



Heriot-Watt University
Research Gateway

Making Sense of Intelligent Automation in Local Authorities

Citation for published version:

Blaha, L, Hislop, D & Cai, J 2022, *Making Sense of Intelligent Automation in Local Authorities: Research Report*. University of Aberdeen Business School.

Link:

[Link to publication record in Heriot-Watt Research Portal](#)

Document Version:

Publisher's PDF, also known as Version of record

General rights

Copyright for the publications made accessible via Heriot-Watt Research Portal is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy

Heriot-Watt University has made every reasonable effort to ensure that the content in Heriot-Watt Research Portal complies with UK legislation. If you believe that the public display of this file breaches copyright please contact open.access@hw.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.

Making Sense of Intelligent Automation in Local Authorities

RESEARCH REPORT



1495
UNIVERSITY OF
ABERDEEN

CELEBRATING
525 YEARS
1495 – 2020

EXECUTIVE SUMMARY

The increased use of chatbots, robotic process automation, AI-based analytics, and other software as cohesive systems in organisations is shaping how business processes are managed in organisations from all sectors. These intelligent automation (IA) systems have significant impact on the nature of service and knowledge work¹,

The aim of this report is to contribute to the knowledge base of how IA applications influence local government practice. This report specifically looks at how IA applications are understood and as a consequence, used by staff and customers within a local authority in Scotland, providing a practical framework of managing this process.

Three main topics have been distilled from the research project: (1) conceptualising how IA applications are made sense of; (2) looking at how decision-making in the organisation shapes the understanding that staff and customers form of IA; and (3) how the understandings that staff and customers have of IA shapes their behaviour.

How is Intelligent Automation understood by the employees and customers of the organisation?

Four dominating perspectives on IA technologies were identified: Technology **as an Ideal, Non-human Instruments, Technological Entities** and **Resisted Technologies**. However, individuals may change from one understanding to another based on their experience of interacting with IA technologies.

How do the understandings of IA affect decision-making in the organisation?

Senior management are seen as the most significant influence on which understanding of IA systems is promoted and acted upon in the organisation. However, how senior management communicate these decisions, and the factors considered could be improved to match the different views on IA applications.

How do the understandings of IA affect the behaviour of staff and customers?

This study shows that over half the participants held paradoxical views on technology. Whether individuals also use IA applications in their private life or at work, whether they have public sector work experience or not, and what their prior experiences have been, all determine their reaction to IA technologies.

The study provides a toolkit to facilitate knowledge of different stakeholders on IA.

KEY TAKEAWAYS

- a. **Identify the groups most affected by the new technological systems**
- b. **Identify meanings in the organisation and take steps to address any concerns**
- c. **Consider the images used to illustrate technology**
- d. **Investigate what feelings and associations emerge as a result and establish trust**
- e. **Create a two-way feedback mechanism that fosters trust formally and informally**

¹ Coombs, C., Hislop, D., Taneva, S., Barnard, S. (2020) *The strategic impacts of Intelligent Automation for Knowledge and Service Work: An Interdisciplinary Review*, *The Journal of Strategic Information Systems*, 29, 3.

CONTENTS

SECTOR CONTEXT.....	4
PROJECT BRIEF	5
RESEARCH IMPACT	6
Wider Impact.....	7
RESEARCH METHODS	7
FINDINGS	8
TOPIC 1: Multiple understandings of Intelligent Automation.....	8
TOPIC 1: Additional Findings	12
TOPIC 2: How understandings of IA influence organisational decision-making	14
TOPIC 3: How different areas of life shape paradoxical understandings of IA	15
TOPIC 3: Additional Findings	16
CHECKLIST FOR UNDERSTANDING TECHNOLOGY.....	18
RESEARCH TEAM	19

SECTOR CONTEXT

Although not referring specifically to the term “*Intelligent Automation*” in communications until 2021², both the UK and Scottish Governments have over the past 4 years referred to Artificial Intelligence and automation in policy documents, reports, and press releases alike, highlighting both areas as research, policy, and practice priorities for the future.

In 2011, “*Scotland’s Digital Future: A strategy for Scotland*”³ investigated the opportunities and challenges for digital infrastructure, digital participation, and creating a digital economy supported by the digitalisation of public services. In 2017, in a further strategy document, “*Realising Scotland’s full potential in a Digital World*”, the Scottish Government⁴ set out goals including the development of infrastructure for, and adoption of new and emergent technologies such as Internet of Things (IoT), cloud computing, sensors, artificial intelligence, and machine learning.

In 2017, AI has been identified by the Government as one of its “*Grand Challenges*” – a priority industry development⁵, followed by the AI sector policy launch in May 2019, as well as the founding of an AI Council designed to boost the growth and ethical use of these technologies throughout the country and the UK AI Council Roadmap⁶, which builds upon this strategy.

In March 2021, the Scottish Government, in partnership with several non-governmental organisations, launched “*Scotland’s Artificial Intelligence Strategy*”⁷, which positioned Scotland as a nation dedicated to “*trustworthy, ethical and inclusive AI*”.

