

# Standards and Codes:

## A personal view

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# The Lighting Process



# The Lighting Process



## Electrical Input

Voltage and current all precisely measured, CO<sub>2</sub> emissions can be calculated

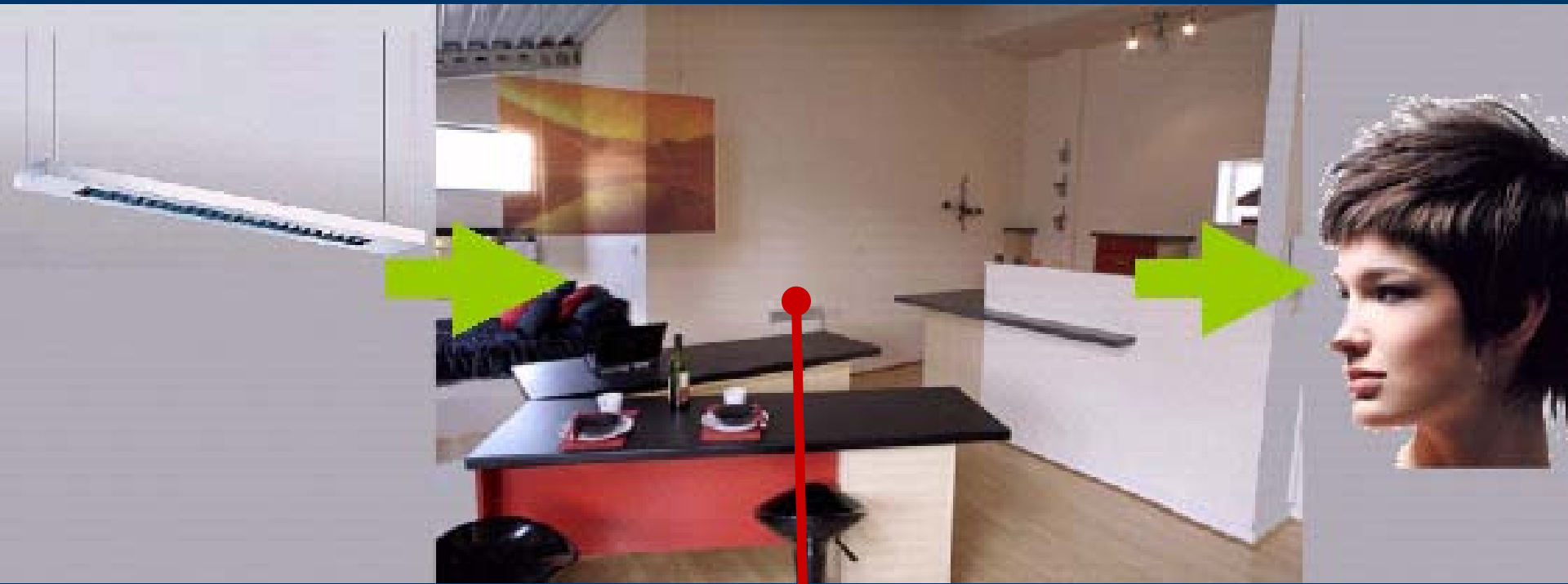
# The Lighting Process



## Luminaire Light Output

Intensity and flux measured, performance though life estimated

# The Lighting Process



## The Lit Environment

Illuminance measured or calculated on any surface, many further metrics may be used

