

Ergonomics and Human Factors

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This evening

- Intro & my background
- Definitions and Descriptions - audience participation
- Photo examples of person machine interfaces through the generations
- My mind map and takeaways for Ergonomics & HF
- Group task - Rail control rooms





STRUT

FLY CONT

TEST

1-2

UP

DOWN

Four rectangular push buttons arranged horizontally.

COMMUNICATIONS (COM) panel with a green display and alphanumeric keypad.

COM

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z ENTER

RAM DUMP

AUTO

MAN. COLD

MAN. HOT

CABIN TEMP

40° 60° 80° 100°

INCREASE

CABIN PRESS. PITOT HEAT

ENG ANTI-ICE

MAN. ON

MAN. OFF

BOOST PUMPS

LEFT ON

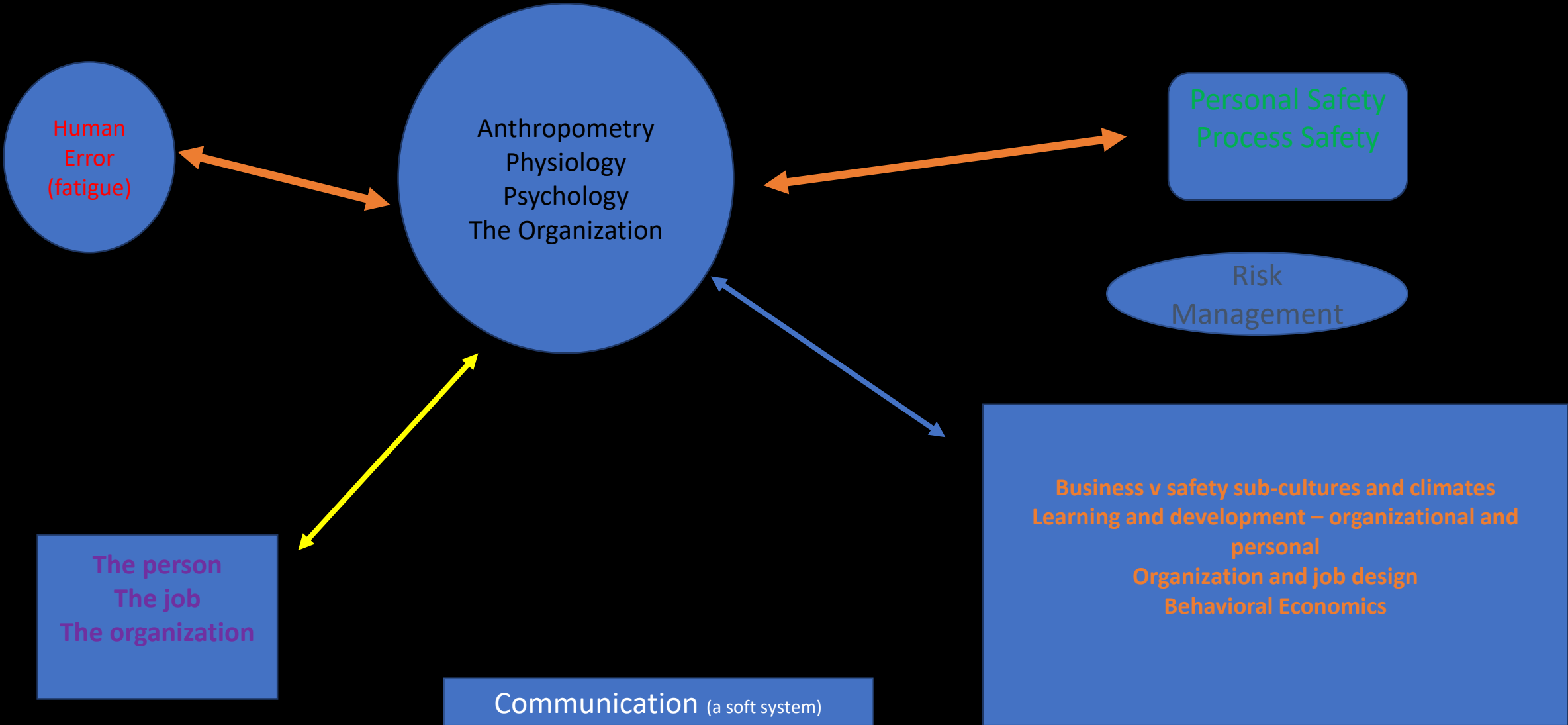
CROSSFEED ON

RIGHT ON

FUEL & OXY GAGE TEST



Ergonomics and Human Factors of machines and machine systems



My Takeaways

- The personal v process safety demarcation is a useful and thought provoking distinction.
- Ergonomics and HF often prompt job redesign and hence a business case, rather than an argument about legal compliance.
- Human error is all pervading! All risk assessments should consider it.
- Latterly, behavioural economics is a more useful model than safety culture.



Group Task

- As designers and operators of this equipment what specific ergonomic and HF issues and questions will concern you?
- Odd numbered birthdays: The Victorian signal box
- Even numbered birthdays: The modern control room

Useful weblinks

- <http://www.imeche.org/get-involved/special-interest-groups/safety-and-reliability-group/how-we-are-governed/human-factors-in-safety-and-reliability/human-factors-explained> from the IMech E
- [www.ergonomics.org.uk/Public/Resources/What is Ergonomics .aspx](http://www.ergonomics.org.uk/Public/Resources/What%20is%20Ergonomics.aspx)
From the Ergonomics Society
- <http://www.hse.gov.uk/humanfactors/topics/types.pdf> HSE Human Error Types
- <http://www.hse.gov.uk/pubns/indg90.pdf> HSE free leaflet on Ergonomics
- <https://www.energyinst.org/industry/good-practice> lots of good downloads on many Ergonomic topics