

Breaking with Tradition:

Business-Wide Human Factors Integration on a Global Scale

Presented by:

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Agenda

- Human factors integration – a short history.
- LyondellBasell's story about human factors integration.
- Creating a road map.
- Integrating human factors in incident investigation
- Next steps
 - ... including exciting behavioural insights into safe behaviours.

Human Factors Integration

- Not new – roots back to MANPRINT (MANpower and Personnel INTergration)
- Integrating human factors into design projects
 - Manpower
 - Personnel Capabilities
 - Training
 - Human Factors Engineering
 - System Safety
 - Health Hazards
 - Survivability
- Integration at more strategic level
 - Identifying opportunities
 - Defining a common approach and language
 - Roadmap
 - Integrating into business processes (e.g. incident investigation)

LyondellBasell is a strong, global company delivering outstanding performance

LEADING⁽¹⁾

World's largest licensor of polyolefin technologies.



- Producer of **polypropylene compounds** globally
- Producer of **oxyfuels** in North America and Europe
- Producer of **polypropylene** in North America and Europe
- Producer of **polyethylene** in Europe

DIVERSE



Many of our **materials** go into products that people use every day, such as food packaging, electronics, children's toys and fuels.

GLOBAL



Every day, our **employees** work around the clock to safely **advance solutions** to our world's biggest challenges.

GROWING



- Increased U.S. ethylene capacity by **21%** since 2012
- Expanded polypropylene compounds capacity in **China, India and Europe**
- Building the first world-scale **Hyperzone HDPE plant** and world's largest **PO/TBA plant**
- Acquired A. Schulman, expanding our position in the **advanced polymers markets**

One of the world's largest plastics, chemical and refining companies producing products and materials key to advancing solutions to modern challenges. Manufacture in 24 countries. Products sold in more than 100 countries.

