Be the Business Digital: supporting SME adoption of productivity enhancing technology

Evaluation report, March 2022

Business Basics Fund: Round 3

THE
BEHAVIOURAL
INSIGHTS
TEAM

Contents

Executive summary

What was the purpose of the project? This project aimed to evaluate an intervention to increase the adoption of software, and consequently productivity, of small- and medium-sized enterprises (SMEs) in England. The intervention involved SMEs being sent information about Be the Business Digital (BtBD), an online tool with guidance for businesses about software adoption, delivered alongside support from banking Relationship Manager (RMs) at Lloyds Bank. Funding to undertake the evaluation came from the Department for Business, Energy & Industrial Strategy's Business Basics fund, which aims to build evidence on how to encourage SMEs to adopt productivity boosting technology and/or management practices.

What did we do? We originally planned to conduct a randomised control trial. However, we experienced issues through the trial with recruitment and switched to evaluating the intervention using pre-post and difference-in-difference analyses.

What did we find? Directionally, the results point towards the intervention having had a negative impact on outcomes, including progress towards adoption or actual adoption. We find that all the differences in the pre-post analysis are negative, with some statistically significantly so. The Difference-in-Difference analyses tell a similar story. However, weaknesses with our analyses mean we are not confident this reflects the impact of the programme, particularly because take-up of the intervention was minimal. Only 10% of SMEs in our treatment group reported using BtBD and just under a quarter reported discussing technology with their RM.

What did we learn? Despite these challenges, there are a number of lessons from the project and recommendations for both digital adoption support programmes and evaluations about such programmes in the future.

Lessons about the intervention and recommendations:

Lesson	Recommendation
1. The intervention was generally not delivered as intended and did not succeed in achieving the desired outcomes. Despite this, there is likely demand from businesses for adoption support in other forms	Do not scale or further roll out the programme without fundamental changes to its delivery model and targeting (see below).
2. Self-directed learning material alone may not be enough to get many SMEs to consider and adopt software	Revise the delivery model to encourage SMEs to spend concentrated time on the material Explore how one-on-one specialised support can be offered alongside BtBD to help SMEs solve specific challenges Consider hosting webinars or seminars for SMEs to get them excited about or interested in the topic
3. The intervention was probably not well suited for larger and more established SMEs	Target light-touch, general adoption support at small and/or new businesses Find ways of targeting more established SMEs when they are considering upgrades or adopting new software and potentially with higher touch interventions
4. RMs may not have been equipped to deliver support to clients and needed more guidance on how to deliver the intervention	Explore other channels for delivering adoption support, e.g. via specialist advisors Where RMs can support, give clear guidance and appropriately upskill so that they know who to target and how best to support, and ensure alignment with their core objectives

Lessons about the evaluation and recommendations:

Lesson	Recommendation
1. In order to evaluate, we changed how and to whom support was offered	Consider evaluation and intervention trade-offs in design Ensure there are tangible benefits to encourage participation in the evaluation
2. Data collection was far more difficult than anticipated	For evaluations involving businesses, use administrative and other non-self-reported data sources wherever possible Where it is necessary to collect self-reported data, consider using direct phone surveys rather than primarily relying on emails

3. We hoped that RMs would be an "insider track" to accessing SMEs; however, this did not align with the realities of their role as client-facing service providers	Consider carefully the use of RMs and other intermediaries to deliver interventions to SMEs and collect data from them Align incentives and goals between all partners in an intervention and evaluation

1. Background and project context

1.1 The challenge

The use of back office technology systems is associated with productivity improvements, yet the penetration of these systems in the UK lags behind that of many comparable economies. For example, the rate of customer relationship management (CRM) systems' use in the UK remains below levels seen in Austria in 2007, despite research by the Enterprise Research Centre (ERC) showing it can drive productivity improvements of 18.4% over three or more years.[1] ONS research shows that businesses using two or more of customer relationship management, enterprise resources planning, and supply chain management systems were 25% more productive than those who did not.[2]

This is particularly the case for small and medium sized enterprises (SMEs). While use of CRMs was comparable between UK and German large businesses (62 and 68% respectively), the gap is significantly larger amongst small businesses (10-49 employees) at 26% to 40% respectively.[3]

The 2018 Business Productivity Review identified increasing SME software adoption as one of the key levers to drive improvements in productivity and spurring economic growth.[4] However, research by Be the Business and McKinsey found that SMEs face many barriers to adoption, including:

- Lack of knowledge about the benefits of software;
- Lack of access to trustworthy, easily understandable information;
- Lack of knowledge or confidence with management capabilities to proceed with adoption;
- Lack of time to consider technology and adopt it; and
- Mistrust in the marketplace and concerns around hidden costs.

[1] Enterprise Research Centre (2018). Micro-business Britain.
[2] ONS (2018). Information and communication technology intensity and productivity.
[3] Be the Business and McKinsey (2020). The UK's Technology Moment, p4.
[4] HM Government (2018). Business productivity review

1.2 The intervention

In order to address these barriers, Be the Business has built an online, highly-scalable platform called Be the Business Digital (BtBD) which gives advice to SMEs on adopting back-office software systems across five categories: customer relationship management (CRM) systems, enterprise resource planning (ERP) systems, human resource (HR) systems, digital accounting software, and project management software. Importantly, Be the Business Digital represents a lower cost, more scalable approach to supporting technology adoption and can be delivered at a fraction of the cost of other adoption support measures which have typically made use of intensive, one-on-one support.

The site blends resources such as product selection checklists and implementation guides with a user-focused approach, built on authentic case studies and best practice content from workshops with SMEs. This approach is inspired by experience from Be the Business's other programmes which suggest SME leaders are often most receptive to advice, which comes from other SME leaders. BtBD also offers the option to create, customise and monitor “Action Plans”, across six stages of technology adoption.

Be the Business partnered with Lloyds Bank on this project to recruit SMEs to the evaluation and deliver the intervention via their team of Relationship Managers (RMs) with their SME banking clients. SME Relationship Managers and Directors (RDs) are responsible for managing a portfolio of clients with turnover ranging from £3million to £25million. RMs and RDs meet with their clients regularly to review existing and new facilities, check client satisfaction and discuss future plans to facilitate the provision of solutions provided by Lloyds Bank and their partners. We hypothesised that they would be well placed to offer their clients additional support related to productivity and business improvement.

1.3 Original evaluation design and recruitment challenges

This project was established to evaluate the impact of Be the Business Digital, delivered both as a stand-alone intervention, and in conjunction with tailored support to use the tool by RMs. The study’s initial design was a three-arm, clustered, randomised controlled trial (RCT) with Lloyds Bank RMs and their clients in England.

A randomised control trial is the gold standard for identifying the causal effects of an intervention. In an RCT, participants are randomly assigned to one of multiple trial arms where they experience only one version of a given service (in this case, one version of digital adoption support). Due to the fact that the assignment is random, we can say, with a high level of confidence, that any systematic differences between the trial arms are due to differences between the intervention themselves, rather than other differences, such as individual differences between participants.

To implement the RCT, our plan was to randomise RMs into one of three arms and they would provide different levels of support to their clients depending on the arm they were randomised into:

- **Arm 1 (control)**: RMs in this arm would provide SMEs with standard support, which would usually be provided in their day-to-day jobs. RMs would not provide any specific support related to digital software or adoption.
- **Arm 2 (signposting)**: RMs would signpost SMEs to the Be the Business Digital site via two emails encouraging them to use the site.
- **Arm 3 (RM support)**: in this arm, as well as signposting to the Be the Business Digital site, RMs would also discuss the tool in a routine meeting (over the phone) with SMEs for approximately 10 minutes.

The structure of the RCT's arms were designed to distinguish the effect of a resource-intensive (Arm 3) versus a light-touch intervention involving the Be the Business Digital site (Arm 2) relative to a control group (Arm 1).

After RMs delivered the intervention, we would survey their clients about their usage of software and recent progress towards or adoption of back-office technology systems. Comparing results for SMEs who received different levels of support from their RM would allow us to infer the impact of the intervention.

For an RCT to give good estimates of the effect of the intervention, a large sample of participants is needed. For this project, we set a minimum usable sample target of 100 RMs and 500 SMEs to be able to detect reasonable effect sizes for the intervention. RMs would be recruited to the trial by their Regional or Area Directors. In turn, SMEs would be recruited by these RMs for the study prior to randomisation. After randomisation, RMs would receive training specific to the trial arm they were in.

A pilot was run from February - March 2021. The goal of the pilot was to run the recruitment and intervention with 5-10 RMs participating and 10-20 clients over a compressed timeframe to learn about recruitment and intervention delivery logistics. However, there were issues with recruitment in the pilot. Six RMs were invited, with two actively participating. 10 SMEs were invited to pilot and only two completed the baseline survey.

Given the difficulty in recruiting seen during the pilot, there was uncertainty about whether we would be able to achieve our minimum usable sample size to run an RCT; therefore, a decision gate was defined in the trial protocol for July 2021. This specified that at this point a decision about type of evaluation that would be conducted based on recruitment numbers:

- **Scenario A: 100 or more RMs** and **500 or more SMEs** are recruited to the trial → 3-arm RCT.
- **Scenario B: 55 or more RMs** and **350 or more SMEs** are recruited to the trial → 2-arm RCT (dropping Arm 2).
- **Scenario C: Fewer than 55 RMs** or **fewer than 350 SMEs** are recruited → RCT not feasible due to lack of power.

In May 2021, it appeared that we would not meet the minimum sample size for scenarios A and B, and started investigating other options. As of the end of the recruitment period (2 July 2021), 160 SMEs from 43 RMs had been recruited, meaning that the minimum sample size

requirements for Scenario A and B were not met. The next section outlines how we planned to evaluate given the inability to run an RCT.

2. Revised evaluation design and project goals

Overall, this project aims to evaluate whether having business account banking relationship managers (RMs) at Lloyds Bank encourage SME managers to use BtBD and discussing technology adoption with them, an extension to the regular roles and responsibilities of RMs, increases progress towards software adoption, software adoption itself, or intentions to adopt software by SMEs. The outcome measures we use and how the data was collected is outlined in Appendix A. While we had originally hoped to evaluate the impact of Be the Business Digital on its own (i.e. the impact of RM signposting their clients to use the tool via email without further support), the change in evaluation strategy meant this was not possible.

As a result of challenges in recruitment that were outlined in the previous section, our evaluation uses a mixed-methods approach. Our primary method for the impact evaluation is pre-post, and we provide additional evidence from difference-in-difference analyses. We also conducted an implementation and process evaluation (IPE), using interview data and other data on take-up. The research questions and how they are answered by our approaches are outlined below in Table 1.

Pre-post and difference-in-difference strategies are methods to uncover the casual estimate of an intervention when randomisation is not possible; both involve looking at outcome measures over time for a group of SMEs, before and after an intervention, to find the effect of a treatment. However, these methods are less robust than an RCT and require us to make strict assumptions to interpret the change in outcomes as the effect of the intervention. The rest of this section will go into more detail on each of these methods, as well as our IPE.

Table 1: Research questions

Research question[5]	How we'll answer it
RQ1: How does Be the Business Digital and support from RMs affect the *progress towards adopting software* for SMEs in England?	Pre-post analysis, comparing pre-intervention outcomes to post-intervention outcomes for Lloyds Bank SMEs
RQ2: How does Be the Business Digital and support from RMs affect *actual adoption*?	Difference-in-Difference analysis, comparing pre-intervention outcomes to post-intervention outcomes for Lloyds Bank SMEs against outcomes for SMEs not prompted to use the website or receiving support (external comparison sample)
RQ3: How does Be the Business Digital and support from RMs affect *intentions to adopt*?	
RQ4: To what extent is the intervention delivered to the target group by RMs as intended?	Descriptive analysis of endline survey responses Descriptive analysis of RM tracking forms Qualitative analysis of interviews with RMs & SMEs

[5] The trial protocol specified additional exploratory analysis; however, given very small sample sizes achieved, these were not explored and have been excluded from the report.

Research question[5]	How we'll answer it
RQ5: How much do SMEs use the support offered within Be the Business Digital and by RMs? What are the barriers and facilitators to engagement?	Descriptive analysis of website usage data Qualitative analysis of interviews with RMs & SMEs
RQ6: How do characteristics of SMEs and relationship managers affect the intervention?	Qualitative analysis of interviews with RMs & SMEs
RQ7: What other factors may be driving adoption at the present moment?	Qualitative analysis of interviews with RMs & SMEs

2.1 Pre-Post with Lloyds Bank SMEs

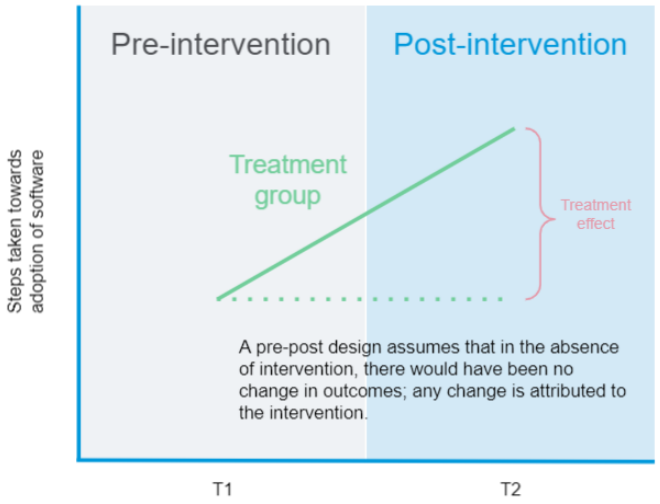
The purpose of the pre-post analysis is to answer the following research questions:

- RQ1: How does Be the Business Digital and support from RMs affect the progress (steps) towards adopting software for SMEs in England? (primary research question)
- RQ2: How does Be the Business Digital and support from RMs affect actual adoption? (secondary research question)
- RQ3: How does Be the Business Digital and support from RMs affect intentions to adopt? (secondary research question)

To conduct the pre-post analysis, we use survey data collected from two time periods, one before the SMEs received any intervention, and one from after. The details of these are provided in the next section.

For a pre-post to uncover the effect of the intervention, the key assumption is that in the absence of intervention, there would have been no change in observed outcomes (Figure 1); However, there are many reasons why outcomes may change between two time periods that have nothing to do with the Be the Business Digital intervention. For example, we ran this evaluation during the COVID-19 pandemic and many businesses may have been forced to adopt digital technology to enable remote working. Contrastingly, businesses may be more likely to adopt technology at certain times of year when more money is available for investment, and we could mistake these seasonal trends for the effect of the intervention. We discuss these limitations of the approach in more detail in Section 5.

Figure 1: Pre-post set-up



2.2 Difference-in-Differences with an external comparison group

To address some limitations of the pre-post analysis, we also conduct a difference-in-difference (DID) analysis, comparing pre-post survey data for Lloyds Bank SMEs to an additional group of SMEs, recruited from an external panel provider, that did not receive the intervention.

By doing this, we offer a complementary analysis to the research questions that are also answered by the pre-post:

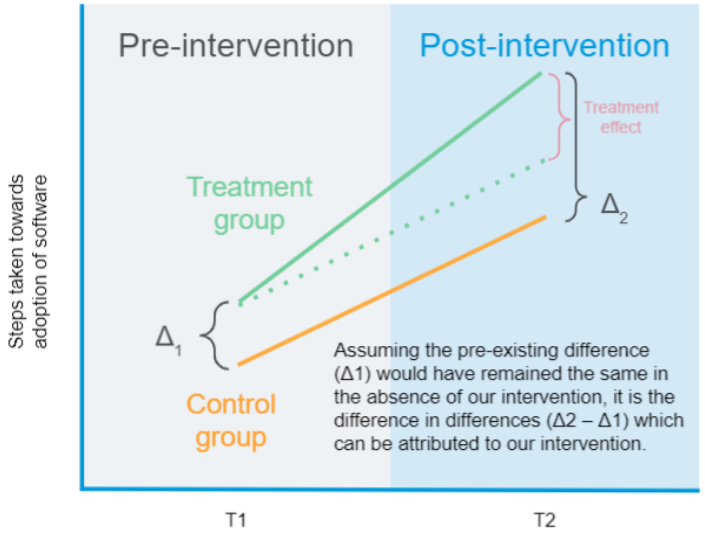
- RQ1: How does Be the Business Digital and support from RMs affect the progress (steps) towards adopting software for SMEs in England? (primary research question)
- RQ2: How does Be the Business Digital and support from RMs affect actual adoption? (secondary research question)
- RQ3: How does Be the Business Digital and support from RMs affect intentions to adopt? (secondary research question)

An advantage of having a separate group of SMEs who did not receive the intervention is that these can be used as a comparison group to the Lloyds Bank SMEs that did, in order to infer the effect of the intervention, under some assumptions. In other words, having a comparison group of SMEs allows us to account for time-trends that affect both SMEs in our Lloyds group and our external comparison group equally, such as the effect of COVID-19 or seasonal trends. However, if factors like these affect one group more than the other, then the change in the difference observed will not be the result of the intervention.

