

# UAS regulations, policies & privacy



*Sustainable ICTs for agriculture -*

## Regional Training on the Use of Drones, Satellite Imagery and GIS for Agriculture



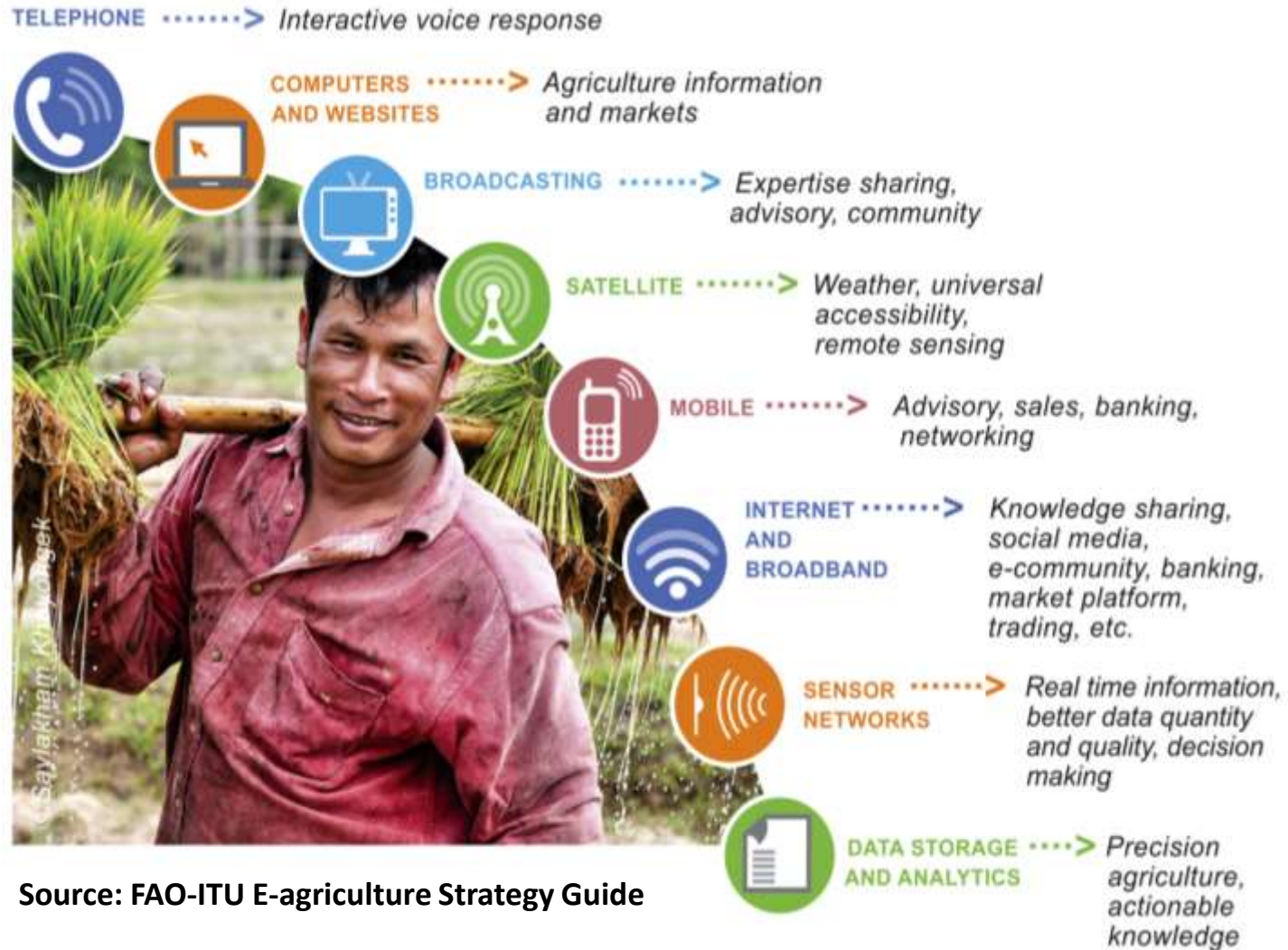
Food and Agriculture Organization of the United Nations



