

Factory overhead budget

Lecture of Corporate Budgeting

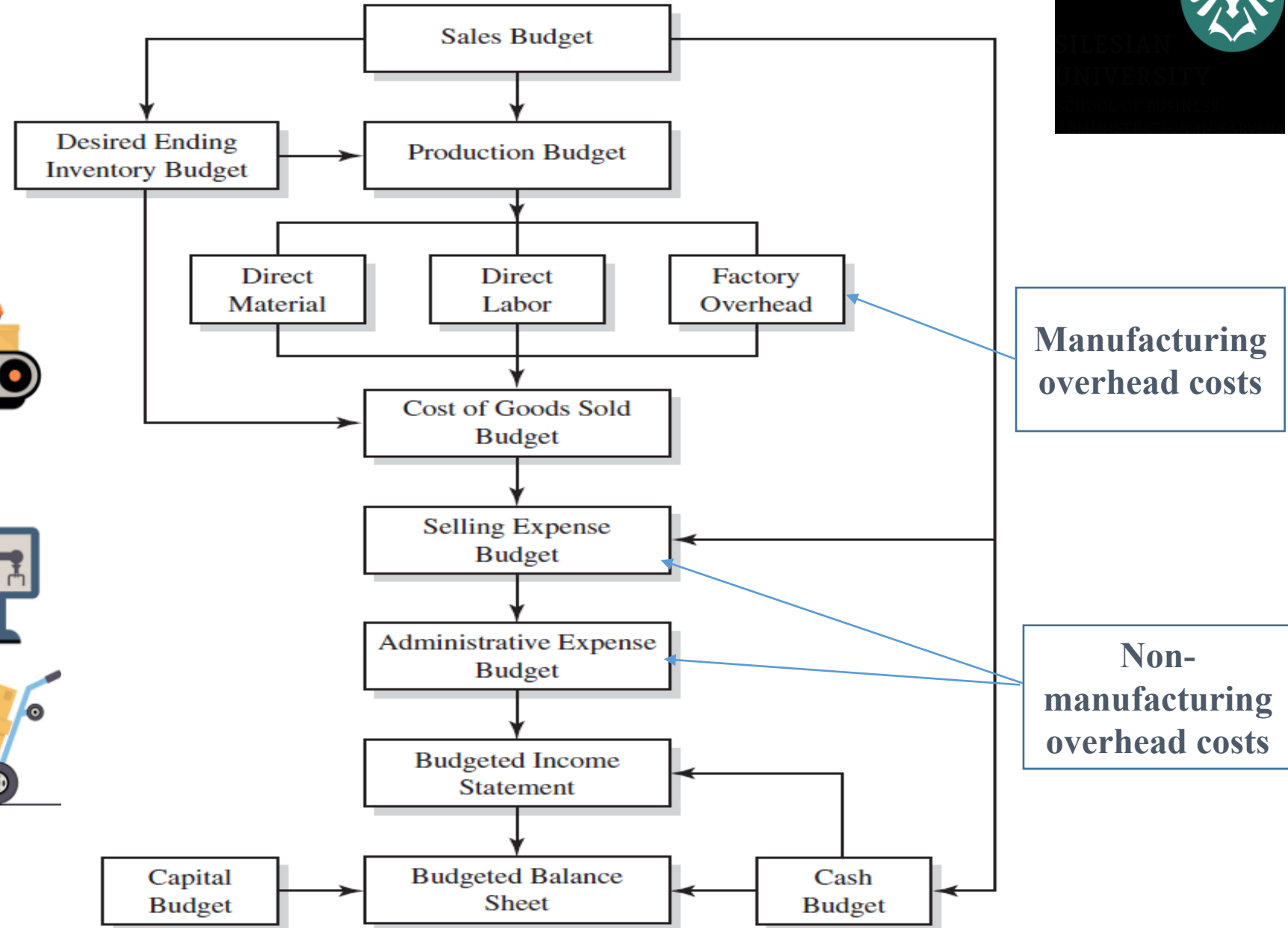


**SILESIAN
UNIVERSITY**

SCHOOL OF BUSINESS
ADMINISTRATION IN KARVINA

[Mgr. Tetiana Konieva, Ph.D](#)