Consequently, the DID gives us the effect of the intervention if we assume that any difference between the groups would have remained the same in the absence of the intervention (Figure 2). This is referred to as the “parallel trends assumption”. There are a number of concerns with our difference-in-difference approach here; namely that we are not able to provide evidence that the two groups were on similar trends with respect to outcome

measures in advance of intervention and that the two groups look very different on observable characteristics (see Section 3.4 for a comparison of sample characteristics). We discuss the limitations of the DID approach in more detail in Section 5.

Figure 2: Difference-in-difference set-up



2.3 Implementation and Process Evaluation (IPE)

The implementation and process evaluation is aimed at answering research questions four to seven:

- RQ4: To what extent is the intervention delivered to the target group by RMs as intended?
- RQ5: How much do SMEs use the support offered within Be the Business Digital and by RMs? What are the barriers and facilitators to engagement?
- RQ6: How do characteristics of SMEs affect the intervention? Do characteristics of the relationship managers affect the intervention?
- RQ7: What other factors may be driving adoption at the present moment?

To answer these questions, we use data from four sources, including:

- **Tracking forms spreadsheets**, to track which actions an RM takes, when and with which clients.
- **Be the Business Digital website data,** to augment self-reported data on usage of the tool, and to see whether SMEs use the tool in the way envisaged.
- **Interviews with SMEs,** to get qualitative insights on levels of engagement, perceptions of tool and support, and other factors influencing adoption during this time period.
- **Interviews with RMs**, to understand the issues that RMs experienced in recruiting and keeping SMEs engaged in the evaluation, qualitative insights to determine ease and accuracy with which Lloyds Bank relationship managers provided the required

support, and delivered the intervention and factors they felt influenced SME adoption of technology over this period of time.

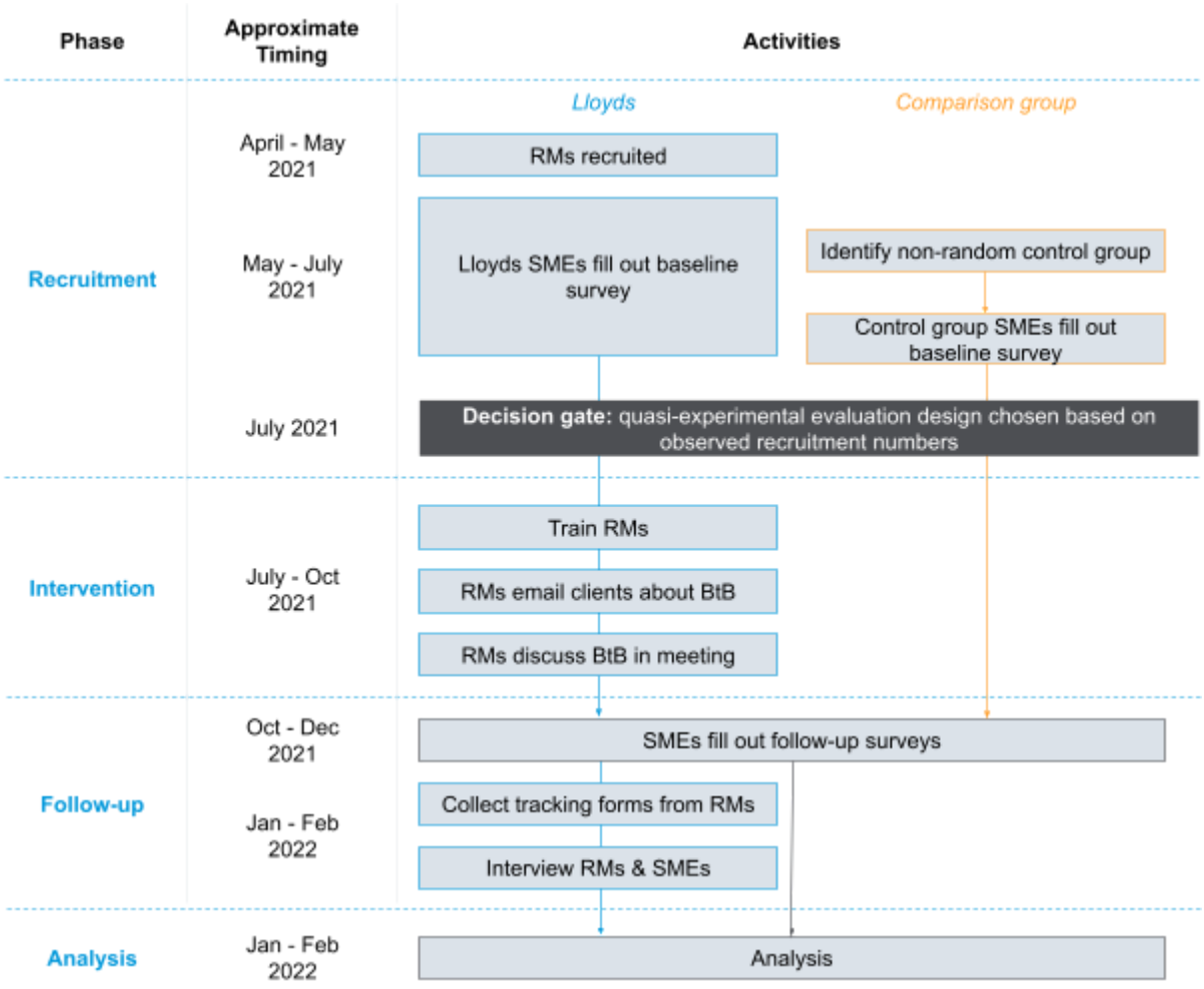
2.4 Cost-effectiveness and cost-benefit analysis

Our evaluation plan also outlined that we would conduct a cost-effectiveness and cost-benefit analysis. However, robust cost-effectiveness and cost-benefit analyses require causal estimates of the treatment effect. Given concerns with sample size, attrition, and comparability of samples, discussed in more detail in Section 5, these have not been completed.

3. Evaluation procedure

The evaluation occurred between April 2021 and January 2022. Figure 3 outlines the key stages of the evaluation and the activities that occurred during each stage.

Figure 3: Evaluation timeline



3.1 Recruitment

Regional and Area Directors at Lloyds Bank approached RMs and asked them to participate in the project. Fifty-eight RMs from five regions agreed to participate in the project, as outlined in Table 2. RMs that participated in the pre-trial pilot were not eligible to participate in the full evaluation.

These RMs were then asked to invite eligible clients (SMEs) to participate. To be eligible to participate, SMEs needed to:

- Be an SME banking client of an eligible RM;

- Have not participated in the pre-trial pilot;
- Be based in England;
- Have between 1-249 employees; and
- Have not opted out of Lloyds Bank marketing communications.

RMs were instructed to consider targeting clients that they believed had an interest in making better use of software in their business; or adopting new software; however, when recruitment proved to be more difficult than anticipated, RMs were encouraged to email many clients on their list.

RMs were asked to send their clients an email explaining the programme and requesting they fill out a survey in order to sign-up. This baseline survey obtained consent from SMEs to participate in the project, and gathered basic details about their company and its use of technology. The baseline survey was open from 12 May to 1 July 2021. Median survey completion time on the baseline survey for Lloyds Bank SMEs was approximately 8 minutes, 45 seconds.[6]

Importantly, RMs were asked to participate in the project and recruit clients without receiving many details of the project or intervention. This was because the decision about what form the evaluation would take was based on recruitment numbers and we did not know whether we would be randomising RMs and training them to deliver different interventions.

BtB sent RMs nearly daily recruitment updates during the six week recruitment period, providing them with the names of their clients who had signed up to participate in the trial. RMs were asked to follow-up with clients that had not signed up. In total, 160 SMEs completed the baseline survey; they were clients of 43 RMs.[7] Fifteen RMs did not recruit any clients to the trial.

Recruitment was much harder than anticipated. The RMs we spoke to in the interviews sent recruitment emails to between 20 and 120 clients, with some choosing a more targeted approach and others choosing to send it to all their clients. An average of less than three clients were recruited per RM. When asked about why recruitment may have been difficult, RMs mentioned timing, particularly the fact that recruitment took place over summer holidays, clients perceiving that the offer was relevant to them, and lack of information making it difficult to engage clients. Other RMs suggested that they felt clients participated as a favour to the RM rather than any interest in the programme.

[6] Time to complete survey was not available for the comparison group SMEs.
[7] We had 162 responses; however, this included two duplicates, i.e. in two cases, two people from the same company had each filled out the survey. We kept the earlier of the two responses in each of these cases and excluded the second response.

Table 2: Lloyds Bank RM and SME recruitment by region

Lloyds Bank region	Number of RMs that agreed to participate	Actual active RMs (agreed to participate, and recruited at least one SME)	Number of SMEs that completed baseline survey
London	15	7	21
Midlands and South Wales	10	7	21
North East	14	11	32
North West	10	10	38
South East	9	8	48
Total	**58**	**43**	**160**

In June and July 2021,, we also recruited a comparison sample of SMEs from an external market research company. These SMEs were recruited to the market research platform through a mix of online adverts, social media adverts, referrals, and targeted recruitment into the panel via different databases and direct phone calls. We paid these SMEs to complete our survey, which ran from 30 June to 6 July 2021.

To be eligible to complete the baseline survey, respondents in the external panel needed to:

- Have a business address in England;
- Have between 1-250 employees;
- Have one of the following job titles: Owner/Proprietor/Principal, Manager/Senior Manager, Executive VP / Senior VP, President, Vice President/Assistant VP, Director/Department Head, Chief Financial Officer, Chief Executive Officer, Chairman/Board Member, Assistant Manager/Assistant Director; and
- Not be a client of Lloyds Bank.

We set minimum targets for the number of businesses in the sample on size (number of employees) and region. This meant that we aimed to recruit a minimum of 5% of the sample from each of nine regions in England. We also had the following minimum targets for the number of employees: 30% of SMEs in our sample needed to have 1-10 employees, 20% needed to have 11-50 employees, 10% needed to have 51-250 employees, and the remaining 40% could have between 1-25. The goal of this was to try to match the characteristics of businesses in the comparison sample to those in our Lloyds sample on these two characteristics.

Four hundred and four SMEs completed the first survey in the comparison sample.

3.2 Intervention

Following recruitment, BtB ran RM training sessions on 5 and 6 July 2021. The training session covered how to use Be the Business Digital and how to discuss the tool with their clients. The training also introduced the supporting material RMs would be given to deliver the intervention.

After the training, BtB emailed supporting materials to RMs, including email templates to send to their clients.

We wanted RMs to use the following steps to encourage their SMEs to use BtBD:

- Send them an email encouraging SMEs to use the site and telling them they will discuss it further in their next meeting;
- Discuss the website in a routine meeting over the phone with the client for approximately 10 minutes; and,
- Set up an Action Plan in BtBD for the SME client to follow, or share the link with the SME for them to set-up their own action plan after the meeting.

We wanted RMs to do this between 12 July and 15 October 2021,

Throughout the intervention period, RMs were asked to track their interactions with clients in a tracking form, including whether and when they emailed clients about the tool or talked about it in a meeting with the goal of tracking fidelity with intervention delivery.

SMEs in the external comparison group were given no prompts to use the tool.

3.3 Follow-up

At the end of the intervention period in mid-October 2021, we asked RMs to email trial participants to ask them to complete a second survey in order to capture endline outcome measures. In response to low completion rates for the endline survey, BtB contacted SMEs directly three times by email asking them to complete the survey. To try and encourage more SMEs to complete the survey we set up a prize draw giving the opportunity to win a donation for a charity of their choice. Data collection for Lloyds Bank SMEs occurred between 18 October 2021 and 19 December 2021.

We ended up with 31 valid responses from Lloyds Bank SMEs at the endline survey, from 14 RMs (Table 3 and Table 4). There was substantial attrition between the baseline survey and the endline survey, with 68% of RMs that recruited clients in the baseline survey not managing to get any to complete a follow-up survey. Eighty one percent of SMEs who signed up to take part in the trial dropped out and didn't complete the final survey. Median time to complete the final survey for LLoyds SMEs was approximately 6 minutes, 30 seconds.

We forecast in the TP that attrition would be 10% for RMs and 25% for SMEs; attrition was substantially higher than this in reality. Reflections on this are discussed in Section 6: Lessons and recommendations.

Table 3: Lloyds Bank SME survey attrition

Phase	Number
SMEs completed baseline survey	**160**
SMEs completed endline survey	**33**

Phase	Number
SMEs removed from sample during data cleaning	**2**[8]
Final usable sample	**31**
Attrition rate (baseline-to-endline)	**81%**

Table 4: Lloyds Bank RM attrition

Phase	Number
RMs that agreed to participate	**58**
RMs that recruited at least one SME to fill out the baseline survey	**43**
RMs that had at least one SME fill out the endline survey	**14**
Attrition rate (baseline-to-endline)	**67%**

Between 25 October 2021 and 29 November 2021, SMEs in the comparison group were recontacted by the panel provider and asked to fill out another survey. There were 188 responses to this survey. Seven SMEs were removed from the sample during data cleaning as they had switched to banking with Lloyds Bank between baseline and endline, so our final sample was 181; an attrition rate from baseline to endline of 55% (see Table 5). We estimated that attrition in this sample would be between 25-50%, so this was slightly higher than our high attrition forecast.

Table 5: Comparison sample attrition

Phase	#
SMEs completed baseline survey	**404**
SMEs completed endline survey	**188**
SMEs removed from sample during data cleaning	**7**[9]
Final usable sample	**181**
Attrition rate (baseline-to-endline)	**55%**

[8] One duplicate response was removed from the endline survey. Another participant completed the endline survey, but does not appear to have completed the baseline. They have therefore been removed from the sample.
[9] Seven firms in the comparison sample were dropped as they said they were banking with Lloyds Bank in the endline survey, although they had previously said they didn't in the baseline.

As part of follow-up, we conducted 30-minute, semi-structured interviews with nine RMs and four SMEs between 28 January and 9 February 2022. These interviews were conducted over video calls and facilitated using interview guides that were set-out in the evaluation protocol.

We asked RMs to return their tracking forms, intended to track when and to whom RMs delivered the intervention. Twelve RMs returned their tracking forms, covering interactions with 61 SMEs. We also collected data from the website about its usage through the intervention period.

3.4 Final samples for analysis

Pre-Post, Lloyds Bank SMEs

We had a total sample size of 31 SMEs that completed both surveys, from 14 different RMs. Some descriptive statistics on the firms in the final sample are provided below in Figures 4-6.

