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Enhancing performance of New Product Development Projects in Auto Components Companies

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Date: 5th June 2012

The Issues at OEM

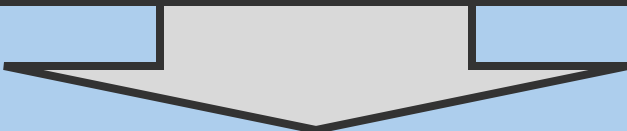
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The pressure on NPD resources have gone up significantly in last decade

- Pressure to lower lead time
- Pressure to launch more products per year

However the lead time performance of key vendors (dies and panel suppliers or process automation) has remained the same over the years

- Reliability is poor
- Lead time has not improved over the years.

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- Due to the above, most auto OEM are resorting to
 1. Opening more projects in WIP
 2. More “concurrent engineering” : taking decisions to proceed the next step, without crossing the stage gates (w/o approvals or complete specs)

Opening More Projects – Impact on Component Vendor

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- **Different marketing people within OEM drive their own projects**
 - At the same time projects have specific leaders in design and development who follow up for their projects (more closer to multiple single projects)
- **Each component vendors have multiple OEMs as their customers**
 - Typically component vendor do not dedicate projects to a designer (closer to multi-project environments)
- **Relationship of a auto component vendor with that of a OEM - The auto component vendor who develops the fastest has the highest chances of getting the component business.**

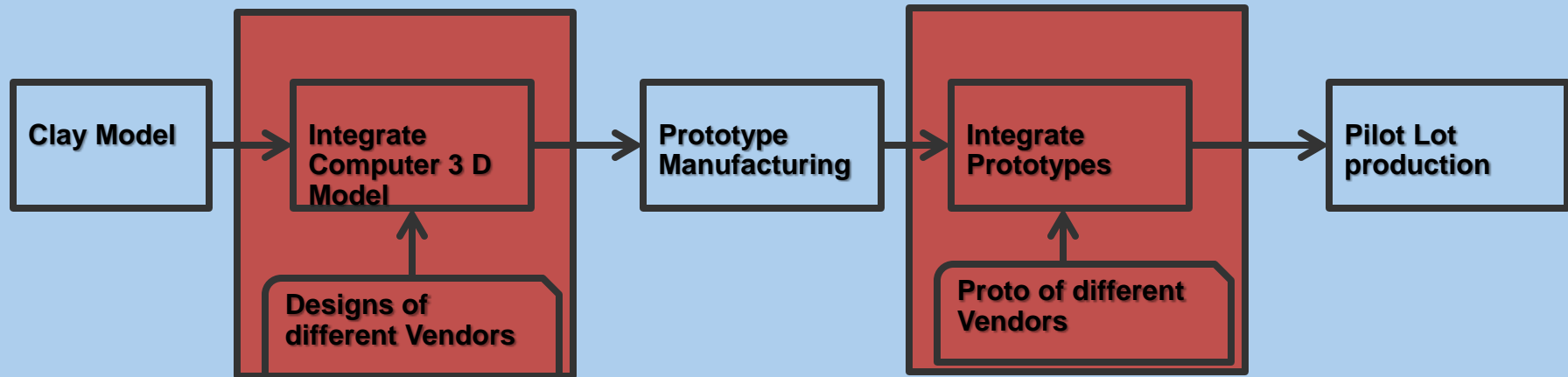
Resultant environment

Bad multitasking for auto component vendor triggered by urgencies from various agencies within an OEM and across OEMs

Impact of more “concurrency”