# The Lighting Process



**Luminance Pattern**

Modelled or measured using HDR images

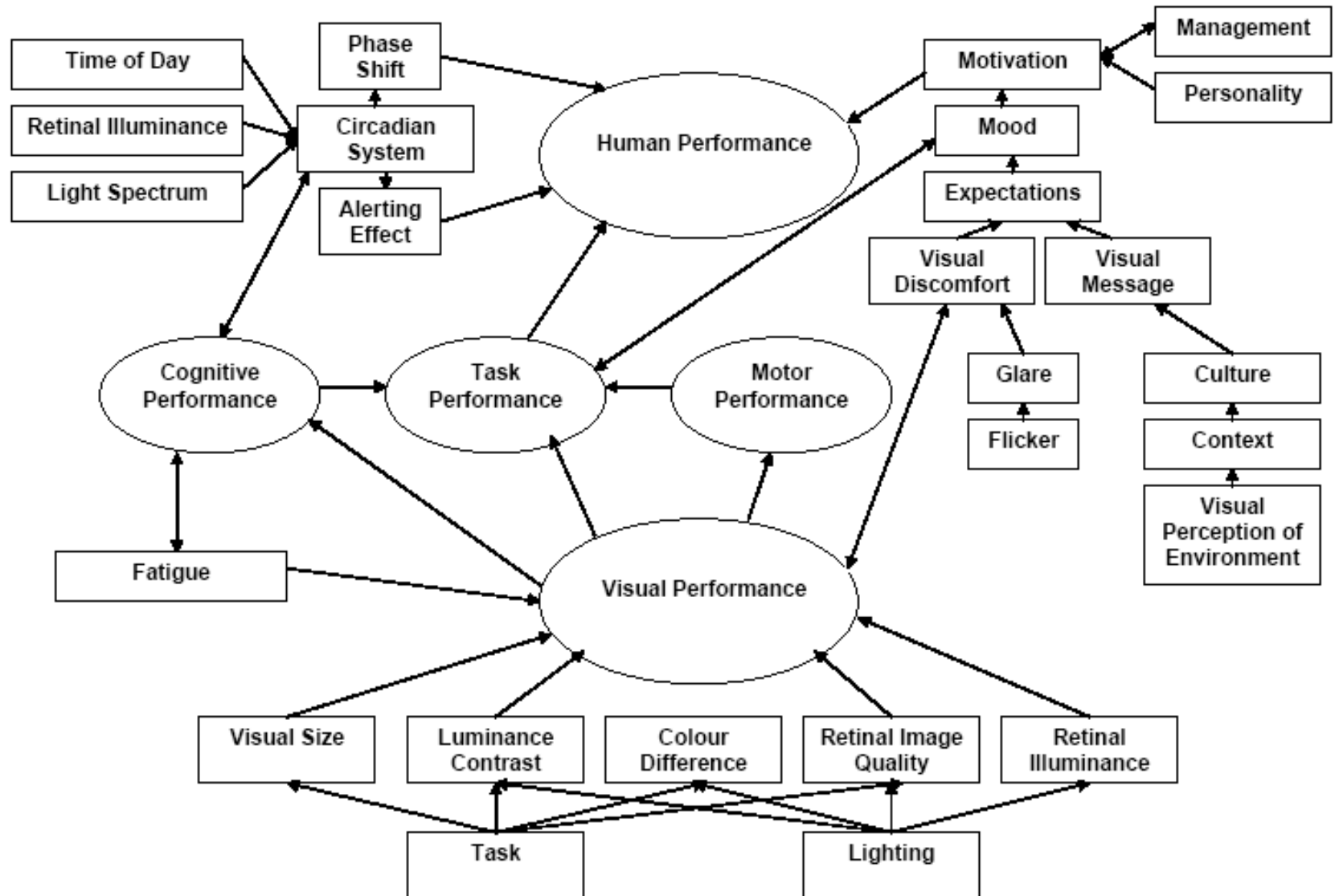
# The Lighting Process



**Impact on Observer**

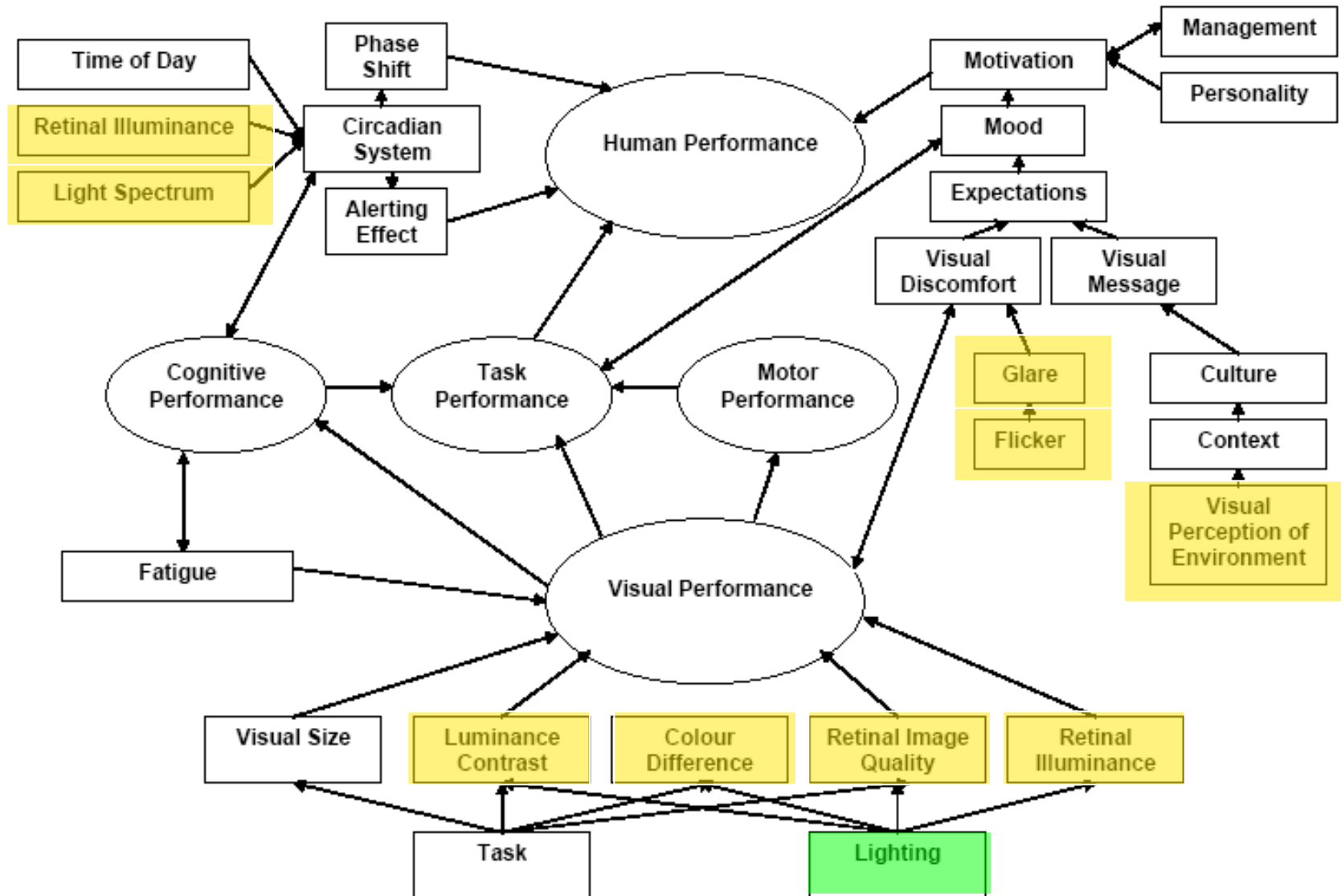
... complicated

# Human Visual Performance

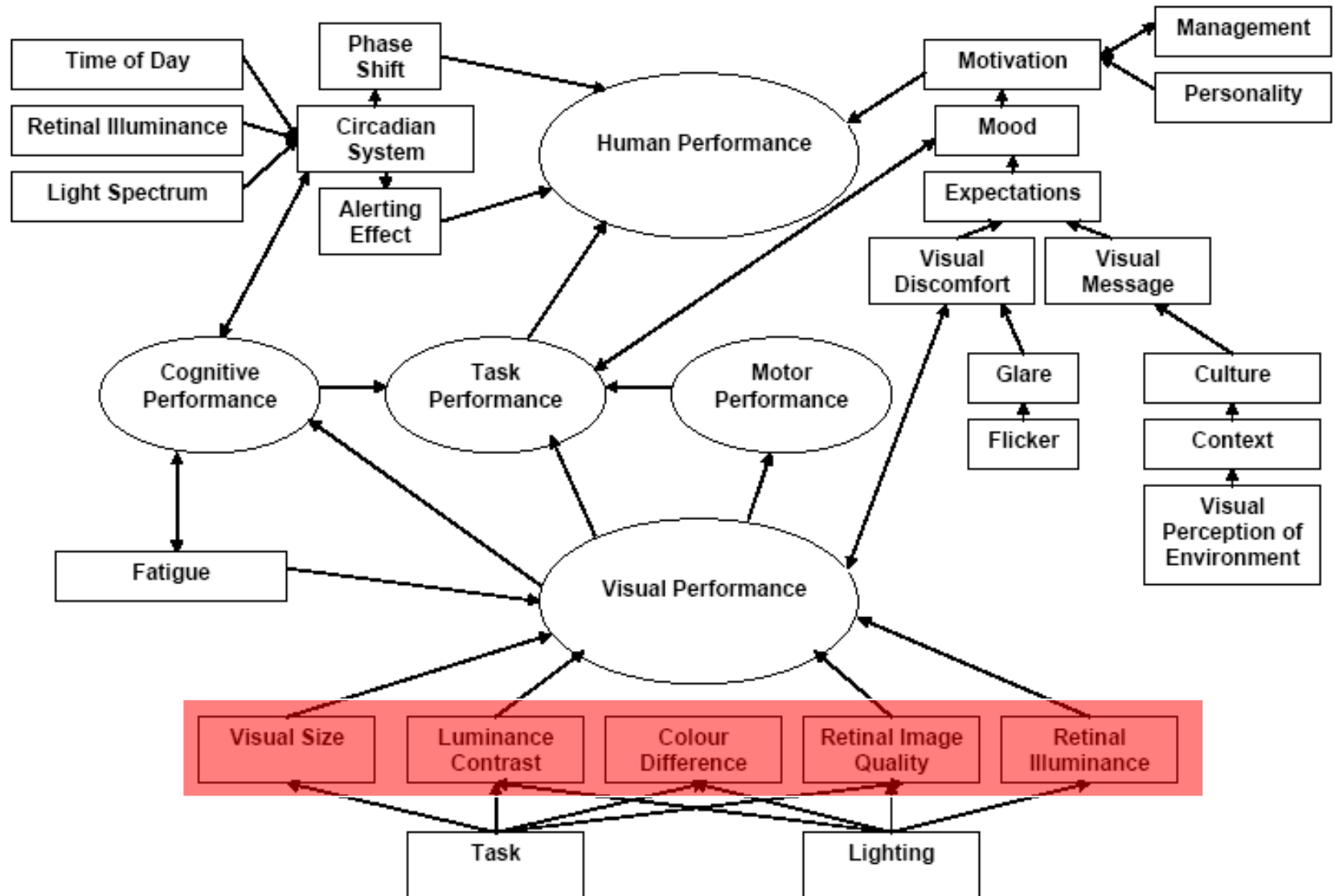




