



# Risks to Digitalising our Food System

## Three areas for regulation

# Global B2B IOT set to generate ~\$300bn in 2020, farming most radically changed by technology

## Opportunities

- High level of investment (M&A, VC)
- Technology addresses real business issues
- Increasing # trials funded by large corporate

## Challenges

- Slow-to-adopt population
- Internet connectivity issues
- Unclear regulation around data

**Vast range of IOT devices and applications**

Sources: Bain Insights: Choosing The Right Platform For The Internet Of Things, Cisco Visual Networking Index: Forecast and Methodology, 2016–2021; ZDNet, The five industries leading the IOT revolution; Agfunder News: Report: Smart Farming Can Make Food Supply Uncertainty and Volatility a Thing of the Past



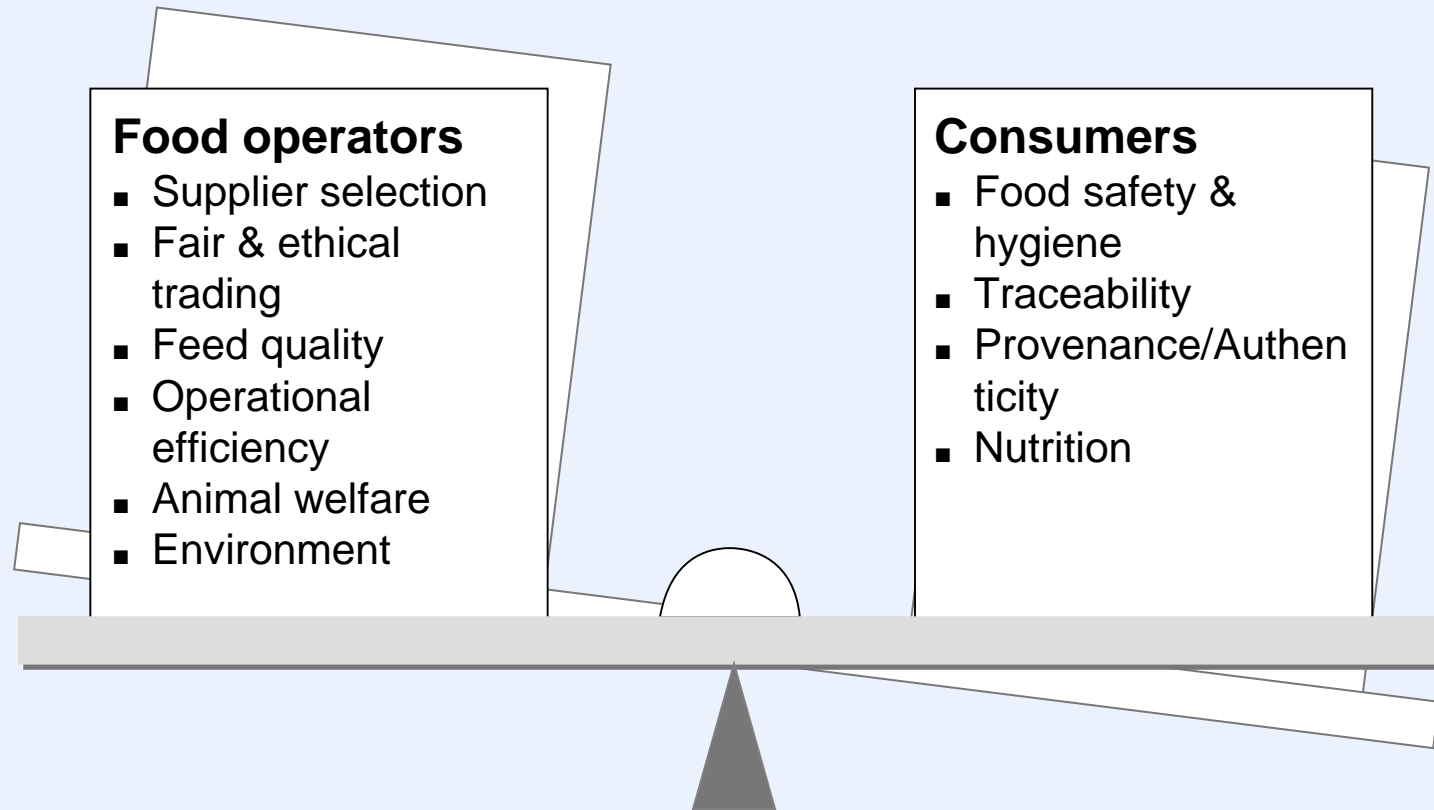
Introduction & Blockchain

Supply Chain Applications

