Checkit and Cambridge City Council Feasibility Study 2017

1. Background and Context

1.1. Regulating Our Future (ROF) is a major transformation programme to modernise and re-shape the regulatory regime for food. ROF will change the way food businesses are regulated and inspected across England, Wales and Northern Ireland. The Food Standards Agency (FSA) aims to have a new system in place by 2020.

1.2. The FSA is taking a whole system approach, understanding what information is available from a wider range of sources and how this can could be used in the future to gain assurance that food is safe and what it says it is, and public health is protected.

1.3. Through ROF the FSA is looking to make more use of 2nd and 3rd party data and businesses' own assurance systems to support regulation. New and emerging enterprises, technology and innovations have the potential to provide a range of data that could support the ROF target operating model (TOM).

1.4. The ROF programme is committed to working in an open policy making way engaging with wide range of stakeholders across food industry. This includes the use of short duration feasibility studies to help shape and develop the TOM. By working with Checkit and Cambridge City Council during this feasibility study, the FSA aimed to take on board fresh ideas, best practice and lessons learned, enabling the development of the best possible regulatory model for food.

2. Checkit Digital System

2.1. Checkit is a company based in Cambridge that has developed a commercially available real-time operations management system, one of whose applications is to act as a digital food safety management system.

2.2. The system comprises of a touch screen interface (Memo), temperature probes and smart sensors (which can be inserted into refrigerators to automatically read temperatures). Checks are set up and managed from a cloud application, data is digitally time-stamped, tamper-proof and sent to the cloud whenever an internet connection is available.

2.3. The system comes with pre-installed checklists based on the FSA's food safety management system, Safer food, better business (SFBB). These checklists are tailored at the outset by Checkit (using questionnaires and business analysis techniques) to suit individual businesses requirements and are fully configurable.

2.4. Checkit is in a Primary Authority partnership with Cambridge City Council. Checkit state that this system has been *'Produced in partnership with and endorsed by Cambridge City Council food safety team as an approved food safety management system.'*

3. The Application

3.1. In May 2017, the FSA received and subsequently approved an application for a feasibility study from Checkit, to be delivered in collaboration with Cambridge City Council. It was agreed that the duration of the feasibility study would be approximately four months (including business configuration, training and on-boarding).

3.2. A core 'project team' was created for the duration of the feasibility study, comprised of:

- Cambridge City Council - Environmental Health Officer (EHO) and Team Manager
- Checkit - Product Manager, Customer Support Manager and Service Engineer
- FSA - Project Manager and Subject Knowledge Expert.

3.3. The project team worked collaboratively to develop and agree the arrangements for the delivery of the study. The fieldwork was launched in August with a 'Feasibility Study Kick-Off Event' attended by representatives from Checkit, Cambridge City Council, the FSA and all the participating food businesses. The event was used to brief the food businesses on the purpose of the study and for Checkit to pass on the essential hardware (Memo and probe).

4. Objectives and Methodology

4.1. The objectives for the feasibility study were to determine whether the digital technology could:

- Help inform the decision-making approach for auditors and inspectors.

- Increase efficiency of food safety inspections by concentrating on high risk businesses.

- Increase the efficiency of on-site inspections.

- Support businesses with regulated assurance of food safety.

- Improve the transparency of data shared between the business and the regulator.

- Assist EHO's in identifying businesses remotely to target their inspections more efficiently.

- Determine whether there is a correlation between digital food safety records and food safety standards at the premises.

- Develop a single set of digital Key Performance Indicators (KPI's) and determine if these can be successfully applied to digital food safety records generated by businesses using Safer Food Better Business (SFBB) to enable an optimised inspection regime.

4.2. The feasibility study originally involved six food businesses, however due to the busy summer period, one business withdrew their interest before the study began. The study therefore used five food businesses, four based in Cambridge and one in Bury St. Edmunds.

4.3. Of these five businesses, four used the paper format of SFBB as their documented food safety management system and one used its own system.

