

Manufacturing line optimization

Optimizing manufacturing production plans and schedules during disruptions



Machine-learning
forecasting models



Sophisticated optimization
algorithms



Effective workforce
planning

The Issue

Manufacturing operations leaders face rapidly evolving circumstances during a pandemic that can affect the health and safety of their employees while managing ongoing efforts to maintain productivity and minimize risk. They must make sense of the deluge of new, relevant data sources such as information on the pandemic spread, quarantine restrictions for personnel and transportation limitations for movement of goods. Most manufacturers have a limited ability to integrate that data with their existing data sources. In addition, their traditional analytics infrastructure was likely not designed with this degree of disruption in mind. Their existing tools and resources may be unable to scale quickly to make the best possible decisions to continue producing critical goods while protecting the health of their employees.

The Challenges



Fluctuating constraints. Whether responding to unexpected disruptions in supply, ongoing changes in production due to order substitution, logistics, challenges with staff scheduling due to quarantines or distancing protocols, reworking a production plan or line schedule can quickly become an overwhelming task. SAS® uses time-series and machine-learning forecasting to build models that consider irregular demand.



New variables affecting planning decisions. In many cases, existing information systems were designed for steady-state operations using existing data sources and manual, labor-intensive processes. SAS helps by enabling manufacturers to rapidly add new data sources and run new scenarios to make a formidable task less daunting.



Quick decisioning. Making well-informed decisions is essential to help keep employees safe and maintain production of critical goods. Organizations do not have extensive time available to develop and deploy new ways of doing things. SAS empowers you to explore, analyze and visualize the results from a variety of scenarios, using your existing infrastructure and putting those decisions into action.

Our Approach

Whether you are faced with planning problems or scheduling challenges, SAS can help. Our automated, proven, scalable capabilities extend the power of your current systems to reduce volatility and manage risk - even if you do not have data scientists on staff. Planners can boost productivity and unlock new possibilities. Schedulers can maximize their results despite extensive constraints. Managing unique challenges, such as reducing the number of employees on a shift to maintain safe distancing requirements or whether to prevent crossover of employees between lines or plants, becomes more manageable.

We approach the problem by providing software and services to help you create plans for:

- **Supply** - where to purchase raw materials.
- **Allocation** - how to resolve constraints in the context of limited supply.
- **Line optimization** - what to produce, on which production line, in which order and with which team members.

SAS simplifies data integration from diverse systems and can be deployed wherever and whenever you need the insights.

The SAS® Difference

Whether your data is at the edge in your operations, in a manufacturing execution system (MES) or in your data center, SAS helps you identify important signals, understand what they mean and take action in real time. Analysts consistently rank the SAS analytics platform as a market leader.

Our proven capabilities include:

- An experienced, global expert network ready to support your in-house staff or work off-site to deliver the results you need. These experts are accustomed to working effectively with diverse teams, whether local or remote.
- The ability to quickly integrate internal data such as workforce and inventory information, and external data such as COVID-19 projections, quarantine restrictions and transportation constraints.
- What-if analyses to evaluate different scenarios and determine effective courses of action.
- A solution that's scalable on an enterprise level, so it benefits all necessary stakeholders.
- Expertise in applying the full range of forecasting and machine-learning models, including optimization modeling.

Production Planning Optimization

Adds several key aspects to decision making



Maximize
margin



Maximize return
on assets



Minimize
idle times



Optimize
throughput



Increase
service level

Learn more at the [SAS COVID-19 Resource Hub](#)