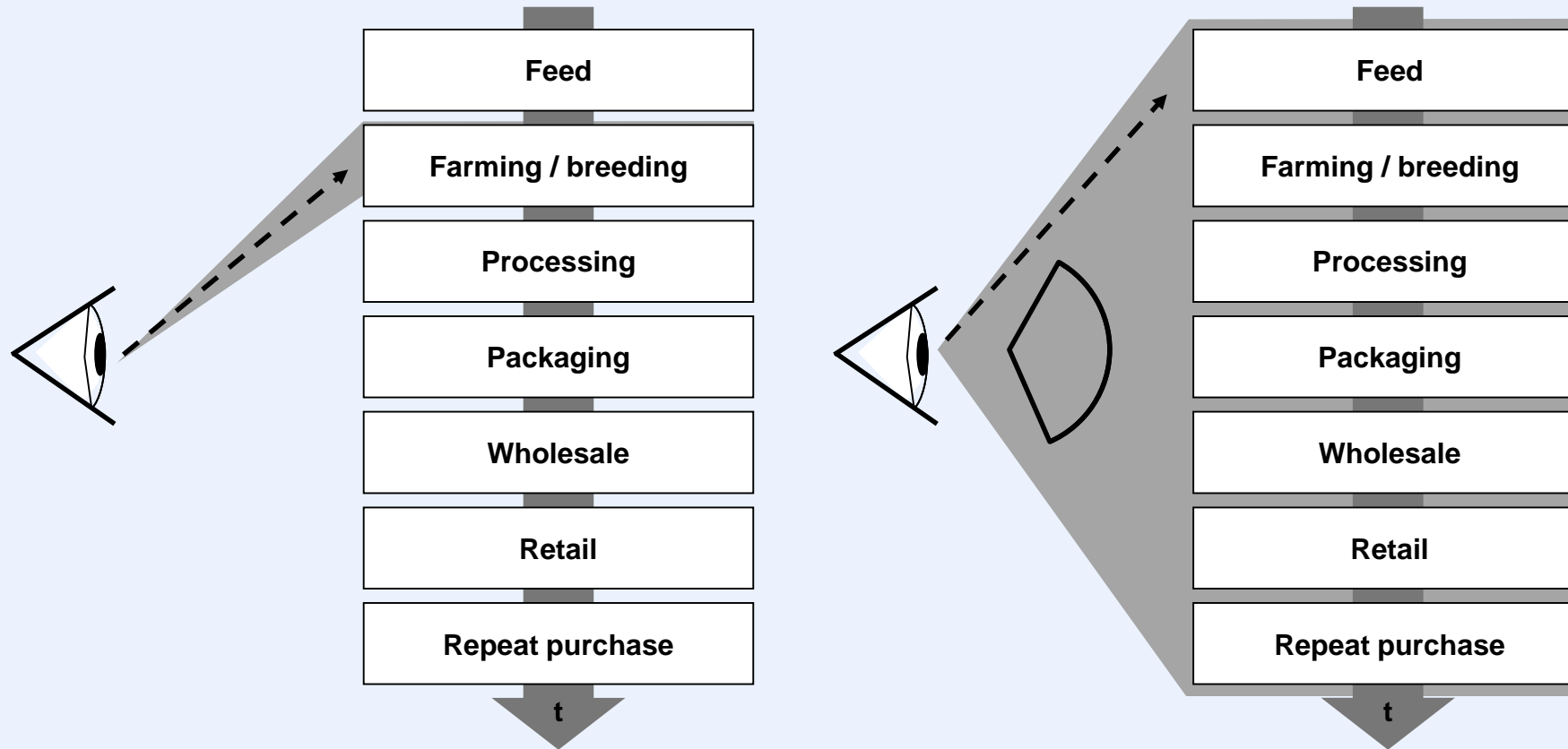
Protocols & Cyberthreats

Closing Thoughts

# IOT & Blockchain applications stand to resolve a range of food system inefficiencies

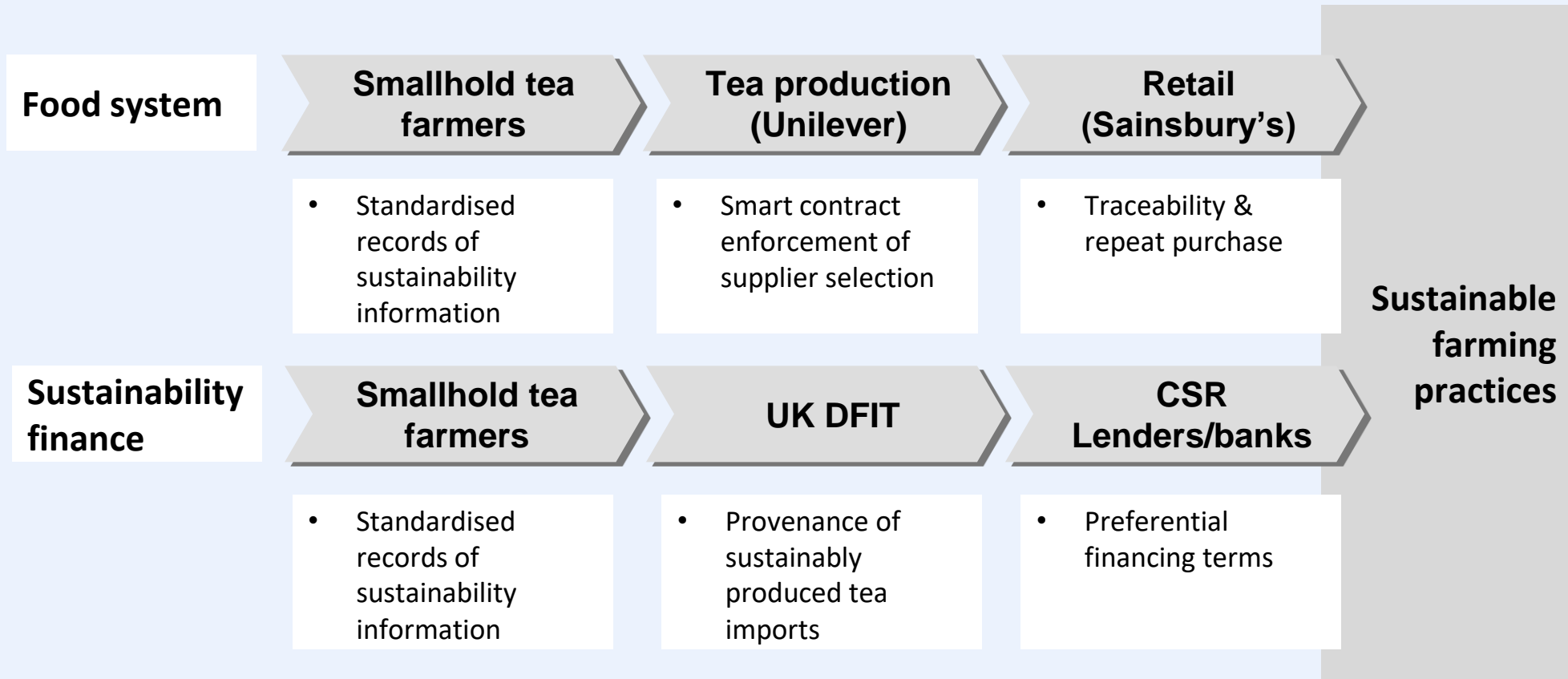


# Smart Agriculture has matured into encompassing the entire supply chain



# ROI models extend beyond food system – new technologies empower collaborations

Project: Unilever, Sainsbury's and the UK Department for International Trade (DFIT)

