FARM PERFORMANCE ENHANCEMENT PLATFORM

Appraisal of the impacts of COVID-19 on Knowledge Exchange in Agriculture: Summary

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Introduction

In the summer of 2020 the UK Government put out a call via its research agency UKRI for 'Ideas to address Covid-19'. Seeing the impact that the pandemic had on the normal face-to-face interactions and events that are so crucial to the sharing of knowledge and advice in agriculture, we pulled together the Farm-PEP consortium to address the question of 'Knowledge Exchange' post-covid in a project that started in December 2020.

Progress in agriculture depends on farmers, advisors, supply chain professionals and researchers sharing their experiences, ideas, innovations and results on a frequent informal basis, much of which normally happens at numerous shows, events and meetings. COVID-19 has impacted face-to-face interactions, and so has disrupted the normal course of Knowledge Exchange (KE) in agriculture. KE providers have scrambled to deliver content and events online, but there has thus far not been a co-ordinated critical evaluation of their impact or effectiveness.

The fragmented nature of the UKs Agriculture Knowledge & Innovation System (AKIS) has been widely recognised as a partial cause of stagnant productivity growth in UK agriculture. The COVID-19 disruption presents an opportunity to rethink the way that knowledge exchange happens in agriculture, connecting existing bottom-up approaches with industry initiatives, on-going projects, formal research reports & scientific papers, and to support the open development of new proposals. There is an engaged community of practice already interacting and willing to share their ideas, experience and data. However, to date digital support has been fragmented and transient.

We believe that the provision of a robust digital architecture, co-designed with users to enable greater interactions would catalyse progress in the generation, distillation and dissemination of knowledge, and would grow the community of engaged farmers, advisers and scientists who want to learn together and build capacity for the future.

The project therefore had two objectives:

- **To evaluate the impact of COVID-19 on the knowledge exchange landscape in agriculture, through a rapid appraisal**
- **Co-design of a web platform to help connect the AKIS and benefit the agricultural community by enabling the sharing of knowledge.**

This report summarises the findings from the rapid appraisal of the impact of COVID-19 on KE in agriculture, with a view to sharing experiences of what's worked and what hasn't to help inform best practice. The findings are synthesized into a 'Challenge Statement' that forms the basis for the co-design of the Farm-PEP web solution.

Further information on the project and its development can be found at www.farmpep.net.

Stakeholders in the AKIS

The knowledge exchange landscape in the UK is complex, with many actors across multiple organisations. Some of these organisations are represented in the graphic below across different groupings in the public and private sectors.

In this project we have tried to engage with as many of the players as possible, through a Steering Group, the web survey, interviews with KE practitioners and stakeholder workshops.The stakeholder analysis conducted for the appraisals is described in the Interview Analysis report.

For the development of any Farm-PEP web solution we see the wide engagement and connection of stakeholders as being crucial to success

Approach to conducting the rapid KE appraisal

The KE appraisal was led by Prof Julie Ingram at CCRI with social scientists from ADAS. It aimed to evaluate the KE response, impacts, mitigations and opportunities resulting from the COVID-19 disruption within the UK Agricultural Knowledge and Innovation System (AKIS). For a full description see Interview Analysis report. The rapid appraisal had three components;

1. An online survey of farmers and KE practitioners
2. In-depth interviews with KE practitioners
3. Stakeholder workshops

