Plexus™ - The Breakthrough Planning Tool

October 2008

Plexus™- Executive Overview

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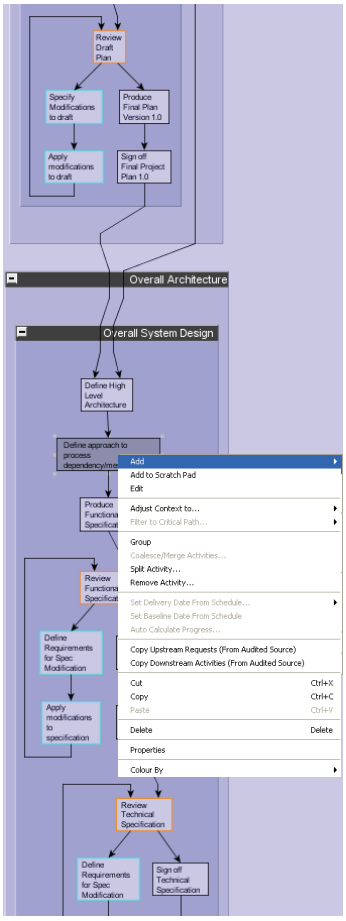

Figure 1: Plexus's world-beating Network View of project activities, grouped in a work breakdown structure (one of an arbitrary number of hierarchies that can be defined and used in Plexus).

This view is a powerful antidote for the poor planning behaviours encouraged by Gantt-dominated project tools.

Colour codes show some important, automatic activity classifications. Plexus provides constant feedback and guidance to the user, and performs real-time model health checks. This is another way in which Plexus transparently improves planning behaviours

Summary

Organisations routinely fail (often dramatically) to manage large complex programmes. There is an increasing realisation that existing approaches simply do not work.

Planning is an intellectual challenge that must be coordinated, controlled and supported. Existing project management tools take the output of this 'soft process' as their baseline schedule. Assuming this baseline is good, existing project management tools allow managers to monitor and control against it with a relatively high probability of success.

Unfortunately, current investments in tools and techniques for project management are undermined by poor up-front planning that is not systematic, is chaotic and labour intensive. Good early planning provides a solid foundation for project success.

Plexus, an entirely novel tool and methodology, has been developed in order to revolutionise project success. It is based on the following principles;

- *Early engagement and commitment from a very wide body of stakeholders*
- *Fast, efficient generation of a logical, realistic and detailed project model*
- *Deep understanding and strong "buy-off" of the project topology, logic and connections by all participants*
- *Rigorous exploration of risks and alternative execution possibilities prior to commitment.*
- *Clear and formal presentation of alternatives to senior management to obtain unambiguous commitment and support.*

In Plexus, a representative project model, built in an easy-to-use environment, can be continuously accessed and developed by planners and non-planners alike, across a network.

Plexus uses the model for cutting-edge simulation to produce schedules. Alternative schedules are created, compared and optimized, providing alternative cost, time and risk trade-offs. Complex, iterative refinement cycles are sequenced to achieve the best value results.

Analysis helps participants rework the Model until a plan can be produced that meets the programme's aspirations.

Execution functionality allows the plan to updated, monitored, controlled or synchronised with existing systems.

Plexus maximises participant productivity and enables effective delivery. It engages, it connects, it motivates.

Organisations that use Plexus for programme planning are also discovering valuable spin-offs, for example; process improvements, more effective work breakdown structures, knowledge reuse practices, and more.

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Introduction

Plexus is a breakthrough solution for tackling the challenges of complex programmes. It addresses the common causes of programme failure:

- Poor initial planning
- Lack of clear objectives and deliverables.
- Lack of understanding of dependencies
- Inadequate resource allocation
- Poor risk analysis
- Poor change management
- Lack of buy-in from participants
- Poor understanding of priorities

Conventional planning approaches and systems are inadequate and have a very poor track record in large programmes. Plexus takes a novel, intelligent approach to planning, that emphasises high quality early planning.