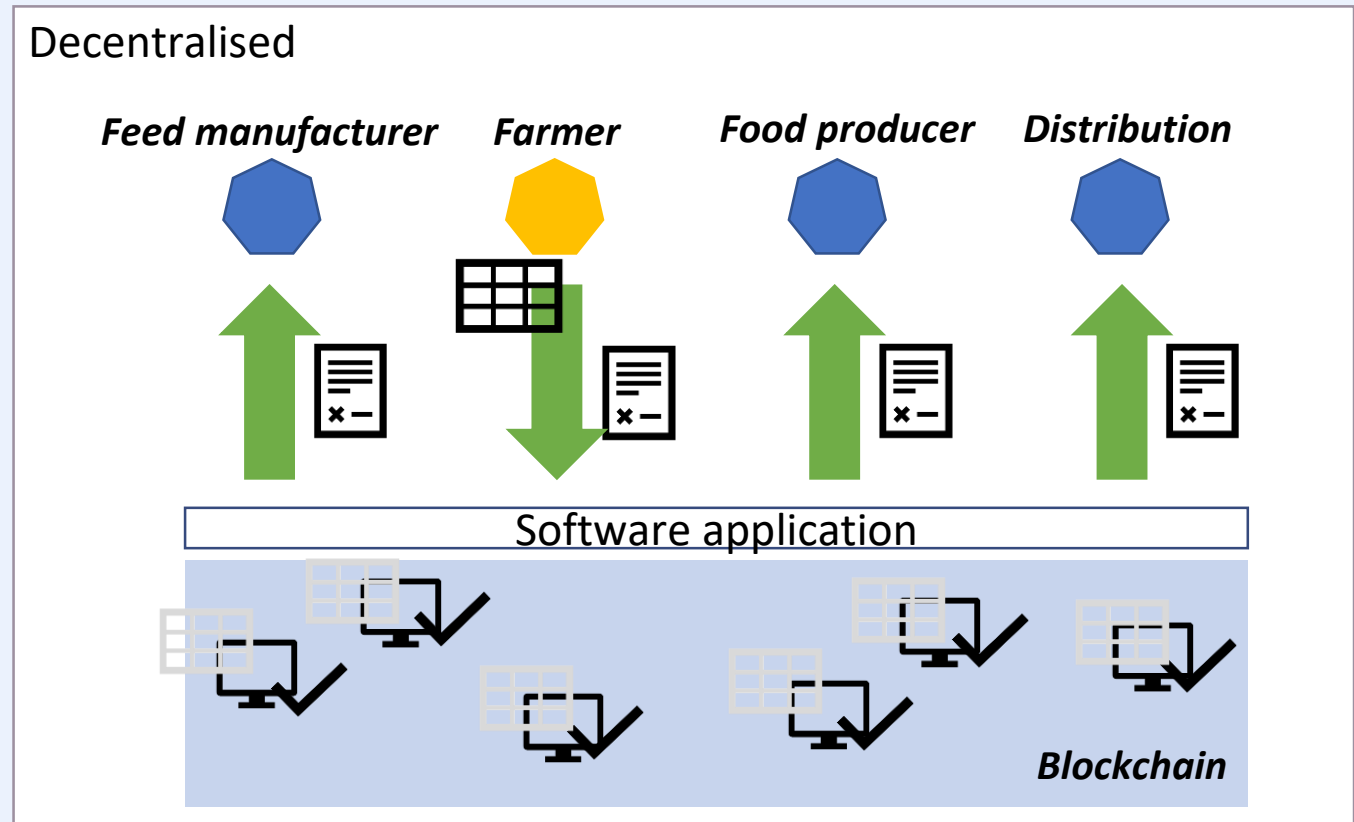