To set the context of the study and to inform the survey design we started with an exploration of terms in 'The Farming Forum', together with opening a discussion thread on the subject. This showed the increases in the use of the terms by the farmer community indicative of digital tool and media use, for example 'webinar', increased from less than 20 mentions per month prior to March 2020 to more than 160 mentions in May 2020.
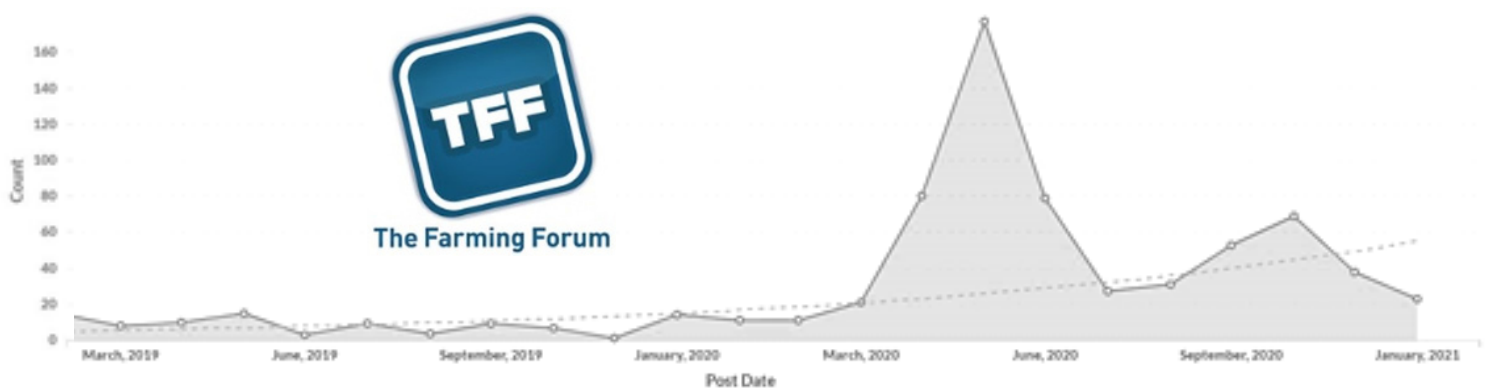

Figure 1. Incidence of the word 'webinar' on The Farming Forum from 2019 to 2021.

The online survey was set up by CCRI and was designed for farmers and other stakeholders (mainly KE practitioners such as advisers) to complete within 10 minutes. It was open to anyone during February-March 2021 and was widely circulated by email to contacts of the consortium partners as well as on Twitter and social media. The link was sent to over 20,000 registered users of The Farming Forum.

Sixteen semi-structured interviews with KE practitioners were conducted. Interviewees were selected after a stakeholder analysis to ensure good representation

across agricultural sectors and types of organisation (e.g. advisers, public sector, industry, media, NGO etc). The interviews were informed by the survey findings and were framed around the questions

- What has been the impact of COVID-19 on knowledge exchange activities?
- What are the opportunities for future knowledge exchange activities?.

The interviews were recorded, transcribed and analysed to find common themes.

A stakeholder workshop was undertaken in March 2020 with 39 stakeholder participants, representing a cross-section of knowledge exchange activities in the AKIS including advisers, levy boards, farmer organisations, agritech organisations, agricultural scientists, academics and policymakers. Participants were split into 7 breakout groups and asked to address the questions;

- What has been the main impact/change in knowledge exchange activities since Covid-19?
- What would you like to see in the future for knowledge exchange activities?

As with the interviews, the workshop and break out group discussions were recorded, transcribed and analysed to find common themes. An iterative analysis of all data (from the three methods) identified a set of common themes.
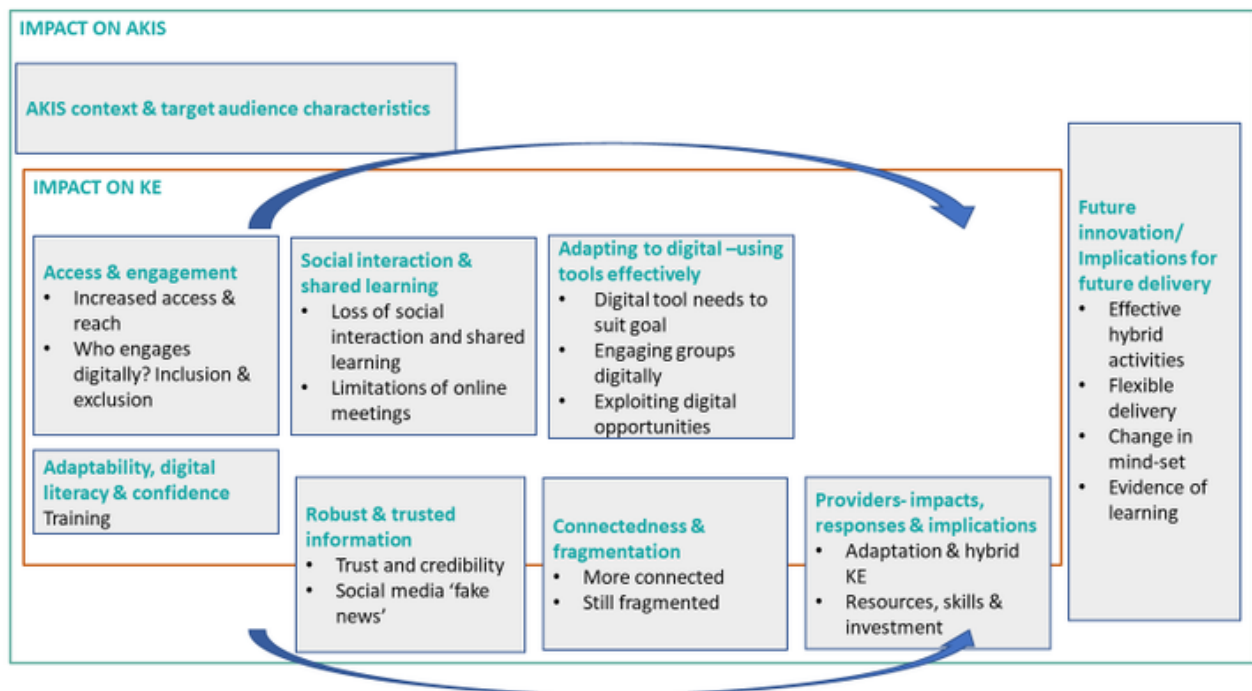

