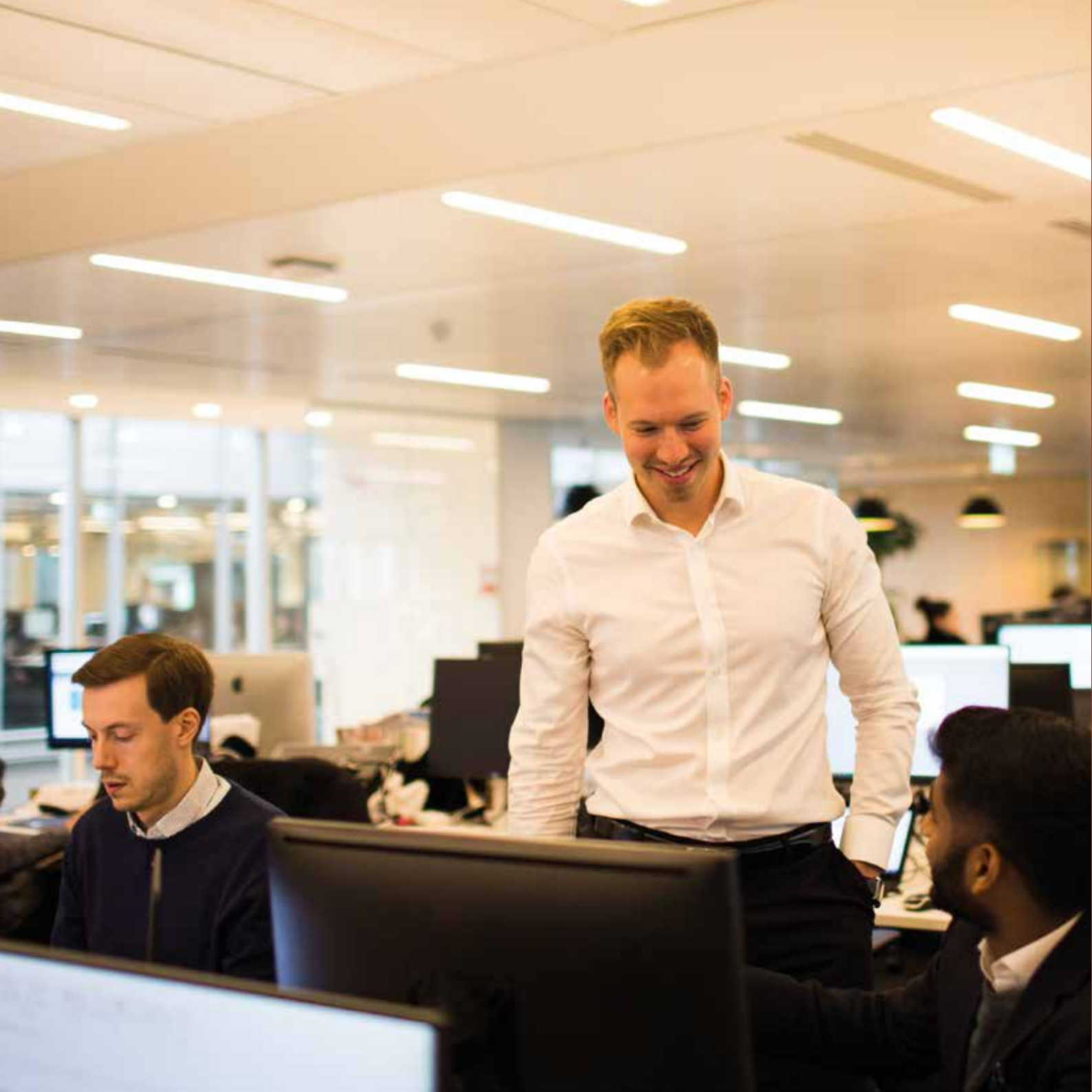




The human angle

Why real reporting matters
in the age of the algorithm





Introduction

As computers and artificial intelligence (AI) become increasingly powerful, what role will people play? It's a question that's front-of-mind today as technology looks set to further reshape industries and the nature of work itself.

