

Quantifying Value

Everything today is supposed to be “smart,” including lighting. But what does that mean? Nothing, unless we actually deliver value to the people who need and want good lighting.

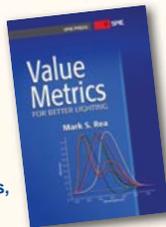
As an industry we have developed the bad habit of focusing on technology and cost without equal consideration of the benefits that lighting is supposed to achieve. For nearly 100 years we have defined the lumen as the main, if not the sole benefit provided by lighting. Neuroscience has not been idle over the last century and we now understand that the photopic luminous efficiency function $V(\lambda)$ underlying the lumen and all other photometric quantities represents the spectral sensitivity of just two of the five photoreceptors in the human retina. These five photoreceptors combine in a wide variety of ways to form many neural

channels that enable us to cope with the luminous environment. Safe driving, glare-free perception, feeling of safety and security, and entrainment to local time are just a few of the benefits that lighting can provide, but all are largely unrelated to the lumens produced by the lighting.

We do what we measure, and if we measure success as lumens per watt or lumens per dollar, we may produce poor or ineffective lighting because we are measuring our success in terms that may have little value to the users of lighting for their application.

The LRC has developed a number of benefit metrics more closely tied to the other benefits that people want from lighting. If our industry is to take advantage of the great potential of SSL, we have to think in terms of value.

“We do what we measure...”



Rea MS. 2013. *Value Metrics for Better Lighting*. SPIE Press, Bellingham, WA.



What matters to customers is value

- Value = benefit/cost
- Benefit =