Figure 2. Key themes revealed in the analysis

A second more focussed workshop with 10 attendees invited to represent the AKIS was held in May 2020 to distil the findings from the survey, interviews and workshop into some themed messages, and a Challenge Statement, using a Design Thinking approach, led by Julian Gairdner.

Results are presented in separate reports (survey, workshop and interviews), a synthesis chapter can be found in the Interview Analysis report.

Summarised findings from online survey

A detailed report on the results from the online survey can be found on the Farm-PEP webpage here.

We had 265 respondents to the online survey, 58% of whom were farmers (23% crops, 20% mixed, 15% livestock), 42% being KE practitioners (advisors 9%, KE providers (eg Levy) 9%, researchers 9%).

How has KE changed post pandemic?

Overall, respondents reported an increase in the use of webinars of around 50% for accessing knowledge and advice, with a reduction in physical meetings of around 75% since the start of the pandemic. A 10% increase was reported for use of online forums (eg The Farming Forum). Individual face-to-face with advisors and groups were down by around 60%.In terms of digital tools used, the use of video telecommunications (eg Zoom, Teams) for knowledge exchange was up by around 60%, with online conferences up by 30%, podcasts up by 14%, video sharing up by ~12% and use of online blogs & newsletters up 8%. It was reported that the pandemic had not changed the use of social media tools.

Overall, respondents reported that the way they accessed knowledge exchange had 'changed a little', with around 25% saying it had 'changed a lot' and a similar proportion saying it was 'unchanged'.

When it came to the problems or opportunities that COVID19 had brought for accessing or providing knowledge, the farmers were more indifferent than KE practitioners: 42% of farmers felt that it had neither created a problem or opportunity,

with 40% saying it had caused a problem. KE providers were more split, with 40% seeing more opportunities, and 40% thinking it had caused problems.
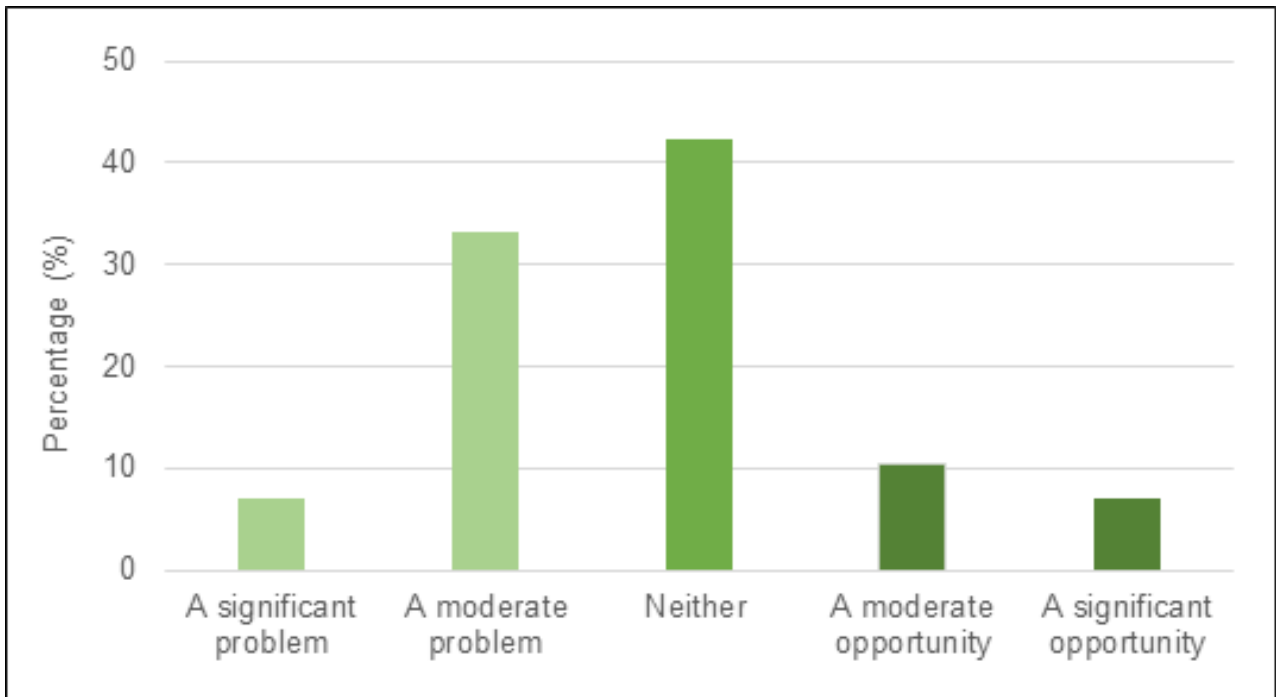

