

**Radana Hojná**

Technical University of Liberec

---

## **COSTING APPLICATION WITHIN A COMPANY'S INTERNAL MANAGEMENT**

---

**Abstract:** Historically, the oldest purpose of costing is to provide information on the costs of individual products, works and services realized by a company aiming to establish itself in the market. This task is well fulfilled by full costing as an important tool for the solution of long-term decision-making tasks in a modern enterprise. Under the constantly changing conditions of a market environment characterized by the permanently increasing share of indirect (overhead) costs in the total costs of a company, the importance of new requirements by managers for the different classification of costs in the costing structure is growing. Besides the division of costs into direct and indirect, an emphasis is placed on the variable and fixed costs classification. The costing then provides a different view on the calculated items, unlike a simple allocation to a certain output. The application of variable costing considerably contributes to the improvement of the cost management process in enterprises.

**Keywords:** cost classification, costing formula, full costing, variable costing.

### **1. Introduction**

Full costing is a traditional way of cost calculation (costing). In certain aspects it is, however, no longer suitable as recent businesses require the more efficient management of company costs. One of the reasons for this is the fact that this system was designed at the beginning of the twentieth century when the business environment was predominantly made up of heavy industries. The cost structure was significantly affected by the huge consumption of raw materials, direct labor and other direct inputs and direct costs of production (direct material and direct labor costs) which represented more than 90% of total costs. The traditional costing systems using labor and consumption of material costs as a cost-allocation base for the allocation of indirect costs were therefore able to determine the product costs quite precisely [5, p. 178].

Within the scope of business management, costing is an important tool, especially for a company's internal management (appreciation, reconciliation, analysis and control). Costing is an essential source of information, especially for the:

- determination of intra-plant prices for products, works or services (or any parts thereof) manufactured by or executed in the individual intra-plant departments,

- compilation of cost budgets for operating divisions,
- appreciation of unfinished production, half-finished products and finished products,
- evaluation and analysis of production efficiency by comparing the actual costs spent for the relevant product with the budget (expected costs) determined prior to the start of production,  
monitoring and evaluation of cost trends with regard to products, works and services in various periods [8, p. 147].

Variable costing emerged as a reaction to the problems and limitations associated with the application of absorption costing. This approach is based on the combination of costs classified on the basis of their dependence on change in production volume. The costing formula that represents the variable costing states the variable and fixed costs separately, as they are absolutely different in their nature. The most important benefit of the separate management, monitoring and assessment of variable and fixed costs is the possibility of the more efficient management of the costs incurred. The management of variable costs is based on the determination of a specific cost target. On the other hand the management of fixed costs is rather aimed at the maximum utilization of production capacities. This approach to cost management allows to manage the costs in a rational way, thus helping to improve the enterprise's overall efficiency. The aim of this paper is to emphasize the importance of both costing approaches under existing economic conditions, as well as to carry out an analysis of the application of these methods by business enterprises in the Czech Republic.

## 2. Absorption costing

Business process management often requires resource information in the form of costing representing the relationship amongst the costs expended on the production of a calculation (cost) unit. This is so-called *absorption costing* quantifying (absorbing) all the costs expended on the production of a specific product. The costing is expressed by a *standard costing formula*. In a modern enterprise, the costing formula should always be customized so it truly reflects local conditions and meets the site's specific requirements. For this purpose the formula should be adapted with regard to its structure, scope of calculated costs and their division, level of detail and structure of subtotals.

In most cases the costing formula, referred to as the *standard costing formula*, has the following structure [13, p. 107]:

direct material  
direct labor costs  
other direct costs  
indirect (overhead) costs

---

---

**FACTORY COSTS**

administration and acquisition overhead expenses

---

**ACTIVITY COSTS**

sales and distribution overhead expenses

---

**TOTAL ACTIVITY COSTS**

profit (loss)

---

**ACTIVITY PRICE**

Absorption costing allocates to a specific activity all costs expended both *directly and indirectly* in connection with the realization thereof. It is based on the division of costs into direct and indirect costs. It, however, completely ignores the existence of variable and fixed costs, which means that these costs are allocated to the relevant activity together thus disregarding their different nature. Full costing is therefore a tool expressing the calculated values (costs) only statically. The value of costs in activity costing is only true if the volume and assortment of the activities/performances remain unchanged. Full costing's application is, in fact, complicated due to the existence of fixed costs, as the share of these costs in total costs has been constantly rising due to various reasons. With the production volume growing, the share of fixed costs (overhead) per production unit is falling, which means that the average factory costs per cost unit are decreasing too. This effect is not reflected in the absorption costing principle at all [3, p. 205].

Another problem is the process of the allocation of common indirect (overhead) costs to a cost unit (unit of calculation). Various calculation techniques are used for this purpose (most frequently *division costing* or *overhead rates costing*) that allow to express the overhead costs per unit of production, however with a certain level of inaccuracy. The total costs of the product can therefore never be calculated correctly due to the inaccurate allocation of indirect costs.