Plexus

is a highly visual, collaborative, and information-driven planning system that focuses participants on outcomes. It consists of modelling, a simulation, schedule optimisation & analysis, and execution functionality.

Plexus Modelling

A Plexus model accurately represents *what* has to be done, by *whom*, *how,* and by *when*. Plexus provides a simple, powerful, graphical, collaborative environment for creating such models.

Plexus lets any number of participants make contributions to the model. This can be done concurrently or asynchronously. This spreads the planning workload, and enriches planning with wider participation and engagement. Planning can be conducted in formal workshops (pictured below), mini-surgeries or remotely.

Plexus shows how activities link together across operational boundaries. It captures natural dependencies and relationships between activities, without the limitations of traditional planning tools. It models iterative refinement cycles that reduce risk. Participants at all levels can show how they really work.

Activities planned in Plexus are annotated with their durations and resource requirements. Three-point estimates can be added to the properties to analyse uncertainty and schedule robustness. Plexus also captures the relative importance of activity dependencies, and whether dependencies are optional or mandatory. It also allows the benefits of on-time delivery, and the costs of being late, to be precisely specified.

In addition, Plexus lets users create unlimited numbers of operational hierarchies in the network. The complex matrix relationships and interactions of a business are revealed and modelled. With sophisticated filtering, searching, reporting and visualisation techniques, users can examine the project deeply, and uncover subtle dependencies between activities and teams.

Plexus model logic is reusable. It is stored in familiar folder trees. Organisations can cut and paste all or part of one model into another. Company-wide standard models can be created to be re-used. Technical know-how can be shared throughout the business. Governance frameworks can be dropped into any project model to ensure genuine compliance.

Plans from other systems (such as Microsoft Project) can be imported into the far richer Plexus modelling environment.

Plexus™ is powerful and easy to use. It creates more authentic operational models, and clarifies your business operations. Project planning information is shared, understood and improved. Knowledge capital is unlocked to create more efficient operations. With better, faster planning, product development times are cut, more projects can be managed, and more profitable work gets to market earlier.

Plexus Simulation Creates Schedules

Plexus uses these rich activity and resource models for cutting-edge simulation, to yield realistic project schedules.

Plexus allocates resources realistically, based on the multiple, user-specified resource scenarios that can be varied for what-if analysis. Resources are never over-allocated in a Plexus schedule, by design.

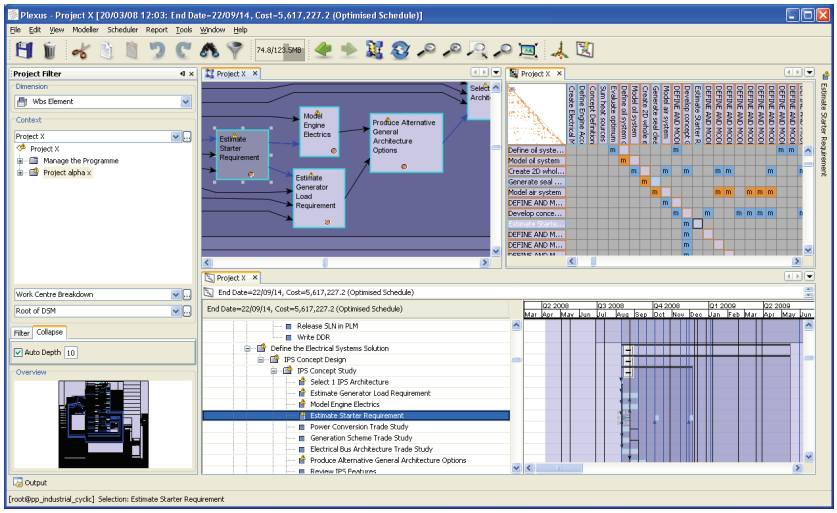

Figure 2 Plexus provides three editable views of the Model; Network, Gantt and DSM (Design Structure Matrix). Participants learn to use each view for its advantages. Each can all be sliced, diced and filtered, in synchrony, using a common interface

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Plexus Schedule Optimisation & Analysis

The ideal plan achieves the best possible outcome for the lowest cost and shortest time. In a plan with several thousand activities, dependencies, cycles and priorities, subtle changes in activity sequencing can massively impact cost, time and refinement risk. The permutations are almost endless, and impossible to evaluate and compare thoroughly using existing tools.