4.4. Each business was provided with a Checkit digital system (Memo and probe) to manage food safety data collection in place of their standard paper-based system. The system was configured by Checkit prior to start up using questionnaires and business analysis techniques to suit businesses requirements. The use of the refrigeration sensors was out of scope for the benefit of the study.

4.5. Checkit provided the digital system free of charge to each of the businesses for six months, which included the duration of the feasibility study.

4.6. The food businesses were not required to keep or maintain paper-based records for the duration of the pilot and instead would rely on Checkit digital records to provide an audit trail and evidence of food safety compliance.

4.7. None of the businesses were existing users of the Checkit technology. This was to evaluate food safety performance from a level playing field.

4.8. An EHO from Cambridge City Council undertook a mock inspection each month at each of the five businesses for the duration of the feasibility study. A total of fifteen inspections.

4.9. Food safety records were examined during the mock inspections and risks assessed from each of the participating food business. No formal action would be taken unless an imminent risk was identified. The aim of the inspection would be to understand whether there was a correlation between digital the records and reality.

4.10. Checkit had developed (in collaboration with Cambridge City Council) a set of digital KPI's that would be applied to digital records generated at the end of each month for each business. The purpose of these KPI's was to develop metrics capable of assessing whether a risk rating (red, amber, green) could be applied remotely using the data from the study. These metrics were reviewed and compared with the standard of food safety management practice observed at each business during mock inspections to determine their level of correlation. The KPI's were refined as the study progressed.

4.11. These KPI's would be shared by Checkit with the project team a few days before the inspection.

4.12. After reviewing the data from Checkit, the officer completed an 'EHO Assessment Form' pre-inspection to capture any observations.

4.13. The EHO subsequently carried out the mock inspection and then completed the remainder of the 'EHO Assessment Form' post-inspection to capture any further observations.

4.14. The project team held weekly meetings to discuss progress and any issues in the week gone by. This helped to ensure that the study remained on track and any issues were flagged and dealt with at the earliest possible instance.

4.15. At the end of the study Checkit sent a survey (designed in conjunction with the FSA) to the food businesses who participated in the study.

4.16. The FSA conducted interviews to get face to face feedback from the EHO and the Product Manager at Checkit.

5. The Feasibility Study

5.1. The feasibility study started on-time and the dates were generally adhered to.

5.2. It was initially decided that the mock inspections would take place during the last week of each of the three months. After the first set of inspections it was decided that the inspections were best placed in the first week of the following month, this was to allow time for reporting to be completed and circulated.

5.3. The FSA attended two of the mock inspections to confirm that the study methodology was being followed and provided oversight on the process.

5.4. There were six amendments made to the KPI's during the feasibility study in response to feedback from both the FSA and the EHO at Cambridge City Council. The final version of the KPI's was more refined and representative of the inspection, however due to the time limitation of the study this version was not tested.

6. Observations and Lessons Learned

6.1. Study Timing

6.1.1. The feasibility study commenced during the summer months, arguably the busiest time of the year for food businesses.

6.1.2. It was observed by Checkit that the summer months have the highest turnover of staff in food businesses; this was accepted as a risk from the outset.

6.1.3. To minimise disruption, any possible future food related technological change should consider the above factors.

6.2. System Cost

6.2.1. As an incentive to take part in the study, the Checkit system was provided to the food businesses free to use for six months (including the entire duration of the feasibility study).

6.2.2. At a post feasibility study interview with Checkit, it was felt that there is a real difference between a customer who pays for a product and one who gets it for free. The customer who receives it for free is potentially less likely to use the service to its full capacity as they have not invested money in it; for example, keeping the configuration up to date (in-line with business changes), or log in to clear alerts as and when they appear. A customer who pays for the service on the other hand will treat the product as an investment and be more active in ensuring they are gaining maximum benefit from the product. This observation was not evaluated as part of the feasibility study.

6.3. Culture

6.3.1. At a post feasibility study interview with Checkit, it was suggested that unless you get buy in from the right people (i.e. management) at the start of the digital implementation there may be a battle to introduce a new system and change the culture of how food businesses operate. This observation was not evaluated as part of the feasibility study.