Despite the above mentioned insufficiencies, the full costing method is considered as the traditional method of cost calculation and remains irreplaceable under the current conditions of our business entities. The allocation of all costs to the subject of costing is especially meaningful for the long-term analyses of the cost demand factor of activities performed, for the determination of the prices of custom-made jobs or as an expression of change in the internal inventory. The product price must – *from a long-term perspective* – always cover at least *all costs expended*. As the price must include all the commonly realized costs, it is most accurately determined using absorption costing. All costs realized in a certain period are allocated using the full costing method, more or less accurately, to products and services manufactured in the same period. The overhead (common, fixed) costs have different sources. Using a correctly selected cost-allocation base (monetary or natural), a part of the

overhead costs is allocated to each source of costs (using the overhead rates costing method). This costing method has been – despite the obvious insufficiencies – considered in the Czech business practice as the universal procedure for the allocation of costs that are common for multiple types of products manufactured in the same production plant or department [7, p. 100].

The exact and accurate determination of total product costs by means of an approximate calculation of costs per cost unit is – even with the maximum possible effort and care and using the standard costing methods – *simply impossible*. Overhead costs – by their very nature – cannot be allocated to concrete actions. Such a relation – if determined – is always forced and artificial and therefore not accurate. In absorption costing indirect (fixed) costs are allocated to a unit of output (action) on the basis of the expected volume of production, despite these costs having actually nothing to do with the unit of output. Moreover the costing does not reflect the utilization of production equipment capacities and the efficiency of such use.

When a company makes its decisions with regard to the assortment composition of its production, these decisions may be incorrect as the full costing makes use of an inexactly determined share of fixed costs (overheads). At the same time the efficiency of utilization of the production resources (machinery and equipment) may be assessed incorrectly too, as it may seem that the consumption of fixed costs included in the costing relates to the quantity produced, which in fact is not true.

Business practice shows that the predicative capability of the full costing method cannot be improved simply by enhancing the methods of cost allocation (expansion of direct costs, paying attention to the selection of the correct cost-allocation base and the related differentiation of cost-allocation bases, overhead charges and rates) involved in the overhead rates costing. The division of costs into direct and indirect therefore ceases to be the only basis in the practice of costing methods used. While dealing with certain types of especially short-term decision-making tasks, the importance of the dependence of costs on the volume of produced outputs and the related division of costs into variable and fixed increases considerably. In some cases the costing may therefore view the cost items differently than simply in relation to their output (activity).

### 3. Variable costing

Variable costing was developed as a reaction to the problems and insufficiencies associated with the application of absorption costing. This approach is based on the combination of costs classified on the basis of their dependence on changes in production volumes and quantities. In the costing formula that represents variable costing, variable and fixed costs are *reflected separately*. The reason for such a separate presentation of these types of costs in variable costing is the fact that the nature of fixed and variable costs is completely different. The amount of variable costs clearly depends on the quantity of outputs produced, whereas the consumption

of fixed costs is dependent on time and specific production capacity, as fixed costs have no casual relation to the costing unit. The most important sorting viewpoint is the division of costs into variable and fixed. Only variable costs may be allocated to calculated outputs as they include individual (unit) costs and the variable overhead element. Only variable costs are casually invoked by a unit of output and therefore we may consider them as a production volume function. The increase or decrease of production volume is always accompanied by the growth (or decrease) of this portion of costs. Fixed costs are the function of time and variable costing considers them as an indivisible unit that must be expended to assure the required conditions for production and sale in the relevant time period. These costs must be – *as an indivisible unit* – compensated from the difference between the revenue from the sale and variable costs for output sold, disregarding how many pieces were actually sold. The most important benefit of the separate management, monitoring and assessment of variable and fixed costs is the possibility to improve the management of cost efficiency. The management of variable costs is based on the determination of cost targets, whereas the deviations of actual costs from such targets should be kept as low as possible. On the other hand the management of fixed costs is aimed at the maximum possible utilization of production capacities (no target costs may be determined). In my opinion this way of cost management is absolutely correct as it allows to manage the costs on a rational basis and helps to improve business efficiency [3, p. 205].

The return of total fixed costs can only be assured with a certain quantity of produced and sold products. The amount of contribution by each individual product to the compensation of the fixed costs expended cannot be determined exactly as we do not know how many fixed costs fall on a single piece (fixed costs are common for multiple types of products). The level of contribution of each product to the compensation of total fixed costs may be expressed as the difference between the unit price ( $c_j$ ) and the variable costs per unit ( $v_j$ ) as the data commonly available for each product. Such a difference ( $c_j - v_j$ ) is referred to as the *assistance towards fixed costs and profit making* (marginal contribution, gross margin, contribution margin). The basic form of variable costing is represented by the following costing formula:

ADJUSTED PRICE<sup>1</sup>

– product variable costs

(direct material, direct labor costs, variable part of overhead costs)

---

MARGIN (assistance towards fixed costs and profit making)

– average fixed costs per product

---

PROFIT (in average) per product

---

<sup>1</sup> This is a basic price that may be reduced on a temporary basis (bargain price, discounts etc.).

The product's selling price determined on the basis of market research must firstly cover the variable costs. The rest, referred to as the *margin* (*gross margin*, *contribution margin*), is used for the compensation of total fixed costs. If the product margin is so high that after the deduction of fixed costs attributable in average to a single unit (piece) we get a positive result, we can talk about *net profit margin* or *profit attributable in average to a single product*. This is the amount each individual product contributes to the generation of the total profit of a company [8, p. 137].

