

IGL Working Paper Series

# Hand-holding and the power of free: Can a low-cost tailored behavioural intervention carry SMEs over the adoption hurdle?

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# Hand-holding and the power of free: Can a low-cost tailored behavioural intervention carry SMEs over the adoption hurdle?

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## ABSTRACT

Can a set of low-cost behavioural nudges encourage more small businesses to adopt productivity-raising digital technologies? This randomised controlled trial sought to test whether businesses could be nudged into using a cloud-based system to improve the efficiency of invoice processing. All participants in the trial were offered access to the system free of charge for a 12-month period, with a treatment group receiving weekly email reminders to make use of the system. In the event, few businesses made significant use of the new technology, with no detectable differences between the treatment and control groups. The lack of adoption appears to be due to a combination of lack of need among those that signed up, delays in launching the platform, and the incorporation of similar functionality into leading accountancy software packages during the period when the trial was being carried out. Potential users were able to judge whether the product met their needs at the point of registration, so there was little potential for the treatment to have an impact on this decision. This study highlights the difficulty of conducting research in a rapidly-changing competitive environment.

**Keywords:** Small and medium-sized enterprises, technology adoption, behavioural nudges, randomised controlled trials

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## Executive Summary

“Handholding and the power of free” was a randomised control trial (RCT) to test whether a set of low-cost behavioural nudges could encourage more small businesses to adopt productivity-raising digital technologies.

The trial centred on a piece of cloud-based computing - Evolution Invoice – which uses latest generation Artificial Intelligence (AI) and deep learning to ‘read’ invoices and bills and extract the relevant data into standard accounting software packages. Through this process it has the potential to save businesses time and money by replacing laborious and error-prone manual data entry.

Every participating business in the trial received unlimited access to Evolution Invoice without charge. The set of businesses forming the intervention group were provided in addition with a series of email, demonstrations and other behavioural nudges to encourage users to try out the software. The RCT was designed to measure how much these interventions could increase the rate of usage of Evolution Invoice by small businesses, beyond the incentive of giving access to the product without charge.

The programme was commissioned by the Department for Business, Energy and Industrial Strategy (BEIS) as a project funded by its Business Basics programme (2018-2022). The Business Basics programme was designed to test innovative ways of encouraging small and medium sized enterprises to adopt existing technologies and management practices to improve their productivity (<https://www.gov.uk/government/collections/business-basics-programme>). Projects were selected under the programme following open competitions and were delivered in partnership with [Innovate UK](#) and the [Innovation Growth Lab](#) at Nesta. Evolution Invoice was one of six projects selected in Round 3 of Business Basics and was funded by a share of £2m from the Business Basics Fund.

Evolution Invoice was tailored towards SMEs as a slimmed-down version of a product for large corporates. Recruitment of the intended sample size of 1000 SMEs was affected by the Covid-19 pandemic because many businesses were shut and could not be approached as intended by telephoning them directly. During October and November 2020, testing of marketing channels to recruit participants was conducted using emailing, telephone, search engine and social media routes. Overall, advertising on Facebook produced the lowest cost per acquisition and became the prime route for recruitment.

Participants were offered free and unlimited usage of the Evolution Invoice platform for up to 12 months until December 2021 to SME businesses based in England that said the account payable function was a significant burden for their business. Including participants recruited to a pre-access list, 1175 participants entered the trial in December 2020. Recruitment continued through 2021 and by the end of August 2021 total participation had increased to 1418.

The desired outcome measure by participants was digital adoption, defined as uploading invoices through the Evolution Invoice platform over a duration of at least 30 days, up to the end of September 2021. During this period the intervention group received email reminders to use their free access, whereas the control group received no push notifications. Some of the behavioural nudges planned for the intervention group were not able to be implemented

because they relied on championing the experience of successful users. Fifty-two participants uploaded an invoice, with two participants meeting the definition of adoption.

A pricing experiment had been prepared to test willingness of participants to transition onto paying for the service once the free trial ended. To boost the number of active participants the entire sample was emailed during October 2021 with the aim of encouraging usage. In November 2021, participants that had uploaded an invoice were offered either a further six months free usage or a 50% discount in return for providing their payment details to enable them to be billed. Just one participant signed up to pay.

Despite broadly delivering to plan despite the pandemic, this is a trial that failed to detect an intervention effect because digital technology adoption did not increase in the intervention group over that observed in the control group. The reasons for this are connected to the very low rate of usage of Evolution Invoice by any users. Although the trial succeeded in over-recruit and getting over 1400 valid participants signed up to a free trial of the platform, not enough users actually attempted to upload even one invoice (see Fig. 1 below).

**Figure 1: Inverted triangle of where participants were lost from the trial**



The causes of this are threefold:

- 1) lack of need: not enough of the participants represented businesses where processing of invoices was a major financial cost.
- 2) too many initially interested participants were not able to immediately access the platform in late 2020 (because of unforeseeable changes in access by one of the major accountancy software packages) and instead were placed on a 'wait-list' while the platform implemented a workaround; and,
- 3) the trial coincided with significant product consolidation and investment by the accountancy software providers into AI-based readers, such that the quality of competitors

improved rapidly and Evolution Invoice was not good enough to meet customer expectations.

The intervention did not encourage more participants to adopt the technology because participants were able to judge whether the product met their needs before treatments diverged. Everyone signed up for the trial was invited to register and then received an email with later encouragement to upload an invoice. There were not enough persuadable participants left to influence by the time half of them received additional interventions. They had either decided this wasn't for them or had tried to log into the platform. This is evidenced by the low open and click through rate of the second and third emails sent to the intervention group. A lack of users made it impossible to build on examples of successful usage needed to deploy the full set of behavioural nudges intended.

This is a digital market that is now highly competitive with several well-advertised products delivering similar functions to Evolution Invoice through brands that are backed by global technology companies.

# Introduction

## Policy problem

This is a randomised control trial (RCT) investigation of barriers to the adoption of Artificial Intelligence (AI) technologies in England by small and medium-sized employers (abbreviated hereafter as SMEs). SMEs are defined as having under 250 employees. It tests whether providing extra encouragement and support to SMEs to adopt AI within their accounts payable, invoice management and book-keeping functions of their businesses translates into higher rates of adoption.

Wider absorption of digital technologies offers a major economic benefit. The UK economy suffers from slow adoption by the mainstream of the productivity-raising technologies used by 'best in class' businesses at the forefront of high rates of labour productivity. Andy Haldane, the Bank of England chief economist, summarised in June 2018: *“The UK’s international productivity gap is, to a large degree, a long tail problem.”*<sup>1</sup> Shrinking this innovation diffusion gap is estimated to potentially increase productivity by up to 13% and could raise GDP around £270 billion<sup>2</sup>.

BEIS investigated the barriers to technology adoption in SMEs and found those least likely to adopt new technology failed to see how benefits were relevant to their unique circumstances and perceived costs to be prohibitive.<sup>3</sup> Likewise, previous unpublished experience by the software supplier in this evaluation (EvolutionAI) echoed this finding. It supplied AI technology to SME customers of Royal Bank of Scotland Group PLC (“RBS”), a major UK bank. Evolution AI’s observed that even a lengthy free trial of an AI product was typically not sufficient on its own to promote uptake of AP automation software by SMEs.

## Trial Justification

This RCT aims to investigate slow adopters to innovation, specifically experimenting within the 'implementation' and 'confirmation' stages of the BEIS framework for adoption of best practice technologies. It tests the potential greater effectiveness of a ‘combined therapy’ to technology adoption by tackling together the barriers perceived by SMEs of lack of relevance and prohibitive costs.

The existing weaknesses within a manually conducted accounts payable (AP) business function the RCT will address are:

- Labour-intensive, error-prone manual processes to extract data out of invoices

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<sup>1</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/838473/attitudes-to-adoption.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/838473/attitudes-to-adoption.pdf)

<sup>2</sup> Haldane, A (2018) The UK’s Productivity Problem: Hub No Spokes, Bank of England. <https://www.bankofengland.co.uk/-/media/boe/files/speech/2018/the-uks-productivity-problem-hub-no-spokes-speech-by-andy-haldane>

<sup>3</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/844506/business-productivity-review.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/844506/business-productivity-review.pdf)

- Lack of high-quality data on payment due dates, leading to late payments
- Poor data allowing invoice fraud or incorrect discounting to occur
- Out-of-date and poor data quality in accounting software (e.g. affecting tax calculations)

Evaluation by RBS showed that EvolutionAI products could speed up the time taken to perform data entry on a single invoice from 2-3 minutes to a few seconds, with an accuracy of over 99%. RBS estimated that Evolution AI could save business owners around 40 hours per employee year. This would give such businesses a 2% productivity boost (assuming volume of invoices scale linearly with business size).

Research on understanding the UK productivity gap has examined the barriers to adoption and diffusion of technology in SMEs.<sup>4</sup> It showed that businesses are often multiply-constrained in overcoming the barriers to change, including limitations with human factors around the business owner/leader. A multi-constrained problem demands multi-faceted solutions. The planned intervention addresses both upfront financial barriers (by providing it for free) and human constraints (by providing personalised support underpinned by modern behavioural theory).

## Main Research Question

The main research question, and subject of the first experiment, was to measure how much more adoption of the AI technology was observed in SMEs that receive behavioural support during the free introductory period compared to SMEs that didn't receive behavioural support.

A secondary set of research questions, and subject of a second payment experiment, was intended to investigate SMEs' willingness to pay to continue to use the technology once free access ends.

Initially, it was envisaged that the free introductory period would run for six months from registration for the participating SMEs. This had to be lengthened in the light of piloting work to increase the incentives to SMEs.

Technology adoption was defined as being where a participant had used the AI technology by uploading a document to the platform at some point in the introductory period and then also used the technology again at least once more a period of 30 days or more later. If SMEs didn't use the product for a period spanning at least 30 days, then they would not be considered as having adopted the technology.

The hypothesis was that the behavioural support would cause more of the SMEs to adopt the technology and to use the technology more often.

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<sup>4</sup> Ibid.



A range of intended secondary research questions were planned, all focussed on understanding the added impact of the behavioural support on adoption, over and above the levels of adoption achieved by the free introductory period. These included:

- **Speed of adoption.** Did the behavioural support causes SMEs to adopt more quickly?
- **Intensity of adoption.** Did the intervention cause SMEs to use the technology more?
- **Value of adoption.** What was the implied time or labour cost saving of adoption, calculated by a formula derived for the time saved over manual entry based on the complexity of the documents uploaded (e.g. number of line items or characters in each invoice)?
- **Within SME differences in adoption.** Whether any differences in adoption were observed by their prior 'digital maturity' or by size or sector.

After the first RCT, a later experiment was intended to be conducted on all adopting businesses to test the impact of requiring payment on the transition to continued usage of the AI technology after the free introductory period ended.

### The research question

Giving away software for a free introductory period is a familiar method to encourage users to try it out and experience the benefits to them, individually, of the product before they make any purchase. This marketing strategy helps more consumers to encounter the product by removing the financial outlay otherwise required.