As the evolution of the strategy documents shown above suggests, the adoption of AI and automation within British public services is a complex, ongoing process, significantly dependant on funding and varied across different sectors and locations. While overall funding in the UK for AI-related initiatives has increased significantly (with examples such as £20 million towards the Turing AI Research Fellowships and £250 million towards Health and Social Care research)⁸, local councils have overall struggled over the past decade. Repetitive austerity cuts and an ageing population has been stretching the budget needs for many local authorities over what business rates, council tax and government funding could offer, particularly in social care⁹. Moreover, the decrease in business rate revenue and

² MacGregor, I., Beresford, J. (2021). Intelligent Automation Driving resiliency and recovery for the UK [webinar] TechUK. Delivered 21st January 2021.

³ Scottish Government (2011). Scotland’s Digital Future: A strategy for Scotland.

⁴ Scottish Government (2017). Realising Scotland’s full potential in a Digital World.

⁵ Department for Business, Energy & Industrial Strategy, (2017) AI Sector Deal

⁶ Office for AI (2019) AI Sector Deal

⁷ Scottish Government (2021a). Scotland’s AI Strategy.

⁸ NHS (2021) Artificial Intelligence in Health and Care Award.

UKRI (2021) New Turing AI fellows to deliver world-class AI research.

⁹ Local Government Association (2018) Local Government Funding: Moving the Conversation On. Local Government Association.

the major increase in spending brought forward by the Covid-19 pandemic¹⁰ has meant that local councils have been incentivised to accelerate the introduction of Intelligent Automation technologies.

In 2018, independent research commissioned by the Transformation Network¹¹ showed that less than 5% of UK local authorities (i.e. councils) were deemed to have AI-related projects underway, although most of them planned to introduce forms of RPA, AI and to consolidate their digital infrastructure in the near term¹². While the report itself did not provide details of the direct application of intelligent technologies, Freedom of Information Requests, press releases and social media posts from local authorities since refer to process automation and artificial intelligence as combined and implemented as part of digital transformations throughout the country.

PROJECT BRIEF

The participating organisation is a medium-sized Scottish local authority with between 5,000 and 13,000 employees. Within the last 5 years, the organisation has integrated various forms of intelligent automation including RPA and AI-enhanced chatbots.

Intelligent Automation can be understood as the application of combined forms of business process automation, robotic process automation (RPA) and artificial intelligence (AI) in a variety of forms, to improve business performance. Forms of Intelligent Automation (IA) may include the use of chatbots, advanced analytics and sentiment analysis in combination with RPA and AI used across an organisation, used most often to increase the efficiency of business processes, reduce costs, and increase capacity without the need of hiring additional staff. Many organisations integrate such products as part of wider Digital Transformation programs, which also involve a change in work practices, organisational culture, IT infrastructure and human skills and responsibilities across the organisation.

The current research investigates how staff and customers make sense of such intelligent automation being used in local councils, focusing on what individuals find most important when understanding and acting in response to such technologies. The project was conducted as a single case study in agreement with a medium-sized Scottish Local Authority, in the process of Digital Transformation. The aims and objectives were agreed with the organisation as below:

- To investigate how automated business processes (e.g. chatbots, automated booking systems or customer databases) are understood by individuals affected by them (e.g. employees and service users), and how these individuals make sense of, and interact with the interface produced by a local council.
- To interview staff and service users as part of an in-depth case study of different human perspectives on how the above technologies fit into personal and professional life, and where

¹⁰ Institute for Fiscal Studies (IFS) (2021) Local Government Finance: The Fair Funding Review
Phillips, D. (2021) How and Why has the Scottish Government's funding changed in recent years? IFS Pub.

¹¹ Transformation Network (2018) Local Government League Table

¹² Eichler, W. (2019) "Shockingly small" number of councils embrace automation, study reveals, LocalGov

these technologies fit within customer interaction with council services (for example, booking appointments or resolving queries).

- To produce anonymised findings that may support further research into the topic, as well as providing the organisation with insight into IA and its implementation.

To this end, 3 major research questions were developed, based on science and technology studies and business management studies literature. These were further distilled into 3 research questions:

- 1) How is Intelligent Automation understood by the employees and customers of the organisation?**
- 2) How do the understandings of Intelligent Automation affect decision-making in the organisation?**
- 3) How do the understandings of Intelligent Automation affect the behaviour of staff and customers?**

The findings chapter presents the answers to these questions in further detail.

RESEARCH IMPACT

A key part of project approval consisted of clarifying the impact of the research project for the organisation. As part of the application process, the advantages, and downsides of conducting such a case study were analysed, and a list of benefits were identified.

Benefits for the organisation:

- A research report using most recent industry and academic data on Business Process Automation and Intelligent Automation.
- Information regarding emerging patterns in how people make sense of and find meaning in services currently in development.
- Investigating gaps between enthusiasts and resisters to automation, and how these views are formed, to enhance existing communication with staff and service users.
- The opportunity to gain competitive advantage through hosting in-house research tailored to the organisation, as well as showcasing their openness to collaborate with the local community.

Benefits for participants:

- Anonymous provision of service feedback through an impartial third party, without any pressure from colleagues, managers or others viewing their posts publicly.
- Participants in a previous pilot study on the subject reported that the research questions allowed them to reflect on their personal and professional with technology and gave them courage to approach it differently in their daily life. Some of them changed career as a result, some gained enthusiasm for the topic. The researcher expects these benefits will be replicable to the participants in the wider study as well.