* 2017 data as of December 31, 2017

Integrating Safety Cultures



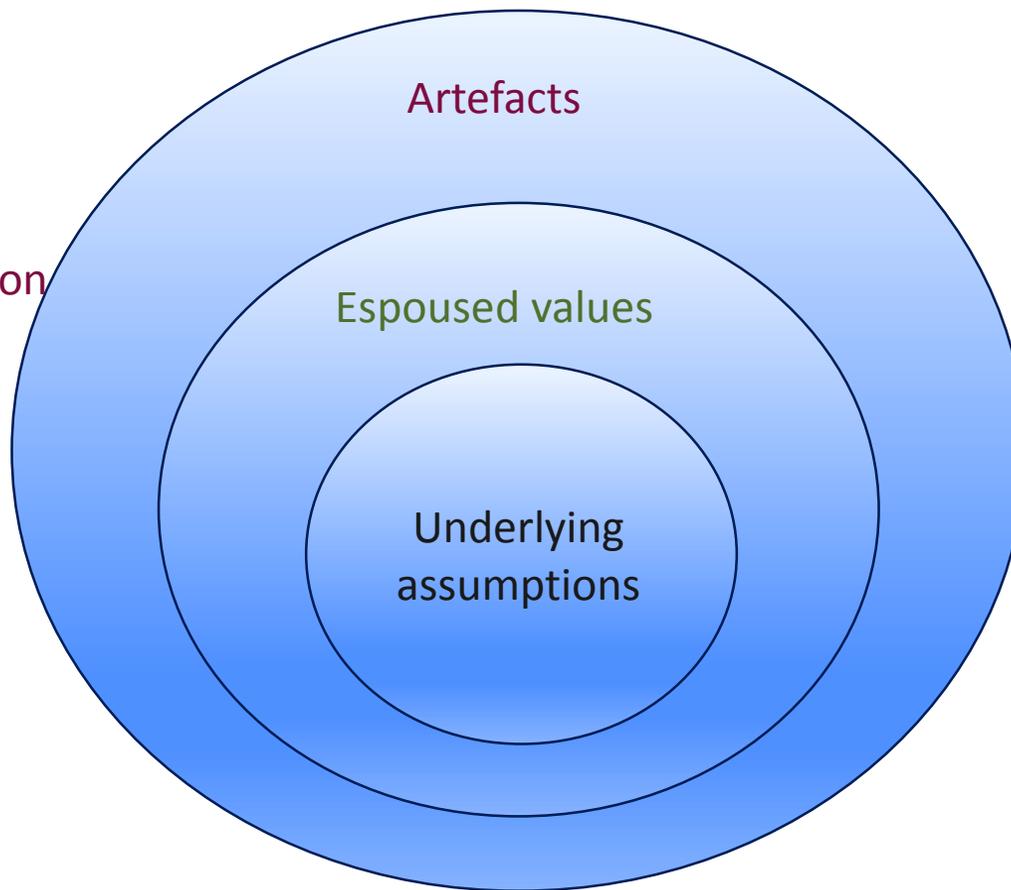
Organisational Culture



Extensive documentation supported by large corporate organisation

Safe outcomes result from rigorously prescribed processes and governance

Injury and incident free performance

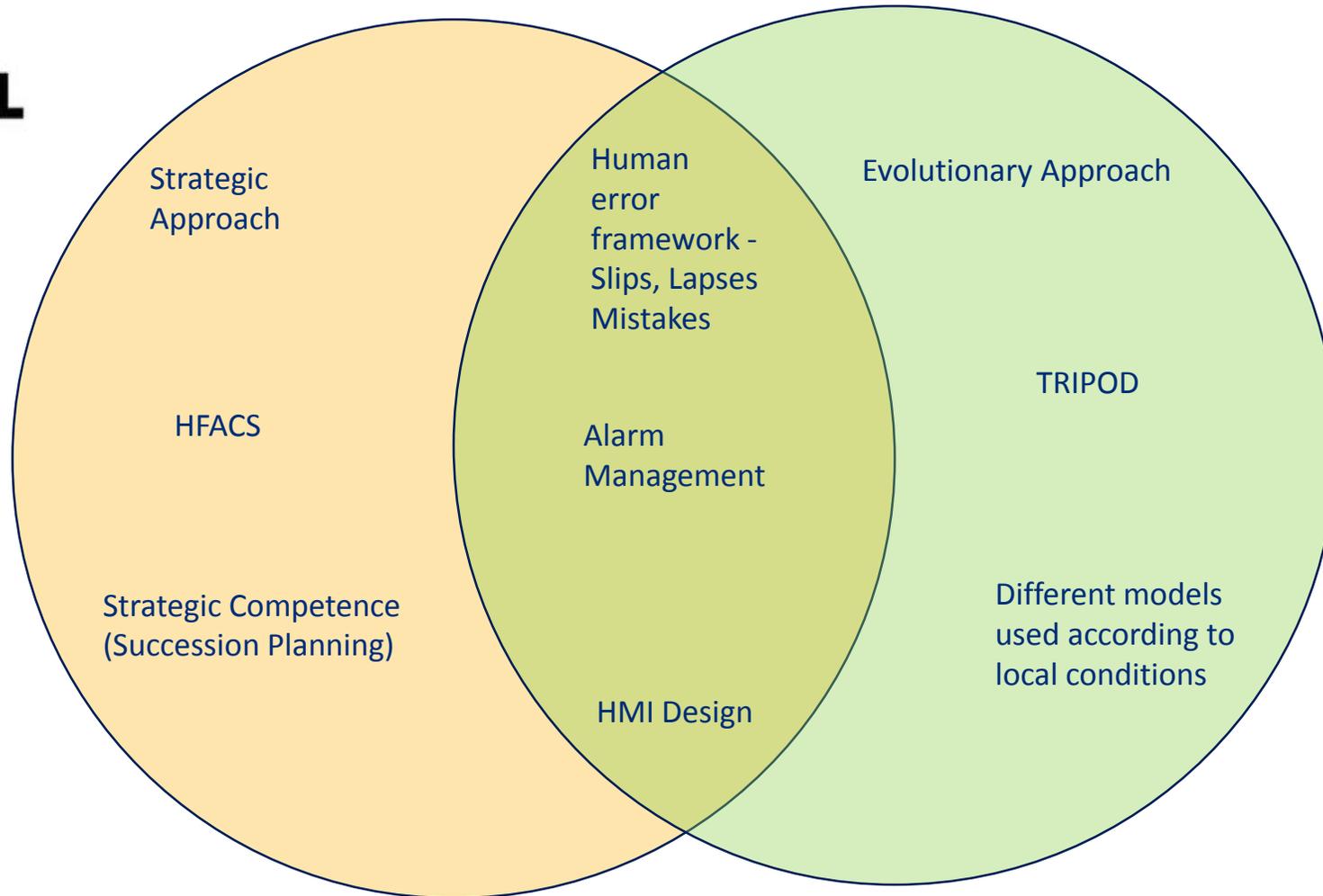


Smaller set of guidelines and smaller corporate organisation

Safe outcomes can be achieved through pragmatism and results orientation

Injury and incident free performance

Speaking the Same Language



About The Keil Centre...



- Based in the UK & Australia
- 20 staff & associates
- International client base