The study explored how much rates of adoption of the digital technology could be increased by supporting those encounters by providing interventions that accelerate the perceived value that users assess from using the product. The control group would receive just get the industry-standard introductory free access, while the treatment group also had these support interventions in addition to the free access.

The envisaged support interventions were a wide-ranging package of behavioural nudges. The intention was to address perceptions of 'lack of relevance' and 'prohibitive cost', without trying to change ingrained business practices. A BEIS study on SMEs found that “each business / organisation believes it is unique and wants to be able to identify itself in any marketing materials”. Further demonstrating this, an RCT conducted using HMRC clients confirmed that sending letters tailored to a specific industry sector raised response rate by over five times compared to generic messaging.<sup>5</sup>

This package of behavioural nudges is rooted in the EAST framework (standing for Easy, Attractive, Social and Timely), which is well founded in the evidence base.<sup>6</sup> The envisaged behavioural nudges were intended to form a package acting in each part of the framework:

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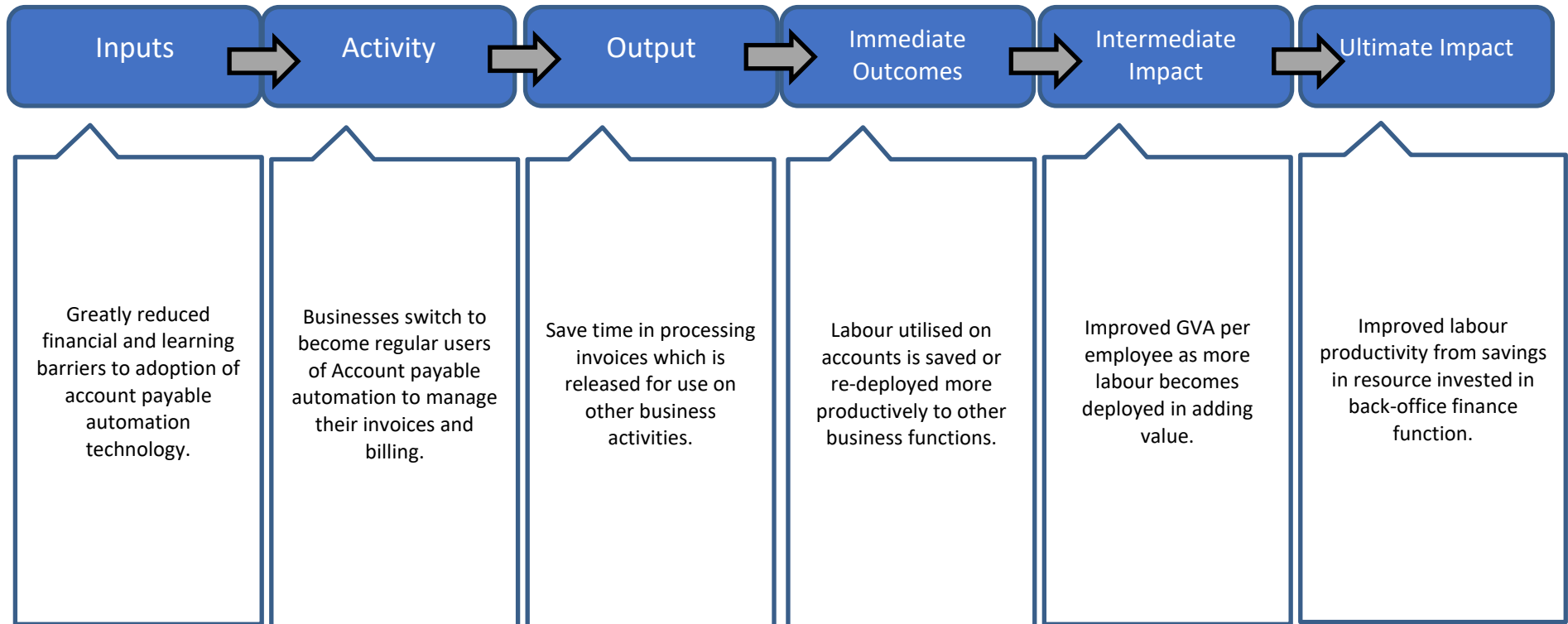
<sup>5</sup> [https://www.behaviouralinsights.co.uk/wp-content/uploads/2015/07/BIT-Publication-EAST\\_FA\\_WEB.pdf](https://www.behaviouralinsights.co.uk/wp-content/uploads/2015/07/BIT-Publication-EAST_FA_WEB.pdf)

<sup>6</sup> [https://www.bi.team/wp-content/uploads/2019/10/BIT\\_Boosting-Businesses\\_Report\\_Final.pdf](https://www.bi.team/wp-content/uploads/2019/10/BIT_Boosting-Businesses_Report_Final.pdf)

- **Easy:** Provide clear simple steps; use pre-filled forms; send SMS messages containing clickable links.
- **Attractive:** Show that the product is relevant to the industry sector; highlight immediate benefits.
- **Social:** Use a trusted advisor such an accountant for Q&A videos; provide an on-line forum.
- **Timely:** Send reminders when the firm is likely to be processing invoices.

The logic model for the theory of change describing how it was envisaged this technology could improve business productivity is shown in Figure 2.

Figure 2 – Logic model



## Methodology

### The Intervention

All participating businesses had signed up for unlimited free access for up to 12 months to the Evolution Invoice platform. Specifically, free access ran from date of sign-up into the trial until 1<sup>st</sup> December 2021, with onboarding into the trial beginning on 1<sup>st</sup> December 2020 from a pre-sign-up register of interested businesses. In addition, all participating businesses received user documentation to enable learning of how to use product, and basic user-initiated email and telephone support intended to help troubleshoot and explain how to get up and running with the software. Essentially the standard level of support provided to businesses required proactivity on their part to find out how to use the product.

Those businesses receiving the intervention treatment were all given a set of behavioural nudges reaching out to them to encourage turning their opportunity of access into usage and longer-term adoption of the tool. The support environment for the treatment businesses included an online forum with Q&A and FAQs, 'how to' videos, and invitations to webinars. Within these were intended to be testimonies/advocacy specific to the industry sector about how other "businesses like yours" were using the software to achieve quantified savings. This environment had three main points of interaction with the participating SMEs: 1) weekly emails, 2) a reminder service, and 3) a discussion forum.

**Weekly emails:** A CRM system was used to understand what cues and prompts elicited the highest rates of positive response from the participating SMEs, using email open rates and click through rates. This was used to adapt to a **core set of prompts, sent by weekly email** over the 5 weeks after registering for the trial. These emails proposed achievable small steps/targets with simple guidance and instructions:

1. Connect Evolution Invoice to the SME's existing accounting software.
2. Upload an invoice
3. Join our first webinar
4. Join us on the forum
5. Share how you've benefited.

**Timely reminders:** Additionally, the intention was that AI would be used to understand the schedule of invoice filing for each company, derived from their interactions with Evolution AI. E.g. whether the user filed weekly or monthly, and which day or date this tended to be, such as the last Friday of every month.

Prompts were sent out aligned to the assumed timetable for that next invoice processing period to encourage when they needed to upload their invoices.

**Discussion forum:** setting up a simple forum for intervention group to ask questions, engage with each other and share screenshots. Content examples:

- Social norms: sharing how relevant companies have adopted technology.

- Time savings: what have business owners been doing with their time off?
- Business profiles: profiling some star companies from the trial.

## Participants

The target population of this study was English SMEs that self-assessed that they had sufficient quantities of invoices for data entry to be a burden with significant 'back office' costs from employing labour for data entry. It was assumed that this would typically be SMEs with more than 10 employees (i.e. unlikely to be microbusinesses with 1-9 employees). Since the accounts payable process is a generic business function and to facilitate recruitment, the intention was to recruit from all industrial sectors, across all of England.

The eligible population is all SMEs, based in England. They self-selected into the trial based on the criteria explained to them at the start of participation. Those criteria were:

- that they were based in England
- had under 250 employees
- self-reported that processing AP documents (invoices, delivery notes, purchase orders) was a 'pinch point' in their business.
- consented to the terms of the trial, as set out in the privacy notice, including sharing of data for research purposes and later tracking by BEIS.

To enter the trial, applicants for a business confirmed that they meet the eligibility criteria. Despite this, 102 ineligible businesses did enter the trial and were removed from the results analysis, **mainly because they were not based in England.**

## Identification of participants – Marketing and Recruitment

Based on power calculation using rates of anticipated usage, the trial aimed to recruit 1000 participants. Piloting work through summer 2020 involved interviewing 68 businesses on how they currently performed their account payable processes and what they would desire from the Evolution Invoice and the trial. A key observation was that as long as possible free trial was desirable to spur adoption. The design was changed from offering a free introductory period of 6 months to be replaced by up to 12 months free. This was the maximum that could be accommodated within the timeframe of the trial.

The impact of Covid 19 meant that recruitment of SMEs was online. Prior to the pandemic it had been envisaged that recruitment would be using traditional telesales techniques and leads would be followed up by telephone to speak to the decision maker for a business and persuade them of the value proposition being presented. This all had to change because businesses were closed, and trading had either temporarily ceased or staff were working from home and confronting choices in a very different business environment.

The marketing strategy tested new routes to present the product in an appealing way and to identify greatest cost effectiveness. This was conducted through:

- Landing page optimisation
- Messaging A/B tests
- Trial offer A/B tests

- Audience persona development
- Channel ROI research
- Internet (Facebook, Google, LinkedIn), email and cold calling research
- Customer interviews with SMEs on waitlist

Social media was found to be the most cost-effective route to recruit participants. Cold calling via emails or telephone was found to be ineffective during the Covid-19 pandemic because so many businesses were closed, with staff working from home or not working at all (because they were furloughed). Within the internet channels, Facebook was observed to be much more cost-effective in recruiting participants than either Google adverts or messaging via LinkedIn.

Paid advertising was used with Facebook, Google and LinkedIn based on a selection of keywords used to target users. The algorithms used to target those adverts is proprietary to those internet businesses. Facebook changed the algorithms used to target advertising at potential participants during the recruitment stage, and the cost effectiveness of target acquisition rose significantly when it did so. More details are provided in the Appendix (pp 18-20).

After removal of ineligible businesses, 1418 entered the trial. Registration was open from December 2020 until the end of August 2021. Most participants (1175, 83%) entered in that first month (see Table 1). Many of these participants had signed up in response to earlier marketing in October and November but had not been able to enter the trial because without notice one of the major accountancy software providers (Xero) cut the bridge that allowed third-party add-ons to link into their software. Implementing an IT workaround took until December and required keeping these participants on a waiting list until they could be onboarded onto the fixed platform. This onboarding process of their sign-up and invitation to register proceeded throughout December 2020 in a controlled process of batches so that the IT systems running Evolution Invoice could cope with spikes in volume of usage.

