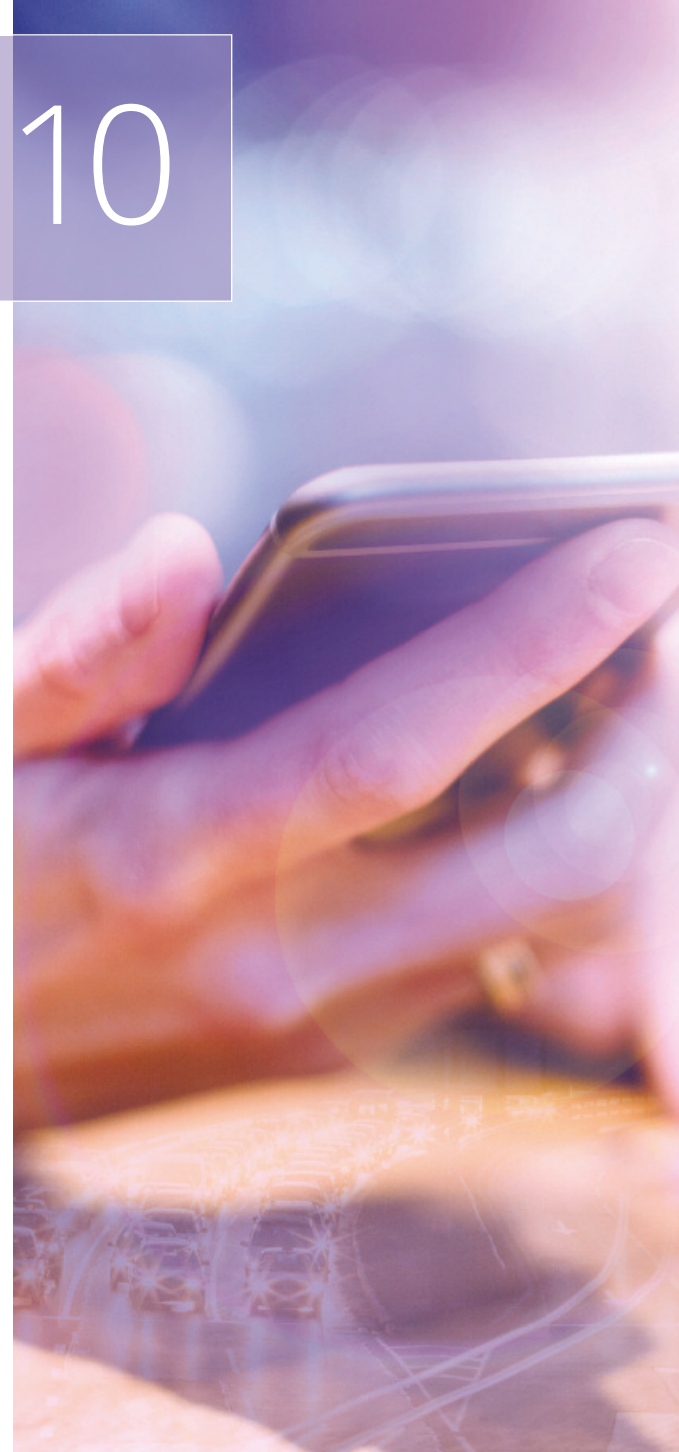
Unless you give them eyesight. In this case, text recognition. Image data is transformed into digital data, instantly, and well, the choice is yours...

Want to snap a picture of a wine bottle and access real-time wine reviews via a kind of digital sommelier? Want to upload identity documents to initiate smart, self-service banking and automated onboarding? How about, capturing receipts on-the-fly and automating expense management?

Delight customers with mobile-driven, self-service experiences – offering real-time feedback.



Further reading: [Uncorking wine information with OCR technology at Vivino](#)



About ABBYY NLP

ABBYY's natural language processing technology is the exciting result of 20 years intensive R&D, scientific advancement and a \$100m investment. ABBYY Compreno is the name for ABBYY's unique, patented, breakthrough technology that helps computers to understand and action human language. The technology is the basis for a new generation of intelligent analytics and discovery solutions. For more information, please click [here](#).



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This trend report was principally written by Jonathan Darbey, Product Group Head, ABBYY Europe, supported and inspired by a broad range of global ABBYY experts and customer insights.

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