Al Farabi University

- Theme Other Costing Techniques. DIGITAL COSTING
- Management Department
  - “Cost Management” Course
  - Dr., professor Adambekova A.A.

Costing Digital Products

- A digital product typically refers to a product that is stored, delivered and consumed in an electronic format.

For example, a company may release a game that can be played on its website or IOS or Android apps. A digital product can also refer to digital media that will be distributed such as a television programme or music album.

we must consider digital products as bundles of features

- Features can be added and changed by individual consumers giving each user a bespoke experience through choosing the features that they want and don't want. For example: Computer or Console Games
- It may even be that features become products in their own right when unbundled from the product. For example: Facebook's messenger

Digital Products V/s Physical Products

Marginal cost is the additional cost of producing an additional unit of product equal to the change in total costs divided by the change in volume of production

Where they differ	Physical Products	Digital Products
Marginal cost	Key element of total cost (meat in cutlets)	Virtually zero
Standard costing	Key to determining total cost	Few applicable standards
Overheads	Absorbed based on activity drivers	Drivers difficult to determine
Pricing	Cost drives prices	Target price might drive target cost
Timing of costs	Upfront and predictable	Spread over product life and harder to estimate

we said that **Standard costing** is based on setting standards for expenses (2 meters of fabric for 1 dress)

for example, the number of labor-hours to sew 1 dress

if a ITprogram can be sold for $100,000, then the programmer's services will cost about the same

Typical Costs and Cost Patterns

- Staff costs: Many staff costs will be specific to the product or project.

E.g.: Mobile phone app design

- Infrastructure, platform and payment types: There will be costs associated with the platform on which digital products will be launched. Infrastructure services include infrastructural components such as where the app is hosted, where data is stored and how the data is delivered. E.g.: Cost of Servers, Data Storage, etc.

  Each payment type added to the product would incur additional costs for the product.

- Functionality: Individual product functions may be costed separately. For example, in a mobile phone app there may be a payment function for accessing additional content.

- Design and development: There may be shareable design elements for products. Many computer games, for example, use the same game 'engine'. For example, the Frostbite engine is used in games as varied as FIFA, Battlefield and Need for Speed.

Typical Costs and Cost Patterns

- Marketing: Many digital products will be allocated a fixed marketing budget which will need to be carefully planned.
- IT Support services and testing: IT specific maintenance costs for infrastructure and Testing will be the key factors and costs before the digital product is launched.
- Royalty and license costs: There may also be royalty and license costs for the product. License fees tend to be a fixed amount paid on production of the product pre-launch.
- Inventory costs: A major advantage of digital products is that there will be no inventory of the product.
- Administrative services: Administrative costs are the most difficult to anticipate as they will largely depend and differ based on each individual app.

Digital products and decision making

Adambekova Ainagul

Cost benefit analysis for launching new products, will be complicated for digital products due to many problems such as:

- The timing and frequency of costs: Forecasts will have to be made for the time taken for each activity, the number of staff required for each element, prospective sales volumes, etc.

  E.g.: Development Costs, Royalties, Costs of updates or change of platforms.

- Costs for shared functions: Few costs may have to be shared and absorbed across a number of products and it can be difficult to determine the drivers associated with these costs

- Determining benefits: It will be complicated to determine the benefits of the product, because of the unknown lifespan of the product and the fact that the same product can be sold over and over again.

Digital costing

- Digital costing systems use technology to allow them to understand and ‘read’ product designs and plans in order to find the best components to achieve product goals. They can gather and feed information into manufacturing items to make the entire operation more efficient, flexible and effective.
- The systems can provide information on marginal, total and average product costs that are much more detailed than those produced from non-digital systems, the information is obtained more quickly and product costs become more accurate

These can bring large operational and strategic benefits to organisations who employ such systems.

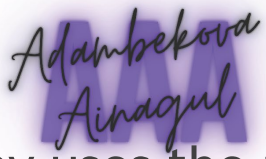
Benefits of Digital Costing Systems

- A Streamlined system
- Accessibility to important Financial Information
- Ease of use and improved speed and productivity
- Increased data security
- Cost-Effective
- Reliability and Scalability
- Facilitate standardization

scalability - the ability to use for making various decisions, for example, digitized data on fixed costs can be used not only in calculating costs, but also in maximizing profits, determining the salary of a certain category of employees, setting prices for goods, optimizing costs

easier and faster, and most importantly, to prove the calculation of norms with arguments

Case 1



- The company uses the process method of cost accounting. The company produces three types of products, information on which is presented below:

	Product X	Product Y	Product Z
Annual production (units)	160000	200000	100000
Batch size (unit)	100	50	25
Number of checks per batch	3	4	6

The cost of conducting the audits was $150,000.
The inspection costs per unit of product Y were?

