Internet Retailing

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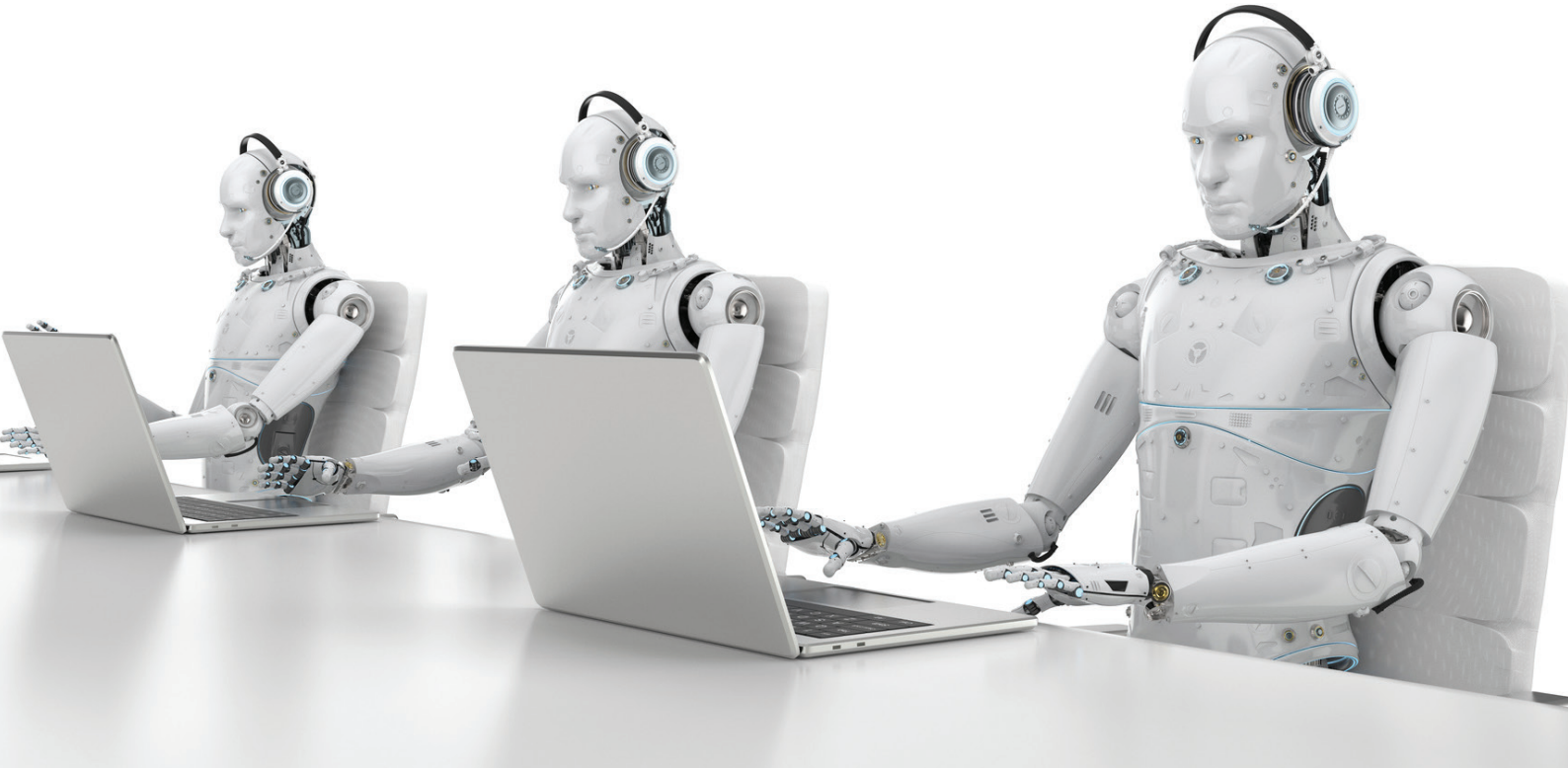
THE AI-ENABLED MARKETER

Man and machine marketing in perfect harmony

OMETRIA



INTRODUCTION

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Anyone who grew up in the 1970s and 1980s will have been expecting intelligent machines to be the norm by 2018. From Marvin the Paranoid Android, to C3PO, to Metal Mickey, talking, thinking, comedy robots looked inevitable. The flip-side – the dystopian view of intelligent machines taking over and destroying the world a la the Terminator movies – was also rampant.

Either way, we were looking at an intelligent machine future.

Skip to today and these tropes have become both true and not true. We aren't being destroyed by our own super-intelligent mechanised creations, nor are we being treated to metallic-voiced light comedy – but we are actively using artificially created 'intelligence' everyday, not least in marketing.

Marketing has always been a discipline that blends creativity, invention, analysis and insight. Ecommerce and digital marketing have together 'amped up' both the amount and richness of data that can be collected and used for this insight and analysis and off the back of it, offered greater scope for creativity and invention. More data has meant more opportunities for numerate, programmatic marketers to embrace and exploit, test-and-optimise, profile and leverage algorithmic capabilities of an array of digital marketing tools.

In the past few years – and largely without hype until recently – these technical capabilities have been transformed through the introduction of AI – Artificial Intelligence.

AI is already on most marketing and IT managers' radar. In many cases they are already using it to some degree. However, it is universally regarded as a 'must have' for business, even though many boards and C-level executives struggle with understanding what it is, how to implement it and what its true impact will be.

A survey by customer insights firm Feefo[1] reveals that two-thirds (66%) of senior IT decision-makers believe failure to adopt artificial intelligence (AI) will lead to a loss of competitiveness. A staggering 96% also say that AI will have a positive effect on customer-engagement in their organisation, while 45% believe that personalisation is where the biggest gains will be made.

This survey of 100 senior IT decision-makers in the UK, covering their attitudes towards AI and its adoption in their respective organisations also found that 61% of respondents said they are using, or will use, AI for customer-service, analysis and intervention.

Almost half (46%) said their organisation is using or plans to use AI to provide personalised summaries of online reviews, with 100% in the accommodation and food sectors saying they will use AI in this way.

However, the same survey reveals that just 19% of senior IT decision-makers in the UK say their company currently has what it takes to develop AI initiatives. Despite this, 71% of executives say they believe AI will live up to its huge potential, more than a third (36%) said they will need to recruit extra staff with the right expertise.

The research also found that almost a quarter of organisations (24%) will buy ready-to-use AI solutions and a fifth (20%) will use outsourcing. The smaller an organisation, the more likely it is to opt for a solution that is readily available to enable them to take advantage of AI applications such as smart online review systems. 44% of IT decision-makers at organisations with 24 employees or fewer will opt for a readily available solution, compared with 17% of those with more than 1,000 staff.

But what precisely is AI in real terms and how does it fit into today's retail marketing ecosystem – and how is it already shaping tomorrow's world of marketing outreach?

In this white paper we aim to uncover the true meaning of AI – and how it differs from Machine Learning – as well as offering vital insight into how to align it with existing technology in the marketing IT stack by considering how AI capabilities change trading relationships, as well as how retailers need to decide between/amongst the various AI offerings within an enterprise portfolio.

The paper also delves into how AI is impacting marcoms across all digital channels, from social, email, web and mobile to digital-in-store. For each channel we take a look at the current capabilities, the ROI/KPI considerations, the stress points, opportunities for differentiation and the 'tomorrow' trends already emergent.

These are the 'plays' of which a CMO should be aware. We will also consider the cross-channel capabilities inasmuch as AI can optimise the use of channels for effective messaging, as well as drawing information from all channels to aid decision-making.

AI is a spectrum of capability that's becoming usable in bursts and starts, and herein we identify the key areas now, along with what is coming down the pipe – both in terms of changing AI and marketing technology, but also in terms of changing consumer habits. ■

References

1https://www.feefo.com/business/gb_en/resources/feefo-ai-report

SPONSOR'S INTRODUCTION

Today you'd be hard-pressed to make it through a week without coming across some sort of discussion about AI and its impact on the world around us.

