The conversation engine

A shop assistant of the smart age

Stephen Parker
About the author

Stephen Parker is founder and CEO of Parker Software – a technology house specialising in live chat software and business process automation. With its two core areas of expertise, the business is uniquely placed in understanding – and building – the software driving customer service reform.
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Chapter one

Smart customer service
Humans quickly grasped the concept of trade. As early as 1000 BC, merchants, tradesmen and farmers were an established part of society and to some extent, customer service was also becoming a standard expectation. However, today’s customer service expectations go far beyond that of ancient societies.

The industrial revolution brought an array of new challenges. Mass production created a vast customer base that forward-thinking businesses could not ignore. More recently, ecommerce has created a customer pool that companies are unlikely to ever meet in person, further widening the communication gap between business and customer. However, while digital technologies are creating a physical barrier between face-to-face communities, they also bring an array of opportunities to bridge the gap.

Customer service is changing. Today, even modern methods of customer communication like SMS, telephone and email are beginning to decline like their forerunners. A growing demand for instant responses has been driving live chat as the communication method of choice, and at Parker Software, that’s what we’ve been specialising in since 2003. But what comes next?

As we stand on the verge of the next customer service revolution — one that will see artificial intelligence, chatbots and digital automation driving a new conversation engine — this book examines the practicalities of these technologies, the potential applications ahead and how we as businesses can implement these inventions without losing sight of the customer.

The Conversation Engine is the concept that, in the future of customer service, communication technologies will converge to provide customers with the ultimate collaboration — technological efficiency and human understanding.
Part two: History of customer service infographic

1. **Pre-1870s**
   - **Go to the source**
   - Hate waiting on hold? Imagine travelling across town just to ask a question. Regardless of how dreadful the hold music might be, it’s better than this!

2. **1876**
   - **Hold the phone: the invention of the telephone**

3. **1894**
   - **Telephone switchboard**
   - Originally, telephones were sold in pairs and only worked with each other – like cans on a string. Switchboards allowed for multiple phone calls.

4. **1960s**
   - **Rise of the call centre**
   - Today, there are more than 5,000 call centres in the United Kingdom, employing a massive 1.1 million people.

5. **2000**
   - **Software and CRM becomes standard**

6. **2008**
   - **Going social**
   - Businesses started using social media to connect with customers. Today, companies using Twitter for customer service see an average 19% lift in customer satisfaction.

7. **2016**
   - **The rise of the chatbot**
   - The emergence of AI in the contact centre started to displace traditional customer service.

8. **Late noughties**
   - **Remote desktop support**

9. **2012**
   - **Facebook, LinkedIn**

10. **2015**

11. **2014**

12. **2000**
    - **Software and CRM becomes standard**

13. **2008**
    - **Going social**

14. **Late noughties**
    - **Remote desktop support**

15. **2016**
    - **The rise of the chatbot**
    - The emergence of AI in the contact centre started to displace traditional customer service.
The conversation engine

What next?

- **1962**
  Touch tone dialling

- **1967**
  Toll-free numbers

- **0800**
  Interactive Voice Responses (IVR) were still a novelty, but the technology did advance when incorporated into customer support centres.

- **Late 1970s**
  Introducing IVR

- **1989**
  Investments in outsourcing

  Cost saving measures became a priority and many support centres were sent abroad. Today, outsourcing continues to grow by 8-12% annually.

- **1995**
  ‘CRM’ – the birth of an acronym

  Database marketing already existed, but the birth of CRM marked the beginning of an industry to change customer service forever.

- **1996**
  Live chat

  For the first time in 40 years, customer service returned to an immediate one-to-one interaction with another human being.

- **1995**
  You’ve got mail

  Amazon sold its first book online and email support services emerged to support the growing field of ecommerce.
Part three: The state of customer service

Jo Causon is the CEO of The Institute of Customer Service. Since joining The Institute in 2009, she has driven membership growth by 150 per cent and established the UK Customer Satisfaction Index as the country’s premier indicator of customer satisfaction.

The results of the latest UK Customer Satisfaction Index (UKCSI) in July 2017 show that customer satisfaction has risen to 78.2; and is now at its highest ever point since January 2013. It is good to see things moving in the right direction, but there’s no room for complacency. Despite these improvements, more customers say they experienced a problem dealing with an organisation compared to a year ago. In addition, while it would appear that many organisations have become better at dealing with complaints, customers are having to work harder to get what they want, suggesting problems are not being effectively prevented at source. Customer satisfaction may be increasing, but so is customer effort.

Customer effort is the amount of energy that the average consumer will put into making a transaction run smoothly with an organisation.

At an industry sector level, the UKCSI shows that levels of customer satisfaction in retail, leisure and tourism and automotive sectors are relatively high, but the telecoms, transport and utilities industries are still lagging behind. As customers have less money in their pockets and exchange rates fluctuate, they begin to count their pennies against rising inflation. We’ve become more conscious when spending money, making the delivery of high customer service standards even more important.

We know that good customer service is significantly impacted by how easy it is to do business with an organisation. For customers, the ability to interact with staff that are professional, competent and empathetic is vital. There’s nothing more frustrating than dealing with the typical ‘computer says no’ response when trying to resolve a customer service enquiry. Top performers for customer satisfaction - like Amazon, First Direct, John Lewis and Aldi - are those which score highly for human interaction measures.

Our research also shows that 28 per cent of consumers would be willing to pay more for better customer service, so it’s the organisations that focus on the service agenda that will remain or become successful in the future.
Part three: The state of customer service

Jo Causon

CEO of The Institute of Customer Service
The introduction of technology to the customer service realm has made significant changes to how organisations manage customer enquiries. Technology can have a fabulous part to play in transactional delivery — reducing cost and increasing effectiveness and productivity.

The implementation of live chat applications, social media and automation software has given organisations the ability to share information and knowledge much easier, quicker, and, in some cases, without the need for human interaction. However, customer service is not just a transaction. Good customer service relies on a mutual understanding between the customer and the purpose of the organisation — and being able to deliver excellence for both.

Technology may be able to improve the transactional elements of customer service but we still require the additional value of human interaction to be able to create the sort of relationship that leads to loyalty, advocacy, and sustained business growth. In fact, I don't see a day when technology will completely successfully replace human interaction in customer service. For organisations, it’s important that we learn to strike a balance between technology and human beings and identify the appropriate way to respond to a customer.

Recently, I visited a restaurant that used iPads to take customer orders. Technologically, the transaction was successful and the order went through without a hiccup. However, the experience was dampened by the lack of eye contact and friendliness from the waiter when my meal was delivered to the table. There’s no doubt that technology can increase the speed and efficiency of transactional tasks, but no amount of technology can save a company from poor customer service.

Our research proves that there’s a direct correlation between customer satisfaction and customer trust, and human interaction is essential to build this level of trust. In fact, it is those organisations with high customer satisfaction that also have high levels of trust, reputation and loyalty. Technology is great, but in the customer service realm we can’t afford to robotise our people. For more complex or personal interactions, there will always be a requirement for a highly skilled and empathetic customer experience professional.

There’s a common misconception that customer service is a soft subject area, but it’s one of the more critical business areas for the UK. The vision of The Institute of Customer Service is for a world where customer experience makes a positive and sustained impact on individuals, organisations and the economic wellbeing of the UK.

