

Name: John Divilly

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Supervisor: Brian O’Kane

Abstract

Recent technological developments in Low Power Wide Area (LPWA) networks are providing powerful options for previously unfeasible remote device connectivity use cases. Smart Cities and industrial automation are prime targets for LPWA enabled IoT applications however agriculture, a sector that has struggled to benefit from the rapid development of the internet and smart tech, will also be profoundly impacted.

Agri-IoT, a sub-category of IoT concerned with agriculture, can be seen as a key enabler of precision farming which has been highlighted by the EU as critical to EU farming competitiveness. Connectivity coverage over expansive, rural and lightly populated farms has always been a barrier to utilising such smart technology. With the technology enablers now a reality, the question now becomes what are the other factors influencing adoption. A review of current LPWA network options and Agri-IoT technologies available in Ireland was carried out. A survey of Irish farmer’s awareness and attitudes towards Agri-IoT products was conducted and analysed in respect of Technology Acceptance theory to determine the main factors affecting the adoption of Agri-IoT in this country. Interviews with both Agri-IoT users and non-users were held to gain a deeper understanding of the factors involved. The primary drivers to adoption were found to be increased competitiveness through both time savings and increased productivity. The primary barriers to adoption were found to be initial purchase cost and difficulty to maintain. Farm size and type along with Agri-IoT familiarity and social influence factors were also determined to impact on adoption rates. Regulation and government incentive programs are likely to drive further adoption of the technology. It was also identified that more work needs to be done to increase ICT skills in the farming community to allow the advantages of Agri-IoT to be realised.