- IoT Market Overview
  - Market Requirements
  - Technology Comparison
  Speaker: Michael Navid, CEO - ECOLINQX Corporation
- Introduction to IEEE1901-2020 Nessum
  - Nessum-Wire Specifications
  Speaker: Nobutaka Kodama, Technical Marketing - Nessum Alliance
- Introduction to Nessum Alliance
  - Mission and Initiatives
  - Certification / Interoperability
  - Membership
  Speaker: Michimasa Aramaki, President - Nessum Alliance
- LONMark-Nessum Demonstration
  - Multi-protocol Demonstration
  Speaker: Hiroaki Tanaka, LONMark Japan

Speaker Bio

More than 30 years experience in the high-tech sector

An active member of Nessum Alliance

Actively involved in the advancement of various communication and networking technologies in the automation field

Key contributor to the evolution and proliferation of the new IEEE1901-2020 Nessum-HD-PLC for IoT, and G3-PLC for Smart Grid communication.
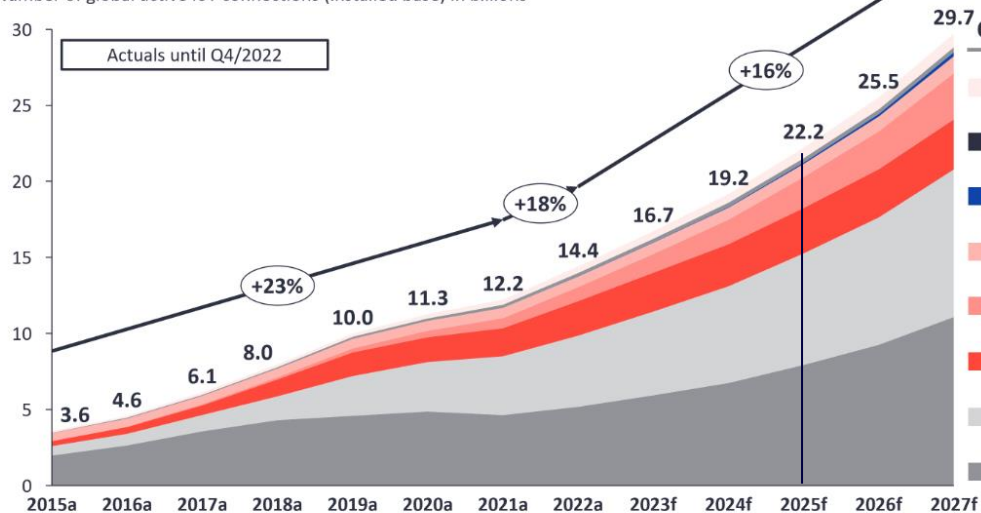
Michael V. Navid

Founder and CEO
michael.navid@ecolinqx.com

ECOLINQX CORPORATION
WWW.ECOLINQX.COM

Global IoT Market Forecast

IOT ANALYTICS

May 2023

Your Global IoT Market Research Partner

Global IoT market forecast (in billions of connected IoT devices)