Wider Impact

The wider literature on AI is lacking in UK case studies in the public sector, currently depending on consultant reports (e.g. Capgemini, Deloitte, McKinsey, Gartner), which are based on short-term performance indicator analyses, long-term market projections or software developer expertise (e.g. Microsoft, UiPath, Blue Prism). A case study into the adoption of specific forms of Intelligent Automation in the Scottish public sector, with detailed individual experience-based themes and solutions, can enrich the existing survey data on local authorities.

For a public sector organisation, it is important to understand the real-world implications of technologies into citizens' lives, in addition to the measurable data provided by business acumen. While long-term aims include the extension of qualitative interviews to other organisations to improve representativeness for the Scottish public sector, the need for in-depth understanding requires this to be organised in one organisation at a time given the resources available at the time of writing.

RESEARCH METHODS

Research was conducted between April and 2020 and 2021, with interviews organised between May and June 2020, followed by documentary data collection, data analysis and a collection of the findings.

Participant data was collected in the form of 30-40-minute-long interviews held remotely due to Covid-19. The interviews were audio recorded, with the researcher also taking observational and summary notes with the participant's consent.

Documentary data included internal files collected from the organisation-wide employee intranet and public communications, chatbot interaction reports acquired under the approval of department officers. The external files consisted of meeting minutes, published case studies, press releases, reports, social media posts, Scottish Government policy documents and Freedom of Information Request responses.

Observational data was collected by the researcher in the form of notes, and included patterns observed in social media content, within the wider public sector publications, and as keywords appearing repeatedly in participant interview transcripts.

Recruitment and Selection: 41 participants were recruited from two stakeholder groups related to the organisation: local authority staff and local authority customers. Although individual age, occupation and gender were not collected for the purpose of confidentiality, the participants were controlled to ensure fair representation. **Employees** were recruited following consent from the organisation, by being asked initially whether they would be interested in the research in writing. **Customers** were asked for consent before any other steps are taken through an initial contact message on email or social media.

Participant Representation

Apart from the involvement with the local area and/or intelligent automation technologies, the participants were selected such that a wide range of backgrounds, ages, and occupations would be represented.

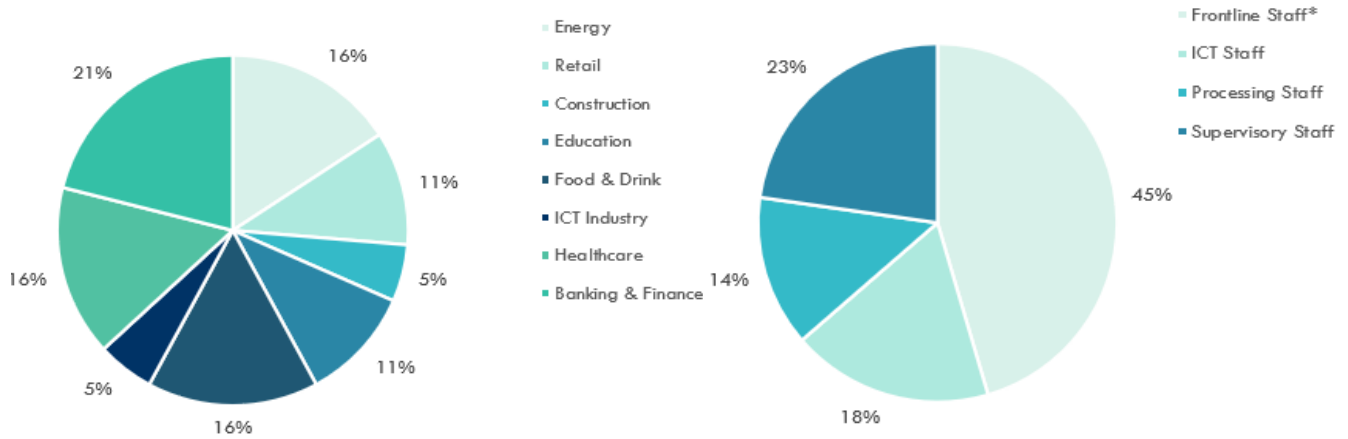


Figure 1a. Participant occupations for the customer group

Figure 1b. Participant occupation for the employee group

FINDINGS

The following sections provide a summary of how intelligent automation was understood by the employees and customers of the organisation and the implications of these understandings. The sections have been structured around the 3 topics derived from the questions.

- 1) **How is Intelligent Automation understood by the employees and customers of the organisation?**
- 2) **How do the understandings of Intelligent Automation affect decision-making in the organisation?**
- 3) **How do the understandings of Intelligent Automation affect the behaviour of staff and customers?**

TOPIC 1: Multiple understandings of Intelligent Automation

While the initial question sought to identify what the main understanding of IA in the organisation is, in-depth research based on evidence and academic literature shows that four perspectives could be identified. There four types of meanings and practices attributed to IA have been grouped into **(a) Technology as Ideal**, **(b) Non-human Instruments**, **(c) Technological Entities**, and **(4) Resisted Technologies**.

These four understandings are reflected in the meaning ascribed to IA in participant and documentary data, and in the actions and behaviours related to them. A science and technology studies-based model has been applied to these perspectives, to capture how they are represented (i.e. symbolised, drawn, envisioned), what people found important, and what feelings and associations were attached to them in the interviews and documents. **Tables 1-4** provide a summary of these four perspectives.