79 per cent of GDP in the UK is services related, and 70 per cent of our workforce is employed in customer related roles. Achieving our goal is important to drive up the service agenda. Technology certainly has a role to play, but it is how organisations integrate this technology into existing human interaction that will make or break brand reputations.
RECENTLY, I VISITED A RESTAURANT THAT USED IPADS TO TAKE CUSTOMER ORDERS. TECHNOLOGICALLY, THE TRANSACTION WAS SUCCESSFUL AND THE ORDER WENT THROUGH WITHOUT A HICCUP.
Chapter two

The user experience
Part one: Developing the user experience

Nathan Walters is digital marketing manager at Parker Software. Here, he delves into developing a strong user experience.

The user experience isn’t just a product, or a feature, or an interface. The user experience is an immersive, end to end value chain. It starts before the user even hits your brand, and covers everything from searching for your products, to navigating your website, to downloading and using your app. The user increasingly expects a smooth and easy process — which is where I come in. With a background in search engine optimisation (SEO) and development, I’m always looking for gaps in usability and accessibility which could negatively impact our customers.

Content matters

“Content is king” is a phrase so commonly quoted that it’s become tired. There is, however, a reason for its prevalence. The content on your website, whether this is general page copy or meticulously written blog posts, has a huge impact on the accessibility of your website and its success in ranking on popular search engines. The last time you searched for something on Google, did you even look at the second page of results? Would you trust the businesses scrabbling on the second page?

Times have changed

As technology has evolved, so too have customer expectations. Those customers that were formerly accustomed to waiting now expect real-time gratification, immediate support and instant access to what they’re looking for. If there are hurdles in their way, many will give up and go elsewhere. Obviously, this isn’t what you want for your business. You need to make the time it takes for a customer to get from point A to point B as quick as possible, from any device.

Here at Parker Software, for example, the tech expectations from users are high. If we don’t streamline the onboarding journey and allow our customers to trial a product smoothly and swiftly, potential buyers may start looking elsewhere. For us, our customers can sign up and use the product in a matter of minutes. For you and your services, you need to assess whether your customers are through the gate as quickly as possible, or have opportunity to look elsewhere.
Part one: Developing the user experience

The real-time revolution

Customers will probably have questions, and they'll expect answers immediately. Previously, customers would find an FAQ section or search through hefty help files. Today, many are no longer willing to put in this graft — and new technology means they don't have to. While some businesses still rely on telephones to attend to customer enquiries and sales, millions of companies have reacted to the real-time revolution.

The rise of live chat, of instant messaging, of automated support, and of AI-driven personalisation has seen customers expect immediate attentiveness from brands. At home, these consumers can talk to their conversational assistants – Siri, Alexa, Google Home – and get precisely what they want on the spot. When they're used to this kind of slick experiences with their own devices, they'll expect it from your services.

Incorporating change

This change in customer expectations, and the push towards immediacy, means you need to improve accessibility to your services with ongoing assessments. Using analytics, you should set goals, trial small changes and continuously review these changes in terms of engagement and conversion rates. Changes could be something simple, such as a colour tweak, or something more sophisticated such as altering landing pages based on the visitor’s geolocation.

Mapping the user experience provides opportunity to collect and analyse data from multiple sources and multiple journey stages. Usage statistics on a new feature — from a slimlined contact form to a new onboarding video — can show how successful your change has been. Analysing data from UX mapping allows you to see how customers are navigating your website or product, the paths they prefer to take and what kind of changes drive conversions.

General data protection regulations

Speaking of data, don’t get caught out. As you develop your website or app to improve the user experience, customer data will inform your decision. However, you will need to make sure this aligns with general data protection regulations (GDPR).

Businesses need to be vigilant and take responsibility
Part one: Developing the user experience

when collecting customer data and obtaining valid usage consent, or risk facing severe fines. Your privacy policy needs to include key points such as:

- Who you are and how, why, and what kind of data you collect
- Where and how you store data and how the consumer can access or remove their data
- Your data processing procedures, which should be placed somewhere visible and accessible.

Keeping it in one place

You should practice what you preach. Among many of my UX-optimising missions at Parker Software, I have recently implemented in-app purchasing to the website. How does this help the user experience? It’s all about trust.

Being redirected to another site during the payment journey can be disconcerting for customers. So, by integrating an embedded checkout such as Stripe, the entire journey takes place on home turf. You should consider the same for your own website.

I have also helped to develop a designated customer portal, allowing self service and autonomy when using Parker Software’s products. While having open channels of communication is vital for a company’s success, many customers like to be able to solve problems themselves. By empowering the customer within an overarching brand structure, this solo experience still builds rapport between the user and brand.

Nathan Walters
Digital marketing manager at Parker Software
What is your design philosophy?

Consistency, consistency, consistency. It is vital that customers are given a consistent experience, whether they are using a website, interacting with software or reading offline material. Customers should be able to instantly recognise a brand as a result of consistent use of colour, font and tone of voice.

Once a brand has been established, it must not be picked apart, watered down or adjusted in anyway. I’ve seen firsthand how costly it can be for a company to bring back consistent branding once is has been broken.

That’s not to say a brand can’t develop steadily over time — it just needs to be fully researched and universally supported before adjustments can be applied to all levels of a business. Apple is a prime example of a company that has stood unwaveringly by its branding. This brand is strong, unswerving, and well maintained across all channels.

One thing we can learn from Apple is to keep it simple. Don’t rely on your users to think too much. If an element has no reason to be there, then strip it out.

Which customer touch points of branding do you think are particularly important?

Obviously, there are the basics such as the logo, font and colour scheme of the website. But branding is much more than that. Like UX, branding is immersive and end to end. It also, for example, feeds into your communication with
customers. As with visual design elements, communication should be kept as consistent as possible, whether this is an email, a phone call, a printed record or a social message.

A customer should be able to pick up a product, visit your website or read marketing material, and instantly recognise that they’re dealing with the same company. If you do it right then this becomes almost subliminal; the consumer just know it’s your company without conscious thinking.

How have customers’ expectations of design and branding changed over time?

Back in the day, Apple, Microsoft and more recently Google were all using skeuomorphic design in their operating systems, with elements mimicking real world objects. For example, the simple note pad app had a curled page corner at the bottom to show the user they could click it to get a new page. Similarly, the calculator tool looked and worked like a real world calculator. Users employed their prior knowledge to help them use new technology.

As time passed, people got more familiar with this, and no longer needed to be hand-held by the use of skeuomorphic design. They learned what the note pad app was and how to use it. So, Apple and Microsoft changed the game with their super simple OS, presenting a clean and minimalistic environment. Take a step back and compare Windows XP to Windows 10 — it hardly looks like the same product.
We have already seen some killer design features take off. The app minimisation or ‘genie effect’ you may have witnessed when you close an app on a Mac wowed audiences when demonstrated by Steve Jobs. Everyone had to get their hands on it and experience that ‘swoosh’. It was simple, but it worked.

More recently, we are seeing the great work of Google’s material design principles; a design language that makes more liberal use of grid-based layouts and responsive animations, alongside subtle depth effects such as lighting and shadows. Microsoft has introduced its own fluent design principles, making use of light, depth and motion. We’re seeing a general movement towards subtle, tactile experience that delights the senses.

Ultimately, customers expect to enjoy using an OS or app — it should be fun. We all love to swipe right, right?

How can businesses improve user efficiency through design?

