NAC Executive Insights

Human Risks in Project Formulation, Assessment, and Execution

Key Points

- Human related risks must be considered in project formulation, assessment, and execution.
- Five broad categories of human risks in projects are defined.
- Tacit acceptance of policy and process are recurring human risks.
- Behavioral aspects, including bias, are real project risks.
- Ignoring the human risk contributions (bias, delay, variability, and others) to a project is a mistake.
- Engagement, proactive management, and a continuous dialogue on risks all aid in improving project outcomes.

Introduction

Traditionally in assessing risk in projects, project teams go through a process of identifying and modeling quantitative and event risks. This process has previously been described in other Executive Insights. A common failure in risk assessment is to fully account for the range of risks that *humans* can introduce into risk assessment, risk management, and risk mitigation. This Executive Insight identifies some human related risks to consider. These risks have been grouped into five broad categories:

1. Classical human vulnerabilities
2. Framework risks
3. Acceptance of weak/incomplete baselines
4. Inertia
5. Uniquely human characteristics

1. Classical Human Vulnerabilities

Classical human related vulnerabilities include confidentiality, integrity, and accessibility. Collectively these are often referred to by the acronym CIA. These vulnerabilities are both situation- and channel-dependent. Channel here relates to how information is communicated or acted on.

2. Framework Risks

A range of framework risks exists when considering human risks in projects. The range begins with a blind acceptance of existing policies without confirming if they are fit for purpose. Even if the policies are unmodifiable, it is important to understand the constraints and opportunities blind acceptance creates within a specific project context. This is just one element of governance risks (ethics, trust), which are very much driven by human behaviors.

A second risk in the framework range is to ignore both Black Elephants and Black Swans). Black Elephants are defined as high-risk events that lie beyond the realm of regular expectations but are ignored despite evidence of their existence. Everyone sees the black elephants, but nobody wants to deal with them. A recent example of a Black Elephant is the COVID-19 pandemic. Black Swans are high impact events that are difficult to predict but ones that in retrospect appear to have been inevitable. In 2024, the collapse of the Francis Scott Key Bridge in Baltimore caused by a container ship striking it has been noted by some as a Black Swan. The human element often leads to ignoring these two inconvenient truths.

The third framework risk deals with how to think about and handle tasks and task-level risks. Often thrown in to the "too hard" category, they include just simplifying a task, avoiding the necessary level of granularity the task requires, and ignoring coupling and correlation of tasks. Such actions often lead to risks that are avoidable if proper actions had been taken beforehand.

Framework Risk — An Owner's Example

As an owner, our operating units would often say, "I want the next facility to be just like the last facility."

This is a nice vision (framework), but my experience is that the next facility is never like the last facility. In the big picture, they really want a facility that operates/performs like the last facility. It is up to the engineering and construction team to put this "make it like" vision into context for the new facility. The reality is that the new facility needs to be fit for purpose based on the specific needs of the new facility. Things that may impact the fit for purpose for the new facility include location, local design requirements/restrictions, local labor and design capability, current supply chain limitations, new technology, and new and improved equipment opportunities, among others.

---

3. Acceptance of Weak/Incomplete Baselines

People tend to "fill in the blanks" with what they expect to see or to happen. As a result, understanding and representation of risk is too coarse. This results in inadequate baselines, which are often readily accepted as the model of the project and how it will unfold. Risk analysis methodology is often inadequate or worse, inappropriate.

The acceptance of weak baselines desensitizes the assessment of risks to baseline variances, resulting in an inadequate awareness and understanding of this type of risk. Project teams are often slow to take timely action when confronted with variances that occur to the original project baseline as a project proceeds.

4. Inertia

Inertia is all too often a human condition. It is seen in individuals and in organizations. Sometimes this is driven by acceptance of the status quo or a willingness to stand behind policy even if it is obviously falling short.

Delays occur in assessing poor performance or conditions for fear of what discovery and understanding may mean. Even when the current situation is discovered to be inadequate, there is a natural delay in communicating (especially bad news) and a corresponding delay in risk mitigation. When continuous risk assessment is a project focus, however, the delays that might otherwise be experienced are significantly reduced.

5. Uniquely Human Characteristics

Uniquely human characteristics represent another set of project related risks. These risks include:

- Behavioral risks dealing with motivation and intent.
- Bias in selection, modeling, assessing, and mitigating risks.
- Health and other environmental risks to the workforce. The COVID-19 pandemic underscores these types of concerns.
- Variability in action/interaction with work processes. This introduces a degree of uncertainty into all that is undertaken on projects.
- An unwillingness to acknowledge shortcomings, often seen when technology is used in either a suboptimum or inappropriate way.

Bias in Selection, Modeling, Assessing, and Mitigating Risk — An Industry Example

As an industry, we get paid for building projects. As engineers and constructors, we like building projects. Industry experience is clear that personal biases and ego can dramatically impact the front-end planning process. Project teams often see success only by building the project so "problem blindness" sets in where the team interprets information biased by what they already believe. They are often over-confident and think they know more than they actually know. This bias may lead to incorrect risk assessment in support of the project.

As project leaders, it is critical to be realistic and evaluate the risk information objectively to ensure the project meets the strategic business objectives of the project. Project teams are successful in the front-end planning process even if the outcome is not to proceed with the project. It is certainly more cost effective to make that NO-GO decision during the front-end planning phase rather than after spending capital in the construction execution phase.

Summary

People are human, with biases, variabilities, and a tendency to avoid or delay uncomfortable truths and realities. These human traits contribute to project risk. Understanding the consequences of these behaviors and tendencies is essential to project success. It is a mistake to ignore the human risk contributions to a project. Engagement, proactive management, and a continuous dialogue on risks, however, all aid in improving project outcomes. Engineering and construction is all about people. People execute projects; therefore, projects must consider people related risks.

For Further Reading – Other Executive Insights

- Managing Risks in Large Complex Programs
- Systemic Risks in Large Complex Projects
- Coupling in Large Complex Projects
- Human Factors in Large Complex Projects
- White Space Risks
- Fat Tails
- Dirty Dozen
- Project Selection in Large Engineering & Construction Programs

About the Author

Bob Prieto was elected to the National Academy of Construction in 2011. He is a senior executive who is effective in shaping and executing business strategy and a recognized leader within the infrastructure, engineering, and construction industries.