Figure 3. To what extent has COVID-19 created problems and opportunities for accessing information and advice? (farmers)
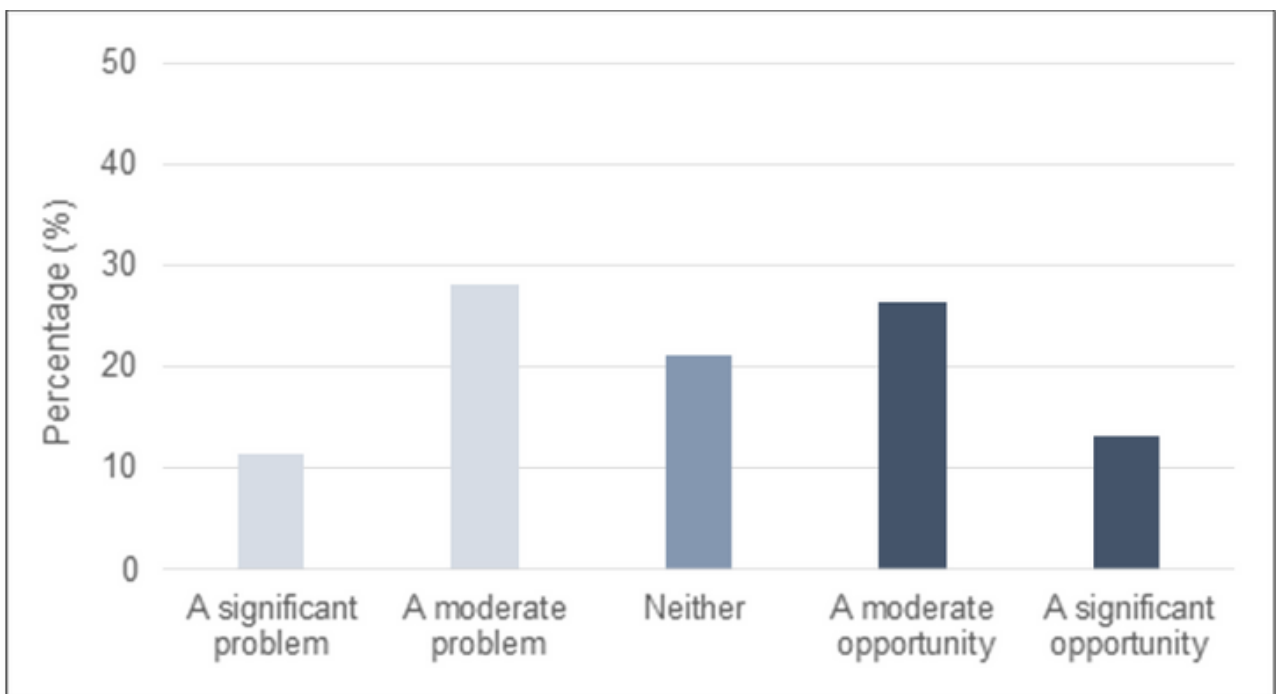

Figure 4. To what extent has COVID-19 created problems and opportunities for providing information and advice? (stakeholders)

What are the opportunities post-pandemic?