Digital design has a huge impact on shopping convenience, and therefore on conversion. For example, providing a clean, simple and enticing live chat button can help speed up the online purchasing process, as users are encouraged to start a chat and get answers for any questions they may have. This is far quicker than trawling through an entire site.

This notion of speed coupled with simplicity is key. Many businesses make the mistake of hoarding features just in case a customer may use it one day. It’s all too easy for a developer to pile in new features that overcomplicate the UI of a product, and slow its performance. The product and its design, over time, start to become like Frankenstein’s monster, with too many bits bolted on.

To steal a cheesy line from Jeff Goldblum in Jurassic Park, “Your scientists [or developers in this case] were so preoccupied with whether they could, they didn’t stop to think if they should.”

You mentioned live chat software — how can this affect company branding?

In basic terms, a live chat box can be visually styled to fit in with the business brand in terms of font, colour and icons. Live chat also helps large customer service or sales teams to sing from the same hymn sheet. With canned responses already written for frequently asked questions, agents can’t veer too far from the branded company tone.

A brand is the look and feel of a company, right down to
Part two: Designing the user experience

how the team talks and interacts with its customers. Is the company fun and quirky? The chat operator should use a light-hearted chat style, and maybe throw in a few emojis. Is the company more formal? The operator should keep the language calm, succinct and to the point.

How do you think design standards will change in the future?

As designers, we all keep an eye on trends. Some come and go, and some succeed and become the norm. Amid these fluctuations, what remains important is that any design, brand or UI remains relevant and not outdated. These are the five upcoming design trends that I’m looking out for:

1. More mobile-first considerations in the design process and wider use of responsive design that adapts to the device.
2. Bespoke illustrations and enhanced video content.
3. Big, bold, beautiful typography.
4. More subtle and tactile animation, similar to Apple’s genie effect.
5. More confident and vibrant colour palettes. At present, too many companies are afraid of colour — minimalism doesn’t mean magnolia.
Chapter three

The agent experience
The agent experience

There are over 734,000 customer service agents in the UK. That’s more than the population of Liverpool and Swansea combined.

While keeping customers happy is always a primary goal for any customer service interaction, making sure the customer service workforce is also content is an important factor for employee retention and, ultimately, customer satisfaction. With staff turnover notoriously high in the service industry, though, that is easier said than done.

Enter technology. Providing customer service agents with the right tools and systems support often makes the difference between an agent with fire in their belly, ready to give the best service possible, and a dud who sounds lethargic and robotic.

The right tools and support can prove to be a problem. Many contact centre teams believe that the technology they use is not up to scratch, and that their current systems will fail to meet the future needs of the business. Now, that’s not to say that the contact centre industry is hesitant to embrace new technology. In recent years, for example, the integration of live chat, social media and SMS messaging have easily been added to the customer communication spectrum.

Unfortunately, embracing technology doesn’t always mean effective implementation. Despite all these recent integrations in the contact centre, there isn’t a single person you meet that hasn’t been left feeling frustrated after trying to deal with a service team at one point or another. We all know the common problems: the agent not having the right information to hand, being transferred to the wrong department, having to explain your entire situation again to multiple people. It’s enough to leave even the most patient customer frustrated.

However, spare a thought for the agent on the other end of this failure. The mess and confusion isn’t enjoyable for them either. In all likelihood, they’ll be feeling let down by their systems, and wishing they had the right tools to help you and avoid any future embarrassment.
Many organisations are looking to artificial intelligence (AI) and automated processes to help ease the workload of their agents. The hope is that this technology would free up agent time to support customers — what they are employed to do in the first place — rather than being restrained by admin and inefficient processes.

During a TED Talk on AI, philosopher and technologist Nick Bostrom claimed that “machine intelligence is the last invention that humanity will ever need to make.” However, agents shouldn’t be concerned about this. Computers aren’t quite ready to take over the role of humans just yet. In fact, they may never be.

The Turing Test was developed in the 1950s to test the intelligence of a computer. To do so, it established whether a human could distinguish a computer from another human, using the responses both gave to a set of questions. So far, machines have been unable to truly pass the test, and many experts, including Ray Kurzweil, an inventor and commentator on artificial intelligence, don’t expect it to happen until around 2030.

Today, automation and AI technology is being used to cut customer waiting times, help guide the customer to the right department and generally support the role of the customer service agent.

“Society is experiencing the greatest technological change we’ve seen for generations,” said Claire Williams, senior HR consultant at Fitzgerald HR Ltd. “The world is getting virtually smaller — and as we change the way we socialise and work, I believe technology will assist us in working smarter. Technology may replace some tasks in our roles, potentially freeing up time to expand our roles sideways, but it will not replace us.

“There is a lot of technology already in the marketplace that can handle administrative tasks such as clerical, dictation or data entry. However, there won’t be a lesser need for humans in the future workplace. Technology and automation will never replace a human role. It cannot replicate empathy, context, consideration or negotiation, it can only enhance our roles; but only if we use it correctly. The key is working smarter, not harder.

“Certain things, such as admin flow, customer sales processes or recruitment, are already benefitting from algorithms that make judgements for the employee. And,
let’s face it, a sales professional who can click a button on an app in their smartphone to process a sale before they even leave a customer’s premises will be more efficient than one reliant on antiquated paper systems. This real time, no time, processing will continue to pervade our working life.

“By 2020, 75 per cent of the workforce will be millennials. This is the generation that has grown up with homework submission on a portal from an iPad, group conversations over Snapchat and leisurely runs around the park being mapped out and reported on in real time. These people will be used to having everything immediately available at their fingertips and the workplace will need to reflect this.”

Automation is already speeding up processes and completing monotonous customer service tasks. But as any customer service expert will tell you, the human touch is what elevates customer service from good to excellent. Simple tasks will no doubt be increasingly managed and completed using automation and AI-enabled agent support systems, whereas complex issues will still require the careful intervention of a human agent.

Claire Williams

Senior HR consultant at Fitzgerald HR
While a lot of customer service and sales agents are concerned about their own positions, one company took the notion one step further. Williams explained, “SD WORX UK designed a spoof human resource robot called HARRI — the Human Advisory Resource Robotic Interface — essentially a replacement for the HR or managerial role.

“It was designed to get people to think about how they see the role of a manager, and what they would miss if that role was carried out by a robot. While HARRI would be able to regurgitate policy or procedure, and be impartial to conflict, it would not be able to quantify or qualify context, be empathetic of individual situations or compromise and negotiate in discussion.”

In the same way that customer service will always require the human touch to provide empathy and emotion to customer communications, agents will always require human management to keep them on track.

According to Megan Purdy from Workology in her article covering the continued need for human resources (HR), “The work that HR does has so much impact on company culture and success. It’s become common in the tech industry to hail the death of HR, but someone needs to make the human element a priority.

“But who needs HR? Employees. Managers. The company. Everyone needs HR. Without HR being considered a core business priority, some things fall by the wayside. When treated piecemeal, developing, rewarding and diversifying your workforce is impossible to track or encourage.

“Similarly, without clear policies for onboarding, offboarding, training and performance evaluations, it’s hard to get a handle on how your employees are faring. The murky human element of ‘human’ resources is, and must, be a core business priority from day one. You may not need a big HR department but you do need HR.”

Aside from processing orders, streamlining administrative processes and analysing customer communications for satisfaction, businesses can integrate technology across other sectors of the business, and particularly HR.