The consequence of the perception of fixed costs as the costs of a certain time period is the theory that the contribution (usefulness) of each individual activity (output) may be assessed on the basis of the *margin*, i.e. the part of the price remaining after the deduction of variable costs and intended for the compensation of fixed costs and the making of profit. The income from operations, just as with fixed costs, cannot be allocated to individual outputs as they do not have any impact on the level of profit (loss) or the amount of fixed costs. Whether the result of the relevant period will be profit or loss depends on the level of the production process, scope of sale and its structure. Profit, loss and fixed costs are variables that relate to a certain time period as a whole and cannot be attributed to a single product. Profit is not a result of the manufacture and sale of a single piece of product, but rather an outcome of the whole business activity, the complete manufacturing and sales effort of the company for a certain period of time. Also fixed costs relate to a certain period of time. They must be compensated disregarding the quantity sold. Because of the existence of variable and fixed costs, the total average costs per product, as well as the income from operations (economic result of the company), are not directly dependant on the volume of output (it is not true that the bigger the quantity of production we have, the bigger the profit we make).

The variable costing method works with the margin ( $c_j - v_j$ ). The individual (unit) prices ( $c_j$ ) as well as the unit variable costs ( $v_j$ ) do not change with the change in production (output) volume which means that the margin attributable to a single piece of production will remain unchanged. On the condition of the constant assortment produced, only the total margin will change with the changing volume of production. This total margin may be expressed as a multiplication of the sum of pieces produced ( $n$ ) and the margin per unit (single product) ( $c_j - v_j$ ). The total margin of the company  $n \times (c_j - v_j)$  is – unlike the overall income from operations – changing directly proportional to the volume of production. Therefore the margin is considered as a more appropriate and suitable criterion for decision-making concerning the optimization of the production program than the profit [7, p. 62].

The costing prepared on the basis of variable costs becomes a starting point for the calculation of the margin as a difference between the revenue from the sale of the relevant product and its total variable costs (including individual (unit) costs and the variable part of overhead expenses). The use of this costing method is a

necessary precondition for the complete application of controlling principles in a company. The marginal contribution (margin) is the amount brought by the bearer of the costs (production, job or service) as an assistance towards the fixed costs or as a contribution to profit making. The key benefit of marginal contribution as the criterion for decision-making concerning the product assortment policy is the statement behind it – it does not matter how much profit each individual product brings, but to what extent such product contributes to the compensation of the company's fixed costs.

Marginal contribution represents a very flexible tool for decision-making and the modeling of the product's assortment policy, and the optimum utilization of capacities as various variants of production and sales quantities of different products may be determined by a simple calculation. These variants then allow to select the optimal production and marketing strategy of the company in order to achieve the best possible results. This is based on the presumption that the bigger the margin the product brings, the more it contributes to the compensation of fixed costs and the making of profit and therefore it is considered as highly favorable for the company. The problem may be how to determine what part of the margin compensates the fixed costs and what part increases the profit of the company.

#### **4. Application of absorption and variable costing methods for product decision-making purposes**

Variable costing is a suitable tool recommended for business management at a lower level of use of the existing production capacities. While making decisions concerning the product assortment policy and the level of utilization of the existing production capacities based on the total costs, these decisions are often incorrect, because with the low utilization of fixed costs, products with a positive contribution margin but priced below the level of total factory costs are often refused/unwanted. This may lead to the worsening of overall business results. The variable costing method brings a decision-making base for the correct determination of production range as well as for profit optimization. However the amount of production costs cannot be determined. Business entities are not deciding whether to use the full costing or the variable costing method. Many questions may be correctly answered only when *both these approaches are used hand in hand*. Decisions whether the specific product (which may seem to be unprofitable at first sight) will or will not be produced may be – with the use of full costing only – often incorrect. But if the costing of individual costs is also applied, the company management may – by comparing both approaches – avoid incorrect decisions. This may be demonstrated by the following example.

A manufacturing plant produces three different products (A, B, C). The profit from individual products is determined using the full costing as shown in Table 1 below:

**Table 1.** Profit calculation by means of full costing method

Product	Sales (CZK)	Variable costs (CZK)	Fixed costs (CZK)	Total costs (CZK)	Profit (CZK)
A	720,000.00	430,000.00	135,832.27	565,832.27	154,167.73
B	540,000.00	390,000.00	123,196.71	513,196.71	
C	360,000.00	288,000.00	90,967.03	378,976.03	26,803.29 – 18,976.03
Total	1,620,000.00	1,108,000.00	350,005.00	1,458,005.00	161,995.99

Source: author's own work pursuant to publication by the company Consulting Partners "Economic Management System for Ateso, a. s.", Prague 1998, pages not numbered. No ISBN number.

*Remark:* Petty inaccuracies in the total line may result from rounding.

As shown in Table 1 above, the economic result of product C, determined by means of the full costing method (comparison of sales and total costs), is negative (loss amounting to CZK 18,976.03). This means that from the full costing point of view this product (C) is not profitable for the company. Under these circumstances it is necessary to make a decision concerning the company strategy aimed at the better utilization of the existing manufacturing capacities. One of the options is to increase the utilization of capacities, for instance by means of doubling the production of unprofitable product C.