Yet when we talk about AI and its specific role in retail marketing, the conversation tends to focus on far-off future gazing about AI's potential to steal our jobs on the one hand, or on the inner algorithmic workings of machine learning on the other.

The truth is, it doesn't really matter how AI works - there's no requisite for marketers to get to grips with predictive algorithms, machine learning, deep learning and neural networks (unless we really want to).

What really matters is how AI stands to help us. After all, when you ask Siri to find the nearest burger place, you're not expecting Apple to tell you the ins-and-outs of the algorithms it uses to recognise your voice and verify your request; you're expecting to be told the best place to get your dinner.

AI undoubtedly has a massive part to play in helping marketers make sense of the enormous amounts of customer data they hold, in spotting opportunities to optimise their marketing efforts, and in personalising the customer experience.

In this guide we want to move the conversation beyond hype and buzzwords to talk about the real ways that retail marketers can harness artificial intelligence to make the customer experience better, and their jobs easier. ■

Djalal Lougouev, Chief Product Officer at Ometria

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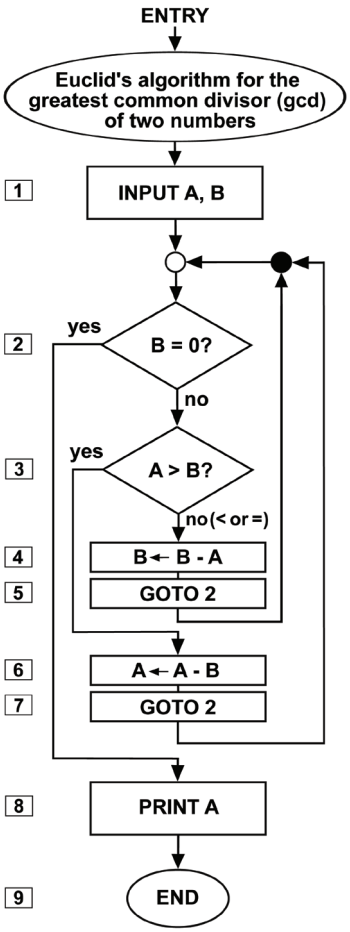
Chief Product Officer at Ometria

CONTENTS

WHAT IS ARTIFICIAL INTELLIGENCE?



AI is a buzzword that, after 20 years of 'dot com' and 'digital transformation', seems to be just a continuation of the progress of Big Data, algorithmic capabilities and processing power. But what does it truly mean?

Amazon's definition of AI reads: "Artificial Intelligence (AI) is the field of computer science dedicated to solving cognitive problems commonly associated with human intelligence, such as learning, problem solving, and pattern recognition".

However, as you might expect, what is often touted in technology circles as AI isn't. In fact, AI is just one part of a whole set of complex tools that take in algorithmic learning, machine learning, deep learning, neural networks and the 'AI' as defined above by Amazon.

They all feature arrangements of algorithms, data and complex APIs and, together, these tools all play a role in what we think of as AI in marketing, but they offer very different skills and, from a marketers perspective, need to be handled in very different ways as they do very different things.

So what are the different components of what makes up the collection of AI tools available today?

ALGORITHMS

Algorithms are the underpinning of the digital and data age in which we live, but they have been around for more than a thousand years. Named for the Persian mathematician, astronomer, geographer and fascinating dinner party guest Muhammad ibn Musa al-Khwarizmi, algorithms are mathematical processes that take an input, perform mathematical functions on that input to produce an output. Algorithms are essential how computers process data: a strict mathematical formula is applied to data, often yielding "yes-no" binary answers that yield different outcomes. It is best summed up in the diagram on the left, which shows a simple algorithm for finding the greatest common divisor for two numbers.

In today's data processing, algorithms are used to apply rules, to process data and to asses rudimentary – and usually mathematical – patterns. This means that they are used to take data in and make something pre-defined happen to it and produce one of a finite and usually small number of outcomes.

One of the simplest algorithms is to find the largest number in a list of numbers of random order. Finding the solution requires looking at every number in the list. From this follows a simple algorithm, which can be stated in a high-level description English prose, as:

1) If there are no numbers in the set then there is no highest number.
2) Assume the first number in the set is the largest number in the set.
3) For each remaining number in the set: if this number is larger than the current largest number, consider this number to be the largest number in the set.
4) When there are no numbers left in the set to iterate over, consider the current largest number to be the largest number of the set.

This produces a simple answer from a set of data. Extrapolate this over larger and more thorny problems and you can see that algorithms are very useful at making sense of seemingly jumbled data points that may appear dauntingly difficult to unknot to the human eye.

Taken together, all this make algorithms useful for data processing and as such they form the basic building block of AI – they can be strung together to produce a series of outcomes that in many ways can be seen to mirror a 'decision' and hence appear to add 'intelligence' in its broadest sense.

MACHINE LEARNING

Machine learning takes algorithmic data processing up a notch – and is often what today many people already refer to as AI: as we shall see it isn't and is distinctly different in a number of key ways. So, what is machine learning?

Machine learning is in fact a branch of statistical computing, which uses collections of algorithms that can learn from and then make predictions based on patterns they find in data. This can then be used to improve the machine's ability to predict these patterns – hence the 'learning' sobriquet – when fed other data, getting ever more accurate at getting it right.

Unlike algorithms acting alone, machine learning aims to give a 'supervised output' based on being trained with the best data available and then let loose on more 'dirty' data as it comes in. So, in effect, it 'learns' what it is looking for from clean data with patterns or answers inherent and clear and then applies that learning to looking at less structured and clean data.

The accuracy of output from machine learning is thus based upon the quality and quantity of the historical data that it learns from and, often, machine learning programs fail because there isn't enough training data available.

Where it is put to use it is often used for predictive analytics, where they are typically used to uncover 'hidden' patterns in data and look for trends based on historical data. In marketing, machine learning is increasingly being used to automate repetitive and lengthy 'grunt work' of sifting through data looking for trends, patterns and relationships between what consumers do when presented with different offers, marketing collateral and context.

As the world becomes ever-more rich in data, marketers are increasingly relying on training machines to look for the complex array of relationships between what people do, based on where, when, what and how of marketing.

Here machine learning has much to give and is often what many vendors and marketers themselves often think of as AI-powered marketing. It isn't: it is automated data analysis and, if sophisticated enough, predictive analytics. It spews out data that can then be acted on more manually by humans who can decide what to do with that data. This is a crucial differentiator between machine learning and true AI, as we shall see.

AI IS ALL AROUND US

AI is already everywhere around us from everyday objects that we use to how the world communicates with us – it is even lurking the CCTV cameras that capture our every move. In fact, for something so new and cutting edge, AI is pretty much taken for granted most of the time.

So where so we commonly come across AI-powered systems and services in our everyday lives?

• **Face and fingerprint recognition –** If you own a high-end smartphone, especially if you have an iPhone X, then you use AI all the time for it powers the facial and fingerprint recognition that fires up your phone every time you want to use it. In fact, it is so commonplace for most iPhone users that one rarely gives it a second thought, but the processor in your phone is doing 600 billion operations a second to do that, pinpointing and assessing the points on your fingerprint or your face to verify that it is you. And it is almost 100% effective under normal conditions.

• **Alexa, tell me about AI –** good old Alexa on Amazon – not to mention Apple's Siri, Microsoft's Cortana, Google Home and many others – are all driven by AI. The little device sitting in your home isn't, but it collects the voice information, and sends it to the cloud where it is parsed – or broken down into constituent sounds – and then AI goes to work analysing it. And it creates a web of possible words and meanings from those sounds and, because it can learn and then apply that learning, it makes sense of it – sending back an answer to your question... In this case, pointing me to a neat article on Howstuffworks.com.