“Technology plays a huge part in recruitment these days,” said Claire Leigh, director at Midlands based recruitment agency, Brampton Recruitment. “Using software to manage applications can help streamline your processes and provide efficiency in communication with both clients and candidates.

“Having the ability to conduct initial Skype interviews can help candidates who are unable to physically meet their consultant in the first instance. Video chat software is also beneficial for clients who are wanting to conduct first stage interviews with candidates outside of the area or overseas, as it will help them make better informed decisions of who to take to the next stage of the recruitment process.”
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The mistake many managers make is to complete an employee’s behaviour profile during the hiring process and then forget about it when they actually hire the individual.

When a company undertakes behaviour profiling of employees, learning about their dominant traits and colours is often a pivotal moment.

Understanding the most prominent dominant traits of employees allows you to put together the right mix of people to get the job done. For example, if there is balance between the analytically-minded blues and task-oriented reds who focus on getting the job done, the team will be strong.

To keep good people, employers must take responsibility for understanding what motivates their workers. Basic behavioural traits don’t really change, but what is driving a person or how they react to what is going on around them does.

Michelle Mills-Porter, CEO of behaviour profiling platform, Ensize UK

"Additionally, many organisations are turning to behaviour profiling software to help recruit the right candidates into the right positions,” Leigh continued. “Using personality questionnaires that highlight a candidate’s traits and typical behaviour can enable hiring managers to match the individual’s skills to the required skillset of particular roles and to ensure the best team fit.”

The increasing use of technology in a business environment is changing the way we work. Processing customer sales, providing efficiencies in administrative tasks and even speaking to customers, are all things that technology can do instead of a human. But for a business to succeed, while we can rely on technology, like automation software, for efficiency, it will not give us human traits like trust, integrity and honesty.

Through all stages of a customer service agent’s experience, from being hired through to their final customer interaction, the involvement of human connection is essential. Nothing can replace human interaction.
Chapter four

Sentiment analysis and social media
In 2016, Admiral looked to price its car insurance for first-time drivers based on their Facebook content. By using sentiment analysis across the accounts of those that opted in to the service, the company aimed to identify safe drivers and then assign insurance premiums accordingly.

Unfortunately, the framework wasn’t in place to protect the users’ privacy — leading to Facebook blocking the move. This case clearly signifies that there is a need to integrate more analytical tools into social media, but for this to be possible in a safe and positive way, the correct regulations need to be in place.

Patrick Charlton is the director and co-founder of Buzz Radar, which is an industry leader in capturing and visualising real-time data. Buzz Radar’s mission is to make live data of all types collaborative, easy to understand and shareable for everyone. It allows some of the biggest global brands to pull real-time social media content from the internet and visualise it in engaging, meaningful and entertaining ways. Here, Charlton discusses the future of sentiment analysis in customer service.
Why do you think more businesses are looking to analyse social media using sentiment analysis?

By and large, sentiment analysis is a strong key performance indicator (KPI) for businesses to understand what their audience is saying about them and get a wide-ranging picture of how well they communicate with consumers. It is, however, not without its complications. When used badly, sentiment analysis can be highly misleading.

What regulations do you think need to be in place to allow businesses to use sentiment analysis while protecting consumers?

I think technology is already providing all the regulation required — the rules of engagement are fairly straightforward. If it’s publicly posted information such as a tweet, then it’s fine to analyse the post’s sentiment. If it’s in a walled garden environment, like Facebook, then the only way to analyse the sentiment is via Facebook’s highly regulated insights API, which anonymises and aggregates the data before producing results.

Most organisations are largely looking for barometers and predictions, so sentiment analysis is used to look at many posts rather than at individual posts — humans are much better at judging smaller data sets.

Who do you think should drive the development of these regulations? Should it be businesses, a trade body or should it be at a government level?

The current data protection laws and technology providers are doing a good job at present. I can’t think of a single way sentiment analysis is being used in a way that could infringe on someone’s privacy that they couldn’t stop easily with a quick tweak of the data privacy settings on their social media profile.

Can you give any examples of sentiment analysis in use, and how this helped a business to be successful?

Individuals inside an organisation’s management are sometimes not aware that there is an issue with negative sentiment around their brand.

Individuals inside an organisation’s management are sometimes not aware that there is an issue with negative sentiment around their brand. By visualising data to highlight the levels of negative sentiment and how they tie to certain events, we can help them understand the true impact of key decisions outside of traditional hard KPIs, like sales numbers.

Customer service is also a great example. Using sentiment...
to quickly sort through large volumes of posts to find the most negative around a subject, and then alerting a support team to address complaints in order of severity, can be uniquely useful in allowing organisations to triage customer issues effectively.

**How can sentiment analysis help with brand engagement?**

Simply, sentiment analysis shows that you’re listening. It’s well established that identifying negative sentiment issues, addressing underlying reasons and communicating with the sources is a remarkably successful way of taking key detractors and turning them into engaged brand advocates. It also demonstrates to the wider audience that you are present and proactive. This, in turn, can only promote further organic engagement.

On the flip side, understanding what factors are generating positive sentiment around a brand is useful in navigating the topics your audience likes to engage with. Creating content around these themes and highlighting positive posts generated by the audience are proven tactics that motivate brand engagement.

**How can sentiment analysis help with competitor analysis?**

Sentiment is only really useful when it’s looked at in context rather than as an absolute. Monitoring competitor sentiment helps provide a valuable benchmark for your own sentiment, while also giving you great data for competitor Strengths, Weaknesses Opportunities, and Threat (SWOT) analysis.

**What would you say to someone who is apprehensive to use data from sentiment analysis?**

We would ask them why they have misgivings and address those directly. Sentiment used correctly can be an extremely effective indicator when used alongside other metrics, and in context. It can be misrepresentative when mishandled.

**How can companies that have never considered using sentiment analysis begin to integrate it into their practices?**

I think a simple checklist is a great idea to assess the value of investing time, effort and resource into sentiment analysis. There is a real risk with any KPI of investing energy in an
Sentiment analysis and social media

area without a clear understanding of how it will move your organisation forward.

A quick look at the data to assess how effective sentiment can be for your brand is important, as it can depend on the kind of conversations your organisation and industry has with its audience.

For example, conversations in the airline industry show much higher negative sentiment than those in fashion retail. That is because people have a high rate of mentioning airlines when there is a problem with their journey compared to fashion retail, where there is a culture of sharing posts about purchases. In other instances, there isn't enough data to analyse or, due to its nature, there isn't enough emotive conversation to obtain accurate analysis, with most mentions being neutral.

I would really try to understand what you want to use sentiment analysis for, what insights you’re looking for and how are you going to act on them. What levers are they going to drive you to pull inside the business, and what is the expected outcome?

For example, are you going to use sentiment as a core KPI to measure success with your social content strategy or overall brand health, or are you using it to identify specific customer service issues? This will help you choose the right sentiment analysis tools for the job.

When looking for sentiment analysis tools, it’s good to keep in mind the languages you need to analyse and the context those tools provide. That way, you can see beyond a simplistic percentage of positive or negative. Additionally, you need to consider how you are sharing and consuming sentiment analysis inside the organisation. The biggest – and most common – challenge we see is valuable insights like this being kept in silo inside reports and not acted on.

What do you think the future holds for sentiment analysis on social media?