In just minutes, Plexus's schedule optimisation tool searches through the permutations to find the ideal project schedule. It takes account of resource constraints, dependencies, priorities, costs and rewards. It generates multiple, alternative project plans (see Figure 3) with optimal cost, time and refinement risk compromises. From these alternative plans, senior management can objectively select the right balance to meet business needs.

Plexus weighs up all the priorities and dependencies. It recommends which refinement cycles run, when, and how many times, to optimally reduce refinement risk.

Plexus's schedule optimisation tool:

- Automates plan creation and evaluates possible options
- Transforms complex relationships into meaningful sequences of activities
- Shows the impact of divergence from plan
- Provides options to effectively address emergent delays
- Identifies plans that reduce cost, time and risk

Once derived by Plexus, selected schedules can be visualised alongside the project model, in a coordinated fashion, to give deep insights.

Planners can simulate project execution, visualise Gantt charts and analyse:

- Project subsets (for instance, activities that are most likely to be on the critical path for a specific milestone, including random effects).
- Variance (for example, latest estimate versus target dates, or during execution, baseline dates)
- Impacts of late delivery (for example, how delaying specific milestones effects the plan)
- Confidence intervals for planned delivery dates (using Monte-Carlo analysis using three-point duration and work estimates)

This analysis then drives further rework of the model, until a baseline plan can be produced that meets the aspirations of the programme.

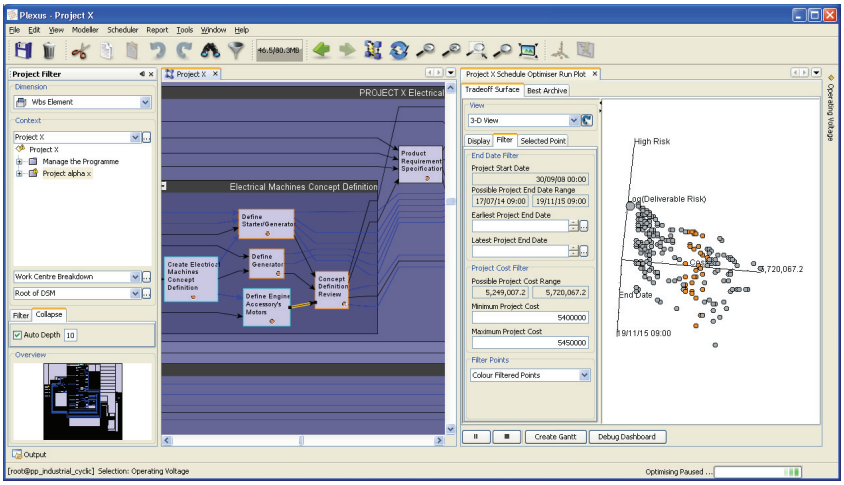

Figure 3 Project plans are shown as points in a 3D trade-off map of cost, lead time and refinement risk. Each point on this map is an optimal project plan that can be simulated, analysed, evaluated, and plotted as a Gantt chart.

Plexus Schedule Execution

Progress can be input, analysed and reported in Plexus using a rich set of analysis tool. If activities deviate significantly on execution, Plexus can re-optimise uncompleted activities, to provide the ideal route forward.

Alternatively plans can be exported to integrate with existing systems for progress monitoring and control.

Conclusion

- **Plexus is unique in its ability to undertake the early strategic planning challenge**
- **Plexus improves participation, efficiency and motivation**
- **Plexus reduces risk, lead time and cost of product development**
- **Plexus is highly visual, and has un-paralleled project visualisation**
- **Plexus is being exploited in Project Management, Systems Engineering, Knowledge Management, and Business Process Re-engineering in a growing number of blue chip companies.**

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