• **Call of duty –** Video games have long been users of AI and have been responsible for much of the early ground work. And games such as Call of Duty make significant use of AI, with characters in the game being driven by it to make 'decisions' based on their opponent – the gamer's – moves and decisions. They often use debris as weapons, hide, investigate sounds and more. In AI terms this is simple stuff, but it shows how prevalent it is.

DEEP LEARNING

Deep learning takes machine learning further still and layers machine learning clumps of algorithms on top of one another, seeking to learn more from more data and often includes not only 'data' in numerical form, but also seeks to recognise and process shapes, colours and more.

This branch of machine learning is based on learning data representations as opposed to task-specific algorithms found in pure machine learning and relies on cascades of processes across many algorithms.

Each level learns to transform its input data into a slightly more abstract and composite representation. In an image recognition application, say, the raw input may be a matrix of pixels; the first representational layer may abstract the pixels and encode edges; the second layer may compose and encode arrangements of edges; the third layer may encode a nose and eyes; and the fourth layer may recognize that the image contains a face. Importantly, a deep learning process can learn which features to optimally place in which level on its own. (Of course, this does not completely obviate the need for hand-tuning; for example, varying numbers of layers and layer sizes can provide different degrees of abstraction.

NEURAL NETWORKS

Neural networks are an extension of deep learning technologies, consisting of a mass of processors running an array of algorithms, but instead of a 'simple' cascade of outputs from layers of algorithms, a neural network connects the outputs in a way more akin to how the human brain is wired up.

The human brain is made up of between 50 billion and 500 billion (no one has ever managed to count them and estimates differ) individual neurons, each connected to several others. This makes an array of connections and interconnections that make our brains supercomputers.

Neural networks use ordinary transistors and computer processors to create a simulation of an interconnected array of algorithms that then can learn all sorts of things based on rules – but more than that, they can start to make their own 'decisions' and take what they learn from training and can create new ways to do things.

Neural networks can learn to apply the usual 'weights' to information they receive – the basic rules of "if this then that" – and use it to learn to 'look' for specific things, much like a deep learning machine.

However, neural networks take this further. Much further. Once the network has been trained with enough learning examples, it reaches a point where you can present it with an entirely new set of inputs it's never seen before and see how it responds.

For example, suppose you've been teaching a network by showing it lots of pictures of chairs and tables, represented in some appropriate way it can understand, and telling it whether each one is a chair or a table. After showing it, let's say, 25 different chairs and 25 different

tables, you feed it a picture of some new design it's not encountered before—let's say a chaise longue—what then happens?

Depending on how you've trained it, it'll attempt to categorize the new example as either a chair or a table, generalise on the basis of its past experience—just like a human. Hey presto, you've taught a computer how to recognise furniture

Neural networks are all around us. Most autopilots that fly planes around use a neural network. Closer to home, they are the bedrock of image recognition systems and are even key to the touchscreen you use on your smartphone, working out what keys you are touching when you type a text message.

Increasingly, in retail they are being used to power search and recommendation and in marketing they are looking for the increasingly hard to find patterns, tropes and trends amongst the wealth of data being generated by consumers as they go about their business.

They are also starting to drive a move to true AI.

TRUE AI

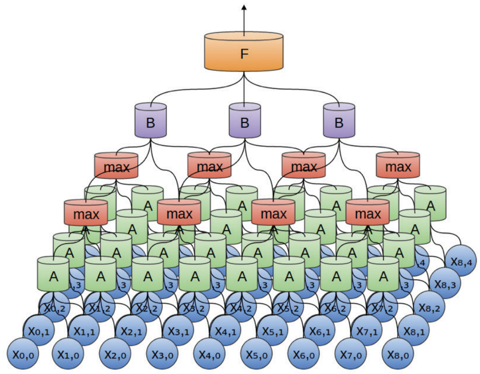
So what is true AI? In many ways AI covers all of the above – algorithms, machine learning and deep learning neural networks – each offering some degree of intelligence to computing. And that is to some extent true: dumb computing – data in, data out – is increasingly being replaced by systems that apply some degree of intelligence to what they do.

But it is this level of 'intelligence' – and indeed how you define intelligence – that brings us to the true meaning of real AI. What true AI involves is the ability to learn, to apply that learning, learn from what then happens and make new decisions or seek new information. True AI brings together the cascades of algorithms that fuel machine and deep learning and add in the other data from visual and audio inputs, combine it with natural language recognition and allow it to perform almost human like tasks – and even some super-human tasks.

In a marketing context, this means that AI can perform many of the task typically undertaken by humans, but which are becoming increasingly repetitive or take too long to complete by a person or team of person. AI can achieve them without fatigue and can increasingly apply intelligence to sifting through vast amounts of data – amounts that a human would not be able to comprehend.

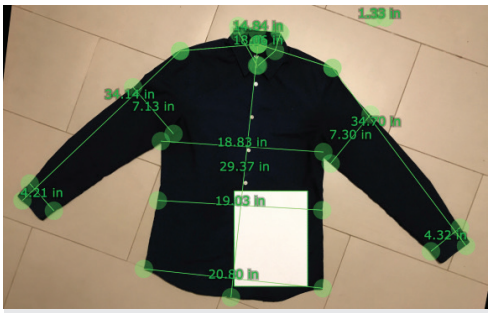
Where AI gets tricky is where you let it make decisions. In a marketing role, it is still common for AI to be used to analyse the data, looking for patterns and groupings, and even decide which bits of data need to be grouped where. Where humans still have a role is not only in teaching them in the first place, but then in taking the data groups the AI produces and then being creative with it. We are yet to see an AI marketing campaign where the creative has been devised by a machine.

That said, with the current pace of development, this too may not be far off, as we shall see later in this white paper.



- **Music and movie recommendations –** users of Netflix and Spotify, to name but two, experience AI daily, with all media streaming services now using AI to assess what you have watched, not watched, got part way through and to match that to attributes of those things to recommend things that they think you will also like. In music, most songs are assigned attributes such as 'driving bass', 'guitar riffs', 'violins', as well as the type of music. Often, people like things that feature similar elements – so if you like Hip Hop with violins then you'll likely get more in a similar vein. Where it gets interesting is when it looks at what you have been listening too and watching and have skipped or turned off – here AI learns what you don't like and applies that too.

- **AI predict a riot –** the need to monitor the streets, parades, malls and airports of the world is now a given, however, no one person can monitor all of them – especially if an agency is looking across borders for someone. Here again AI can be taught to look not just for specific people, but also to assess behaviour of individuals and 'predict' crime. AI can also be – and is – applied to social media traffic to monitor for what people say and where they say it to predict crimes and riots. This isn't fanciful: it has actually happened. Researchers from Cardiff University used algorithms to analyse 1.6 million tweets related to the London riots that took place in 2011. They found that, by scanning Twitter, computer systems could have detected trouble in Enfield an hour and 23 minutes before police were alerted to it.



CASE STUDY: IF THE SHIRT FITS... WEAR IT

Nothing fits quite like a tailored shirt and now that is coming to the masses thanks to AI. Shirt maker Original stitch is using advanced AI-powered image recognition to gauge the size and fit of a customer shirts online from a photo and then turn that into bespoke measurements to create garments that fit like a glove.

Founded in 2015, the company faced the problem of customers having to measure themselves and send those measurements in with their order to get their perfect shirt. This older process of measuring someone's body could lead to problems, according to Original Stitch CEO Jin Koh. Measurement errors and a dislike of form-fitting shirts can make it a bad experience.

"People who have never tried a custom shirt and who try it for the first time, they don't like it because it feels too tight sometimes," he told Venture Beat[3]. "What we found is that guys just want to get a shirt that is predictable and consistent with their favorite fit."