**Table 1: Number of businesses signing up to participate for a free licence of Evolution Invoice.**

Month	Number of Businesses			
	Treatment	Control	TOTAL	%
Dec-20	558	617	1175	82.9%
Jan-21	7	9	16	1.1%
Feb-21	1	1	2	0.1%
Mar-21	11	13	24	1.7%
Apr-21	53	71	124	8.7%
May-21	14	16	30	2.1%
Jun-21	12	10	22	1.6%
Jul-21	10	12	22	1.6%
Aug-21	0	3	3	0.2%
<b>TOTAL</b>	<b>666</b>	<b>752</b>	<b>1418</b>	<b>100%</b>

## Design<sup>7</sup>

### Data Collection on Entry into the Trial

To minimise the barriers to participation, the information requirements at sign-up to enter the trial were kept to a minimum. The intention was that participants could sign-up and register on a single screen on their first visit to the Evolution Invoice website<sup>8</sup>. On this screen they provided their full name, work email address, company name, confirmed they met the eligibility criteria, and agreed to the privacy notice and data sharing agreement. Participants were asked to answer a digital maturity question:

*Which of these best describes your business (tick all that apply)?*

- *· We use accounting software (e.g. Xero, QuickBooks, Sage)*
- *· We use automated methods to read invoices (e.g. Receipt Bank, Datamolino)?*
- *· We use an external accountant to do our invoice management*
- *· We do invoicing traditionally (e.g. paper-based records)*

The user-entry box for company name was driven from the Companies House API, which suggests the company name and narrows in on the correct name as the user types the characters. If the participant was not working for a company, they instead selected “*I am a sole proprietorship or partnership*” and entered the business name as free text.

By using the Companies House API, administrative data including the Company House number, VAT number, business address, telephone number, website, SIC code and region was populated. For business that were not registered companies, equivalent information was sought to be gained by a combination of automated and manual web-scraping approached during summer 2021.

### Modified Trial Entry in December 2020

This above process for participant recruitment applied for those joining from January to August 2021 (17.1% of all valid participants). However, most participants were attracted to Evolution Invoice during marketing activity through October and November 2020. Due to an unforeseeable short notice problem with connectivity to the Xero accounting package, access to Evolution Invoice was suspended until a fix could be implemented.

During this period, participants signed up to the trial by providing their name and email address. They were then held on a waiting list<sup>9</sup> until December 2020 when they were emailed a hyperlink to access the Evolution Invoice registration screen, pre-populated with their name and email address. Those participants that completed this registration screen on the Evolution Invoice website were called registered users. If participants did not complete that registration screen they were still counted as having signed up for the trial, but by not registering they would not have supplied the information about their company or accounting practices.

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<sup>7</sup> The trial was registered on the American Economic Association (AEA) portal: Trial Identifier: AEARCTR-0006891

<sup>8</sup> See a snapshot here: <https://web.archive.org/web/20201219165852/http://evolutioninvoice.co.uk/>

<sup>9</sup> <https://web.archive.org/web/20201103112622/https://www.evolutioninvoice.co.uk/>

### **Obtaining Data for Participants not Registering**

Registration rates were low for participants placed on the waiting list (230 out of 1175 participants, 20%). This meant that overall 472 of the 1418 total eligible participants registered (33%) and provided company details directly via the Evolution Invoice platform.

Company details on 371 of the 946 participants that did not register were obtained (39%) using the domain name of the supplied work email address. This was conducted mainly by a manual search of the website linked to the domain name and then onwards tracking via the Companies House API. Investigations were conducted during July 2021 and took two people about 3 weeks.

Overall, this increased the number of participants with company information to 843 (60% of the total).

### **Randomisation**

At sign-up all participants were randomly allocated to either the intervention group or the control group, including those businesses that were later found to be ineligible. They were individually assigned the next number in a random number sequence that gave a 50% chance of being allocated into the intervention group, independently of how the previous participant had been allocated. The actual percentage in the intervention group was 47% with 53% in the control group. One hundred and two participants (6.7%) were excluded as being ineligible (mainly because they were not based in England).

### **Evaluating the Outcome Measure**

The desired outcome from the trial was adoption of the digital technology into the businesses' routine processes. This was defined as a user uploading (or modifying/reloading) a piece of documentation to be processed by Evolution Invoice over a period spanning not less than 30 days. The time duration part of the definition was important as it was considered a long enough period to get over the adoption barrier and to exclude users that might explore using Evolution Invoice over a short period time, or only once, and then not use the product again. All users had an opportunity to satisfy the digital adoption definition, even the last 3 participants signing up in August 2020, because usage was monitored until the end of September 2020. The earliest registering users had up to 12 months to meet the adoption definition. Controls for this variation in the amount of opportunity to show adoption would be introduced into the later impact analysis.

Further exploration about the usage participants made of the free usage period would be made looking wider than this formal digital adoption measure.

### **Pricing Experiment**

A second experiment was planned for all participants satisfying the digital adoption definition to explore their willingness to pay for the service over the longer term once the free trial period ended.

All adopting users were intended to be randomly allocated (50:50) into two arms of a trial offering a further six months of free usage or six months of half-price discounted usage (£5 per month) if they provided credit or debit card payment details.



The true end of the initial free usage period (1<sup>st</sup> December 2021) was beyond the time that the project timetable could accommodate. The pricing experiment needed to be completed by no later than the end of November 2021, so the final month of the free usage period (all November 2021) was used to test preparedness to pay through the provision of banking details.

During the initial trial, adoption rates were looking lower than anticipated, leading to concern that there would not be sufficient participants to power a pricing experiment. Original plans to stratify the pricing experiment by whether participants were in the initial intervention or control group were dropped. Instead, during the preceding month (October 2021) all participants, including the control, were sent the weekly emails of the intervention group to encourage usage of Evolution Invoice. The aspiration was that this could potentially engage a new set of users who hadn't previously had encouragement (the control participants) or some for whom the timing was better (as the economy opened up after the pandemic).

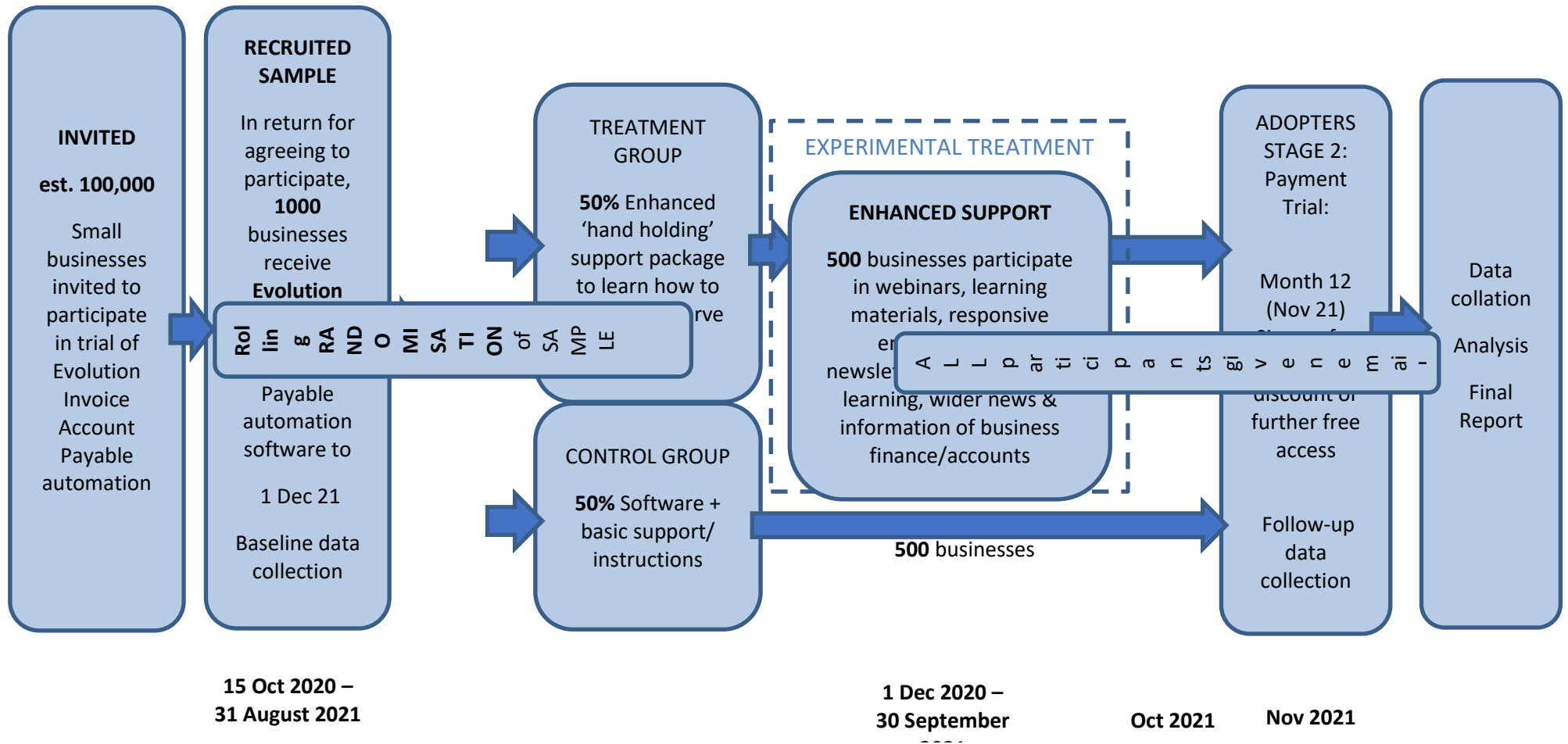
### Follow-Up Participant Research

A sample of 10 of the most active users and 10 one-time only uploaders were approached by email in December 2021 to answer four short questions about their experience of using Evolution Invoice. None of those approached responded, and so they were followed up by telephone in January 2022.

### Timeline

Phase	Time period
Trial design and preparation (trial protocol, survey design, etc.)	Inc. piloting: 1 June 2020 – 30 September 2020
Marketing and pre-registration sign-up	October – November 2020
Recruitment and randomisation	1 Dec 2020 – 31 August 2021
Intervention Delivery	January 2021 – 30 September 2021
Usage boosting to increase adoption rate for pricing experiment	October 2021
Pricing Experiment (provide banking details in return for more free vs. 50% off)	November 2021
Data collection and analysis (final follow-up survey, qualitative data)	December 2021 – January 2022

Figure 3 – Intended Trial Design



## Results

### Piloting

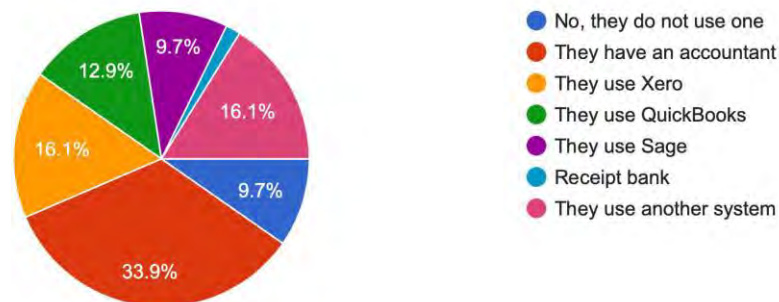
The two main areas for the piloting work were: 1) tailoring a simplified product of the AI reader from the corporate version (e.g. used RBS) to the preferences of SME participants; and, 2) to experiment with recruitment channels during the Covid-19 pandemic.