4-8 June, 2018



# Use of ICTs in Agriculture



Source: FAO-ITU E-agriculture Strategy Guide

## Drones & GIS

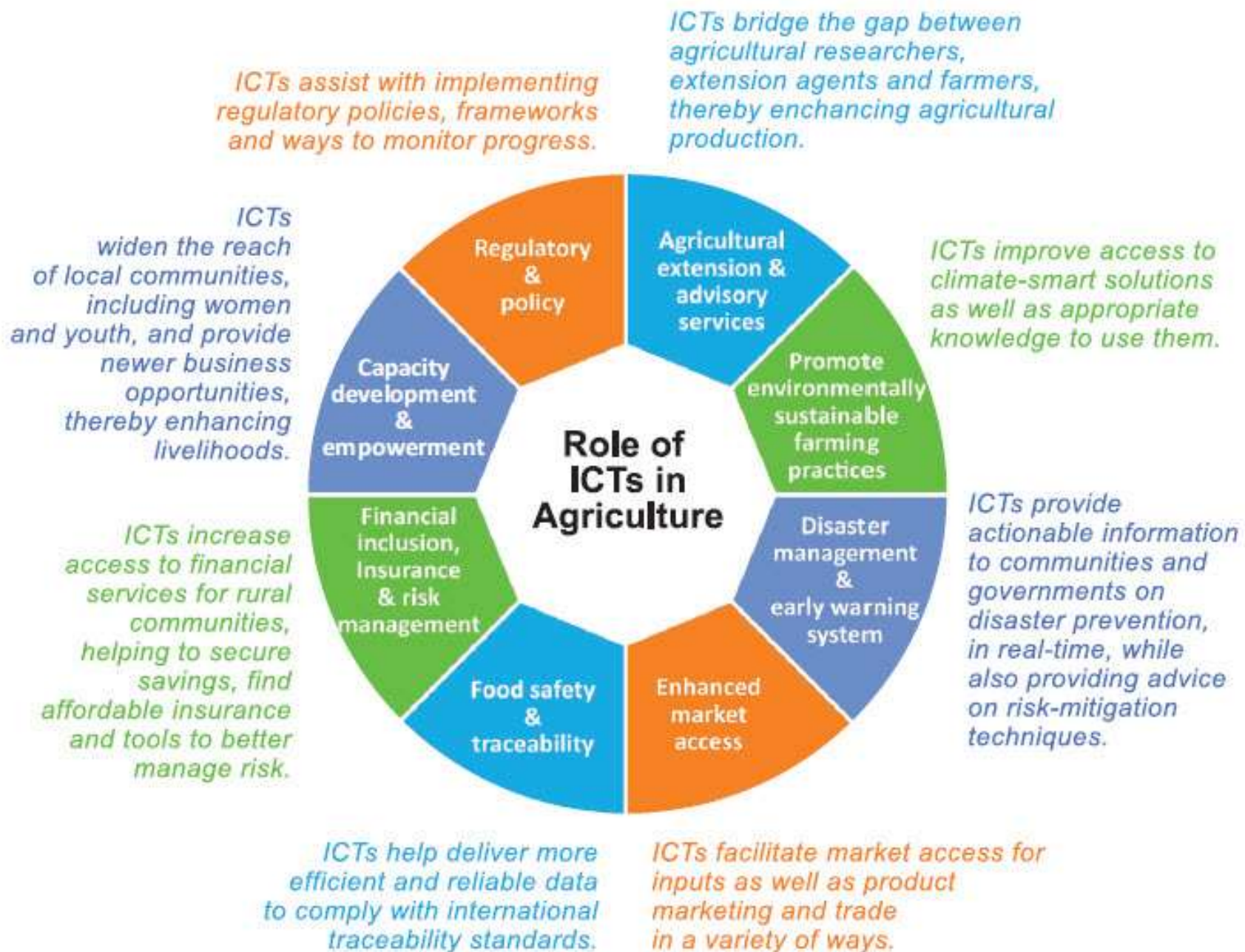


## Connected Cow



## 3D food printing





# Major challenges in ICT implementations



- Infrastructure
- Interoperability
- Data sharing/ privacy
- Connectivity
- Support to Innovations

- Unavailability of reliable data
- Linkages
- Data analytics
- Capacity Development

# Unmanned Aerial/Aircraft Systems (UAS)

## How will drones impact business?

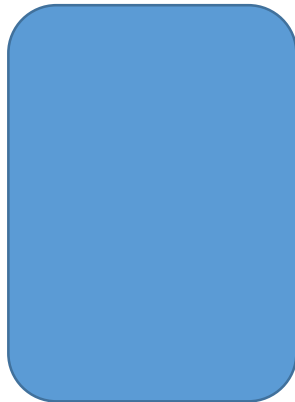
*Predicted commercial applications and market value by industry*