Figure 4: Lloyds Bank SMEs by number of employees

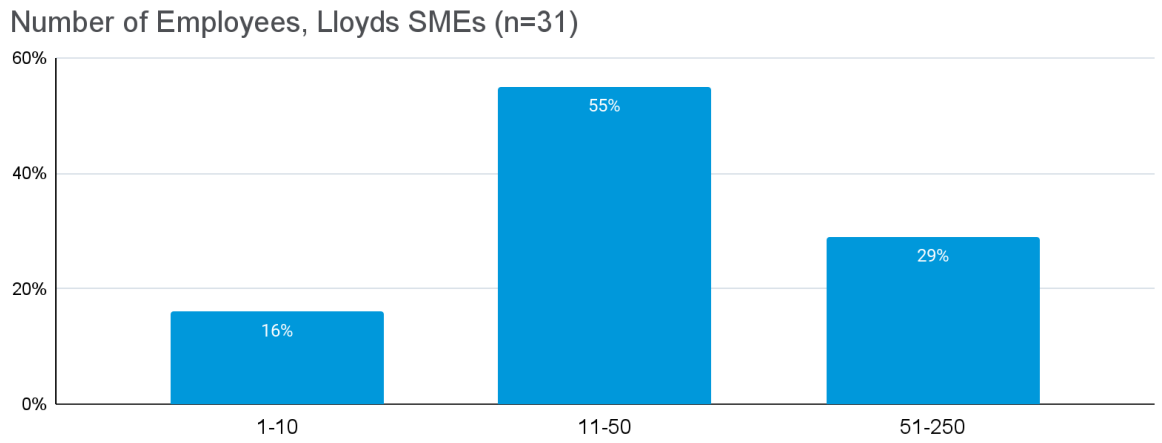


Figure 5: Lloyds Bank SMEs by age of business

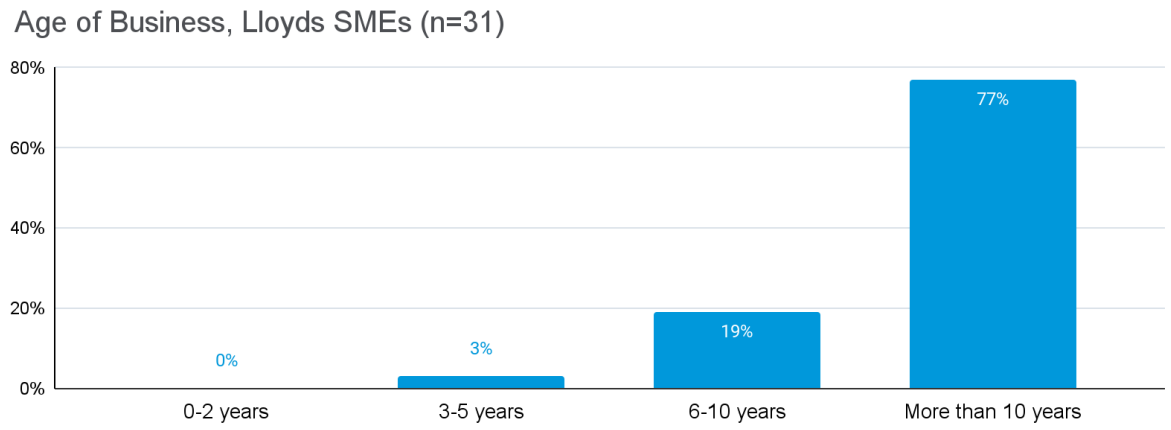
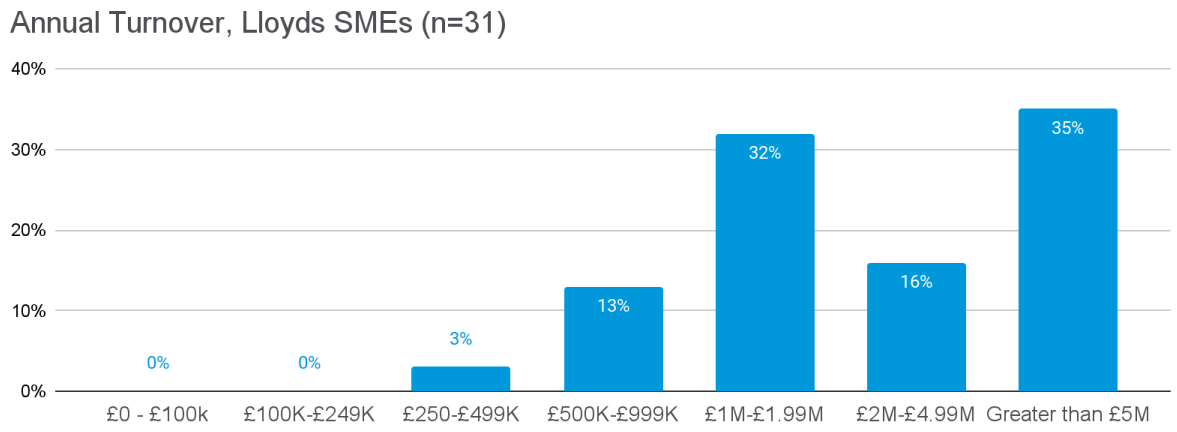


Figure 6: Lloyds Bank SMEs by annual turnover



We compared Lloyds SMEs that dropped out to those that completed the final survey on demographic characteristics from baseline. The results of this analysis are included in Appendix B.1. Overall, SMEs that completed the final survey on average looked very similar to those that didn't. The only variable that varied significantly between the two groups was industry. That being said, it is possible that the two groups differed on unobservable characteristics, i.e. things we didn't measure.

Difference-in-Difference, Lloyds Bank SMEs and external panel sample

Our final sample for the difference-in-difference analysis is 312: 181 SMEs from the external comparison sample, plus 31 in the Lloyds Bank sample. Figures 7-9 include some descriptive statistics on firm demographics in the two samples and how they compare.

The final samples of Lloyds Bank and comparison SMEs differ from each other in regards to observable characteristics. SMEs in the Lloyds Bank sample typically have more employees (statistically significant at 10%), have been operating longer, and have higher turnover (both statistically significant at 1%) compared to those in the comparison group. They also generally come from different regions and different industries. Appendix B.2 has a more thorough comparison of the SMEs that went on to complete the final survey, including whether the differences observed are statistically significant. Appendix B.3 has a comparison of the two groups at baseline.

As already outlined above, we checked for differential attrition between baseline and endline, for both the Lloyds and the comparison sample (see sections B.1 and B.4 in the appendix); the SMEs in the comparison sample that completed the final survey did not look significantly different to those that didn't; however, we're not able to rule out that they could be different on unobservable characteristics.

Figure 7: Lloyds Bank and comparison SMEs by number of employees

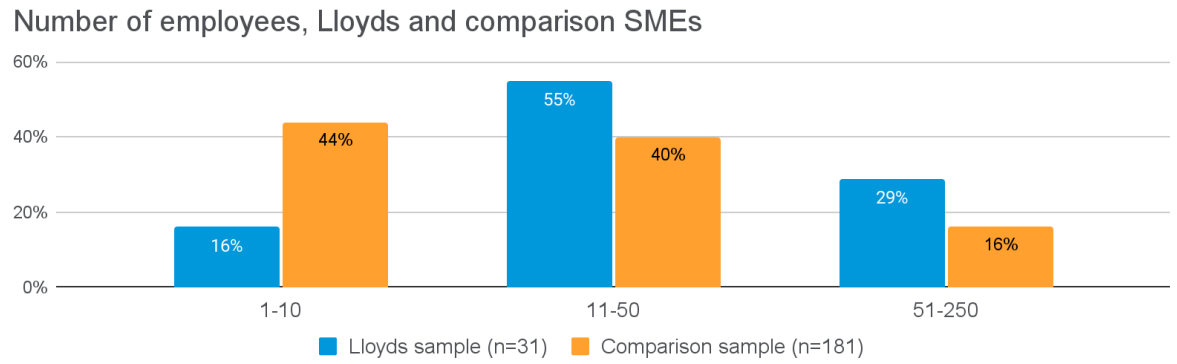


Figure 8: Lloyds Bank and comparison SMEs by age of business

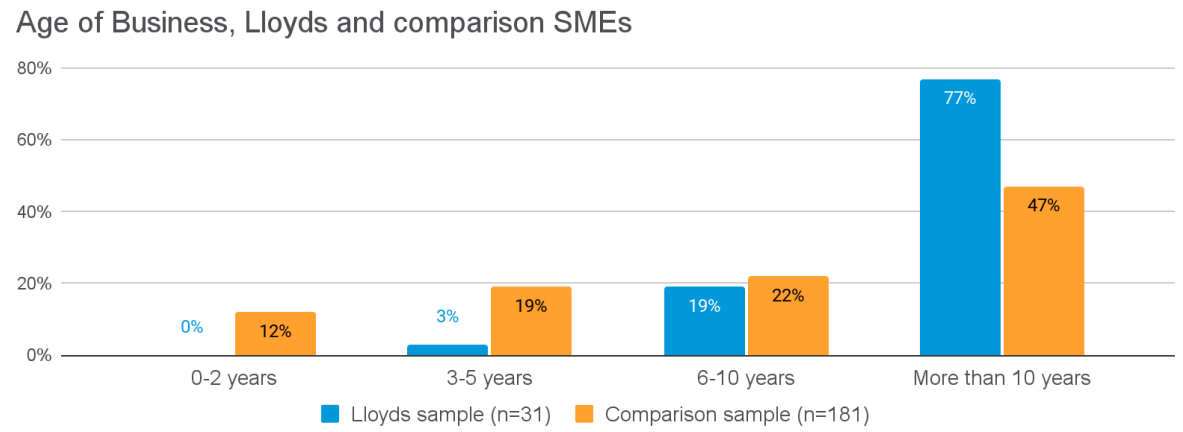
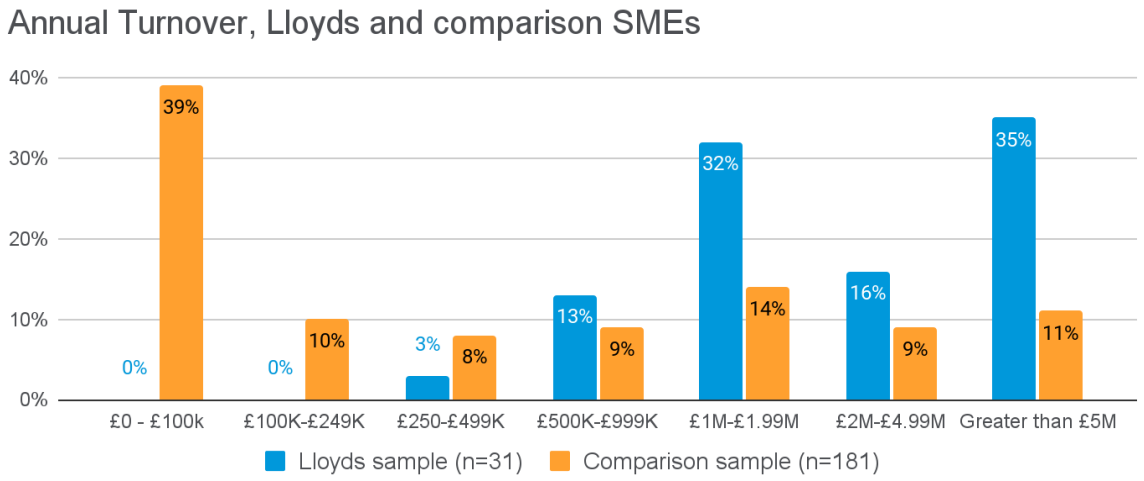


Figure 9: Lloyds Bank and comparison SMEs by turnover



4. Findings

Overall, analysis of the survey, interviews, website data and tracking forms do not paint a positive picture of the intervention.

We found no evidence that the intervention increased progress towards adoption. The pre-post shows a drop in progress towards adoption after intervention compared to before intervention, statistically significant at 5%. We found **no evidence that the intervention increased actual adoption or intentions to adopt either.** The pre-post shows a drop in actual adoption post-intervention, statistically significant at 5%. For intentions to adopt, there were no statistically significant differences after intervention as compared to before.

Directionally, **all the differences in the pre-post are negative and two are statistically significantly so.** Two of the difference-in-difference analyses on these outcome measures were also negative, with one difference being statistically significant. This points to the intervention having had a negative effect, if any, on outcomes. However, as we outline in the next section on limitations, **there are a number of reasons why these estimates should not be interpreted as causal.** We hypothesise that differences between groups, seasonal effects, and negative correlation in outcome measures over short time horizons could explain the reductions in outcome measures we saw; that is, SMEs may have been very busy in adopting software in the lead-up to our first survey and are therefore less busy in the lead-up to the second survey. Through interviews with RMs and SMEs, we found that **there was very little consensus about background trends in technology adoption** that may have caused this.

It is also hard to explain why the intervention may have had a negative impact when it seems that it was not implemented as intended or widely used. **While RMs reported that they initially signposted clients to Be the Business Digital, there appeared to be less follow-up, particularly in meetings, than anticipated.** The reasons for not following up included perceived lack of relevance, lack of time and lack of skills to adequately engage.

Some SMEs discussed software with their RM but few used Be the Business Digital. Some SMEs in the trial did find it useful; however, others reported that they did not use it because it wasn't relevant or they were too busy. There were also mixed reactions to the role of RMs in providing support on software adoption.

SME size, stage, age, and sophistication were factors in whether they found it useful or not, with SMEs and RMs sharing that they thought it was useful for small and recently established businesses, or those currently working on adopting new software. **RMs with stronger existing client relationships and greater comfort with technology appeared to be more successful, both with recruiting clients and discussing BtB or software more generally with them.**

The rest of this section goes into detail on the findings for each of the research questions in more detail.

4.1 RQ1: how does Be the Business Digital and support from RMs affect the progress towards adopting software for SMEs in England?

Our primary outcome measure was the number of steps that SMEs took towards adoption in the previous three months. This was created using a survey question of 15 possible steps towards adoption and SMEs were asked to select all steps that they had taken in the previous three months.[10] Table 7 contains the results from the pre-post and the difference-in-difference regressions for this outcome. For the regression equations, see Appendix C, Analytical strategy.

In the pre-post, we find that **SMEs completed two fewer steps towards adoption after intervention than before, statistically significant at 1%**. Prior to intervention, SMEs had taken approximately six steps towards adoption in the previous three months. After intervention, they had only taken 3 steps towards adoption in the previous three months.In the difference-in-difference, Lloyds Bank SMEs had a larger reduction in the number of steps taken towards adoption than SMEs in the control group before and after intervention, statistically significant at 5%.

Directionally the results point towards the intervention having had a negative impact on progress towards adoption, though as already stated we cannot be confident that these differences reflect the result of the intervention. We hypothesise that seasonal effects, and negative correlation in outcome measures over short time horizons could explain the reductions in outcome measures we saw.

This is a key weakness of the outcome measure set up; it is plausible that SMEs may have taken a number of steps towards adoption before the first survey, e.g. because it was the start of a new financial year and there was funding available for these sorts of activities; therefore, when we took a second snapshot ~3 months later, they had taken fewer steps, not because the intervention had a negative effect, but because they had already done these activities and were unlikely to do them again in the short-term, regardless of whether they received the intervention or not.

[10] An issue with the baseline surveys was discovered after data collection: participants were not given the option to select “none of the above” for steps to adoption.This was fixed for the endline survey; however, our outcome variable is coded as 1-15, rather than 0-15 to allow for more accurate comparison between baseline and endline. Any survey respondents that selected “none of the above” have been coded as taking one step. It is possible that giving a “none of the above” option changed the distribution of responses given; however, given we did not see changes of the same magnitude between the Lloyds Bank and comparison samples who were affected equally by the survey error, we do not think this is the case.

Table 7: Regression table, steps towards adoption

Coefficient = change in number of steps towards adoption for Lloyds Bank SMEs; in steps, scale from 1-15

	OLS regression (1), pre-post Primary analysis	OLS regression (3), DID Exploratory analysis
Coefficient (robust SE's)	-2.06** (0.67)	-1.73* (0.71)
p-value	0.00	0.02
SME fixed effects	Yes	Yes
Adjusted R^2	0.57	0.25
Observations *(SMEs*2 observation periods)*	62	424
Baseline steps taken, Lloyds Bank	5.68	5.68
Baseline steps taken, comparison	N/A	2.92

** p < 0.1, * p < 0.05, + p < 0.1

4.2 RQ2: how does Be the Business Digital and support from RMs affect actual adoption?

A secondary outcome measure was focused on actual adoption of software, particularly whether the SME reported adopting software in each of five categories in the previous three months; CRM, ERP, HR, accounting, and project management.[11] We count whether an SME adopted software in each of these categories to get to a score out of 5. For example, if a SME reported adopting a new CRM but no other software, this variable would take the value of 1. If they reported adopting all 5, the variable would be equal to 5. Table 8 contains the results from the pre-post and the difference-in-difference regressions for this outcome. For the regression equations, see Appendix C: Analytical strategy.

