PhD Progress Poster - Week 6

'Using on-farm technologies to manage soil carbon and crops: understanding farming knowledges and practices in the deployment of sustainability technologies'

The project will critically analyse the impacts and implications of technologies in complex on-farm environments.

Research Questions

- **Examine how farmers (in the UK?) incorporate sustainable tools/technology developed using information technology and smart sensors into farm management practices.**

- **To explore how such sustainable tools/technology might be learned about, engaged with, resisted, challenged, or used in unexpected ways, by farmers.**

- **To investigate how such decision support tools/technology might change farm management practices and with what effects for the environmental impacts of farming and sustainable food production.**

Mini scoping review - to identify current state

(FARM*) AND (soil OR carbon OR crop) AND (smart OR technolo* OR sensor) - generated 250+ pieces of literature

'Complementary' technologies
Climate smart agriculture (CSA)
Crop diversification / Plant spacing
Cultivation technology packages
Laboratory soil testing
No till drilling (no GPS??)
Regenerative practice
Alternative farming systems
Organic / Biodynamic / organic fertiliser
Soil & water conservation
Compost mulch

GM crops Internet ???

'Chip' based technologies
Unmanned aerial vehicles (UAV) / Drones / imagery / satellite / near IR / digital / data mining / IoT / machine learning / weed management / IPM integrated pest management / modelling / robotics / data analytics / GPS / convolutional neural network (CNN) / use of mobile phone / hand-held sensor / True colour sensor array = Image processing / Support vector machine learning / precision agriculture technologies / Auto steer / leaf sensors / NDVI Normalised differential vegetation index

- Identified 10+ papers that contain in-depth literature reviews - For further analysis
- Identified multiple reasons for non-adoption of complementary technologies, which will inform potential reasons for non-adoption of 'chip' based technologies.
- Identified specific terms for the main literature review