

## Connected Farms: Submission to ACMA consultation Satellite direct-to-mobile services-regulatory issues.

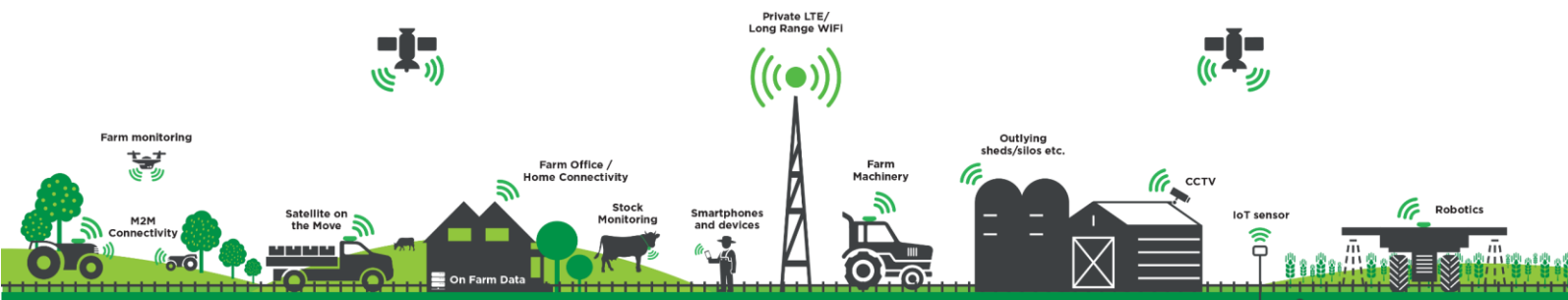
Connected Farms welcomes the consultation work the ACMA is undertaking to enhance regional development and connectivity, particularly technology and service innovation in the satellite sector through satellite direct to mobile services. Appropriate and fit for purpose regulatory arrangements and equitable spectrum access for satellite communications are critical to the long-term interests of end users, particularly in regional and remote locations.

The rapidly emerging satellite communications sector and associated technology has the potential to become a ubiquitous mode of connectivity, particularly for regional and remote Australia and associated industries. It is critical that regulatory and market settings are appropriate to ensure barriers are removed for new market entrants and protections provided to disincentivise MNOs from monopolising this emerging market using existing spectrum holdings and authorisations.

Based in Regional NSW, Connected Farms is an Australian-owned licensed carrier specialising in on-farm connectivity technology designed and customised for agricultural applications throughout Australia. Our solutions give farmers the means to increase their yields and reduce their inputs by enabling digital agriculture. We enable wide-area mobile (4G) broadband, narrowband IoT (LoRaWAN) and satellite on the move (SoTM) mobility connectivity across the farm which allows growers to adopt digital agriculture. Digital agriculture cannot be adopted without accessible on-farm connectivity. Our on-farm networks are supported by Low Earth Orbit (LEO) enterprise satellite internet backhaul, off grid power, edge computing for increased data analytics and computational ability, and regionally made towers.

**Is the current spectrum management framework fit-for-purpose to manage these new satellite services? This includes spectrum-licensed bands and other bands covered by the LIPD class licence.**

While the current spectrum management framework and regulatory settings may be technically capable of accommodating the emergence of satellite direct to mobile services, this should not be the only factor when reviewing whether the framework is fit for purpose. Considering the regulatory and technical framework in isolation from issues such as equitable market entry, spectrum hoarding or squatting, market monopolisation and the opportunity cost of other use cases has the potential to deliver sub optimal outcomes regional and remote users and markets and industries that rely on spectrum availability.



From a technical perspective, the ACMA has advised that handsets in the IMT satellite direct to mobile category could operate under the current spectrum licensing framework and acknowledged that IMT satellite direct to mobile service category will raise technical and regulatory considerations that are not faced by MSS direct-to mobile services. Connected Farms considers that the IMT satellite direct to mobile category also raises issues about equitable market entry, monopolisation and opportunity costs of other use cases for this band that will require further examination.

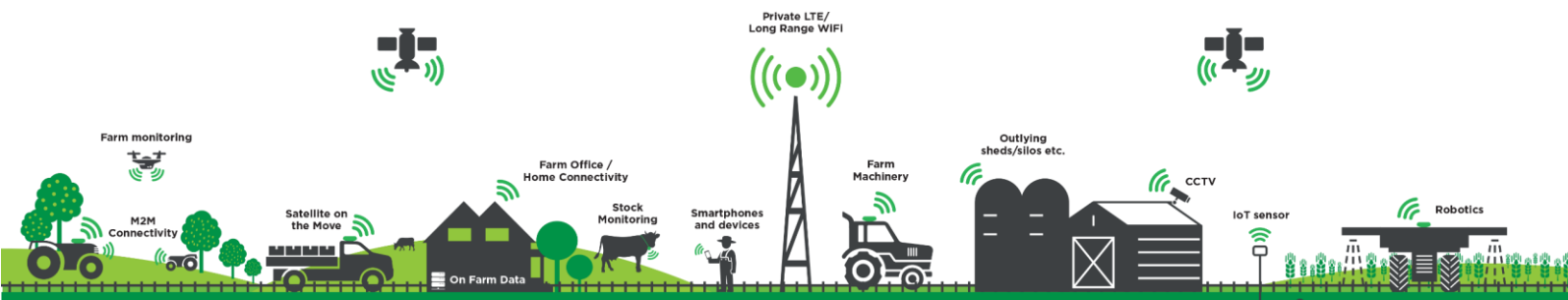
Connected Farms strongly encourages the ACMA to conduct a formal review and consultation process into whether the regulatory framework is fit for purpose for IMT satellite direct to mobile services. This would include whether allowing MNOs to utilise current spectrum holdings to offer satellite direct to mobile services is consistent with the Ministerial Statement of Expectations in relation to spectrum planning and allocation policy supporting innovation and competition in regional, rural and remote markets.