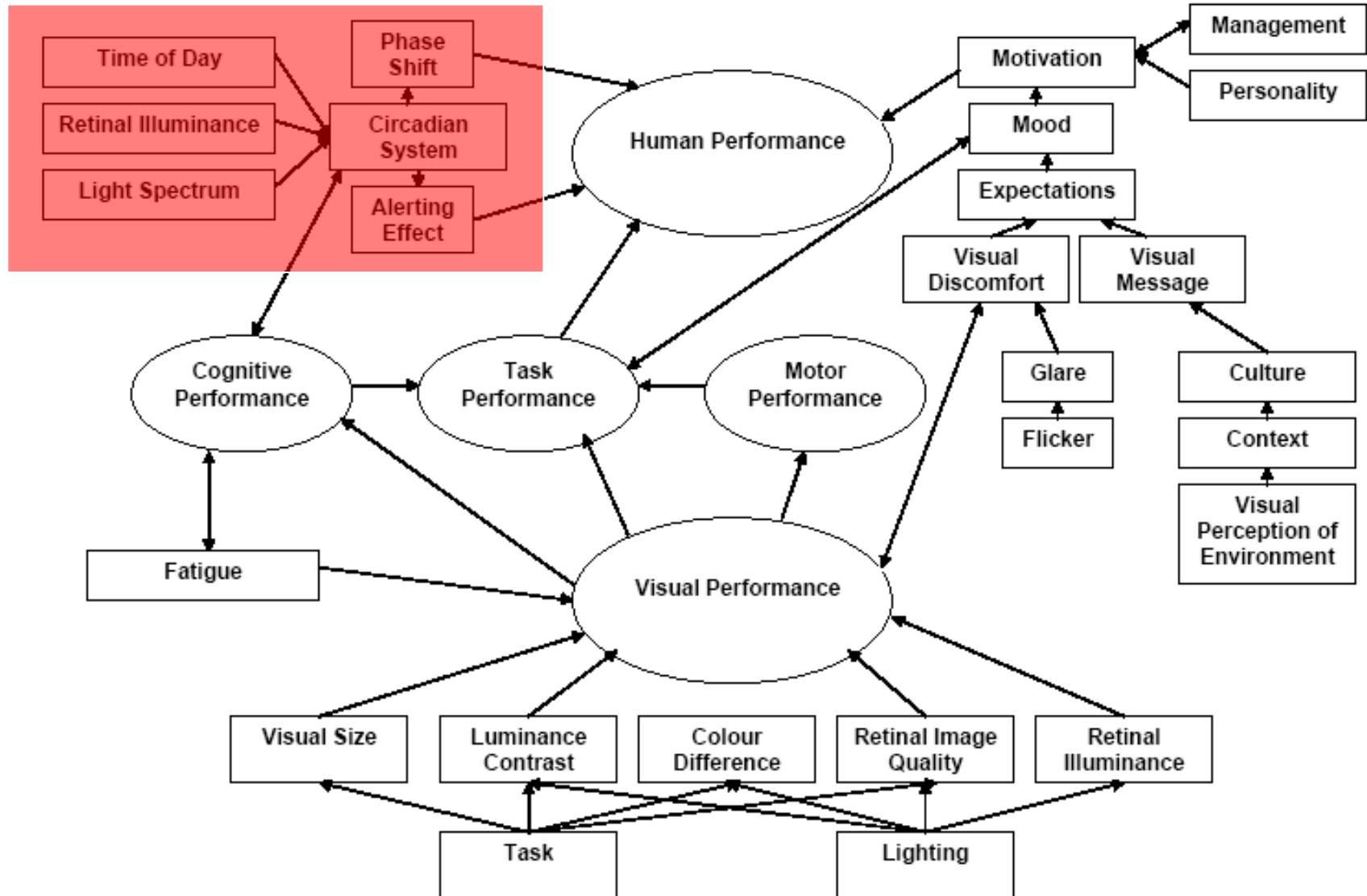
# Human Visual Performance



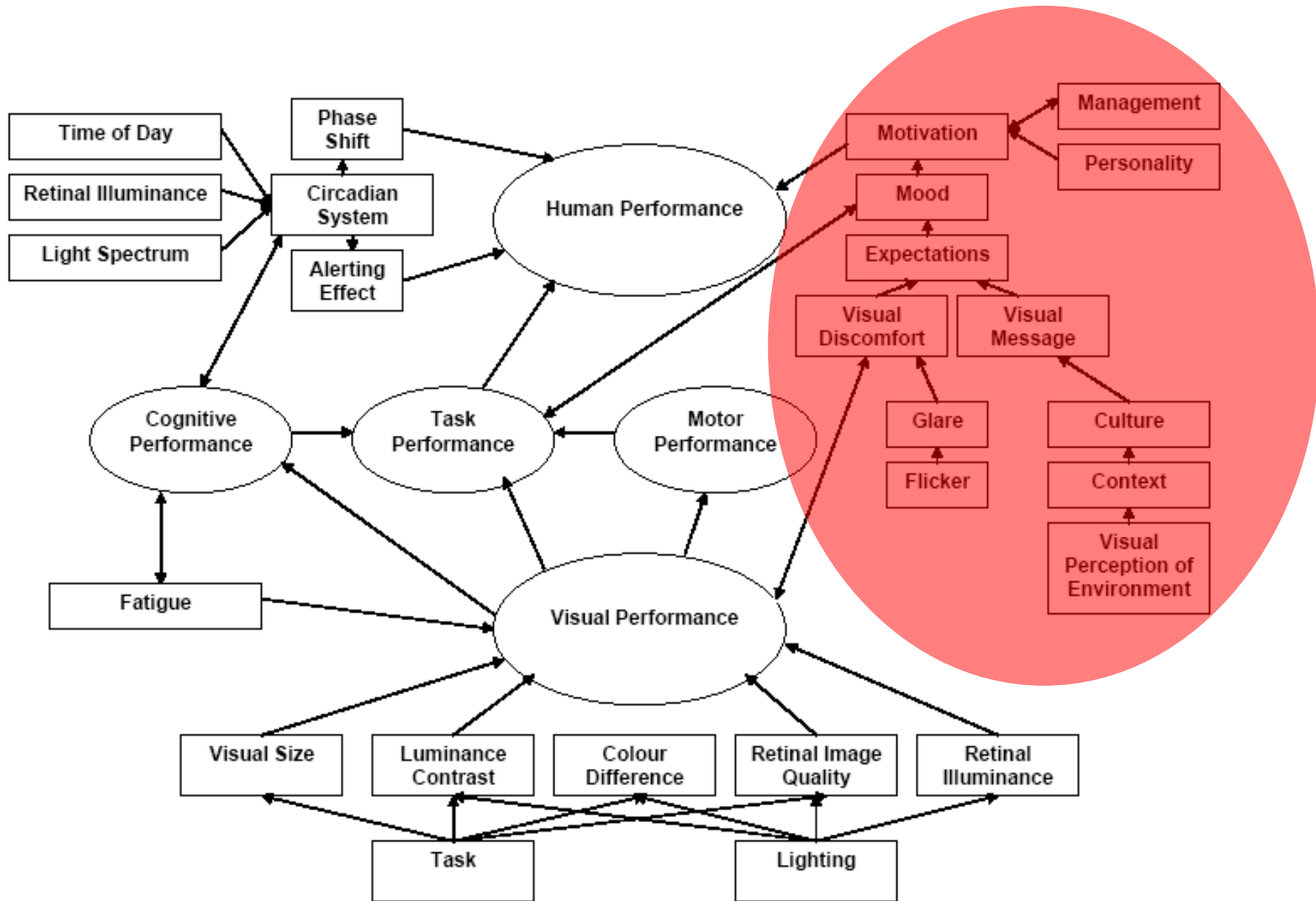
# Human Visual Performance



# Human Visual Performance

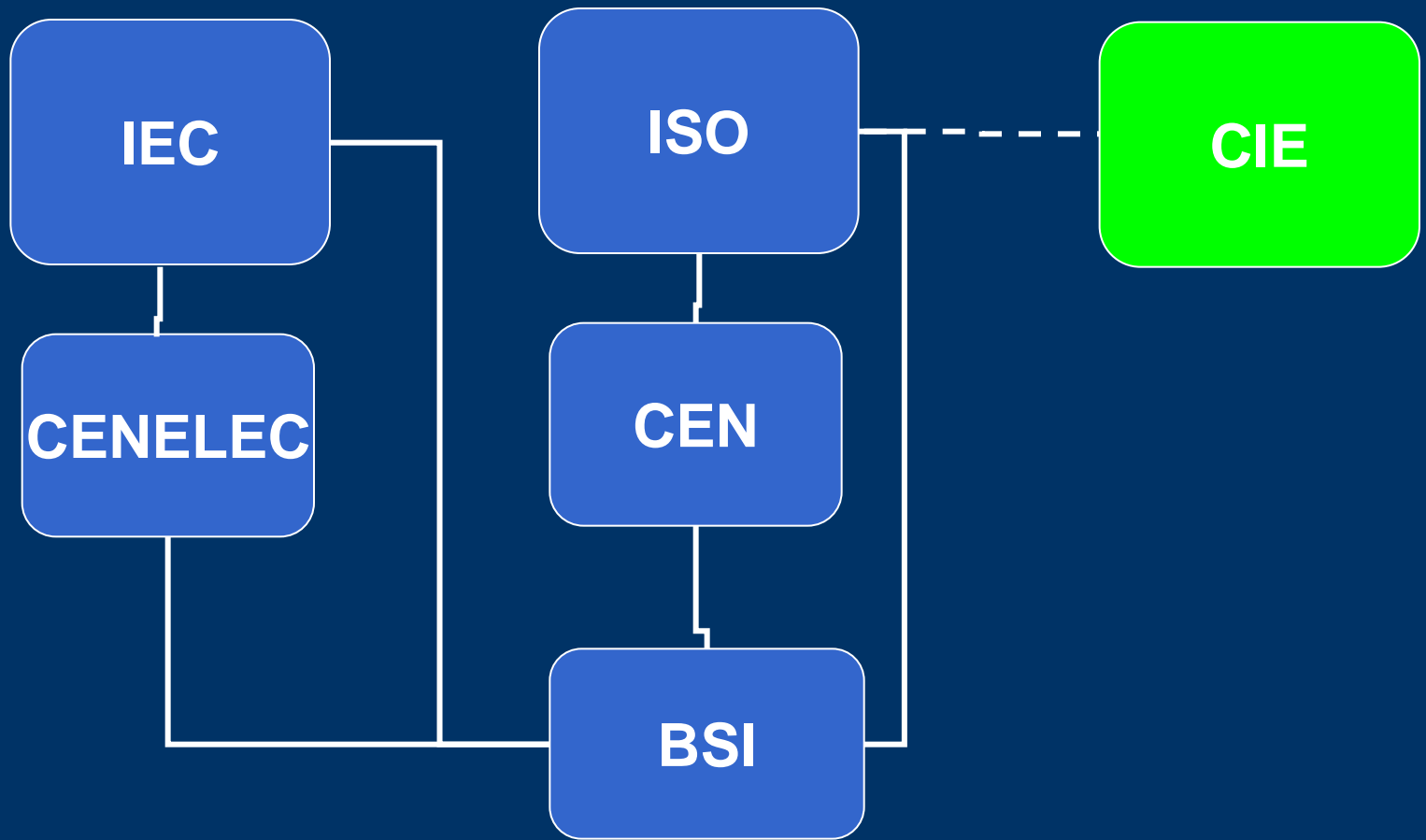


# Human Visual Performance



# Standards

- Where do they come from?
- Which standards do I need?
  - Is there an easier way?
- What use are they?
- Who do they help?
- What is their impact



# Standards Bodies

# Which Standards?

- Products:
  - Lamps
  - Luminaires
  - Components
- Applications:
  - Workplaces
  - Roads
  - Sports

# Applications

- EN 12464-1
- EN 12464-2
- EN 15193
- EN 13201 – 2, 3, 4
- EN 12193



# An Easier Way?



## The SLL Code for Lighting



# What's the use of standards

- Provide a set of minimum guide values
- Provide a common set of values for use as the basis of design
- Limit design freedom

# Who are Standards For?

- Expert lighting professionals?
  - Less expert designers / engineers
  - Specifiers who do not understand lighting
- 
- Do they all use standards in an appropriate way?

# What is the Impact of Standards?

- Boyce's criteria for lighting quality:
  - See what you want to see
  - Freedom from glare
  - Lifts the spirits
- Bad / Mediocre / Good
- Standards will only get part way on the road to quality!

# Conclusion

- There are lots of standards!
- They can be useful
- There are some downsides

Questions?