6.3.2. The cultural aspect of a change from paper based records to (alert based) digital records needs to be considered and management need to be able to see through the transition from one model to the other. None of the businesses in the study had ever used a digital version of food safety management system and had previously relied on a paper based food safety management system.

6.3.3. Consideration will need to be given in any future model regarding cultural changes of a digital implementation. Historically, food businesses are used to using paper records and any digital implementation should consider the cultural aspect of this change.

6.3.4. The study was conducted using Checkit's system which is based on SFBB. Consideration will also need to be given to food businesses who are using not only SFBB but other food safety management systems.

6.4. Support

6.4.1. There was a need for Checkit to provide enhanced support to some of the businesses due to the way they were using the system. Some businesses, for example, had provided erroneous information at the outset to Checkit which had resulted in inaccurate configuration (possibly related to 6.2.2).

6.4.2. One of the businesses who used the Checkit digital solution felt that *'It makes you do it properly,'* and is *'easy to use'* this was echoed by other food businesses too.

6.4.3. In the post-feasibility study questionnaire, one hundred percent of respondents felt either 'Supported' or 'Very Supported' using a digital tool for food safety management. Some comments included *'Always reminds you what work is due'; 'It involves everybody in ensuring checks are completed'* and *'Alerting staff that jobs need to be done.'*

6.4.4. In the post-feasibility study questionnaire, one hundred percent of respondents felt that using a digital system was more efficient than using a paper based one and reported savings of between one and three days a month.

6.4.5. Consideration will need to be given in any future model regarding providing enhanced support for food businesses during a digital implementation. In the case of this study, this was made easier as Checkit had a dedicated support function.

6.5. Inspections

6.5.1 There was an increased frequency of inspections for the duration of the study with one inspection a month for three months. This was primarily done to evaluate the use of the system and to confirm whether the remote view of the data matched what was happening at the premises. Anecdotally it was noted that the increased frequency of inspections was a burden on the businesses during the busy summer months.

6.6. Data Sharing

6.6.1. Challenging deadlines were set to share data between Checkit and the regulator for the duration of the pilot. Data needed to be submitted on the last working day of the month so that inspections could commence the first week of the following month. Despite the deadlines, data was always produced and shared with the project team on time.

6.6.2. In the post-feasibility study questionnaire, all respondents stated that they would be happy for their food compliance data to be shared with an EHO.

6.6.3. During the post-feasibility study interview, the EHO felt that in general for the duration of the study no time was saved on inspections based on the data received, however they felt that there was benefit in sharing the data as it helped inform their decision-making approach, informing their view in the confidence in the management of the business and understanding if identified issues were effectively resolved.

6.6.4. Consideration will need to be given in any future model regarding the frequency of sharing data, the time required to collate and prepare the data and the time to read and assess it.

6.6.5. Consideration will also need to be given to what exact data needs to be shared to form a remote assessment of the food business. There will need to be a more thorough understanding of what the EHO requires to see (i.e. will high level KPI's suffice or will they require sight of all checks e.g. opening and closing checks).

6.6.6. Consideration will also need to be given to how the EHO will view this data and whether they will require access to the digital food safety management systems so that they can extract what they wish to see themselves.

6.7. KPI's

6.7.1. The food businesses were never shown the KPI's that were run against their businesses. This was to ensure the study was completed in a natural way without manipulating typical food business behaviours.

6.7.2. The KPI's were continuously refined during the study. A set of measures was established that indicated performance of the businesses in key areas, it is clear however that further calibration of thresholds for classification will need to be established in ongoing work. The final set of KPI's were not tested due to the study duration. Due to this, it was not possible to explore and evaluate a number of the objectives relating to the effectiveness and efficiency of inspections.

6.8. Food Hygiene Rating Scheme (FHRS)

6.8.1. Checkit observed that the food businesses were keen to improve their FHRS rating if it was less than 5, or maintain an existing 5 rating, and the Checkit system was seen by some of the businesses as a potential tool to assist in achieving this.

6.8.2. Checkit also observed that some of the food businesses were willing to make changes to their food safety management systems to improve their food safety compliance and achieve a better rating.