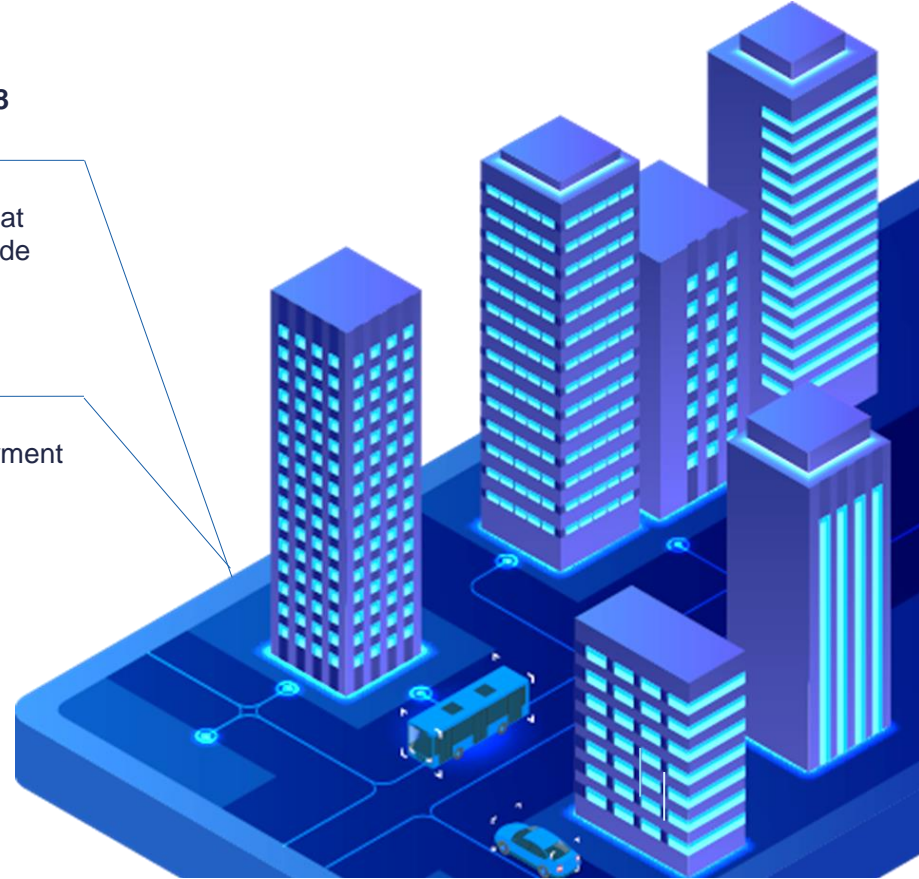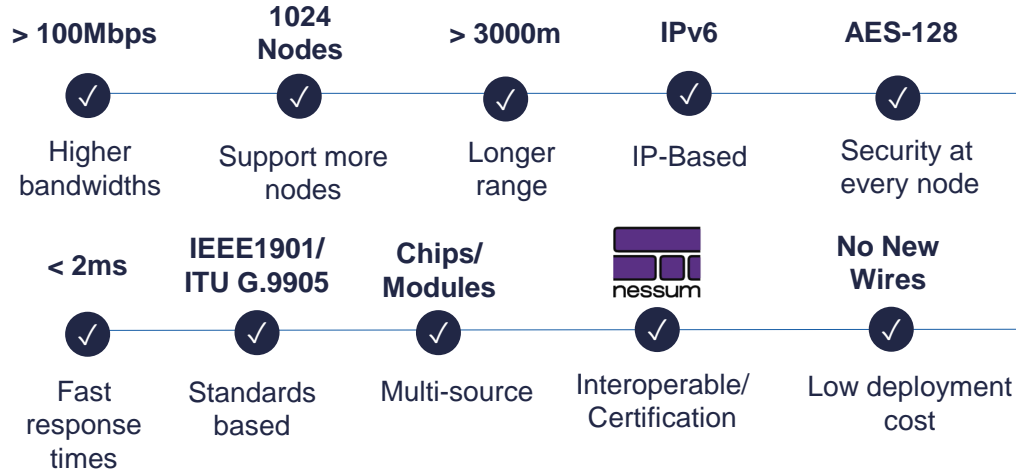Number of global active IoT connections (installed base) in billions

Actuals until Q4/2022

29.7

25.5 (+16%)

22.2

19.2

16.7 (+18%)

14.4

12.2

11.3

10.0

8.0 (+23%)