TECHNOLOGY AS IDEAL	
<i>Representation</i>	Digital Transformation Tools which can improve service to the community. Supporting equality of opportunity Complementing human workers Consistent across sectors
<i>Importance Criteria</i>	Ease of use Human-like communication Clear communication Clear regulation Recognition of emotionality and sensitivity
<i>Feelings and associations</i>	Hopeful hesitation Desired familiarity Responsibility towards community Duty of care Trust in local government

Table 1. Understanding of technology as an ideal

The summary table above shows that, while the depiction of ideal use cases and benefits was strongly supported by documentary data, the importance given to new intelligent technologies such as chatbots, AI assistants and RPA processes by participants was related to how it affected their own lives and society over the longer term.

The desired image of technologies as a platform for human-like communication was common to most participants, with public sector interviewees having a sense of their duty of service being supported by such technologies, and customers desiring a sense of human-like familiarity imbued into the technologies used for the organisation’s customer service platforms.

Local authorities were trusted to offer such platforms and were seen as responsible for earning the trust of the community through ethical design, use and adaptation of the technologies regularly according to staff and customer feedback. The discrepancy between the desires expressed by participants and the certainty shown in the organisation’s documents shows that this is still an ongoing process.

NON-HUMAN INSTRUMENTS	
<i>Representation</i>	'Robotic' language use Favoured by developers. Basic instruments Secondary to humans
<i>Importance Criteria</i>	Means of task completion Speed of task completion Repeatable positive outcome of conversation
<i>Feelings and Associations</i>	Willingness to adapt language Higher expectations of public bodies Need of consistent positive results from public bodies

Table 2. Understanding of technology as non-human instruments

This view is strongly supported by the majority of interviews. In this view, chatbots, AI assistants and RPA are easily recognised by most participants as now being used by many organisations across the

public and private sectors. They are easily differentiated from humans, mainly through how they communicate. Participants have identified these technologies by their ‘non-human’ communication such as the use of scripted conversations, automated responses, and generic answers to questions.

The most important aspect for participants was the extent to which these technologies enabled them to successfully complete tasks, and whether this could be accomplished successfully through a ‘conversation’ with the bot or assistant. The extent to which word adjustment was necessary was not often raised by participants in the case of chatbots but played a more significant role in the case of voice recognition-based assistants.

Using such a technology to complete a task is therefore not associated with a conversation in the traditional sense of an exchange between conscious beings, but a process where the human can have more control over what is being communicated and does it in such a way as to get a task done by the technology (e.g., by typing specific words into a chatbot). The feelings of participants largely depended on the extent to which this was possible, and the degree to which they felt that the outcome would influence their lives. In the case of councils and other public bodies, the positive feelings associated with a task being completed successfully were enhanced by it being more important to them, and the higher expectations they had of a local authority. If the task could not be completed successfully, participants were significantly more disappointed by the council’s chatbots or automated services, judging the organisation a lot more harshly than private enterprises.

TECHNOLOGICAL ENTITIES	
<i>Representation</i>	Friendly bot Virtual worker Nondescript assistant Capable of decisions
<i>Importance criteria</i>	Assistance in task completion Impact on job retention Impact on community
<i>Feelings and associations</i>	Appreciation of human-like responses Need of reassurance

Table 3. Understanding of technology as technological entities

Although most participants were aware of AI chatbots, assistants and RPA processes being non-human, there are consistent paragraphs in supplier materials describing them as ‘agents’, ‘workers’ and bots who could be communicated with in a human-like manner. Participants also showed an interest in the human-like aspects of technology, for example asking chatbots about their origin, opinions, and ‘work’. They had positive feelings towards such information being included in the chatbot description, even when aware of their non-human nature. Where participants were unsure whether they had communicated with a human or program, this was based solely on where they found the use of words to be sufficiently human-like.

This understanding of AI chatbots, voice assistants and RPA as capable of human-like communication was strongly linked to a desire of support given to humans to complete tasks. The possibility of having human-like responses, working alongside a non-human worker, and deriving reassurance from this process were seen as the most important aspect of the human- 'artificial worker' relationship.

Despite this, the representation of what this non-human entity looks, behaves, or writes/speaks like is still not very clear, neither within participant interviews, nor documentary data. As long as the responses do not sound very scripted or generic and human workers are not being dismissed, such an entity was accepted, and even appreciated by the human participants. This was the case irrespective of whether it was depicted as clearly non-human or remained ambiguous as an 'assistant' responding in writing, and in slight opposition to the universally positive image portrayed in supplier reports.

RESISTED TECHNOLOGIES	
<i>Representation</i>	<ul style="list-style-type: none"> Unconscious resistance Spoken language not recognised Unknown assumptions in programming Unconscious bias Unnecessary service channels
<i>Importance criteria</i>	<ul style="list-style-type: none"> Impact on job retention Consequences of programmer bias Risk to vulnerable individuals Impact on privacy & data
<i>Feelings and associations</i>	<ul style="list-style-type: none"> Fear of harm Potential impairment of human abilities Otherness, distance Lack of empathy Uncertain future

Table 4. Understanding of technology as something to be resisted

The participants sharing these views often stated they did not see any tangible advantage of using intelligent assistance instead of completing a task or requesting a service on their own. Participants have complex views on how using such technologies may create learned helplessness, an expectation of servitude from services and perhaps even other humans, and antisocial behaviours. At the same time, participants show that clearer, fact-based, non-sales-based information on how and why intelligent technologies should be used, the existence of further regulation, consistent ethical use, and a sense of security from public institutions may encourage their engagement.

