The investigation of organisational factors

Railway Accident Investigation Seminar

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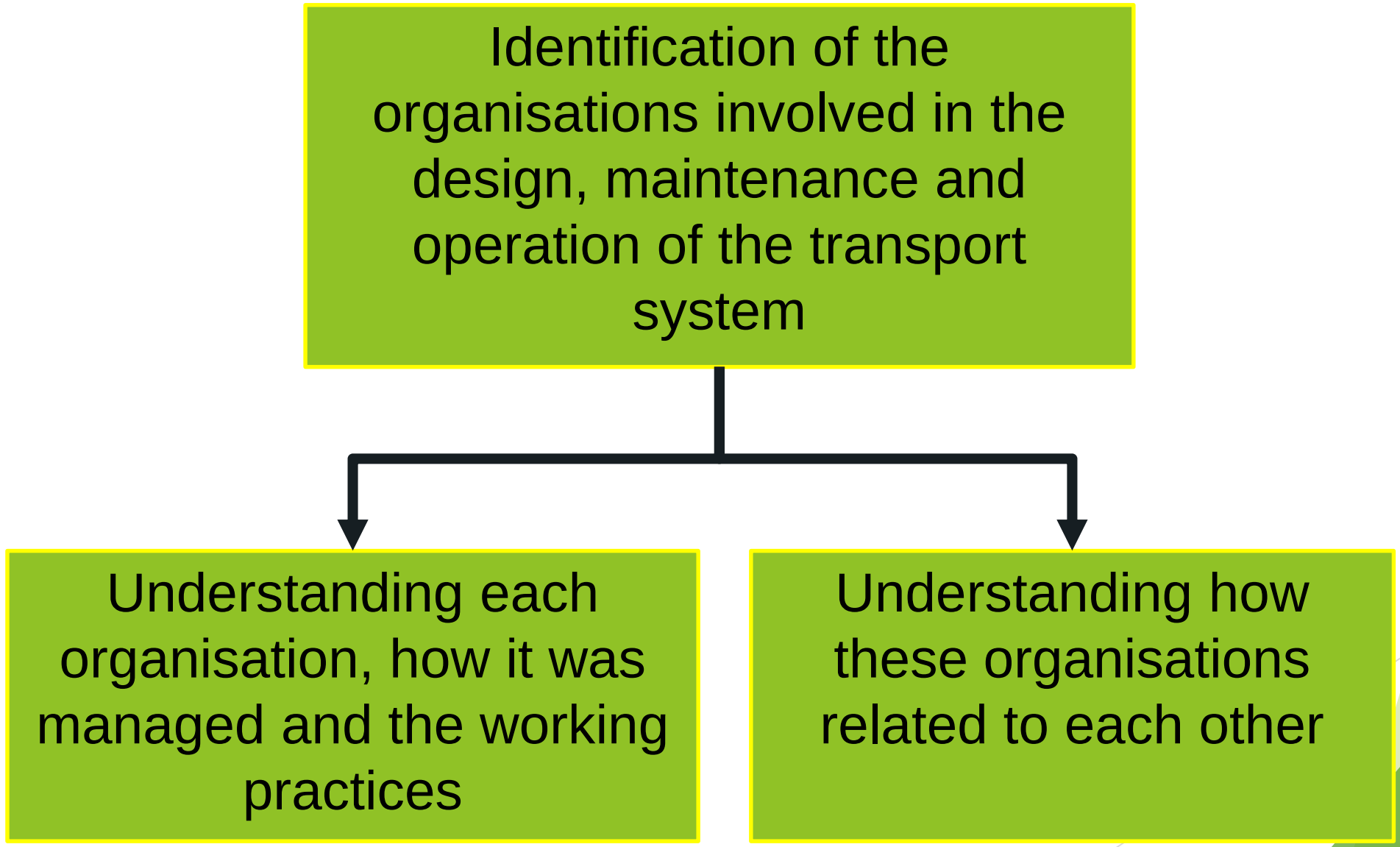
What are organisational factors?

