Budgeting and Financial Planning

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Budget

- A budget is a quantitative expression of a proposed plan of action by management for a future time period and is an aid to the coordination and implementation of the plan
- It covers both financial and non-financial aspects of these plans and acts as a blue-print for the company to follow the forthcoming period.
- Budgets are a major feature of management control systems in general. They:
  - compel strategic planning including the implementation of plans,
  - provide performance criteria,
  - promote communication and coordination within the organization, and
  - affect motivating and wider organizational processes.

Strategy and Plans

- Budgeting is mot useful when done as an integral part of an organisation's strategic analysis.
- Strategy can be viewed as describing how an organization matches its own capabilities with the opportunities in the marketplace to accomplish its overall objectives. It includes consideration of such questions as:
  - What are the overall objectives of the organisation?
  - Are the markets for its product local, regional, national or global? What trends will affect its markets? How is the organization affected by the economy, its industry and its competitors?
  - What forms of organisational and financial structures serve the organisation best?
  - What are the risks of alternative strategies, and what are the organisation's contingency plans if its preferred plan fails?

Roles of Budgets (I)

- A framework for judging performance: budgeted performance measures can overcome two key limitations of using past performance as a basis for judging actual results.
  - One limitation is that past results incorporate past miscues and substandard performance
  - A second limitation of past performance is that the future may be expected to be very different from the past.
- Coordination and communication:
  - Coordination is the meshing and balancing of all factors of production or service and of all the departments and business functions so that the company can meet its objectives.
  - Communication is getting those objectives understood and accepted by all departments and functions.

Roles of Budgets (II)

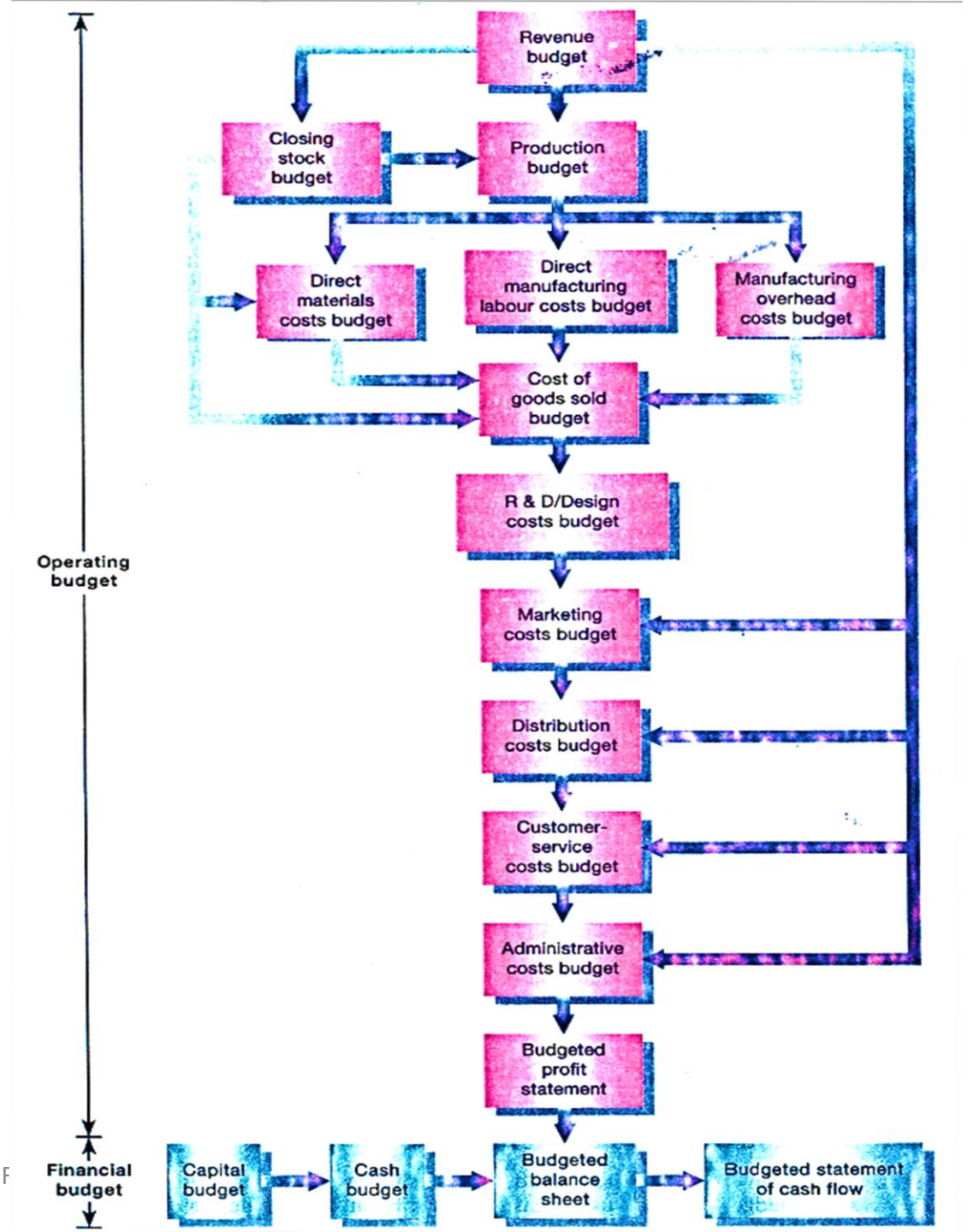
- Motivation and wider organisational processes: Budgets help managers, but budgets need help.
  - Top management has the ultimate responsibility for the budgets of the organisation they manage.
  - Management at all levels, however, should understand and support the budget and all aspects of the management control system.

