March of the robots...

into the boardroom
Insights for directors on Intelligent Automation

Pat Chapman-Pincher
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Introduction

I have spent the last 35 years working in technology and more recently mentoring senior executives of global businesses.

I have seen first-hand how chief executives and leadership teams have struggled to grasp the implications of the internet or mobile phone technology until it was too late.

Now we are in the middle of another revolution with far bigger impact than anything we have seen in our lifetimes – artificial intelligence (AI) or what I call ‘intelligent automation’ (IA).

If we had an issue with getting bosses to understand the widespread impact of the internet, there is an even bigger problem with how they are managing automation.

There is no doubt that self-driving vehicles will change the world of logistics. The question is no longer “if” but rather “when” autonomous vehicles will drive onto our streets and highways.

DHL report for the logistics industry 2014

Eight years ago even the experts said driverless cars were impossible within the next decade. Yet now they are being test-driven in Milton Keynes and the States. What is the impact for logistics, for taxi drivers, for train and bus companies? The technology for what many are still regarding as fantasy is already with us.

When the BBC’s lawyers and HR team drew up the contract for Jeremy Clarkson of Top Gear, a clause said he could not work for another UK media company for a year after leaving. Whoever wrote that contract clearly never imagined the competition would come from an online bookseller, Amazon, prepared to pay the presenters £160m for their Prime streaming service. Presumably they didn’t have the knowledge or foresight to include ‘online digital services’ in his non-compete clause?

The Oxford Martin programme on the Impacts of Future Technology (2013) estimates that 45 per cent of jobs will be automated in the next 20 years. Yet who is planning for this?

Last year, I decided to see if my instincts about the scale of this problem were right. I have now interviewed 30 plus business leaders from international retailers to law firms; given talks to hundreds of executives and gauged their responses to the issues I raise; and carried out a survey with more than 100 responses – half of which were from chairmen and directors/partners.

The key findings are

- 47 per cent of businesses have not looked at the impact of automation on jobs
- 58 per cent of businesses admit that their boards are not good at understanding or managing technology
- 68 per cent of boards are either not managing IA decisions or doing them piecemeal rather than taking an holistic view of the business and its future
Only 19 per cent of respondents think managerial jobs will be hit by automation – and fewer still, just 3 per cent, think leadership positions will be lost.

Only 35 per cent think that automation will significantly affect the structure of their business in the next five years – 12 per cent admitted they had no idea and that no-one in their business was looking at this.

23 per cent also had no idea whether automation would increase or decrease profitability in the next five years.

We think about the future for our clients but where is the incentive for us to think about the future for our firm.

Partner, Accountancy firm

When I interviewed a senior partner at an international professional services firm, they said they have major projects going on to automate routine operations, streamline processes and cut out paperwork. I asked how this would affect the thousand or so graduates they recruit every year. There was silence, “We haven’t looked at this”.

Written and presented like this, it sounds blindingly obvious. But this is the problem. Bosses are not comfortable with technology – they don’t get into the details and question the issues in the way they might, say, with a loss on the P&L account. They can understand finances, have been trained to analyse accounts, know what questions to ask. They don’t think about automation in a strategic, holistic way let alone know the questions to ask.

Consumers are becoming more sophisticated (take price comparison sites), they are optimising their behaviour and economic activities. If companies and organisations do not become similarly ‘optimised’ then where does that leave them?

Senior IT consultant

Major cultural shifts need great leadership to negotiate successfully. Boards need to understand that what they think is happening in the future is happening now. If they don’t, then they will be lost as the world changes around them and their companies quickly become unprofitable.

In this white paper I look at the issues in more detail, analyse what the interviews and survey findings are telling us and outline the key actions for boards, leadership teams, HR directors, finance directors, headhunters, lawyers, auditors and regulators. I have also looked at what business schools can do to make their own contribution.

The anonymous quotes in this paper are from my interviews and audience feedback when I have given guest speeches.

I don’t pretend to have all the answers. But I do have a knack of predicting the future. I hope this paper will stimulate both debate and action.

Pat Chapman-Pincher
CEO mentor, international speaker, strategist, futurist, portfolio of technology non-executive directorships
What are the issues?

We are all used to the automation of manual and clerical jobs. That is what the first and second Industrial Revolutions brought us. The third Industrial Revolution is already underway. Businesses have been automating low-skilled tasks for some years now – examples would be robotics in manufacturing, software for litigation to analyse court papers and CAD software for architects. We see these now as a part of life but actually they have taken away tasks that used to be done by skilled people; junior architects, accountants and lawyers cut their teeth on these sorts of tasks.

Most companies are now introducing what I call intelligent automation. This is not full-blown artificial intelligence (AI) but computers using elements of AI to make decisions before taking action. An example would be robots for stacking supermarket shelves. The robot is not just replacing stock that was there – a routine action that those in manufacturing would recognise. But it is also assessing the weather (ice cream or woolly jumpers), promotional offers for that week, what seasonally sells well at that time of year and more; and then deciding what shelf space to give to what and how best to display to maximise sales.

These decisions would once have been made in the marketing department.

What this means has been summarised by Steven Pinker:
“...As the new generation of intelligent devices appears it will be the stock analysts and petrochemical engineers and parole board members who are in danger of being replaced by machines. The gardeners, receptionists and cooks are secure in their jobs for decades to come...”

Businesses are bringing in this sort of automation in a fairly piece-meal way. Companies tend to allocate project teams with a mix of IT, line managers and maybe a director to look at how this particular robot/software should be implemented. They may put together a feasibility study for the board and they decide ‘oh good, makes sense’ but rarely probe further as to what wider impact this will have.
What is missing is an overview of all this automation to look at the wider effects on the whole business – now and within five years. And this should be happening at board level but isn’t.

Take the case of lawyers. They are now bringing in intelligent software for vast amounts of routine legal processes. What I have failed to find is anyone looking at the profitability and structure of law firms of the future. Much of a firm’s profit comes from the margins they make on articled clerks, newly qualified solicitors and paralegals. One of the most prestigious global law firms said that one particular task that would have needed 80 lawyers just two years ago, now needs only 12.

If a large number of these jobs disappear in a firm, you will turn the number of people employed on its head – instead of the classic triangle with more people at the bottom, you could have more partners who interface with the clients than you have people doing routine operations. Who in the business is looking at this impact – which covers recruitment for the future, how senior people will gain skills if there are few juniors to move up the ranks and the profitability of the firm?

What boards are missing is the whole strategic picture and that is because few people have an understanding – or frankly an interest in – technology. They don’t have the experience or skills to probe and say, “who is looking at the implications of this and can we include discussions in our strategy day?”.

McKinsey, in their “Rethinking the role of the strategist” article, notes “we’ve sensed a growing recognition that traditional strategic-planning processes are insufficient to absorb the shocks and disruptions characterizing their markets”.

**How is business changing?**

I carried out a survey, which had more than 100 responses, half of which were from chairmen, chief executives, directors and partners.

The findings that jumped out are that 47 per cent of businesses have not looked at the impact of automation on jobs. Only 19 per cent of respondents think managerial jobs will be hit by automation – and fewer still, just 3 per cent, think leadership positions will be lost.

The business world is expecting automation to change the world in the same pattern as previous automation waves. The few who do think automation affects jobs at all believe that the blue-collar and clerical jobs will go while managers continue to sit pretty in their offices.

But it’s mainly white-collar people who will lose their jobs. Some blue-collar workers will be affected, including anyone who makes a living driving a car or truck – computers don’t get road rage when someone carves them up, they don’t get distracted, they don’t need coffee stops and they can go on applying those rules 24 hours a day. People are used to blue-collar jobs going. They’re not used to professional jobs disappearing.
I think there will be two sorts of jobs left: the very senior knowledge workers – the senior IT people, senior lawyers, senior accountants, senior managers and senior judges – and then a range of service workers who provide personal services, because people will still want a human interface. A large number of the jobs in between will go. Accountancy and lawyers’ positions will go, because those are jobs that can be done by intelligent machines. We now have very smart design machines doing the work of architects. They don’t have the creativity of a Norman Foster or a Frank Gehry, but they can do about 90 per cent of the work. We’re just beginning to see the hollowing out of the labour market. Last year, the employment rate for law school graduates in the United States fell for the sixth year in a row.

