



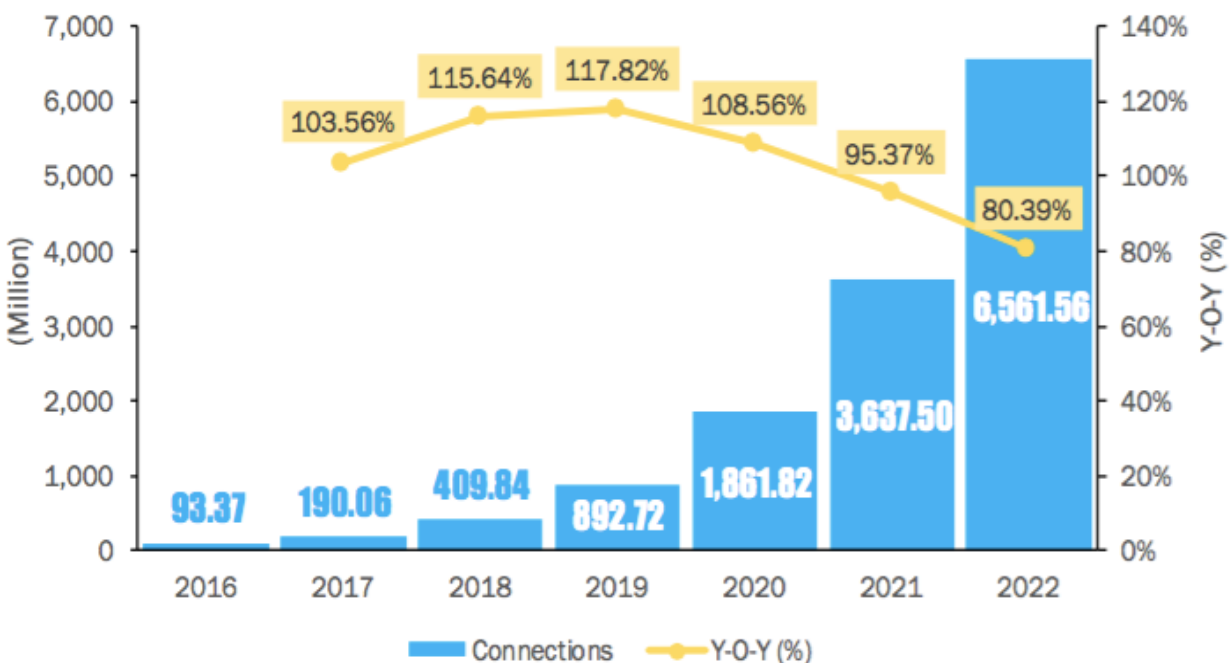
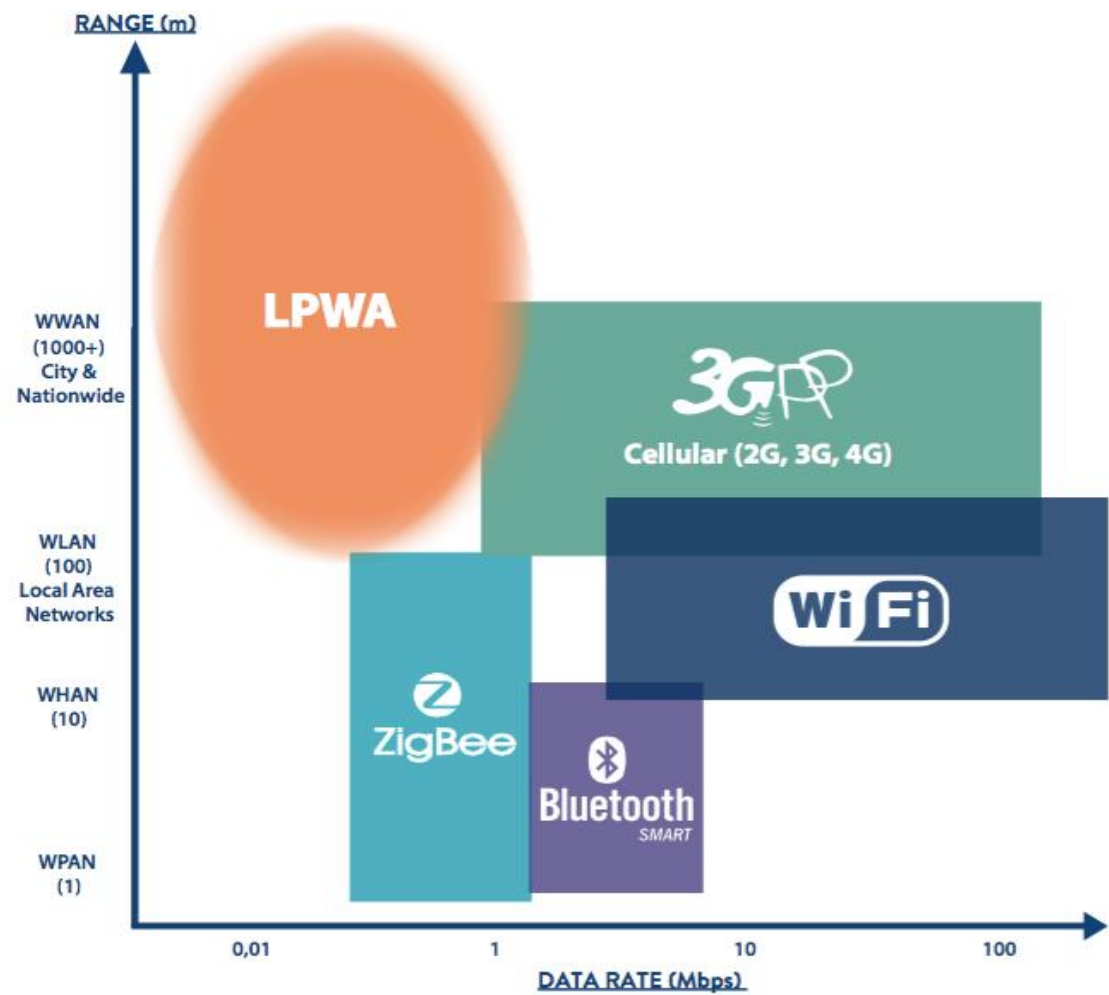
Reconfiguring the stakeholder value chain