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Understanding the flow

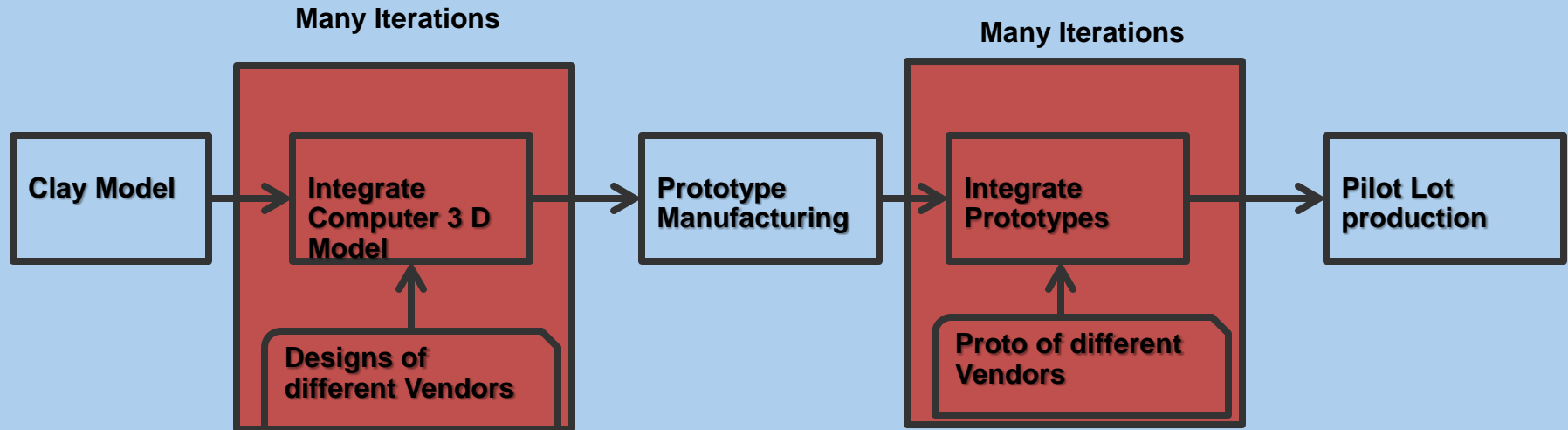


- **Frequent instances of rework**

- Horizontal Rework (change in one component affects other due to assembly issues)
- Vertical Rework (a change in component design leads to rework of design of machines or tool which help in production of the component)
 - At times even tool and machine vendors request change in component design to ensure manufacturability of their supply.
 - It is not uncommon to detect interference issues very late in the development process.

The Vendor's Environment

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- The interruptions and the variability of interruption between phases, forces the auto component vendors to keep many projects open at any point of time.
- Each project enters into a dormant phase(as perceived by the auto component vendor) and then suddenly moves to the same or next phase, followed by another dormant phase.
 - This creates an environment where resources are continuously shuffled

How vendor adds to the mess

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- **Frequent expediting also leads to situations where vendor does not complete preparatory kits before start of development (in the name of concurrency)**
 - Complete application engineering not done
 - Manufacturability check of designs before start of development
 - Hand over of designs in smaller packets based on pressures
- **The frequent priority changes create further de-synchronization of various parts and overall assembly is always found waiting for some or other part**

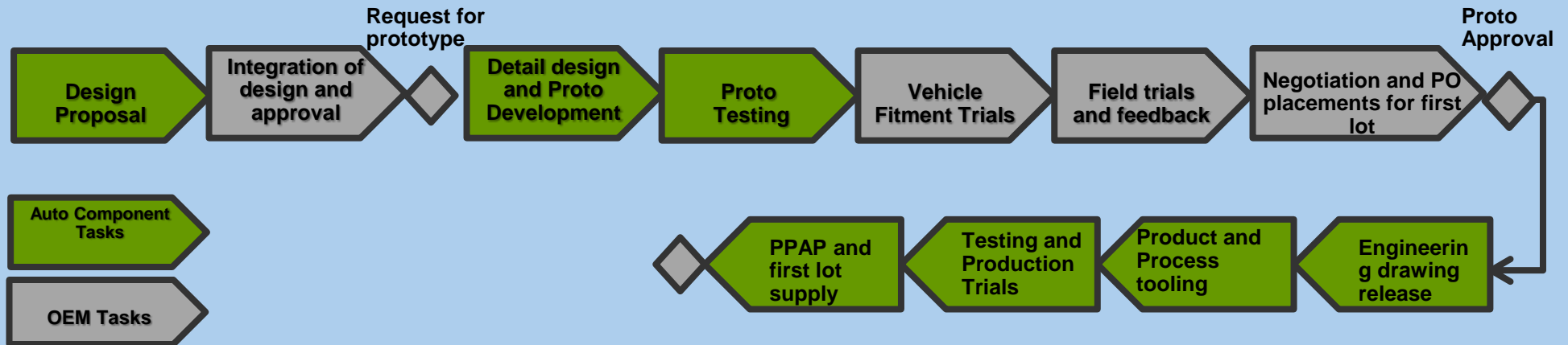
The Vendor's Environment

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- **At the time of testing, it is not uncommon to find a product failing to meet specs. Then design and development starts all over again on fast track, which in turn delays the other projects in the system**
- **Pressure of time is very high by the time project enters the last phase of start of supplies. Under the, pressure, at times, the component supplies are started without solving all teething production and quality problems.**
- **The pressure to deliver the next project, keeps many such non-stabilized components in the production system where the project work is still not perfectly complete which in turn also adds to interruptions in design/quality department**