The initial plan had been to concentrate recruitment towards sectors that it was believed would have a high volume of invoice and account payable functions for a given size of business, and then to target them using telesales techniques and emailing. In addition, the intention was to use the assurance and credibility conferred from UK government funding to reach businesses through trusted intermediaries such as Chambers of Commerce (CoC) and Local Enterprise Partnerships (LEPs).

Insights from telephone research asking SMEs about their account payable systems suggested about 40% used one of the big three SMEs accounting software accounting packages (Xero, QuickBooks, or Sage), one third deferred to an external accountant or bookkeeper, and the remaining quarter did something else.

#### Do they use an accounting system? e.g. Xero, Quickbooks, Sage

62 responses



For this reason, onward integration of outputs into Xero, QuickBooks and Sage was considered essential, in addition to returning the output back to the user. This was an important part of the work to build Evolution Invoice.

### *Sectoral targeting*

Using information from the Dun and Bradstreet register, over 600 SMEs were telephone in these sectors:

- 200 retailers in Wine shops / Book shops t
- 160 Sports & fitness
- 50 Cleaning
- 184 DIY Home & Garden
- 20 Pharmacies
- 25 Education

The feedback from these SMEs on the need was mixed. Many of the businesses called were closed due to the pandemic. For example, all indoor gyms and pools were closed in England until 25<sup>th</sup> June 2020. Reopening was only allowed under strict restriction relating to reduced capacity and additional cleaning and other health safeguards. Many businesses contacted were preoccupied with the here and now of business survival rather than considering adopting discretionary new business practices.

One business went so far as to say:

*“We want to keep as many employees as possible at the moment. By introducing time saving technology we will make room for more redundancies which we are actively trying to avoid. If you had come to me a year ago I would have been very interested in the technology...during this time it is not something I would be looking to add to our systems.”*

Other insights from discussions with SMEs revealed a learning preference for short instruction videos. During later roll-out this preference was widely echoed, and many of the emails encouraging SMEs to try out Evolution Invoice included an embedded short video clip as upfront in the message as possible.

### *Intermediary organisations*

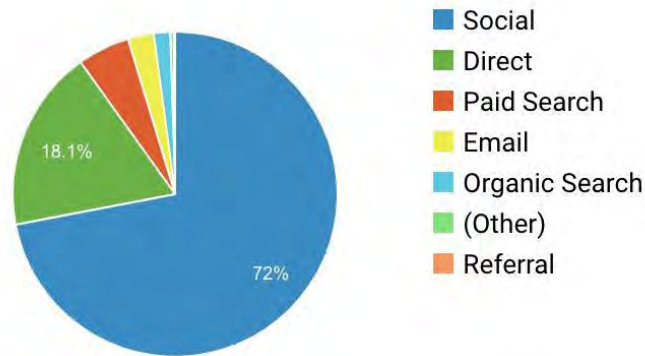
A total of 76 umbrella organizations (CoCs and LEPs mainly) were contacted and 17 opinion/thought leaders for SMEs (such as Enterprise Nation) were lined up as interested in reaching out to their contacts to connect us to the opportunity. Others were uncommitted because at that stage there had been no formal announcement of government support and grant award to which those organisations could independently verify the platform developer’s proposition. Ultimately the timing did not align to make this an effective recruitment route from the outset.

### **Recruitment strategy**

With the intended route for acquiring participants effectively closed off because of the pandemic, recruitment shifted online. Having built an identifiable brand through a website and social media presence (Twitter, Facebook, and LinkedIn) – example screen shots in Appendix – much of the recruitment process focused on the most cost-effective acquisition route.

Cost effectiveness was based on how much investment was required to get a user to the landing page of the Evolution Invoice website. Using internet cookies it was possible to track where arrivals on the landing page had come from. This is broken down by the different marketing channels in figure 4 and shows almost three quarters of potential acquisitions originated from social media advertising.

**Figure 4: Pie chart showing share of arrivals on Evolution Invoice landing page of website (20/10/20 to 30/11/20).**



The second biggest source of referrals was 'direct' arises from traffic from inter-user sharing. This is where someone sees the advert and then highlights it to a second person they know because they consider it might be useful for them without the advert ever having been speculatively presented to that second person. This is a standard sharing activity within social media. The average conversion rate of arrivals into sign-ups was around 13% (see Fig. 5), which is in excess of the industry average of 3.2% (cited by the marketing team).

**Figure 5 Charts of number of potential participants (users) arriving at the Evolution Invoice landing page, and their conversion rate into sign-ups for the trial.**



### **Telephone Cold Calling**

Despite Covid-19 temporarily closing many businesses telephone recruitment in the pandemic environment was attempted. In November 2020, 140 businesses were called. The script used is included in Appendix 1. Zero leads were generated. The majority of calls were either not interested, too busy or unable to answer on behalf of their employer. After testing the recruitment channel and not having success the channel was abandoned.

### **Email Cold calling**

Living in an age of maturity to email spam, cold call emails produce very low conversion rates. Varying forms of email cold calling were trialled; from simple business name based tailoring (see Appendix 1 for example), to more tailored messaging reflecting the sector and job title and, finally, referrals from others that had already signed up via Evolution AI. (This source of

referral was separate from the direct recruitment highlighted above where other participants sign-posted contacts to us without intervention by Evolution AI.)

The more personalised emails had the highest email open rates and click-throughs (Table 2). However, all routes had low rates of sign-up, resulting in high user acquisition costs (average £60 per acquisition). Consequently this marketing was deprioritised from on-going recruitment activity.

**Table 2: Summary of metrics for email marketing channel recruitment (November 2020)**

Email Type	Number of Emails Sent	Open Rate	Click-Throughs to Landing Page	Participant Sign-Up
Cold Email	12,000	17.5%	23	3
Sector/role Targeted	2,000	30%	60	2
Referral email	992	53%	49	12

### *LinkedIn marketing*

LinkedIn describes itself as “the world's largest professional network on the internet. This should make it the natural digital platform for reaching SMEs with a free software offer. However, it is also a very competitive and saturated space for B2B marketing (especially for financial products). Although achieving significant impressions and click through from the advert (see Appendix) these did not convert into sign-ups (see Table 3). The resulting overall cost per acquisition into the trial was uncompetitive.

**Table 3: Summary of metrics for LinkedIn recruitment (November 2020)**

Impressions	Click Through	Sign-Ups	Cost per sign-up
202,498	1194	3	£68

### *Google marketing*

Google dominated the global internet search engine market, maintaining a 92.47 percent market share as of June 2021, and revenue of \$181.7 billion dollars in 2020.<sup>10</sup> It is an extremely competitive and crowded landscape within which to mount a marketing campaign. Using search terms associated with accountancy software providers for SMEs (QuickBooks and Sage primarily) with which to present the advertisements, it was a moderately effective channel for recruitment (see Table 4).

**Table 4: Summary of metrics for Google recruitment (November 2020)**

Impressions	Click Through	Sign-Ups	Cost per sign-up
13,659	341	11	£24

<sup>10</sup> <https://www.statista.com/statistics/216573/worldwide-market-share-of-search-engines/>

### *Facebook marketing*

Marketing via Facebook gave us a consistent ability to reach SMEs, with the opportunity to advertise across Instagram, Facebook, Messenger and Marketplace. An example of a Facebook advert is included in the Appendix. The sense from the marketing team was that under the prevailing Covid-19 restrictions that people were much more active on social media. This contributed to the lowest cost of sign-up acquisition - £15 per participant during November 2020 (see Table 5), although that cost approximately doubled later in the trial when Facebook changed its marketing algorithm during 2021 to target less effectively.

**Table 5: Summary of metrics for Facebook recruitment (November 2020)**

Impressions	Click Through	Sign-Ups	Cost per sign-up
449,661	7226	1212	£15

Almost all the recruitment from December 2020 came from Facebook. Experiments were conducted on advertising effectiveness using different message emphasis. Three considerations were foremost in the messaging:

- 1) The price of other products in this market are very low, driving down the expected price and driving up the expectation from a new entrant
- 2) Customers needed confidence that the product was going to work and wasn't harmful
- 3) Adopting new technology can be scary so reassuring them with the BEIS logo was important

The most effective messaging to achieve recruitment on Facebook was:

- Saving £300
- Free for 12 months
- Funded by the UK Government
- Save time during lockdown

### **Registration of Evolution Invoice Account**

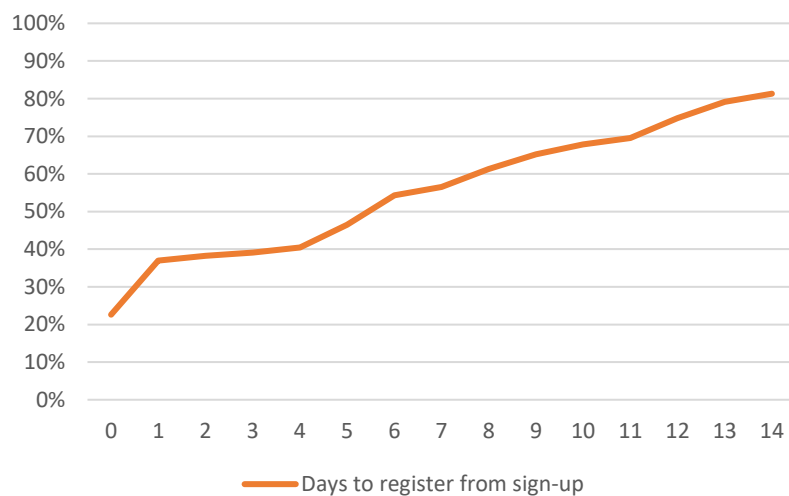
Without registering, participants were unable to use Evolution Invoice. Although registration was embedded into signing-up to participate from January 2021, registration rates were low for participants placed on the waiting list (230 out of 1175 participants, 20%). Overall, of the 1418 participants, only 472 (33%) registered, almost half coming from the waiting list (230 participants, 49%) and just over half coming from the integrated registration from January 2021 (242 participants, 51%).

Without registration, business details were not supplied for two thirds of participants (although through manual search of email domain names this figure was reduced to 40% remaining unknown).

The loss from the trial of participants making early expressions of interest in Evolution Invoice is a consequence of them not being immediately able to access the platform. This was an externally created problem due to one of the main accounting software platforms (Xero) closing off access to third-party software providers to link into their package. The closure was instant and without prior notice at the start of October 2020. Rather than encouraging participants to register for a product that no longer worked as advertised, the decision was taken to delay registration and set up an onboarding process once a software fix had been implemented. Understandably, this delay adversely impacted on customer expectations and resulted in many lost user registrations with only 230 of the 1175 sign-ups from December 2020 ever registering.