Time and Budgets

- The purpose(s) for budgeting should guide the time period chosen for the budget.
- If the purpose is to budget for the total profitability, a five-year period (or more) may be appropriate (covering design, manufacture, sales and after-sales support).
- A rolling budget is a budget or plan that is always available for a specified future period by adding a month, quarter or year in the future as the month, quarter or year just ended is dropped.
- Thus, a 12-month rolling budget for March 2005 to February 2006 period becomes a 12-month rolling budget for the April 2005 to March 2006 period the next month, and so on. There is always a 12-month budget in place. Rolling budgets constantly force management to think concretely about the forthcoming 12 months, regardless of the month at hand.

The Master Budget as a Planning Tool

- After organization goals, strategies and long-range plans have been developed, work begins on the master budget.
- The master budget is a detailed budget for the coming fiscal year.



Master Budget: Illustration

- Basic data and requirements:
  - Wessex Engineering is a machine shop that uses skilled labour and metal alloys to manufacture two types of aircraft replacement parts: Regular and Heavy-Duty, Wessex managers are ready to prepare a master budget for the year 2006.
  - Assume the following:
    - The only source of revenues is sales of the two parts. Non-sales-related revenue, such as interest income, is assumed to be zero.
    - Work-in-progress stock is negligible and is ignored.
    - Direct materials stock and finished goods stock are costed using the first-in, first-out (FIFO) method.
    - Unit costs of direct materials purchased and finished goods sold remain unchanged throughout the budget year (2006).
    - Variable production costs are variable with respect to direct manufacturing labour-hours. Variable non-production costs are variable with respect to revenues. Both assumptions are simplifying ones made to keep our example relatively straightforward.
    - For computing inventoriable costs, all manufacturing costs (fixed and variable) are allocated using a single allocation base – direct manufacturing labour-hours.

Master Budget: Illustration

- **Basic data and requirements:**
  - After carefully examining all relevant factors, the executives of Wessex Engineering forecast the following figures for 2006:

Direct materials		
Material 111 alloy		€7 per kilogram
Material 112 alloy		€10 per kilogram
Direct manufacturing labour		€20 per hour
	Product	
Content of each product unit	Regular aircraft part	Heavy-Duty aircraft part
Direct materials 111 alloy	12 Kilograms	12 kilograms
Direct materials 112 alloy	6 kilograms	8 kilograms
Direct manufacturing labour	4 hours	6 hours

Master Budget: Illustration

- **Basic data and requirements:**
  - All direct manufacturing costs are variable with respect to the units of output produced. Additional information regarding the year 2006 is as follows:

	Product	
	Regular	Heavy-Duty
Expected sales in units	5 000	1 000
Selling price per unit	€ 600	€ 800
Target closing stock in units*	1 100	50
Opening stock in units	100	50
Opening stock in euros	€ 38 400	€ 26 200
	Direct materials	
	111 Alloy	112 Alloy
Opening stock in kilograms	7 000	6 000
Target closing stock in kilograms*	8 000	2 000
* Target stocks depend on expected sales, expected variation in demand for products, and management philosophies such as just-in-time stock management.		

Master Budget: Illustration

- **Basic data and requirements:**
  - At the anticipated output levels for the Regular and Heavy-Duty aircraft parts, management believes the following manufacturing overhead costs will be incurred:
    - Variable: €26 per direct manufacturing labour-hour
    - Fixed: €420 000 manufacturing overhead cost for production within relevant range
  - Other (non-production) costs expected to be incurred:

Variable:	R&D/product design	€ 76 000	
	Marketing	133 000	
	Distribution	66 500	
	Customer service	47 500	
	Administrative	152 000	€ 475 000
Fixed:	R&D/produce design	60 000	
	Marketing	67 000	
	Distribution	33 500	
	Customer service	12 500	
	Administrative	222 000	395 000
Total			€870 000

Master Budget: Illustration

- The following supporting budget schedules will be prepared :
  - Revenue budget
  - Production budget (in units)
  - Direct materials usage budget and direct materials purchases budget
  - Direct manufacturing labour budget
  - Manufacturing overhead budget
  - Closing stock budget
  - Cost of goods sold budget
  - Other (non-production) costs budget.