In the pre-post, we find SMEs **were less likely to have adopted new software systems in the past three months across five categories after intervention than before; the difference was statistically significant at 5%.** SMEs had adopted 0.74 types of new systems on average in the three months prior to the survey. Post-intervention, this was 0.29, a drop of 0.45, statistically significant at 5%.

In the difference-in-difference, we find that Lloyds Bank SMEs **had a larger reduction in the number of software systems they reported adopting than SMEs in the comparison group, before and after intervention,** though this was not statistically significant. Similar to progress towards adoption, this points towards the intervention having had a negative impact on actual adoption if any; however, as already stated we cannot be confident that these differences reflect the result of the intervention, and could be explained by seasonal trends, and negative correlation of outcome measures over short time-horizons.

Table 8: Regression table, adoption
Coefficient = change in number of five types of software systems adopted for Lloyds Bank SMEs; scale from 0-5

	OLS regression (1), pre-post Secondary analysis	OLS regression (3), DID Exploratory analysis
Coefficient (robust SE's)	-0.45* (0.19)	-0.16 (0.23)
p-value	0.02	0.48
SME fixed effects	Yes	Yes
Adjusted R^2	0.28	0.19
Observations *(SMEs*2 observation periods)*	62	424
Baseline steps taken, Lloyds Bank	0.74	0.74
Baseline steps taken, comparison	N/A	0.85

** p < 0.1, * p < 0.05, + p < 0.1

[11] Appendix E contains basic descriptive statistics for each of these types of systems separately, rather than aggregated.

4.3 RQ3: how does Be the Business Digital and support from RMs affect intentions to adopt?

Another secondary outcome measure was focused on SMEs intentions to adopt technology in the future. Respondents were asked to rate the likelihood of adopting software in each of five categories in the next 12 months.[12] For this outcome, we have taken the average likelihood from across all five categories. Table 9 contains the results from the pre-post and the difference-in-difference regressions for this outcome. For the regression equations, see Appendix C, Analytical strategy.

In the pre-post, we find SMEs **were less likely to report intentions to adopt new software systems across five categories after the intervention than before, though this was not statistically significant.** Before intervention, Lloyds Bank SMEs reported that the average likelihood they would adopt new software in the next twelve months was 24% across five types of systems. Post-intervention, this was 18%, a drop of six percentage points. This difference was not statistically significant and there was substantial variation; we cannot rule out that the intervention had a positive effect on this outcome.

In the DID analysis, we find that **the reduction in intended adoption between pre-intervention and post-intervention was smaller for Lloyds Bank SMEs than those in the comparison sample**: 24% to 18% for Lloyds Bank SMEs and 41% to 27% for SMEs in the comparison group. This result is not statistically significant, and large standard errors mean we cannot rule out that there could have been a positive or negative effect on intentions to adopt.

Table 9: Regression table, intentions to adopt
Coefficient = change in average likelihood that SME will adopt software across five categories for Lloyds Bank SMEs; scale from 0-100

	OLS Regression (1), pre-post Secondary analysis	OLS Regression (3), DID Exploratory analysis
Coefficient (robust SE's)	-6.34 (4.22)	7.99 (5.02)
p-value	0.14	0.11
SME fixed effects	Yes	Yes
Adjusted R^2	0.60	0.11
Observations *(SMEs*2 observation periods)*	62	424
Baseline steps taken, Lloyds Bank	24%	24%
Baseline steps taken, comparison	N/A	41%

** p < 0.1, * p < 0.05, + p < 0.1

[12] Appendix E contains basic descriptive statistics for each of these types of systems separately, rather than aggregated.

4.4 RQ4: to what extent is the intervention delivered to the target group by RMs as intended?

To understand whether RMs delivered the intervention as intended, we conducted and analysed interviews from nine RMs. We also used data from tracking forms; these were spreadsheets where we asked RMs to keep track of communications sent to and conversations with their clients. We requested these back at the end of the project and we received 11 completed forms back from RMs, covering 50 SMEs.[13] Of the nine RMs that were interviewed, 4 had also submitted tracking forms.

Across both sources of data, it appears that **RMs did not deliver the intervention as intended, particularly when it came to following up with clients in later stages of the project.** The evidence for this and potential reasons are outlined below. This was for a variety of reasons including a lack of time and lack of confidence about their ability to answer follow-up questions.

RMs reported that they initially signposted clients to Be the Business Digital

In our interviews, RMs reported that they used the template emails to initially signpost clients to Be the Business Digital. We heard that the template emails were high quality and of the right detail to send to clients. One RM reported that *"From a client perspective, the emails that came out were strong, … [and] engaging".*

RMs also appreciated the opportunity to connect with clients on a different topic from what they would normally cover. For example, one RM stated that: *"It was good to have something different to send out and discuss with clients"*. Another stated that *"It's a good way to reach out to the clients because it's showing that we care about their business and their technology".*

The data that was reported by RMs in the tracking forms corroborates that many RMs sent out introductory emails (Table 10). EightRMs of the 11 that completed tracking forms reported they sent emails introducing Be the Business Digital to each of their clients in the trial (a total of 40); the remaining three did not report sending emails to any of their clients emails introducing BtB.

Table 10: tracking form responses regarding intervention delivery

	SMEs	RMs
All tracking forms	50	11
Number that sent / were sent an introductory email to the Be the Business Digital	39	8
Number that discussed the tool in a meeting	28	9
Number that sent / were sent a follow-up email after a meeting	13	3

[13] A twelfth RM submitted a tracking form; however, this RM had recruited no SMEs to the trial and so only contained information about SMEs that he reached out to but didn't respond, and no data on further activities, so we exclude them from our analysis.

Despite this, there appeared to be less follow-up, particularly in meetings, than anticipated

RMs were asked to follow-up with clients via email, reminding them to use the website, and to discuss it in a regularly scheduled meeting.

Some RMs seem to have done this with one stating:

> *I sent follow-up emails. I think I sent about three emails out to each client. Then I'd had general telephone conversations with people. Now, I didn't specifically book any meetings in to discuss just Be The Business, but I know you didn't want that anyway. It was to do it in the wider remit of meeting the customer. So it was really off-the-cuff telephone calls to ask them how it was going.*

However, we heard that some RMs may not have done these follow-ups. One RM said:

> *I probably didn't have that many conversations with the clients about it. It was purely a case of, 'There's the information. You register.' I had virtually zero involvement with it after that, other than that initial, 'Do you fancy having a participation in this?'.*

In the tracking forms (Table 10), we saw that nine RMs that completed the tracking form discussed the tool, though only with 28 clients total, or around half of those that are covered in the tracking forms. Few SMEs reported that they received follow-ups after a meeting from their RMs.

The reasons for not following-up included perceived lack of relevance or interest, lack of time, lack of skills to adequately engage or not being connected with the “right” person

The reasons for why RMs didn’t follow up with clients varied. One barrier was that RMs didn’t perceive the support as useful or relevant to all of their clients. RMs may have therefore followed up with some clients but not with others. For example, one RM reported:

> *After I'd done maybe one or two I certainly didn't follow up on the bigger customers because I just didn't think it was relevant to them. I picked the ones that I felt were smaller and would benefit from what was on there.*

Other RMs reported that they had limited time to follow-up with clients in the trial because *“as RMs, we've got a million-and-one things to do”*. For example, one RM who recruited a lot of SMEs stated:

> *In hindsight I should have kept it [recruitment] to two or three [clients] because I think if I had kept it to two or three I would have followed their journey more closely.*

Lack of time was exacerbated by the fact that RMs felt like there were many organisation priorities and other topics they were expected to discuss with clients.

> *I personally think that we've got so many things to think about with regards to the business and supporting the business with. Cashflow requirements is the biggest one, probably, and a lot of other areas, as well. Sustainability is massive at the moment, so we've really got to talk to them about that. It's just how many things can*

you bolt on?

One RM specifically mentioned summer holidays as another reason why there was less engagement with the project than there might have been otherwise. Because of holidays, RMs and SMEs may have been away from work, further exacerbating the feeling of there not being time to deliver the intervention or properly engage clients.

Some RMs seemed to not follow-up because they didn't feel equipped to discuss the topic with their clients. They felt that not being an expert in software and technology adoption meant that they wouldn't be able to answer questions their clients had beyond the very basics, and so were hesitant to discuss it with them. Some RMs also mentioned that they couldn't see how discussing it with their clients would *"add value"*.

> *I didn't feel as though I'd perhaps got enough knowledge to have deep conversations with clients about it, but I could answer simple questions if somebody came up and asked me something. So, as it then went through, I probably didn't have that many conversations with the clients about it.*

Other RMs may not have followed-up with clients because of misunderstandings about the intervention itself and their role. For example, one RM stated that they wanted Be the Business to follow-up with their clients individually and provide feedback to the RM about the discussion and progress:

> *I don't really know how it went for the client, if I'm honest. … I would've still quite liked some sort of feedback from the people [Be the Business] I've referred the client to … my expectation is that I get feedback when I pass my client on to a particular product, specialist or whatever. It's very useful to understand what's happened.*

Finally, other RMs highlighted that it didn't make sense to discuss technology or software in meetings because the people that they talk to on a regular basis are not always the people in a business that are responsible for software. For example, an RM's main contact at a business may be a Chief Financial Officer, but the decisions about whether to invest or implement software may be made primarily by someone else.

4.5 RQ5: how much do SMEs use the support offered within Be the Business Digital and by RMs?

We analysed take-up of treatment by SMEs, whether they used the website or discussed software with the RM, using three sources of data: website usage data from Be the Business Digital, survey data from SMEs at endline, and findings from the interviews. **All sources of data suggest that some SMEs discussed software with their RM but few used Be the Business Digital.**

Some SMEs reported discussing software with their RM during the intervention period

Just under a quarter of Lloyds Bank SMEs reported discussing software with their RM through the intervention period, and a fifth reported discussing Be the Business Digital specifically (Table 11).

Table 11: survey responses about interventions delivery and take-up

Proportion of respondents that reported (in endline survey)	Lloyds Bank SMEs (n=31)
Using Be the Business Digital in previous three months	**3 SMEs (10% of all 31 SMEs)**
Discussing software with their RM in previous three months	**7 SMEs (23% of all 31 SMEs)**
Discussing Be the Business Digital with RM in previous three months (of those that reported discussing software with their RMs)	**6 SMEs (86% of 7 that reported discussing software)**

However, few went on to use Be the Business Digital website

Despite talking about it, it appears that relatively few SMEs went on to use the site. In the survey, only 10% of respondents reported that they had used Be the Business Digital in the previous three months (Table 11).

This was backed up by website usage data. SMEs in the intervention were given a URL for a cloned version of the tool that was not accessible to the general public, enabling us to gather some aggregated statistics on usage. The website data shows that between 12 July 2021 and 17 October 2021, there were approximately 110 sessions or visits to the website, with 550 page views, from 64 unique visitors. The average session duration was approximately four minutes and each visitor looked at approximately five pages.

49% of users visited the site in July, when SMEs were first prompted to use the tool; another 27% of users visited the site in September. No SMEs using the site created or completed action plans (Table 12).

Table 12: BtB site visits by month

Month	Users visiting site	% of all users	Page views	% of all page views
July 2021 *(from 12-07-22)*	45	49%	192	35%
August 2021	13	14%	77	14%
September 2021	25	27%	232	42%
October 2021 *(until 17-10-22)*	9	10%	49	9%
Total	**92**[14]	**100%**	**550**	**100%**

As discussed in the limitations section, we cannot be sure that all these visits were made by SMEs in the trial. We believe it is likely that some of these visits were from RMs reviewing the tool, rather than SMEs. However, if we assume they were all from SMEs, this works out to approximately 40% (64/160) of Lloyds Bank SMEs recruited that went on to use the site.

While take-up was low, some of the SMEs that did go onto use the site found it useful. For example, an RM, who had a client who was engaged with the site, reported that:

> *One of my clients who definitely took it up and did the first survey gave some really good feedback to say how good the resources was… the adoption guide, the action plan, the case studies, I think they definitely looked for that.*

Reasons for not using the website included that it wasn't relevant or they were too busy

We found that most of the SMEs were well-established companies that already had advanced technologies in place and thus the information provided was not particularly relevant for them. One of the RMs reported that it was not relevant for their clients as they already had software in place:

> *I think it was just down to them thinking, is this a good investment of my time? I'm happy with all the software I've already got. Do I really need to do this? I think it was just, generally, they had what they needed and they weren't that overly interested, to be honest.*

However, SMEs did highlight that they would have found this information useful when they started out. One of the interviewees mentioned that *"this would have been useful maybe four or five years ago, but we've got systems in place".*

Another barrier for support was that SMEs were busy and reading the website felt like too much effort. One SME described themselves as *"lazy and busy"* and said this was a reason why they didn't engage with the site.

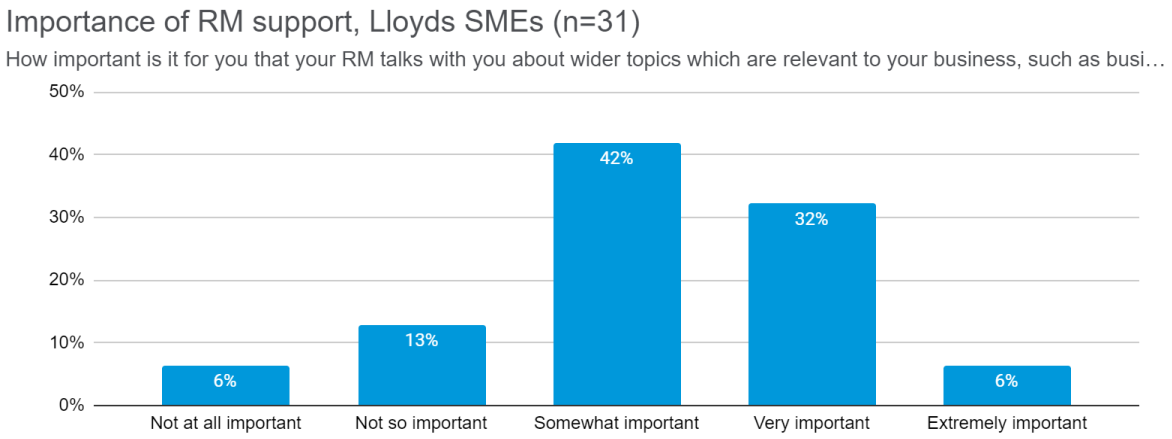
[14] Number of users is higher than the 64 unique visitors mentioned above, as some users may have visited the site multiple times / in different months.

There were mixed opinions about the role of RMs in offering support on non-financial topics, including software adoption

Some SMEs like the idea of an RM providing support on a wide variety of topics, specifically noting that they're well positioned to see across businesses of different sizes and sectors, as well as being a source of accountability for businesses.

When asked in the survey how important it was to get support from RMs on wider topics such as business support options, over 80% of Lloyds Bank SMEs said that it was at least "somewhat important" (Figure 12).

Figure 12: Opinions on RM support, Lloyds Bank SMEs



However, SMEs also cautioned that RMs may be limited to providing some basic knowledge or helping only new businesses, given they're not experts. One RM stated:

> *Clearly they [RMs] need to be aware; clearly they need to talk about it in the context of business as a consultant. Can they be anything more than a general consultant? No, but can they open and direct and point to things that would be useful? Yes.*

On a similar line, another RM said:

> *Maybe they can help a customer who doesn't know actually where to go to. I suppose they can do that; they can do the facilitation role, I suppose. I suppose what I'm trying to say is, they probably need a threshold level of knowledge to make a meaningful contribution to that discussion.*

Other SMEs felt that it wasn't the role of an RM to provide support on technology. One SME said the idea *"doesn't really sit in the right pot with [them]."* They felt that their relationship with their RM is exclusively focused on finance and banking and they wouldn't consider them a resource for software. Similarly, another SME said they would not think about approaching their bank for advice on technology.