However, there are others who do not see the utility in the use of such applications even with such assurances and prefer not to engage with them at all as a result, preserving a sense of independence and self-reliance without using 'obvious AI'.

Note: As will be developed further in Topic 3, the four understandings identified above are not fully entrenched, and individuals may change from one understanding to another based on their experience of interacting with chatbots, automated services, RPA processing or analytics.

TOPIC 1: Additional Findings

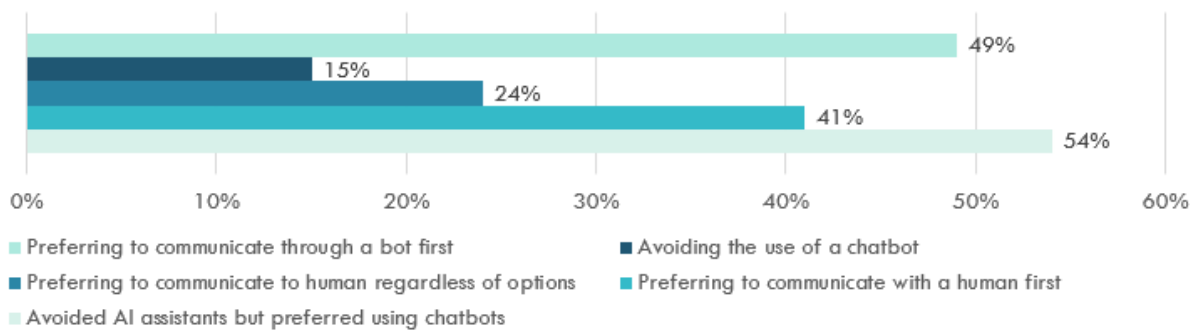


Figure 1c. Participant preferences post interaction with IA applications

While most participants preferred to have a range of options to contact an organisation, many participants specifically preferred this to be in written format, avoiding voice assistants due to their language and result limitations. Having interacted with what they believed to be an intelligent application, most participants preferred to use a bot first in contacting public services or to complete a task online. Some however preferred to speak to a human agent in most cases or regardless of what the contact options were.

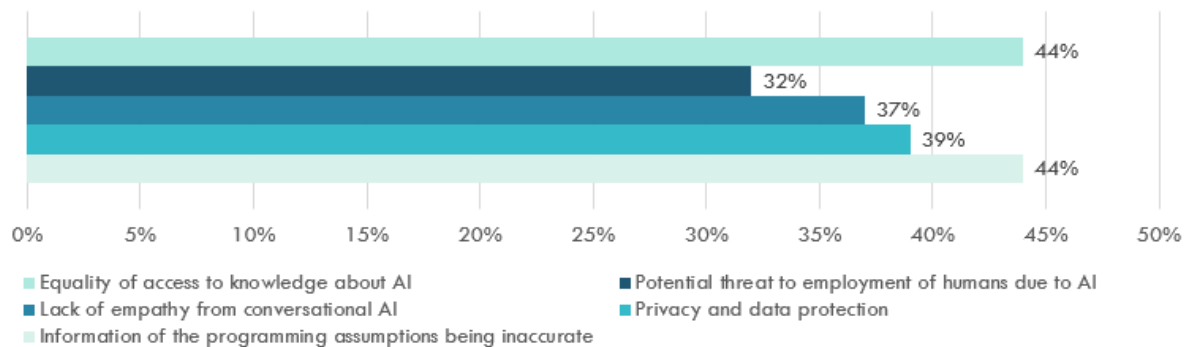


Figure 1d. Participant concerns regarding Intelligent Automation use in public sector

Most participants had several concerns at the same time, without a single topic being identified in isolation. Many were concerned about access to AI assistants requiring money either directly or indirectly, how the assumptions being the technology could influence humans negatively, and about their privacy and data protection. While over a third of participants mentioned some worry about their employment as a result of AI, where this was mentioned there were frequent references to management decisions having a higher impact than the technologies themselves.

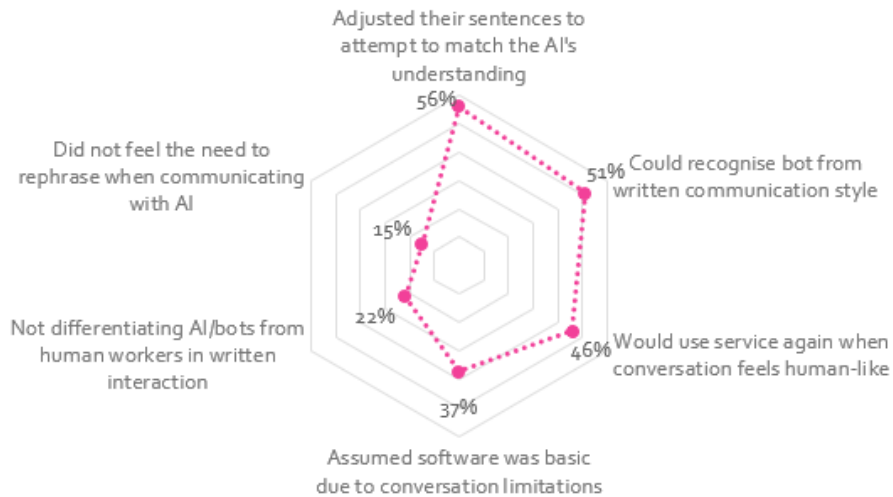


Figure 1e. Participant responses to conversational AI (chatbots, assistants)

Over half of the participants said they could recognise a bot from its written communications style, and slightly more participants mentioned adjusting their sentences to match either a chatbots or voice assistant's understanding. 22% of all participants could not differentiate between human and non-human assistants in writing and so did not change their writing in response, and 15% did not feel the need to do so to be able to work with chatbots and voice assistants.

