



Production Overview

- A production plan answers two questions:
 - 1. How many of each type of snack bar should we produce, and when?
 - 2. What quantities of raw materials should we order so we can meet that level of production, and when should they be ordered?
- A successful company must be able to:
 - Develop a good production plan
 - Execute the plan
 - Make adjustments when customer demand differs from the forecast

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Fitter Snacker's Production Problems

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- Fitter Snacker's production problem is deciding *how many* snack bars to make and *when* to make them
- Fitter Snacker's main production problems are in the areas of:
 - Communication problems
 - Inventory problems
 - Accounting and purchasing problems
- All of which are exacerbated by Fitter Snacker's unintegrated information system















Production Planning Steps

- Process of breaking production plan down into smaller time increments
- Detailed Scheduling:
 - Development of a detailed production schedule based on production plan from demand management
 - Scheduling method depends on production environment
- Production:
 - Uses the detailed schedule to determine what products to produce and what staffing is required

Production Planning Steps

- Material Requirements Planning:
 - Determines amount and timing of raw material orders
- Purchasing:
 - Takes quantity and timing information from MRP and creates purchase orders, which It transmits to qualified suppliers

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Sale and Operations Planning Effectiveness

- ERP systems provide sophisticated SOP tools, but require commitment from both parties to be successful
 - Without cooperation and agreement on forecasts, sales promotions and production plans, a company will have:
 - Excess quantities of some products
 - Shortages of others
 - Higher costs due to overtime and expedited shipping
 - Successful SOP needs a culture of cooperation, which requires top management support to develop













Fitter Snacker's production plan for January

		Week 1	Week 2	Week 3	Week 4	Wee	k 5
Demand Management		1/2 - 1/5	1/8 - 1/12	1/15 - 1/19	1/22 - 1/26	1/29 - 1/31	2/1 - 2/2
Monthly Demand	NRG-A	4134	4134	4134	4134	4134	4198
	NRG-B	1772	1772	1772	1772	1772	1799
Working Days in Week		4	5	5	5	3	2
Working Days in Month		22	22	22	22	22	20
MPS	NRG-A	752	940	940	940	984	
Weekly Demand	NRG-B	322	403	403	403	422	

Demand Managen	nent	Jan 2	Jan 3	Jan 4	Jan 5	Jan 6
Monthly Demand	NRG-A	4134	4134	4134	4134	4134
	NRG-B	1772	1772	1772	1772	1772
Working Days in Month		22	22	22	22	22
MPS	NRG-A	188	188	188	188	188
Daily Demand	NRG-B	81	81	81	81	81

Figure 4.14 Fitter Snacker's production plan for January: The first five weeks of production are followed by a day-by-day disaggregation of week 1.

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Fitter Snacker's NRG bars Bill of Material						
		Quantity		1		
	Ingredient	NRG-A	NRG-B	1		
For Fitter Snacker,	Oats (lb)	300	250]		
the BOM is the	Wheat germ (lb)	50	50			
"recipe" for a 500 lb.	Cinnamon (lb)	5	5			
batch of snack bar	Nutmeg (lb)	2	2			
dough	Cloves (lb)	1	1			
	Honey (gal)	10	10			
	Canola Oil (gal)	7	7			
	Vit./Min. Powder (lb)	5	5			
	Carob Chips (lb)	50				
	Raisins (lb)	50				
	Protein Powder (lb)		50			
	Hazelnuts (lb)		30			
	Dates (lb)		70			
Figure 4.16 The bill o	f material (BOM) for Fitte	r Snacker's I	NRG bars	34		

Lead Times and Lot Sizing

- The BOM can be used to calculate how much of each material is required to produce a finished product
- Determining the timing and quantity of purchase orders requires information on lead-times and lot sizing
- For purchased products, the lead time includes:
 - Time for supplier to receive and process order
 - Time to take material out of stock, package it, load it on a truck and deliver it to the manufacturer
 - Time required at manufacturer to receive the material:
 - Unload the truck
 - Inspect the materials
 - Move to storage location or production line



























ERP and Supply Chains

- ERP systems can facilitate supply chain efficiency
 - Production plans can be shared along the supply chain in real time
 - Integration of accounting allows managers to evaluate impact of plans on total supply chain costs
- Measures of supply chain performance include:
 - Cash-to-cash cycle time
 - Total SCM costs
 - Initial fill rate
 - Initial order lead time
 - On-time performance

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Another Look—Supply Chain Management with Customer Collaboration

- Wal-Mart uses data to gain competitive advantage with its supply chain
 - Purchase data from bar code scanners is recorded in a massive data warehouse at Wal-Mart headquarters
 - Wal-Mart uses data mining techniques to predict what customers will buy at different times of the year
 - This data is shared with Wal-Mart suppliers to plan production
- Wal-Mart also allows its 5,000 suppliers to directly access its data warehouse through its Retail Link program
- Wal-Mart is leading the effort to include RFID technology
- SAP's R/3 software has RFID capabilities