Both farmers and stakeholders/KE practitioners agreed on the three biggest opportunities that have arisen post-COVID-19 via greater use of digital tools and media:

- New sources of information are available (~85% agreed)
- Flexibility to access them when I want (~85% agreed)
- Save time and money through reduced travelling (~80% agreed)

Around 25% of farmers had an issue with trusting advice from digital tools, where less than 10% of stakeholders/KE practitioners agreed they didn't trust advice from digital. In terms of the challenges presented to KE from using digital tools during the pandemic, there was general agreement between farmers and stakeholders/KE practitioners that they're too fragmented (~65% agree), digital fatigue is a problem (~60% agree) and that the experience is too solitary, giving limited interaction with others (~55% agree).

More than 90% of respondents agreed that they hope to use a mix of in-person and digital tools for knowledge exchange in the future, with more than 70% agreeing that the disruption has provided an opportunity for them to rethink the way they access or provide knowledge exchange. Around 70% of respondents agreed that the industry had been very adaptive and they hadn't suffered problems.

Despite only 22% farmers and 5% of stakeholders/KE practitioners thinking that 'nothing will change' as a result of COVID-19 in the future, only 35% of farmers and 45% of stakeholders/KE practitioners agreed with the statement 'I will not go back to the way I received/provided advice before the pandemic'.

In terms of priorities for future digital developments in KE, there was broad agreement between the two respondent groups on the top five:

- Enable more interactions with others for shared learning (farmers 55%, advisers 45%)
- Trusted credible source of advice (55%)
- Good user friendly interface (52%)
- Find out what's going on in the industry (35%)
- A 'one-stop-shop' to access all the information I need (32%)

Further feedback in themes

Further feedback was provided by 174 of the respondents who answered an open question at the end: "What do you feel are the most important areas to explore regarding the impact of COVID-19 on how information/ advice is accessed/delivered?", Analysis grouped the responses into a number of themes:

Accessibility and Engagement

Accessibility and engagement was increased for many, with less need to travel and ability to join networks and seminars for wider knowledge, including internationally. Some people have connected on-line who wouldn't have attended in-person events. However, others have been excluded, through lack of digital skills, or, critically, inadequate broadband in rural areas.

Digital skills and Confidence

Digital skills and confidence were generally seen to have increased for farmers and practitioners, but others may still need training in digital literacy.

Social interactions, Community and Shared learning

can be helped through digital KE reaching wide and diverse audiences quickly and efficiently, especially with skilled facilitation and techniques to create a communal feeling (e.g. sending food and drink to participants). However, online meetings are generally considered a poor substitute for face-to face activities, generally not allowing exchanges between individuals with the reassurance and formation of well-rounded ideas that come from debate. There were serious concerns expressed over mental health risks from isolation, and that KE providers should signpost support.

Robust and Trusted Information

For technical scientific information it was felt that the new digital methods could enable effective transfer to much wider audiences online. There is also the opportunity to discuss via online spaces, but the communal discussions were generally felt to be limited.

Some people expressed suspicion over the 'facts' being shared on-line, with potential for commercial bias. The need for transparent, factual, unbiased and ideally scientifically peer-reviewed information was expressed.

Diversity and Fragmentation

Whilst the availability and diversity of new tools and knowledge sources had provided opportunities for many, others felt that there was too much choice with too much fragmentation, with little support on what sources to use and how they can be trusted.

Knowledge Exchange

Knowledge Exchange should be flexible and blended in the future. There is no 'right' or 'wrong' way to do KE with regards to virtual and in-person tools and approaches. Online/remote and in-person approaches should be carefully suited to the context and purpose in which they are used. Mixed-methods and 'blended' approaches for KE are favoured for the future, involving different types of information (scientific and non-scientific, expert and "lay"/farmer knowledge) and different tools (e.g. different digital tools and media, as well as a blend of in-person meetings and events).

There is a strong feeling that: "Online is great for some but will never replace some face-to-face networking".

Summary of the Interviews and Workshops

Detailed report on the results from the 16 interviews and the stakeholder workshop can be found on the Farm-PEP webpage here. A summary of the second workshop and initial attempts at developing the Challenge Statement are here.

The themes that came out of the interviews and workshops are synthesised below, building on those identified in the survey, combining the questions of what the impact of the pandemic has been, and what opportunities and future needs have arisen.