*Applying psychology to
promote organisational
success since 1983*



Assessing Opportunities



Incident investigation

Human reliability task analysis

Operating practices

Human error

Navigation by the
LyondellBasell Human Factors
Steering Team

Assessing Opportunities

Incident investigation

Human reliability task analysis

Fatigue & shift work

Maintenance error

Training & competence

Staffing

Permit to work

Org. change

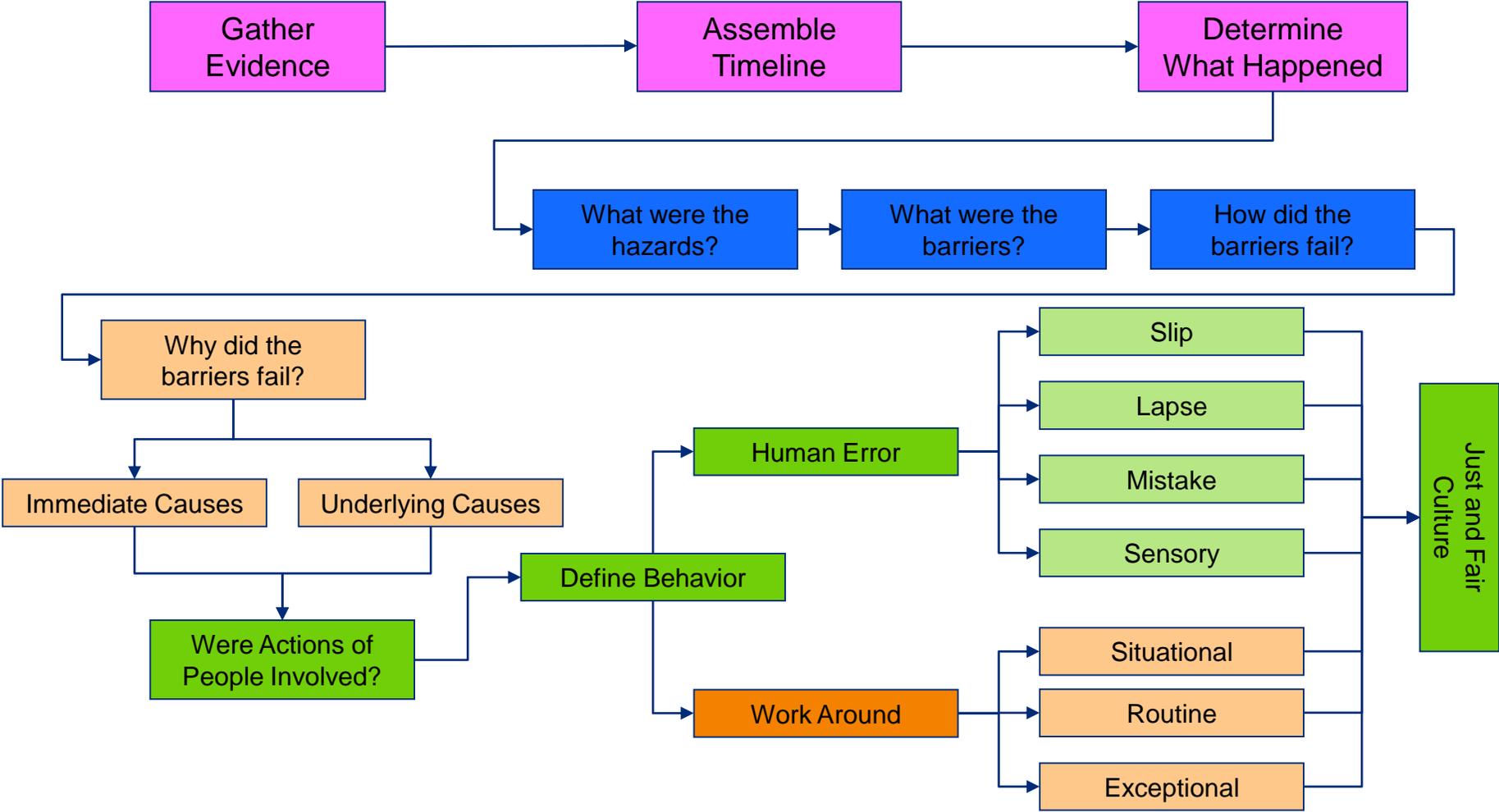
Operating practices

Human error

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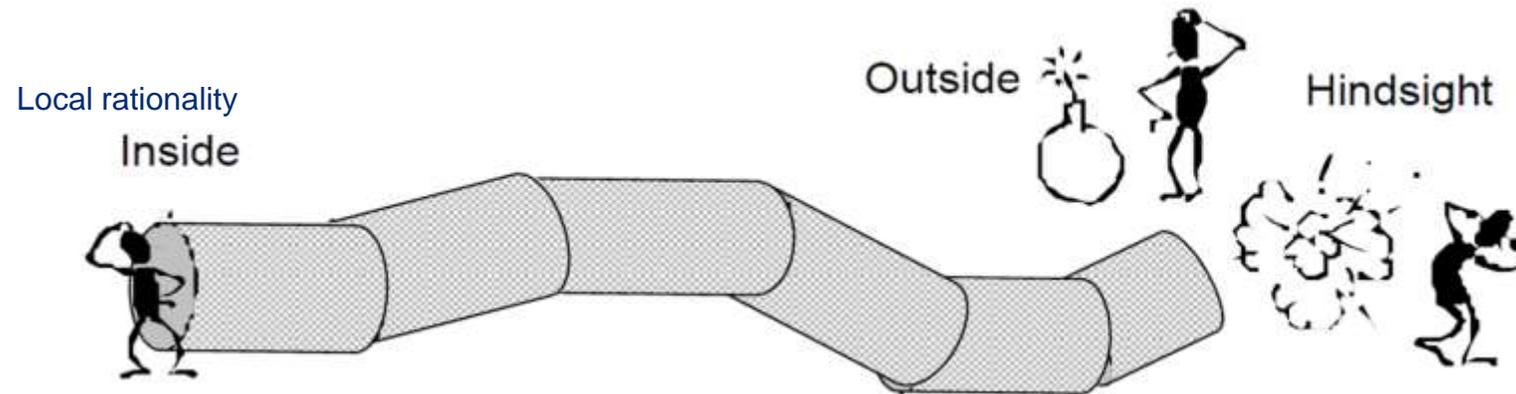
Navigation by the
LyondellBasell Human Factors
Steering Team