### Infrastructure

Investment monitoring, maintenance, asset inventory

**\$45.2bn**



### Transport

Delivery of goods, medical logistics

**\$13.0bn**



### Security

Monitoring lines and sites, proactive response

**\$10.5bn**



### Entertainment & Media

Advertising, entertainment, aerial photography, shows and special effects

**\$8.8bn**



### Insurance

Support in claims settlement process, fraud detection

**\$6.8bn**



### Telecommunication

Tower maintenance, signal broadcasting

**\$6.3bn**



### Mining

Planning, exploration, environmental impact assessment

**\$4.3bn**

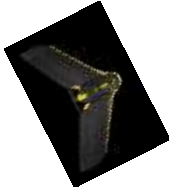
*“Relatively cheap drones with advanced sensors and imaging capabilities are giving farmers new ways to increase yields and reduce crop damage.”*

### MIT Technology Review on Agricultural Drones

*“From driverless tractors to unmanned aerial vehicles (UAVs), farming technology is rapidly evolving. Farmers can use drones to identify specific plants that are diseased or infested with bugs, to save water and resources.”*

### NatGeo — Drones & The Future of Farming

# Regulations & Policies in UAV use



Regulations have been a significant barrier to more widespread use of UAS

- ❖ Type, size, operation (VLOS, BVLOS), registration, training, license, insurance, location use.



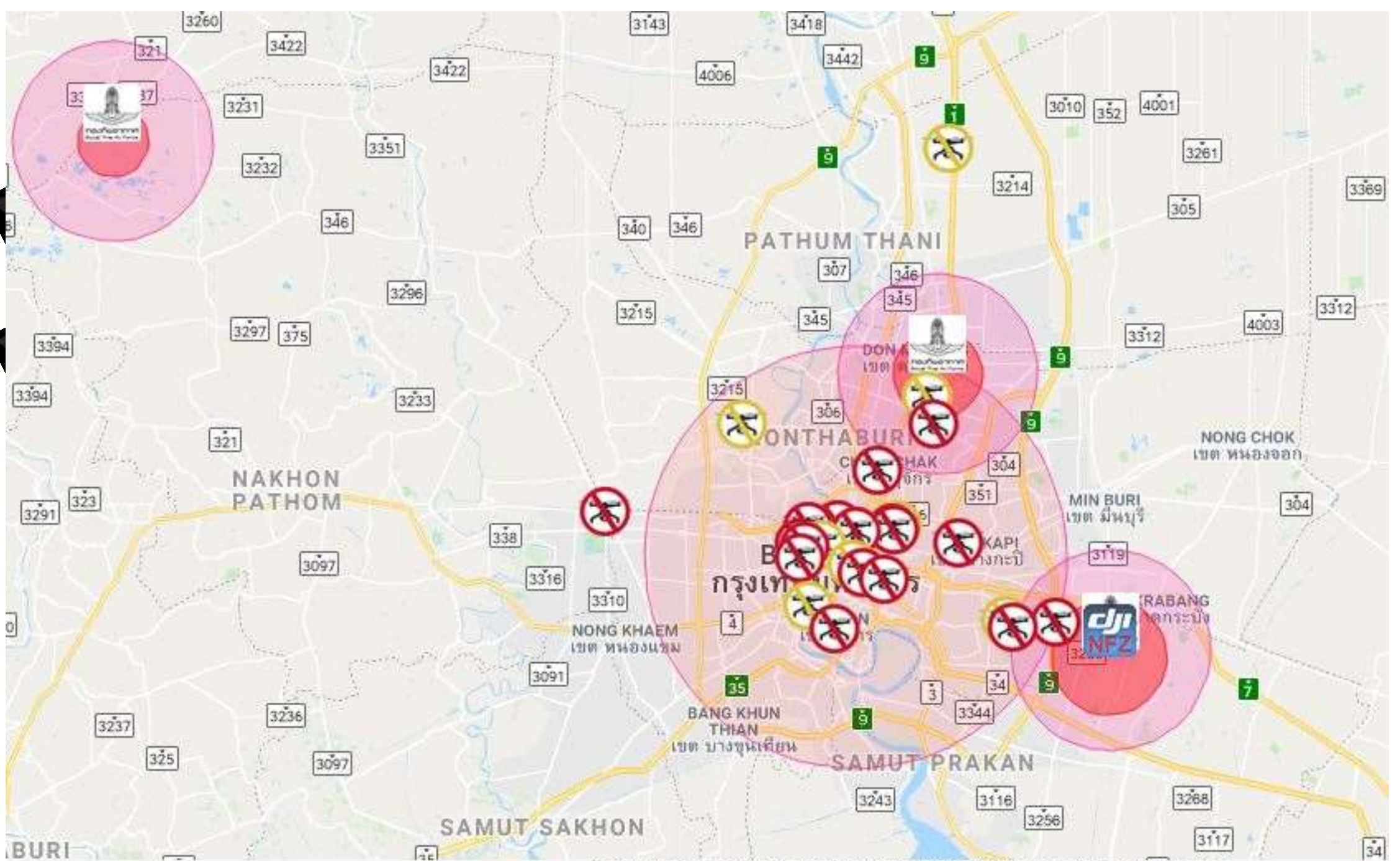
Global Drone Regulation Database: <https://www.droneregulations.info/>