Access and Engagement

Overall it seems that the COVID-19 pandemic and wholesale move from physical to online meetings has increased the number of farmers engaging with KE activities; frequently meetings that would have attracted perhaps 30 attendees as a physical event had over 300 attendees registered as a webinar. There are obvious cost and time savings for both those providing and attending KE events online compared to hosting and attending (travelling) to physical meetings. However, the quality and depth of this engagement is questioned.

Digital meetings have removed geography as a barrier to participation, opening the opportunity to attend meetings that otherwise would not have been considered due to being in a different part of the country. They have also opened up the accessibility of international meetings, and involved international speakers.

With recordings of events, attendees can also access KE content at a time and place of their choosing convenient to them, or go back and catch parts that were missed or not understood.

Inclusion and Exclusion - Who is engaging?
However, there is a question of who is engaging online and there are significant issues of exclusion. The people attending digital events are often different to those who would have attended a physical event. There is a substantial contingent of people who have not engaged at all on-line, either due to variable broadband connectivity in rural locations, or due to insufficient digital skills or confidence. Digital fatigue was cited as an issue that can affect the depth and intensity of engagement.

Social Interactions and Shared Learning

Whilst online delivery has been seen as a positive for efficient knowledge transfer of technical information from KE practitioners to a large audience, the extent to which the audience has really assimilated the knowledge is not known. The increased enthusiasm for videos and podcasts has helped provide new avenues for transfer of knowledge.

Getting meaningful interaction and exchange of knowledge with the audience can be more challenging with digital, though it also provides opportunities. A different approach to facilitation is required depending on the size and objective of the meeting, with the choice of platform being important. The functionalities of on-line polls, question boxes and chat boxes in webinar tools such as GotoWebinar can help create audience participation through typing, if used effectively. Some have found that this can yield many more questions than would typically be asked in a physical meeting, perhaps as audience feel less inhibited with a degree of anonymity. Digital can also provide an effective spring board to make new connections. However, others have felt frustrated by the difficulty in creating a free-flowing open discussion with the audience.

Verbal contributions from the audience have generally only been possible in smaller meetings using Teams, Zoom, etc. However, the balance between running a professional orderly meeting (especially if it is being recorded for wider sharing), and giving the audience a voice, can be difficult. Often the online etiquette that we've all had to learn can inhibit free discussion, especially if the audience has been told to turn off videos to help with poor connectivity. It is much more to difficult to create discussion online with a group of strangers than where the group is already well known to each other.

It is widely recognised that the same level of social engagement and deep interaction cannot be achieved on-line; despite best efforts, digital can't replicate face to face meetings

The opportunity for non-verbal discussion and knowledge sharing via discussion forums and social media platforms like Twitter has increased somewhat over the pandemic. The Farming Forum reports that activity on their forum increased by around 10%. There is an established community of farmers and advisors on Twitter

who have a sizeable following, whilst they probably only represent a small fraction of all farmers, it does include many of the key influencers in the industry. Whatsapp has become a useful tool for groups of farmers in a particular region or interested in a particular topic connected by a KE practitioner.

A flexible approach

The view from many farmers and professionals is that the industry has adapted well during the pandemic, and the digital reset means we will not go back entirely to how knowledge exchange operated before. There was consensus that there will be be a future demand for hybrid events, ideally with the option of either attending in person or online. However, there needs to be realism here. Planning for a digital event often takes more time and organisation than a physical event, if it is to run effectively. The strong feeling from KE practitioners is that a very different approach is required for digital than for face-to-face meetings, so it is important to keep them separate; trying to blend them risks doing neither very well.

Opportunity lies is in the tools, resources and media that can be used before, during and after an event, whether physical or online, to consolidate and ensure continuity. Farmers want bite-size packets of information that they can access when convenient to them, ideally in a range of media. Following the meeting with emails, links, tweets, newsletter, press articles, videos, podcasts and discussion is all possible now to widen and strengthen engagement. It is demanding however on KE practitioners who now need a whole suite of skill sets. People expect now a professional delivery, so there are training needs to professionalise this, throughout the AKIS.

A key advantage of digital is the analytics that it provides, knowing who the audience is and how engaged they were, with provision of feedback, allows future activity to be tailored. It also allows follow up with the audience and the use of marketing approaches to segment and target audience types.