Our industry, financial intelligence, has been undergoing tech disruptions ever since the first transatlantic cable relayed stock prices over 100 years ago. Today, trading floors have been largely replaced by electronic systems, and algorithms have in some cases replaced traders themselves. We see financial results stories written by bots, and sophisticated AIs mining big data for insights humans could never have found.

Yet we can't see a day when people won't have role to play in our industry. Why? Because, as market participants explain in this paper, only human journalists and analysts can add the expertise, interpretation and context that makes a story or a data point truly valuable.

The future, as we envisage it, is one where AIs and people will coexist and complement one another. New technologies will constantly provide us with better tools to understand the markets we work in, but the "human angle" including *trustworthiness*, *interpretation*, *context* and *relationships* will always be essential elements of the decision-making process for market professionals.

A stylized, handwritten signature in white ink, consisting of a large, flowing 'H' and 'M'.

Hamilton Matthews
CEO, Acuris

The rise of the algorithm: how machine decision-making is spreading into our lives

In the 2014 book *Flash Boys*, author Michael Lewis tells the story of how a banker found out algorithms were eating his profits. He discovered that when he attempted to place stock orders, automated high-frequency trading programs were getting in first and taking the best prices, “front running” his deals. The computers were simply doing what computers do best: executing huge numbers of tasks at extremely high speeds. Helped by ultrafast fibre-optic networks, they turned microseconds of trading advantage into millions of dollars of profit. Today, around 75% of trading¹ on NYSE and NASDAQ is automated, as algorithms can execute stock trades at speeds and volumes that are impossible for humans to achieve.

Machine decision-making is nothing new. From financial markets to heavy industry to online advertising, businesses have long been exploiting the number-crunching power of computers to cut out laborious tasks, operate more efficiently and find advantage.

Smarter computers

Today, the combination of processing power with high-speed networks, ‘big data’ and fast-evolving AI technology is rapidly extending the range of what automation can achieve. For example, computer programs can now transform corporate earnings and sports results into natural-language news stories. In fact, US news agency AP now produces 3,700 earnings articles every quarter using a ‘natural language generation’ program called Wordsmith². And at the 2016 Rio Olympics, the Washington Post’s Twitter and Facebook updates were written by a robot.³



Today around **75%** of trading on NYSE and NASDAQ is automated



The spread of AI

Financial data and news are only two domains in which AI is playing an increasingly prominent role in decision-making. Everywhere you look today in the professional and personal spheres, it’s conducting more complex tasks:

Drafting legal contracts – AI programs can already draw up and review contracts in a fraction of the time taken by human lawyers, and mine huge amounts of text for evidence. A Deloitte study suggests 39% of jobs in the legal sector could ultimately be automated.⁴

Managing your money – a new breed of ‘robo adviser’ firms offer low-cost investment management, using algorithm-based financial planning based on clients’ responses to an online questionnaire. Estimates suggest that assets managed this way could reach \$5tn globally within just 10 years. In the UK, the robo-advisor trend is already accompanied by a decline in traditional financial advisers.⁵

Driving your car – in one of the highest-profile applications of AI, self-driving functionality is spreading through the world’s vehicle fleet, holding out the potential of stress-free travel for everyone – yet also threatening millions of jobs in the transportation industry. Driverless trucks in Australia are already hauling ore in open-pit mines.

Revolutionising medicine – from the use of “augmented reality” to teach and carry out surgery, to computer-aided interpretation of medical scans, AI is bringing efficiency and many more possibilities to the medical field.

Translating languages – AI is becoming better at translating, slowly approaching parity with people. Google Translate uses the company’s own ‘neural machine translation’ system for around 18 million Chinese-to-English translations every day.⁶



The boundary: where is the ‘human angle’ still valuable?