We welcome the ACMA looking broadly at the range of technologies and services that could be provided by satellite IoT data connectivity services such as extension of LoRaWAN into space could provide benefits in regional connectivity. In this context, we would encourage the ACMA to further examine whether the LIPD class licence is fit for purpose for these types of use case.

### If not considered fit-for-purpose: What are your concerns? What is your proposed solution? What next steps should be taken?

While direct to mobile may be facilitated under the Australian wide spectrum licence authorisation, Connected Farms considers that there remains risk of interference if direct-to mobile were allowed in bands where there can be a mix of MNO spectrum licensed and apparatus licensed PTS service (e.g. 1800Mhz, 2000MHz PTS bands).

In relation to the IMT satellite direct to mobile category, Connected Farms encourages the ACMA to consider the broader long-term interests of end users in this category. The spectrum for an IMT satellite direct-to-mobile service is predominantly authorised for use by MNOs under spectrum licenses. This has implications for the ability of new actors to enter this market, or other players to be locked out from offering satellite services in this band. It has the potential to create asymmetric operating conditions for this emerging market whereby non-MNO players would be required to seek authorisation and permission to operate in this category, whilst MNO incumbents may use existing spectrum allocations and authorisation to offer services.



Satellite direct to mobile services have the potential to significantly boost connectivity for regional remote and isolated parts of Australia, however an approach where operators are limited to their licenced spectrum on a per MNO basis is not an efficient use of spectrum. A more efficient and equitable use of spectrum could consider the pooling of spectrum and coordination for both fixed and mobile LTE services. To be fit for purpose, spectrum planning arrangements should have regard to the sub optimal outcomes currently being experienced in rural and remote Australia where high value low band spectrum is being under utilised by MNOs to the detriment of end-users and industries.

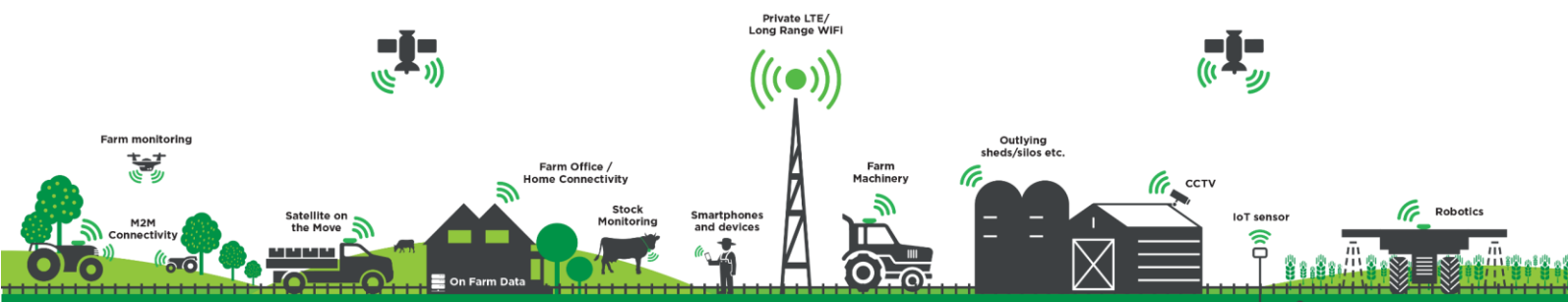
There is a need for the operators to work together and consider arrangements for shared infrastructure and spectrum in the delivery of these services. This will aid in the management of capacity, coordination of spectrum/interference and assist in better outcomes for regional and remote Australia. A coordinated approach will also minimise the capex required in the space segment of the networks and enable the carriers to establish capabilities with more than one LEOSat operator, thereby bolstering network availability and resilience.

### Are there any other commercial, regulatory or public-benefit implications we should take into account

As noted above, Connected Farms considers that there are public benefit, competition and market implications with regard to the IMT direct to mobile category that require further and careful consideration. Under current proposed arrangements, there is opportunity for MNOs to monopolise this emerging market using their Australia wide licenses, creating the potential to lock out competition and new entrants.

In considering authorisation in the IMT satellite direct to mobile category, Connected Farms encourages the ACMA to have regard to opportunity cost and alternative use cases scenarios that are broader than a purely technical consideration of capability. This will in turn support consideration of innovative opportunities for better telecommunications services in regional and remote Australia through spectrum and licensing allocation policy, including by the rapidly emerging satellite sector. For example, consideration of the ability for satellite communications and MSS to deliver the Universal Service Obligation policy in a more efficient, contemporary and cost-effective manner. This requires policy, regulatory and market aspects to be formally considered alongside technical elements such as power, capacity, spectrum band capability, technical capability, ground infrastructure, space segmentation.

Limiting consideration of this important emerging sector to regulatory or technical spectrum matters has the potential to deliver sub optimal outcomes, such as the current experiences of low band



spectrum being underutilised by the MNOs in regional and remote Australia, whilst being unavailable for smaller operators to deploy to address unmet demand.