Master Budget: Illustration

- **Step 1: Revenue budget.**
- The revenue budget (schedule 1) is the usual starting point for budgeting. Why? Because production (and hence costs) and stock levels generally depend on the forecast level of revenue.

Schedule 1: Revenue budget for the year ending 31 December 2006			
	Units	Selling price	Total revenues
Regular	5 000	€ 600	€ 3 000 000
Heavy-Duty	1 000	€ 800	€ 800 000
Total			€ 3 800 000

- Pressures can exist for budgeted revenues to be either over- or underestimates of the expected amounts.
- Budgetary slack: the practice of underestimating budgeted revenues (or overestimating budgeted costs) in order to make budgeted targets more easily achievable. Introducing budgetary slack makes it more likely that actual revenues will exceed budgeted amounts.

Master Budget: Illustration

- **Step 2: Production budget (in units).**
- After revenues are budgeted, the production budget (schedule 2) can be prepared. The total finished goods units to be produced depends on planned sales and expected changes in stock levels:

Budgeted production (units)	=	Budgeted sales (units)	+	Target closing finished goods stock (units)	-	Opening finished goods stock (units)

Schedule 2: Production budget (in units) for the year ending 31 December 2006		
	Product	
	Regular	Heavy-Duty
Budgeted sales (schedule 1)	5000	1000
Add target closing finished goods stock	1100	50
Total requirements	6100	1050
Deduct opening finished goods stock	100	50
Units to be produced	6000	1000

Master Budget: Illustration

- **Step 3: Direct materials usage budget and direct materials purchases budget.**
- The decision on the number of units to be produced (schedule 2) is the key to computing the usage of direct materials in quantities and in euros

Schedule 3A: Direct materials usage budget in kilograms and euros for the year ending 31 December 2006

	Material		
	111 Alloy	112 Alloy	Total
Direct materials to be used in production of Regular parts (6000 units x 12 and 6 kg – see schedule 2)	72 000	36 000	
Direct materials to be used in production of Heavy-Duty parts (1000 units x 12 and 8 kg – see schedule 2)	12 000	8 000	
Total direct materials to be used (kg)	84 000	44 000	
Direct materials to be used from opening stock (under a FIFO cost-flow assumption)	7000	6000	
Multiply by cost per kilogram of opening stock	€7	€10	
Cost of direct materials to be used from opening stock: (a)	€ 49 000	€60 000	€109 000
Direct materials to be used from purchases (84 000 – 7000; 44 000 - 6000)	77 000	38 000	
Multiply by cost per kilogram of purchased materials	€7	€10	
Cost of direct materials to be used from purchases: (b)	€539 000	€ 380 000	€ 919 000
Total costs of direct materials to be used: (a) + (b)	€ 588 000	€ 440 000	€ 1 028 000

Master Budget: Illustration

- **Step 3: Direct materials usage budget and direct materials purchases budget.**
- Schedule 3b calculates the budget for the direct materials purchases, which depends on the budgeted direct materials to be used, the opening stock of direct materials, and the target closing stock of direct materials:

Purchases of direct materials	=	Usage of direct materials	+	Target closing stock of direct materials	-	Opening stock of direct materials

Schedule 3B: Direct materials purchases budget for the year ending 31 December 2006			
	Material		Total
	111 Alloy	112 Alloy	
Direct materials to be used in production from schedule 3A (kg)	84 000	44 000	
Add target closing direct materials stock (kg)	8 000	2 000	
Total requirements (kg)	92 000	46 000	
Deduct opening direct materials stock (kg)	7 000	6 000	
Direct materials to be purchased (kg)	85 000	40 000	
Multiply by cost per kilogram of purchased materials	€7	€ 10	
Total direct materials purchase costs	€595 000	€ 400 000	€ 995 000

Master Budget: Illustration

- **Step 4: Direct manufacturing labour budget.**
- These costs depend on wage rates, production methods and hiring plans.