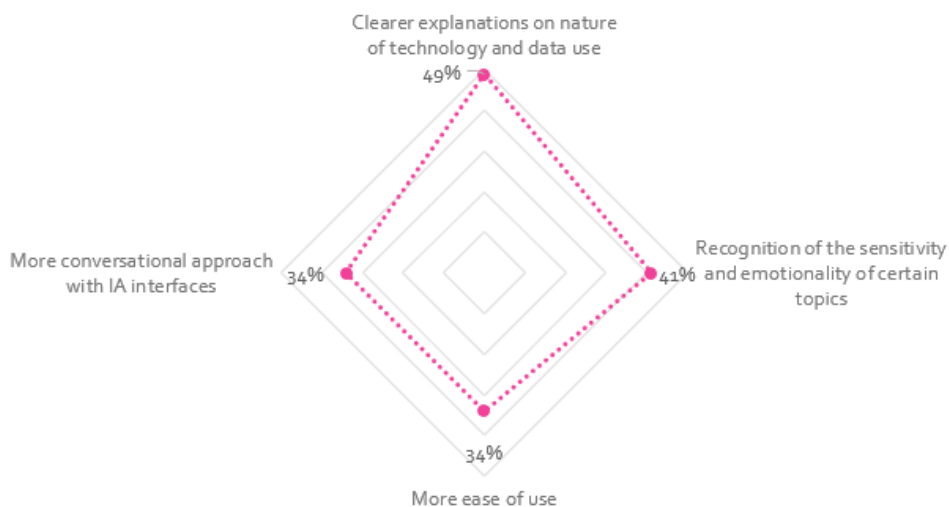


Figure 1f. Ideal features of Intelligent Automation applications according to participants

Participants gave responses about IA use which they felt should apply to all sectors but were more important to public bodies. The 4 recurring features identified were somewhat balanced across participants, with most pointing towards combinations of 2 or 3. The most frequently mentioned features were readily available, simplified explanations on how the use of the chatbot for example affected the user's potential privacy and data protection as opposed to standard dedicated website pages, where the information on data protection and privacy was not seen as sufficiently clear.

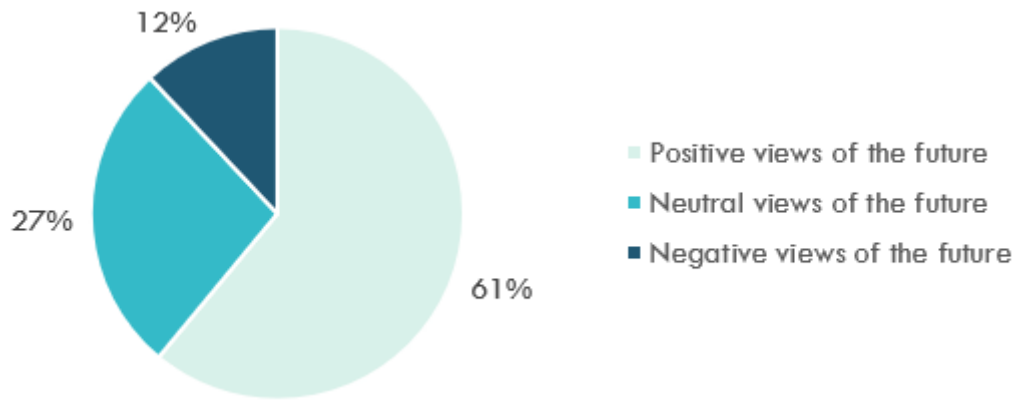


Figure 1g. Participant outlook on the future outcomes of using IA in the public sector

Finally, most participants were positive about the future given that their concerns would be addressed. 27% felt that it would not be possible to anticipate how things may change in the future and referred to both external events and management decision-making as determining future outcomes, while 12% were concerned that future outcomes would be negative, in particular reduced human independence and potential loss of employment.

TOPIC 2: How understandings of IA influence organisational decision-making

Senior management are unanimously seen as leading the use of AI chatbots, RPA and other digitalisation services in the organisation, with few participants recognising the influence of elected members. Although the influence of employees and customers is also named as important, all three understandings look at how senior-management decisions determine outcomes for all other groups involved. Moreover, how decision-makers respond to the issues raised by employees and customers may determine changes in how the technologies are understood and practiced long-term.