4.6 RQ6: how do characteristics of SMEs and relationship managers affect the intervention?

SME size, age, and sophistication influenced whether they found it useful or not

One of the most common pieces of feedback we received through the interviews was around targeting of the intervention. RMs and SMEs alike described that intervention was too general, especially for companies that already had some level of technology in place. One RM reported:

> *I felt that it probably wasn't client-centric enough and client-specific enough.*

Another RM mentioned that their clients *"were struggling, really, to understand how it would add any value to the business*". It may have been because, as one RM said:

> *There wasn't anything in it for them at that specific moment, because they didn't have any, if you like, processes or projects in mind that could benefit from it.*

SMEs currently going through growth phase or a transformation project found it useful, but it was less useful for those not thinking about introducing new technologies

We found that the support from RMs and resources work best for young and smaller SMEs or SMEs who are going through a transformation. One SME mention that:

> *I think the website... I think it is good for people starting up that don't know their options. For the more complex businesses... they would have needed some consultancy... a lot more in depth than website and support really gave them.*

However, those SMEs who had already prioritised technology and had spent their resources adopting new technologies, did not find the support useful. An RM reported that *"I find a lot of the businesses I'm dealing with have the technology in place that they require".*

To get clients engaged in the intervention, RMs appeared to rely a lot on the strength of their existing relationships and their knowledge of the business; more experienced RMs may have been more persuasive

When deciding which clients to approach, some RMs sent out the emails to all their clients *"because you just never know when there will be an element of technology that can help someone's business"*. Another RM who sent it out to all their clients did it to *"let the client decide whether they think it's relevant to them or not"*.

RMs reported that this was a difficult way to get engagement, and ended up needing a personal approach. As a result, some RMs ended up handpicking the companies that they thought were best suited and may have benefited most from the resources. However, that required a lot of knowledge about the SMEs themselves. An RM who was new to the job reported:

> *I've only been in the job now a year-and-a-half really, so at that time I would have been in the job six months. It was only ones that I felt relevant. So I'm sure someone*

> *that knew our customers a lot better would just send it out to the ones they think are relevant.*

A third group of RMs mainly contacted the clients that they felt closest to. One of them only sent it to *"clients that I thought I had the better relationships with*". Another RM mainly chose their friendliest clients: *"I chose my friends that would probably engage and would find it of interest, that would genuinely look".*

We also found that some SMEs may have participated to please their RM, rather than out of interest in technology adoption. One RM said:

> *I think they did it because … they were thinking, 'we better not let [RM] down, we better do something.'... . So I think they did it for me rather than actually the benefit of themselves if I'm honest.*

This indicates that even while RMs with stronger relationships may have been better at engaging clients in the intervention, this didn't necessarily translate into uptake of treatment or improvements in outcomes.

RMs that were more comfortable with technology may have been more confident talking to their clients about it; others felt apprehensive

We found that some RMs were comfortable talking to their clients about technology adoption, especially those who had more familiarity with or knowledge about technology. However, even those RMs did not go into a lot of detail, but rather played a supportive role and signposted clients to look at the Be the Business resource.

> *There wasn't a huge, in all honesty, amount of detail that I went into, because I didn't feel I was equipped, or I didn't have the knowledge that perhaps the team [at Be the Business] would do. I see myself very much as a generalist passing people on to other people that do have the knowledge.*

Other RMs felt more apprehensive about talking about technology. One RM mentioned that *"You're speaking to somebody about something that you're not an expert in and I'm always a great believer in knowledge brings across confidence."* The main reasons why the RMs did not feel comfortable talking about the details were the lack of knowledge, and also the lack of time to educate themselves about the details of the project and technology.

> *I didn't quite understand it well enough personally to… I haven't the time to understand it well enough for me to drive it. That's what I felt.*

One RM reported that once they found the time to understand the technology better, they could see which client would benefit from it:

> *… when I actually got myself a bit more acquainted with the software and so forth. I went, 'oh yes,'... you could probably see any business could have some sort of need for it, but it was just finding that time myself to properly upskill. I think that was the difficulty.*

4.7 RQ7: what other factors may be driving adoption at the present moment?

Our interviews were also aimed at uncovering whether there were general trends in technology adoption at the same time as the intervention that may have confounded any treatment effect we saw, particularly in the pre-post. For example, if many more firms were adopting technology as a response to more virtual working because of COVID-19, then any positive effect seen over the intervention period may have been attributed to this, rather than the effect of the treatment.

Therefore, in the interviews we asked RMs if their clients were more or less focused on software adoption during the intervention period than at other points in time. We also asked SMEs their perspectives on whether they had been more or less focused on software adoption than usual. The responses painted a mixed picture.

Interviews with RMs generally suggest that they felt some businesses were more focussed on adopting software at present and some were less focussed, but this was largely dependent on the company, sector, people working there, and immediate issues facing the business, rather than broader contextual factors.

When asked specifically about the impact of COVID-19 on businesses and how that impacted on adoption, RMs gave similarly varied views. One RM stated that they thought businesses were still in survival mode, and *"were focussed more on operational and cash flow pressures rather than… anything more strategic and more medium-term".* Others felt that business operations were "back to normal" and COVID was no longer impacting decision making. Others thought that COVID-19 had encouraged businesses to make investments in software.

The RM interviews therefore did not provide clear indication on background trends, with the general view that it depended a lot on a client's circumstances; however, some RMs explained that they weren't particularly in a position to tell how much clients were focussed on software adoption, because it wasn't a primary focus of their conversations.

When asked about their adoption journey in the interviews, the SMEs we spoke to also seemed to have mixed experiences. One had recently undertaken large transformations, utilising shutdowns during lockdown as an opportunity to implement new systems. Others were in a relatively more "steady state"; they had had software in place for a while and weren't considering or thinking about any major changes.

Overall, there was very little consensus or agreement across RMs and SMEs in the interviews about background trends in technology adoption. Therefore, we cannot say with certainty whether the decreases in outcome measures we saw could be explained by any specific trends.

5. Limitations of our evaluation

There are a number of limitations with our approach that require consideration.

1. The methods used do not allow us to make any definitive statements about causality

Unlike the gold-standard RCT design, we are unable to make definitive statements about whether the intervention *caused* a change in outcome measures using pre-post and difference-in-difference methods. The reasons for this are outlined below.

Pre-post

For a pre-post to uncover the causal effect of the intervention, we must assume that in the absence of intervention, there would have been no change in outcome measures. There are a number of reasons why outcomes may have changed over the study period, including (but are not limited to):

- advertisements for productivity software seen by the SMEs between surveys unrelated to the study
- a change in the need for productivity software over time, e.g. due to working from home from Covid-19
- availability of other similar support programmes, such as Help to Grow: Digital, which may have delayed SMEs' decisions to invest in software if they knew additional funding for software adoption would be available in a few months time to undertake this activity
- other time-specific factors affecting each participants' ability to purchase and use software, e.g. annual budgeting periods and available time to make a decision

That the intervention period was fairly long, more than three months, means there was significant scope for other things to change in this period of time which would impact the outcomes of interest. We think it is unlikely that the key assumption for pre-post holds.

Therefore, we think the pre-post analysis should be interpreted with a high degree of caution.

Difference-in-differences

The benefit of using a DID approach is that some time-related factors that would harm the legitimacy of a pre-post analysis' findings, such as changes in business practices due to the pandemic, would not affect the validity of a well-designed difference-in-difference if these factors affected both the comparison and the treatment group.

If you assume that the two groups had a similar trajectory for outcomes in absence of treatment, you can attribute changes in outcomes to the effect of the intervention. This is sometimes called the parallel trends assumption. In many difference-in-difference designs

you can provide evidence of the parallel trends assumption by comparing the trends in outcomes over time between the two groups. In this scenario, we did not have multiple periods of pre-intervention outcome data for either Lloyds Bank or the external comparison group to demonstrate whether or not firms in each group were on a similar trajectory pre-intervention.

This is a key weakness of the difference-in-difference strategy; we cannot provide evidence that the two groups had historically been on similar trends with respect to the outcome measures we use. This makes it more difficult to assume that the outcome measures would have moved in parallel in absence of intervention. This is further complicated by the fact that the two groups look quite different on observable characteristics, as we discuss in point 4 below. For this reason, we also suggest exercising a high degree of caution in interpreting these results as representing the causal effect of intervention on the Lloyds Bank SMEs.

Additionally, we note that the baseline and endline surveys were collected over slightly different time periods for the two samples. The baseline survey was collected from 12 May to 1 July for Lloyds, and 30 June to 6 July for the comparison group. For the endline survey, data was collected from 18 October to 19 December for Lloyds and 25 October to 29 November for the comparison group. Therefore, the difference-in-difference further suffers from the challenge that our data could be impacted by time factors relating to when data collection occurred.

2. Small sample sizes limit our ability to make any statements about the quantitative analyses with certainty

Difficulties with recruitment and high dropout rates have left us with a very small usable sample, particularly with Lloyds Bank SMEs to whom the intervention was intended to be delivered. For the pre-post, the trial protocol was built on the assumption we would have a minimum final usable sample of 110-130 SMEs; in reality, our final usable sample is 31 SMEs. This means that we are underpowered to detect, at conventional levels of statistical significance, all but very large changes in outcome measures.

3. There is potential for selection bias between baseline and endline as a result of attrition

We saw substantial attrition between baseline and endline, in both the Lloyds Bank survey and the comparison sample, raising the potential of selection bias in our final sample.

The SMEs in the sample at the endline were not different on observable characteristics from those that completed the baseline survey, with the exception of Lloyds SMEs in the final survey coming from different industries than those that completed only the baseline; however, it is possible (and likely) that they are different on unobservable characteristics, in ways that may bias our estimates of the effect of the treatment.

While we will control for differences in observable characteristics in our regressions (both pre-post and difference-in-difference), we cannot control for unobservable differences, which could result in biased results in either direction (e.g. the comparison makes the treatment look more or less effective than it is). For example, if SMEs that were in the process of

adopting software as a result of the intervention did not fill out the survey because they were too busy, we would underestimate the result of the intervention. We could also overestimate the result of the intervention if SMEs that received benefit from the intervention were more likely to fill out the final survey. The potential for differential attrition casts further doubt on the validity of our pre-post and difference-in-difference estimates.

Finally, interviews were only possible with SMEs that completed the final survey, and so even our interview findings are likely to present opinions from a biased sample.

4. There is substantial potential for selection bias between the samples

We attempted to make the external group of SMEs as similar to the Lloyds Bank sample as possible, through both (1) recruiting businesses that had measured characteristics close to those of the Lloyds Bank SMEs as possible; and (2) recruiting these businesses in a time period as close to the Lloyds Bank recruitment window as we could; however, the businesses in each sample looked substantially different to each other on observable characteristics (see Section 3.1: Recruitment and the Appendix B for further details).

We found that on average, at baseline, businesses recruited in the external comparison sample had fewer employees, had been operating for fewer years, and had less turnover than the Lloyds Bank sample. Additionally, respondents in the external comparison sample had worked at the business for fewer years compared to those in the Lloyds Bank sample.

Our samples also differed in their baseline outcome measures, with Lloyds Bank businesses having taken more steps towards adoption and having adopted more technology systems, though businesses in the external comparison sample reported a higher likelihood to adopt new technology in the next 12 months than Lloyds Bank businesses.[15] We believe that the reason for the differences in the sample is due to the fact that in order to be an SME banking client who works with an RM at Lloyds Bank, there is a minimum turnover number that is required, so Lloyds Bank SME banking clients are likely more established than SMEs in England in general.[16]

In addition to these observable differences, it is likely they are significantly different on unobservable characteristics as well. Critically, this casts doubt on it being reasonable to assume that the parallel trend assumption holds (discussed above under point 1), as generally, it suggests that the businesses in either group are likely to therefore be at different points in their tech adoption life cycle, given size and sophistication. This further affects confidence in our difference-in-difference estimates.

5. There is evidence for contamination of the comparison sample

We acknowledged in our evaluation protocol that there was a risk of contamination: that is, that businesses in our comparison sample would receive at least part of the intervention by using the Be the Business Digital website. This was because the Be the Business Digital website was available online during the course of the evaluation, though was non-navigable

[15] Further details on the comparison of samples can be found in Appendix B.
[16] Lloyds also has a “Business Banking” offer for businesses; these businesses do not have RMs and as a result were not part of the target sample for our intervention.

and would have been difficult to find. Contamination therefore presents a threat to our DID analysis, as it means we can't guarantee that any difference in changes in outcomes between the two groups is attributable to the intervention (subject to some assumptions which were outlined and discussed in Section 2).

To estimate the extent to which contamination occurred, we asked both businesses in the Lloyds Bank sample and in the comparison sample whether they had used the website in the previous three months. Responses to this question found that 10% of SMEs in the Lloyds Bank group reported using the website compared to 12% in the comparison group (Table 13). This was despite the fact that SMEs in this group received no signposting to the website. There was no mention of the tool in the baseline survey which would have prompted usage.

While it is possible that SMEs in the comparison group did find Be the Business Digital on their own, we think this is unlikely given that the site was delisted during the course of the intervention, meaning it would have been very difficult to find the site without the exact URL or knowing the name of the product. Additionally, usage from the main site shows that traffic was minimal during this time period; there were 568 unique users in the 12 July - 17 October 2021 period.

Another explanation for the high reported uptake of treatment in the comparison sample is that respondents filled out the survey untruthfully or without fully paying attention to the question - a problem discussed in further detail in the next section. Ultimately, we have no way of observing which of these has occurred, but both present serious threats to validity.

Table 13: treatment uptake by SMEs in Lloyds Bank & comparison sample

Proportion of respondents that reported (in endline survey):	Lloyds Bank (n=31)	Comparison sample (n=181)
Using Be the Business Digital in previous three months	**10%**	**12%**

6. We rely primarily on self-reported data that may be of low quality

Our original proposal specified that we would use Lloyds Bank administrative data to capture demographic characteristics of the respondents and some outcome measures. Evaluations often make use of routinely collected data as it is more efficient and can be of higher quality. However in this instance, data sharing with Lloyds Bank could not be agreed and data collection happened too infrequently to be able to capture changes in outcome measures within the timeframe of the evaluation.

As a result, all of the key variables used in our analyses for both pre-post and difference-in-difference come from self-reported survey data. Using self-reported data allows us to target outcomes and information about businesses that we were specifically interested in. We also amed to ask survey questions about objective measures, rather than more subjective ones as our primary outcomes: e.g., we asked "*In the last 3 months, have you hired people or set up a team to lead the implementation of new software*" rather than a more subjective "*Do you have people in your team with skills to implement new software?*"

However, survey data still has the potential to be inaccurate or biased. For example, social desirability bias could affect answers given, as respondents may feel pressure to give answers that they think are expected or “correct”. This could partly explain why reported uptake of the website was so high in the comparison group; respondents may have felt that researchers wanted respondents to have visited the website and so felt pressure to answer that they did.

We do use other sources of data to back-up or corroborate what we saw in the survey. These include tracking forms from RMs, to understand whether, and when they deliver intervention to their clients. Because these are self-reported, ultimately they have many of the same issues as the survey data. We also use website usage data from Be the Business Digital. SMEs in the intervention were given a URL for a cloned version of the tool that was not accessible to the general public, enabling us to gather some aggregated statistics on usage by Lloyds Bank SMEs in the evaluation.

Using a specific domain for Lloyds Bank SMEs is not a perfect way of measuring product engagement for the sample. Anyone with the URL could have visited the site and we are not able to distinguish visits from those in our sample to those outside. Additionally, some of the visits we see may in fact be from RMs looking at the tool, rather than their clients.