Today the company uses Bodygram that employs image recognition and AI to understand a person's measurements from man image.

All the customer has to do is lay their favourite shirt out flat on the floor, position on the shirt a piece of A4 paper – to give scale – and take a photo from as overhead as possible. The image is then analysed by Bodygram and, using the A4 paper in the image to give scale and orientation – because its dimensions are set and known – the system can then carefully calculate all the necessary measurements at key points across the image.

AI AND THE MARKETING ECOSYSTEM

AI-based technology, be it machine learning, deep learning, neural networks or true deep AII, is increasingly becoming a mainstay of the retail business, handling everything from the cutting edge queue-less Amazon Go Stores popping up across the US and soon Europe, to making recommendations on Amazon based on what has already been bought, to working out which marketing emails need to be sent to which segments of an ever-more complex customer demographic.

So where does the technology fit into the various sectors of the retail business and what is the ecosystem for getting hold of the kind of intelligence that you need for your business.

RETAIL MARKETING

Marketing has been one of the keenest business functions when it comes to deploying machine learning and AI. The fact that marketing, while creative, also depends on a vast amount of data analysis makes it a ripe area for AI-deployment.

Changing consumers habits have also made AI-powered marketing increasingly business critical. Ten years ago, some consumers shopped sometime online, while many shopped in stores most of the time. The data they threw off was largely ungathered and unused. Increasing use of the web, mobile and social media has seen the amount of consumer data about behaviour, location and context ramp up from almost none to vast in a very short time. In fact, according to Oracle[1], it processes some 7.5 trillion data points in retail every month.

This is a vast amount of data for marketers to make sense of and use – a problem compounded by consumer demand for a personalised experience with every brand and retailer, meaning that this data has to be leveraged to succeed.

This is the true role of AI in retail marketing: it is to assist the marketers process and make sense of amounts of data that would take humans in huge numbers many years to sift through. AI can process vast amounts of data and, working to the rules set by its human marketing masters, look for patterns, customer types, behaviours and groups – whatever the marketing team deems is necessary for the marketing activities that need to be performed.

Here is where humans come in to play. The AI will find the groups of people that satisfy criteria set by the marketing team: so you want to target cart abandoners with one email, mobile browsers with another and loyal customers with a third kind of email, the AI will find the people you need to target.

However, this is basic stuff for AI systems today. If you want to take it up a notch, AI cab be readily applied to targeting customers that are 'at risk' of lapsing by analysing their behaviour. Likewise, customer that have what we call 'VIP potential' - which involves the machine looking

at common traits in existing VIP customers to identify potential VIPs from an early stage in the customer relationship.

This data is then fed back to the humans who in turn use it to drive on going marcoms activity that appears, to the recipients, to be personal to them as it follows up something that they have done.

Where this gets interesting is in the marketers setting off the AI to look for what they want it to look for, but also allowing it to 'learn' from other data it comes across where all the data that doesn't satisfy all the rules it is working to fits in. This can throw up for the marketers a raft of other options to start looking to target messages at – new messages that need to be humanly created, but which have been inspired by what the AI has learned. Man and machine in perfect harmony, if you will.

Within retail marketing, AI is also giving birth to new ways to market to consumers that until now have only been something that could be, at best, done at a small scale if at all.

• **Tactical emails** - Asking the AI to come back with a segment of customers for specific marketing aims is a new venture for many marketers. For example, you might want to do a push on a new red dress and ask the AI to find everyone who is likely to be interested in that dress and incorporate it into the marketing messages you send them. This might be a tactical email featuring that one product only sent to those likely to be interested in it, or featuring it in your regular marketing newsletters or automation campaigns.

• **Campaign optimisation** – Here marketers can use AI to spot opportunities to optimise campaigns. Send time optimisation is a good example of this in practice: the marketer would pick a timeframe in which they want their message to be sent out in, and the send time will be individually personalised based on when the recipient is most likely to open it.

• **Channel decisions** – Understanding which channels are most likely to engage a particular consumer at a particular time and location is also increasingly possible with AI. Understanding which channel is going to be most engaging is crucial, not least as some – particularly mobile – are very personal channels and getting it wrong or getting the timing wrong can be intrusive, which is disastrous for the brand.

PURCHASE PREDICTION

One of the first things that everyone noticed about Amazon when it shifted from selling books online to being a true online force to be reckoned with were the recommendations. Until this point no one had done anything to promote 'if you like this you may like these" or "People who bought this also bought these" intelligence to online retail. Soon everyone was doing it.

Early iterations were famed for their inaccuracy – I once bought my wife some lady's boots on Amazon and thereafter was recommended women's clothes and shoes for six months – but things have dramatically improved over the years. Now all retailers employ sophisticated machine learning and AI solutions to offer recommendations that should tie in with what they know a specific customer likes.

They should also tie in with stock the retailer needs to clear, stock that is conveniently placed geographically to ship to that client and

It isn't perfect, yet, but the company claims that it only has a 3% return rate, compared to 23% when using the old fashioned method. The company will also remake any orders that aren't right and log the new measurements to make re-orders easy.

The system clearly has potential and bridges that 'fit' gap for online ordering. Knowing that something will be right isn't just a matter for online tailoring, but could be used across all apparel retailers to serve up only the kind of garments that will fit body shape and type.

even stock that the system has determined is in the right size and colour for that customers.

Of course, this isn't done on an individual scale: even AI can't achieve that, but what it can do is analyse enough data smartly enough to create the groups of people that do satisfy the criteria plugged in by the sales or marketing department.

This is one of the true powers of AI that we see time and again: it can process and make sense of so much data that it allows a retailer to recommend 'personally at scale'.

North Face takes this in a different direction with its online Jacket Chooser, which uses AI to help shoppers pick the right coat for their daily needs.

The example the retailer gives is that a two week winter hike in Iceland is different to a daily commute in Toronto – so through a conversational interface it seeks to ascertain the user's needs and recommend them the right North Face coat.

This is really just filtered browsing, but to do it in a conversation style and deliver what appears to be a highly personalised result, the system uses AI to whittle down the choices based on almost infinite combinations of criteria.

Pilot results in 2015, based on data collected from 55,000 users, resulted in a 60% click-through rate and 75% total sales conversions. It's important to note that North Face didn't elaborate as to whether these results represented more or less than its normal results, nor if these results are sustainable or are merely driven by initial novelty in the user interface, but it shows it works.

CUSTOMER SERVICE

Automated customer service is nothing new – think back to the old IVR days when you could say or press 1 to speak to an agent – but today's applied AI is revolutionising how brands and retailers communicate with their customers.

In fact, by 2020, IBM[2] predicts that 85% of all customer interactions will be handled without the need for a human agent thanks to enhanced AI-powered call centres. But, it is already happening.

The rise of messaging among consumers has led to contact centres handling not just voice calls, but also text, IM and email. Messaging offers an ideal opportunity to automate at least some of the communication between customers and brands.

These automated chatbots, can handle basic FAQs and other aspects of the communications mix, but can be trained, thanks to AI, to handle pretty much anything a retailer or brand wants.

A prime example is H&M Kik, where shoppers can interact via text with fashion retailer H&M to get recommendations of clothes. Much like the North Face example, H&M Kik asks questions to narrow down – learn – what the customer is looking for and delivers it to their phone for them to buy if they want it.

Beyond, this however, AI powered chatbots are also being used to handle customer complaints, questions and queries. US fast food chain Taco Bell was one of the first to introduce this, realising that many of the calls and messages it took where asking about menu items, special deals and restaurant locations – so it automated all of this. Now a customer thinks that they are getting the answers texted to them from a person, but it is in fact an intelligent machine.

The advantage of automated customer service lies in the fact that, unlike a revolving cast of agents, you only have to train the system once and it can handle many thousands of enquiries. It can also do it 24x7x365 without growing tired, getting sick or needing a holiday, meal break or to go to the toilet.