**Table 2.** Profit calculation by means of full costing method

Product	Sales (CZK)	Variable costs (CZK)	Fixed costs (CZK)	Total costs (CZK)	Profit (CZK)
A	720,000	430,000	107,810	537,810	182,190
B	540,000	390,000	97,781	487,781	52,219
C	720,000	576,000	144,414	720,414	–414
Total	1,980,000	1,396,000	350,005	1,746,005	233,995

Source: author's own work pursuant to publication by the company Consulting Partners "Economic Management System for Ateso, a. s.", Prague 1998, pages not numbered. No ISBN number.

As shown in Table 2, the increase of production and turnover of the unprofitable product C by 100% would bring a positive effect. The total variable costs would increase too, but more important is that the existing production capacities would be utilized more intensively, causing a decrease of the share of unused fixed costs in the total fixed costs of the company. This would not only lead to the increase of total costs, but also the revenue from the sale of products. The final effect would be a considerable decrease of the loss generated by product C (from CZK – 18,976.00 to CZK – 414.00) and the increase of overall company profit (from the original CZK 161,996.00 to CZK 233,995.00). This measure would therefore positively affect the company's business efficiency.

The original conclusions of the example (see Table 1 above) show that product C is clearly unprofitable for the company. At first sight the best and the most logical option seems to be another alternative – a decision made by the company management regarding the complete exclusion of this product from the production range. Such a conclusion would be correct, but only on the condition that the relevant fixed costs so far attributed to product C would be dissolved into the remaining products A and B, and the production capacity left (after the exclusion of product C) would be used by the increase of sales of the remaining products (A and B). Should the sales of products A and B remain unchanged, the fixed costs attributable to the excluded product C (CZK 90,967.03) will be absorbed in the remaining two products, but the overall economic result will decrease (as shown in Table 3).

**Table 3.** Profit calculation by means of full costing method after exclusion of the unprofitable product

Product	Sales (CZK)	Variable costs (CZK)	Fixed costs (CZK)	Total costs (CZK)	Profit (CZK)
A	720,000.00	430,000.00	183,539.05	613,539.05	106,460.95
B	540,000.00	390,000.00	166,465.65	556,465.65	– 16,465.65
Total	1,260,000.00	820,000.00	350,005.00	1,170,005.00	89,995.00

Source: author's own work pursuant to publication by the company Consulting Partners "Economic Management System for Ateso, a. s.", Prague, 1998, pages not numbered. No ISBN number.

*Remark:* Petty inaccuracies in the total line may result from rounding.

As is obvious from Table 3, due to the exclusion of unprofitable product C from the production range  $t$ , the overall economic result (profit) decreased from the original CZK 161,995.99 to CZK 89,995.00. Such a profit decrease is caused by the fact that the total fixed costs still cover the fixed costs for the excluded product. At the same time the variable costs decreased as well – they now cover the costs for products A and B only. Under these circumstances it was impossible to increase the sales and therefore the total revenue from sales decreased as well. The costing surcharge used for the allocation of common fixed costs to products A and B increased from 31.5889% to 42.6835% due to the lower base (total variable costs). It is clear that the exclusion of the unprofitable product C would – with the current capacity maintained – leads to an unwanted effect due to the unused fixed costs, negatively affecting the overall efficiency of the company.

On the other hand the results obtained by variable costing that calculates marginal contribution (instead of profit) are shown in Table 4.

While making decisions concerning the production range, many of them are often incorrect. With the low utilization of fixed costs, jobs priced under the level of total costs, but the positive marginal contribution, are often refused. This leads to a worse operating result of the company. The calculation of the marginal contribution

**Table 4.** Calculation of marginal contribution

Product	Revenue from sales (CZK)	Variable costs (CZK)	Marginal contribution (CZK)
A	720,000	430,000	290,000
B	540,000	390,000	150,000
C	360,000	288,000	72,000
Total	1,620,000	1,108,000	512,000

Source: author's own work pursuant to publication by the company Consulting Partners "Economic Management System for Ateso, a. s.", Prague, 1998, pages not numbered. No ISBN number.

in Table 4 clearly shows that even unprofitable product C reaches the positive margin of CZK 72,000.00. This means that even product C that is unprofitable from the absorption costing point of view (and its keeping in the production range of the company is no longer wanted) contributes to the coverage of total fixed costs. It is obvious that this product is a contribution for the company and it would be a mistake to exclude it from production. From the nature of the marginal contribution, as described above, it is also obvious that if the selling price of the product would be equal to the amount of individual (unit) variable costs, the marginal contribution would be zero – only then would it be appropriate to stop production (exclude the product from the production range).

However in certain cases the decision-making by company management concerning the production range of the company on the basis of the *absolute marginal contribution* (see Table 4) may not be adequate. As shown in Table 5, the percentage share of the marginal contribution of individual products in the total marginal contribution may be used for the determination of *products with strong sales* that mostly contribute to the compensation of fixed costs and the profit making of the company.

