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# *How to Reduce Slips in Development Schedules*

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*Written by:*

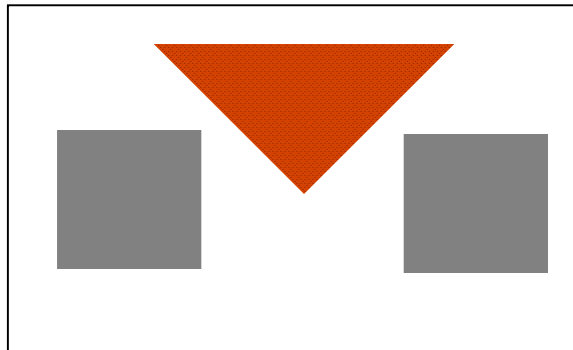
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# How to Reduce Slips in Development Schedules

Several factors contribute to schedule problems, not the least of which is how development teams or individuals can get wrapped into an issue that begins to drive the entire project into a spiral. Recognizing when it happens, and acting to minimize the effect are explored in this article.

## Are Product Development Delays Plaguing your Company?

Does it seem to be taking longer to get products to market? Are schedule slips becoming the norm? Does your development team seem to regularly get caught in a vortex that delays product launches?

These and many other questions are commonplace with management. Especially at crucial times, when the product development team seems mired in endless excuses or exhaustive explanations of why they need more time in the schedule.

There are many reasons for projects to stall including dependencies on external suppliers, funding, etc but the focus here is to examine the internal forces that can cause a development program to get hung up in the engineering group.

## What are the Causes for Development Delays?

First we'll consider what is happening at the moment, and then use the "wayback machine" to see what things could be done earlier in the project to mitigate the issue. The context for this description are product development teams, although there are similar applications for marketing projects, financial analyses, or other endeavors that involve specialists tinkering with the details and higher levels of oversight or management - that have strategic interest in the work product generated.

Typical causes for a project paralysis (not mutually exclusive):

- *Critical components or technologies not performing as expected:*  
Developers find out that what they thought would work isn't going to work the way they expected and revisions or retrenchments of technical approach are needed.
- *Critical product specifications are not being achieved.*  
Some key specification(s) of the product cannot be achieved to the target level even though several others are suitable - leading to a single-minded pursuit of meeting that spec.

- *New ideas on how to improve the product (better performance, lower cost, more reliable, etc) abound.*

Engineers or teams become obsessed with new solutions because, as engineers are wont to do, the new solution is more elegant and closer to the ideal than the previous.

In each of these cases, there are critical decisions that either need to be made by the project and/or engineering management personnel, or the lack of specific decision making in effect becomes a decision in itself..

### **Death by a Thousand Decisions**

To think of this in different terms, consider that the process of design, be it software, mechanical, electronic, etc is simply a sequence of thousands of decisions.

The bulk of these decisions are subtle or minor technical issues that skilled engineers make quite quickly. They are generally value decisions based on the accrued experience of the individual. During the course of the project, some decisions are beyond the individuals experience and require more scrutiny, and so are brought to the colleague level for group review. These decisions are either confirmed or revised based on the collective wisdom of the peers involved.

The next higher level of decision is of greater significance with more extensive impact on the program, often relating to demands on development resources or the program schedule. These are issues that a project manager should deal with directly in trying to maintain the balance of achieving the product goals as well as the corporate goals. Occasionally, these need to be brought to the attention of higher management in order to get a clarification or redirection on priorities and resources.

The highest level of decision making falls to the management team (whether a group or an individual) when technical or program issues requiring a decision have profound impacts on corporate strategic issues beyond the technical team and the program manager cannot resolve the issue independently.

### **Making Decisions at the *Most Appropriate* Level**

In his critical book "On a Clear Day You Can See General Motors", John Z. Delorean remarked that in GM fundamental decisions that should have been made at the peer or group level were being 'kicked upstairs' to a strategic planning group because the lower levels did not want to assume the responsibility (liability) for making a poor choice. The risk of doing so could derail a career with the company. Hence, the lowest risk option was to kick the issue upstairs. This is an example of paralysis since the entire system lost its focus on authority paths and ended up diverting the strategic planning resources to become tactical decision makers.

Another condition that occurs all too frequently is where upper level managers take a hand in every detail decision made – regardless of whether they are qualified (they often think they are) or they feel it's necessary to have an intimate understanding of what is going on in their organization at all levels. This is commonly referred to as micro-management and can devastate the effectiveness of a development team.

