

Studio:

A  
Manufacturing  
Example...





## Case:

# Generic Turbine Blade Manufacturer

- A leading manufacturer of turbine blades for aerospace.
- Involves a very precise manufacturing process that involves growing the blade from a single metallic crystal.
- Recent exponential demand for new quieter, more efficient jet engine design has put pressures on supply-chain.
- Turbine blade manufacturing plant is now procured through a leasing model from a specialist machine vendor, who is also responsible for its maintenance.
- Manufacturing plant has already run 120% of operational hours before scheduled maintenance.



# Persona:

## Diane, Systems Engineer

- Diane is an experienced systems engineer, specialising in supply-chain management for jet turbine blade manufacture.
- She works within a small team of systems engineers who have responsibility for productivity of the service line.
- Diane is aware that the facility for which she is responsible is a highly sensitive element of the jet engine supply chain for which performance is critical.

# Diane's Journey

1

## Production

On arrival at the manufacturing facility, Diane walks through the turbine blade manufacturing facility. All the teams appear to be very focussed and working productively. The order book for their product is full and Diane is discussing options for further expansion.

2

## Process Interruption

It's mid-morning and the blade-casting plant signals a common fault alarm. Diane knows that process delays will have significant consequences for her customers and will have progressively impact overall plant productivity if not resolved quickly. She makes a call to the machine vendor.

5

## Plant Maintenance

A team from the machine vendor arrives in the afternoon and attempts to diagnose the problem. It seems that the issue is difficult to diagnose and that the machine will have to undergo an intensive forensic examination and re-commissioning process that will take many days to resolve..

4

## Supply Chain Management

Diane has to spend the remainder of her day coordinating with the facilities up and downstream supply chains. Today's process interruption has already resulted in a rise in costs for the business. She considers buying a standby blade-casting machine.

3

## Production Team

Without the blade-casting machine in operation, a 3rd of the production team located at the plant are unable to do their jobs. Many are allowed to leave work early, whilst a few remaining find something useful to do

# Diane's Journey Re-Imagined

## Production

On arrival at the manufacturing facility, Diane walks through the turbine blade manufacturing facility. The order book for their product is full and Diane is discussing options for further expansion. She notes that the blade-casting plant has a scheduled shutdown for essential maintenance over lunch-time.

## Process Interruption

It's mid-morning and the blade-casting plant is shutdown for essential maintenance. The vendors maintenance team have arrived on-site with some replacement parts.

## Plant Maintenance

Over an extended lunch-break for the production teams, the vendors maintenance team have commissioned with the results of live monitoring analysed by specialists both on-site and at the vendors facilities.

## Supply Chain Management

The relatively short interruption to production means, the vendors maintenance team replace parts of the beginning of the week and has not had a significant impact on the facilities up or downstream supply chains. There is no need for reactive coordination.

## Production Team

A 1/3rd of the production team have had an extended lunch break today whilst plant has undergone essential maintenance. However, this is a routine occasion once per month that is planned into their normal working hours.



# Persona:

## Daniel, Customer Success Manager

- Daniel is a customer success manager who has worked with the business to support sales of new engines to client carriers.
- He has worked at the company for 5-years, having previously worked in sales of car parts.
- Daniel manages a sales team of 10 employees.

# Daniel's Journey

2

## Performance Review

Daniel's team have been very successful in sales of new engines recently. They have achieved all their performance targets, over which time sales of the business' latest model engines have seen exponential growth.

1

## Meeting with Client Carrier

Daniel has a meeting in the morning with a client carrier. The carrier is positive about the performance of the business' engines in terms of fuel efficiency and noise. Although the engines are premium cost, it seems there are good prospects that the client will make a large new order for new engines.

4

## Meeting with Systems Engineers

Daniel has a meeting with systems engineers who support the business' manufacturing plant. It appears that the business is having problems with plant reliability, meaning stocks of available turbine blades are running low. There is concern that demands being placed on the business for replacement parts cannot reasonably be met.

5

## Phone Call with Client Carrier

Daniel has a phone call later that day with the client carrier. His news that he cannot guarantee the replacement parts demanded is not well received. The client makes a decision to postpone procurement of new engines for the time being.

3

## Target Setting

Daniel needs to consider new sales targets for his team at the end of the day. With evident pressures on the production line to supply replacement parts, he believes the team will do well to sustain similar performance and therefore decides that they should remain broadly unchanged.

# Daniel's Journey Re-Imagined

## Performance Review

Daniel's team have been very successful in sales of new engines recently. They have achieved all their performance targets, over which time sales of the business' latest model engines have seen exponential growth.

## Meeting with Client Carrier

Daniel has a meeting in the morning with a client carrier. The carrier is positive about the performance of the business' engines in terms of fuel efficiency and noise. Although the engines are premium cost, it seems there are good prospects that the client will make a large new order for new engines.

## Meeting with Systems Engineers

Daniel has a meeting with systems engineers who support the business' manufacturing plant. Reliability at the business' production facilities is at historically high levels. Its seems there is capacity on the production line to continue to scale support of new orders.

## Phone Call with Client Carrier

Daniel has a phone call later that day with the client carrier. He is able to confirm that the price of new engines is unchanged from previous sales. The carrier makes a significant new order for new engines.

## Target Setting

Daniel needs to consider new sales targets for his team at the end of the day. With spare capacity on the production line, Daniel is confident that the business' leading technology will result in further growth in sales of new engines. He sets more ambitious targets for his sales team.



## Intervention:

# Remote Fault Detection and Diagnostics

- Remote fault detection and diagnosis is one of the technologies that has led to a significant re-imagining of Diane and Daniel's user journeys.
- A need to schedule servicing of the blade-casting plant was identified by the vendor through continuous remote monitoring.
- The vendors maintenance team were able to diagnose parts that needed replacement before arrival on-site.
- Maintenance was carried out quickly and conveniently, with plant testing and commissioning supported remotely by technicians at the vendors specialist facility.