These are just a few examples of where AI is transforming the world. They illustrate the immense power of this technology to improve the way we do things. AI can take away the tedious grunt work of churning out identical stories or performing repetitive production-line tasks. It reduces the potential for human error when analysing complex images or datasets. And it takes the friction out of marketplaces, meaning less waste and better targeting.

Half of all jobs automated?

Such is the power of AI that it's been suggested computers will replace nearly 50% of human employment in the next decade or two. The 2013 *Future of Employment* study⁷ predicted the combination of big data and powerful algorithms means “cognitive” white-collar jobs – for example in the legal and service industries – will be automated, as

well as manual, repetitive work. Given that AI is developing so fast, it's worth asking: where's the boundary? At what point does the “human angle” still add value? One day, will machines take all our jobs?

The *Future of Employment* suggests that factors like creative and social intelligence are difficult or impossible for AI to replicate. Indeed, it's when we move on to higher-order thinking – interpretation, intuition, “gut feel” and judgment – that we bump up against the limitations of AI and see the real advantages of human intelligence.

The limitations of AI

In the world of financial data, for example, audit specialists at PwC point out that while AI is excellent (and better than people) at spotting patterns and anomalies in huge volumes of data, it

takes human judgment to work out what might have caused these anomalies.⁸

And although it seems widely accepted that one day all transport will be automated, engineers are still wrestling with issues like the ethics of self-driving cars. Should the AI take action to avoid hitting a pedestrian if it means endangering the occupants? Right now, no-one is confident enough to let the tech take the wheel at all times.

In another illustration of AI's limitations, Facebook's ‘trending’ newsbot had teething problems identifying credible sources when it was first introduced, which led to some high-profile misleading headlines.⁹ And in 2016, Microsoft's Tay chatbot was easily duped by human users into tweeting racist abuse within hours of being released online.¹⁰

Robot reporting

This is an example of a confusing story automatically generated by Automated Insights.

Walt Disney 1Q net income rises 33 percent Walt Disney 1st-quarter profit rises 33 percent; results beat analysts' expectations

BURBANK, Calif. (AP) — The Walt Disney Co. (DIS) reported a 33 percent increase in its fiscal first-quarter net income, beating analysts' estimates.

Disney, which is based in Burbank, California, earned \$1.84 billion in the quarter, up from \$1.38 billion in the same period a year ago. Per-share earnings climbed to \$1.03 from 77 cents.

The average estimate of analysts surveyed by Zacks was 92 cents per share.

Revenue rose 9 percent to \$12.31 billion from \$11.34 billion.

Analysts expected \$11.8 billion.

The company's stock price has fallen 6.1 percent so far this year. However, over the past 12 months, Disney stock has increased 33 percent.

The human angle in intelligence

Despite AI’s limitations, if machines can crank out financial news stories, to what degree does the human angle still matter in the field of business intelligence, where Acuris operates?

To explore this question, we spoke to both the consumers and producers of different intelligence brands. What is it, we asked, that human journalists and analysts can offer that algorithms can’t?

Four clear themes emerged from their responses:

Trustworthiness	Interpretation
Context	Relationships

Trustworthiness

“Ultimately, the data’s got to come from somewhere”, Matthew Hardcastle of Inflexion Private Equity emphasises. *“The data and the processing and the platforms are of use, but it’s only as good as the quality of the information going in, and that’s where the human input is invaluable.”* Hardcastle’s point highlights that while machine-delivered data is essential, ultimately, people trust other people to get it right. Dealreporter’s Europe Deputy Editor John West concurs, noting that *“any model is only as good as the data points that are put into it.”* West points out that often, it’s direct discussions with dealmakers that provide the information that subscribers can then go on to put into their models.