They also have the added advantage, if AI is employed well, to pre-empt customer issues. This lies at the vanguard of AI in customer services as it requires AI that not only can be taught the basics, but which learns and adapts as it goes along.

Systems with AI embedded can monitor a nearly infinite amount of website and in-app activity for distress indicators, identifying customers experiencing issues and what those issues are. The system can respond in real-time offering support through FAQs or virtual service agents across platforms and devices.

The ability to resolve customer service issues before they arise has huge potential. It could significantly lower customer abandonment rates in the purchasing cycle, whilst simultaneously reducing customer complaints and improving consumer satisfaction.

LOGISTICS

Getting the right goods to the right place – increasingly on a near real-time deadline – is a growing challenge for most retailers and again AI is making inroads into across this element of the retail ecosystem.

• **Picking and packing –** one of the most notable examples of where AI has been put to use in retail logistics is in automating the picking of groceries. Grocery delivery business Ocado has been using an AI-powered robotic picking and packing system since early 2017 than can understand lists and pick from 50,000 individual items safely and reliably every time.

Where AI plays a key role is in learning where to grasp different products so as not to damage them – made all the more complicated by the products – especially produce such as fruit and eggs – not always being uniform. Algorithms help the robots learn and adapt to this so that they get faster and more efficient at safely picking up the goods.

While humans can quickly learn and develop all manner of strategies for grasping various items based on what they intend to do with them, robots need to be taught these strategies and that's why AI plays such an important role too. However, once the robots have learned they can do the job tirelessly and accurately ad infinitum.

• **Delivery –** AI-powered robots are also shaking up how the goods arrive at the customer's door, with both ground based automated delivery vehicles delivering pizzas for Domino's and Amazon, UPS and others experimenting with autonomous delivery drones in the air. While both of these are at a pilot stage only, if you'll pardon the pun, both rely heavily on AI to work.

AI here drives how the vehicle gets to its destination, based on understanding where it has to go, what the conditions en route are and when it needs to get there. The onboard guidance is controlled by smart, AI-powered GPS in the cloud that tracks the vehicle, routes the vehicle and controls it. The vehicle itself also employs local AI to stop it crashing into things.

WHO'S DOING WHAT WITH AI?

Many companies are developing AI solutions for marketing – many brands and retailers are developing their own – but who are the main players and what are they offering today?

Amazon

Amazon is big in AI solutions for both consumers and for business. Its Amazon Echo devices are already in many homes, happily parsing and recognising simple instructions such as 'Order more milk" and "Alexa, what's the weather forecast?". The company also offers AI products, however, to businesses to work into their own systems. To date Amazon has three main business AI Products: Lex, a business version of Alexa, Polly, which turns text to speech, and Rekognition, an image recognition service.

Apple

Apple has been relatively slow to get on board with the AI service model, doing so by buying four AI start-ups within the past two years. One of them became the bases for FaceID, a facial recognition security system. The bulk of the company's work is around Siri, Apple's virtual assistant, but as usual Apple is tight-lipped about plans. It recently poached Google's AI chief, which will undoubtedly help its efforts and further the acrimony with Google.

Google

Google was one of the first of the new breed of companies to start using AI and has bought 12 AI start-ups in four years as it continues to develop AI capabilities. However, much of Google's work with AI is directed towards improving its own products and services, particularly visual search and voice search – the latter for its Google Home series of devices. It has a major software project in TensorFlow as well as its own Tensor AI chip project.

BUSINESS CASE FOR AI

The biggest advantage of AI in business today is undoubtedly automation and efficiency, which lead to quicker time to market with messaging, products, services and lead to stronger financial results.

But the impact of AI on retail marketing – and other retail business silos – is also more subtle. To intelligently act upon data quickly is a massive benefit to any business and as we have seen there is a lot of data out there to act on. Using machine learning and AI to analyse and understand this data and spew out what you need quickly – and it certainly can do that more rapidly than a team of people – gives business edge. To also then learn to spot emerging trends and perhaps until now hidden meanings in that data is clearly even more spectacular.

This is where AI in marketing really comes into its own. The marketing team can get on with creating the ways to engage personally with the people identified in that data, while the AI gives them the insights as to who those people are, what they are doing, where they are doing it and, most critically, giving them an insight into what they are going to be doing next.

No, AI isn't a magic crystal ball that can see the future, but it can spot trends and likely changes to behaviour more rapidly perhaps than human analysts.

This gives clear business advantage and, where some may fear that AI could replace marketers altogether, should show that it is a tool that can be used to take out much of the grunt work and give marketers the ability to create the right campaigns that are more efficient and effective as they are targeting the right people with the right message at exactly the right position in space and time.

ROI ON AI

AI can no doubt have an impressive impact on the business and to some extent if you don't invest in it now you'll get left behind. In fact, many businesses using software as a service (Saas) tools are probably already reaping hidden benefits from AI. But how do you justify the expenditure on AI?

As with any IT investment, understanding what problem you need it to solve is key to working out how successful or not it has been as an implementation. Much like any technology investment, the objectives behind solving this problem and its likely benefits need to be mapped out as KPIs – and rigorously monitored.

In many regards, measuring AI impact is easier than say, a major company-wide change management initiative. It is to be expected that some of the unexpected impacts, such as the business benefits discussed above, may not have clear KPIs attached to them, but they too need to factored in to understanding the overall performance of the AI platform and what it has delivered to the company as a whole or the marketing function in particular.

One of the most useful benefits of AI is that it can be introduced incrementally, first tackling one key issue and then slowly be extended to take in more and more.

On the downside, any implementation needs to be accompanied by an assessment of whether the implementation is going to require more – or indeed less – resources in terms of staff, especially externally. Does your business have the requisite IT skills or will they have to be shipped in with the provider of the AI suite/solution that you have chosen.

Keep it narrow at first and see what solutions or resources exist to help solve for that business case. As in any technology adoption, it should be about solving for a business need, versus adoption just for the sake of the technology.

That said, a successfully applied AI solution should, in marketing at least, present more efficiency and faster time to market with messaging: messaging that is more targeted and timely.

AI AS A SERVICE

As with all high-end technology, only those with deep pockets or highly forward-thinking finance directors can usually get on board from day one. And as with all high-end technology that is expensive to invest in, there are companies queuing up to sell you that tech as a service.

While some vendors have exceptional AI and AI for marketing products, the likes of Alphabet – parent company of Google – Amazon and Microsoft all offer their AI technology as a service to corporates as a value add to their cloud computing businesses. There are others – many in fact, servicing all facets of business where AI can play a role, including it the analysis and distribution of server power to online retailers to cope with peak periods – but these three are the ones that are pumping new AI technology and features out there right now.

In the months and years ahead, it is likely that much of the AI that is routinely used by retailers and brands will be provided from the cloud, much as today many rely on 'basics' such as office software, document management and sharing and so on as a cloud service.

This will put the power of AI into the hands of all comers and is likely to the real tipping point in terms of AI entering every facet of life.

With these companies making their tools available to 'rent' or even to be used to build new services around, AI is going to explode to new levels of use – and the world of retail, if not the world of everything, will change in a way not seen since the inception of the internet. ■

Microsoft

Like Amazon, Microsoft has developed a mix of consumer-facing and business AI products, services and projects. On the consumer side it has Cortana, a digital assistant that comes with Windows and now is available for smartphones other than Windows Phone. It also has the fledgling chatbot Zo that talks like a teenager. On its Azure cloud service, Microsoft has AI services such as bot services, machine learning and cognitive services.

OpenAI

OpenAI, as the name implies, takes more of an open source approach to AI, with the aim of collaborative development of AI services that benefit all. It collaborates openly with other AI players and has a staff of highly respected AI experts that produce widely-read and influential research papers that help shape both AI system development, as well as inform businesses as to what the latest in AI deployment, capability and thinking is.