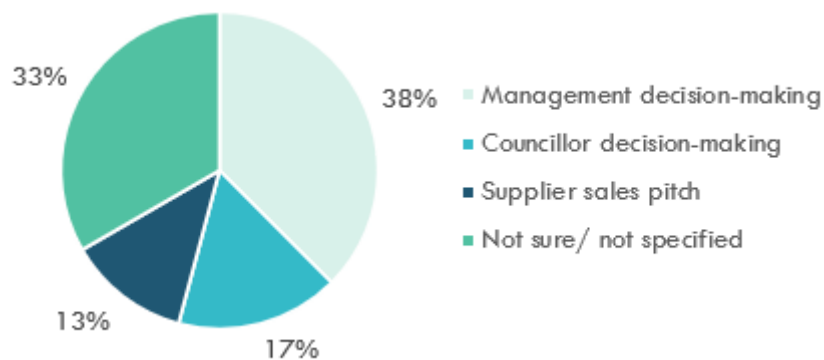


Figure 2a. Types of decision-making processes seen by participants as impacting on IA use

In Figure 2a, 24 interviewees mentioned, senior-management decisions, councillor decisions and external suppliers (companies or consultants) as determining what and how IA systems would be used.

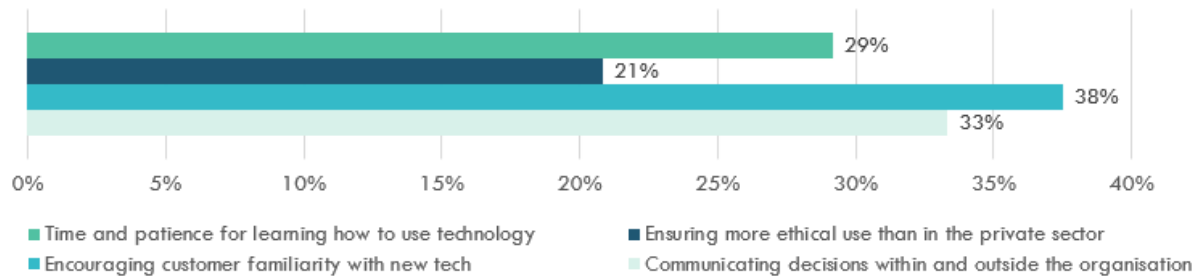


Figure 2b. Participant views on what should be included in decisions re. IA introduction

Figure 2b displays what participants wish managers would consider when implementing new technologies. Most staff (38%) believed senior management should allow time for customers to familiarise themselves with the new technology, including a wider community test-phase in launching IA applications. Similarly, 33% of employees also believed that the decisions of senior management should consider engaging staff and the general public more in open communication about the technologies; participants had seen the communication about IA in the organisation as not sufficient, not considered in detail or simply lacking. 27% of the interviewees discussing this believed that staff training and learning was important, while 17% participants believed that senior management should ensure that IA decisions were ethical. Moreover, these respondents saw organisations such as councils more responsible for the ethical use of chatbots, AI and RPA than private companies.

TOPIC 3: How different areas of life shape paradoxical understandings of IA

Experience, area of life (work vs. private life), and generalisations meant that half of the participants had two contrasting understandings of chatbots, AI and RPA at the same time, and would transition from one or the other in their views. As a result, **most resisters of new technologies were not true resisters, and many proponents had concerns**, even within the participants with supervisory roles.

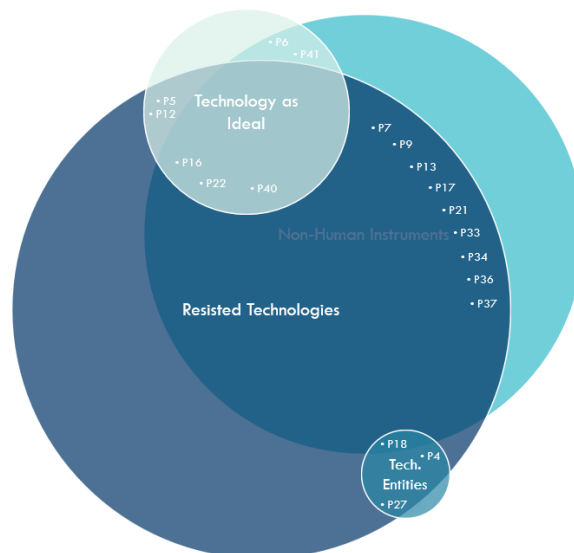


Figure 3a. Proportion of participants with overlapping views of IA

Figure 3a shows that **half of the interviewees had more than one understanding of IA**. This shows the complex nature of how Intelligent Automation (IA) is understood and used. As above, **most participants viewed IA as useful for task completion but had concerns, resisting the use of these**

technologies in the long-term (resisted technologies/non-human instruments overlap). This paradoxical view was divided evenly between staff and customers.

The participants in the **customer group** tended to look at chatbots, AI assistants, RPA and other AI-based technologies as **useful for task completion mostly at their workplace**. By contrast, their **negative experiences were based more on experiences of use in their private life**. Their experience of using IA in the public service was equally negative as positive, albeit with few accounts, due to IA having only recently been implemented. The concerns of these participants were mainly rooted in worries about privacy, the assumptions behind the design of services, and lack of empathy from non-human technologies. Thus, *where customers' use of the technologies did not involve a high degree of personal vulnerability or personal information disclosure - at work for example - they saw higher value in IA being used*.

For the **staff group**, the paradoxical view was almost opposite. In their experience, the use of chatbots, AI assistants, and other AI-based technologies was seen as **highly useful for task completion in their private life**, while use at their workplace was still faced with some resistance. As opposed to customers, staff participants were more concerned about the security of their employment, the equality of access to IA services for vulnerable groups, inaccurate development assumptions, and privacy. More importantly for this group, *half of staff participants were open to and saw value in the use of these technologies in their private life but resisted them at work*, suggesting that *they would in fact be adopters - provided that their concerns were addressed within the workplace*.

