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sense and simplicity

Lighting over Ethernet

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Victoria, May 2013

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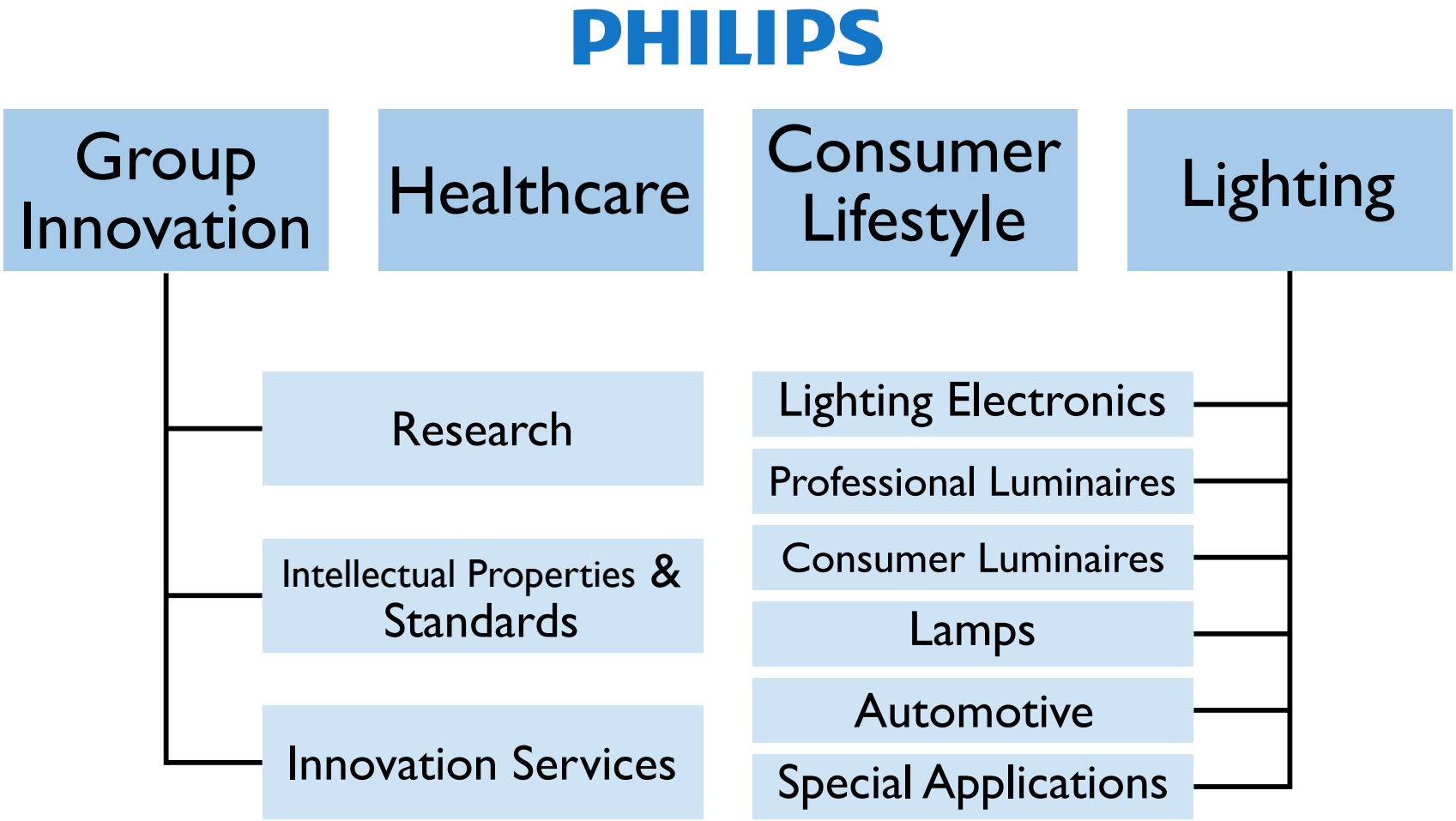
Organization



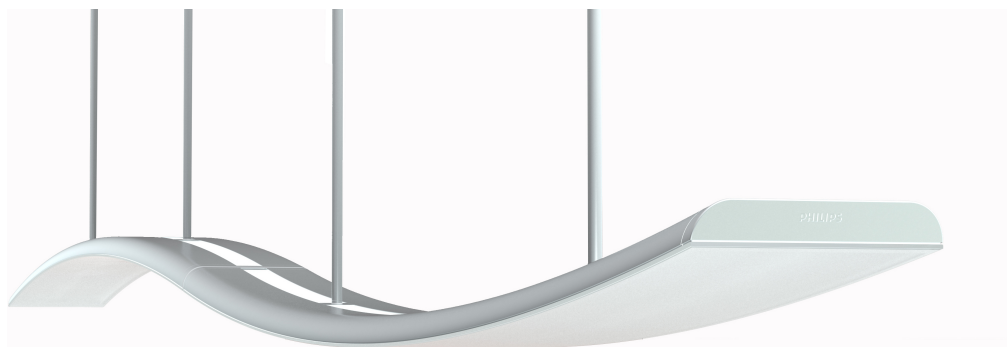
LED Lighting

The global lighting market is shifting to LED technology

- 50% of all lighting is LED by 2020

The shift is driven by several trends

- Energy efficient lighting
- LED cost down & increased quality
- 'Smart Lighting' benefits



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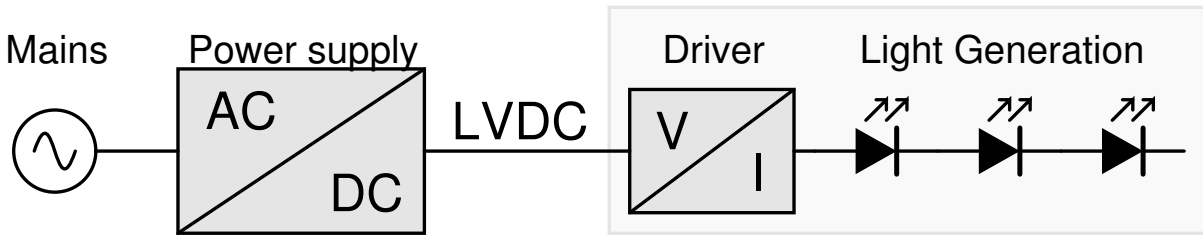
Low Voltage DC distribution for Lighting

- Many luminaires operate with current sources driving 40V loads or less (well below 60V SELV)
- Low voltage distribution is safer for the installer
- Centralized drivers can be more cost effective
- ✖ Lower efficiency compared to best in class mains drivers
- ✖ Single point of failure in central driver



Power over Ethernet for Lighting

- PoE allows easy plug and play, with worldwide standard 8P8C connector (aka. RJ45)
- CAT cable can be installed very efficiently and is known by installers
- Single cable for power and control
- ✖ Current 802.3at 25.5W provides low coverage of professional lighting product portfolio
- 4-pair PoE provides opportunity to increase power to a level required for sufficient product portfolio coverage at lower cable losses
- Existing PoE standards are developed from IT perspective. Lighting has specific requirements (regulation, reliability).

Professional Lighting Industry

Market size for new fixtures per year (in million) and LED fixture penetration in %[1]:

	2012	2016	2020
Luminairs (million)	311	365	431
LED penetration	6%	31%	60%

This represents a significant number of potential PoE ports!

[1] Source: McKinsey "Lighting the way" second edition

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