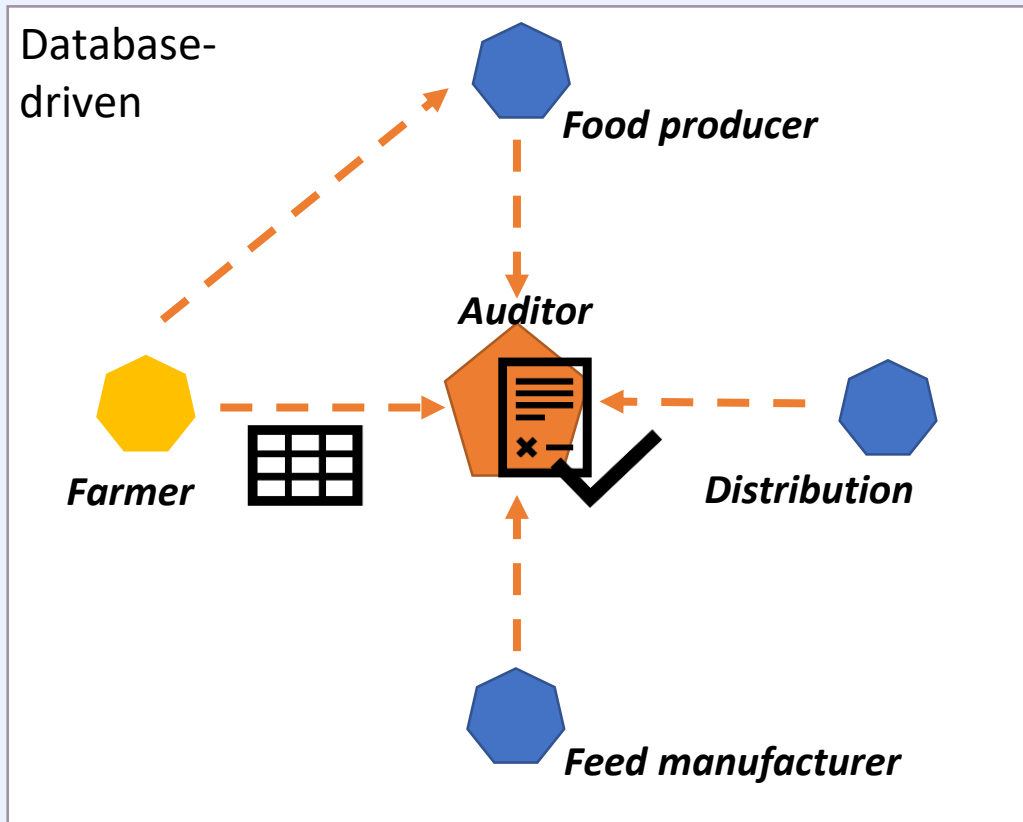


