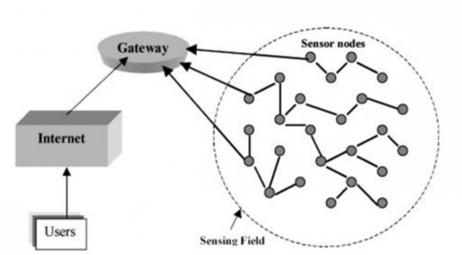
# Evolution of industrial wireless sensor networks: Page 5 of 5

November 10, 2017 // By Mark Miller, L-com Global Connectivity, Wireless Product Manager




**Industrial automation powered by wireless sensor networks (WSN) is heralding the Industrial Internet of Things and Industry (IoT) 4.0. Key enabling cloud and wireless mesh networking technologies promise to bring multi-year battery life, IP addressability to machines and sensors, cloud-based provisioning and management systems, as well as fieldbus tunneling.**

**WSN standards**

As shown in Figure 3, as of 2014 one in four WSN adopters utilize the WirelessHART topology with the high 99% network reliability while one in ten are leveraging the ISA100.11a specification. However, in the past two years, ISA100.11a adoption has increased 67% for its flexible time scheduling and software tunneling [16]. For low powered and long reach Low Power Wide Area Network (LPWAN) technology has growing interests. This topology boasts up to 10-year battery-powered wireless sensors with communication links up to 20 miles. While this technology may not be best-suited for secure, time-sensitive and high reliability applications, it ranks highly in ease of use and scalability.

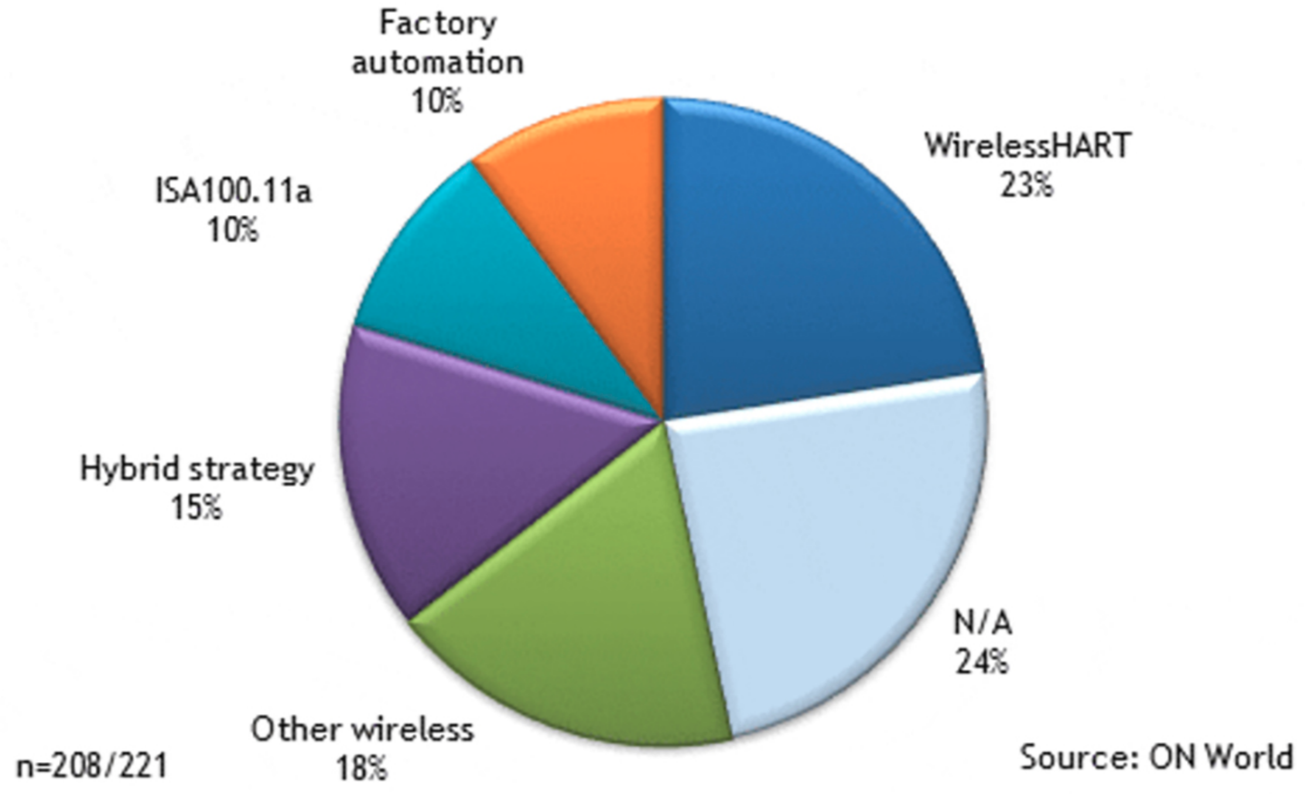



*Figure 3: Depiction of the various factions of industrial WSN end users according to wireless systems standards and strategies [2].*

**Conclusion**

From environmental sensing, to condition monitoring, and process automation, IWSN service a broad range of applications. While ZigBee and MiWi generally service home automation applications, WirelessHART and ISA100.11a are specifically designed for an industrial environment. Traditional wired industrial architectures do experience a greater level of determinism and a level of scalability with industrial Ethernet. Still, IWSNs surpass any wired network in modularity, ease of use, and cost-effectiveness.

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