LOGICAL SCHEME OF BUDGETING PROCESS



MANUFACTURING AND NON-MANUFACTURING OVERHEAD



Manufacturing overhead: This is the indirect cost associated with the production process and includes all expenses that do not attribute directly to a specific product, such as:

- Factory rent
- Utilities
- Depreciation of equipment
- Wages of indirect labor
- Manufacturing overhead are parts of the Cost of production manufactured

Non-manufacturing overhead: This is the indirect cost associated with the general operation of a business and includes all of the expenses unrelated to the production process, such as:

- Administrative salaries
- Marketing and advertising expenses
- Office rent and utilities
- Legal and accounting fees
- Insurance
- Non-manufacturing overhead are not included into the Cost of production manufactured, but are parts of the Price of production sold



FACTORY OVERHEAD BUDGET



Factory Overhead Budget – schedule of all expected manufacturing costs except for direct material and direct labor. Factory overhead items include indirect material, indirect labor, factory rent, and factory insurance.

Factory Overhead Budget can be considered as budget of the other direct costs and general production costs

FACTORY OVERHEAD BUDGET



Indicator	Quarters				For the year
	I	II	III	IV	
1. Other direct costs:					
1.1. Spoilage costs*	104.05	105.91	108.31	110.71	428.99
1.2. Depreciation of equipment**	819.00	819.00	819.00	819.00	3276.00
2. General production costs***	10014.93	10194.03	10425.03	10656.03	41290.02
3. Total (row 1+ row 2)	10937.98	11118.94	11352.34	11585.74	44995.01
4. Depreciation of equipment	819.00	819.00	819.00	819.00	3276.00
5. Cash outflow for the other direct and general production costs (row 3- row 4)****	10118.98	10299.94	10533.34	10766.74	41719.01

*spoilage is wastage or loss of material that occurs during the manufacturing process

** depreciation of equipment, that takes part in manufacturing process

***general production costs (for maintaining the workshop, where production manufactured; salary of the workshop director, workshop cleaner managers; heating and lightening of the workshop, depreciation of workshop and other equipment, that supports but does participate in production process)

****all calculated budgets will be reflected in Cash plan. As far as **depreciation** does not entail a cash outflow, it **must be deducted** from the total factory overhead budget in computing cash disbursement for factory overhead.

CLASSIFICATION OF FACTORY OVERHEAD COSTS



Overhead
Budget



- 1. Facility Costs:** These include rent, property taxes, insurance, and maintenance necessary to run the manufacturing facility.
- 2. Utilities:** These include electricity, water, and gas used in manufacturing.
- 3. Supervision and Management:** These include salaries, benefits, and other costs associated with supervisory and management personnel responsible for overseeing the manufacturing process.
- 4. Equipment Costs:** These include depreciation, maintenance, and repair costs for machinery and equipment used in manufacturing.
- 5. Quality Control:** These include costs associated with ensuring the quality of the manufactured products, such as inspection, testing, and auditing costs.
- 6. Materials Handling and Storage:** These include costs for moving and storing materials used in the manufacturing process, such as forklift operation, pallets, and warehouse space.
- 7. Quality Control:** These costs include the cost of inspection, testing, and quality assurance of the finished product before its shipment to the customer.
- 8. Research and Development:** These include costs associated with researching and developing new products or improving existing ones.
- 9. Taxes and Licenses:** These include taxes and licenses required to operate a manufacturing facility, such as property taxes, business licenses, and environmental permits.

Factory overhead costs can be classified as direct, indirect, variable, fixed and mixed

TYPES OF COSTS

Fixed costs

- Costs independent of the quantity produced

Variable costs

- Costs dependent on the quantity produced

Indirect costs

- Costs that can not be assigned directly to a particular performance
- It is necessary to budget them in a certain way