Encouraging participants that had been placed on the waiting list to complete registration was hard work. Although 23% of those that did eventually register did so the same day, they were emailed their invitation, the remaining three quarters of registrations took longer (see Figure 6). They required a series of nudging emails to use their free Evolution Invoice licence. One fifth of those that did register took more than two weeks of reminders to get them to act. This is a powerful illustration of the cost to the trial of not being to onboard participants at the time they were first attracted to investigate the offer in the initial months of marketing.

**Figure 6: Line graph showing cumulative registration in the days following sign-up for the Evolution Invoice trial (n=230 registering participants from waiting list)**



## Participant Characteristics

Overall, 1418 eligible participants were recruited by the end of August 2021. Further participants joined after this date but were excluded from the analysis as they would not have sufficient time during the trial to demonstrate technology adoption. Twenty-two participants were deemed ineligible because they were not based in England. Other countries were identified included Scotland, Wales, Northern Ireland, Germany, Malaysia and USA.



### English Region

The region where the business was based was identified in almost 60% of cases. One third of participants were based in London. Only 3% were based in the North East (see Table 6).

**Table 6: English region where participating businesses were based.**

English Region	Number of Participants	Valid Percentage
North East	26	3.1%
North West	99	11.7%
Yorkshire & the Humber	53	6.3%
East Midlands	53	6.3%
West Midlands	74	8.8%
Eastern	90	10.7%
London	283	33.6%
South East	119	14.1%
South West	46	5.5%
Unknown	575	-
<b>TOTAL</b>	<b>1418</b>	

### Existing Accountancy Practices

At registration participants answered a multi-response question about their existing accountancy practices. Data was obtained for 464 of the 472 registering users with results shown in Table 7. Almost one quarter of participants registered without saying that any of the accountancy practices applied to them (107 responses, 23%). Forty-five percent of participants used accounting software (210 participants, 45%), with most of the remaining responses saying that they used paper-based records for invoicing, (22%, 102 participants).

Eighteen percent of the responding participants said they already used some automated methods (86 respondents, 19%). Most of these respondents also said they used accounting software.

**Table 7: Responses from registering participants on existing accountancy practice from four-category, multi-response question (n=464)**

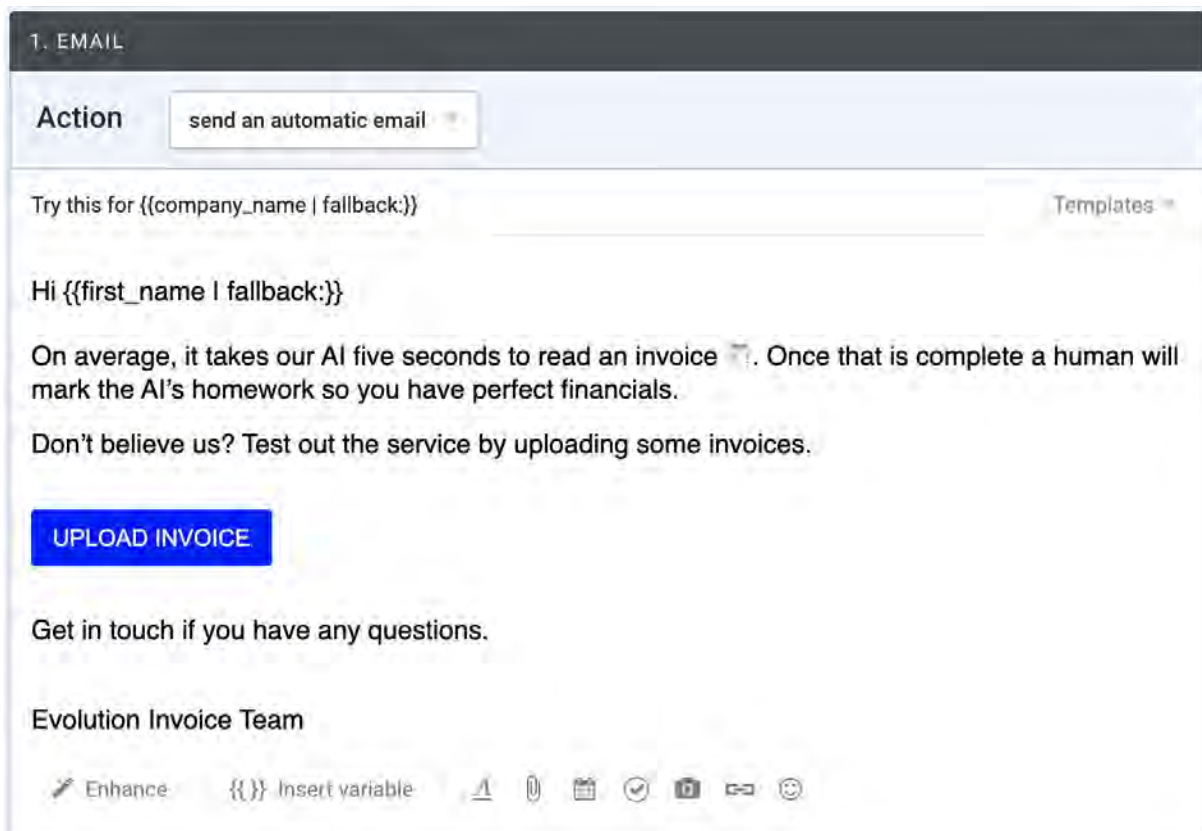
Existing Accountancy Practices	Selected Any	%	Of Which, Sole Response	%
We do invoicing traditionally (e.g. paper-based records)	206	44%	102	22%
We use accounting software (e.g. Xero, QuickBooks, Sage)	210	45%	97	21%
We use an external accountant to do our invoice management	83	18%	11	2%
We use automated methods to read invoices (e.g. Receipt Bank, Datamolino)	86	19%	2	0%
None apply	107	23%	107	23%
<b>Total</b>	<b>464</b>		<b>464</b>	

Unsurprisingly participants that did not indicate any prior accountancy practices were the least likely to use Evolution Invoice. Only one of these 107 participants ever uploaded an invoice.

Beyond this observation there was no relationship between the existing accountancy practices and the amount of usage a participant made of the Evolution Invoice platform. For instance, 14 of the 102 who only said they did invoicing traditionally uploaded an invoice (including one of those adopting). For those that only said they used accounting software 12 of 97 uploaded an invoice (including one of those adopting).

## Using Evolution Invoice

Every one of 1418 participants, regardless of whether they were allocated to the intervention group, received a first personalised email inviting them to upload an invoice using a ready-made login form populated with their existing details (example email below). If participants on the waiting list had not completed registration, the link would take them to the landing page, otherwise it would take the user to the login page to access their account.



Of the 472 registering participants, 438 (93%) went on to login into the Evolution Invoice platform.

Although emails were sent to participants from the waiting list that had not registered, once participants had registered, this single email was the only pro-active encouragement that registered users from the control group received to use their free product licence.

Across all registrations, the email opening rate of that first email was around 80% with 30%-50% of the email openers clicking through to the Evolution Invoice landing page. The bounce rate of emails not reaching the intended mailbox was 10%.

## The intervention

After this single invitation email to upload an invoice the control group of participants received no further proactive encouragement to use the Evolution Invoice platform. Although participants had been randomised at point of their first sign-up, the experience of the two arms of the trial only started to diverge for participants after they had registered and after that first invitation to upload an invoice through their Evolution Invoice account

Of the 438 registrations that logged in at least once, 205 were in the intervention group (of 666 participants, 31%) to receive encouragement to use the product, while 233 participants in the control group (of 752 participants, 31%) received no further encouragement until after the end of the trial.

The interventions that were intended to be used on the intervention group were:

- Additional email encouragement
- Timely reminders: Once the schedule of a company is understood from its uploading behaviour, it should be possible to push them reminders for when they need to complete their invoices.
- Discussion forum: setting up a simple forum for intervention group to ask questions, engage with each other and share screenshots.
- “Andy the accountant”: Evolution AI’s friendly face who would appear on videos, answer questions in the forum and write simple ‘how to’ blog posts.
- Industry champions: picking a group of companies (from the intervention group) from the most popular sectors to be profiled and give industry tips.

### Email encouragement

Emails encouragement took two forms. From the outset there were two follow up emails, sent a week apart, encouraging users to login into the system, coming after the first email sent to all participants. The emails emphasised the time-limited offer and scarcity of their free trial to create a sense of urgency (see Appendix for example text).

These emails had much lower rates of opening than the first, universal email encouragement to login, dropping to 63% from the 80% open rate of the first email. And the click through rate was only 10% suggesting few of the intervention group that hadn’t already done so were prepared to visit the landing page from where they could complete the login process. A few (3%-4%) recipients emailed requesting not to be sent further emails (which was actioned).

From March targeted emails were also sent to the intervention group (if they hadn’t registered or logged into the Evolution Invoice platform) providing short ‘how to’ communications with video links embedded in the emails to show participants how to take small steps to become active users. These proposed to participants to meet weekly targets: Weekly targets:

- #1 connect Evolution Invoice to your accounting software Xero/Sage/QuickBooks
- #2 upload an invoice
- #3 set some reminders
- #4 share how you've benefited (on the forum).

### Other nudges

The other nudges were less successful because they were predicated on having a sufficient base of successful users from which to build out to attract further new users. The efforts to help SMEs see other SMES thriving in their use of Evolution Invoice failed.

*The forum* - <https://community.evolution.ai/c/evolution-invoice>

Although the discussion board forum was constructed and some FAQs added by Evolution AI staff, it did not attract other participants to post questions.



Topic	Replies	Views	Activity
✖ About the Evolution Invoice category	0	19	Nov '20
Why are the government funding this?	0	24	Nov '20
Which accounting software do you support?	0	26	Nov '20

### *“Andy the Accountant”*

This idea did not succeed because there were not enough existing users of the technology to be prompting questions.

### *Webinars*

Lack of volume of users meant that there were insufficient users to host webinars. Instead recorded video clips were made and hosted on Vimeo. These 2-minute video clips were embedded in the emails sent to participants in the intervention group. An example is shown here - <https://vimeo.com/637890865>. Viewings were disappointing; just 4 views were logged within the period of the trial.

### *Reminder emails*

The idea of using AI to send reminder emails to participants in the intervention to upload invoices at the appropriate point in their, say, weekly or monthly processing timetable did not prove implementable because of insufficient data being gathered to create such insights.

## Invoice Uploads

Of the 438 participants that logged into the Evolution Invoice platform at least once, only 176 participants (12.4% of the 1418) ever undertook a different type of action (96 of the control group (12.7%) and 80 of the intervention group (12.0%)). These actions could be uploading or modifying an invoice, linking Evolution Invoice to their accounting software or setting up other users or companies. Creating a company was the most common action undertaken after logging in (135 participants)

Uploading or modifying an invoice was achieved by 52 participants (29 control group, 23 intervention group). This was 3.7% of all 1418 participants, or 11.9% of the 436 participants that logged on. Given that uploading invoices is the purpose of the software technology, this statistic shows that having expressed an interest in the using the technology very few users translated that intent into action.