With the advent of readily available AI, specifically machine learning, we are starting to see a rapid improvement in accuracy. Leading brands are now training sentiment platforms to understand the way their customers speak and to understand the nuances of the language specific to their industry, as well as picking up on tone of voice. This is something we are already working on, alongside building intelligent alerts that notify stakeholders to key events that can then be acted on in the moment.

Finally, we are starting to see brands take a more mature approach to sentiment analysis. They are neither seeing it as a panacea to insights or as an inaccurate, unnecessary expense. Sentiment analysis is starting to find its place in the marketing mix alongside other KPIs, and it is backed up by context that can be found by looking at posts that drive sentiment, rather than raw numbers alone.
WHEN LOOKING FOR SENTIMENT ANALYSIS TOOLS, IT’S GOOD TO KEEP IN MIND THE LANGUAGES YOU NEED TO ANALYSE AND THE CONTEXT THOSE TOOLS PROVIDE. THAT WAY, YOU CAN SEE BEYOND A SIMPLISTIC PERCENTAGE OF POSITIVE OR NEGATIVE.
Chapter five

Making big data work for you
In recent years, big data has become one of the hottest buzzwords in industry. It has grown into one of the trends big companies and start-ups alike constantly mention — and it’s usually the answer when people ask what the ‘next big thing’ in technology will be. But what does it really mean?

There are many conflicting opinions on the true definition of big data, and even more controversy surrounding its potential value for businesses. However, big data isn’t just another new tech hype. While the phrase ‘big data’ itself is relatively new, the process of gathering and storing large amounts of information has existed for decades.

Gathering and storing data is by no means a new phenomenon, the only thing that’s changing is what organisations choose to do with that information and — perhaps more importantly — the massive increase in the amount of data we’re producing.

Thanks to an increased level of connectivity in our homes, workplaces and leisure spaces, we’re producing more data than is fathomable. But, considering the amount of data we’re now generating, how can businesses possibly make sense of this overabundance of information and separate the wheat from the chaff?

Here, we ask the experts about their own definition of big data, the value of this information and its potential to change the way we live, work and manage customer service.

**According to the dictionary**

**Big Data**

(noun). COMPUTING

1. Extremely large data sets that may be analysed computationally to reveal patterns, trends, and associations, especially relating to human behaviour and interactions.

“*much IT investment is going towards managing and maintaining big data*”
"Claire Williams, Fitzgerald HR: “Big data is extremely valuable”

Claire is Senior HR Consultant at Fitzgerald HR, where she heads up the Resourcing and Talent Planning service stream.

“Data gathered from everything we touch is extremely valuable in our working lives and can very much enhance our efficiency. How companies communicate, how they market their products, as well as where and when they advertise to new and current customers is already influenced by the results of big data monitoring.

“For example, you can monitor a single person's interactions on social media and you can monitor the reaction of Twitter followers to a marketing strategy, thus assessing how influential it has been. A company’s ecommerce website can see the point at which they ‘lost’ a customer, informing more educated follow up procedures. It also allows our sales processes to be more individual and fluid, rather than relying on the one size fits all approach.”

"Bob Muglia, Snowflake: “An enormous wealth of insight”

Bob is the chief-executive officer (CEO) of Snowflake, a Silicon Valley start-up that has recently expanded into the UK market. Snowflake is also the first data warehouse purpose-built for the cloud.

“Big data usually describes machine-generated data – vast amounts of raw figures captured for the purpose of analysis. Big data drives business insights, leads to novel business solutions, and provides valuable insights on the most important party — the customer. As such, big data can represent an important revenue stream.

“With the boom in cloud, social media, handheld devices and IoT technologies pushing even higher volumes of data, the beauty of big data is its ability to adapt and evolve to cope with this increased demand. New technologies, such as machine learning, have already grown in response, working hand-in-hand with big data to easily enable organisations to sift through data, eliminating human error along the way.

“Looking forward, we will soon move from the traditional approach of using data as classified business information between internal departments, to sharing select datasets between different organisations, securely and in real-time. This enormous wealth of insight will not only open the doors for collaborative businesses solutions, but drive the innovations of tomorrow.”
Making big data work for you

Graeme Gordon, IFB and ScotlandIS: “Data can be used to influence feelings, choices and actions”

As the chief executive of data centre provider, IFB, Graeme is an expert in digital technologies. He is also the chairman of ScotlandIS, the trade association championing Scotland’s digital technologies industry.

“Big data is made up of lots of little pieces of data — generated, created, snapped and chatted, consumed, downloaded and uploaded, repurposed, broadcast, streamed, published, posted, shared and stored. Ultimately, if it is to be worth something, the data needs to used or commercialised by someone or something.

“Picture this — a service provider that links to your Google Docs environment, Amazon, Tesla, Nest and Deliveroo accounts. Using big data, it can tell it has been a slow, frustrating drive home and that there’s very little in your smart fridge. It also knows your partner is running late, one of the children isn’t feeling great and it’s an unusually cold Tuesday for June.

“Taking all of this personal information into play, the service provider suggests that you might want a takeaway. By the time you get home, it will be there. The heating and hot water will automatically turn on and the garage doors will unlock just as you get there. Oh, and the licensed Deliveroo driver has also picked up a cold remedy.

“Most of us are driven by convenience and, as this generation ages, it continues to seek more conveniences in life. Living a smart and connected life, your data can be used to influence your feelings, choices and actions.”

Johannes Petrowisch, COPA-DATA: “Big data is the crude oil of the new millennium”

As global partner and business development manager at industrial software expert, COPA-DATA, Johannes understands the potential of big data for the engineering and industrial technology sector.

“In 2013, Technology, Entertainment, Design (TED) speaker and bestselling author, Dan Ariely, referred to the widely used term, big data as the “crude oil” of the new millennium — hugely valuable but useless if unrefined. In the midst of the current fourth industrial revolution, or Industry 4.0 as it’s more commonly referred to, information is power.

“The more data you collate and analyse today, the stronger and more accurate your predictions will be tomorrow. Whether your reasons are quality management, predictive maintenance or simply staying ahead of the curve in innovation, there is a strong belief that the more data points archived, the better.”
Chapter Six

Ideas and conversations in AI
The conversation engine

I took a similar approach when I implemented a chatbot for my students at Staffordshire University’s business school. This chatbot answered frequently asked questions about the module such as: What is the deadline? How do I submit the assignment? What is the word count? This meant that my students no longer needed to open the university pages and read long documents to find the answers to simple questions.

Artificial intelligence (AI) is no longer the future

Artificially intelligent computer systems are able to perform tasks that normally require human intelligence, such as visual perception, speech recognition and decision-making. Ultimately, it is the technology’s ability to learn over time that sets AI apart from basic algorithms. We regularly hear AI discussed as a future concept, or something yet to really take off.

However, AI is already here, and you’re interacting with it daily.

In 2016, Facebook launched an open version of Messenger that invited developers to create AI chatbots that interact with Facebook users. This service means any business can now engage their customers instantly — even if the responses aren’t as personal as real human interaction.

The technology giants are the best examples of companies using AI and the data gained through visitor interactions. Facebook already has data on you from your profile, page likes and messages. The adverts you see on Facebook have been selected just for you, based on your interests and previous patterns — it’s no coincidence that you see products you were looking at a few days ago pop up in your timeline.

Andras Kenez is a marketing consultant and lecturer at Staffordshire University’s business school. Here, he explains why AI is no longer the future.