# Not all business problems require a Blockchain solution

Assurance	Sector	Agency	Technology	Country	Blockchain
Food safety & hygiene	Gastronomy	Food Standards Agency	ClickIT	UK	No
Food safety & hygiene	Production (eggs)	World Health Organisation	IBM	US	Yes
Food fraud	Production (beef)	Queensland University	Food Agility CRC	Australia	Yes



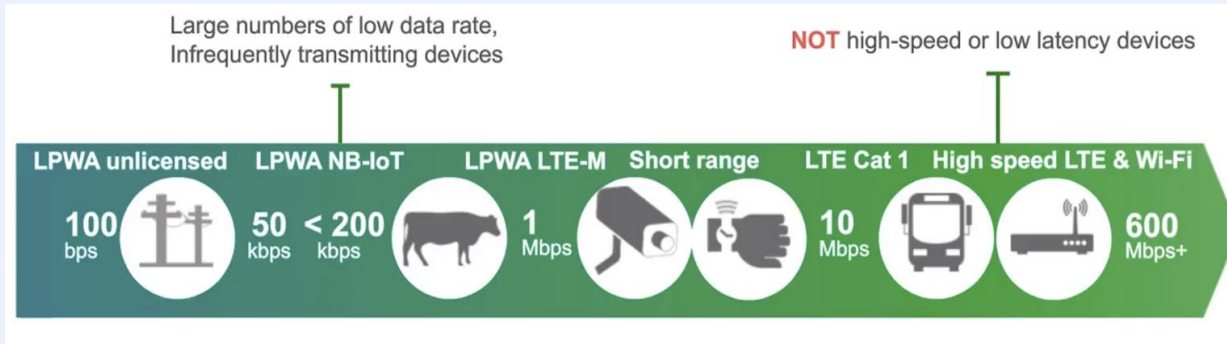
# Blockchain makes data collected on IOT devices available to all (authorised) parties, in real-time & continually – no middleman



LEGEND  Datastring/Block  Ledger  Nodes  Validation

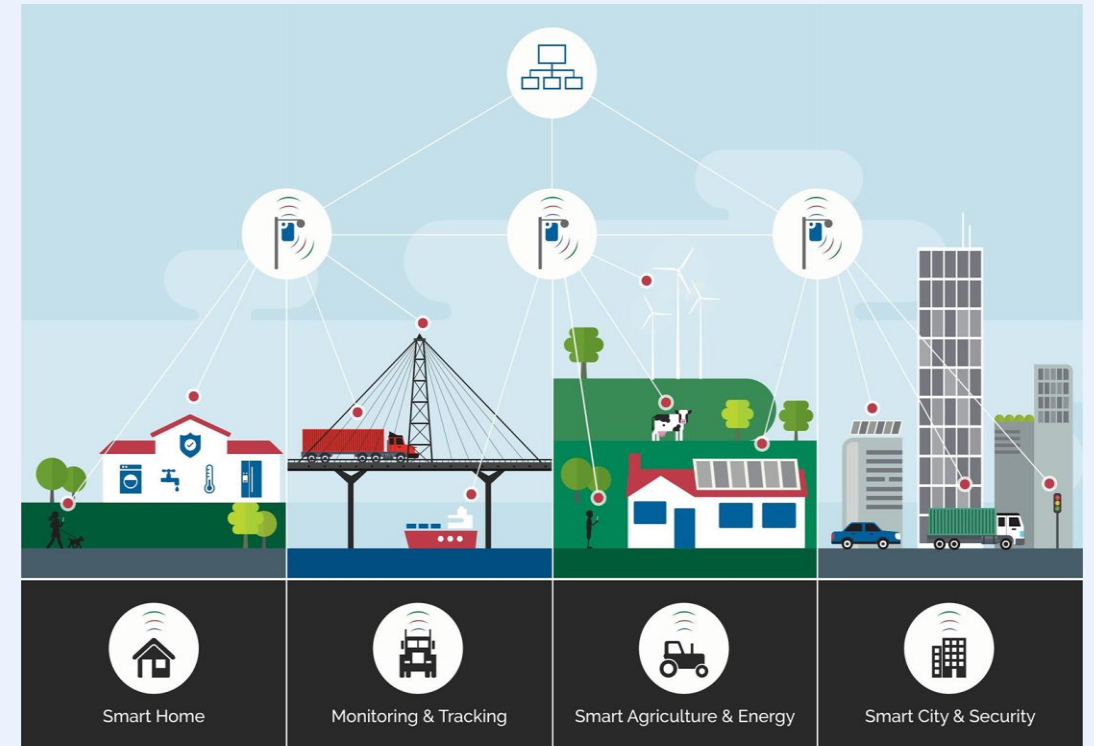


# Mobile operators chose not to invest in IOT, leading to various long-range low-bandwidth protocols – two dominant



Source: IHS Markit Technology “Can Low-Power Wide-Area (LPWA) IoT Networks Capitalize on 5G Confusion?”