The Way out

- What the Auto Component Company cannot do
 - Auto component vendors cannot increase the speed of the overall project
 - Auto component companies cannot influence the interruption time between phases of the project.

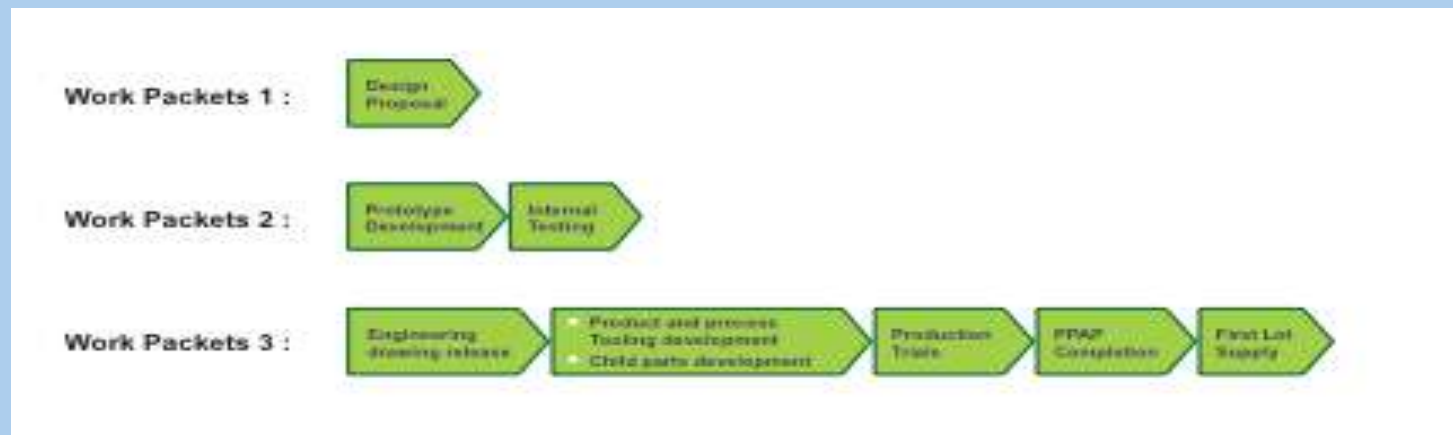


Auto component can however speed up a portion of the component project, which is within their locus of control, and at the same time, can minimize their own internal generated rework

The Way out

An auto component vendor has to focus on improving flow of work packets which are in their control (not overall project).

- 1) Dramatically reduce the lead time of independent work packets (almost more than half of current levels)
- 2) Reduce the queue of waiting work packets dramatically(by about 1/3rd of current levels) and always maintain the queue at that level.



First Step – Reduce Chaos in design

- **Multi-tasking between proposals and supporting work for work packet 2 and 3**
- **Frequent interruptions due to issues in regular manufacturing**
 - **WIP control at designer level**
 - **Concept of Happy Hours**
 - **Centralized queue management for priority of waiting buckets**
- **Full Kit rules**
 - **Start work at design with complete application engineering**
 - **And Handover work to development with complete check on manufacturability and in complete set**

The Way out

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- **Implement WIP rules for development and testing with simple project level priority rules**
- **Once these two simple rules are implemented, the amount of chaos in the system comes down drastically and excess capacity is revealed.**
- **The next step is the CCPM way of planning and buffer management for work packet 3**

The Next Step

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- **However the Real challenge of Auto Component Vendor is to ensure that the queue of pending non-released work never goes up beyond a level. If this goes up, then pressure of auto OEM will force you to break all the CCPM rules.**
 - **Ensure rapid POOGI process to keep releasing capacity in design and development**