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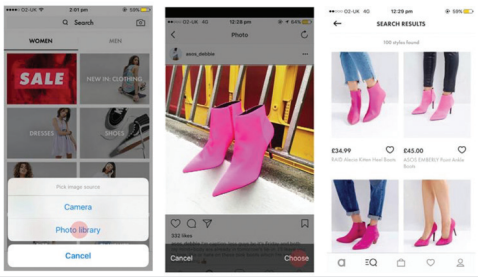


CASE STUDY: ASOS VISUAL RECOGNITION

Pureplay fashion retailer ASOS has pledged to invest in "AI, from the technology and the processes to the people required "to make a step change in the productivity of AI development processes." It is looking to use AI in every areas of the business, and points to examples including visual search, product recommendation, fit analytics and shopping through Facebook Messenger".

One of the first parts of this to see the light of day has been trials of image recognition to aid shoppers, who can now point their smartphone camera, via the ASOS app, at things they like the look of – either in the real world or pictures in magazines or on social media – and ASOS will use AI to serve up suitable goods it has for sale that match.

The system uses AI image recognition technology that assess the key attributes of the image and rapidly processes them, matches them with images in the ASOS inventory database and serves up the results all within a matter of seconds.

The move is a canny one as image based retail is all the rage, especially with ASOS's key demographic of the under 30s. Instagram is key to ASOS's growth, with its Instagram stories viewed more than 30 million times a month and its videos more than 52 million times.

Such technological investment at ASOS has seen UK retail sales grow by 22% to £414.5 million, while international retail sales of £716.8 million were 31% ahead of last time. Pre-tax profits of £29.9 million were 10% up on last time – and first-half site visits topped £1 billion for the first time.

AI BY CHANNEL

AI-powered marketing is centred around data processing and analysis for marketers to target their customers and potential customers – but how is it being used across the different channels available to marketers out there?

AI AND EMAIL MARKETING

Email is still the marketing medium of choice for most brands and retailers and, in the smartphone age where email is seen as part of the personal and immediate messaging mix by most people over the age of 20, it has surprisingly good opening rates.

The role of AI in email marketing is perhaps the most advanced area of AI use to date and is what has driven much of the advancements and developments in AI powered marketing over the past five years or so.

• **Choosing the right customer –** AI's main role is in data analysis to outline to the marketing function what of their pantheon of email messages they need to send to whom.

With consumers demanding near total personalisation of engagement from brands, email marketing today needs to be seen not as part of a blanket bombing approach to customer contact, but something that lands in the personalised mailbox of a customer or prospect at the right moment to elicit the right actions.

This involves advanced use of AI systems that, working to the rules applied to them from the marketing department – in turn driven by targets, inventory and overstock needs – can assess what customers are doing, where they are in the purchase journey and what action the retailer or brand ideally wants them to take. It also involves looking at what messaging to send them and when.

Here AI is used to crunch the data. As has been seen repeatedly across this white paper, the quantity of customer data that retailers have access to is immense and growing. Understanding what that data tells you and, more over making constructive, efficient and effective use of that knowledge is key – and this is what AI systems can deliver.

To reiterate the point, the AI isn't there to create the emails or the campaign messaging, it is there to help the marketers get the right message to the right people at the right time – and if it works properly to sell more stuff.

• **Choosing the right message –** While the AI won't for now be creating the marketing content, it is increasingly being used to not only categorise customers based on the data they share, but also in then choosing which messages to target them with, when to target them and how. While email is the main contact point, part of AI's role here will be to assess who gets what message and through what channel to deliver the best effect.

However, AI's role goes much deeper than that. It can not only learn which channel is best to and the right message, but it can also learn to apply rules to create dynamic content that personalises still further that message.
This can include; personalised product recommendations; personalised offers and discounts set at the right level to activate them; and personalised 'hero' imagery designed to pique their interest from the off.

AI AND SOCIAL MEDIA

Social media is becoming one of the main consumer touch-points for brands and retailers – both reaching out to consumers and for consumers reaching in. WIth much of the content becoming visual, image recognition and understanding are becoming important when it comes to assessing what it being said out there by social media users and then turning that into useful data.

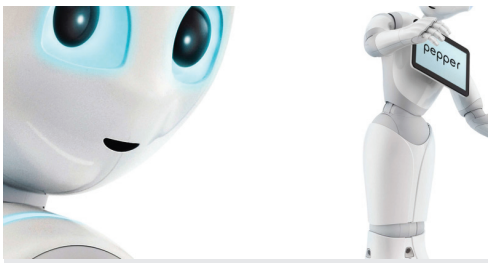
But social media in marketing has many facets and AI can play a key role in understand each and every one of them.

• **UGC –** Increasingly, brands and retailers are leveraging content their customers generate on social media for their own marketing. After all, there is no better endorsement than an unsolicited 'shout' from a happy customer. The problem is tracking all these content across the whole of social media, assessing its worth, quality and, most importantly sentiment, and deciding whether to flag it up for the human marketers to take note of.

Having read this far into this white paper, you can no doubt see that this is ideal AI territory. Here, AI can scan social media, process the vast number of hits that relate to a company or satisfy whatever criteria the marketers have set and, most importantly, bring its intelligence to bear on assessing the usefulness of the content. And it can learn to do this more efficiently with time as it goes.

• **Curation –** there is a second facet to where AI can play a role in UGC based social media interaction with consumers and that is in the management and curation of the content. Once the marketers have chosen what they want to keep and what they want to use, the use of these images – although it can also work the same with text based content and video – needs to be permitted by it creator. This too is something that can be managed by AI, which can police who said yes and who said no and execute appropriate actions as a result. AI can also manage the curation of the content too, which will need to be managed over time.

• **Trend spotting –** Not only can AI systems spot mentions and relevant content, they can too be used to look for trends amongst what social media users are doing, saying and what trends in thought and behaviour are emerging. Again, this is data processing and analysis task that AI technologies are most adept and handling and can cover far more ground and make more decisions – and potentially spot more diverse and possibly hidden trends – than humans. They can also, once taught, do it much faster. Looking over the gamut of images,



CASE STUDY: PEPPER – THE HUMANOID FACE OF AI IN-STORE?

Others have been more literal in terms of what AI in store means. Softbank has introduced Pepper, a humanoid robot that not only can answer questions and queries, but can also perceive human emotions and act accordingly.

Trialled across 140 SoftBank outlets in Japan and making an appearance in a number of stores and museums in the US, the robot has led to a 70% increase in footfall – which may or may not be down to the novelty value of there being a talking robot in the store – but has also logged a 98% increase in human interactions therein.

Based around some of the most sophisticated AI and machine learning available, Pepper can identify emotions by voice, as well as the expressions on a human face. Pepper reacts accordingly and is delighted if you are happy, or does his best to comfort you if you are sad.

In addition to faces, Pepper is also able to recognise people by their voices. Thanks to his 4 directional microphones and his loudspeakers, Pepper is able to locate the source of sounds and engage in conversation in response.

Pepper possesses also features numerous sensors: two ultrasound transmitters and receivers, six laser sensors and three obstacle detectors placed in his legs. These sensors provide him with information about the distance of nearby objects (a range of 3 metres), in addition to his three cameras (two RGB cameras and one 3D camera placed in his head).

text, hashtags, videos and assessing not only content but sentiment and semantics therein is a mammoth task, but one that machines can be taught to perform with ever increasing accuracy as they take the human assigned rules and learn as they go.

• **Anticipation –** Analysis of what is happening on social media is not only key for spotting trends, it can also be a boon to anticipating behaviour and problems and complaints – allowing businesses to react early or, if lucky, before they occur.

