



# Maintenance outsourcing: some risks and prevention measures

Corinne Grusenmeyer

French National Institute for Research and Safety  
Working Life Department



 Our job:  
making yours safer

[www.inrs.fr](http://www.inrs.fr)

# Content

- A few points on maintenance and Health and Safety
- Importance of maintenance organisation and outsourcing, in terms of OHS
- Example of a situation observed in a firm
- Some preventive measures

# Maintenance and Health & Safety

## ■ Maintenance: a key function



- **Contributes** to corporate **competitiveness**, since it **determines** the **equipment availability**
- **Participates** in **systems reliability** and **safety**, by preventing/correcting potentially dangerous operating modes

## ■ Many health and safety risks related to maintenance activities

- **Frequent and often serious accidents: 15 to 20% of all accidents - 10 to 15% fatal ones** (*European Agency, 2010*)
- **Numerous occupational exposures for maintenance staff:** chemical products, physical and ambient constraints or organizational constraints (*e.g. work interruptions, time pressure, insufficient work resources*)

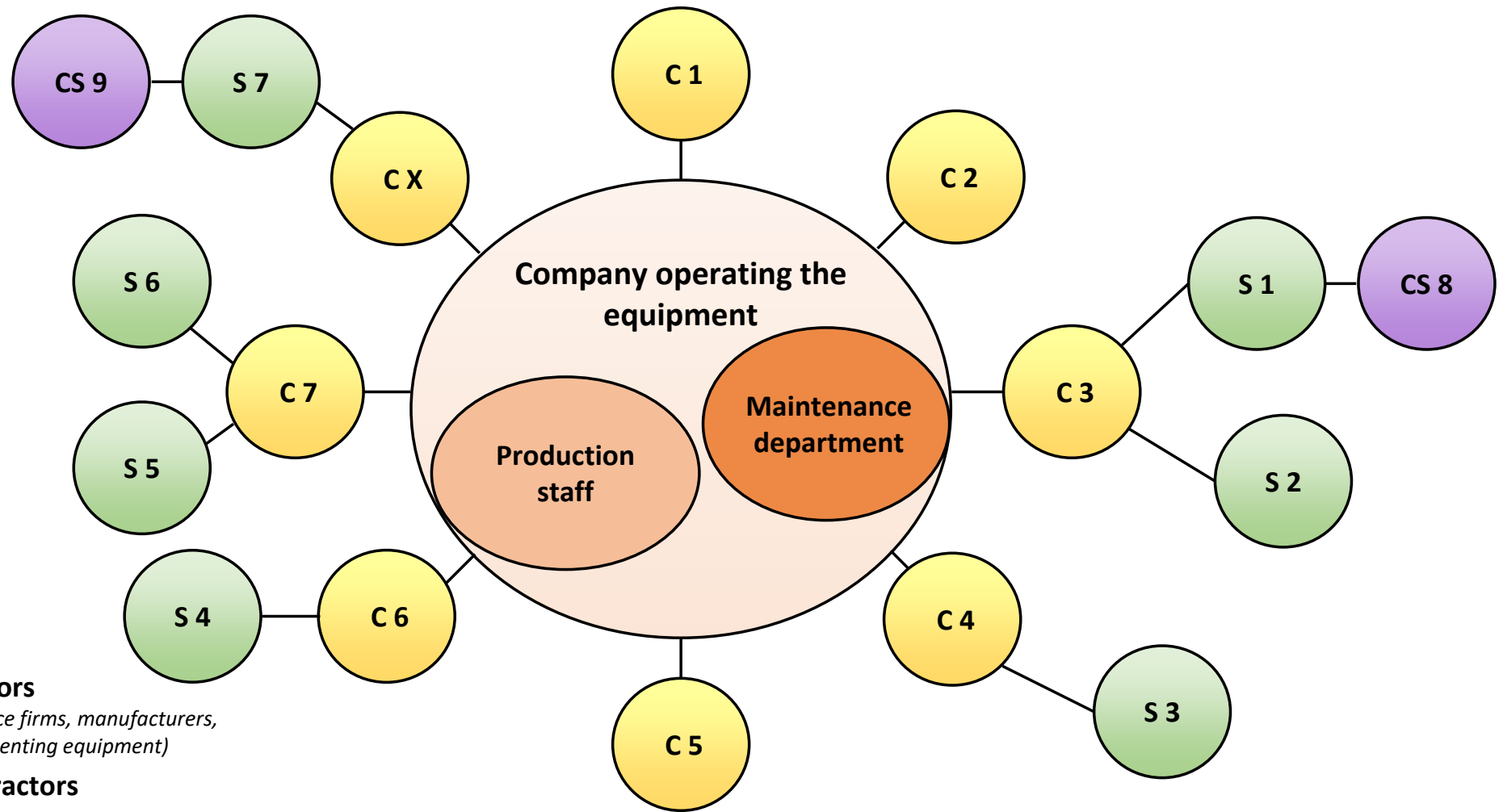
## ■ Numerous risk factors arising from:

- **Equipment** to be maintained - presence of moving parts, poor maintainability...
- **Environment of the intervention** - noise, confined spaces, limited working area near the equipment...
- **Nature of maintenance activities** - e.g. no fixed workstation, high uncertainty, frequent walking
- **Maintenance organisation within and beyond the company**, notably **outsourcing** and **subcontracting**

# Importance of maintenance organisation

- Outsourcing: a common practice
  - **In 2021, 38% of French companies (commercial sector) outsourced part of their activities** (Insee\*, 2024)
  - **Maintenance: a frequently outsourced function in industry** (European Agency, 2012)
- Outsourcing and Health and Safety
  - **Relationships** between this **organisational form** and the **working conditions/OSH of contractors and in-house staff** (Algava & Amira, 2011 ; Nenonen, 2011 Smith, 2014 ; Quinlan et al., 2013 ; Kuhlmann et al., 2017)
  - **A higher rate of works accidents** for French **contractor firms** than **non-contractor ones** (Coutrot & Inan, 2023)
- Risks affecting both contractor and in-house staff, resulting from:
  - **Unfamiliarity** with the **sites**, their **risks** by **contractor staff**, a **lack of orientation** by the **host company**
  - **Fragmentation** of **maintenance tasks** and **management**
  - **Loss** of **in-house** maintenance **know-how** and subsequent difficulties in monitoring maintenance interventions
  - **Interference** between the **activities, installations** and **materials** of the different **stakeholders**
  - **Concomitance** of **various interventions** and **multiplicity** of **stakeholders...**

# Current complex maintenance organisations



- C** Contractors  
*(maintenance firms, manufacturers, companies renting equipment)*
- S** Subcontractors
- CS** Cascading Subcontractors

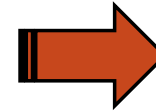
↳ Dozens of companies and stakeholders involved

# Risks arising from disorganisation phenomena

## ■ Risks related to co-activity

**Production stoppage** used both by:

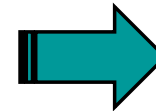
- **Production staff: 1<sup>st</sup> level maintenance**
- **Contractor: corrective operation**



- **Different, unrelated activities**
- **Same time, same work area**
- ↳ **Disturbance, risk to others' activity**

## ■ Risks arising from the succession of activities

- **Maintenance operation by contractor A**
- **Intervention 3 months later on the same equipment by contractor B**



- **Equipment modified by A**
- **B was not informed**
- ↳ **Risk for B's activities**

## ■ Risks linked to ambiguities in task allocation



*Presentation of an example observed in a company*

# Ambiguous task allocation Host company (H) - Contractor (C)



## Planning

- **1<sup>st</sup> maintenance operation** between H and C, **planned for a long time**
- **A few days before** this operation, a **2<sup>nd</sup> one added**, due to a breakage



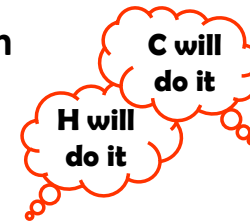
## Information exchanges H-C

- **No on-site inspection** by C's business manager
- **H and C focused on 1<sup>st</sup> operation**
- **C not informed** of the **unusual configuration**
- **No exchange** on **dismantling tasks** nor **their allocation**



## Operation 2 context

- Operation 2 involves **important dismantling tasks**
- **Unusual configuration** of equipment



## Ambiguous task allocation

- **Everyone thinks the other will do the dismantling tasks**
- **Ambiguity not discussed**



## Consequences: Dismantling done by C

- 👎 **Increase** in **intervening time**, **duration** of **exposures**, **time pressure**
- 👍 **Required protective equipment** provided by H to C  
**Additional tooling** to those required **sent to site** by C

## Some preventive measures

---

- When negotiating contracts
  - **Cooperation** and **information exchanges between firms** to implement a **preventive approach**
  - **Involvement** of an **in-house worker** with a **good knowledge** of **maintenance** and **installations**
  - **Setting up** a "**maintenance contact book**" **tracing** all maintenance **operations** and **modifications** to **equipment**, whatever the party involved
  
- Shortly before maintenance works
  - **Achievement** of a **joint preliminary on-site inspection** with **all** the **companies** to **identify risks**
  - On this basis, **joint elaboration** and **implementation** of a **prevention plan** and **information** of the **various staff involved**
  - **Appointment** of a **contact person** with **maintenance skills**, as **privileged contact** for **contractor staff**



## Some preventive measures (2)

---

- At the time of maintenance works
  - **Orientation** of all stakeholders
  - **Coordination** of **different maintenance operations** (concomitance, coactivity, interference, succession)
  - **Reassessment** of **risks** and **preventive measures** in the light of the **real work situation**, any **change** or **modification** in the situation
  
- At the completion of maintenance works
  - **Acceptance** of works
  - **Joint review** of **maintenance operations** and **use** of **experience feedback**



SAFE MAINTENANCE: WORKING WITH CONTRACTORS AND SUBCONTRACTORS

<https://osha.europa.eu/en>



<https://www.sciencedirect.com/journal/safety-science>

Our job: making yours safer  
Thanks for your attention



<https://www.napofilm.net/en>

[www.inrs.fr](http://www.inrs.fr)