While assessing the individual products, other criteria shall be considered as well, such as the percentage contribution to revenue. This indicator is often referred to as the *relative marginal contribution*. This helps to determine the most profitable products, i.e. *product gross profitability*. Gross profitability of each product is determined as the ratio between the marginal contribution and revenue from the sale of the relevant product. It shows how each individual product contributes to the generation of the total revenue of the company.

A comparison of the results of the assessment of individual products' profitability on the basis of the calculation of marginal contribution and gross profitability is shown in Table 5.

As is obvious from the results shown in Table 5, the order of the products on the basis of their profitability for the company is identical. But this may not be true in all cases. It depends on the specific nature of the decision-making task and also on the

**Table 5.** Comparison of products' profitability on the basis of marginal contribution and gross profitability

	Product A	Product B	Product C	Sum
Marginal contribution (CZK)	290,000	150,000	72,000	512,000
Percentage share	56.64	29.30	14.06	100
Order of products on the basis of marginal contribution	1.	2.	3.	
Revenue from sale (CZK)	720,000	540,000	360,000	1,620,000
Marginal contribution (CZK)	290,000	150,000	72,000	512,000
Gross profitability (percentage share in total revenue)	40.28	27.78	20.00	
Order of products on the basis of gross profitability	1.	2.	3.	

Source: author's own work pursuant to publication by the company Consulting Partners "Economic Management System for Ateso, a. s.", Prague, 1998, pages not numbered. No ISBN number.

criteria preferred by the company management considering the relevant conditions. The "gross profitability" indicator is usually used as an extra criterion for decision-making concerning the product profitability for the company. In most cases the basic viewpoint is the calculated value of the marginal contribution.

Based on the comparison of these two costing methods in the example above, we can formulate a quite important conclusion for the company: If the company is unable to make use of the capacity bound by the production of unprofitable products in a different way, the production of the unprofitable product C should not be stopped and the product should not be excluded from the production range of the company (considering the existing conditions) as it would lead to the considerably worse economic result of the company (see Table 3). This would in turn negatively affect company efficiency.

## **5. Practical application of individual costing methods by business entities in the Czech Republic**

This part of the paper analyzes the current situation of the application of selected costing methods in the business practice of Czech companies. The research was aimed at various companies from a wide geographical area covering the Liberec and the Hradec Králové regions, the Central Bohemia region and Prague. The required information was collected by means of a questionnaire distributed to students of 1<sup>st</sup> and 2<sup>nd</sup> class of the follow-up study (distance learning), studying the area of business economics at the Faculty of Economics, the Technical University of Liberec. In total, 90 students (business practice representatives) were involved which is – considering

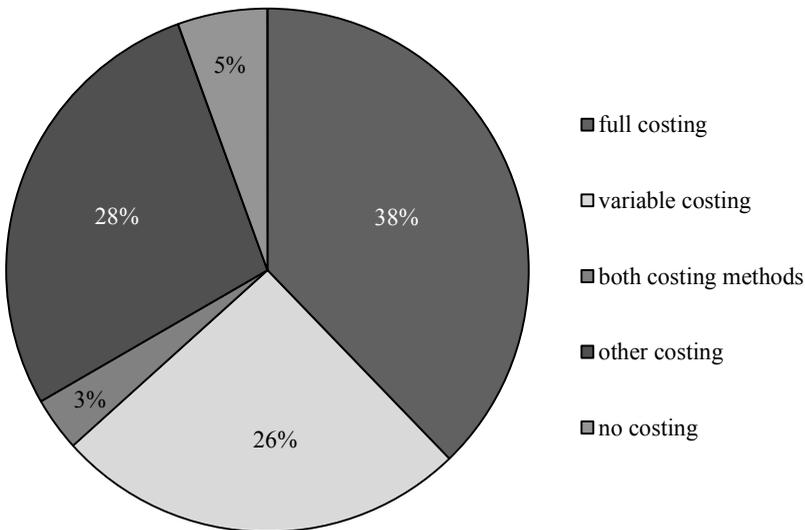
the geographical coverage – an adequately representative sample. The information collected were sorted and analyzed on the basis of the author’s own criteria. The results obtained were summarized in clear tables with illustrative schemes and explanatory comments.

Table 6 provides the answer to the general question – what type of costing is used in the companies subject to research? The values obtained acknowledged the author’s presumption that the most frequently used costing method in Czech business companies is the traditional full costing (34 companies, i.e. 37%). On the other hand, the author expected more of these companies. The second most frequently used costing method is the often recommended variable costing (23 companies, i.e. 26%). A relatively large group of respondents (28%) stated that none of the above mentioned

**Table 6.** Application of individual costing methods in companies

Costing method	Companies	%
Full costing	34	37.0
Variable costing	23	26.0
Both costing methods	3	3.0
Other costing	25	28.0
No costing	5	6.0
<b>TOTAL</b>	<b>90</b>	<b>100.0</b>

Source: author’s own work.



**Figure 1.** Use of individual costing methods by companies

Source: author’s own work.

costing methods are used in their companies – they selected the “other costing” response (unfortunately the question did not ask for a more detailed specification of the costing method actually used). Both costing methods are used concurrently in only 3% of the companies. In the author’s opinion this state is not satisfactory as the use of both costing methods in mutual combination would be convenient for the company in order to improve company efficiency.