As we have already seen with chatbots and AI deployed in customer service, machine learning technologies that scour social media can pick up on complaints – especially ones that look like they are starting a trend – as they happen and ideally alert the company or brand before these things escalate. From a marcomms point of view, this means that action can be taken – either directly through social media or through other comms channels – to address the issue. Being seen on social media to be proactive is one of the key ways to turn a potential disaster into a PR triumph and something that AI has a key role in delivering.

• **Customer contact –** Akin to all other marketing activity, social media can also be used to connect with consumers. Much as with email and messaging, AI can be used to assess which social media users are at what point of the purchasing journey and deliver predefined messages to them to encourge them to act in a way the marketing department needs them to act based on targets and bottom line considerations.

AI AND IN-STORE

In-store is typically problematic to any form of digital marketing as it is largely a non-digital environment. That said, there is still a lot of data that is gathered in the in-store environment such as payment details, what has been purchased, and loyalty points redeemed or accrued. Here AI plays a role in processing and understanding this data alongside all the other data that is gathered on a particular customer, or, in light of GDPR, general data about shopper behaviour to get a bigger, more omni-channel view of an increasingly non-linear purchasing funnel.

This has the advantage of delivering a holistic view of the whole omni-channel retail business and can help predict what people are likely to do online, based on what they have done in-store or vice versa.

Tools that use AI and machine learning are available to retailers now; these include chatbots, as we have seen, but also apps for in-store staff with real-time product information and omnichannel personalisation solutions. Images of sci-fi-esque, futuristic tech accompany many consumer and business imaginings of AI, yet the reality is more low-key, and – most importantly – easily accessible for retailers today.

It is this latter example of AI technology – omnichannel personalisation – which can really benefit retailers. This type of in-depth personalisation goes beyond the simple recommendation strategies many retailers are currently using.

Instead, it combines real-time context with behavioural profiling, dynamic merchandising, as well as – where possible, and where legal – data from third parties such as a shopper's Facebook engagement and information from other online marketplaces.

The real-time-context could include things like the shopper's location and how they navigate and browse a store, as well as the time of day, the weather, which device they are using to shop, and so on.

The AI solution will then use this information – thanks to deep learning algorithms – to make predictions about future shopping behaviour and intent to influence decisions. This will allow a retailer to anticipate the next best step in a shopper's journey, and deliver the most relevant individualised experience. The shopper is then presented with products that are to their taste, in a way which appeals to them. The retailer too stands to gain, optimising business, driving sales and customer lifetime value..

AI AND CROSS-CHANNEL

While AI plays a key role in understanding consumer behaviour in all these marketing channels, it really moves things up a gear when it comes to being used to learn, understand and decide which channels through which to target a consumer at any given point.

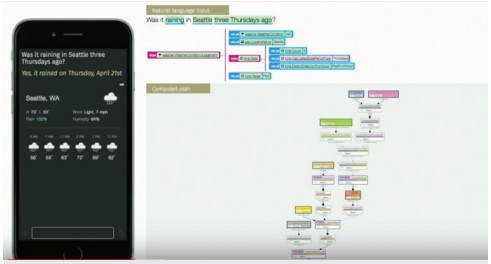
Understanding when they are looking likely to lapse is one thing, deciding through which channel and with which message you can prevent that happening is something that AI can do for retailers right now.

This is perhaps where AI in marketing really starts to earn its stripes. Assessing where and when consumers are going to behave in a certain way is but the first step. Using that data to trigger intelligence that can then translate that behaviour into selecting the channel and even the message that is likely to be the most engaging is already starting to revolutionise marketing. ■

Another sensor within the battery indicates its level of charge as well as its temperature. Pepper also possesses tactile sensors in his hands, which are used when he is playing games or for social interaction.

Ad he is, of course, linked to the world with his own autonomous internet access, using the common 802.11a/b/g/n.

Could this be the future of the in-store experience? Many think so. And it could well be a way to gather data in-store that can then be used to market to customers through digital channels.



CASE STUDY: VIV GOES BEYOND THE SIMPLE QUESTION

Imagine being able ask your phone if tomorrow was going to be raining after 7pm and should you take a coat on your date? Or asking your home assistant device if the milk is off? Or to get Spotify to play that song by that band that you went to see last week?

Such a world, where conversational interaction with the web is the norm is just around the corner.

The team who developed Siri – the personal voice assistant technology embedded in Apple devices – have, since selling that to Apple, developed VIV, an artificial intelligence platform that, says the company, enables developers to distribute their products through an intelligent, conversational interface".

Talking is the simplest way for the world to interact with devices, services and things everywhere and Viv is taught by the world, knows more than it is taught, and learns every day.

Purchased by Samsung in 2016, VIV is months away from being properly launched and it promises – if the demo videos are the believed – to totally change what we think of as speech recognition, voice control and even AI.

The technology that has been demoed so far is awesome, pulling in data from various sources to answer what are quite complex questions.

For example, asking it "Will it be warmer than 70 degrees near the Golden Gate Bridge after 5pm the day after tomorrow?"

This requires it to do the following:

- Find Temperature forecast
- Compare with 'now'/here

THE FUTURE OF AI

AI is still very much in its infancy and, while machine learning is morphing into true AI, what these technologies will deliver in the future is frankly awe-inspiring. So what can today's marketers look forward to this time next year – and beyond?

AGILE MARKETING

The power of AI to rapidly analyse, categorise and deliver data to marketers will only increase. Data points may increase, but the power to analyse and make sense of that data will increase faster. This means that in the coming years, marketers will be able to react more quickly to changes in customer behaviours and trends – and means an end in many ways to lengthy campaign planning and drawn-out strategy that can often miss the zeitgeist by the time it comes into action.

For consumers it should mean an end to irrelevant marketing messages, as brands will be talking to them every more closely to the right message at the right location at the right moment.

MORE SOPHISTICATED PERSONALISATION

The aim today of much of the AI technology in play in marketing is to drive 'personalisation at scale': segmenting data sets and grouping together similar individuals at similar points in the purchase journey and messaging them with a single message. This is starting to feel more personal to consumers, but is still not sophisticated enough to deliver what feels like true personalisation.

As AI develops, it will be able to find the people that you want to target and let you target them almost one to one.

Data acquired from customer searches and buying behaviours is used to customise content at the individual level, while insights gained through cognitive intelligence drive smart recommendations for tailored experiences that shorten the purchase journey.

LEAD NURTURING

Tailoring experiences to shorten the path to purchase is just part of the way AI can help nurture leads into buying. We all know that people visit websites and look at the goods many times before buying – often across multiple vendors and across multiple devices. Making contact with them and following this up will be driven by machine learning and predictive analytics in AI systems so that they are targeted with the right offer and the right moment. And that means the exact right moment: in both time and space and device.

AI's predictive analytical capabilities will analyse the myriad data points from many customers and will increasingly learn how to target

them with the right creative materials through the right channel and at the right moment to turn a lead into a sale.

NATURAL LANGUAGE RECOGNITION

AI is already the bedrock of natural language recognition (NLR) and processing, but today it has its limits: largely that it isn't really very natural in what it can recognise. The next leap forward in this area is going to be the arrival of more powerful AI-powered NLR, which rather than slowly learning that you are saying "Alexa, order more milk" is going to be able to answer proper questions: "Alexa, when did I buy this milk? Do I need to get more?" and so forth.

This move will transform computing as we know it, opening up speech as the natural and de facto way of interacting with all machines and the internet. It will add a level of personalisation to everything a brand or retailer – or any one for that matter – does that it will transform how people interact with the world. It will also change how the world of once-inanimate objects interacts with each other and with us humans.

This has a profound impact on marketing. It means that consumers are going to be able to naturally interact with brands online and in-store without it having to involve humans at all. The next step is dealing with 'and/then' commands – so an action as a consequence of an enquiry. That is next on the list and it won't be long coming.

