Paper: Control in an Age of Empowerment

Question 1 What are the key contributions of this paper? (what did I learn about organizations and improving their effectiveness)

This paper [1] describes four control levers that managers can use in attempting to balance creativity and control in their organization. I learned about:

- Diagnostic Control Systems
  The most traditional and mostly used mostly known as managing with a dashboard with key performance indicators (KPI). But beware there are built-in dangers when empowered employees are held accountable for performance goals, especially for difficult ones, and then left to their own devices to achieve them think Nick Leeson. Departments/People should reach targets.

- Beliefs Systems
  Core values and culture, mostly geared by mission statements, like:
  1. We produce only the best products.
  3. etc etc...

- Boundary Systems
  Basically rules of what is allowed and especially what is not allowed, with clear repercussions which are visibly enforced.

- Interactive control system
  The hardest one to achieve, which really means analyze your business on a regular basis on all levels of empowerment.

Conclusion of this paper: To control your organization the best possible way you need to implement all four systems they interact and reinforce with each other quote:

"Collectively, these four levers of control set in motion powerful forces that reinforce one another. As organizations become more complex, managers will inevitably deal with increasing opportunity and competitive forces and decreasing time and attention. By using
the control levers effectively, managers can be confident that the benefits of innovation and creativity are not achieved at the expense of control.”

1.1 The Therac case

Question 2 Use the knowledge of these papers to describe how the coordination in the failed case was organized and evolved. To what extent can you attribute this to the project failure? How could you improve on that?

1.1.1 Diagnostic Control Systems

Unclear how AECL diagnostic controlled the department that build the radiation machines. KPI’s on testing and safety engineering where not mentioned in the reports. I think they were not there, i believe that safety should be manufactured into the product from the start, not an after though added to it and that KPI’s should be designed to measure the safety engineering quality.

1.1.2 Beliefs systems

In AECL there must have been a strong beliefs system in place probably something like:

1. “We build the best and safest medical machines“
2. “Computer controlled systems are the safest“

When they got the first reports about failure their response was probably triggered by their own belief failure: not possible

1.1.3 Boundary systems

Although we can assume that there were boundary systems in place they did not enforce strategies for building safe reliable systems. this is concluded from:

1. AECL did not have the software code independently reviewed.
2. AECL did not consider the design of the software during its assessment of how the machine might produce the desired results and what failure modes existed.
3. AECL had never tested the Therac-25 with the combination of software and hardware until it was assembled at the hospital.

1.1.4 Interactive Control Systems

Probably the cause of all problems the decision to design a multifunctional machine most have come from a market analysis (I believe, I cannot verify this there is no information about competitors) they were the first to build a machine for multiple types of treatment with e new type of electron accelerator.
References