Solution

	Product X	Product Y	Product Z	Total
Annual production (units)	160000	200000	100000	
Batch size (unit)	100	50	25	
Number of batches	1600	4000	4000	
Number of checks per batch	3	4	6	
Number of checks	4800	16000	24000	44800

Driver cost = $150,000/44,800 = $3.35 inspection fee.
Cost per unit of product Y ($3.35 × 16,000)/200,000 = $0.27
Correct answer: $0.27

Case 2

- ABC Company uses a process costing system. The company produces three types of products, information about which is given below
- Total material movement costs for the period are $10,000
- What is the cost of moving materials per unit of product Gamma?

	Product Alfa	Product Beta	Product Gamma
Annual production (units)	1000	1350	750
Batch size (unit)	200	135	30
Number of material movements per batch	1	2	4

Solution

Adambekova Ainagul

	Product Alfa	Product Beta	Product Gamma	Total
Number of batches	1 000 / 200 = 5	1 350 / 135 = 10	750 / 30 = 25	
Number of movements	1 * 5 = 5	2 * 10 = 20	4 * 25 = 100	125

Cost per material move = $10,000 / 125 moves = $80
Gamma Product Cost = $80 * 100 moves = $8,000
Cost per unit of Gamma = $8,000 / 750 units = $10.67

Correct answer: $10.67

Case 3

- ABC Company uses the process costing method. The company produces three products, detailed information about which is given below:
- Annual equipment commissioning costs are $150,000.
- What will be the start-up costs per unit of product B?

	Product A	Product B	Product C
Annual production (units)	40,000	100,000	10,000
Batch size (unit)	50	50	5
Number of commissioning operations per batch	3	4	6

Solution

Adambekova Ainagul

- It is important not to forget that the total number of commissionings is the number of batches × the number of commissionings per batch.
- For Product A: volume 40,000/50 units. × 3 = 2,400 commissioning
- For Product B: volume 100,000/50 units. × 4 = 8,000 commissioning
- For Product C: volume 10,000/5 units. × 6 = 12,000 commissioning
- Total 2,400 + 8,000 + 12,000 = 22,400 commissioning
- Driver Rate = $150,000/22,400 = $6.70 Commissioning Fee
- 8,000 commissioning of Product B costs: 8,000 × $6.7 = $53,600
- Commissioning costs per unit of Product B = $53,600/100,000 units. = $0.54
- Correct answer: 0.54

Case 4

A manufacturing company uses a process costing method. The overhead costs for the period for the three activities are:

Which of the following statements are true?

	Product Alfa	Product Beta
Annual production (units)	4,000	3,000
Batch size (unit)	100	200
Number of production cycles	20	18
Number of machine hours per unit of production	10	12
Number of quality checks per batch	6	8

Case 4

Below are period data for two derivative products:

Cost group	Total Costs USD
Mechanical restoration	152000
Organization of production	19000
Quality control	4950

Solution

	Product Alfa	Product Beta	Total
Number of batches	4 000 / 100 = 40	3 000 / 200 = 15	55 batches
Total number of checks	40*6 = 240	15 * 8 =120	360 checks
Quality control costs per inspection			$4 950 / 360 checks = $13,75
Quality control costs per product	$13,75 * 240 = $3 300	$13,75 * 120 = $1 650	
Number of machine hours	10 h *4,000 un.= 40,000	12 h* 3,000 un = 36,000	76 000 h
Number of production cycles	20 cycles	18 cycles	38 cycles

Solution

- The cost object rate for machining activities is $2 per machine hour.
- $152 000 / 76 000 = $2
- The cost object rate for production organization activities is $500 per production cycle.
- $19 000 / 38 cycles = $500
- Correct answers:
- The cost object rate for the machining activity is $2 per machine hour
- The cost object rate for the manufacturing activity is $500 per production cycle

Case 5

- Below are the financial results of the VR Company for the past period:
- The company produces a single product with a production volume of 130,000 units during the year.
- During the year, Customer Z placed 200 orders, which required 400 hours of sales force and 50 hours of research. The total volume of purchases made by Client Z from Company VR during the year was 2,000 units.
- Calculate the profit that VR Company earned from Client Z using the process costing method.

Storage device	% overheads	Cost Driver	Volume of transactions
order processing	25%	number of orders	50,000
consulting	40%	Consultants' opening hours	20,000
research	35%	department opening hours	10,000

Case 5

Adambekova Ainagul

VR analyzed its costs for the purposes of the process method of accounting and was able to allocate all of its overhead costs to one of three cost accumulators:

Revenue	13 000
Direct materials	(2 600)
Direct labor	(1 300)
overheads	(1 000)
Profit	8 100

Solution

Storage device	overheads	Allocation Rate
order processing	25% × 1,000,000	$250,000/50,000 = $5 per order
consulting	40% × 1,000,000	$400,000/20,000 = $20 per hour
research	35% × 1,000,000	$350,000/10,000 = $35 per hour

- Total contribution margin = $8,100 + constant $1,000 = $9,100
- Marginal profit per unit. = $9,100/130 = $70
- This means that Client's marginal profit Z = $70 × 2,000 units. = $140,000
- Then Client Z's profit = $140,000 - [$5 × 200 + $20 × 400 + $35 × 50] = $129,250
- Correct Answer: $129,250