This trustworthiness is at the heart of successful intelligence, according to Acuris CEO Hamilton Matthews: *“It’s critical that we embrace everything about AI and tech. But no matter how much data you have, you still need to be able to point someone to where the value is. That’s why the human factor is so important: it makes it possible for people to trust the decisions that we have made, so they can feel confident in the decisions they go on to make.”*

According to Accenture, poor quality data in financial services can contribute to a 30% cost increase.¹¹



Interpretation

They may look like interesting numbers. But what’s behind them? That’s the sort of question AI can have real difficulty answering. Yet it’s precisely what financial decision-makers need to know. As Dominic Graham, Director, Risk Advisory at Deloitte says: *“Only humans can identify the relevant drivers, hunt around through the right data sources and provide useful commentary.”* AI may be able to churn out results stories and do the grunt work,

but human experts – armed with intuition based on long experience and in-depth knowledge – can explain what the data means. Phil Spencer from UBS Asset Management agrees: *“A machine can’t give a gut feel. You have an investor who’s done this for 20 years, has known about industrial cycles, has seen what bonds have done, knows the technicals, the market – a machine really can’t pick that up.”*

PwC’s Data and Analytics Survey 2016 points out that “most executives say their next big decision will rely mostly on human judgment, minds more than machines.” ¹²

Context

As well as understanding what a particular piece of information means, it’s important to know where it fits. For Emma King of Alvarez and Marsal, it’s this ability to provide context that is a critical role of journalists and analysts: *“Being able to see differing points of view – this gives you the insight you need, otherwise you’re just being given a piece of data that you have to do a lot*

of work with.” Paul McLoughlin of Perfect Information agrees, noting that the human factor can provide *“A difference of opinion that’s borne out of all the different influences we have, the variety of choices that we have, and that comes out of our own creativity and emotion”.* Debtwire’s Mariana Valle highlights that *this ability to provide context comes from “being out in the market, talking to dealmakers and contacts every day”.*

In Douglas Adams’ novel *The Hitchhiker’s Guide to the Galaxy*, the supercomputer Deep Thought took millions of years to conclude that the answer to the “ultimate question of life, the universe, and everything” was... 42.

This is a perfect illustration of the importance of context. Without anything to relate it to, this supremely important number was entirely meaningless.



Relationships

This direct contact with the market is also something that is still the exclusive preserve of people. And because of the depth and nuance of person-to-person communication it's the one area that AI may never be able to replicate. To Infracapital M&G's Ed Clarke, having skin in the game is vitally important: *"Investing is all about people. You need to understand the market, understand the dynamics of it, you need to see why people are doing things and then make intelligent comment and analysis about that to make the news valuable, and that's where real-world journalists are so important. They frequently ring and speak to the players in the market and get first hand news of why things are happening, what's going on, and that's then reflected in the stories, making their output much more effective and a more useful tool for us."*

