We have two facilities, one in Region A and one in Region B. Sales, Product Engineering (PE), Manufacturing Engineering (ME), and Quality Engineering (QE) are located in the Region A facility. Drafting, Proto, and Manufacturing (MFG) are located in the Region B facility. Drafting and Proto report to PE, PE reports to the Engineering Manager. ME also reports to the Engineering Manager, not to MFG.

Sales receives a purchase order (PO) from a Customer who wants us to build a prototype for a non-standard bracket. The Customer provides functional requirements, specifications, a sketch, and the desired date for delivery of the prototype.

PE is in charge of developing an initial design specification. Sales meets with PE to review the Customer information. This can be a contentious meeting. PE often finds the requirements, specifications, and/or delivery date unacceptable. Sales says PE doesn’t have the proper customer focus.

Often, the initial design spec is not quite what the Customer asked for. PE has to meet with the Customer to review the design spec and sort out these discrepancies. This can develop into a series of meetings before the Customer approves the design spec.

The Customer-approved design spec goes to QE and ME for review. If either group has any problems with it, PE modifies the design spec accordingly, then meets again with the Customer to discuss the problems and modifications. If the Customer approves, the design spec goes back to QE and ME. PE often expresses frustration with how long the design spec review process takes.

After the design spec is approved by all concerned, Drafting creates the assembly drawing. The first draft goes to PE for review. If necessary, PE marks it up and sends it back to Drafting for revision. They usually go through several rounds of this. PE says that Drafting often sends it back without making all the requested changes. Drafting says that PE doesn’t always give them all the changes the first time around.

Once PE approves the drawing, it goes to QE, then ME for review. If either group has any problems with it, it goes back to PE, and then to Drafting for revision. After the PE-Drafting cycle is completed, it goes back to QE, then ME for review and approval from both groups. PE often expresses frustration with how long the drawing review process takes.

After the drawing is approved by all concerned, it goes to Proto. This is a special production area, separate from MFG, whose purpose is to build prototypes quickly. Proto is part of PE, and this is the way PE likes it. PE doesn’t want to fight for time on the production equipment in MFG to produce prototypes. Also, the Proto operators have a lot of experience, and can build almost anything PE sends to them.

If Proto has a problem with the drawing, it goes back to PE for mark-up, then to Drafting for revision, back to PE for approval, then to QE, then to ME for review and approval from both groups.

After Proto creates the prototype, PE sends it to the Customer for review. If the Customer approves the prototype, the MBDP is done. If the Customer doesn’t approve the prototype . . . ?