6. Lessons and recommendations

6.1 Lessons about the intervention

1. The intervention was generally not delivered as intended and did not succeed in achieving the desired outcomes. Despite this, there is likely demand from businesses for adoption support in other forms

Our research found that RMs did not deliver the intervention as planned. SMEs were not overly interested in taking it up, for a variety of reasons that are discussed in the previous section.

In our impact analysis, we found **all the differences in the pre-post are negative, with some statistically significantly so.** Given the limitations of approach we outlined in Section 5, we cannot confidently say this was the result of the impact of the programme; other factors, such as seasonal effects, may be responsible for these differences. **We think it is unlikely that the programme had any effect on software adoption by SMEs.**

While this evaluation may not have demonstrated that the intervention was effective, **our research uncovered that technology and software adoption is a challenge for many SMEs.** Our survey showed that a sizable portion of businesses in our samples do not feel confident about their usage of technology and experience barriers in adopting. Nearly a third of SME managers in the Lloyds Bank sample and two thirds of businesses in the external comparison sample said that they "*knew what types of software existed but didn't know how to use them in their business"* or were "*unaware about what types of software were available and how it could be used to help their business"* (Table 14).

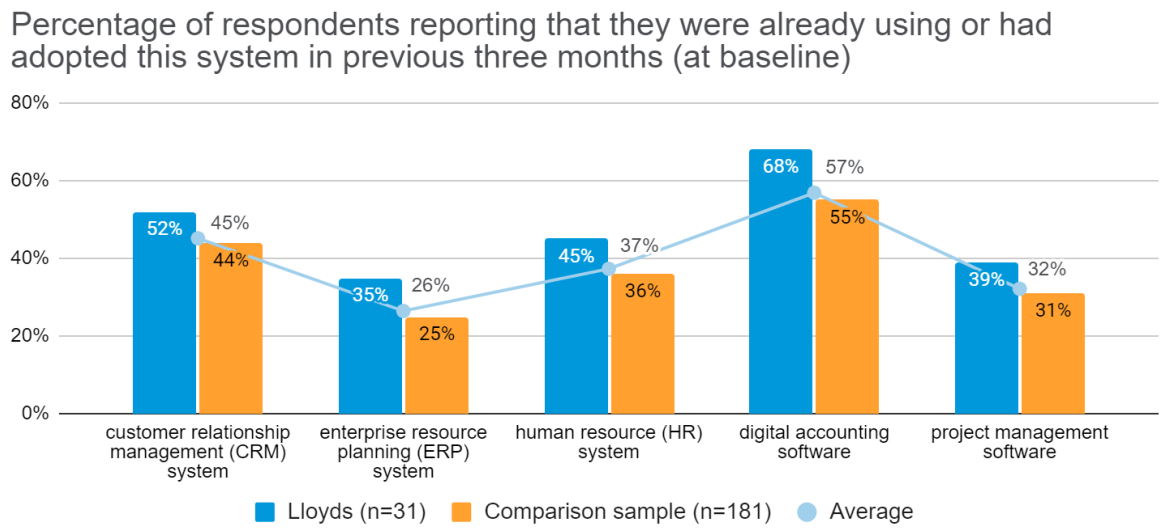
Table 14: comfort and familiarity with software usage in business

Percentage of respondents that reported… (at endline)	Lloyds Bank (n=31)	Comparison (n=181)
Knowing what types of software exist and how they can be used by their business	68%	37%
Knowing what types of software exist but not knowing how to use them in their business	16%	33%
Being unaware about what types of software are available or how they could help their business	16%	30%

Roughly half of the businesses across both samples were using CRM and digital accounting software, while roughly one in three used ERP, HR and project management software.This was despite what we heard from Lloyds Bank SMEs and RMs about the businesses being very sophisticated in their use of technology. Some of this gap could be because clients didn't see the types of systems they had in place as falling under these categories or because they had more specialist systems in place. Regardless, this does seem to point

towards underutilisation of basic software systems which could improve productivity, and potentially a gap in awareness about what these systems do.

Figure 13: baseline usage of five software systems



This leads us to believe that there could be demand for software adoption support; albeit in a different form than what was trialled in this project.

Recommendation: do not scale or further roll out the programme without fundamental changes to its delivery model and targeting; see below for some ideas for how to do so

2. Self-directed learning material alone may not be enough to get many SMEs to consider and adopt software

This project identified that the self-directed learning model may not work well for SMEs, particularly because they are time poor, and struggle to find the time and motivation needed to work through the website on their own.

One RM stated that he thought getting the RMs out of their regular environment and spending undistracted time thinking about software may provide better results:

> *I think it's very easy to downgrade the value of signposting to websites or doing a bit of training or positioning online, versus when people actually take time out of their day. They're getting out of the business, as well, and they've got no distractions of the office. It feels like they're investing more, and probably, then, you get better results.*

Both SMEs and RMs felt like the material provided via this format is too general, whereas the issues they were encountering felt specific and like they needed more tailored support than what was available.

A few SMEs in the trial did seem to use the tool and find it useful; given the very low cost per additional user, there could therefore still be substantial returns to the tool even if it helps only a relatively small number of businesses. The following recommendations outline

additional services that could be provided alongside the tool to expand reach and effectiveness.

Recommendation: revise the delivery model in the following ways:

- ***Encourage SMEs to spend concentrated time on the material, e.g. by formatting it as a course and incentivising completion.***
- ***Consider offering one-on-one specialised support alongside BtB to help SMEs solve specific challenges with respect to software adoption;***
- ***Consider hosting webinars or seminars for SMEs to get them excited about or interested in the topic***

3. The intervention was probably not well suited for larger and more established SMEs

Even with changes to the delivery model, the intervention may not be suited to all businesses. One of the clearest findings was that the intervention, both the website itself and discussing technology with an RM, had limited value for large and well-established businesses with specialised IT systems already in place.

SMEs could see the value for other businesses, particularly those that were smaller or newer, and could see how the tool may have been useful when their own business was just starting up. Similarly, RMs frequently highlighted that they thought the intervention was better suited for Business Banking clients of Lloyds Bank, who are generally newer and have smaller turnover than those in SME Banking.

Similarly, the tool may have some use for some bigger or more established businesses at the point in time when they are thinking about implementing new systems. A key challenge is figuring out how to identify which SMEs are at this stage, rather than those in a “steady-state”. While we hoped that RMs would be able to do this, we heard that software and technology is something not usually discussed, so it can be hard, even for them, to identify which businesses are considering adopting new systems.

Recommendations: target light-touch, general adoption support at small and/or new businesses who are likely to be implementing technology for the first time. Find ways of targeting more established SMEs when they are considering upgrades or adopting new software and potentially with higher touch interventions

4. RMs may not have been equipped to deliver support to clients and needed more guidance on how to deliver the intervention

RMs were generally supportive of the idea that they should be finding ways to help clients think about improving their usage of software and technology. They thought it was a good differentiator to other banks, provided another touchpoint with clients and was a way of showing them they cared about their clients' businesses and wanted them to succeed. Eighty percent of Lloyds Bank SMEs thought it was at least somewhat important for their RM to discuss wider topics relevant to their business, such as business support options; 38% thought it was very or extremely important.

Despite general support for the idea, there was less agreement on how this should be done. RMs and SMEs alike generally felt that an RM was probably not well positioned to support clients with respect to their software adoption. RMs are not experts on software adoption, and in some cases, may have had less knowledge on the topic than their clients, many of whom had software in place. As a result, SMEs considering or implementing software may need more specialist advice and support than what can be delivered by generalist business advisors like RMs or accountants. A different channel for adoption support may be required.

RMs could play a role in signposting their clients to these other channels and specialists, rather than providing support themselves. However for this to be effective, there needs to be clear guidance and training about what offers are out there, which clients they are relevant for, and how and when RMs can refer. RMs were given a lot of latitude to determine who the intervention would work for, and to deliver it as they saw fit within their existing relationships; however, it appears that RMs may have struggled with this flexibility.

Recommendation: explore other channels for delivering adoption support, e.g. via specialist advisors. Where RMs can support, give clear guidance and appropriately upskill so that they know who to target and how to support and ensure alignment with their core objectives.

6.2 Lessons about the evaluation

There were tensions between evaluating the intervention and delivering it. In order to evaluate whether Be the Business and RM support worked in a robust way and given constraints, changes had to be made to how the programme was delivered which probably made it less effective.

1. In order to evaluate, we changed how and to whom support was offered

In the context within which we were working, support had to be offered proactively to a large number of clients, rather than retroactively to clients that actually needed it and brought up the topic to the RM. The reason for this was that we needed to collect baseline data, gather consent, and (per the original plan) randomise before the SME could actually be offered support. One RM described the challenge of this well:

> *the net was too small. So we were trying to pilot something with a very, very small number of clients, at a time that suited us, rather than a time that suited them. So naturally, we really needed to have a lot more clients, or invite a lot more clients to it.*

One area where this trade-off was clear was in recruitment. Because we needed to collect baseline data and get consent before randomisation, clients in the trial needed to be asked to participate in the project without telling them what type of support they would get if they participated. This was exacerbated by the fact that Be the Business Digital tool had already been launched and was available online, leading to worries about contamination for SMEs and RMs later assigned to the control condition.

As a result, communications for recruitment were vague about how SMEs could benefit by participating and made the offer less attractive. Be the Business and Lloyds Bank leadership

couldn't share details on the tool, meaning RMs felt they didn't have enough information to recruit and target clients for whom the intervention would be most beneficial. RMs picked this up in interviews, saying:

> *It was a little bit difficult at the time because we really didn't know anything about what the project scope was going to be.*
>
> *It was actually really, really difficult to position, as a result, because there was nothing tangible to tell any of the clients.*

Recommendation: consider evaluation and intervention trade-offs in design; ensure there are tangible benefits to encourage participation in the evaluation, e.g. by restricting access during evaluation to the tool, communicating benefits of participation as getting "early access" to a programme, or providing orthogonal or independent treatment to businesses in control group.

2. Data collection was far more difficult than anticipated

We had to rely primarily on self-collected data in the evaluation, which required active participation of RMs and SMEs at multiple stages through the evaluation. A significant amount of time was spent chasing survey responses at baseline and at endline by Be the Business, RMs and Lloyds Bank and we saw low completion rates regardless.

Additionally, RMs were the main point of contact for clients and information about the evaluation was passed through them to their clients. While we hoped this would drive up completion rates due to the personal connection, it made it difficult to know if and to whom the survey requests had been sent. We did end up contacting SMEs directly, encouraging them to fill out the survey, and offering a charity donation draw for doing so. However, because RMs were meant to be the primary contact, we did not use methods like phone call surveys to reach unresponsive participants, which may have been more efficient.

An alternative to this would have been to use administrative data or other non-self reported data. There is a world in which RMs could have been recruited and trained, randomised and trained to deliver the intervention, with outcomes of the trial being tracked in administrative or transaction data (e.g. that captures turnover, spend on software) on follow-up. This would have avoided needing SMEs to fill out surveys, likely improving sample size and reducing attrition. This was originally explored and deemed not feasible due to issues with data sharing and with data quality, namely that the data may not have been complete, and was updated too infrequently to capture changes in outcome measures during the timeframe of this evaluation; however, this could have reduced the burden of data collection and resulted in a higher quality evaluation.

Recommendation: for evaluations involving businesses, use administrative and other non-self reported data sources wherever possible. Where it is necessary to collect self-reported data, consider direct phone surveying rather than primarily relying on emails.

3. We hoped that RMs would be an "insider track" to accessing SMEs; however, this did not align with the realities of their role as client-facing service providers

We were optimistic that by accessing SMEs through their RMs, a trusted advisor, we would be able to overcome some of the recruitment and engagement challenges that have been seen in other evaluations involving businesses. For example, we stated in the TP that we expected attrition to be lower than other similar trials because "*our study benefits from the involvement of Relationship Managers, who are familiar to the SME managers and may introduce a sense of accountability to complete the trial activities*."

While SMEs and RMs in the interviews mentioned specifically that they or their clients filled out the survey out of a sense of duty or obligation to their RM, this clearly wasn't enough of a driver to successfully recruit and retain a large number of SMEs through the evaluation.

Interviews with RMs showed that they were respectful of their clients' time and concerned with providing value to them, wanting to discuss topics where they were well positioned to help their client. As a result, when RMs didn't see the intervention as valuable or relevant to their clients, they didn't deliver the intervention as intended or chase clients for survey responses to support the evaluation.

This response is entirely reasonable given the role of the RM; however it does potentially raise questions for future evaluations about how to deliver interventions and facilitate data collection when partners may face different incentives.

Recommendation: consider carefully the use of RMs and other intermediaries to deliver interventions to SMEs and collect data from them; align incentives and goals between all partners in an intervention and evaluation

Appendices

Appendix A: Outcome measures

The table below describes the outcome measures we use in the trial, the data that was collected and how the variables were calculated

Table A1: outcome measures

Outcome Measures	Definition	Data collected	Point of Collection
Primary			
Steps taken towards adoption in previous 3 months	A score from 1-15, indicating the number of steps that an SME took in the past 3 months towards adopting new software from a list of 15 steps	Survey question: In the past three months, has your business done any of the following? (check all that apply) a) Identified a problem in the business' operation that might, in your view, be solved using software b) Identified what software my business needs c) Set aside funding for a new software d) Compared costs and benefits of a new software e) Shortlisted potential software providers f) Decided on a software g) Purchased or subscribed to a new software h) Upgraded existing software i) Switched to using a different provider / software system j) Expanded usage of existing system (e.g. added new functionality or tools) k) Started integrating the solution with existing IT l) Hired people or set up a team to lead the implementation of new software m) Trained employees on the new software n) Got employees to use the new software o) Measured the software's success	Baseline, follow-up

Outcome Measures	Definition	Data collected	Point of Collection
Secondary			
Composite measure of adoption of software in previous 3 months across 5 categories	A score from 0-5, indicating whether an SME adopted software in the previous 3 months in each of 5 categories	Survey question: (if they select g,h, i or j in the previous question)... In the past three months, has your business purchased or started using a new… (yes / no) a) customer relationship management (CRM) system? b) enterprise resource planning (ERP) system? c) human resource (HR) system? d) digital accounting software? e) project management software?	Baseline, follow-up
Composite measure of intention to adopt software systems in next 12 months across 5 categories: ERP, CRM, HR, accounting, project management	An average percent of likelihood of adopting software in the next 12 months from the percent likelihood of adopting software in each of five categories	Survey question: In the next twelve months, how likely is your business to start using a new… (0-100% scale) a) customer relationship management (CRM) system? b) enterprise resource planning (ERP) system? c) human resource (HR) system? d) digital accounting software? e) project management software?	Baseline, follow-up

Appendix B: Sample comparisons

In the following sections, we provide a breakdown of characteristics of SMEs in each sample, Lloyds Bank and comparison, and if they differ between samples in ways that are statistically significant. For all these analyses we use the baseline characteristics for SMEs who respond to the relevant survey.

In Section B1, we compare Lloyds Bank SMEs that completed the baseline survey to those that did not, in order to tell if there was differential attrition on observable characteristics between baseline and endline.

In Section B2, we compare Lloyds Bank SMEs in our sample at endline to comparison SMEs in our sample at endline, to look at differences in composition of the final samples. Section B3 provides a similar analysis, but looks at SMEs that were originally recruited: that is, including SMEs that attrited and did not complete the final survey.

Finally, in Section B4, we look at comparison group SMEs that completed the baseline survey to those that did not, again, to capture if there is differential attrition on observable characteristics in the comparison group.

In our comparison of both samples baseline to endline (B1 for Lloyds, B4 for comparison group SMEs), we find that there are almost no statistically significant differences. This suggests that on observable characteristics, the firms that completed the final survey look fairly similar to those that did not in both groups. Compare the Lloyds SMEs to the comparison group SMEs, both at endline (B2) and baseline (B3), we see that the two samples look quite different on observable characteristics. SMEs in the Lloyds Bank sample typically have more employees (statistically significant at 10%), have been operating longer, and have higher turnover (both statistically significant at 1% compared to those in the comparison group. They also generally come from different regions and different industries.