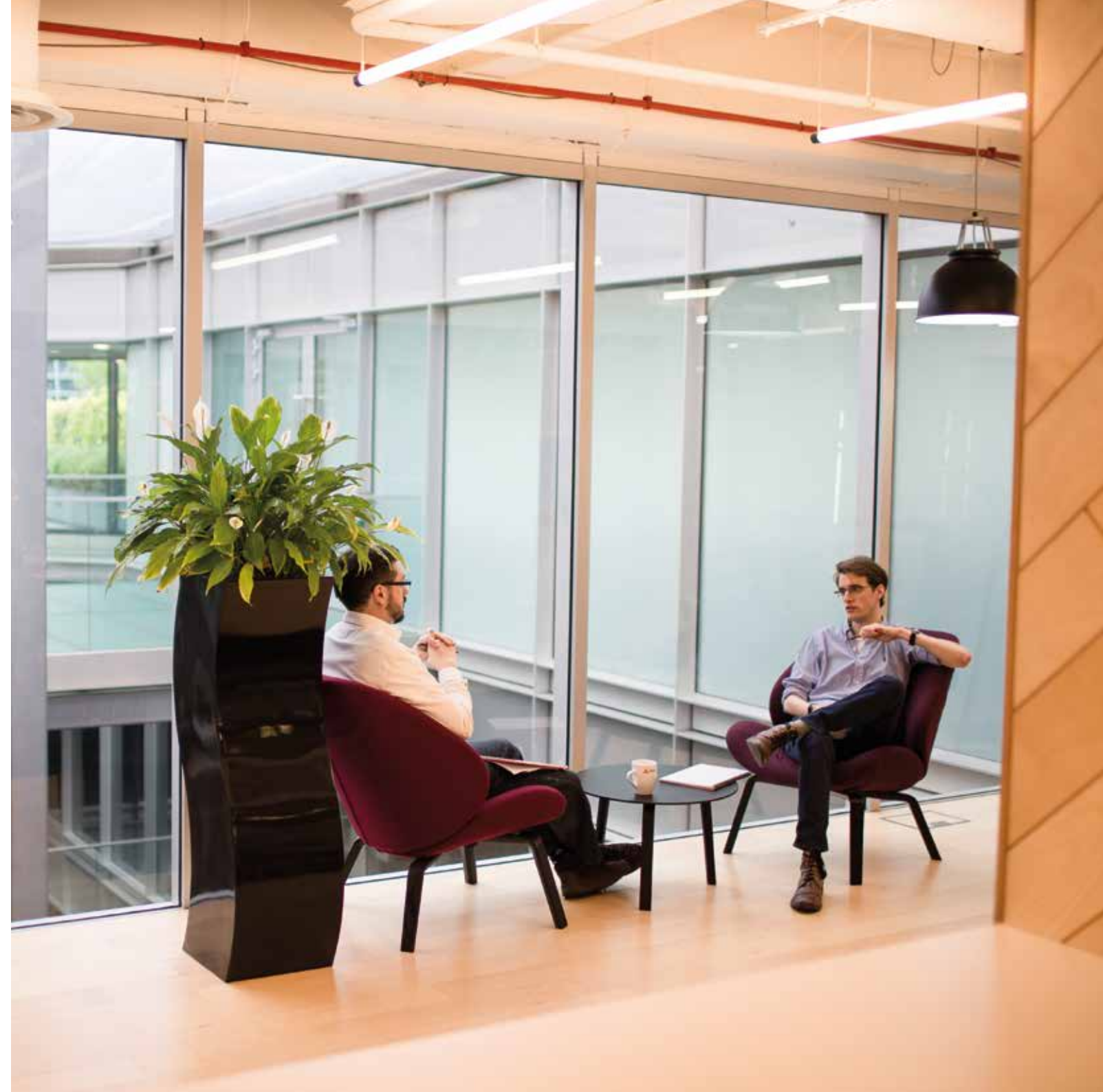
Mike Petersen of Creditflux describes his service as making use of *"Some of the most human skills that seem least easy for computers to replicate: emotional intelligence – being able to have conversations, to empathise, to put yourselves in the shoes of other people and think about what information they would actually find useful and relevant. Those are difficult skills to hire people to have, let alone to replicate on a computer"*. Unquote's Denise Ko Genovese puts it simply: *"Algorithms and high-level analysis are brilliant but life's all about relationships, isn't it? It's a bit like looking at a CV. On paper a candidate may look brilliant but you want to know whether you like them, trust them. That extra human relational contact is great."*



Media Richness Theory identifies face-to-face communication at the top of a hierarchy of the most effective communications media, followed by video and telephone contact. The many verbal and visual cues in direct human contact mean messages are understood with greater speed, accuracy and depth.¹³

"I don't think I will play with AlphaGo again. There was no exchange of emotions when I played against it... It's very difficult to play without feeling and emotion."

Lee Sedol, professional Go player, on his experience playing Google's AI¹⁴



The future: coexistence

Both the consumers and producers of financial intelligence interviewed for this paper are all agreed on one thing: Today, it takes a combination of AI and human expertise to provide the best possible insight.