Smart Agriculture IOT protocols focus on delivering occasional bursts of small data packages over long distances; Low-Power Wide-Area (LPWA)



Source: <http://airgain.com/portfolio/lpwan-low-power-wide-area-networks/>

Two-thirds of IoT networks globally run LoRa & Sigfox; unlicensed technologies



Introduction & Blockchain

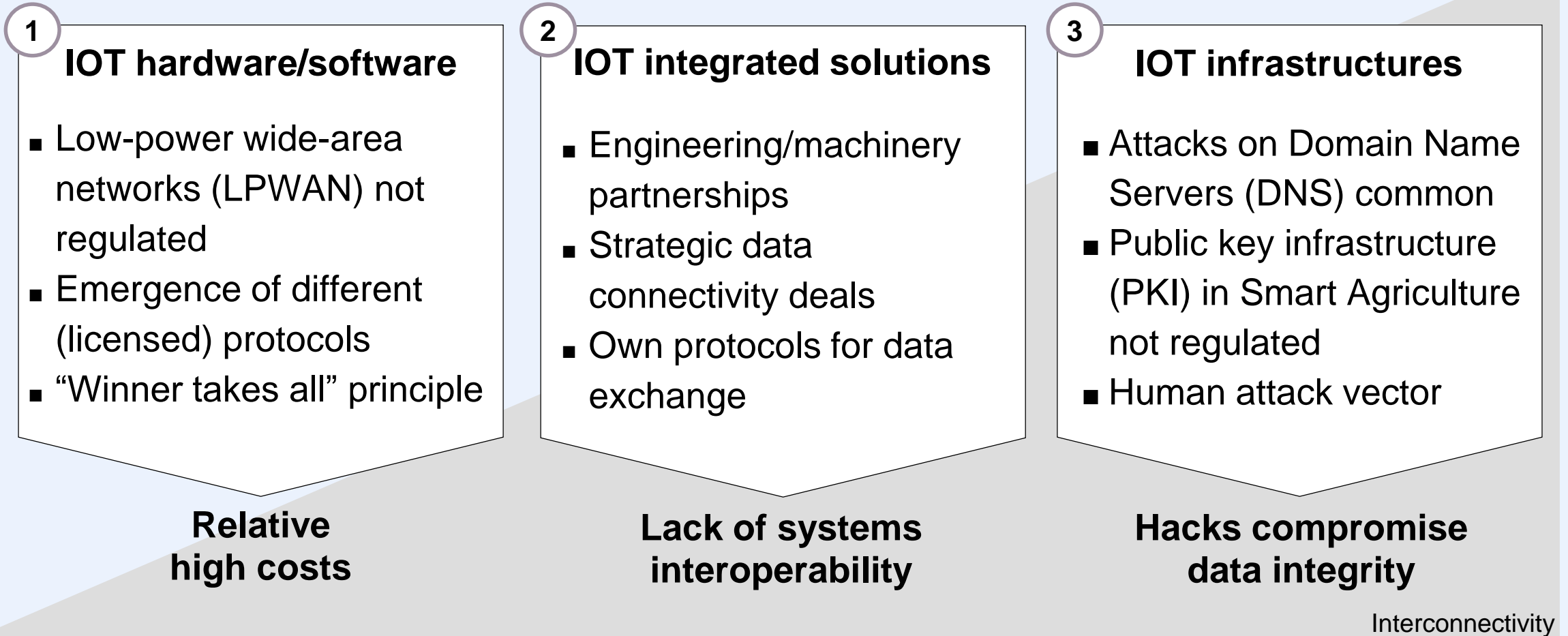
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# Varying risks at every level of interconnectivity



# Summary

1. Smart Agriculture has evolved, Blockchain tested on entire value chain issues
2. Blockchain generates security protocols that are impenetrable
3. Regulators have been late to legislating LOWAN data exchange protocols
4. Increasing amounts of sensitive data are digitally shared
5. Data management regulation to ensure User benefits and systems security





# Thank you!

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