Diversity, Fragmentation and Trust

A key concern for many is the sheer breadth and diversity of the content, resources, information and events that are available. How is it possible to navigate this, not missing out on what's important but not being overwhelmed by the volume? How is it possible to ensure the content that contains real knowledge and learning is made

available and accessible in the long-term?

People are also concerned about the veracity of the content available on-line, though there is general confidence in the trust of individuals with whom relationships have been built prior to online engagement.

Much of the knowledge content online, for example on the AHDB website, is accessed from Google searches. AHDB is engaged in several developments seeking to curate and distil knowledge, for example The Institute for Agriculture and Horticulture and the Evidence for Farming Initiative.

Conclusion

There have been high levels of adaptability and positive engagement with online KE delivery since COVID-10 restrictions started, and an appreciation of the many benefits it provides. This presents a number of opportunities for the future. However, there is a strong feeling that this is at the expense of the social interaction, shared learning and social support that farmers gain from face-to-face activities.

Furthermore, there are concerns about those who have been excluded from online delivery, for whatever reason, and the implications this has for their future. When planning KE delivery in the future, it is important that the needs of some farmers and sectors are not compromised as organisations look for resource efficiencies. The key lessons and opportunities from this study, as summarised in the diagram below, are:
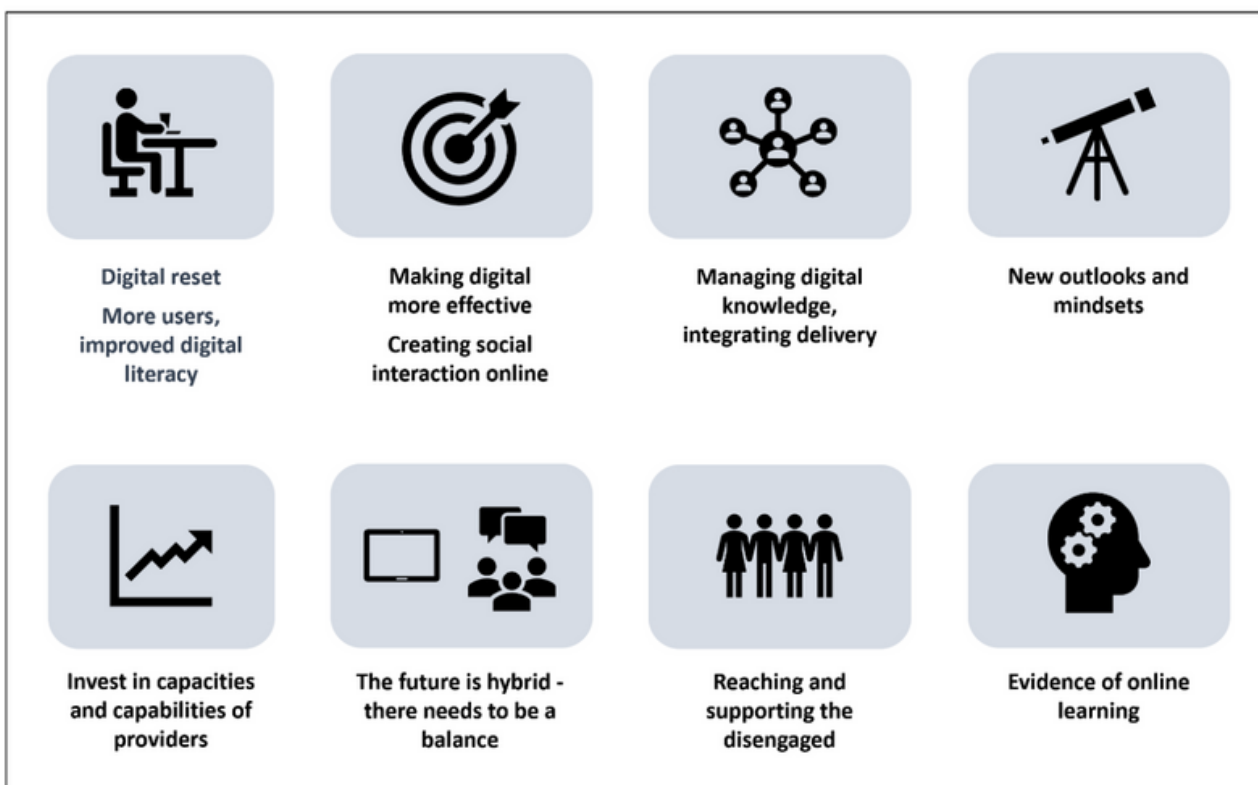
- Build on the digital re-set and the upskilled cohort of practitioners
- Make digital more effective using the many lessons and experiences gathered over the last year, creating social interaction online with new interactive platforms
- Knowledge needs to be managed given the proliferation of sources and platforms. Easy access, signposting and a high level of credibility are seen as

priorities, as is the need for coordinated delivery through shared platforms or a one stop shop