Note: Depending on whether one's importance criteria are met, a person may be more likely to see value in the use of a technology or resist its use (see **Topic 1** for importance criteria).

- Public and private sector uses of IA are judged differently by participants.
- IA was resisted by some customers and welcomed by staff in their private life.
- IA used in the public sector was seen by customers as both useful and to be resisted, and by staff as requiring further improvement.

TOPIC 3: Additional Findings

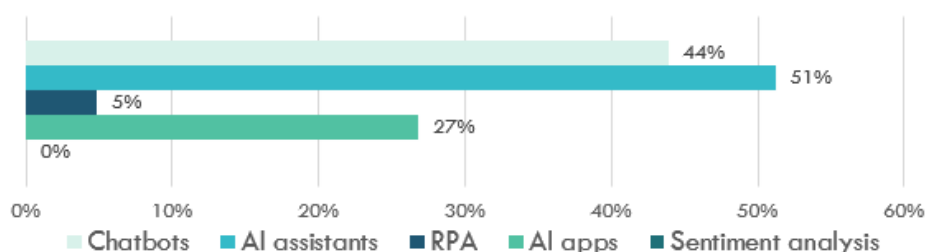


Figure 3b. Types of IA applications used in private life

Figure 3b illustrates the types of IA applications that participants used most in their personal life. Notably, most participants (51% or 21) identified AI assistants such as Alexa, Google Assistant and Siri as their most used application, often paired with smart home technologies. These participants also had a positive attitude about public sector use of such technologies. 44% (18) participants stated they had

used chatbots, often for customer service enquiries or within AI-enhanced productivity apps on their smartphone.

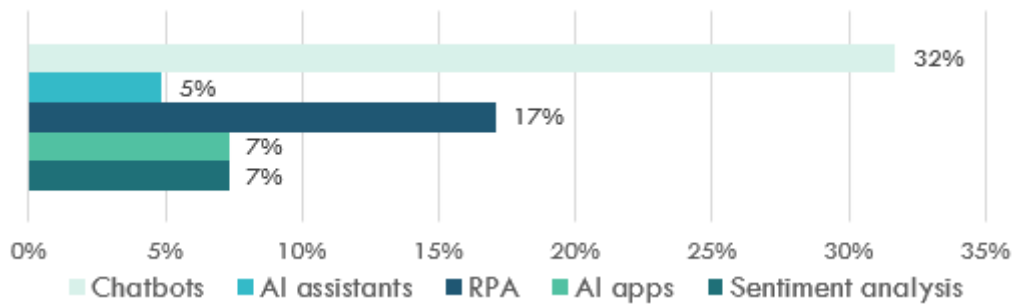


Figure 3c. Types of IA applications used at work

Figure 3c shows that participants had less experience using IA applications at work, across both the staff and customer respondent group. In a work setting, chatbots had been by far the most often used application by, followed by automated forms, and fewer uses of other technologies such as sentiment analysis for social media, AI productivity apps and AI assistants. Participant views were divided between positive and negative attitudes, depending on how successfully they enabled them to complete tasks.

CHECKLIST FOR UNDERSTANDING TECHNOLOGY

UNDERSTANDING = MEANINGS + PRACTICES SEEN/EXPERIENCED

meaning = representation + importance + feelings/associations

practice = behaviours/actions/habits + objects

- a. **Identify the groups most affected by the new technological systems** (e.g., staff, particular category of citizens, management, population sample etc.)
- b. **Identify meanings in the organisation and take steps to address any concerns**, starting with what each group finds as important.
- c. **Consider the images used to illustrate technology** in each of these understandings when addressing the importance criteria, and how they can be changed.
- d. **Investigate what feelings and associations emerge as a result and establish trust** - what would trustworthy behaviours and representations look like?
- e. **Create a two-way feedback mechanism that fosters trust** - this can result in communicating widely about the clear actions taken based on staff informal feedback and chatbot records of customer interaction.
- f. **Account for stakeholder understandings of IA in the application design stage** of the process before pilot testing and public release.

The questions below have been designed to support the investigation process:

1. Who are all stakeholders involved? Have all group voices been heard? (e.g., developers, managers, parents, frontline staff, copywriters, suppliers)
2. Does everyone understand the project in the same way? What does each group see as most important in how the technology is introduced, used, and regulated?
3. **What is being asked of stakeholders to do in order for the deployment plan to work?**
4. How can challenges be addressed from the design phase?
5. When during development can adjustments be made? What is the plan for changes?
6. What mechanisms exist to rapidly detect and respond to **informal** and formal feedback?
7. **Who is responsible for responding to what kind of stakeholder challenges?**
8. Can feedback information be interpreted clearly in a timely and actionable manner?
9. Has data been adequately prepared from unbiased sources before a purchasing contract?

RESEARCH TEAM

Luciana Blaha
Researcher
University of Aberdeen

Prof. Donald Hislop
Supervisor
University of Aberdeen

Dr. Jing Cai
Supervisor
University of Aberdeen

FUNDING

Elphinstone Scholarship Fund
British Federation of Women Graduates

With thanks to
All participants to the study

