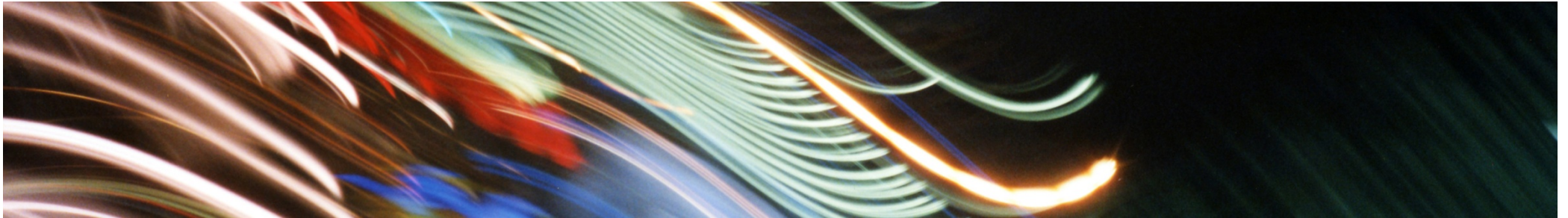


Lighting Controls Future & Trends



Walter Werner, 2013

zumtobel group

Where do we come from in lighting controls?

Lighting controls evolved later than HVAC controls did.

- Lighting Controls was on/off manual switches for decades (100% of market)
- **1970ies** Energy Innovation was scheduled off using pulsed relays (<< 1% m)
1970ies Comfort Innovation was Phase cut dimming (<<1% of lighting market)
- **1980ies** Energy Innovation was scheduled DDC on/off & PIR (<1% of market)
1980ies Comfort Innovation was fluorescent dimming (<1% of lighting market)
- **1990ies** Energy Innovation was loop-back dimming (<5% of lighting market)
1990ies Comfort Innovation was smooth scene select (<5% of lighting market)
Zumtobel to introduce digital networked digital dimming with open loop daylight harvesting in 92.
- **2000ths** Energy Innovation was efficient digital DALI dimming (<10% of m)
2000ths Comfort Innovation was digital DALI comfort dimming (<10% of m)
Zumtobel to fully integrate blinds management for glare control and energy management with program selection in lighting controls in 2000.
- **What is the 2010ths Innovation? What part of the market will it take?**

Where are we today?

What is it? How to understand the difference

- Lighting controls go for approx 10% of the professional lighting market
- Local loop back systems still take a substantial volume at the lower end of the market. Loop back systems look simple and stable, but in the end they are inefficient and difficult to maintain in a networked solution. (Just like thermostat systems in HVAC.)
- Addressable digital Controls is a gaining market. Bus system diversity is increasing, not decreasing (main reason is the already installed base that is still in operation and needs to be maintained: No way out!)
- Commissioning and Maintenance issues gain importance over theoretical offers that are too difficult to achieve and to use.
- TCP/IP is used as backbone that networks floor controls on local busses
- Possible energy achievements due to networked solutions are well documented but little believed.
- Those that accept the achievements often think vendors differ mainly on price, and not in level of achievement.

Where do we go?

Will specialized lighting controls be obsolete or a huge market?

- Many modern technologies and systems promise to deliver everything (IPv6 PAN, Zigbee, KNX, internet of things, Bacnet. Etc.)
- And they are technically right, today's technology is advanced enough! A \$1.-- Processing unit easily outdoes the PC I bought in 1990 in performance. We really technically CAN DO EVERYTHING.
- What does this mean? The bottleneck moves! It moves back to those that design and commission the system, the limits in technical networking are dissolving, but the benefits are only open to those that are able to network the systems in the right way.
- Main question of the future: **How do we support those that commission and maintain the system to get and maintain reliable results in the operation of the system best?**

Answers given:

what we will see:

- Main answer of the industry today: „**Standardize** everything“ This usually makes results equal, but not better! There is no way to guarantee standards deliver reasonable quality. And it does not solve the difficulty of the heritage systems
- The IT industry tried this once with printer interfaces: Centronics standardized everything. Where is Centronics today? How are we using printers today?
- Learning from the IT industry there is a second answer, that seems to suit better: **Virtualize**. This is a kind of „get rid of the technical details“ approach, like the operating systems of today’s computers no longer bother what kind of CPU or board manufacturer (or printer) is used, they use a generic model inside and have a driver software that sorts the technical details.
- Main benefit of virtualization is the seamless integration of heritage systems, and also the ability to use advanced systems to deliver advanced functionality where this is needed, including the open data exchange with other building systems to achieve substantial savings

Future is a wide field of believes

What we will see also?

- LEDs replacing more or less every other light source
- Sensors to get more and more versatile and cheap and also embedded into almost everything.
- Mobile device apps to be the Interface for everything: The wall switch will be the backup only.
- Controls affecting 20%+ of the lighting market before 2020 (seems to be low, but I would not bet for more.)

And what we will continue to see:

- Disbelieve in savings achievable
- Everybody promises everything, most deliver only something.
- The disregard of lighting performance that is labelled as „unnecessary comfort“ by those that are unable to deliver it.

Zumtobel LUXMATE Controls maintains the driving seat :

Our new package (we will present it 2014) features:

- Full virtualization
- Outstanding performance
- Versatile field bus approach
- Upgrade of heritage systems without exchange of field components.
- High performance independent of size at reasonable prices (from small stand alone to large integrated systems.)
- Seamless upgradability and networkability
- Use of latest IT technology in its easiest and straight forward way.
- Full leverage of data exchange with HVAC and security controls