- Optimise on people's new outlooks and re appraisal of their KE methods
- Invest in organisation and individual capacities and capabilities to ensure professionalisation and skills to support new forms of delivery
- For future KE hybrid delivery, it is important that this is developed to ensure well balanced and appropriate delivery
- Assess the extent of engagement and learning achieved through online delivery to ensure that digital tools are optimised and used in the appropriate context.

Challenge Statement

The statement below originated from a second stakeholder workshop which adopted a Design Thinking approach to synthesise and prioritise the evidence from the KE appraisal into a single Challenge Statement.
Analysis from the survey, interviews and first workshop were shared with 8 selected participants drawn from Farm-PEP partners, Steering Group, and closely associated stakeholders.Following breakout discussions, they arrived at a shared position to move forward with with development of Farm-PEP.

COVID-19 has changed knowledge exchange with a significant increase in the adoption of digital tools. While online delivery offers scale and convenience, farmers and KE practitioners can be overwhelmed by content volume, fail to translate information into useful knowledge, and suffer from online fatigue. They would like to be able to...

- Ensure information is authentic and reliable
- Filter out the noise and find what they want easily
- Choose from a variety of delivery and learning approaches
- Collaborate and interact effectively
- Engage at a level that recognises their digital skills and abilities
- Receive coaching and guidance for effective online delivery
- Work synergistically with face-to-face delivery

...so that robust information can be translated into practice change at scale, to enable the UK agriculture sector to realise increased productivity and profitability in a sustainable way.

Plans for development of Farm-PEP web solution

Within the current Farm-PEP Innovate-UK project we can't solve all the issues identified in the Challenge Statement, but it provides a starting point for us to set out ideas and prioritise our activities.

Our original proposal was to co-create a new digital solution (Farm-PEP), bringing together tools, experience and knowhow to provide a dedicated online community space for KE. The aim is for this to integrate with existing tools and initiatives (eg The Farming Forum, Agri-techE, Innovative Farmers, Yield Enhancement Network, Agricology, AHDB, Farming Connect, Land Management 2.0, WebinAg etc) and make full use of the social media, video and podcasts which have become important since the pandemic. Our aim is for Farm-PEP to provide the space for deeper, trusted, meaningful connections, knowledge sharing, community building and collaboration.

Our ambition is to provide solutions and spaces where people can find out what's going on across the industry, can demonstrate what they are doing and solicit feedback in order to build shared knowledge. We aim to enable serendipitous, synchronous and asynchronous discussions and connections to be made around topics of interest.

In its first phase we plan for Farm-PEP to provide a 'window' for all projects, networks, organisations, companies and individuals in agriculture: We will create standard template webpages for projects, organisations and individuals to be listed on Farm-PEP, generated and controlled by users. This will enable people to disseminate their activities and findings all in one place, providing contacts and enabling updates as projects progress. Pages will include tags, will be searchable and will link between connected pages. The format will be designed to cater for minimal input from the user, by linking to - and pulling in - existing resources and profiles where they exist already (e.g. LinkedIn/ Twitter/ Facebook/ TFF/ ResearchGate), or inviting full details of new projects and activities which do not already have a web presence. Farm-PEP will be populated with all ADAS projects to begin with, with sign-posting provided initially for all current AHDB and Innovative Farmers projects, so that the website will have sufficient content to interest users from the outset.

In the second phase of Farm-PEP we hope to enable connections and conversations across the community. Functionalities will be added for Farm-PEP users to connect with each other, to 'like' and 'follow' projects and organisations, and to comment on others' pages. Farm-PEP will link to discussion forum threads on TFF. Ultimately it should enable a discussion on a given topic to develop with connections to relevant knowledge, enabling the formation of new ideas and providing the framework for a consortium of interested parties to come together with a proposal and project, openly engaging with stakeholders and the public throughout, and ultimately disseminating new knowledge gained.

If you would like to join us on the Farm-PEP journey, please contact Daniel.Kindred@adas.co.uk