

Smart technology makes its way into lighting

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According to VTT Technical Research Centre of Finland, the lighting systems of the future could be multi-purpose devices not dissimilar to smart phones. In the future, lighting will not just allow us to see but could also be used to survey surroundings, transmit information, reflect moods and make our lives more comfortable. Smart lighting could also save as much as 80 per cent of energy compared to traditional lighting solutions. As more applications become available, the smart lighting industry will also be revolutionised. In addition to lighting, businesses could soon begin to offer their customers smart applications and comprehensive service concepts.

The [smart lighting](#) industry is undergoing a major transition. Different kinds of smart lighting solutions are expected to become increasingly popular in homes, [public buildings](#) and offices.

In the future, smart lighting technology will enable the direction, power and colour of lighting to be adjusted automatically according to whether a room is being used for [watching television](#) or eating dinner and according to where people are in the room. Lights positioned near windows will change colour according to [outdoor temperature](#). Wall-mounted [light switches](#) will detect when a person enters the room. New smart features for light fittings will be available to download from the internet. In office buildings, smart [lighting technology](#) will help shift-workers to adapt to changes in their circadian rhythm.

"Smart [lighting systems](#) are becoming increasingly popular in both new builds and renovation projects. Technologically speaking, the next major

step will be to integrate better sensors and new functions into lighting systems, which will allow the occupants of a room to adjust lighting with increasing accuracy and flexibility according to their movements and activities", explains VTT's Principal Scientist Janne Aikio.

The first-generation smart lighting systems that are currently available on the market are mostly designed for commercial use, and they include features such as integrability with building automation systems. In ten years' time, user-friendly and affordable lighting systems could become everyday consumer goods. More and more wireless lighting systems that can be controlled via devices such as a mobile telephone are becoming available.

Smart lighting to revolutionise business models

Maturing technology and growing demand are revolutionising the lighting industry. In addition to lighting, businesses could soon begin to offer their customers smart applications and comprehensive service concepts.

Integrated information technology and electronics are becoming more and more common in products, which can now "talk" to each other and share information. The Internet of Things is transforming not just the daily lives of consumers but also many business sectors.

"Forecasts suggest that smart lighting will become one of the key trends in the context of the Internet of Things. It is important that we identify new applications for this technology now and begin to build new business around them. The smart lighting market also has room and opportunities for SMEs," says VTT's Research Professor Heikki Ailisto.

Demand for smart lighting is expected to boom over the next ten years. The market volume is estimated to be as much as EUR 7.7 billion in

2020, when the similar figure in 2011 was EUR 1.8 billion.

Smart lighting also has substantial energy-saving potential. When the required amount of [light](#) can be regulated more accurately using energy-efficient LEDs, as much as 80 per cent of the energy required for lighting could be saved. Lighting currently accounts for approximately one fifth of the world's electricity consumption.

Provided by VTT Technical Research Centre of Finland

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