All 90 companies subject to the research were divided into three size categories – small, medium and big. From the following Table 7 it is clear which costing methods are used in the relevant types of companies. The findings acknowledged the presumption that big companies prefer variable costing more than smaller companies. It is used even more often than full costing (19 big companies out of the 50 companies subject to research, i.e. 38% of the total number of big companies). The other types of companies (medium, small), again as expected, make use of full costing. As for the combination of absorption and variable costing, it is limited to a few big companies only. A relatively large group of companies from all three categories make use of some “other” costing method. However no more details can be retrieved in this case.

**Table 7.** Costing application by company size

Company \ Costing	Small		Medium		Big		Total	
	Full costing	8	35%	9	53%	17	34%	34
Variable costing	2	9%	2	12%	19	38%	23	25.5%
Both costing methods	0	0%	0	0%	3	6%	3	3.0%
Other costing	8	35%	6	35%	11	22%	25	28.0%
No costing	5	21%	0	0%	0	0%	5	5.5%
<b>TOTAL</b>	<b>23</b>	<b>100%</b>	<b>17</b>	<b>100%</b>	<b>50</b>	<b>100%</b>	<b>90</b>	<b>100.0%</b>

Source: author’s own work.

The following Table 8 documents the conclusions made from the division of all companies by branches. As expected, variable costing is most frequently used in manufacturing companies, whereas in other branches (commerce, services, other) it is used only rarely (full costing prevails). In manufacturing plants full costing is used as frequently as other costing methods.

The next research was aimed at the utilization of a specific costing method in companies divided by the size and field of business. From a more detailed analysis of Table 9 it is obvious that full costing is mainly used in the manufacturing plants of a big and medium size and then in small companies providing services. The findings are documented in Figure 2, showing the considerable use of absorption costing in “other” companies.

**Table 8.** Costing application by branches

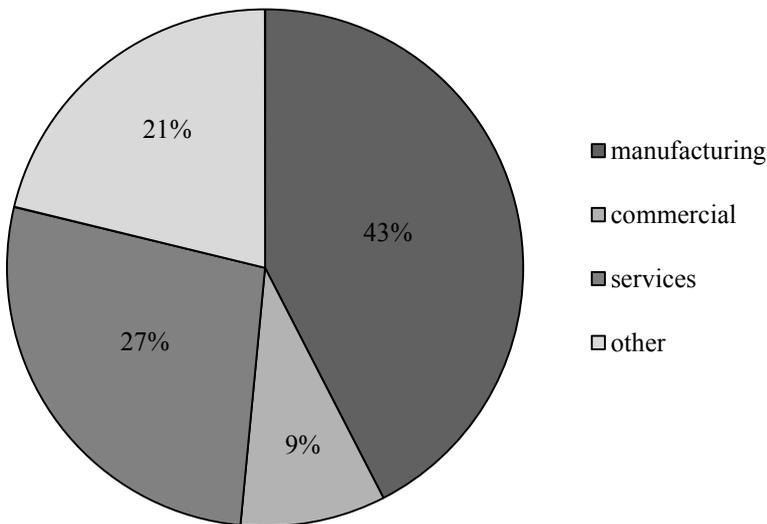
Costing \ Branch	Manufacturing		Commerce		Services		Other		Total	
	Count	%	Count	%	Count	%	Count	%	Count	%
Full costing	14	28.5%	3	38%	10	48%	7	58%	34	38.0%
Variable costing	18	37.0%	1	12%	3	14%	1	8%	23	25.5%
Both costing methods	3	6.0%	0	0%	0	0%	0	0%	3	3.0%
Other costing	14	28.5%	2	25%	5	24%	4	34%	25	28.0%
No costing	0	0%	2	25%	3	14%	0	0%	5	5.5%
<b>TOTAL</b>	<b>49</b>	<b>100.0%</b>	<b>8</b>	<b>100%</b>	<b>21</b>	<b>100%</b>	<b>12</b>	<b>100%</b>	<b>90</b>	<b>100.0%</b>

Source: author’s own work.

**Table 9.** Application of full costing method

Company	Big	Medium	Small	Total	%
Manufacturing	8	6	0	14	43
Commercial	1	0	2	3	9
Services	3	1	5	9	27
Other	4	2	1	7	21
<b>TOTAL</b>	<b>16</b>	<b>9</b>	<b>8</b>	<b>33</b>	<b>100</b>

Source: author’s own work.



**Figure 2.** Full costing application

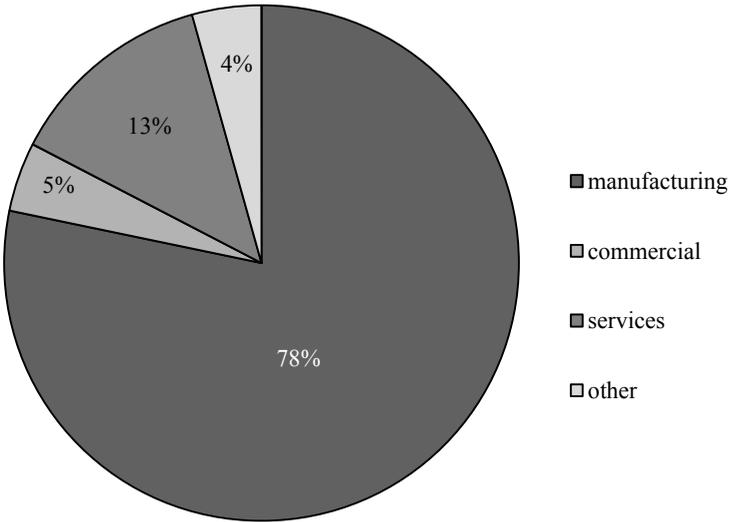
Source: author’s own work.