Large corporates will start to see their business models transformed in the next three to five years, in the same way the internet has changed business forever. There are elements of artificial intelligence affecting businesses now, but leadership teams look at them in the same way as climate change, “It might or might not happen, and it is certainly not something I need to worry about today.”

What should boards be doing?

I have spent the last 20 years working at board level as director, chairman and non-executive director. I know first-hand just how hard most directors find it to “manage the future”. This paper is not to criticise directors but to raise the issues and suggest some ways to improve how boards operate.

Most board meetings and processes are predominantly focused on the here and now, a year ahead if you are lucky. Governance is the first focus – are we solvent and compliant? Then the big issues - why is that new project not delivering, should we move out of China, is the bank worried about our cashflow?

It is not easy to get space and thinking time to understand how technology has developed, what is being automated at various operational levels and then take a fresh look at the business as a whole.

Yes, there is a strategy day – or two – but even these tend to be incremental. Discussions are usually more on the lines of “can we realistically increase sales by 10 per cent, or could we hit 20 per cent and what do we have to do to achieve this”? There may be discussions about how markets are changing and new customer expectations, but rarely is there a dynamic look at the future and even rarer, a look at how changes are impacting the business overall.

In the past, this has not mattered as much as now. Problems and knock-on effects generally got picked up in due course and addressed either at leadership or board level. What has changed is the speed of change.

“There will be a productivity problem as we automate more. Humans will increasingly provide personal services but these are less productive and have limited economic value add.
Chairman, FTSE 250
Amazon is just 21 years old. In that time it has not only established itself as the leading bookseller across the world; become retailer of everything from staples to pashminas; set up marketplaces; set up Amazon Prime offering free songs and playlists and is now creating its own shows such as with Jeremy Clarkson. And the latest news is that they are moving into groceries.

This speed of domination was only possible because of the internet and the way that Amazon capitalised it – they set the standards for ecommerce from the beginning.

This speed of change poses two particular challenges for business leaders.

How do you get all business leaders to be more aware of technology both in and outside the business, so that it becomes a part of their everyday DNA in the way that financial acumen is a given for every leader?

How do you manage the big picture of what is already being automated – or should be automated – in your business? Who should be thinking about your legal contracts – employees, suppliers, partnerships and more – in light of changing markets and threats? Who is looking at skills’ needs and the implication for recruitment? Who is analysing what is happening, and will happen, to your business structure and profitability?

New board structures

I am not the first person to question whether the accepted structure and activities of corporate boards are any longer fit for purpose.

Almost all chief executives say they are looking for innovation within their company yet very few businesses ever deliver it.

Headhunters say they struggle to place dynamic entrepreneurs onto a board, because they will be frustrated at the amount of time spent on governance and able to contribute little to the future of the business. Most boards fail to maximise the real value of their combined board members because there is no structure to draw out the expertise they do have. And there is no accepted protocol for getting in specialist skills in areas such as technology.

So here I set out my thoughts for how boards could change their processes in the short term and longer term.

Set up advisory boards

I believe we can learn from universities on this. They have advisory boards where they bring in a wide range of top talent two or three times a year to advise them on specific issues – such as whether their course content meets employer needs, how to make research more effective or how to tackle specific global markets.
Some companies have done this already, but they find it difficult to understand or take the advice being given. There needs to be a feed-in to the strategy process.

If corporates do set up advisory boards, they can have people who are challenging, dynamic, cutting edge in technology, innovative and creative – and who would probably never fit into any traditional board.

I wouldn’t create a ‘board structure’ for these advisors, but rather get them to tackle a specific issue at each session. I say session rather than meeting because to be effective they should take more of a workshop approach and bring in different, relevant employees to work with them. Taking the examples I mentioned above, one session might look at skills and recruitment, another at current automation plans and the impact across the business.

This will also start spreading expertise and new thinking across the business for the longer term.

**Recruit dynamic, technology-savvy advisors**

Who you recruit as advisors will depend on each business. But generally I would bring in a technology entrepreneur; one or two young people from diverse backgrounds; someone working internationally – say China or India or where new things are happening in your market; possibly a one-man band consultant or blogger who is seen as a leader in your market.

This is not an easy process for most corporates to manage. The people who can best help you will not see barriers, they expect to see action happening quickly and will be extremely challenging. They will want to see results for their input and if they don’t, will walk away – they have better things to do with their time.

So business leaders need to think how they will use what comes out of the advisory teams and how they will address fundamental disagreements between the advisory and leadership teams. And they must feedback to the advisors what has happened within the business and the contribution that the advisors are making. Otherwise the advisors will lose heart.

**Get your board technology-savvy**

I have said that directors are not interested in or managing automation strategically. How can boards and leaders change this?

**Plan to have algorithms sitting on your board**

In the future, some people sitting on our boards will not be human. Already there is a board in the Far East which has an algorithm as a board member with an equal vote. Robots can weigh up far more options than a human and draw on much wider experiences to see what has worked or not in the past. They can make a logical and informed contribution to decision-making.

"Machines are faultless at implementing policy but you need intelligent people to set the policy. The more clients we have the less people per client we have."  
Chairman, International financial services group
Recruit open-minded leaders

The law firm, Farrer & Co, hosted a dinner last year to discuss professional services firms and social media. One director said: “You have to accept that partners over 50 will never get into social media”. Another commented: “There is a snobbery about social media among senior people, it is seen as rather naff, a bit like admitting you watch soaps”.

Sharp intake of breath from the technologists. Yet I have seen this attitude among directors time and again – not just about social media but technology generally. It is apparently perfectly acceptable to be dismissive on the lines of, “Oh I don’t understand these things, I let others sort this out”.

Lucy Harris, partner at Heidrick Struggles, led a breakfast debate around digital disruption and said she had recently agreed their first board spec which included the ‘ability to learn’ as an essential requirement of the job.

Boards and leadership teams need to start recruiting directors who are comfortable with technology, have open minds and are fundamentally interested in what is changing in the outside world. There also needs to be a stated requirement for leaders to keep learning and be interested in technology.

Involves advisors in your strategy day(s)

Most boards have a strategy day, some take two days for this. Even two days is not enough – strategy needs to be dynamic.

On your main strategy day I would ensure you take two days and get your advisory board to run the first. Let them design and run it – they know what issues they are finding within the business and what the board should understand and be working on. Let them fire up your imagination and challenge you.

Then you will go into the second strategy day with new ideas and a better bigger picture in your mind.

In addition you need two or three other days through the year to look at strategy, because the world is now so dynamic.

Put one advisor on your main board

Put one person from the advisory board onto your main board – you could rotate this role or initially choose the one who you think will fit best till you get used to the concept and challenge.

They can run a short session to cover their discussions and ideas and contribute to the rest of the board meeting.

The outlook could be very gloomy for those who ignore these technologies. UK adoption of industrial robots in manufacturing is a good characterisation of how we seem to lag.

Security consultant
Bring in technology strategists to work with the board

Setting up an advisory board may take a while. In the meantime you can get experienced directors to come in and work with the board, either as a special session or as part of your strategy days.

Ginni Rometty, Chairman and CEO of IBM, said: “In the future, every decision that mankind makes is going to be informed by a cognitive system like Watson,” she said, “and our lives will be better for it.”

“As Watson gets smarter, his ability to reason is going to exponentially increase,” Rometty added. “What will be really game-changing won’t be Watson’s knack for recalling facts faster than even the most trivia-savvy human, but its ability to assist people with the complex and nuanced tasks of decision-making and analysis.

Who else needs to wake up?

Embedding an understanding of technology into the UK’s DNA is not just about business leaders. There are issues for specific directors, for advisors such as lawyers and also for regulators and even business schools.

Below is a series of ideas to stimulate discussion, but they are the tip of the iceberg. Every business area needs to start thinking seriously and quickly as to the implications of technology for their activities.

HR

There are three areas that I think HR directors should be addressing now

Future jobs and employee development

HR needs to get into the detail of how their business is changing; what is being automated and what is planned. What is the impact on jobs – not just in terms of numbers but the more complex, longer term issues. An example is if professional firms have automated 50% or more of the work that graduates and junior qualifieds used to do, then will the firms have enough of a pool to develop partners from?

Will middle managers have gained enough experience to become senior and strategic, if they are missing out a lot of the tasks they did in their early years? Will new training contracts be required, which might include secondments to clients or charities?