7. Conclusion and Recommendations

7.1. The feasibility study has demonstrated the value of digital systems for business operators as an alternative to paper based systems, however there is merit in exploring in more depth:

- the use of KPIs using business derived data to indicate potential risk in food business compliance

- the potential for business derived data to be used to inform the nature frequency and intensity of Local Authority (LA) food safety interventions at food establishments.

A [pathfinder](#) would help to fully understand and evaluate these issues in more depth.

7.2. Any pathfinder would need to be designed in such a way as to demonstrate whether data sharing mechanisms can be implemented between all relevant parties with minimal interference. A pathfinder using a larger sample size would help to assess whether efficiencies can be achieved such as enabling the targeting of high-risk businesses.

7.3. Involving multiple LAs and businesses in a pathfinder will provide useful feedback from a larger sample (e.g. possibly around 15 LAs and over 200 geographically dispersed businesses). To ensure any potential pathfinder is robust and provides value and statistical relevance, it would need to be designed in conjunction with the FSAs Analytical team.

7.4. Any potential pathfinder would need to have fewer, more refined objectives.

7.5. There would be an opportunity for the pathfinder to be designed to evaluate the use of multiple digital solutions.

7.6. There would also be an opportunity to undertake a further feasibility study with Checkit. The study would be shorter in duration and concentrate solely on further testing the final set of KPI's mentioned in 6.7.2. Checkit have stated that these KPI's will be automated in the near future.

8. Acknowledgements

10. Glossary

i) Feasibility Study

A small scale preliminary study, conducted in order to identify feasibility, time, cost, adverse events, predict an appropriate sample size, and help to develop the study design prior to larger scale "Pathfinder" activity

ii) Pathfinder

A project that increases understanding of an element of the new regulatory model. In doing so, pathfinder projects will assist in finding out what works best for implementation. Knowledge gained is shared openly for the benefit of the wider organisation/programme

9. Annex

A) EHO Assessment Form

Annex A)

Cambridge City Council and Checkit Feasibility Study
Environmental Health Officer - Assessment Form

Environmental Health Officer Name:
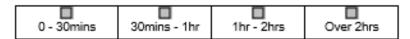
Name of Food Business Operator:

Date of Forthcoming Mock Inspection:

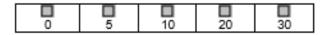Date of Last Food Business Inspection:

Current Food Business FHRS Rating:

Section to be completed BEFORE the inspection

Q1. How long did it take you to review the Checkit provided data for this particular FBO?

☐	☐	☐	☐
0 - 30mins	30mins - 1hr	1hr - 2hrs	Over 2hrs

Q2. Based on Checkit data, how would you score the compliance with management controls?

☐	☐	☐	☐	☐
0	5	10	20	30

Q3. Notes on any areas appearing to be of concern:

Q4. Notes on any areas appearing to demonstrate compliance:

Q5. Any other comments based on the data sent by Checkit:

Section to be completed POST the inspection

Q1. Based on the inspection, what FHRS score would be given to this business?

0	1	2	3	4	5
☐	☐	☐	☐	☐	☐

Q2. Based on the inspection, how would you score the compliance with management controls?

0	5	10	20	30
☐	☐	☐	☐	☐

Q3. Were the areas of concern recorded in Q3 (pre-inspection) consistent with what was found during the inspection?

	Comments:
☐ Yes	
☐ No	

Q4. Were the areas of compliance recorded in Q4 (pre-inspection) consistent with what was found during inspection?

	Comments:
☐ Yes	
☐ No	

Q5. Based on this inspection, does the risk rating set in the KPI's reflect the level of compliance found at the FBO on inspection?

☐ Yes	☐ No

Q6. Is there any other data that if provided up front could further aid a remote inspection?

	Comments:
☐ Yes	
☐ No	

Q7. How much time during the inspection would you estimate a prior view of Checkit data saved?

☐ None it added time	☐ 0 - 30mins	☐ 30mins - 1hr	☐ 1hr - 2hrs	☐ Over 2hrs

Q8. Any other comments: