Considering Safety Culture over the course of Supply Chain: IRSN’s approach for R&D and expertise

NEA-MDEP Supply Chain Workshop

5 November 2018 (Boulogne – France)

S. Beauquier, C. Poret
Human Organization Technology
Department
IRSN
A research program on cross-functional organisations

- An IRSN interest for cross-functional organisations...
  - A cross-functional organisation involves actors from different trades, entities or even different companies who have to achieve a common production with different performance requirements (quality, safety, economic efficiency)

- Cross-functional organisations are found in different situations that the IRSN experts have to study: new build projects, maintenance projects, decommissioning projects, etc.

- ... and in the case of a supply chain, cross-cultural organisations
  - some supply chain actors are unfamiliar with the nuclear field and less easily integrate safety issues as a performance issue
Results & research questions in progress

Results issued from past research on cross-functional organisations

- The overall performance does not result from the sum of the different performances at each step → field of phenomena that emerges at the collective, cross-functional & cross-cultural mesh
- Maximization of the performance at the individual/local mesh can go against the overall performance
- To support this overall/transversal performance, it is important to:
  - make the actors aware of the interdependencies between their contributions
  - make visible the common production as a whole. This helps to better understand the impact of an activity here and now on the overall performance, including safety

Research questions in progress & possible locations for analyzing these questions

- Domain of shipbuilding, in the context of a new build project which involves many subcontractors over a long period → relationships between client and subcontractors and how to improve these relationships that can be degraded, impacting common production in terms of quality (thus safety), economic efficiency, etc.
- Domain of nuclear new build, where the construction of heavy components involves different actors from different professions → relationships between client, vendor, manufacturer and suppliers; awareness of safety goals over the course of Supply Chain
Application to a recent study case

Context:

- 2015: detection of anomalies and non compliance of heavy components for NPP
- 2016: quality review on the manufacturing work carried out in the manufacture plant (external audit checks + a Multinational Evaluation Program)

Inconsistencies, modifications or omissions in the production files, concerning manufacturing parameters or test results

Root cause analysis:

- Control process
- Management & Organisation
- Technique

Contribute to a supply chain perspective

Action plan defined by the reviewers and the regulatory body on these dimensions
Action plan for developing Safety Culture in the Supply Chain

Safety culture self-assessment & training
Protection of whistle-blowers
Attentiveness to weak signals (« Manager in the Field » practices, « Weak signals » committee)
Broken down barriers between hierarchies and departments

CLIENT/MANUFACTURER
Manufacturing inspection body
Exchanges (visits in the field)

MANUFACTURER/SUPPLIERS
Actions limited to Quality control

LICENSEE/VENDOR
Safety Culture Expectations in contractual documentation
Control process

VENDOR/MANUFACTURER
Resident inspectors
Unannounced inspections
Inspection guidance

REGULATORY BODY
Develop awareness of nuclear operators and manufacturers about safety culture issues
Improve the information of the Safety Authority by operators, manufacturers, whistle-blowers
Define procedures to deal with frauds

Licensee (Client) -> Vendor -> Manufacturer -> Supplier (s)

IRSN’s approach of SC2 for R&D and expertise - NEA-MDEP Supply Chain Workshop - 05/11/2018
Action plan for developing Safety Culture in the Supply Chain

Safety culture self-assessment & training
Protection of whistle-blowers
Attentiveness to weak signals (« Manager in the Field » practices, « Weak signals » committee)
Broken down barriers between hierarchies and departments

CLIENT/MANUFACTURER
Manufacturing inspection body
Exchanges (visits in the field)

MANUFACTURER/SUPPLIERS
Actions limited to Quality control

CLIENT/VENDOR
Safety Culture Expections in contractual documentation
Control process

VENDOR/MANUFACTURER
Resident inspectors
Unannounced inspections
Inspection guidance

REGULATORY BODY
Develop awareness of nuclear operators and manufacturers about safety culture issues
Improve the information of the Safety Authority by operators, manufacturers, whistle-blowers
Define procedures to deal with frauds

Licensee (Client)  Vendor  Manufacturer  Supplier (s)

Licensee (Client)  Engineering (Vendor)  Manufacturer  Supplier (raw material)  Supplier (s)

IRSN’s approach of SC2 for R&D and expertise - NEA-MDEP Supply Chain Workshop - 05/11/2018
Assessing Safety Culture in the Supply Chain: IRSN’s areas of interest

- Does the perception impact on safety of daily activities of manufacturer have been improved after the implementation of the action plan?

- Do the distributed contributions of the different actors in the supply chain contribute to a collective performance that goes beyond performance at every stage?

- Is safety built in the articulation between the different actors of the supply chain and not only from the risk management at each step?

- How do the different interdependencies impact overall performance, including safety?

- Are there any specific risks that emerge in each of these interdependencies?
Thank you for your attention