Match.com recently launched Lara, a virtual dating assistant whose role is to give singletons a helping hand in finding a partner. The (artificially) intelligent Lara talks to members to build up an understanding about their interests and profile. Analysing this information, she can help to find the perfect match. Lara uses natural language and speech recognition, so users feel like they are talking to a real person.
Ideas and conversations in AI

Equally, if you search something on Google, the results that you see aren’t random. They are based on your previous history and behavioural patterns; unless you choose to go incognito on Chrome. Similarly, Amazon displays a lot of offers based on what it thinks you may like. If you buy three items, AI can learn what other users who also bought these items subsequently purchased, and suggests these to you too.

Chatbots using AI may have even sold you something without you noticing it. Information on how you respond to these chatbots can be used to gain customer insight, and store information about you to personalise services and give bespoke offers in the future. Combining people’s predictability with clever planning means chatbots are able to answer many customers’ queries.

The compromise of supervision

AI does have its limitations at present. How an AI bot collects its data has huge implications on what it can learn. The basic bots only do what they are told, they are not able to learn and therefore the knowledge of the human programmer is a limiting factor in the bot’s development.

Other bots, on the other hand, use big data to learn, meaning the whole online community is a part of developing the knowledge. Unfortunately, this large scale approach does mean that there is much less control over what the bot learns.

Some high profile AI scandals have made the headlines recently, warning that AI robots are becoming sexist and racist. As written in the Telegraph, Maxine Mackintosh, a leading expert in health data, believes that this problem was mainly the fault of skewed data being used by bot platforms, saying, “These big data are really a social mirror [sic] — they reflect the biases and inequalities we have in society.”

This is the sad realisation that the internet itself is sexist and racist, not the AI bots.

Humans have an important role in supervising AI throughout the learning process. It's not just about preventing racist and sexist scandals, but about keeping the bot in line with business goals.

Andras Kenez
Marketing consultant and lecturer at Staffordshire University
If a self-learning AI bot is completely unsupervised and free to learn from a wide community, then you may find it convincing your customers to buy cheaper items or even to choose a different supplier entirely. This would defeat the purpose of investing in such technology, and you wouldn't see a return on investment. Ultimately, you need an artificially intelligent sales agent for your business, and not an artificially intelligent impartial third party spokesperson.

Out and about

There are many other sources of data to add to the AI equation. For example, geolocation signalling plays a huge role in personalisation of service. Knowing where and who you are allows businesses to send you real-time, tailored offers. So, if you love coffee and are around the corner from a coffee house, then expect to be sent an offer to entice you to get your favourite iced frappé.

AI is also interested in how people look. Tesco was the first to announce its plans to tailor adverts using the facial recognition tool OptimEyes. BP, Shell and Esso soon followed suit. These hi-tech screens scan customers’ faces in petrol stations so that advertisements can be tailored to suit them. The technology also adjusts adverts depending on the time and date, to give a totally bespoke advertising experience.

Here and now

While the media often talks about the ‘future’ of AI, it’s important to see that this technology is already here. It is the big companies who are already taking advantage of this powerful tool, leaving smaller companies at the starting blocks. However, in the future, we will start to see AI technology becoming more widespread for all, and not just a privilege for the largest conglomerates.

Novelty is what drives AI chatbots at present: it’s new. However, one day AI bots will become the norm, and perhaps even stale. This technology needs to continually advance, and the way we use it needs to evolve to stop it from becoming irrelevant. We are starting to see this already, with some exciting opportunities appearing in the entertainment sector.

As part of marketing Disney’s Zootopia movie in 2016, an Officer Judy Hopps chatbot was launched to engage the audience. This allowed fans to chat one-to-one with Judy, who delivered in-depth and immersive storytelling experiences. Buying this time with consumers meant they were more likely to go to the film, tell their friends and buy merchandise. This demonstrates the huge potential in AI partnering with entertainment. It’s not all about on-the-spot deals, but rather the customer experience as a whole.

Whatever way you look at it, AI is here, and here to stay.
Chapter seven

Bringing the site to life
Apple has Siri, Amazon has Alexa, Microsoft has Cortana, and Google has Google Assistant. Each one of today’s intelligent assistants has been designed to be friendly, fast and intuitive. Currently, consumers are basking in the fun of instantaneously arranging dinner reservations, translating languages on the move and, of course, prompting Siri to give them humorous responses to ridiculous questions.

It is still early days for this technology so tech giants — including Apple, Google and Microsoft — are investing significant resources into the development and advancement of their intelligent assistants. Let’s face it, if consumers can use their smartphone to order a taxi, set an alarm and research trivia, then they will expect the same speed and intuition whenever they use technology — including during their online retail experience.

Tomorrow’s customers will exist outside their browser. Using the likes of Amazon Echo, customers can make purchases with just their voice. The Echo taps into Amazon’s full product catalogue and remembers a customer’s previous purchases.

With this trend of conversational assistants moving into the ecommerce realm, can using a website ever become equal to walking into a real-life shop? Doug Collins, a top user experience (UX) engineer based in Denver, Colorado, explains his views on turning a standard website into a bespoke personal shopping experience.
Is there any emerging technology changing the way we interact with websites?

Alexa, Google Home, Siri and other personal assistants are quickly becoming game changers. While conversational user interfaces (UIs) have been a trending topic in the UX industry for some time, these digital assistants are the first to have achieved truly reliable functionality.

The newest generation among us will grow up in a world where conversational UIs are the norm. Now is the time for business owners to consider how they will implement conversational interfaces, both from a technical and experience perspective, to keep up with the competition.

Virtual reality (VR) is also an emerging technology set to take off in the next few years. Interest in VR technology is at an all-time peak, and its falling cost is making it increasingly accessible to the masses.

Hot on its tail is augmented reality (AR). While still in its infancy, this technology has the potential to be huge. AR will be able to digitally overlay virtual tours, property pricing for house-hunters and restaurant ratings as part of a full augmented reality experience.

However, what this technology is currently lacking is accessibility. Those who are unable to speak or hard of hearing will have difficulties with conversational UI, while those with poor vision or even certain developmental disabilities will struggle with VR and augmented reality.

It is important to remember that not all accessibility issues are permanent. Anyone brushing their teeth, for instance, will have an equally difficult time with conversational UIs as someone who was born mute. Both fleeting and permanent accessibility issues will have to be addressed and solved before these technologies can become universally adopted.

What are customers’ expectations of the user experience and how has this changed over the years?

From painfully slow automated speech recognition and unreliable chatbots, automation has not always had the best reputation in customer service. Even today, when the technology is highly efficient and capable, reservations remain.

Customers expect pages to load quickly and work efficiently, based on established web patterns that create intuitive
VIRTUAL REALITY (VR) IS ALSO AN EMERGING TECHNOLOGY SET TO TAKE OFF IN THE NEXT FEW YEARS. INTEREST IN VR TECHNOLOGY IS AT AN ALL-TIME PEAK, AND ITS FALLING COST IS MAKING IT INCREASINGLY ACCESSIBLE TO THE MASSES.
Bringing the site to life

user experiences. Many of the best apps have ‘no user interface’ or ‘invisible UI’, meaning that they are simplified to the point of being barrier-less. This makes it nearly impossible to misuse, while still providing enhanced functionality.

This is the natural, expected evolution of user experience and we’re seeing an increasing move towards ‘invisibility’, especially in the face of the rise of the conversational UI where simple words or phrases are spoken or typed into an interface to create a dynamic experience.