Managerial skills

All managers and directors need to be familiar with technology and what issues it can bring – from strategy to skills – in the way that every manager is expected to have a basic grasp of finances and budgets.

What new attributes do you need in job descriptions? Do psychometric tests need adapting? Are your management development and leadership programmes fit for purpose?
**Employment contracts**

What are employment contracts protecting your business from? The past, the present – or the future?

HR directors need to review all contracts – probably with the help of technology advisors – to challenge and debate what needs updating or even have a radical rethink.

**Finance directors and auditors**

Finance directors oversee risk and risk strategy. Yet ‘risk’ is usually defined in a narrow context.

Auditors report on whether they think a business is a going concern, but is it time for them also to give a view on whether the business is fit for the future?

And should this mean that finance directors also have a role in reporting on whether they think the business is robust in looking at the future? Do they have the skills? Should this come under the chief executive?

Would it just create a layer of bureaucracy or could it help businesses to recognise the urgency and importance of looking forward?

**Lawyers and commercial teams**

Lawyers have been trained to think on the lines of precedents and tend to give advice to protect companies based on current laws. Few are looking ahead to how the world is changing and how to write robust business contracts which will protect businesses in future years.

Just as I am suggesting that all managers should be familiar with technology and think about issues arising over the next five to ten years, so this is needed for commercial and corporate lawyers, in particular. This will take time and in the meantime they may want to bring in technology experts to review contracts and think about some of the wider legal issues.

**Headhunters and board advisors**

Headhunters have an important role to play in changing the face – and heads – of boardrooms. They were slow to be effective in getting more women on boards, they need to be more proactive this time in helping to find and recruit different skills.

I have heard many a headhunter say they tried to put women forward, but chairmen were not prepared to break the mould of recruiting in their likeness. Headhunters are paid a great deal of money – they need to develop the skills and evidence that will persuade chairmen and CEOs to change.

There are opportunities in this for headhunters – but they will have to be more imaginative than ever in how they “fish in new gene pools”.

Just as business leaders need to understand technology as part of their DNA, so headhunters from all sectors need to understand the issues around automation, changing workforces and business impact – not think this is for their high-tech sector specialist. This will ensure they are asking the right questions in interviews and have the skills to challenge the briefs they get.

**Regulators**

In many ways, regulators behave like auditors. While they set frameworks for an industry, their role is primarily to ensure that companies operate within the law and that framework.

But should they have a wider role to ensure the businesses they regulate are fit for purpose for the longer term and remain competitive internationally?

**Business schools**

As I have been researching and writing, I have been struck by how little has changed in the last 50 years in terms of the skills we think managers need.

Business schools have taught around the core skills of strategy, finance, marketing, people and economics for the last 50 years. There may be optional extras such as leadership, negotiation, M&A and not-for-profit but IT has barely had a look-in on a typical MBA programme and certainly technology does not feature as a core module.

I would like to see a new discipline introduced into all business courses, called Future Technology and also for existing curriculums to be reshaped so that the impact of technology is examined across all areas of business.

**Conclusion**

When I started thinking about this issue twelve months ago, I was worried that British bosses were not aware of the new intelligent technologies or managing the impact on their businesses.

This research shows the situation is worse than I feared. The biggest issues are

- The lack of skills at board and senior management levels
- The disconnect between those implementing intelligent automation and the executive teams and boards
- Little understanding of how intelligent automation will change businesses

If business leaders don’t take action now, they will see jobs, profitability and brand names disappear – and it could be their jobs.

Businesses need to change the face of their boardrooms. They need people who relish change and are excited by technologies and must find ways to bring in technology experts to work with them. Strategy days need an overhaul and leaders need to find out just what is being automated already and start challenging in the way they do for finances.
They also need to start thinking now about how they bring robots – or algorithms – into boardroom decision-making.

If boards can take up this challenge, the future is exciting. Intelligent automation is the key to helping the UK match the productivity of our global competitors. Just as the internet has changed our lives forever, so will intelligent automation.

This is not science fiction and it is not about the future. It is happening NOW and boards need new skills NOW.

**Pat Chapman-Pincher**

Pat Chapman-Pincher has spent the last 35 years creating and growing major multinational companies in the internet, fixed and mobile telecoms sector. She is a futurist, international speaker and a FTSE chief executive mentor with Merryck Mentors.