A large majority of the 52 participants that uploaded never uploaded a second time. One user uploaded many invoices (213 invoices) but did so in a single session, and never returned.

Only 12 participants uploaded (or modified previously uploaded) invoices in more than session (8 control group, 4 intervention group).

Only 5 participants uploaded (or modified previously uploaded) invoices more than 7 days apart (3 control group, 2 intervention group).

Only 2 participants met the pre-established criterion for digital adoption and uploaded (or modified previously uploaded) invoices more than 30 days apart (1 control group, 1 intervention group).

Somewhat starkly, virtually no participants in either group adopted the Evolution Invoice technology. The reasons for this were explored in the qualitative interviews of some of those users and is discussed below.

Absolutely no treatment effect was detectable. None of the additional actions applied to the intervention group increased the rate of usage of Evolution Invoice above that of the control group. This was not just a case of any increased usage failing to exceed those required for tests of statistical significance, but rather there was not any increased usage at all. The reasons for this are discussed in the conclusions.

## Pricing Experiment

Given the low rates of usage of Evolution Invoice across the participants by the end of the trial in September 2021 while usage of the software was without charge, plans needed to be modified to test for willingness to pay.

During October 2021, the entire sample was given the sequence of three weekly email encouraging all those that had signed up to use their free trial. The distinction between the initial control and intervention groups was no longer maintained, with the objective being to simply build as much current usage as possible.

The results from the email campaign are shown in Figure 7. Of 1479 recipients of the emails<sup>11</sup>, a total of 4193 emails were sent. Not all recipients received all three emails since participants did not receive further emails in the sequence if they responded by either actioning the email, unsubscribing or the email address bounced.

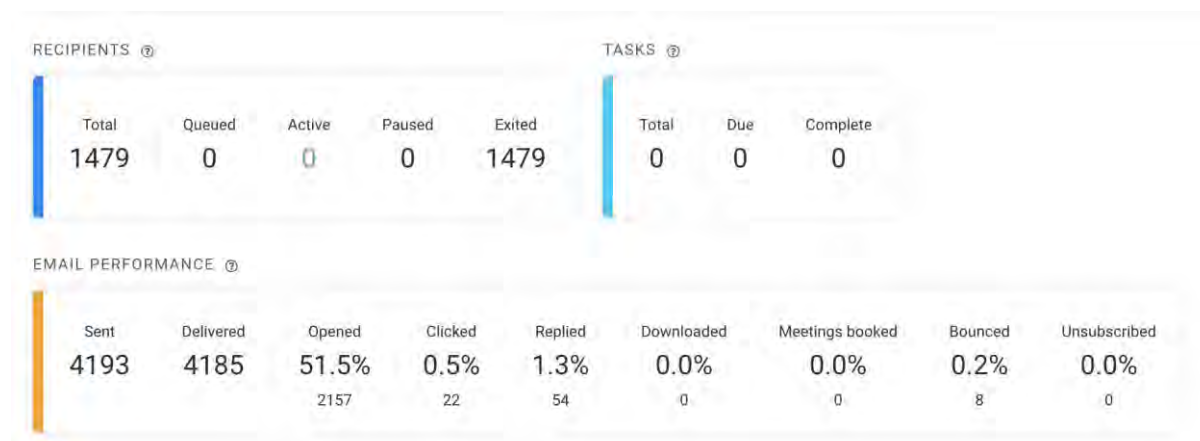
More than half the emails were opened (51.5%), but they were only clicked through to the Evolution Invoice landing page 22 times (0.5% of the total emails sent). That figure may not be an entirely accurate reflection of the response rate, because the email activity did succeed

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<sup>11</sup> Numbers include participants later deemed to be ineligible.

in prompting 29 participants to register, with some of the additional registrations arriving at the platform via earlier received emails. All of these registrations were from the those initially placed on the waiting list and invited to onboard during December 2020. As a group that had expressed an interest 10-12 months earlier, and not pursued that interest, it is perhaps unsurprising that those registrations did not translate into much activity of the platform. Only 4 of these 29 registrations from the landing page progressed to log into their account (14% compared to 93% of earlier registrations)

**Figure 7: Performance summary of emailing sequence to all participants (control & intervention groups) in October 2021.**



Overall, 23 participants uploaded an invoice in October 2021. Most of these only uploaded a single invoice (14, 61%) and a further 5 (22%) only uploaded 2 or 3 invoices. A single user uploaded 124 invoices in October (70% of the total invoices uploaded that month), these were uploaded in two batches. The figures demonstrate that despite the additional marketing push during October 2021, the body of participants using Evolution Invoice, and in particular using it in volume, remained small.

The pricing experiment emailed out a series of three emails during November offering either continued free usage for six months after the 12 month long free trial ended on 1<sup>st</sup> December (100% discount), or six months at the discounted rate of £2 per month, with random allocation between the two offers, if participants provided their bank details in preparation for being charged.

The result of that pricing experiment was that only one participant provided their bank details. Given the low take-up rate of an offer to extend the discounted usage against a background of already low pre-existing usage during the free trial, it is unsurprising that little can be concluded from this experiment.

## Follow-Up Survey

During December a sample of one time and more frequent users of Evolution Invoice were emailed a short survey (4 open questions, 10 participants in each group, 20 total) by Evolution AI asking about participants' experience of using the platform. None of those approached responded, although they were told they would be approached after Christmas by telephone if they didn't email.

In January the evaluation consultant contacted some of this sample of participants. Varying means of communication were used including telephoning, emailing, messaging on LinkedIn/Facebook and videoconferencing.

Contact was achieved with only 6 users (4 control and 2 intervention group).

Those businesses that could not be reached were researched by their profile on Companies House, LinkedIn, Facebook and their website (if applicable). Judging from the available digital footprint on those businesses, they were not traditional bricks-and-mortar businesses. They often tended to be newly established businesses using social media and a website as a shop window into their services. These were trades like a musician, two online sellers of fashion jewellery (Facebook, Etsy and Instagram), an event manager, a career coach/CV writer, a cake maker and honey importer.

Although some of these industries could potentially support businesses of the intended target size, a search of the scale of the presence suggested they were typically small and recently established by aspirational entrepreneurs. The individuals behind these participating businesses either had no footprint on Companies House or had established businesses so recently that they had no filing history. Websites often had no contact details, and social media profiles lacked recent postings. There was no evidence of these being live business operations of any economic scale. They looked like businesses set up while people had time of their hands during the pandemic lockdown and had created a shell in the image of the business that they hoped to grow to fill that imagined persona.

*Observations from these qualitative interviews were:*

Users reported a lot less successful engagement with Evolution Invoice than was recorded on the IT monitoring system.

The people contacted tended to be either one-person self-employed businesses offering bookkeeping services to other clients or well-established small businesses with an established account. Two examples were a window/conservatory business and an HGV haulage firm.

A one-person online PA business recorded as logging in three times, creating a company profile and uploading an invoice said.

*“To be honest, I didn’t use Evolution”*

When asked what the business used instead replied:

*“I don’t use anything. I don’t have many outgoings and regular payments are made through direct debit, so I just save my receipt/invoice & save it on my OneDrive. Someone pointed me to Evolution and I thought it was for raising invoices, which is what I wanted, so I didn’t find any need for it.*

*I use my CRM Dubsado for invoicing.”*

Feedback from those that would self-assess themselves as having used Evolution Invoice was not positive.

A one-person bookkeeping business was recorded as logging in 3 times, uploading an invoice and linking Evolution to an accounting package, said

*“Yes I tried it and was not anywhere near the likes of Auto Entry so not using it. I know you have put a lot of work in it but you will need to develop it more to be usable. Sorry for the not good feedback.”*

The Head of Finance at a business that processed 1000 invoices per month, described how they were open to changing as improved technologies became available. The user had evaluated 5 AI-based invoice readers to link with their Sage accounting package. Evolution Invoice recorded the participant as having logged in three times and uploaded 8 invoices. In a telephone interview they said,

*“I just could never get Evolution to work. Try as I might, I couldn’t get it to link through to our accounting package [Sage]. I emailed Evolution for technical support, but it just took too long to get help”.*

They added

*“We use AutoEntry and it is absolutely brilliant.”*

The Chief Executive of a haulage business had a similar proven need for the function that Evolution Invoice provided, but they also reported a poor experience with Evolution.

*“We switched accounts packages to xero and use HubDoc with that, a far far simpler way of doing what evolution is supposed to do.*

*“I never used it again after my first go. Far too much work needed and not enough ‘AI’ to pick up the correct information fields time and time again.”*

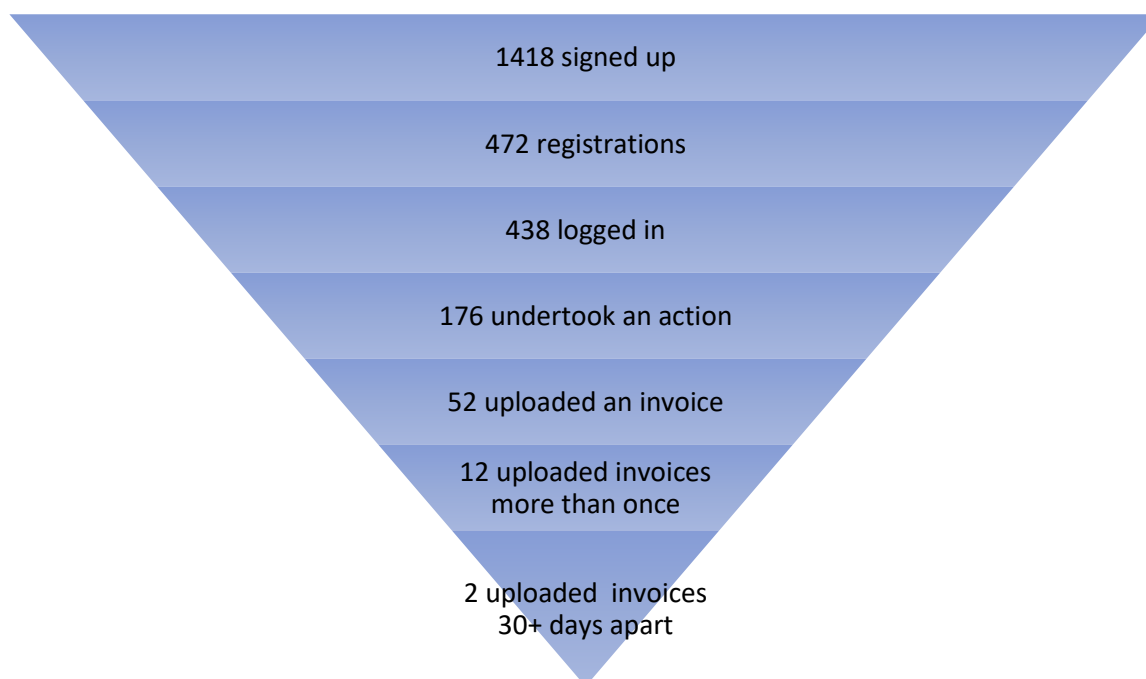


## Conclusion

### Overview

This is a trial that failed to detect an intervention effect because digital technology adoption did not increase in the intervention group over that observed in the control group. The reasons for this are connected to the very low rate of usage of Evolution Invoice by participants. Recruitment succeeded in getting over 1400 valid participants signing up to a free trial of the platform – more than the 1000 originally intended - not enough participants attempted to upload even one invoice (see figure 8 below).