How have you seen technology affecting customer service in particular?

Technology and the shift towards a global economy have overhauled customer expectations. Where customers once had to call in to a call centre or physically visit a business during regular hours, they now expect access to service 24/7. Online chats and email are popular with customers, in comparison to international call centres which provide much lower satisfaction levels.

The deeper change, however, has been in analytics and business intelligence. Businesses now have unprecedented access to a myriad of details about their customers, and

their customers’ habits. The data generated by using personal assistant technology can provide an unprecedented insight into human patterns, including the vocal and written clues that signify a user’s feelings and preferences. For technology giants, collecting this information will be crucial.

While we are able to use these analytics to make overarching assumptions about how to improve overall experience, the time is quickly approaching when the data retailers gather about each of us will enable them to offer enticing, bespoke personal shopping experiences.

How would you respond to a client who believes their website is boring?

Beware of the boring fallacy. ‘Boring’ design doesn't necessarily equate to bad design. From a usability perspective, this couldn't be further from the truth. Designs do not need to be interesting or eye-catching to be functional. While designing for visual impact may draw audiences in, it's ultimately your site's functionality and usability that will define its success.

People, on the whole, don't tend to recognise boring. What they do recognise is usability. Speed, legibility of text, logical work flows, properly formatted forms and great
content will always trump aesthetics. Put another way, boring is predictable. Boring is familiar. Boring is consistent. These are three cornerstones of great usability.

A favourite and popular example of the power of boring is google.com. Although Google sometimes has some fun with its logo, for the most part google.com is the simplest page on the internet. One logo, one text input field, two buttons, and a ton of white space. It’s hard to be more boring than that.

This isn’t to say that design innovation shouldn’t occur; only that it should feel as if it’s a natural part of the overall experience. In terms of algorithms, content, extended services and offerings, Google has, quite obviously, far out-paced its late 90s competitors. Innovation has been the key to its success, but the innovation has never affected the user experience of the already-successful core business of being the most popular search engine on the internet.

The moral of the story is that people only want interesting when it enhances their experience. A site that is ‘boring’ but highly functional and usable is not broken, and does not need to be fixed.

**What do you think the future holds for retail technology?**

We live at a thrilling point in humanity’s timeline. Technology is expanding at a rapid pace, and what may seem out of reach today could exist much sooner than people realise.

**Conversational UIs will continue their rise, especially as their reliability is proven time and again. Handling accessibility issues with conversational UIs is an interesting, important, and yet-unappreciated aspect of the equation, and one that will certainly need greater focus in future.**
Chapter eight

Keeping your data secure
Organisations that hold data — basically all businesses — are being targeted by cyber criminals on a scale never seen since the launch of the world wide web.

According to a 2017 Government statistics report, nearly half of all UK businesses suffered a cyber breach or attack in the previous twelve months. Perhaps not unsurprisingly, the report also found that businesses holding electronic personal data about customers were much more likely to suffer cyber breaches.

Cyber breaches are a many-headed monster. They occur in a multitude of formats, for various reasons. The 2017 Cyber Security Breaches Survey highlighted that the most common types of breaches related to staff receiving fraudulent emails, viruses and malware, people impersonating the organisation online, and ransomware.

This is still just scratching the surface: digital risks come in all shapes and sizes. According to PolicyBee, specialist professional indemnity and business insurance broker, cyber damage can come from both physical and virtual threats.

Physical threats are age-old, and can come from property damage from incidents like fire or flooding. Or, they can be a result of staff misplacing company property such as laptops and smartphones — we’ve all heard stories of corporation staff leaving their laptop or USB stick on the train, jam-packed with personal customer information.

Virtual threats, on the other hand, are the type we’ve almost come to expect from living in a data-driven, cloud storage world. Today, these are the threats that have the most drastic impact on, or can even close, an organisation.

In 2017, a global cyber-attack infected more than 300,000 computers in 150 countries with ransomware called WannaCry. High-profile (and presumably high-security) organisations like FedEx, Telefonica and the National Health Service were affected. According to Mikko Hypponen, chief research officer at Helsinki-based cybersecurity company F-Secure, the attack was: “The biggest ransomware outbreak in history.”
Keeping your data secure

In Britain, WannaCry put a halt on healthcare. NHS hospitals and GP surgeries were forced to revert to pen and paper and use their own mobile phones after the attack affected key systems, including in-house telephone networks. Affected hospitals were forced to cancel operations and advised the public to seek medical care in absolute emergencies only. In this case, the cyber-attack outbreak had resulted in literal life and death situations.

This scale and impact of cyber-attacks isn't a new issue. Back in 2013, retailer Target was victim to a cyber-attack that affected more than 70 million of their customer’s payment card accounts. To put this into context, that’s nearly 30 per cent of the adult population of the United States.

Target’s computer gateway had been accessed through credentials stolen from a third-party vendor. Using the credentials to exploit weaknesses in the company’s system, the attackers gained access to the customer service database. They then installed malware and performed a large-scale personal data heist – capturing the full names, phone numbers, email addresses, payment details and other sensitive data of Target’s customers.

Of course, a data breach or cyber-attack doesn’t have to be of such magnitude to impact your customers’ lives and perceptions of your business. A company is only as strong as its weakest link. If that weak link happens to be poor security systems or an infrastructure network that is liable to infiltration, then not only is an attack likely, but your reputation is also on the line.

So, what can an organisation do to help alleviate the risk of attack?

Be prepared

In the first instance, starting with an audit or risk assessment is important to establish what needs to be done to minimise potential risk.

Security risk checklist:

- **Libel and slander:**
  Emails are sent at the push of a button. Be careful who you’re sending information to. Information in the wrong hands can cause major damage.

- **Intellectual property theft:**
  Designing a new product? Developing a new brand? Without protection, all are capable of being stolen and sold to the highest bidder.

- **Reputation damage:**
  Social media can turn a mountain into a molehill. If your company has social media channels, don’t let them lie dormant. Be part of the conversation, don’t let it happen without you.
Keeping your data secure

Jennifer Appleton is the operations manager at ISO Quality Services Ltd, which specialises in the implementation, certification and continued auditing of ISO and BS EN Management Standards. She explains that: “You have to establish whether what the business owns, whether it be physical property or information, is of significant value and at risk.

Jennifer Appleton
Operations manager at ISO Quality Services Ltd

- **Viruses:**
  You could be liable if a malicious program originates from you and damages your client or third party's systems. Is your virus protection up to date?

- **Property damage:**
  Are you protected from fire, flooding or accidental damage?

- **Data breach:**
  It’s not always customer data loss that can cause the biggest headaches. Employee or business details can contain sensitive information, and should be treated with care.

- **Business interruption:**
  Should an attack or incident occur, dealing with it could result in you having to stop the business from operating for a while. How will that loss in revenue affect you? Your business? Your customers?
Keeping your data secure

“Many organisations get certified to ISO 27001 standards, which are an internationally recognised set of requirements for keeping data secure,” said Appleton. “One piece of advice we give organisations that are conducting data risk analysis is to classify your data to establish what, specifically, is most at risk. For example, bank details are a higher risk than the information and data stored on your website.

“To adhere to ISO 27001 standards, you need to complete the statement of applicability, which outlines 113 controls that you must implement to keep information secure. These controls cover anything from premises security to access to IT systems, and companies need to identify the controls, how it applies to their business and how they will comply.