Regardless of the managers' intent, the net effect is to strip authority of the intermediate managers/supervisors as well as those working on the project, and create a sense of caution, fear, dread, and self-doubt among the skilled people who can make sound decisions – given adequate information on the strategic goals provided to them. Pity the poor program manager who is constantly circumvented by higher levels directing the development team. In this case, the program manager is always one step behind the latest program decisions – hopefully that doesn't sound familiar to the reader.

### **How to un-paralyze Your Team**

This is a crucial concept – to reign in rampant schedule delays: Decision-making at the appropriate level is required. Stripping authority from people who are “given adequate information on the strategic goals provided to them” is the core of nearly every case of paralysis within a development program. Conversely, *enabling* those empowered to deliver quality products in a fixed time-frame will help speed time-to-market.

Several years ago a local company instituted a policy regarding meetings and decisions that illustrates the subtle importance of decision authority. Before a meeting could be scheduled there were two mandatory criteria: 1) Purpose – the meeting had to be about an issue that needed resolving (no 'status' meetings); 2) Authority – the one person responsible for resolving or making the decision on the issue MUST be present at the meeting. If you think about it, without BOTH of those criteria included, there really isn't much point in having the meeting.

### **Ensure your Project Manager is Empowered to Lead**

Project managers are at the heart of developing products and should be tasked with making decisions that fit the overall strategic goals of the organization. Project managers are typically the interpreter and communicator in *both directions* of technical progress and corporate strategy. It is incumbent on project managers to help the skilled technical personnel assess their decisions wisely just as it is necessary for project managers to inform upper level management of progress or stumbling blocks encountered by the development staff in achieving those goals. This is so suitable adjustments can be made at all levels to move the project/product forward.

## Create an Environment for Your Project Managers to be Successful

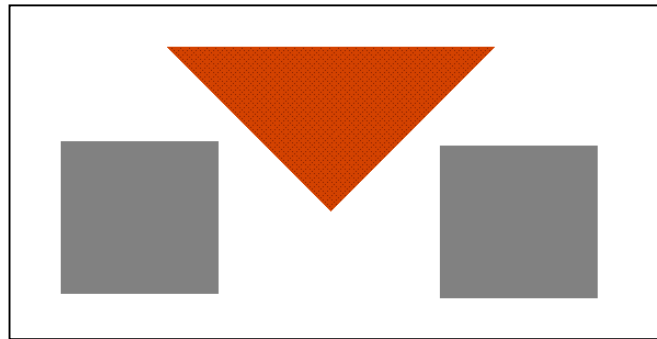
What started out as a description of paralysis by analysis actually reveals the greatest issue holding up project progress is often simply making timely and well balanced decisions (tradeoffs), which can only happen when both the tactical and the strategic elements of the organization can communicate effectively. Evaluate your project managers' level of autonomy, your communication processes and ensure your organization isn't in its own way.

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### **Author's Biography**

More than thirty years experience in defining and executing mechanical and electro-mechanical product and systems architecture, product design, detailed component design, thermal analysis, and simulations. Over 6 years in CTO/co-founder roles in two startup companies which included patent work, process brainstorming and simulation, equipment planning and acquisition, product concept development, and Activity Based Costing in operations.



## ME-Tech, LLC

The focus of the ME-Tech, LLC consulting practice is to serve industry with Mechanical Engineering expertise in all areas of product design including system architecture, prototype and production planning, detailed part design, system and device thermal management and analysis, EMI issues, design for manufacture and assembly (DFM/A), and tooling approval. Additional concerns of the consulting practice are air/fluid flow simulation, part stress analysis, coordination of ID resources, and mechanism development.

The integration of electronics with the appearance and structural integrity of the product is the domain of the Mechanical and Electro-Mechanical Engineer. Conception, design, and selection of appropriate materials, fabrication technology, and tooling strategies of the physical parts is the primary responsibility but it also extends into design for cost effective assembly, service, and care to meet the rugged requirements of the environment the product will be used in. Testing and verification of the components and the overall design prove the durability of the product. In a broader view, the Mechanical and Electro-Mechanical Engineer must cooperate and work synergistically with other disciplines in electronics, manufacturing, testing, marketing, and Industrial Design for the client to achieve a product that is appropriate, sustainable, and successful in the marketplace.

ME-Tech, LLC provides over 30 years direct experience in defining and executing mechanical and electro-mechanical product and systems architecture, product design, detailed component design, thermal analysis, and simulation.

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### ME-Tech, LLC Areas of Expertise

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- Startup Experience
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- Various Fabrication Technologies
- Material Handling
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