*Figure 8: Inverted triangle of where participants were lost from the trial*



The causes of this are threefold:

- 1) lack of need: not enough of the participants represented businesses where processing of invoices was a major financial burden.
- 2) too many initially interested participants were not able to immediately access the platform in late 2020 (because of unforeseeable changes in access by one of the major accountancy software packages) and instead were placed on a 'wait-list' while the platform implemented a workaround; and,
- 3) the trial coincided with significant product consolidation and investment by the accountancy software providers into AI-based readers, such that the quality of competitors improved rapidly and Evolution Invoice was not good enough to meet customer expectations.

The interventions did not encourage more participants to adopt the technology than in the control because participants were able to judge whether the product met their needs before the experience of the intervention group departed from the control. Although randomisation

into the two arms of the trial occurred at sign-up, the experience each arm received remained the same for some time. Everyone signed up for the trial either registered at the point of sign-up or, in the case of those on the waiting list, was emailed to try and persuade them to register. After registration, everyone received an email with encouragement to upload an invoice. By the time the follow up emails in the second and third week after registration came for the intervention group, there were not enough persuadable participants left to influence. They had either decided this wasn't for them or had tried to log into the platform. This is evidenced by the low open and click through rate of the second and third emails sent to the intervention group. The general lack of usage made it impossible to create enough volume to deploy the wider set of behavioural nudges including webinars, the bulletin board, 'Andy the Accountant' and industry champions.

## Lessons Learnt

Five areas of learning are discussed below

### Recruitment of Participants

#### *Business Size*

Evolution Invoice was pitched towards small businesses that might be incurring significant costs by processing their invoices and accounts payable function manually. This was envisaged to be around 10+ employees and might have had an employee for who providing the finance function was a large part of their time.

No hard restriction on eligibility was made on how onerous this business function had to be to get into the trial. Instead, to keep entry barriers to a minimum, potential participants self-assessed the burden of the accounts payable function was a pinch point on their own business and checked a tick-box to confirm this.

In hindsight, a more absolute measure of business size may have been beneficial in securing a participant group that was closer to that envisaged. If a business spends 5% of its time on invoice processing the value of the efficiency saving is very different, depending on whether the business have one employee or 100 employees. Yet, it is quite plausible that the participant self-assesses in relative terms (i.e. the commitment of 5%) rather than the absolute saving in cash terms.

#### *Route to participant acquisition.*

Of all the marketing channels used for acquisition of participants, Facebook offered the lowest cost per acquisition. At the time, this was believed to be an effective route because it was advertising to business leaders when they were engaging in discretionary social media activities and might have had more time to consider the proposition being made to them in the Facebook advertising.

In retrospect, it appears likely that Facebook acquisition might have contributed towards the types of businesses represented in the sample. Given the often only partial data obtained, it is difficult to quantify with precision, but indications are that many of the participants recruited were new, social media/internet enterprises founded by relatively young entrepreneurs. Only a minority appeared to be 'bricks and mortar' businesses with a business address other than the founders' home address. Often, they did not have a specific domain name for their email address, and instead were generic Gmail/Microsoft/Yahoo email

addresses. Most businesses did not have a website. Searches of the participants name on social media (including LinkedIn and Facebook) confirmed that many of those signing up to participate were new (0-3 years experiences) young (under 25 years) entrepreneurs.

#### *Providing a solution to participants lacking the problem.*

As a consequence of recruiting a disproportionately high number of small, new, owner-operator businesses into the sample the underlying need of the function that Evolution Invoice performed was reduced.

#### **Wait-list**

The unforeseeable problem of rectifying integration in Xero meant that the finalised Evolution Invoice product was not available at the start of recruitment. Participants recruited in October and November 2020 were not able to register on the Evolution Invoice platform and use it until December. Eighty three percent of the entire sample was added to the system in December once the platform was working, but 80% of those signing-up failed to complete registration. These are participants that only signed up by providing their name, email address and checking several tick boxes. The inevitable conclusion is that in these cases, whatever enthusiasm they had displayed for the product at the initial time of encounter had evaporated one to two months later when they were invited to register on the Evolution Invoice platform.

Given that almost all participants recruited from January 2021 onwards completed registration demonstrates this finding. It is crucial to capitalise on the moment that a customer displays an interest in one's product.

#### **The Product**

That only 52 of 472 the participants (11%) registering for Evolution Invoice ever were recorded as uploading an invoice. This indicates that the product must in some ways have not met participant's expectations.

Interviews with some of the 52 invoice uploaders confirmed this. Those interviewed said that the product was not good enough and struggled to get it to work for them. Although recorded as uploading an invoice many of these participants would self-assess themselves as never succeeding in getting any value from their free trial period.

Some participants demonstrated that they were very much the target audience of Evolution Invoice since they were using equivalent products and paying for them. But these participants did express the view that the free trial would not be sufficient to tempt them away from using paid for alternatives that they considered worked better.

#### **The Intervention**

The intervention intended to provide a suite of behavioural nudges to ease participants over the adoption barrier. Although these nudges might have worked with a pool of users that were open to being persuaded, the reality here was that the product did not provide a sufficiently good starting point from which that persuasion could act.

By the time the intervention group departed from the service received by the control group, it is likely that the vast majority of participants had already cemented their intentions

towards Evolution Invoice and could no longer be persuaded. Evidence for this can be seen with the declining email open rates of emails sent to the intervention group, and the very low click through rates.

The wider set of nudges beyond emailing were predicated on there being a group of active users from which positive experiences of using Evolution Invoice could then be used to build a sense of value.

## **The Competition**

The market for providing deep machine learning AI invoice ‘reading’ technologies to businesses is now much more mature than when this project was first proposed in 2019. As a generic business function for all businesses globally the market is huge, and consequently the competition has developed rapidly over the last two years with large tech providers entering the market.

### *Advertising of alternatives*

Even if participants knew nothing about AI-based invoice automation until they encountered advertising about Evolution Invoice, it is likely that soon afterwards participants would have been pushed competitor advertising of some of the alternative solutions. This is the way the algorithms driving advertising direction of internet platforms like Google and Facebook work.

### *What Users Want*

The most mentioned alternative mentioned by interview respondents was AutoEntry. This is now owned by Sage so is perceived as integrated into Sage accounting software perfectly. What users liked about AutoEntry was that it worked really well, was easy to use and had near immediate (<5mins) online technical support that was effective in solving any queries.

The evaluator of Evolution Invoice was given an online demonstration of AutoEntry by one of the users – so enamoured were they with the product – and it did look a visually appealing and powerful solution to managing and storing invoices and integrating with accounting software.

The cost of using AutoEntry was about 10p per invoice uploaded, so for a business with 1000 invoices per month this would be around £100/month. The participant giving the demonstration said compared to the value it gave the business, this was a fantastic saving. AutoEntry appeared to have a lot of ‘intelligent’ error-checking functions flagging up any numbers didn’t appear to reconcile or – for example – VAT rates, net /gross figure discrepancies.

Although this participant was open to trying alternatives (and had tried 5-6 alternatives before settling on AutoEntry), any future alternative would have to be as good or better than the current provider (even if it was free) to encourage them to switch.

Another participant used HubDoc for uploading invoices. This is now part of the Xero accounting package. Speculatively, it may coincide with the aforementioned cutting of integration with third party providers by Xero and a wider strategy of bringing functionality within the Xero product.

Generally, the competing products in this market are well reviewed. For example, this site has 194 UK user reviews [at time of writing] on AutoEntry:

[https://www.getapp.co.uk/reviews/102825/ocrex-docurex?sort=most\\_recent](https://www.getapp.co.uk/reviews/102825/ocrex-docurex?sort=most_recent)

The opportunity for establishing a new platform to automate invoice uploading appears limited given the established alternatives available. Each product markets its own unique selling points and the power of its AI algorithms. To most users the technical ability of the algorithms is likely to be a secondary concern to proximal issues around whether the current platform works for the user, is quick and easy to use, and has effective help on hand when things become difficult.

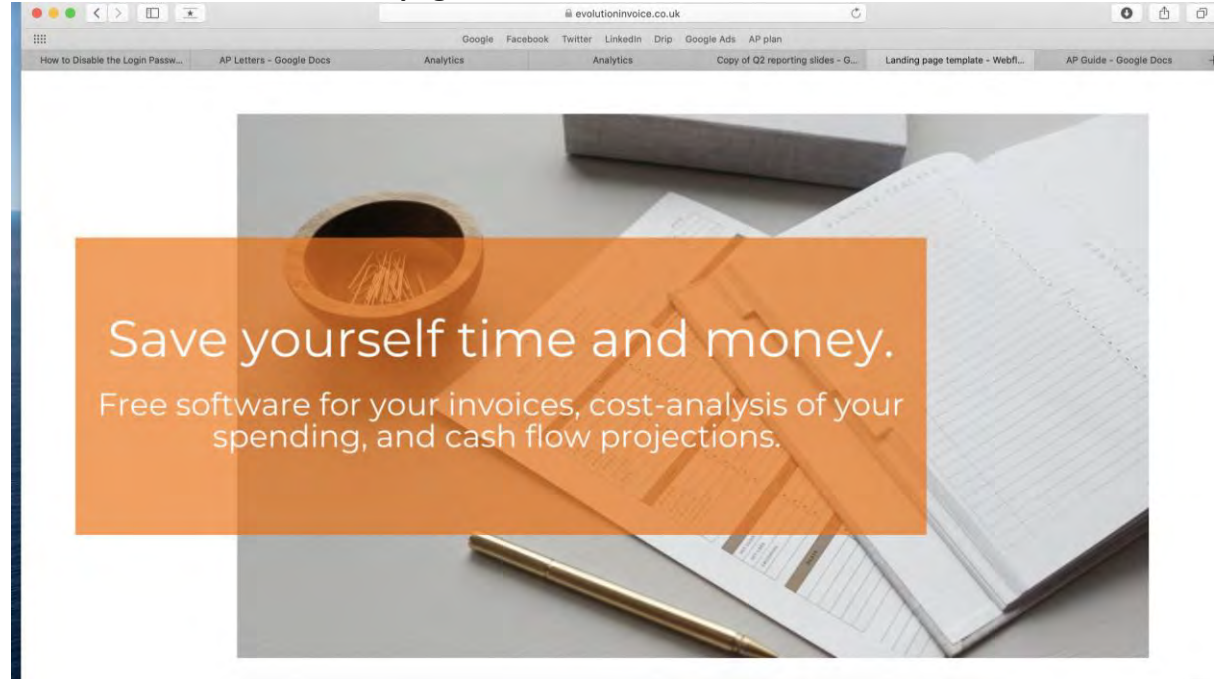
With Evolution Invoice considered by those responding to not have the functionality, visual appeal, responsiveness of support, or financial backing of one of the major accounting packages, it would appear to be a tough market to crack for SMEs.