6.1

4.6

3.6

2015a 2016a 2017a 2018a 2019a 2020a 2021a 2022a 2023f 2024f 2025f 2026f 2027f

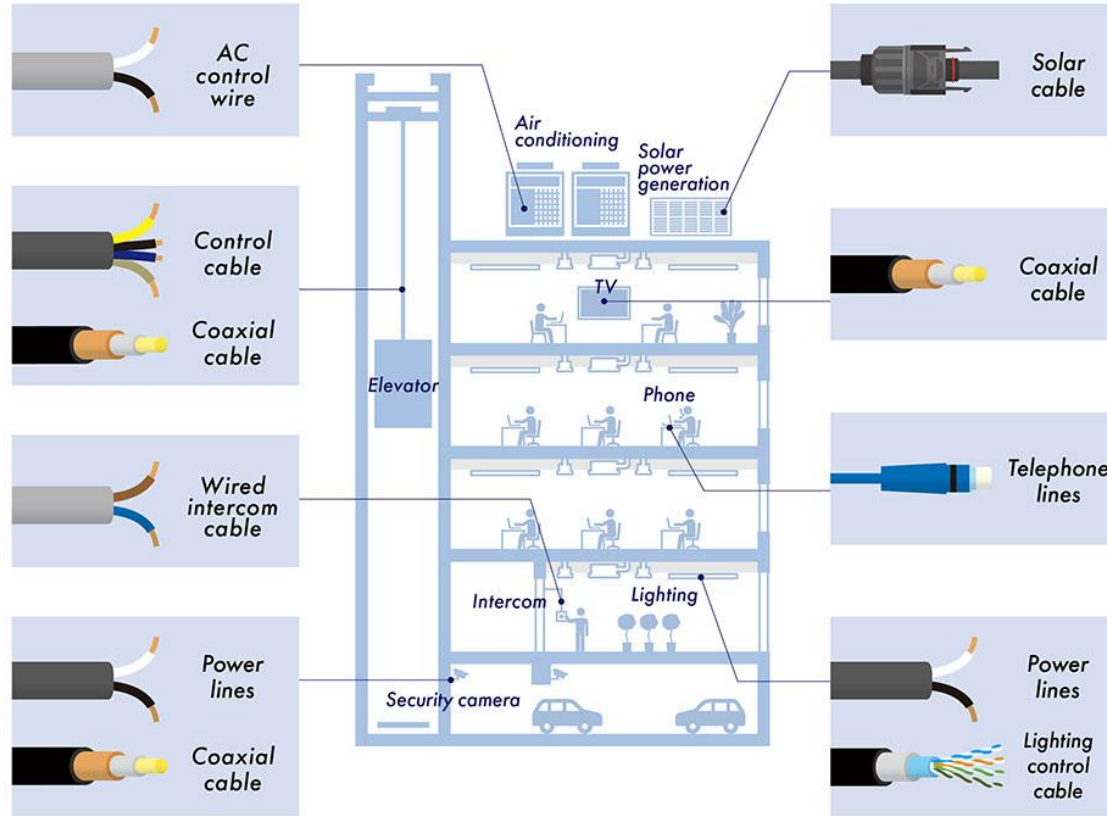| Connectivity type	CAGR 21–22	CAGR 22–27	
Other	21%	17%	↓
Wireless Neighborhood Area Networks (WNAN)	15%	8%	↓
Cellular 5G IoT	200%	87%	↓
Wired IoT	5%	10%	↑
LPWA	38%	27%	↓
Cellular IoT (excl. 5G, LPWA)	22%	8%	↓
Wireless Local Area Networks (WLAN)	21%	16%	↓
Wireless Personal Area Networks (WPAN)	12%	16%	↑

xx% = CAGR

Note: IoT connections do not include any computers, laptops, fixed phones, cellphones, or consumers tablets. Counted are active nodes/devices or gateways that concentrate the end-sensors, not every sensor/actuator. Simple one-directional communications technology not considered (e.g., RFID, NFC). Wired includes ethernet and fieldbuses (e.g., connected industrial PLCs or I/O modules); Cellular includes 2G, 3G, 4G, 5G; LPWA includes unlicensed and licensed low-power networks; WPAN includes Bluetooth, Zigbee, Z-Wave or similar; WLAN includes Wi-Fi and related protocols; WNAN includes non-short-range mesh, such as Wi-SUN; Other includes satellite and unclassified proprietary networks with any range.
Source: IoT Analytics Research 2023. We welcome republishing of images but ask for source citation with a link to the original post and company website.

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IOT Communications Requirements

> 100Mbps ✓ Higher bandwidths

1024 Nodes ✓ Support more nodes

> 3000m ✓ Longer range

IPv6 ✓ IP-Based

AES-128 ✓ Security at every node

< 2ms ✓ Fast response times

IEEE1901/ ITU G.9905 ✓ Standards based

Chips/ Modules ✓ Multi-source

nessum ✓ Interoperable/ Certification

No New Wires ✓ Low deployment cost

Key Takeaways

✓ Nessum-Wire is the most advanced wireline communication standard today

✓ Based on IEEE1901-2020 PHY/MAC, and ITU G.9905 routing standards

✓ Adopted by ISO/IEC 14908-8 Standard for High-Speed Wireline Communications and Control Networks

✓ Provides higher data rates, more security, and wider coverage than RS-485

✓ Provides longer range, IETF IPv6, higher # of nodes, and lower cost than Ethernet

✓ Works on any wires (power lines, twisted-pair, CAT5, RG58, COAX…)

✓ Protocol independent: can support LON, BACnet, KNX, MODBUS…

✓ Free topology provides flexibility and freedom in your network designs

✓ Interoperability and certification provided by Nessum Alliance

✓ Multi-source solution (chip/module/box) to ensure availability and support

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Aiming for Standard Adoption
in Smart Building Communication Infrastructure

Thank you

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