In news and intelligence, the great benefit of AI is that it can do tedious, routine tasks at great speed, whether that's crunching data to spot trends or producing basic reports. This liberates human journalists to use their unique skills to find and interpret data and intelligence in richer ways. And as AI becomes better at extracting and organising data, it will mean expert analysts and reporters have richer and more meaningful information to work with.

Interaction is essential

As Inframation's Jonathan Goor says: *"It's impossible for a computer to get inside the mind of a CEO or CFO. Human interaction is essential if you want real insight into strategic decisions and to be able to interpret what's happening – and what could happen next."*

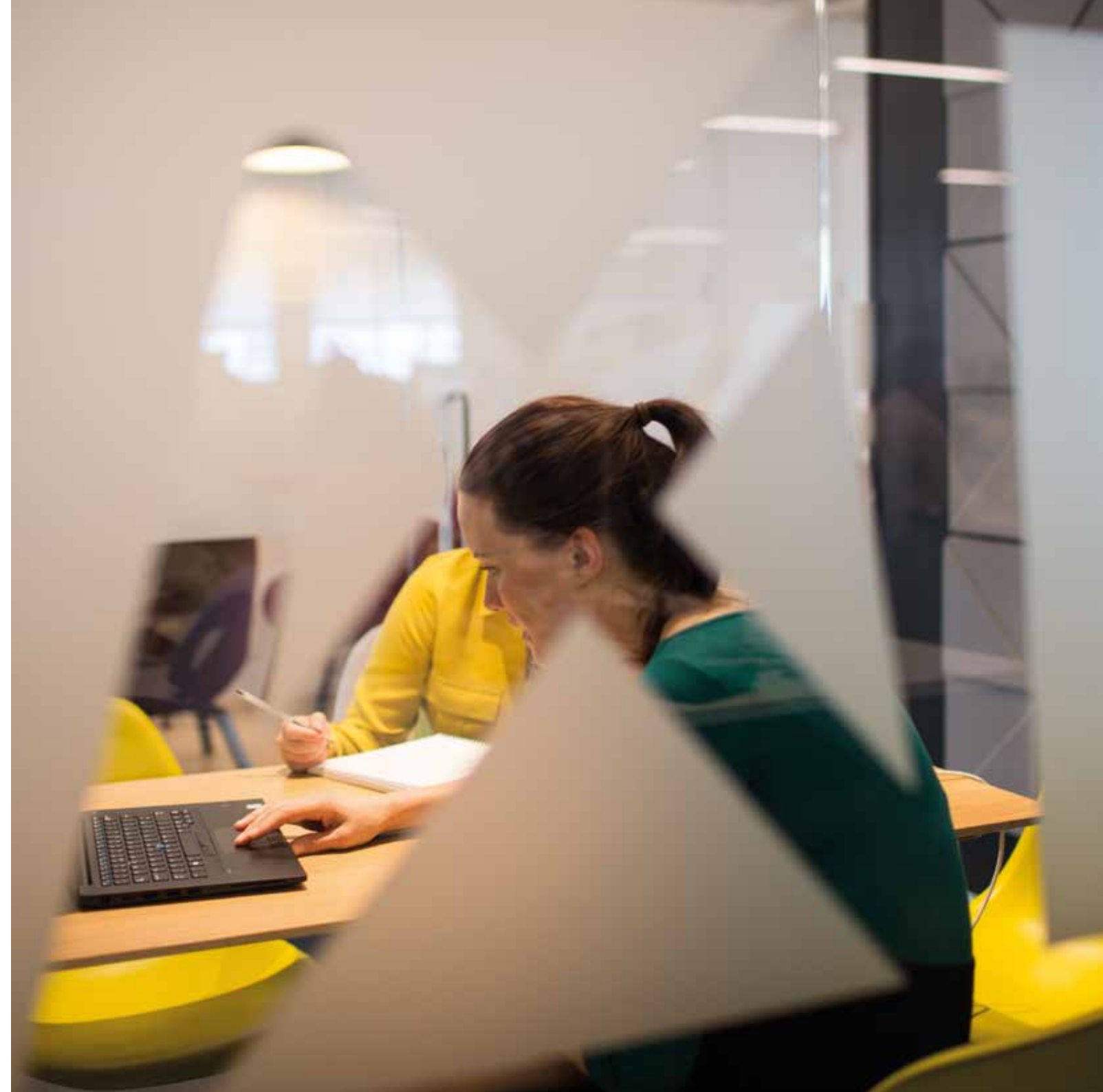
Angus McIntosh from Acuris sums it up: *"We've been looking at AI and curation for many years, and we always try and use tech to the best of its ability. But we haven't found any tech that can pick out that important nuance – and turn it into a proper piece of actual intelligence. AI gets us so far but you need human intelligence to show people what's actionable."*