She has been a director, non-executive director and chairman of more than 20 companies and is currently chairman of Cavell Group and just stepped down as senior, independent, non-executive director of FTSE 250 Pace.

Time and again Pat has been able to see the impact of new technologies. She shocked the BT board nearly 30 years ago by predicting that within five years a million people in the UK would carry mobile phones. In the early 90s she also understood that the internet would change the world – and then helped create and run companies that did so.

Pat writes a regular blog at [www.patchapmanpincher.com](http://www.patchapmanpincher.com).

Now Pat wants to help business leaders understand the future better and create strategies for long term success, particularly looking at

- How to build a sustainable organisation
- Plan for the impact of new technologies
- Understand and plan for the changes in work and development

**Contact information**

Email : patcp@patchapmanpincher.com

Mobile : +44 7770 924054

Website and blog : [www.patchapmanpincher.com](http://www.patchapmanpincher.com)

Skype : patcp1

Twitter : @pchapmanp
Research Findings

Pat Chapman-Pincher researched this market with business leaders during 2015 in a variety of ways

- Been guest speaker at a number of events with nearly 1,000 business leaders
- She mentors 12 chief executives – half in FTSE 250 businesses
- She has met and interviewed 30 directors and partners
- She sent out a survey to LinkedIn contacts, posted survey details on social media and contacted directors by email

Key Findings

In May 2015, Pat Chapman-Pincher sent an email to more than 2,000 of her contacts – mostly chairmen, directors and partners from all sectors. She asked them to complete an online survey and had 106 responses. Their responses are detailed below.

Q1  Do you see Intelligent Automation (IA) as a threat or opportunity for your business?

- 50% see Intelligent Automation (IA) as an opportunity for their business
- Only 1% see IA as a threat
Q2 To what extent is your business exploring or using Intelligent Automation (IA) now?

- 26% not at all
- 38% in early stages

Q3 In what areas of your business are you using or about to implement Intelligent Automation (IA) systems?
Q4  To what extent does your board understand and manage the impact of IA decisions?

- 38% say not at all
- 30% say key IA decisions are based on investment cases

Therefore 68% of boards are making piecemeal decisions about automation rather than taking an holistic view of the business and its future.

Q5  How skilled is your board?

- 28% say their board is not good at understanding or managing technology
- 30% say their boards recognise the issues and brings in external advisors to help

Therefore 58% say they do not have the skills on the board to understand or manage technology.
Q6  Will IA significantly change the structure of your business in the next five years?

- Only 35% say yes it will significantly
- 12% say they have no idea and not aware of anyone looking at this in the business

Q7  Will IA significantly change the profitability of your business in the next five years?

- 63% says yes it will
- 23% say they have no idea and not aware of anyone looking at this within the business
Q8  How is IA changing the number of people you recruit?

- 47% have not looked at the impact of automation on jobs

Q9  Do you believe the jobs that will be lost to IA in your organisation will be?

- Semi-skilled manual 47%
- Semi-skilled clerical 65%
Q10 Many are predicting that more than 40% of jobs in the UK will be lost because of IA. Do you agree and in what timescale?

- 20% say that 40% of jobs will be lost
- 59% say jobs will be created in their place
- 21% don’t think significant number of jobs will be lost

Who took part in the survey?

Sector
- 28% Technology, media & telecoms
- 24% Professional services
- 5% Manufacturing
- 3% Retail
- 42% Misc

Job title
- 49% Chairman, director, CEO or partner
- 13% Manager
- 38% Not specified

How many employees?
- 47% Less than 100
- 15% 101 - 1,000
- 19% 1,001 - 10,000
- 19% More than 10,000
My thanks to ....

I would like to thank the many people who have been so kind helping me with this research.

I am enormously grateful for the speaking opportunities so I could meet large numbers of senior people and hear their views; also the directors and partners who gave up their time to talk me through what was happening in their businesses and the areas where they feel they are grappling and learning; and to those who filled in our survey and were open with their thoughts and views.

My thanks to Northern Lights for helping me shape and write this report and research.

I am very happy for this paper to be widely used, copied and distributed – its aim is to stimulate debate and action.

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