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LOW POWER WIDE AREA NETWORKS (LPWAN)



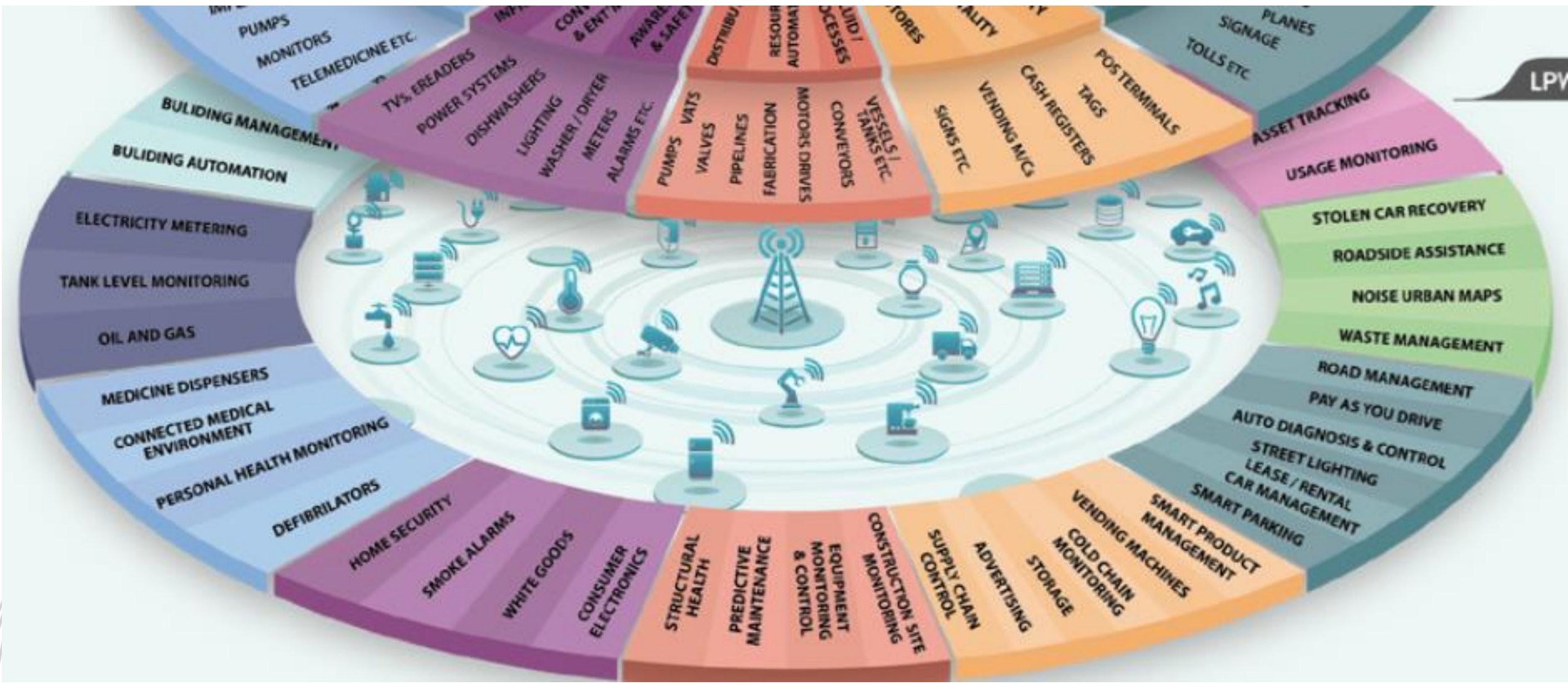
Source: Expert Input, Secondary Source, Infoholic Research