LyondellBasell New Incident Investigation Framework



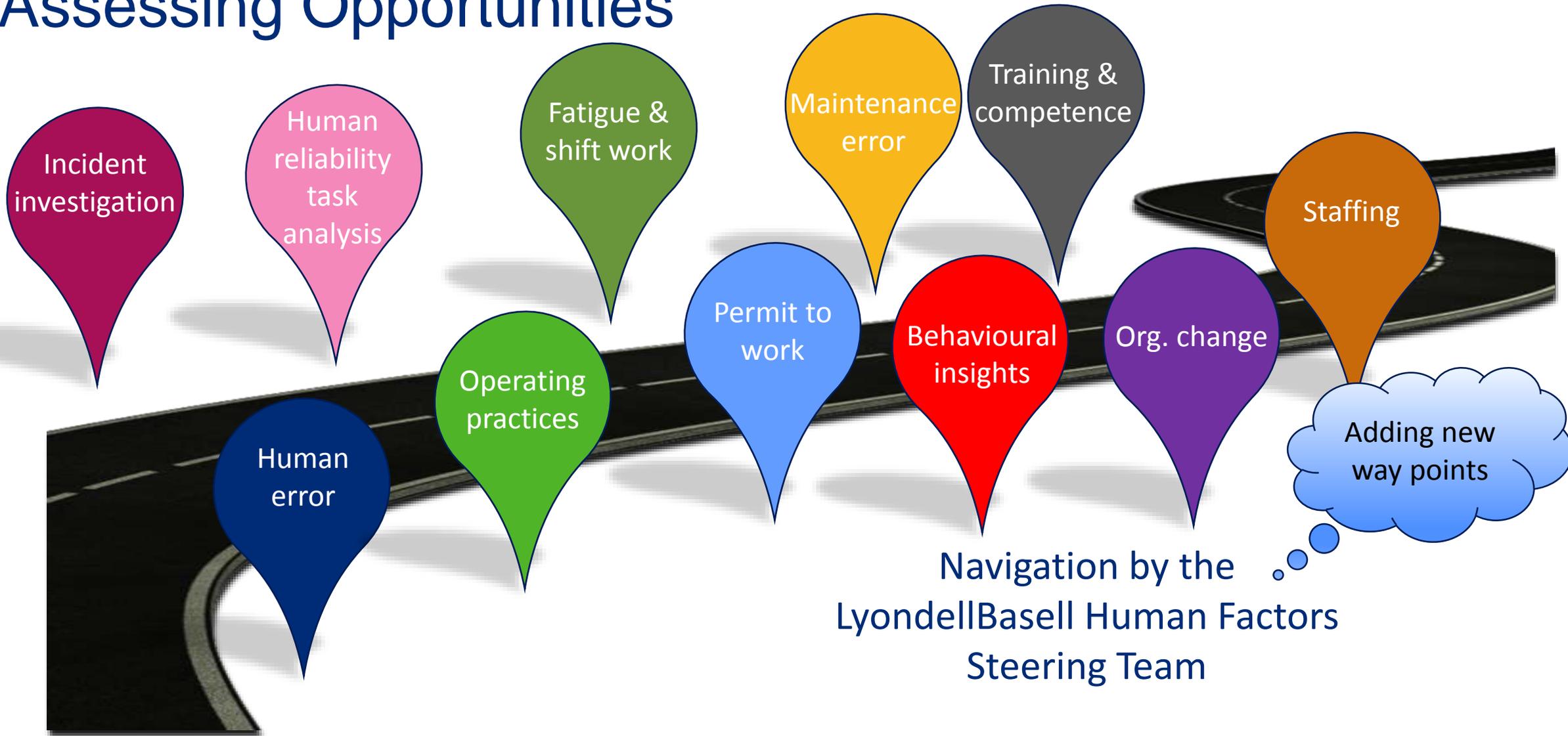
Investigator Skills

- **Human Factors** investigators should have:
 - Analytical skills (including good judgement, and observation skills, etc.);
 - Interpersonal skills (communication and interviewing skills, etc.);
 - Technical skills (investigation and analysis skills and legal knowledge, etc.);
 - Administrative Skills (time management, evidence recording, reporting, etc.).
- **Need to understand what happened from the perspective of the people involved: *Getting in the tunnel***



Sidney Dekker; *The Field Guide to Understanding Human Error*

Assessing Opportunities



Context Matters

Behavioural
insights

You go out to buy a belt. You find one for £12

Someone tells you that the same belt is available for £7 at a shop 5 minutes down the road.

Do you go and buy the cheaper belt?

a) Yes?

b) No?

£12 or £7?



Context Matters

Behavioural
insights

You go out to buy a TV. You find one for £499

Someone tells you that the same TV is available for £494 at a shop 5 minutes down the road.

Do you go and buy the cheaper TV?

a) Yes

b) No

£499 or £494?



- Same question but framed differently.
- “Framing” is just one of many behavioural insights.
- It’s context for the purchasing decision.
- By understanding the context to safety decisions, we can design the “choice architecture” to nudge people to safe choices.



Questions?

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