“Of course, organisations should aim to go above and beyond the standards controls. One key area in which many businesses fail to implement secure processes is with staff communication and training — especially as the biggest threat to business security is from internal rather than from external sources.”

According to the 2017 Cyber Security Breaches Survey, security breaches are often linked to human factors. Despite that, only 20 per cent of businesses provide staff with cyber security training, and only 33 per cent have formal policies covering cyber security.

“Organisations need to have procedures in place, but they need to check that staff are actually following them,” Appleton continued. “Having good communication systems and training plans can help to alleviate some of the risk companies may face, yet many organisations fail to put such systems in place.”

If an incident does happen, companies obviously need to identify what can be done to stop it happening again. Beyond that, there are also legal implications that must be dealt with efficiently — and the effects of a data breach or cyber-attack can be costly.

Sarah Adams, cyber risk specialist at business insurance broker, PolicyBee, said, “If your systems are breached and personal data is stolen, the consequences are legally your responsibility. Unfortunately, that usually means shelling out to
compensate the people whose information is suddenly out in the open.

“But that’s not all. There’s the cost of getting an IT expert to find out what went wrong in the first place, and the expense of fixing it so it doesn’t happen again. And last, but not least, is the almost inevitable fine from the Information Commissioners Office.

“So, while it’s difficult to give exact figures, even a relatively small breach can leave you with a five-figure bill,” Adams continued. “In fact, our research shows that the average cost is around £25,000. Not many small businesses can simply swallow that and move on. Opting for cyber insurance from the outset can help as it covers the cost for all these things. It can’t stop a data breach happening, but it does at least mean your business won’t have to, literally, pay the price if one does.”

Security, whether it be the physical security of your building, or the virtual security of data, cannot be taken lightly. This is especially true as we come to rely more on electronically stored data, automation technology and online transactions.

In the words of Robert Mueller, sixth Director of the FBI, “There are only two types of companies: those that have been hacked, and those that will be.” Organisations must have the proper procedures in place to eliminate as much risk as possible, but also to deal with any issues should the worst happen.

Sarah Adams
Cyber risk specialist at PolicyBee
Chapter nine

The last mile of automation
The last mile of automation

Alexandru Voica is technology communications manager at Ocado Technology. Here, he explores the integration between humans and automation.

We are in the middle of the forth industrial revolution, where businesses are taking advantage of ever-improving interconnectivity and smart systems to improve efficiency and productivity. Industry 4.0 brings together artificial intelligence, robotics, big data, the cloud and the internet of things (IoT) into a single smart hub. This is no futuristic vision. Industry 4.0 is already happening, and the benefits are clear to see for both employers and employees.

In the 2017 annual manufacturing report, respondents reported spending an average of £106,000 on connectivity investments over the previous twelve months. Of these investors, 32 per cent anticipated spending more on factory connectivity in the next twelve months. Importantly, when asked about the benefits of this connectivity, 80 per cent cited increased production and output, whereas just 24 per cent referred to reduced staffing costs.

Why we need automation

Ocado has 600,000 active customers, 50,000 different products and receives 260,000 weekly grocery orders*. To put this into perspective, our first generation warehouses handle anywhere between 1.5 and 2 million items a day across multiple temperature regimes. This simply wouldn’t be possible without industrial automation.

Combining automation and robotics, big data and AI, the cloud, and IoT has given us the ability to do some really exciting things in our warehouses. As keeping customers happy is the focus of business, we refer to our warehouses as customer fulfilment centres (CFCs). Any improvements we make are implemented to benefit our customer proposition.

Our first generation CFCs use a traditional conveyor system, with a production line of more than 20 kilometres. Crates containing the customers’ orders go on a long journey around the facility, with items dispensed into the box along the 20 kilometres line until the order is complete. Up to 8000 boxes can be on this journey at one time. You can think of this approach as being similar to the assembly of a car: it’s processed piece by piece — or item by item. This facility may be stuffed full of machine learning and algorithms, but we thought we could go one step further.
Our second generation CFC in Andover takes this automation to the next level. Instead of relying on a sequential production line, we’re using the Ocado Smart Platform (OSP) swarm robotics grid where we have tens of thousands of robots working in parallel, collecting items from a grid and taking them to a personal shopper. This personal shopper could be a human or robot. They collect the entire requisition, in the correct order, without having to take on a 20km voyage around the warehouse.

Not only is this more time and space efficient than the first generation approach, it is also more scalable. Adding additional conveyors to our older CFCs would be a complex process, but adding robots to our newer CFCs is far less complicated.

The most palpable advantage is the speed at which an order can be completed. An average order of fifty items would normally take 2 to 3 hours to process on a conveyor system, but now takes only fifteen minutes in OSP CFC. This movement has been truly remarkable for our business, employees and customers alike.

Using AI throughout the entire process gives us access to important information. Analysing historical data on ordering trends helps us to accurately forecast seasonal demand and order stock accordingly. Also, with precise monitoring of the shelf life of all our products, we can circulate stock more effectively and reduce waste. Equally, we can combine deliveries into fewer trips, which has positive environmental implications.

The human touch

We started using basic levels of automation 17 years ago. As we’ve gone on to add more complex automation, the company has also grown to over 12,000 employees*. Technology and humans clearly go hand in hand. Automation is not about replacing humans, but freeing up humans to work on more complex tasks.

We have many examples where it makes more sense for a human, or a human helped by a robot, to carry out a certain task. Sometimes customers order specific cuts of meat or specific fish preparation, requiring expert attention. This customisation is completed by our team of butchers and fish preparation specialists rather than a robot. We only automate where it makes sense to.

Similarly, our customers respond well to our delivery drivers who have all had full customer service training. If we automated this process, then we would lose those valuable moments with our customers. Automation isn't
one size fits all, and shouldn't be implemented just for the sake of it. It needs to make good business sense for all stakeholders.

Ultimately, we believe in giving humans the tools, through innovation and technology, to improve their efficiency and work enjoyment. If our employees feel empowered and valued, their customer service is improved, which makes our customers happier, who then go on to buy more products. It's a complete circle.

To us, humans are, and always will be, an essential part of our automation journey.

* Data based on FY 2017 half year results

**Alexandru Voica**
Technology communications manager at Ocado Technology
Conclusion

Final word by Stephen Parker
For decades, technology has been used to enhance the customer service experience — from touch tone dialling in the 1960s, to the increasing presence of artificial intelligence and automation today.

But technology is advancing at a faster pace than ever before. With these advancements come a genuine fear that automation could replace the valuable human interactions that are a key part of every customer service and business exchange.

However, as we stand on the verge of the next customer service revolution, we shouldn’t fear the automation and intelligent technology that is driving today’s customer interactions. Instead, businesses need to embrace these inventions as just one part of a multifaceted conversation engine.

The customer service machine may be embracing new technology, but in doing so, it shouldn’t, and won’t, engineer humans out of the process. Ultimately, people want to deal with people and technology is the interface that makes this easier and more effective.

No matter how advanced technology becomes, businesses won’t get blindsided by the sweet, mechanical embrace of customer service technology. Humans are — and always will be — the drivers of The Conversation Engine.
We're standing on the verge of the next customer service revolution. With AI, chatbots and automation driving new ways to communicate, how can we blend the human touch with technology?

Authored by Stephen Parker, CEO of Parker Software, and with contributions from leaders across the tech world, this book explores the future of customer service. Get ready for the next frontier of comms.