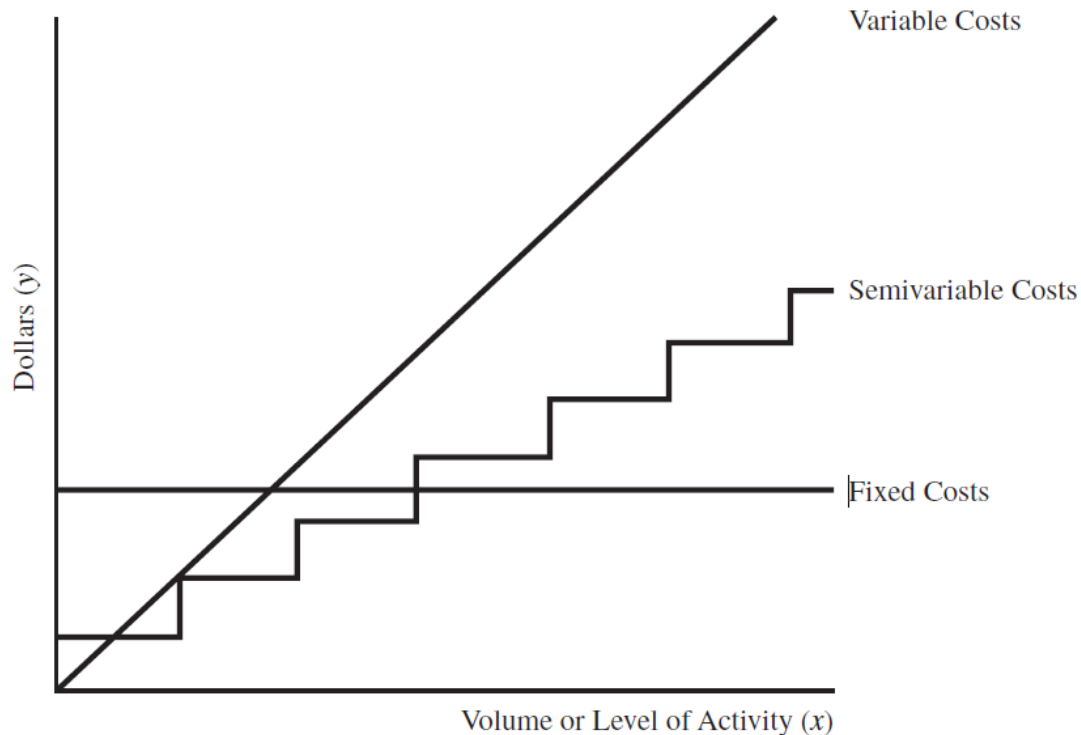
Marginal costs

- The cost of the last produced unit
- An increase in the total cost of producing one extra product

Opportunity costs

- The cost of sacrificing opportunities

COST BEHAVIOR PATTERNS



- **Variable Factory Overhead** vary in total with changes in volume or level of activity: Supplies, Receiving costs, Fuel and power, Overtime premium, Spoilage and defective work
- **Fixed costs** do not change in total regardless of the volume or level of activity: Property taxes, Rent on factory building, Depreciation, Indirect labor, Insurance, Patent amortization
- **Mixed (Semivariable) Costs** contain both a fixed element and a variable one: Supervision Maintenance and repairs, Inspection Compensation insurance, Service department costs, Employer's payroll taxes, Utilities Rental of delivery truck, Fringe benefits

SPOILAGE COSTS



- Spoilage is wastage or loss of material that occurs during the manufacturing process. It can also be used to classify badly damaged material that is used for processing a product.
 - Spoilage is used to refer most commonly to raw materials whose lifespan is very short.
 - In [accounting](#), spoilage is classified into two types – **normal spoilage** and **abnormal spoilage**.
- Normal spoilage is the kind of spoilage that happens during the production process that business owners can say is normal and acceptable.
 - Abnormal spoilage, on the other hand, is spoilage that is beyond the normal point, wherein the level is unexpectedly high. It may be due to defective machinery, sub-standard quality of materials, and even incompetent operators.
 - For example, a fruit importer understands that transporting fruits by sea or ground will definitely incur spoilage for various reasons. One reason is that some fruits age faster than the rest, making them rot faster. Some fruits might become spoiled because of the way they were handled as they were moved from one vehicle to the next. The importer then may consider a pound of rotten fruits to be normal spoilage when it arrives at his shop and may charge it to the “[cost of goods sold](#).”