Drone Laws around the world: <https://uavcoach.com/drone-laws/>

# Drone regulations in countries

Approach	Definition	Countries	
Outright ban	Countries do not allow drones at all for commercial use.	<ul style="list-style-type: none"> <li>• Argentina</li> <li>• Barbados</li> <li>• Cuba</li> <li>• India</li> </ul>	<ul style="list-style-type: none"> <li>• Morocco</li> <li>• Saudi Arabia</li> <li>• Slovenia</li> <li>• Uzbekistan</li> </ul>
Effective ban	Countries have a formal process for commercial drone licensing, but requirements are either impossible to meet or licenses do not appear to have been approved.	<ul style="list-style-type: none"> <li>• Algeria</li> <li>• Belarus</li> <li>• Chile</li> <li>• Colombia</li> </ul>	<ul style="list-style-type: none"> <li>• Egypt</li> <li>• Kenya</li> <li>• Nicaragua</li> <li>• Nigeria</li> </ul>
VLOS required	Drones must be operated within VLOS of the pilot, thus limiting their potential range.	<ul style="list-style-type: none"> <li>• Belgium</li> <li>• Bermuda</li> <li>• Bhutan</li> <li>• Botswana</li> <li>• Croatia</li> <li>• Ecuador</li> <li>• Jamaica</li> <li>• Latvia</li> <li>• Lithuania</li> </ul>	<ul style="list-style-type: none"> <li>• Luxembourg</li> <li>• Mexico</li> <li>• Nepal</li> <li>• Netherlands</li> <li>• Slovakia</li> <li>• South Africa</li> <li>• South Korea</li> <li>• Switzerland</li> <li>• Thailand</li> </ul>
Experimental BVLOS	Exceptions to the constant VLOS requirement are possible with certain restrictions and pilot ratings.	<ul style="list-style-type: none"> <li>• Australia</li> <li>• Austria</li> <li>• Brazil</li> <li>• Canada</li> <li>• China</li> <li>• Czech Republic</li> <li>• Denmark</li> <li>• Finland</li> <li>• France</li> <li>• Germany</li> <li>• Greece</li> <li>• Guyana</li> <li>• Ireland</li> </ul>	<ul style="list-style-type: none"> <li>• Japan</li> <li>• New Zealand</li> <li>• Panama</li> <li>• Poland</li> <li>• Rwanda</li> <li>• Singapore</li> <li>• South Africa</li> <li>• Sri Lanka</li> <li>• Russia</li> <li>• Trinidad and Tobago</li> <li>• Uganda</li> <li>• United Kingdom</li> <li>• United States</li> </ul>
Permissive	Countries have enacted relatively unrestricted legislation on commercial drone use. These countries have a body of regulation that may give operational guidelines or require licensing, registration, and insurance, but upon following proper procedures it is straightforward to operate a commercial delivery drone.	<ul style="list-style-type: none"> <li>• Costa Rica</li> <li>• Iceland</li> <li>• Italy</li> </ul>	<ul style="list-style-type: none"> <li>• Norway</li> <li>• Sweden</li> <li>• United Arab Emirates</li> </ul>







# Security implication in UAV use



## Accidents

- Collision
- System failure/ loss of control



## Spoofing/ Jamming

- Control signal
- GPS signal



## Privacy/ Data Theft

- Trespassing/ nuisance
- Data security / Who can have access to the data collected?
- Data privacy & Consent of data owner?



Asia-Pacific Economic  
Cooperation forum (APEC)  
Privacy Framework (2015)

ASEAN Personal Data Protection

# THANK YOU



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