Table 10 and then also Figure 3 show the application of variable costing by individual types of companies. It is obvious that this type of costing is implemented almost exclusively in big manufacturing companies. Its application in other types of companies and non-production branches is very rare. This finding relates to the nature of the costing of individual costs that is based on the division of total costs into variable and fixed. The determination and close monitoring of each group of costs individually may be a big deal for many companies, therefore they refuse to deal with this problem and rather make do with the use of the well established full costing instead. This approach, however, does not allow to influence company efficiency.

**Table 10.** Variable costing application

Company	Big	Medium	Small	Total	%
Manufacturing	16	1	1	18	79
Commercial	0	1	0	1	4
Services	2	0	1	3	13
Other	1	0	0	1	4
<b>TOTAL</b>	<b>19</b>	<b>2</b>	<b>2</b>	<b>23</b>	<b>100</b>

Source: author’s own work.



**Figure 3.** Variable costing application

Source: author’s own work.

The author is convinced that the responses collected by means of the questionnaire survey from the business practice representatives are sufficient for the analysis of the

current state in the field of costing method application in the companies subject to research. Using the results, the author had a chance to acknowledge or reject certain presumptions as well as to formulate specific conclusions regarding the use of costing methods by companies operating in the Czech Republic.

## 6. Conclusion

With the fast development of production technologies in the second half of the twentieth century, the character of the production and structure of products and their costs have changed considerably. Expanding automation has resulted in the considerable decrease of direct labor costs' share in total outputs. Information technologies have been changing rapidly as well as the approach to business management. Also company costs have changed radically. Overhead costs represent a bigger share in the total costs of companies (in many companies their share even exceeds 50%) and moreover their structure has changed considerably too, as existing companies carry out many activities that simply were not done before. It is not true anymore that the consumption of the vast majority of overhead costs is dependant on the quantity of human labor consumed, which was the basic presumption for the calculation of traditional absorption costing.

The traditionally used surcharge costing techniques using the monetary cost-allocation base are often rightly criticized, as they are not able to determine the costs of individual outputs accurately. They only allocate the shared overhead costs on a lump-sum basis and proportion them on the basis of the consumed total direct costs. The value of the calculated costs per output may be therefore quite biased and may negatively affect decision-making by the company management e.g. concerning the prices of products or the structure of production.

As the price may not – *from the long-term perspective* – include all the commonly generated costs, *absorption costing* still seems to be the best technique for this purpose. It is *quite essential* and yet *irreplaceable*. All the costs and expenses generated in a certain accounting period are allocated by full costing more or less accurately to the products and services produced in the same period. The overhead (common, fixed) costs have different sources. Using a correctly selected cost-allocation base (monetary or natural), a part of overhead costs is allocated to each source of costs (using the overhead rates costing method). This costing method has been – despite the obvious insufficiencies – considered in the Czech business practice as the universal procedure for the allocation of costs that are common for multiple types of products manufactured in the same production plant or department [8, p. 139].

The business practice acknowledged that when managers make decisions – for instance about the range of production - the calculations based only on the full costing principles may often lead to incorrect decisions. Also it is obvious that the

predicative capability of the full costing method cannot be simply improved by enhancing the methods of cost allocation (expansion of direct costs, paying attention to the selection of the correct cost-allocation base and the related differentiation of cost-allocation bases, overhead charges and rates) involved in the overhead rates costing. Under the constantly changing conditions of the market environment characterized by the permanently increasing share of indirect (overhead) costs in the total costs of a company, the importance of new requirements by managers for the different classification of costs in the costing structure is growing. The classification of costs into direct and indirect fades into the background, whereas more important seems to be the dependency of costs on the volume of outputs produced, i.e. the classification of costs into variable and fixed.

The application of non-absorption costing in current business practice allows to eliminate the biggest imperfection of surcharge (overhead rates) costing, i.e. the inaccurate allocation of overhead expenses to outputs. At the same time we should not forget that the *variable costing* method was designed for a completely different purpose than the complex management of company costs. At the time of its birth this costing technique was primarily used in connection with the generation of prices of outcomes. Instead of the historically older price costing on the basis of full costs, the overhead rates costing emerged to be used in connection with price decision-making. Such a unit selling price was expressed as a sum of individual (unit) variable costs and unit margin ( $c_j = v_j + m_j$ ). This price was based on the practical application of relations resulting from the break-even point analysis.