- Spoilage, especially normal spoilage, is always part of the production process, as it is unavoidable and expected. However, it is important to take notice of it and do something about it before it becomes abnormal spoilage. Here are some reasons why:
 - It can signal a need to evaluate the [production process](#). A part of the production process can be responsible for the spoilage. For example, a conveyor belt in a cookie manufacturing plant that is too loose and makes erratic movements can cause the cookies to break.
 - Spoilage can indicate a mistake that is continuously and unknowingly made by an operator. When evaluated, the operators may be required to undergo re-training or training in a new process.
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- The main **difference between spoilage and by-products** is that spoilage is considered scrap or trash that cannot be used anymore for any other purpose. By-products, on the other hand, are products that can still be of use or may be sold as a product other than what was originally created.
 - For example, a restaurant that serves chicken barbecue can consider chicken barbecue as its main product while the excess barbecue sauce it makes may be sold as an entirely different product to customers. It can now be considered a by-product. Meanwhile, spoilage will be the parts of the chicken that cannot be used anymore, such as the feet and the head.

DEPRECIATION - DISTRIBUTION THE VALUE OF FIXED ASSETS



Original (beginning) value of fixed assets = Price of purchase without Value Added Tax + Freight (transportation) charges + Installation, testing + Insurance + Custom duties + Registration fees.....

Original value (for example, equipment = \$100000; Useful life = 5 years (period, during which the assets serve)

First year	Second year	Third year	Fourth year	Fifth year
\$100000/5 years/12 months=\$1667 = costs per month	\$100000/5 years/12 months=\$1667 = costs per month	\$100000/5 years/12 months=\$1667 = costs per month	\$100000/5 years/12 months=\$1667 = costs per month	\$100000/5 years/12 months=\$1667 = costs per month

**\$100000 = cash outflow from investing activity ≠ costs at once;
it is distributed during useful life; monthly part (\$1667) will be depreciation cost**

DEPRECIATION COSTS



Depreciation (amortization) as cost can be included into the:

- **cost of production** (direct material costs (materials, energy, gas, water, spent for the manufacturing of the production) + direct labor costs (salary of employees, that manufacture the production) + Cost of spoiled production + **depreciation** of equipment, that takes part in manufacturing process + general production costs (for maintaining the workshop, where production manufactured; salary of the workshop director, workshop cleaners; heating and lightening of the workshop) +
- **administrative costs** (salary of the director, financial services departments, HR department, supply department, **depreciation** of the administrative fixed assets, representative expenses, audit, etc.),
- **sales costs** (packaging, advertising, transportation of products, **depreciation** of refrigerators, storage of finished products, salary of sales department)

TERMS OF DEPRECIATION



- **Original value**= Price of purchase without Value Added Tax + Freight charges + Installation, testing + Insurance + Custom duties +Registration fees
- Depreciation – distribution of original value of tangible assets during their useful life
- Amortization – distribution of original value of intangible assets during their useful life
- Useful life – period, during which the assets serve
- Book value = original value – accumulated depreciation
- Salvage (residual) value – price of asset's selling at the end of useful life (0, >0.....)
- Depreciated value = original value – salvage value

THE FOUR BASIC METHODS OF DEPRECIATION



- Straight-line
- Sum-of-the-years' digits
- Double declining balance
- Units of production

THE FOUR BASIC METHODS OF DEPRECIATION



Straight-line method:

$$\text{Annual depreciation} = \frac{(\text{original value} - \text{salvage value})}{\text{useful life}}$$

Double declining balance:

$$\text{Annual depreciation} = \frac{\text{Book value} * 2}{\text{useful life}}$$

$$\text{Depreciation per month} = \text{Annual depreciation} / 12$$

THE FOUR BASIC METHODS OF DEPRECIATION



Sum-of-the-years' digits:

$$\text{Annual depreciation} = \frac{(\text{original value} - \text{salvage value}) * \text{quantity of years up to the end of useful life}}{1+2+3+4+5+6+\dots+10 \text{ useful life}}$$