"AI gets us so far but you need human intelligence to show people what's actionable."



In a Yale experiment, the inclusion of bots in an online game accelerated human problem-solving time by

56%¹⁵



Acuris

Seventeen years of people and intelligence

Since our first product launched, Acuris has extended its founding idea – that specialist, expert reporting and data gives financial professionals a crucial competitive edge – across many markets.

1999	Launch of Mergermarket , inspired by a bank’s daily internal origination newsletter for M&A. Designed to deliver advance, actionable news and data for M&A professionals.	2012	Launch of PaRR to help financial professionals identify the issues and opportunities in regulatory change
2002	Launch of Dealreporter , offering price-sensitive information for equity and fixed income	2013	Financial Times Group sells Mergermarket Group to private equity investor BC Partners
2003	Launch of Debtwire to provide advance news and data on debt situations	2014	Acquisition of Perfect Information , leading company information provider that delivers powerful insights for corporate finance decisions
2004	Launch of Remark , creating events and publications that channel thought leadership in niche markets	2014	Acquisition of The Law Report Group , specialists in legal intelligence in the fields of hedge funds, anti-corruption laws and cybersecurity
2004	Launch of Wealthmonitor to early insight into new wealth creation and high net worth individuals	2015	Acquisition of AVCJ and Unquote , Asian and European providers of advance intelligence on venture capital and private equity markets
2006	Mergermarket Group is acquired by the Financial Times Group	2016	Launch of Activistmonitor , providing predictive intelligence and behavioural data on shareholder activism
2009	Launch of Capital Profile – which provides insight into Asia’s influential families	2016	Acquisition of C6 Group , specialists in customer due diligence data and information
2010	Acquisition of Xtract Research , specialists in analysing bond and loan covenants	2016	Acquisition of Creditflux , leading information source for the credit fund and CLO markets
2012	Acquisition of Inframation Group , which identifies business opportunities in infrastructure finance	2017	Acquisition of TIM Group , the world’s largest trade ideas network



Sources

1. Automated trading systems, Wikipedia

2. Associated Press case study, Automated Insights

3. Robots will cover the Olympics for the Washington Post, Techcrunch

4. Developing legal talent: Stepping into the future law firm, Deloitte

5. Five industries under threat from technology, Financial Times

6. A Neural Network for Machine Translation, at Production Scale, Google

7. The Future of Employment: How Susceptible are Jobs to Computerisation? Carl Frey and Michael Osborne

8. Artificial Intelligence Comes to Financial Statement Audits, CFO.com
9. Facebook fires trending team, and algorithm without humans goes crazy, The Guardian

10. Microsoft’s millennial chatbot Tay.ai pulled offline after Internet teaches her racism, Geekwire

11. Exploring Next Generation Financial Services: The Big Data Revolution, Accenture

12. The human factor: Working with machines to make big decisions, PwC

13. Media Richness, Wikipedia

14. Humans and Artificial Intelligence Should Coexist, World Economic Forum

15. Building a better ‘bot’: artificial intelligence helps human groups, Yale News