Schedule 4: Direct manufacturing labour budget for the year ending 31 December 2006					
	Output units produced (schedule 2)	Direct manufacturing labour-hours per unit	Total hours	Hourly wage rate	Total
Regular	6 000	4	24000	€ 20	€480000
Heavy-Duty	1 000	6	6 000	€ 20	€ 120 000
Total			30 000		€ 600 000

Master Budget: Illustration

- **Step 5: Manufacturing overhead budget.**
- The total of these costs depends on how individual overhead costs vary with the assumed cost driver, direct manufacturing labour-hours

Schedule 5: Manufacturing overhead budget for the year ending 31 December 2006		
	At budgeted level of 30 000 direct manufacturing labour-hours	
Variable manufacturing overhead costs		
Supplies	€ 90 000	
Indirect manufacturing labour	210 000	
Direct and indirect manufacturing labour fringe costs	300 000	
Power	120 000	
Maintenance	60 000	€ 780 000
Fixed manufacturing overhead costs		
Depreciation	220 000	
Property taxes	50 000	
Property insurance	10 000	
Supervision	100 000	
Power	22 000	
Maintenance	18 000	420 000
Total manufacturing overhead costs		€1 200 000

Master Budget: Illustration

- **Step 6: Closing stock budget.**
- Schedule 6A shows the computation of unit costs for the two products. These unit costs are used to calculate the costs of target closing stocks of direct materials and finished goods in schedule 6B.

Schedule 6A: Computation of unit costs of manufacturing finished goods in 2006

		Product			
		Regular		Heavy-Duty	
	Cost per unit of input*	Inputs*	Amount	Inputs*	Amount
Material 111 alloy	€7	12	€84	12	€84
Material 112 alloy	10	6	60	8	80
Direct manufacturing labour	20†	4	80	6	120
Manufacturing overhead	40‡	4	160	6	240
Total			€ 384		€524

*In kilograms or hours.
†Data are from p. 496.
‡Direct manufacturing labour-hours are the sole allocation base for manufacturing overhead (both variable and fixed). The budgeted manufacturing overhead rate per direct manufacturing labour-hour of €40 was calculated in step 5.

Master Budget: Illustration

- **Step 6: Closing stock budget.**
- Schedule 6A shows the computation of unit costs for the two products. These unit costs are used to calculate the costs of target closing stocks of direct materials and finished goods in schedule 6B.

Schedule 6B: Closing stock budget as at 31 December 2006				
	Kilograms	Cost per kilogram		Total
Direct materials				
111 alloy	8 000*	€7	€56 000	
112 alloy	2 000*	10	20 000	€ 76 000
	Units	Cost per unit		
Finished goods				
Regular	1 100†	€ 384‡	€422 400	
Heavy-Duty	50†	524‡	26 200	448 600
Total closing stock				€524 600

*Data are from p. 496

†Data are from p. 496.

‡From schedule 6A, this is based on 2006 costs of manufacturing finished goods because under the FIFO costing method, the units in finished goods closing stock consist of units that are produced during 2006

Master Budget: Illustration

- **Step 7: Cost of goods sold budget.**
- The information from schedules 3 to 6 lead to schedule.
- Note that the following holds:

Cost of goods sold	=	Opening finished goods stock	+	Cost of goods manufactured	-	Closing finished goods stock

Schedule 7: Cost of goods sold budget for the year ending 31 December 2006			
	From schedule		Total
Opening finished goods stock, 1 January 2006	Given*		€64 600
Direct materials used	3A	€ 1 028 000	
Direct manufacturing labour	4	600 000	
Manufacturing overhead	5	1 200 000	
Cost of goods manufactured			2 828 000
Cost of goods available for sale			2 892 600
Deduct closing finished goods stock, 31 December 2006	6B		448 600
Cost of goods sold			€ 2 444 000
*Given in the description of basic data and requirements (Regular €38400, Heavy-Duty €26200)			

Master Budget: Illustration

- **Step 8: Other (non-production) costs budget.**
- Schedules 2 (to 7 cover budgeting for Wessex's production area of the value chain. For brevity, other areas of the value chain are combined into a single schedule.

Schedule 8: Other (non-production) costs budget for the year ending 31 December 2006		
Variable costs		
R&D/product design	€ 76 000	
Marketing	133 000	
Distribution	66 500	
Customer service	47 500	
Administrative	152 000	475 000*
Fixed costs		
R&D/product design	60 000	
Marketing	67 000	
Distribution	33 500	
Customer service	12 500	
Administrative	222 000	395 000
Total costs		€ 870 000
*Total variable cost for schedule 8 is €0.125 per revenue euro (€475 000 ÷ €3 800 000)		

Master Budget: Illustration

- **Step 9: Budgeted operating profit statement.** Schedules 1, 7 and 8 provide the necessary information to complete the budgeted operating profit statement.

Budgeted operating profit for Wessex Engineering for the year ending 31 December 2006			
Revenues	Schedule 1	€ 3 800 000	
Costs			
Cost of goods sold	Schedule 7	2 444 000	
Gross margin		1 356 000	
Operating costs			
R&D/product design costs	Schedule 8	€ 136 000	
Marketing costs	Schedule 8	200 000	
Distribution costs	Schedule 8	100 000	
Customer service costs	Schedule 8	60 000	
Administration costs	Schedule 8	374 000	870 000
Operating profit			€ 486 000