



White Paper 2017-04

How to Identify and Manage Weak Signals in Large Complex Projects

Identifying and managing Weak Signals is an essential capability in all complex systems. Its aim is to enable to act before large disruptive consequences spread throughout the entire system. In general we find that Complex Projects do not listen sufficiently to potential disruptive signals. In this essential White Paper we discuss how to identify and assess these Weak Signals, with the aim to anticipate as much as possible events that will significantly alter the course of the Project.

What are Weak Signals

The more complex the Project, the more:

- Isolated events will generally have consequential impacts,
- Small disturbances, also called Weak Signals (even remote from the core of the Project) can have very significant impact, up to the point of significantly disrupting the Project.

This is due to the fact that Project complexity is a direct consequence of the interdependency of activities and responsibilities between contributors. Tracking small disturbances (Weak Signals) and assessing systematically their consequential impacts is thus an essential task. In Complex Projects, a forecasting process that would not consider Weak Signals and consequential impacts would be very insufficient.

The identification, observation and analysis of Weak Signals is an essential Project Control capability.

Early detection of Weak Signals

Weak Signals are generally detected in the form of:

- a significant recurring discrepancy between the baseline and the actual events,
- a discrepancy within the Project Model,
- a discrepancy between what is reported informally and the Project Model,
- a contextual element that changes the environment of the Project and might impact Project execution.

Significant difference between the baseline and the actual unfolding of events, be it cost or schedule, is an indicator of a potential issue that might be more widespread on the Project and have significant consequential impact. It might just be an estimating issue, but that always needs to be analysed and understood further.

The identification and treatment of discrepancies between Cost, Schedule and Scope is an essential role of the Project Control Manager (refer to our [White Paper 2017-02 on data consistency](#)). It is also useful to consider each discrepancy not just as a dysfunction of the Project Control processes, but also as a potential indicator of a Weak Signal and assess it as such.

Our [White Paper 2017-01 on Communication Assurance](#) describes independent communication checks. Weak Signals can also be picked up through informal conversations with the Project Team members. Informal conversations often allow to identify Weak Signals before they become visible in aggregated Project indicators, in the form of discrepancies between official reports and actual situations.

These conversations can also highlight contextual elements that are not immediately visible in the Project monitoring. These contextual elements can be internal to the Project or impact the Project environment and the assumptions that were made at the start of the Project. Internal contextual elements include for example particular preferences/ blind spots of key managers, behavioural issues of key contributors, specific lack of attention to certain areas, particular communication issues in particular when English is not the first language of most workers on site, specific morale and comfort issues at the Project office or on site (remoteness and food being often a key factor) etc. Environmental contextual elements include all sorts of events or situations such as the change of a key stakeholder's representative, local community politics, Project site's country politics, weather and other natural events, etc.

Weak Signal Assessment and Filtering

Weak Signals can be very significant in terms of impact. Some initial filtering must be made to identify those events that might impact the Project and that needs to be subjected to some additional investigation. One must keep in mind that the biggest disruptions sometimes come from far-flung events that have impacts that can be initially remote but that gain momentum and impact the Project significantly. This is in particular the case when the Project mobilizes workers or uses suppliers from distant countries.

Treatment of Weak Signals

Weak signals must be investigated, filtered and their potential disruption assessed. Many will reveal to be innocuous, few will not. This initial filtering is generally based on:

- An in-depth understanding of the resilience of the Project execution model and where critical activities are, in particular in terms of schedule and availability of alternate execution options,
- Some quick scenario planning,
- The joint Project experience of the Project Management Team.

Upon identification of a Weak Signal of concern, investigations must be done quickly to identify whether it would actually warrant an action to protect Project execution. In that case, in addition to treating the

symptom that has been discovered (such as a discrepancy) it is always essential to perform a root-cause analysis to check that the underlying cause is well understood. Then it is essential to perform the following additional steps to check that the underlying cause is not:

- pervading further aspects of Project Control and Project execution,
- creating substantial consequential impacts or domino effect on other areas of Project execution,
- combining with other simultaneous disruptions with the potential to create a much larger impact.

Weak Signals identification also has a close link with Project Opportunity and Risk Management as some Weak Signals with high potential consequences will be candidate for the update of the Risk Register, including definition and assignment of mitigation actions.

Tracking small disturbances (Weak Signals) and assessing systematically their consequential impacts is an essential task of Project Control and Management.

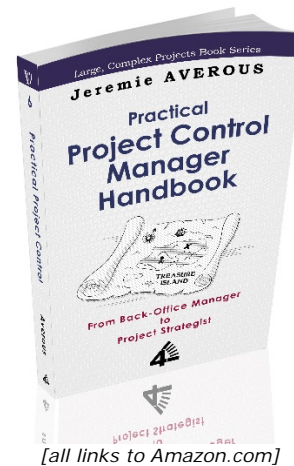
Conclusion

The Project Control Manager is often the only person that can apprehend and analyse fully the consequential impacts of events – actual or potential such as in the case of Weak Signals. He must play this role systematically together with the identification and assessment of Weak Signals – internal or external to the Project. Actually the identification, observation and analysis of Weak Signals is an essential Project Control capability.

Find all these principles of Project Control Management exposed in a comprehensive manner in our new Handbook,

[Practical Project Control Manager Handbook](#)

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