Units of production:

$$\text{Annual depreciation} = \frac{\text{Annual amount of production from asset} * (\text{original value} - \text{salvage value})}{\text{total amount of production from asset}}$$

$$\text{Depreciation per month} = \text{Annual depreciation} / 12$$

DEPRECIATION FUND: EXAMPLE



Price of the unit of production \$1000=

1.cost of production (direct material costs (materials, energy, gas, water, spent for the manufacturing of the production) + direct labor costs (salary of employees, that manufacture the production) + Cost of spoiled production + **depreciation of equipment, that takes part in manufacturing process** + general production costs (for maintaining the workshop, where production manufactured; salary of the workshop director, workshop cleaners; heating and lightening of the workshop) +

2.profit (administrative costs (salary of the director, financial services departments, HR department, supply department, **depreciation of the administrative fixed assets**, representative expenses, audit, etc.), **sales costs** (packaging, advertising, transportation of products, **depreciation of refrigerators**, storage of finished products, salary of sales department), **profit, tax profit, dividends**)

+

3.Excise + 4.custom duty + 5.VAT value added tax

- In case of purchase, the buyer pays \$1000 to the company. From this amount company covers all the costs, mentioned above, except profit and depreciation. Profit belongs to shareholders and received money as depreciation should be accumulated into the depreciation fund for repairing, reconstruction, modernization, buying (building) new fixed assets
- So, this fund is formed by buyers, that is why original value should be calculated properly, including all costs, connected with fixed assets. This original value will be distributed as depreciation and included into the price.
- The only task of the company is selling the production, collecting money from buyers and forming the depreciation fund

WAYS TO REDUCE OVERHEAD COSTS



- **Increase efficiency through equipment upgrades and trained employees.** Upgrading older equipment to better new ones, you can produce more for the same amount of resources. Training your employees can also increase their efficiency, giving you better results per person instead of simply hiring more.
- **Decrease excess inventory and idle equipment.** Storing extra products or mothballed equipment “just in case” [costs tens of thousands in factory overhead](#). Consolidate those areas to both decrease overhead and increase alternative revenue streams.
- **Reuse equipment and supplies from other factories.** Ask other facilities if they have extra equipment or materials that they’re not using – and if it could be [“redeployed” to your factory](#). Redeployment would save time and money in searching for and installing brand-new equipment while decreasing your overhead costs.

- **Build strong relationships with vendors** in order to get discounts and special contracts with favourable conditions
- **Preventative maintenance of the equipment**
- **Brainstorming among the employees, connected with the problem of costs reducing.**
- **Motivation of the employees, who propose rational decision**
- **Automation of manufacturing processes**
- **Accurate inventory management**
- **Outsourcing of the personal, that can help in some additional operations**

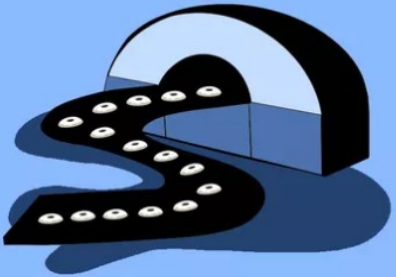
TOTAL COSTS OF PRODUCTION MANUFACTURED



Production Costs

[prə-'dæk-shən 'kɒsts]

The direct and indirect costs businesses face from manufacturing a product or providing a service.



- Production costs refer to the costs a company incurs from manufacturing a product or providing a service that generates revenue for the company.
- Production costs can include a variety of expenses, such as labor, raw materials, consumable manufacturing supplies, and general overhead.
- Total product costs can be determined by adding together the total direct materials and labor costs as well as the total manufacturing overhead costs.
- **Budget of total cost of production:**

Indicator	Quarters				For the year
	I	II	III	IV	
1. Total direct costs for materials	6503.20	6619.5	6769.5	6919.5	26811.70
2. Total direct labour costs	20788.57	21160.33	21639.84	22119.33	85708.07
3. Other direct costs:					
3.1. Spoilage costs	104.05	105.91	108.31	110.71	428.99
3.2. Depreciation of equipment	819	819	819	819	3276
4. General production costs	10014.93	10194.03	10425.03	10656.03	41290.02
5. Cost of finished products (row 1+ row 2+ row 3.1+ row 3.2+ row 4)	38229.76	38898.78	39761.68	40624.58	157514.79

Cost of production per unit = total costs of production/total units produced



THANK YOU FOR ATTENTION!