Given the large number of comparisons made between groups, it is not surprising for some to return statistically significant differences. Even if we had randomised, you would still expect to see statistically significant differences across groups for 1 in 20 variables, purely by chance. However, we see many more variables be statistically significant than what would be expected due to chance, i.e. 3 in 4 comparisons across B1-B4 return statistically significant results, so it is likely fair to conclude that there are some differences between groups.

B.1. Baseline characteristics for Lloyds Bank SMEs, comparing those that completed the endline survey to those that did not

Table B1: Baseline characteristics for Lloyds Bank SMEs, comparing those that completed the endline survey to those that did not

Variable	Responses	Lloyds Bank SMEs in baseline only (n = 129)	Lloyds Bank SMEs present at endline (n = 31)	Statistically significant difference? ** p < 1%, * p < 5%, + p < 10%)
Business size (number of employees)	1 - 10	29%	16%	No (p=0.284)
	11 - 50	50%	55%	
	51 - 250	21%	29%	
Region	London	13%	16%	No (p=0.700)
	South East	25%	29%	
	South West	2%	3%	
	East Midlands	3%	0%	
	West Midlands	13%	23%	
	North East	5%	0%	
	North West	20%	10%	
	East of England	0%	0%	
	Yorkshire & the Humber	15%	16%	
	Wales	2%	3%	
	Scotland	1%	0%	
Job title	Owner	40%	32%	No (p=0.594)
	CEO/President	4%	10%	
	Director	32%	35%	
	Manager	15%	10%	

Table B1: Baseline characteristics for Lloyds Bank SMEs, comparing those that completed the endline survey to those that did not				
Variable	**Responses**	**Lloyds Bank SMEs in baseline only (n = 129)**	**Lloyds Bank SMEs present at endline (n = 31)**	**Statistically significant difference?** ** p < 1%, * p < 5%, + p < 10%)
	Other	10%	13%	
Age of business	0-2 Years	5%	0%	No (p=0.200)
	3-5 Years	9%	3%	
	6-10 Years	8%	19%	
	More than 10 years	78%	77%	
	Don't know	1%	0%	
Revenue / turnover	£0-£99K	0%	0%	No (p=0.138)
	£100K-£249K	4%	0%	
	£250K-£499K	10%	3%	
	£500K-£999K	12%	13%	
	£1M-£1.99M	17%	32%	
	£2M-£4.99M	33%	16%	
	Greater than £5M	23%	35%	
	Don't know	2%	0%	
Length of service	0-2 Years	9%	0%	Yes+ (p=0.056)
	3-5 Years	19%	16%	
	6-10 Years	10%	26%	
	More than 10 years	62%	58%	

Table B1: Baseline characteristics for Lloyds Bank SMEs, comparing those that completed the endline survey to those that did not				
Variable	**Responses**	**Lloyds Bank SMEs in baseline only (n = 129)**	**Lloyds Bank SMEs present at endline (n = 31)**	**Statistically significant difference?** ** p < 1%, * p < 5%, + p < 10%)
	Don't know	0%	0%	
Industry	Accommodation and food service activities	2%	3%	Yes+ (p=0.052)
	Administrative and support service activities	0%	3%	
	Agriculture, Forestry and Fishing	0%	3%	
	Arts, entertainment and recreation	2%	0%	
	Construction	16%	13%	
	Education	5%	0%	
	Electricity, gas, steam and air conditioning supply	0%	0%	
	Financial and insurance activities	5%	3%	
	Human health and social work activities	4%	0%	
	Information and communication	5%	13%	
	Manufacturing	19%	26%	
	Mining and Quarrying	0%	0%	
	Professional, scientific and technical activities	2%	6%	
	Public administration and defence; compulsory social security	0%	0%	
	Real estate activities	4%	6%	
	Transportation and storage	3%	10%	
	Water supply, sewerage, waste management and remediation activities	0%	0%	
	Wholesale and retail trade; repair of motor vehicles and motorcycles	6%	10%	
	Other service activities	2%	7%	
	Other (please specify)	26%	6%	

B.2. Baseline characteristics for Lloyds Bank SMEs compared to comparison sample SMEs, excluding SMEs that did not complete the endline survey

Table B2: Baseline characteristics for Lloyds Bank SMEs compared to comparison sample SMEs, excluding SMEs that did not complete the endline survey

Variable	Responses	Lloyds Bank SMEs present at endline (n = 31)	Comparison SMEs present at endline (n = 181)	Statistically significant difference? ** p < 1%, * p < 5%, + p < 10%
Business size (number of employees)	1 - 10	16%	44%	Yes+ (p=0.100)
	11 - 50	55%	40%	
	51 - 250	29%	16%	
Region	London	16%	17%	Yes** (p=0.001)
	South East	29%	19%	
	South West	3%	9%	
	East Midlands	0%	9%	
	West Midlands	23%	6%	
	North East	0%	9%	
	North West	10%	12%	
	East of England	0%	12%	
	Yorkshire & the Humber	16%	8%	
	Wales	3%	0%	
	Scotland	0%	0%	
Job title	Owner	32%	55%	Yes** (p=0.000)
	CEO/President	10%	5%	
	Director	35%	14%	
	Manager	10%	27%	

Table B2: Baseline characteristics for Lloyds Bank SMEs compared to comparison sample SMEs, excluding SMEs that did not complete the endline survey				
Variable	**Responses**	**Lloyds Bank SMEs present at endline (n = 31)**	**Comparison SMEs present at endline (n = 181)**	**Statistically significant difference?** ** p < 1%, * p < 5%, + p < 10%
	Other	13%	0%	
Age of business	0-2 Years	0%	12%	Yes** (p=0.006)
	3-5 Years	3%	19%	
	6-10 Years	19%	22%	
	More than 10 years	77%	47%	
	Don't know	0%	0%	
Revenue / turnover	£0-£100K	0%	39%	Yes** (p=0.000)
	£100K-£249K	0%	10%	
	£250K-£499K	3%	8%	
	£500K-£999K	13%	9%	
	£1M-£1.99M	32%	14%	
	£2M-£4.99M	16%	9%	
	Greater than £5M	35%	11%	
	Don't know	0%	0%	
Length of service	0-2 Years	0%	17%	Yes* (p=0.018)
	3-5 Years	16%	28%	
	6-10 Years	26%	23%	
	More than 10 years	58%	32%	

Table B2: Baseline characteristics for Lloyds Bank SMEs compared to comparison sample SMEs, excluding SMEs that did not complete the endline survey				
Variable	**Responses**	**Lloyds Bank SMEs present at endline (n = 31)**	**Comparison SMEs present at endline (n = 181)**	**Statistically significant difference?** ** p < 1%, * p < 5%, + p < 10%
	Don't know	0%	1%	
Industry	Accommodation and food service activities	3%	8%	Yes+ (p=0.095)
	Administrative and support service activities	3%	2%	
	Agriculture, Forestry and Fishing	3%	1%	
	Arts, entertainment and recreation	0%	9%	
	Construction	13%	8%	
	Education	0%	4%	
	Electricity, gas, steam and air conditioning supply	0%	1%	
	Financial and insurance activities	3%	7%	
	Human health and social work activities	0%	6%	
	Information and communication	13%	6%	
	Manufacturing	26%	7%	
	Mining and Quarrying	0%	0%	
	Professional, scientific and technical activities	6%	10%	
	Public administration and defence; compulsory social security	0%	0%	
	Real estate activities	6%	10%	
	Transportation and storage	0%	3%	
	Water supply, sewerage, waste management and remediation activities	0%	1%	
	Wholesale and retail trade; repair of motor vehicles and motorcycles	10%	8%	

Table B2: Baseline characteristics for Lloyds Bank SMEs compared to comparison sample SMEs, excluding SMEs that did not complete the endline survey				
Variable	**Responses**	**Lloyds Bank SMEs present at endline (n = 31)**	**Comparison SMEs present at endline (n = 181)**	**Statistically significant difference?** ** p < 1%, * p < 5%, + p < 10%
	Other service activities	6%	13%	
	Other (please specify)	6%	13%	

B.3. Baseline characteristics for Lloyds Bank SMEs compared to comparison sample SMEs for all SMEs that completed the baseline survey

Table B3: Lloyds Bank vs. comparison sample at baseline

Variable	Responses	Lloyds Bank SMEs that completed baseline (n = 160)	Comparison SMEs that completed baseline (n = 404)	Statistically significant difference? ** p < 1%, * p < 5%, + p < 10%
Business size (number of employees)	1 - 10	27%	45%	Yes** (p=0.001)
	11 - 50	51%	39%	
	51 - 250	23%	16%	
Region	London	14%	17%	Yes** (p=0.000)
	South East	26%	16%	
	South West	3%	9%	
	East Midlands	3%	10%	
	West Midlands	15%	7%	
	North East	4%	10%	
	North West	18%	14%	
	East of England	0%	10%	
	Yorkshire & the Humber	15%	8%	
	Wales	3%	0%	
	Scotland	1%	0%	
Job title	Owner	38%	53%	Yes** (p=0.000)
	CEO/President	5%	5%	
	Director	33%	14%	
	Manager	14%	27%	

Table B3: Lloyds Bank vs. comparison sample at baseline				
Variable	**Responses**	**Lloyds Bank SMEs that completed baseline (n = 160)**	**Comparison SMEs that completed baseline (n = 404)**	**Statistically significant difference?** ** p < 1%, * p < 5%, + p < 10%
	Other	11%	1%	
Age of business Revenue	0-2 Years	4%	11%	Yes** (p=0.000)
	3-5 Years	8%	20%	
	6-10 Years	10%	23%	
	More than 10 years	78%	47%	
	Don't know	1%	0%	
Turnover	£0-£99K	0%	37%	Yes** (p=0.000)
	£100K-£249K	3%	11%	
	£250K-£499K	9%	9%	
	£500K-£999K	12%	9%	
	£1M-£1.99M	20%	13%	
	£2M-£4.99M	30%	10%	
	Greater than £5M	26%	10%	
	Don't know	1%	1%	
Length of service	0-2 Years	7%	16%	Yes** (p=0.000)
	3-5 Years	19%	28%	
	6-10 Years	13%	22%	
	More than 10 years	61%	33%	

Table B3: Lloyds Bank vs. comparison sample at baseline				
Variable	**Responses**	**Lloyds Bank SMEs that completed baseline (n = 160)**	**Comparison SMEs that completed baseline (n = 404)**	**Statistically significant difference?** ** p < 1%, * p < 5%, + p < 10%
	Don't know	0%	0%	
Industry	Accommodation and food service activities	3%	6%	Yes** (p=0.000)
	Administrative and support service activities	1%	2%	
	Agriculture, Forestry and Fishing	1%	1%	
	Arts, entertainment and recreation	1%	9%	
	Construction	15%	7%	
	Education	4%	7%	
	Electricity, gas, steam and air conditioning supply	0%	0%	
	Financial and insurance activities	5%	6%	
	Human health and social work activities	3%	4%	
	Information and communication	6%	7%	
	Manufacturing	21%	6%	
	Mining and Quarrying	0%	0%	
	Professional, scientific and technical activities	3%	10%	
	Public administration and defence; compulsory social security	0%	1%	
	Real estate activities	4%	4%	
	Transportation and storage	3%	3%	
	Water supply, sewerage, waste management and remediation activities	0%	1%	
	Wholesale and retail trade; repair of motor vehicles and motorcycles	7%	10%	
	Other service activities	3%	5%	

Table B3: Lloyds Bank vs. comparison sample at baseline				
Variable	**Responses**	**Lloyds Bank SMEs that completed baseline (n = 160)**	**Comparison SMEs that completed baseline (n = 404)**	**Statistically significant difference?** ** p < 1%, * p < 5%, + p < 10%
	Other	22%	12%	
Steps towards adoption (In the past 3 months at baseline, % saying they have…)	Average total steps (out of 15) towards adoption in the previous 3 months	4.63	3.15	Yes** (p=0.000)
	Identified a problem in the business' operation that might, in your view, be solved using software	61%	32%	Yes** (p=0.000)
	Identified what software my business needs	53%	36%	Yes** (p=0.000)
	Set aside funding for a new software	30%	29%	No (p=0.922)
	Compared costs and benefits of a new software	41%	34%	No (p=0.120)
	Shortlisted potential software providers	31%	21%	Yes** (p=0.009)
	Decided on a software	29%	21%	Yes+ (p=0.051)
	Purchased or subscribed to a new software	32%	15%	Yes** (p=0.000)
	Upgraded existing software	38%	34%	No (p=0.420)
	Switched to using a different provider / software system	14%	6%	Yes** (p=0.002)
	Expanded usage of existing system (e.g. added new functionality or tools)	31%	14%	Yes** (p=0.000)
	Started integrating the solution with existing IT	21%	11%	Yes** (p=0.003)
	Hired people or set up a team to lead the implementation of new software	8%	9%	No (p=0.697)
	Trained employees on the new software	31%	25%	No (p=0.131)
	Got employees to use the new software	34%	21%	Yes** (p=0.001)

Table B3: Lloyds Bank vs. comparison sample at baseline				
Variable	**Responses**	**Lloyds Bank SMEs that completed baseline (n = 160)**	**Comparison SMEs that completed baseline (n = 404)**	**Statistically significant difference?** ** p < 1%, * p < 5%, + p < 10%
	Measured the software's success	12%	7%	Yes+ (p=0.055)
Actual adoption at baseline (In the past three months, % saying their business purchased or started using software from 5 categories)[17]	Average number of 5 categories that businesses had reported adopting software from in the past 3 months	0.53	0.87	Yes** (p=0.001)
	customer relationship management (CRM) system	13%	20%	Yes* (p=0.047)
	enterprise resource planning (ERP) system	7%	12%	Yes+ (p=0.094)
	human resource (HR) system	6%	15%	Yes** (p=0.006)
	digital accounting software	18%	24%	Yes+ (p=0.093)
	project management software	10%	17%	Yes* (p=0.040)
	Other	22%	4%	Yes** (p=0.000)
Historical usage at baseline (% saying they've used software in 5 categories for more than 3 months…)	Average number of categories of software systems that businesses reported using for more than 3 months	1.90	1.54	Yes** (0.000)
	customer relationship management (CRM) system	45%	34%	Yes* (p=0.019)
	enterprise resource planning (ERP) system	16%	19%	No (p=0.476)
	human resource (HR) system	30%	32%	No (p=0.577)
	digital accounting software	75%	46%	Yes** (0.000)
	project management software	24%	22%	No (p=0.659)

[17] Note: Figures taken as % saying yes as a proportion of all participants, even those not asked the question. This is because those who weren't asked the question had already indicated they hadn't purchased new software in the previous question

Table B3: Lloyds Bank vs. comparison sample at baseline				
Variable	**Responses**	**Lloyds Bank SMEs that completed baseline (n = 160)**	**Comparison SMEs that completed baseline (n = 404)**	**Statistically significant difference?** ** p < 1%, * p < 5%, + p < 10%
Intended adoption at baseline (Self reported likelihood business will start using a new ... in the next 12 months)	Average likelihood of adopting new software systems across 5 categories (CRM, ERP, HR, accounting, project management)	23%	42%	Yes** (0.000)
	customer relationship management (CRM) system	29%	41%	Yes** (0.000)
	enterprise resource planning (ERP) system	17%	35%	Yes** (0.000)
	human resource (HR) system	18%	37%	Yes** (0.000)
	digital accounting software	26%	52%	Yes** (0.000)
	project management software	24%	43%	Yes** (0.000)

B.4. Baseline characteristics for comparison SMEs, comparing those that completed the endline survey to those that did not

Table B4: Baseline characteristics for comparison SMEs, comparing those that completed the endline survey to those that did not

