

- *Exchange* – When the research engineers directly support the production team, there's an implied reciprocal understanding that production will not attribute the problems their having on frequent product specification changes from the research team. Instead Production attributes delays on ESD's manufacturing specification.
- *Persuasive* – Doc's over-hyping appeal to Hunt on the merits of changing the hearing aid specifications represent a persuasive appeal to Hunt's emotions and don't fully reflect all of the consequences of adopting the new product specification.

Each of these forms of influence, while not necessarily negative, reflect the over-empowerment of the research department and contribute to the frequent product specification changes. Dr. Kalandry's team is effectively unchecked in their ability to exercise discretion over what and how the product is made. A reason for the current power structure may be the need to keep Dr. Kalandry engaged and employed at Resonus. Allowing the Doctor creative authority to present ideas and drive the company's product-line may be very profitable. Resonus needs to keep valuable members in the organization. However, the company must account for the cost of introducing his changes. While Dr. Kalandry may not be deliberately doing so, his elevated level of influence effectively represents a form of organizational politics because the frequent changes are not always in the best interest of the company, although they serve to reinforce Dr. Kalandry's reputation as a "genius" and his indispensability to the organization.

IV. Past References

One of our previous clients, Rayonier Advanced Materials, represents a similar manufacturing organization that produces engineered products with technical specifications. They experienced similar problems in struggling to meet scheduled product shipment dates. However, they were successfully able to reduce late shipments by adopting controls for the manufacturing specification for producing new products.

The product development process begins with the research department identifying new product specifications that customers want within the market. The marketing and sales team communicate customer issues and requests to the research group. Next, the research department formalizes the product specification, the executive team approves the product specification, and they submit them to the manufacturing technical department. Then, the manufacturing technical department develops the required manufacturing specifications for the production team. Finally, production rigorously follows the manufacturing specifications.

Only the technical department is authorizes changes to the manufacturing specifications and controls the information exchange between research's wishes and production's actual capabilities. By strictly controlling this information exchange, the technical department minimizes specification changes to the production schedule by preventing introduction of extraneous or unfeasible products at the last minute. The executive team's deliberate support and empowerment of the technical department ensure that the information exchange is controlled, and production stays focused on producing only appropriate products.

V. Recommendations

We present the following recommendations based off our analysis and real-world Rayonier Advanced Materials example for improving communication and change management within the production process.

- A. Frank Choy needs to be at a minimum present in all of Doc's research presentations to Hunt to ensure pros, cons, and schedule impacts are considered. Either formally, where all proposed ideas can go to Hunt through Choy or informally through a discussion with Choy and Doc. If possible, all impacted Directors should attend. Production Director, Jacqui should be present at these meetings to speak for impacts to production in terms of cost or complexity. If the product specification changes occur frequently, they can hold a reoccurring meeting to assess impacts. If that's too much of a time commitment, then a system for managing product specification change can be introduced to obtain engineering and production approval before being presented to Hunt for adoption or scheduling.
- B. Empower Frank Choy. A clean break from attributing all delays on the ESD. Instead all schedule impacts need to have an investigation to determine the core causes for the production delay.
 - Was it a sole decision from Production Director to change the schedule?
 - Was it the result of an incompatible manufacturing specification?
 - Was the result of a specification change where the specification wasn't received with enough time to update the manufacturing specification?

It may be a combination of them all. Diligently tracking these causes will ensure each director's department can be accountable and corrective action taken.

VI. Conclusion

Resonus Corporation is a successful manufacturing company that produces sophisticated hearing aid products. However, in recent year's customer delivery performance has shown inability to meet the required shipment dates for customer orders. Our analysis reveals engineering services may not be the core cause of delays. The engineering department does not currently have the powers in place to control manufacturing specification changes needed for the production department to maintain customer deliveries. These changes stem from an over empowerment of the research department and their ability to over-influence product decisions without fully reflecting the impact and time requirements for adopting the new specification. Based off our analysis and real world example we recommended placing a check and balance on these new specification changes, the directors can review proposed specification changes, assess impacts, and make realistic delivery commitments. Finally, we recommended that the company investigate schedule impacts going forward and find the core causes of production delay to correct them.