

# *Looking ahead at future workplace ergonomics*

*New health concepts, risk exposures and  
what can be done about them*

# *The modern, international definition*

*(International Ergonomics Association, 2000)*

BEST



**ELIMINATION**

(eliminate the risk through design)

BEST



**SUBSTITUTION**

(use something else)

*Risks can be addressed at different levels*

**RISK EXPOSURE CONTROLS**

(isolate workers from the risk, engineer safety devices, barriers)

**ADMINISTRATIVE CONTROLS**

(control the exposure time: training, work rotation)

**PERSONAL PROTECTIVE EQUIPMENT**

(individual responsibility; least sustainable)

**Injury prevention**

**Economic value & chance of a lasting effect**

# *In all work environments...*

How can we prevent ill-health...



... so NOBODY needs to become a patient?



- USING:
- Design
  - Evaluation
  - Training



# *A moving target:*

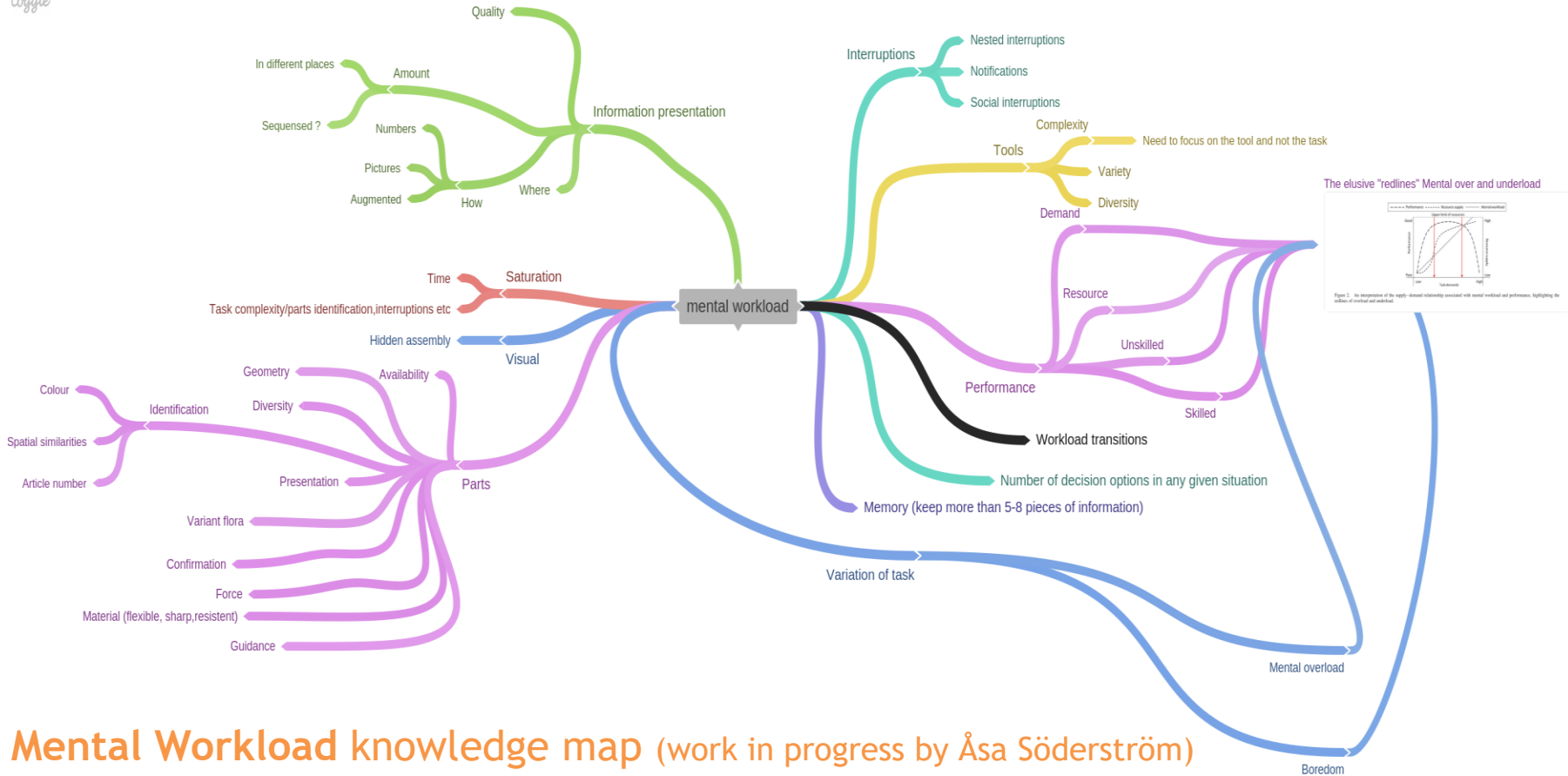
*What future health risk exposures  
will designers and engineers  
need to learn to expect?*

# *Future vision of health in industrial work:*

- *No more hand injuries! (physical)*
- *No more engineers designing harmful workplaces or tasks! (macro)*
- *Better recognition of mental work over- (or under-) load! (cognitive)*
- *Knowing what it means to use advanced aids, like digitalized systems, exoskeletons etc. (cognitive / physical / macro)*

# *What we need to study*

- *More knowledge about cognitive ability vs. mental workload - how to analyze and design work for healthy levels*
- *Effects of enabling technology, e.g. Using digital tools or wearing an exoskeleton on the body all day*
- *What will give us enough recovery, at work and in our lifestyle?*



# Mental Workload knowledge map (work in progress by Åsa Söderström)



***A difficult health-funding  
conundrum:***

***Who wants to pay for  
preventive, non-medical  
health research?***

# *Different aims of research*

- ***Explore*** - *The problem or phenomenon is relatively unknown and not understood*
- ***Describe*** - *Specify when and how a phenomenon occurs*
- ***Explain*** - *Why is there a phenomenon? What is the underlying logic and dynamics?*
- ***Predict*** - *Under what conditions can the phenomenon occur?*
- ***Suggest*** - *How should things be? Propose and recommend actions or choices for people and organizations. (Prescriptive / Normative)*

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