Variable	Responses	Comparison SMEs in baseline only (n = 223)	Comparison SMEs present at endline (n = 181)	Statistically significant difference? ** p < 1%, * p < 5%, + p < 10%
Business size (number of employees)	1 - 10	45%	44%	No (p=0.967)
	11 - 50	39%	40%	
	51 - 250	17%	16%	
Region	London	18%	17%	No (p=0.846)
	South East	14%	19%	
	South West	9%	9%	
	East Midlands	10%	9%	
	West Midlands	9%	6%	
	North East	10%	9%	
	North West	15%	12%	
	East of England	9%	12%	
	Yorkshire & the Humber	8%	8%	
	Wales	0%	0%	
	Scotland	0%	0%	
Job title	Owner	52%	55%	No (p=0.468)
	CEO/President	4%	5%	
	Director	14%	14%	
	Manager	28%	27%	

Table B4: Baseline characteristics for comparison SMEs, comparing those that completed the endline survey to those that did not				
Variable	**Responses**	**Comparison SMEs in baseline only (n = 223)**	**Comparison SMEs present at endline (n = 181)**	**Statistically significant difference?** ** p < 1%, * p < 5%, + p < 10%
	Other	2%	0%	
Age of business	0-2 Years	10%	12%	No (p=0.920)
	3-5 Years	20%	19%	
	6-10 Years	24%	22%	
	More than 10 years	46%	47%	
	Don't know	0%	0%	
Revenue	£0-£100K	36%	39%	No (p=0.467)
	£100K-£249K	11%	10%	
	£250K-£499K	10%	8%	
	£500K-£999K	9%	9%	
	£1M-£1.99M	12%	14%	
	£2M-£4.99M	10%	9%	
	Greater than £5M	9%	11%	
	Don't know	3%	0%	
Length of service	0-2 Years	15%	17%	No (p=0.772)
	3-5 Years	29%	28%	
	6-10 Years	22%	23%	
	More than 10 years	34%	32%	

Table B4: Baseline characteristics for comparison SMEs, comparing those that completed the endline survey to those that did not				
Variable	**Responses**	**Comparison SMEs in baseline only (n = 223)**	**Comparison SMEs present at endline (n = 181)**	**Statistically significant difference?** ** p < 1%, * p < 5%, + p < 10%
	Don't know	0%	1%	
Industry	Accommodation and food service activities	4%	8%	No (p=0.260)
	Administrative and support service activities	3%	2%	
	Agriculture, Forestry and Fishing	2%	1%	
	Arts, entertainment and recreation	9%	9%	
	Construction	6%	8%	
	Education	9%	4%	
	Electricity, gas, steam and air conditioning supply	0%	1%	
	Financial and insurance activities	5%	7%	
	Human health and social work activities	3%	6%	
	Information and communication	9%	6%	
	Manufacturing	5%	7%	
	Mining and Quarrying	0%	0%	
	Professional, scientific and technical activities	10%	10%	
	Public administration and defence; compulsory social security	1%	0%	
	Real estate activities	5%	10%	
	Transportation and storage	2%	3%	
	Water supply, sewerage, waste management and remediation activities	0%	1%	
	Wholesale and retail trade; repair of motor vehicles and motorcycles	12%	8%	
	Other service activities	4%	6%	
	Other (please specify)	11%	13%	

Appendix C: Analytical strategy

C.1 Pre-Post

We used an OLS regression to assess the change in outcome before and after, as given by the following regression:

$$(1)\ y_{it} = \alpha + \beta_1 post_t + \theta_i + \epsilon_{it}$$

Where:

- y_{it} is one of the outcome measures of interest, i.e. one of:
  - $steps_{it}$ – the number of steps taken (from 1 to 15) towards adoption by an SME i at time t
  - $adoption_{it}$ – the number of systems (0-5) that SME i reported adopting in previous three months at time t
  - $intend_{it}$ takes a value between 0-100, representing the average percent likelihood that an SME i would adopt software across each of five categories in the next 12 months reported at time t
- β_1 is the parameter of interest; it gives the difference in outcome between post-period and pre-period
- $post_t$ is a binary variable equal to 1 if the observation was from after intervention, the endline survey
- θ_i are SME fixed effects
- ϵ_{it} are heteroskedastic robust errors

NOTE: we have deviated from running the regression specified in the evaluation protocol.

The evaluation protocol specified running the following regression to capture the change in outcome measures. However, this model is incorrectly specified and the constant term, α, does not represent the difference in outcomes before- and after-intervention. For this reason, we have decided to proceed with using the regression model (1) above, which captures the parameter of interest specified in the evaluation protocol. For the sake of consistency, we run the DID models using the same set-up.

Pre-specified pre-post regression model: $y_{it} - y_{it-1} = \alpha + \beta_C covariates_i + \epsilon_i$

Where:

- y_{it} is the outcome for SME i at time t(post-intervention) and y_{it-1} is the outcome for SME i at time $t - 1$(pre-intervention)

- α is the constant term, which in this case represents the average difference in steps before and after intervention
- $covariates_i$ are SME-level covariates from pre-intervention, which will include: region, industry, number of employees, age of SME, respondent's position, and respondent's length of service with SME
- ϵ_i are the residual errors

C.2 Difference-in-Difference

We used an OLS regression to assess the change in outcome before and after for Lloyds Bank SMEs compared to the comparison group, as given by the following regression:

$$(2)\ y_{it} = \alpha + \beta_1 lloyds_i + \beta_2 post_t + \beta_3 lloyds * post_{it} + \theta_i + \epsilon_{it}$$

Where:

- y_{it} is one of the outcome measures of interest, i.e. one of:
  - $steps_{it}$ is the number of steps taken (from 1 to 15) towards adoption by an SME i at time t
  - $adoption_{it}$ – the number of systems (0-5) that SME i reported adopting in previous three months at time t
  - $intend_{it}$ takes a value between 0-100, representing the average percent likelihood that an SME i would adopt software across each of five categories in the next 12 months reported at time t
- $lloyds_i$ is a variable that is equal to 1 if the SME is in the Lloyds Bank sample and 0 if not
- $post_t$ is a binary variable equal to 1 if the observation was from after intervention, the endline survey
- $\beta_3$is the parameter of interest, and gives the difference in outcome between post-period and pre-period for Lloyds Bank SMEs compared to comparison group SMEs.
- θ_i are SME fixed effects
- $\epsilon_{it}$are heteroskedastic robust errors

NOTE: we have deviated from running the regression specified in the evaluation protocol.

The evaluation protocol specified running the following regression to capture the change in outcome measures. However, the equivalent model for the pre-post was incorrectly specified and did not allow us to capture the change of interest. To stay consistent with the form of the

model we use for the pre-post, we have decided to proceed with using the regression model (2) above.

Pre-specified DID regression model: $y_{it} - y_{it-1} = \alpha + \beta_1 lloyds_i + \beta_C covariates_i + \epsilon_i$

Where:

- y_{it} is the outcome for SME i at time t(post-intervention) and y_{it-1} is the outcome for SME i at time $t - 1$(pre-intervention)
- $lloyds_i$ is a binary variable equal to 1 if SME i is in the Lloyds Bank sample.
- $\beta_1$is the parameter of interest, which is the difference in the number of steps taken between the pre- and post-periods between the two groups
- $covariates_i$ are SME-level covariates from pre-intervention, which will include: region, industry, number of employees, age of SME, respondent's position, and respondent's length of service with SME
- ϵ_i are the residual errors

Appendix D: Robustness checks (quasi-binomial)

As specified in our evaluation protocol, we run quasibinomial regressions for any of our combined "score" variables to check if they are sensitive to functional form specification. The results of these are included below, both for the pre-post and the DiD.

Of these six robustness checks, three result in changes to statistical significance of the results; however, there are no substantive changes to our interpretation of results even considering this. Additionally, because of the very small sample size, it is not unexpected that functional form specification results in some variation in model estimates. For these reasons, we stick with reporting the OLS regression results in the main report for ease of interpretation.

D.1 Pre-post robustness checks

The second column in each of the below tables gives the results from the OLS regression pre-post regressions, given by equation (1) in Appendix C: Analytical strategy.

The final column gives the results for the quasibinomial regression, given by the following equation:

$$(3)\ [Y]_{it} \sim quasibinomial(n, p_{it}, \phi)\ ;\ logit(p_{it}) = \alpha + \beta_1 post_t + \theta_i$$
$$var([Y]_{it}) = n\phi p_{it}(1 - p_{it})$$

Where:

- $[Y]_{ir}$ is an outcome variable for an SME at time t from the list of steps towards adoption (out of 15), combined adoption (out of 5), and combined intention to adopt variables (proportion 0-1)
- $post_{it}$ is a binary variable equal to 1 if the observation was from the post-period
- β_1 is the parameter of interest; it gives the difference in outcome between post-period and pre-period in log-odds ratios
- θ_i are individual-level fixed effects

The coefficient on β_1 cannot be directly compared to the change in steps to adoption, so below each table we provide the transformation into steps, denoted with †.

Table D.1.1: Regression table for pre-post, steps towards adoption (primary analysis)
Coefficient = change in outcome for Lloyds Bank SMEs after intervention

	OLS Regression (1)	Quasi-Binomial Regression (3)
β_1 coefficient (robust SE's)	-2.065** (0.670)	-0.866** † (0.188)
p-value	0.004	0.000
SME fixed effects	Yes	Yes
Adjusted R^2	0.568	N/A
Observations *(# of SMEs*2 observation periods)*	62	62
Baseline outcome (steps)	5.677	5.677

** p < 0.1, * p < 0.05, + p < 0.1
† equivalent change in steps after intervention = -2.617 *(invlogit(logit(5.677/15)+(-0.866))*15)-5.677*

Table D.1.2: Regression table for pre-post, adoption (secondary analysis)
Coefficient = change in outcome for Lloyds Bank SMEs after intervention

	OLS Regression (1)	Quasi-Binomial Regression (3)
β_1 Coefficient (robust SE's)	-0.452* (0.190)	-1.290**† (0.388)
p-value	0.024	0.001
SME fixed effects	Yes	Yes
Adjusted R^2	0.279	N/A
Observations *(# of SMEs*2 observation periods)*	62	62
Baseline adoption	0.742	0.742

** p < 0.1, * p < 0.05, + p < 0.1
† equivalent change in adoption after intervention = -0.513 *(invlogit(logit(0.742/5)+(-1.290))*5)-0.742*

Table D.1.3: Regression table for pre-post, intentions to adopt (secondary analysis)
Coefficient = change in outcome for Lloyds Bank SMEs after intervention

	OLS Regression (1)	Quasi-Binomial Regression (3)
β_1 Coefficient (robust SE's)	-6.342 (4.224)	-0.565*† (0.265)
p-value	0.144	0.033
SME fixed effects	Yes	Yes
Adjusted R^2	0.599	N/A
Observations *(# of SMEs*2 observation periods)*	62	62
Baseline intention to adopt	24.381%	24.381%

** p < 0.1, * p < 0.05, + p < 0.1
† equivalent change in intentions to adopt after intervention = -8.89
*(invlogit(logit(24.380/100)+(-0.565))*100)-24.380*

D.2 Difference-in-difference robustness checks

As above, the second column in each of the below tables gives the results from the OLS regression DID regressions, given by equation (3) in Appendix C: Analytical strategy.

The final column gives the results for the quasibinomial regression, given by the following equation:

$$[Y]_{it} \sim quasibinomial(n, p_{it}, \phi)\ ;\ logit(p_{it}) = \alpha + \beta_1 post_{it} + \beta_2 lloyds_i + \beta_3 (lloyds * post)_{it} + \theta_i$$
$$var([Y]_{it}) = n\phi p_{it}(1 - p_{it})$$

Where:

- $[Y]_{ir}$ is an outcome variable for an SME at time t from the list of steps towards adoption, combined adoption, and combined intention to adopt variables
- $post_{it}$ is a binary variable equal to 1 if the observation was from the post-period
- $lloyds_i$ is a binary variable equal to 1 if SME i is in the Lloyds sample
- $(post * lloyds)_{it}$ is a binary variable equal to 1 if SME i is in the Lloyds sample and the observation was from the post-period
- β_3 is the parameter of interest; it gives the difference in outcome between post-period and pre-period for Lloyds SMEs, compared to comparison group SMEs in log-odds ratios
- θ_i are individual-level fixed effects

The coefficient on β_3 cannot be directly compared to the change in steps to adoption, so below each table we provide the transformation into steps, denoted with †.

Table D.2.1: Regression table for DiD, steps towards adoption (exploratory analysis)
Coefficient = change in outcome for Lloyds Bank SMEs after intervention, compared to comp. SMEs

	OLS Regression (2)	Quasi-Binomial Regression (4)
β_3 Coefficient (robust SE's)	-1.733* (0.713)	-0.701**† (0.209)
p-value	0.016	0.001
SME fixed effects	Yes	Yes
Adjusted R^2	0.626	N/A
Observations *(SMEs*2 observation periods)*	424	424
Baseline steps taken *(Lloyds Bank, n=31)*	5.677	5.677
Baseline steps taken *(comparison group, n=181)*	2.917	2.917

** p < 0.1, * p < 0.05, + p < 0.1

† equivalent change in steps after intervention for Lloyds SMEs compared to comparison SMEs = -1.313 *(invlogit(logit(2.917/15)+(-0.701))*15)-2.917*

Table D.2.2: Regression table for DID, adoption (secondary analysis)
Coefficient = change in outcome for Lloyds Bank SMEs after intervention, compared to comp. SMEs

	OLS Regression (2)	Quasi-Binomial Regression (4)
β_3 Coefficient (robust SE's)	-0.159 (0.227)	-0.534† (0.452)
p-value	0.484	0.237
SME fixed effects	Yes	Yes
Adjusted R^2	0.19	N/A
Observations *(SMEs*2 observation periods)*	424	424
Baseline adoption *(Lloyds Bank, n=31)*	0.742	0.742
Baseline adoption *(comparison group, n=181)*	0.845	0.845

** p < 0.1, * p < 0.05, + p < 0.1

† equivalent change in adoption after intervention for Lloyds SMEs compared to comparison SMEs
= -0.313 *(invlogit(logit(0.845/5)+(-0.534))*5)-0.845*

Table D.2.3: Regression table for DID, intentions to adopt (secondary analysis)
Coefficient = change in outcome for Lloyds Bank SMEs after intervention, compared to comp. SMEs

	OLS Regression (2)	Quasi-Binomial Regression (4)
β_3 Coefficient (robust SE's)	7.986 (5.016)	0.189† (0.285)
p-value	0.113	0.507
SME fixed effects	Yes	Yes
Adjusted R^2	0.109	N/A
Observations *(SMEs*2 observation periods)*	424	424
Baseline intention to adopt *(Lloyds Bank, n=31)*	24.381	24.381
Baseline intention to adopt *(comparison group, n=181)*	40.830	40.830

** p < 0.1, * p < 0.05, + p < 0.1

† equivalent change in intentions to adopt after intervention = 4.623 percentage points
*(invlogit(logit(*40.830*/100)+(*0.18863*))*100)*-40.830

Appendix E: Actual adoptions and intentions to adopt by system type

The following tables show the breakdown of actual adoption and intentions to adopt for each type of system for both the Lloyds Bank sample and comparison group. These are descriptive statistics only and no statistical hypothesis testing on these differences has been done.

Table E.1: % of SMEs that reported adopting type of software in previous 3 months

	Lloyds Bank SMEs (n = 31)		Comparison SMEs (n = 181)	
	Pre-intervention	Post-intervention	Pre-intervention	Post-intervention
CRM	29%	10%	36%	12%
ERP	21%	3%	25%	10%
HR	13%	6%	31%	9%
Accounting	13%	6%	48%	13%
PM	21%	3%	36%	12%

Table E.2: Average intention to adopt type of software in next 12 months
0% = no chance of using, 100% = definitely going to start using

	Lloyds Bank SMEs (n = 31)		Comparison SMEs (n = 181)	
	Pre-intervention	Post-intervention	Pre-intervention	Post-intervention
CRM	33%	28%	40%	25%
ERP	24%	17%	34%	23%
HR	19%	9%	37%	26%
Accounting	23%	20%	52%	32%
PM	23%	16%	42%	26%