AUTOMATED CONTENT CREATION

AI is rapidly moving beyond just predictive analytics and into intelligently selecting the content that is being delivered to the lead or customer to garner the best results. In the near future, the AI systems will also start to create content on the fly for these leads and customers, pulling together elements and rules supplied to them by the marketers.

Such AI software will work in harmony with the human creatives to generate bespoke content for marketing rapidly and efficiently – and is the only true answer that we have currently to delivering consistent, yet device- and channel-appropriate, content across multiple channels.

BEING MORE CREATIVE

While you might start to wonder if all this means that AI will be replacing human marketers you are wrong. What all this adds up to is making for marketing being a much more creative and less routine job than it is today. Basic, mundane tasks will be performed by machines, as will the other less creative but still labour intensive jobs of creating audience personas, managing sales and marketing, handling surveys and more.

Instead, marketing executives will be looking at ways to build the creative elements that the AI can use to micro-target leads and customers and devise the rules to set the AI systems in motion with. ■

- 70 degrees – a value
- Location – 'near'
- Place – Golden Gate Bridge
- Time – 5pm
- Date – day after tomorrow

This takes inputs from many sources of data to compare and correlate – all done by some state of the art AI living in the cloud. And it can do it. This is going to be a game changer when it arrives and shows the awesome power of AI today.

CONCLUSION AND KEY LEARNINGS

AI is all around us and is already having a profound impact on most industries and most professions – perhaps retail marketing being among the earliest to feel its power. On this brief skip through AI and what it does, what have we learned?

MACHINE LEARNING AND AI ARE NOT THE SAME...

The first key take-away from this white paper should be that machine learning and AI are not one and the same, technically speaking. Machine Learning is very clever and uses rules to get computers to do things within a set of parameters and get better at doing so. AI, on the other hand, takes this further, not only learning to do what it is told better, but to start to intuit from it and learn new things. Machine learning is a machine that gets better at doing something; AI is a machine that can learn to do something then teach itself how to do something else based on that.

.. BUT AI SO PREVALENT THAT IT'S JUST ALL 'AI'

The above difference, however, is semantic. To all intents and purpose, AI is the catch-all term that covers the gamut of learning technologies from algorithms to machine learning to deep learning to neural networks and on to the 'brain' of AI. To the world at large, equipping devices with this level of 'intelligence' is all artificial intelligence and so we may as well get used to just talking about AI. After all, in a couple of years everything currently being done with machine learning will be being done in spades by true AI.

AI IS CHANGING HOW WE INTERACT WITH THE WEB...

AI in its most general form has fundamentally changed how we interact with the web. The obvious way this has happened is through voice control of devices such as Amazon's Alexa and Google Home, which allow you to talk to a rudimentary web browser and get it to do things.

But there are deeper ways in which AI has changed how we use the web. AI powers much of the search we do on the web, even using the good old fashioned keyboard (which also uses some degree of AI to autocorrect what you type at a local level before it even goes off to an AI-powered search engine). Online search relies on algorithms, machine learning cascades of algorithms and, increasingly, neural

networks and AI to refine the results of what is served up to the searcher.

As AI becomes more powerful it will make both voice interaction more natural and so more useful and will make the results sent back to the browser, however they choose to browse, much more useful.

… WHICH CHANGES RETAIL

These changes in interaction with the web have a profound impact on retail. Now searches can be smarter and can be instigated not just by typing in 'blue trousers' into a search field, but by asking the web for 'Blue trousers like the ones that lady is wearing on TV', or taking a picture of them from the TV and pushing that to a search engine or a retailer website.

This makes shopping more about finding things you like than what it has become in the dotcom era a case of looking to see if you can find what you want.

It interestingly brings shopping full circle. People used to go window shopping for things they saw people wearing in magazines or on TV. The 'traditional' internet model then meant that they had to search clumsily for them. Now, thanks to AI delivering great image recognition, you can either shop off the page or take a photo and find what you are looking for.

AI'S IMPACT ON MARKETING IS HUGE ALREADY…

In retail marketing, AI has already had a huge impact. Machine learning has long been applied to that staple of online retail marketing the recommendation. But increasingly, AI is finding its way into the back end of many retailers, driving the crunching of data to create better demographics of customers and allowing for much more targeted and personalised marketing messages to be sent out.

This process is getting more sophisticated as customers become more demanding of a personalised experience and as the technology employed by marketers to do predictive analytics on the vast amount of customer data they now have access to improves.

No longer are marketing email shots wasted: today they can be specific messages sent to specific groups at specific times to generate the desired response in more of them.

AI has also taken some of the grunt work out of being a digital marketer and given them back the freedom to spend their time being more creative.

… AND THERE IS MORE TO COME

But as with all things to do with AI, we have only just seen the tip of the iceberg. In marketing, AI is going to do ever-more data analysis and number crunching – but as it gets smarter it is going to be able to produce more insight into what marketing tactics need to be deployed and when to get the best results.

AI is also going to drive a raft of new ways to understand consumers on all channels and piece together the complex picture of today's non-linear shopper – and to do it on an almost individual basis. Eventually, these systems will also be able to tailor creative content to suit each person and then we are into the realms of true one-to-one marketing at scale.

AI is also going to enable marketers to react more rapidly to changing habits. In fact, AI will enable marketers to see those changing habits before they happen and be ready for them, making marketing a more agile and efficient beast than it has ever been.

THE MACHINES AREN'T GOING TO TAKE OVER...

Much of the hype around AI in all walks of life often circles back to how intelligent machines are just going to get smarter than their human creators and take over. Eventually this may happen – I need to hedge my bets in case this happens in the next 50 years – but today, AI and intelligent machines are tools. They are designed and run by people to make many complex and repetitive task easier.

They also free up people to be the creators of the rules that drive AI and to create what is done off the back of the trends, predictions and insights that AI can give us. For now, people still have a vital role to play.

...YET

But don't be too complacent. In many walks of life, AI will be able to do menial jobs better than people, and so there will be some natural wastage. In retail and retail marketing, this may be some way off, but there will be consequences. Marketing and retail craft will become much more skilled jobs. Humans will be needed to keep the machines in check and to find the work for them to do. Increasingly, AI will erode many of the mundane tasks of the marketing world – whether it can then start to be creative remains to be seen. If we get machines that think laterally and creatively like some of the biggest minds in advertising, then we perhaps have bigger problems than what it means for marketing. ■

SUMMARY

Artificial Intelligence (AI): to many it means machines that will learn to outwit their 'human masters' and subjugate mankind. To those in the know, AI is nothing of the sort, merely being a tool that can be used in, among other things, marketing to make data analysis more accurate, rapid and efficient. To everyone else, it's something that may one day be a reality, but until then they aren't bothered.

But that reality has arrived. AI is a powerful tool and one that has by stealth already entered the lives of billions of people. Anyone using the web, mobile phones, buying online, receiving email marketing, of using Google translate is using AI already today.

Yet it is still in its very early days and its impact on marketing for one is yet to be fully understood.

In many organisations, machine learning and AI are already being used to crunch the ever increasing amount of data retailers and brands have about their customers. In others, it is already starting to earn its keep helping to not only better categorise that data, but also to produce innovative new ways to communicate with them, just at the right moment.

And in still more organisations, what AI is and how it can help are not fully, if at all, understood.

In this white paper we shall uncover what AI is – is it machine learning, is it neural networks, is it all of the above? – what it can do across the marketing function in the retail ecosystem, what role it already plays in marcomms and how that role is set to change. We also take a look at how AI fits in with existing technology plays and seek to understand where the rapidly developing technologies that make up AI are heading and what that means for retail and retail marketing in the months and years ahead.

AI is a spectrum of capability that's becoming usable in bursts and starts, and herein we identify the key areas now, along with what is coming down the pipe – both in terms of changing AI and marketing technology, but also in terms of changing consumer habits. This white paper aims to give you the intelligence to unravel what you AI strategy should be. ■

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