# Appendix 1 – Trial Materials

## Brand building (e.g. Twitter)

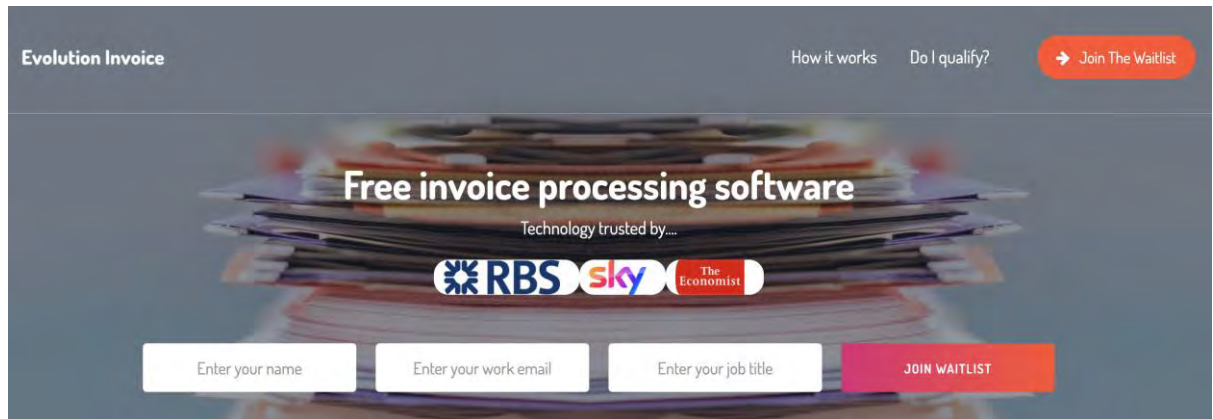


## EvolutionInvoice.co.uk Homepage



## Building credibility on landing page

- 1) Giving confidence through experience with the provider's corporate customers



- 2) Showcasing the technology capability

**Our solution** has been trained on 25m documents so it can read new invoices without any significant training. All data is captured cleanly and accurately – even from foreign language documents. Customers typically save 75% on costs compared to manual processing. **We capture:**

FINANCIAL DETAILS	INVOICE DETAILS	SELLER DETAILS
<ul style="list-style-type: none"><li>- Line Items</li><li>- Net Total</li><li>- VAT/ Tax</li><li>- Rebates</li><li>- Gross Total</li><li>- Total Due</li></ul>	<ul style="list-style-type: none"><li>- Invoice Number</li><li>- Invoice Date</li><li>- Due Date</li><li>- Payment Terms</li><li>- PO Number and Date</li><li>- Order Number and Date</li></ul>	<ul style="list-style-type: none"><li>- Company Name</li><li>- Company Address</li><li>- Account Number</li><li>- Sort Code</li><li>- Company Number</li><li>- VAT Reg Number</li></ul>

- 3) Whilst clearly labelling the eligibility criteria

## Does my company qualify?

We're supplying free twelve month subscriptions to companies who:

### ARE BASED IN ENGLAND

This scheme has been funded by the Department for Business, Energy and Industrial Strategy for SMEs across England.

[Here's why.](#)

### HAVE 1-250 EMPLOYEES

We know that SMEs are often small teams which don't have in-house accounting teams and process lots of invoices as they sell products to customers.

### NEED HELP WITH INVOICES!

Processing invoices and entering data takes away from your every day work as your business grows. We're providing software which removes that burden.

## Cold-Calling telephone script

### Script

Hi FNAME,

This is Nigel calling from **Evolution Invoice**.

*Option 1* - Can I speak to {FNAME of MD or Manager}?

*Option 2* - Can I speak with your Accounts team please?

I know you're probably busy so i'll get straight to the point.

We're working with the **UK government** to help **increase productivity** amongst **SMEs** by providing them with **free invoice processing software**.

I was hoping to ask you a few questions to determine if you'd be suitable for the software?:

1. Number of employees?
2. Which accounting package software do you use?
3. How many invoices are paid per month?
4. How do you pay your invoices?
5. How do you ensure they are paid correctly and have been approved?
6. Who processes them?

If **NOT** the right person, ask if they could direct me to the right member of the team

## Cold-calling email recruitment example

Free invoice processing for [redacted]

[redacted] Inbox x

Ryan Procter <ryan@evolution.ai> Mon, Nov 2, 2:14 PM ☆ ⚡ Share this email

to [redacted]

Hi [redacted].

Hope you're well. I wanted to get in touch with you regarding free invoice processing software for [redacted].

The company I work for, Evolution AI, has been funded by Innovate UK to give away our software, [Evolution Invoice](#), for free to 1,000 SMEs in England, to reduce their admin and data entry burden.

I believe [redacted] might qualify to receive the free software, so wanted to get in touch!

**What you get from Evolution Invoice, funded by the UK government for 12 months:**

- 12 months free processing of up to 200 invoices per month
- Software that integrates with all major providers (eg Xero, Sage, Quickbooks)
- Takes five minutes to set up with hands on support from our team

If saving time, admin and costs sounds good, would you be interested in learning more about the program?

Best,

Ryan



## LinkedIn advert

Join the waitlist for free accounts payable software!

[Join the Waitlist](#)



**Martin Goodson**

Hi Ryan,

My company has [partnered with the UK government](#) to provide 1,000 SME's with our accounts payable software, [EvolutionInvoice](#), free of charge.

We've used what we've learnt processing [1.2 million documents a day](#) for companies like Dun & Bradstreet, RBS and Sky to make EvolutionInvoice - and I'm thrilled to be able to offer it to Evolution AI, for free!

### Features of EvolutionInvoice:

- Reads any invoice, purchase order (PO), or delivery note within seconds
- Integrates with all major providers (Xero, Sage, Quickbooks, FreeAgent, Kashflow)
- Takes five minutes to set up

## Google adverts

Instantly upload invoice data | Free invoice processing | Seamless integration  
Ad invoices.evolution.ai/  
Free solution for small businesses that automatically extracts data from invoices.

This preview shows potential ads assembled using your assets. Not all combinations are shown. Assets can be shown in any order, so make sure that they make sense individually or in combination, and don't violate our policies or local law. Some shortening may also occur in some formats. You can make sure certain text appears in your ad. [Learn more](#)

Free yourself from data entry | Free invoice solution | Seamless integration  
Ad invoices.evolution.ai/  
Free solution for small businesses that automatically extracts data from invoices.

This preview shows potential ads assembled using your assets. Not all combinations are shown. Assets can be shown in any order, so make sure that they make sense individually or in combination, and don't violate our policies or local law. Some shortening may also occur in some formats. You can make sure certain text appears in your ad. [Learn more](#)

## Facebook advert

 **Evolution AI**  
Published by Jacob Fisher · 9 November at 17:13 · 🌐

FREE invoice processing software for SME's based in England! The UK government is funding the cost of 1,000 SME's receiving our free invoice processing software, saving each company hours of admin each month.  
Join the waitlist today to reserve your free software!



**12 months free**  
**invoice processing**

Evolution Invoice

Courtesy of the  
**UK Government**

Department for  
Business, Energy  
& Industrial Strategy

EVOLUTIONINVOICE.CO.UK

**Free Invoice Processing Software for SME's registered in England** [Sign Up](#)

 You and 39 others 4 comments 13 shares

[Like](#) [Comment](#) [Share](#) 

The Evolution Invoice platform - <https://ap.evolution.ai/>



Reference	Created	Status	
invoice.jpg	11:07 10-07-2020	Draft	↓ 🗑
business-invoice-1.jpg	11:07 10-07-2020	Draft	↓ 🗑
invoice-example-FI.png	11:07 10-07-2020	Draft	↓ 🗑
file-652847363.webp	11:07 10-07-2020	Draft	↓ 🗑
google-doc-invoice-template.webp	11:07 10-07-2020	Draft	↓ 🗑
300.jpeg	11:07 10-07-2020	Draft	↓ 🗑
300.jpeg	08:07 07-07-2020	Draft	↓ 🗑
file-652847363.webp	08:07 07-07-2020	Draft	↓ 🗑
google-doc-invoice-template.webp	08-07 07-07-2020	Draft	↓ 🗑

← pdf\_invoice.pdf
Processed
Save Approve Push 🗑

COPY INVOICE

Invoice to: [REDACTED]

Your Ref	Order Acc	Our Ref	Date	Invoice No.	Page No
4570414	PZZ29	SCP-1242999	29th February 2018	1511065	1

Stock Code	Description	Qty	Unit Value GBP	Line Total	VAT
PF035	380g Smoked Anchovies	3.000	13.13	39.39	3
HM080	250ml Extra Virgin Olive Oil with White Truffle	3.000	6.04	18.12	3
CP055	3kg Pitted Black Olives Help	2.000	16.49	32.98	3
OC096	3kg Cocktail Mix Olives	1.000	18.45	18.45	3

Fields Line Items

SUPPLIER [REDACTED]

CURRENCY [REDACTED]

REFERENCE 1611065

ISSUE DATE 28/02/2018 📅

DUE DATE 31/03/2018 📅

SUB TOTAL 108.94

TAX AMOUNT 0

TOTAL AMOUNT 108.94

## Linking Evolution Invoice to an Accountancy Software Provider

# LINK YOUR ACCOUNTS

You will be asked to log in to your accounts in order to authorise the link.

Select your accounting software



Evolution AI will have access to the following information:

- Account receivable information
- Account payable information
- Financial summary information



We keep your data secure  
[Learn more](#)

## Setting Up Additional User Accounts for the Business in Evolution Invoice

EvolutionAI Companies ▾ Invoices

sadal@evolution.ai ▾ [Log out](#)

### User Groups for Company - Self

[Add New User Group](#)

Admin	admin
Annotator	annotator
User	user

Please enter the email address of the user you'd like to invite:

### QA Workflow

[Add a new stage ▾](#)

## **Appendix 2 - Personnel**

### **EvolutionAI**

Dr Martin Goodson – Chief Executive Officer

Rafal Kwasny – Chief Technical Officer

Ryan Proctor, Eleonora Ferrero – Trial manager

Giuseppe Papallo – Technical support

Lidia Mijas – Data manager

Yasmin Beeharry – Marketing manager

### **Evaluation Consultant**

Dr Anthony Moody – ALM Analytics & Consultancy limited