The term ‘organisational factors’ encompasses all those elements that influenced the way that the organisation, and everybody within it, behaved. Typically, these elements include:

- formal management systems (eg safety and competence management)
- assurance processes (monitoring, audit and review)
- working practices, whether or not formally documented
- risk awareness
- how the organisation learnt from experience
- organisational safety culture

Stage 1 Understanding the context



Stage 2 Identifying potential links between organisational factors and the accident

With reference to the evidence collected to date and the preliminary causal analysis:

- identification of the elements of the management systems that were intended to prevent an accident of this type, and how they operated in practice
- identification of how the organisation's safety culture may have allowed or created the conditions that allowed the accident to happen

Stage 3 Collecting evidence

- Technical inputs (eg tram speed data from signalling loops)
- Outputs of the management assurance system (eg audits, safety performance data)
- Management papers, correspondence, minutes of meetings etc
- Risk assessments
- Data showing the extent of reporting of previous safety incidents
- Formal evaluations of safety management performance (pre-accident)
- Formal interviews and discussions at every level
- Anonymous questionnaires

The strengths and weaknesses of anonymous questionnaires

- They are an effective means of gathering factual information from across a workforce following an accident (such as previous experiences of late braking on the approach to Sandilands Junction)

However,

- post-accident questionnaires can never provide a reliable measure of overall safety culture as it existed before the accident
  - the accident itself will radically alter perceptions and attitudes
  - self-selection of respondents
  - the direct questions needed to provide factual information to the investigators can cause respondents to focus on negative aspects of their working experience

Stage 4 Causal analysis

Causal factors can include issues such as:

- *competence*
- *behaviours (individual and group)*
- *local workforce factors*
- *leadership*

How does the organisation normally achieve safe outcomes?

What went wrong

- *failed barriers*
- *missing/weak barriers*

How did the organisation's culture contribute?

What is organisational safety culture?

- For James Reason, a strong safety culture is:
  - an informed culture
  - a reporting culture
  - a learning culture
  - a flexible culture
  - a just culture

Stage 5 Drawing conclusions – five key questions

1. What were the relevant risk control measures? (how were they documented, understood and applied?)
2. To what extent were the hazards and risk understood?
3. To what extent were safety issues being reported and actioned?
4. What mechanisms were in place to monitor, review and improve the efficacy of risk control measures?
5. How did the organisation learn from previous experience, and from others, and then use that experience to improve its safety arrangements?

Question 1

What were the relevant risk control measures? (how were they documented, understood and applied?)

Issues identified at Croydon included:

- *over reliance on line of sight driving and route knowledge*
- *fatigue management*

Question 2

To what extent were the hazards and risks understood?

Issues identified at Croydon included:

- *significant gaps in the tramway's awareness of risk*

Question 3

To what extent were safety issues being reported and actioned?

<u>Issues identified at Croydon included:</u>

- *insufficient self-reporting of mistakes (including late braking for sharp curves)*
- *company processes that were inconsistent with the just culture needed to encourage reporting*

Question 4

What mechanisms were in place to monitor, review and improve the efficacy of risk control measures?

<u>Issues identified at Croydon included:</u>

- *known concerns about reporting culture were not adequately addressed*

Question 5

How did the organisation learn from previous experience, and then use that experience to improve its safety arrangements?

<u>Issues identified at Croydon included:</u>

- *insufficient learning from other tramways and heavy rail experience*
- *previous evidence of a reluctance to report safety issues did not lead to change*

Some tips to investigators

- The fact that an accident has occurred does not prove that organisational factors played a role; evidence is therefore key and subjectivity the enemy
- Consideration of organisational factors as part of the overall causal analysis is essential – it's not a separate discipline
- Beware the temptation to travel too far from the causal chains. Investigators are not auditors and are not there to assess the overall quality of the organisations SMS or the level of compliance

Discussion - the scope of the RAIB's investigation

1. Should RAIB be so constrained by causality. Should we have actively looked for areas of organisational learning remote from the causal chains?

2. Is there a need for a simple conceptual model to help investigators navigate organisational factors in a systematic way?

A simple conceptual model covering the investigation of organisational factors?