Considering the above mentioned facts, the method of separated management of variable and fixed costs and the related variable costing method is intended for the management of a production structure in the short-term, often with a fluctuation of prices and volumes of products sold. It may also be used for the determination of the lowest price of the product at which the production is still worthwhile, for decision-making concerning the structure of the production assortment of the company or the utilization of spare production capacities etc. In general it is considered as a *short-term management tool* for the conditions of a market-oriented economy. On the other hand variable costing is considered as quite inappropriate for the solution of long-term decision-making tasks where the traditional costing technique (full costing) would do better. Non-absorption costing is not able to determine the most important outcome of every costing in general – *the most accurate costs per product or outcome/activity*. It works with overhead expenses as a whole, completely ignoring its internal structure and allocation to outcomes. It does not provide any information on the structure and causes of overhead expenses consumption [3, p. 220].

A good quality intra-plant management always requires a customized approach to solving the different types of decision-making tasks and we cannot say that one method is better than the others. We must emphasize that *one universal* correct or false cost-allocation method or one single solution of the problem simply *does not*

*exist*. Each decision-making task must be approached individually and the most appropriate solution must be determined on the basis of a thorough analysis. The traditionally used standard costing formula and the related full costing technique may not provide adequate and sufficient information for management and decision-making. Therefore the structure of costs in the costing has been recently governed by different principles too. These principles are often represented in the costing formulas separating variable costs from fixed costs. Their application is – especially when solving short-term decision-making tasks under the existing economic conditions – also undisputable, but to obtain the most accurate and precise solution it is recommended to make use of both these mutually complementary approaches together.

## Literature

- [1] Company Consulting Partners “Economic Management System for Ateso, a. s.”, Prague, 1998, pages not numbered. No ISBN number.
- [2] Čechová A., *Manažerské účetnictví*, 1. vyd., Computer Press, Brno 2006, 182 p. ISBN 80-251-1124-5.
- [3] Fibírová J., Šoljaková L., Wagner J., *Nákladové a manažerské účetnictví*, 1. vyd., Aspi, Praha 2007, 430 p. ISBN 978-80-7357-299-0.
- [4] Havelec J., *Základy manažerského účetnictví*, 1. vyd., Codex Bohemia, Praha 1997, 195 p. ISBN 80-85963-36-1.
- [5] Hradecký M., Lanča J., Šiška L., *Manažerské účetnictví*, Grada, Praha 2008, 259 p. ISBN 978-80-247-2471-3.
- [6] Kol. *Financial Management and Control, Study Text*, 4th ed., BPP Professional Education, London 2004, 707 p. ISBN 0-7517-1665-0.
- [7] Král B. et al., *Nákladové a manažerské účetnictví*, 1. vyd., Prospektrum, Praha 1997, 407 p. ISBN 80-7175-060-3.
- [8] Král B. et al., *Manažerské účetnictví*, 2. rozšířené vyd., Management Press, Praha 2006, 622 p. ISBN 80-7261-141-0.
- [9] Macík K., *Jak kalkulovat podnikové náklady?*, Montanex, Ostrava 1994, 123 p. ISBN 80-85780-16-X.
- [10] Macík K., *Kalkulace nákladů – základ podnikového controllingu*, Montanex, Ostrava 1999, 241 p. ISBN 80-7225-002-7.
- [11] Ogerová B., Fibírová, J., *Řízení nákladů*, 1. vyd., HZ Editio, Praha 1998, 155 p. ISBN 80-86009-24-6.
- [12] Sedláček J., *Základy manažerského účetnictví*, 1. vyd., Masarykova univerzita v Brně, Brno 1996, 149 p. ISBN 80-210-1312-5.
- [13] Schroll R., Báča J., Janout J., *Kontrola nákladů a kalkulace v průmyslu*, 1. vyd., SNTL, Praha 1990, 445 p. ISBN 80-03-00382-2.

## ZASTOSOWANIE KALKULACJI KOSZTÓW W ZARZĄDZANIU PRZEDSIĘBIORSTWEM

**Streszczenie:** Najstarszym w historii zadaniem kalkulacji kosztów jest udostępnianie informacji nt. kosztów poszczególnych produktów, robót i usług, stanowiących przedmiot działalności przedsiębiorstwa i wprowadzanych przez nie na rynek. Zadanie to spełnia kalkulacja całkowitych kosztów własnych, będąca ważnym instrumentem w rozwiązywaniu długofalowych zadań decyzyjnych w nowoczesnym przedsiębiorstwie. W zmieniających się nieustannie warunkach rynkowych, charakteryzujących się rosnącym udziałem kosztów ogólnych w kosztach całkowitych, rośnie ponadto ranga nowych wymagań pracowników na stanowiskach kierowniczych co do podziału pozycji kosztowych w kalkulacji. Oprócz podziału kosztów na bezpośrednie i pośrednie nacisk kładziony jest na podział na koszty stałe i zmienne. W kalkulacji podkreśla się także inne spojrzenie na kalkulowane pozycje aniżeli sposób ich przyporządkowania czynnościom. Do podniesienia jakości procesu zarządzania kosztami w przedsiębiorstwie przyczynia się przede wszystkim stosowanie kalkulacji kosztów zmiennych.

**Słowa kluczowe:** podział kosztów, wzór kalkulacyjny, kalkulacja całkowitych kosztów własnych, kalkulacja kosztów zmiennych.