[Source: Infoholics Research, 2016]



NEW VALUE PROPOSITION

- Low device costs (module costs below \$3)
- Low connectivity costs (up to 10 times)
- Low infrastructure costs (<\$1k per base station) – ease of deployment
- Reduced maintenance - deploy and forget through long battery life
- Reaching hard to connect areas

POSSIBLE LPWAN APPLICATIONS



VALUE CHAIN OPENNESS

Value chain actor	 SIGFOX	 LoRaWAN	NB-IoT
Service provider	Open	Open	Open
Network operator	Single per country	Open	Large MNOs (licensed)
Network SW	Closed	Open	Open*
Network HW	Closed	Open	Open*
Device	Open	Open	Open
Module	Open	Open	Open
Chip	Open	Open	Open

LORAWAN NETWORK OPERATOR MODELS

Traditional operator model



Private network



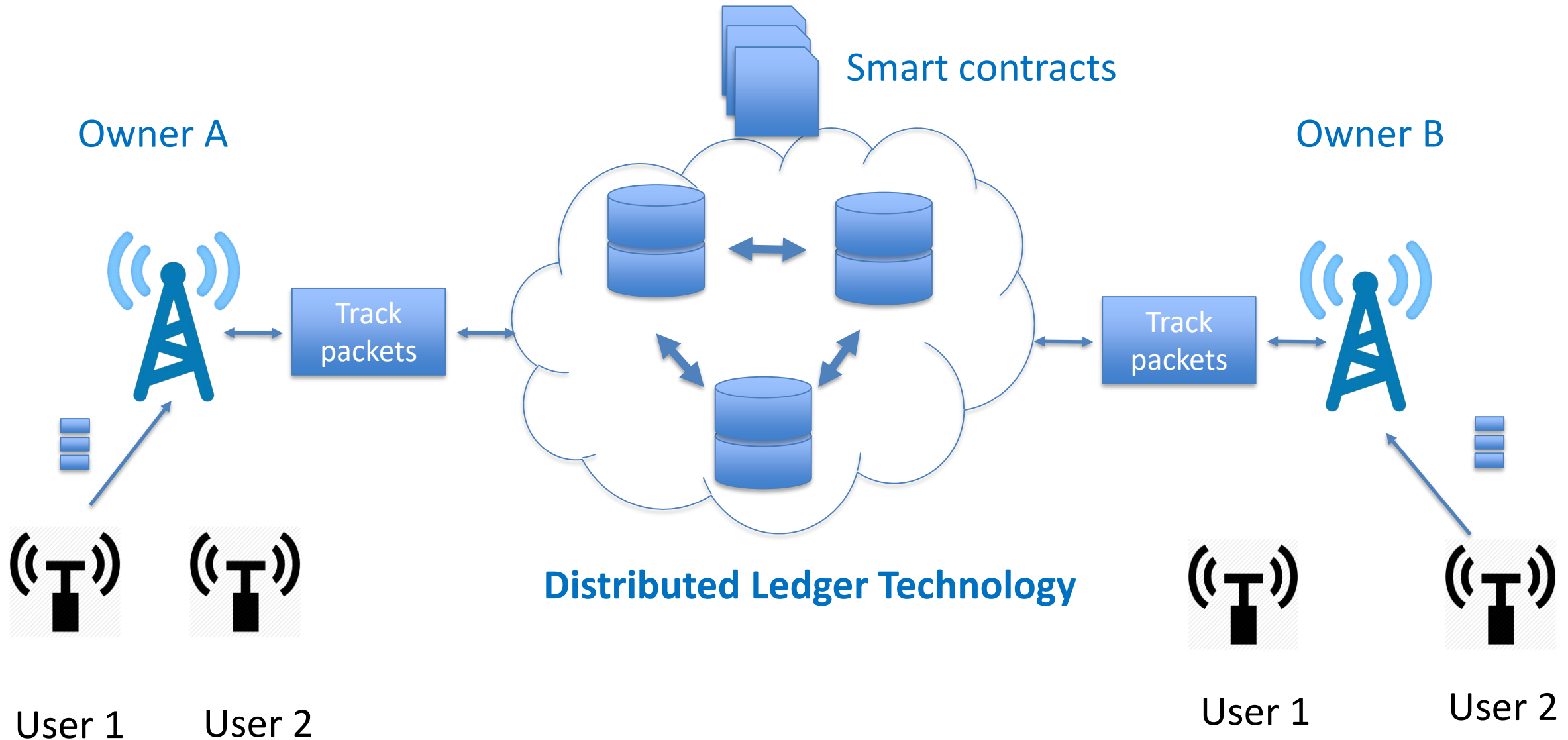
Private network turned public



Open community networks



TOWARDS IOT NETWORK CO-OPERATIVES



SUMMARY

- **Openness matters** and allows more opportunities for stakeholders alongside the value chain
- **Trusted decentralisation** can shift traditional models into new co-operative like sharing economies