



Activity-based cost management (ABCM)

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Activity-based cost management (ABCM) enables a firm to understand the factors driving its costs and (in this way) identify opportunities for the firm to achieve cost reductions and improve its competitive position. It is important to avoid the misconception that ABCM is simply about “accurately determining the costs of each product”, because theoretical accuracy will not of itself lead to strategic or operational improvements.

The following example (“**Fish Division**”) will be used in this article to illustrate the nature, practicalities, and benefits of ABCM.

Example: Fish Division

Fish Division buys raw unprocessed fish in bulk each month, and uses it to manufacture two products. The two products are **fish fillets** (which are supplied to a large number of small retail stores) and **fish fingers** (which are supplied to a supermarket chain). In a typical month, Fish Division purchases 80,000 kg. of raw unprocessed fish as its production input, but 25% of this amount is “lost” in production through the removal of inedible parts of the fish which must be kept out of the finished products. Of the remaining raw unprocessed fish, five-sixths becomes fish fillets and one-sixth becomes fish fingers. The two products are physically identical apart from their size, i.e., a fish finger is smaller than a fish fillet. The following are the costs incurred by the Fish Division in a typical month:

Purchase of raw unprocessed fish	€48,000
Cutting of the fish purchased	€21,000
Packing materials for Fish Fillets	€3,500
Packing materials for Fish Fingers	€2,300
Cost of packaging operations (excluding packing materials)	€11,200
Delivery of products to customers	€4,000
Total costs per month	€90,000

Because the two products involve the same raw material (i.e., raw unprocessed fish) and the same basic production processes, Fish Division sets its selling prices for the two products in a manner which the division manager describes as “appropriate and realistic”. First, he divides the total costs per month by the total combined output of the two products (measured in kilograms). Second, he applies profit margins which he keeps to a minimum in the belief that this is ultimately the best way to maintain customer loyalty and achieve

repeat business. A markup of 30% is applied in the case of fish fillets, but (because of the buying power of the supermarket which buys the fish fingers) a markup of only 20% is applied to that product.

Selling prices

Based on the above data, the selling prices charged can be calculated as follows:

- Total costs = €90,000 per month.
- Total output per month = 80,000 kg. less 25% = 60,000 kg.
- Hence cost of each product = €90,000 / 60,000 kg = €1.50 per kg.
- Selling price of **fish fillets** = €1.50 + 30% = €1.95 per kg.
- Selling price of **fish fingers** = €1.50 + 20% = €1.80 per kg.

Understanding cost behaviour

An implicit assumption in Fish Division’s approach to pricing (as applied above) is that the costs per kilogram of the two products (fish fillets and fish fingers) are identical to each other. However the truth is that this assumption is justified in relation to some costs but not others. To illustrate this point, let’s consider two contrasting examples of the costs in this case:

- Purchase of raw unprocessed fish: This cost really **is** the same for both products, since the raw materials for the two products really are identical (indeed, indistinguishable from each other) at the point of purchase.
- Cutting: We are told that “a fish finger is smaller than a fish fillet”. In other words, turning a kilogram of raw material (i.e., raw unprocessed fish) into **fish fingers** involves more cutting than turning a kilogram of raw materials into **fish fillets**. Given that cutting is a costly activity, this means that (in this area at least) there is a cost differential between the two products.

Therefore, in order to understand and manage the costs of its products, Fish Division needs to understand the cost-causing activities involved in the products’ manufacture. To illustrate this, let’s assume that the Division has assembled the following information about these activities:

	Fish fillets	Fish fingers
Cutting	Speed = 625 kilograms per hour	Speed = 250 kilograms per hour
Packaging operations	Speed = 1,000 kilograms per hour	Speed = 500 kilograms per hour
Deliveries to customers	Number = 8 per month	Number = 2 per month

So, what costs do the various activities (and, ultimately, the two products) give rise to? Answering this question involves four steps, as follows:

- Step 1: Identify the total output of each product:

Total output (from above)	Fish fillets = five-sixths of total output	Fish fingers = one-sixth of total output
60,000 kg	50,000 kg	10,000 kg

- Step 2: Measure the total amount of each activity:

	Fish fillets	Fish fingers	Total
Cutting	50,000 kg / 625 kg per hour = 80 hours	10,000 kg / 250 kg per hour = 40 hours	120 hours
Packaging operations	50,000 kg / 1,000 kg per hour = 50 hours	10,000 kg / 500 kg per hour = 20 hours	70 hours
Delivery	8 deliveries	2 deliveries	10 deliveries

- Step 3: Cost driver rates:

Cutting	€21,000 / 120	= €175 per hour
Packaging operations	€11,200 / 70	= €160 per hour
Delivery	€4,000 / 10	= €400 per delivery

- Step 4: Costs of each product:

	Fish fillets	Fish fingers
Raw materials	$(5/6) * €48,000 = €40,000$	$(1/6) * €48,000 = €8,000$
Packing materials	€3,500	€2,300
Cutting	80 hours @ €175 per hour = €14,000	40 hours @ €175 per hour = €7,000
Packaging operations	50 hours @ €160 per hour = €8,000	20 hours @ €160 per hour = €3,200
Delivery	8 deliveries @ €400 = €3,200	2 deliveries @ €400 = €800
Total cost	€68,700	€21,300
Cost per kilogram	€68,700 / 50,000 = €1.374	€21,300 / 10,000 = €2.13

Using the activity-based results to manage costs and profitability

We can only claim to be engaging in activity based cost **management** if we can use the activity-based results to identify opportunities for Fish Division to achieve cost reductions and improve its competitive position. Here are some specific issues which arise in this case.

- First, the activity-based analysis greatly enriches our understanding of the cost of providing each customer with its product. One way to improve profitability is to consider modifying product prices so that they more closely reflect the costs of the product. The existing prices are based on a calculated cost of €1.50 per kilogram for both products, whereas the activity-based analysis reveals that the costs of the two products are significantly different from each other (fish fillets €1.374 and fish fingers €2.13). Therefore, at present prices, the supermarket chain which buys the fish fingers is (in effect) being subsidised by the small retail stores which buy the fish fillets. If this cross-subsidisation is allowed to continue then Fish Division may find that it is unable to compete successfully in the market to sell fish fillets (a product which accounts for five-sixths of the division's sales volume).

Of course, it does not follow that there should be a "knee-jerk" change of product prices. Indeed, Fish Division already acknowledges the importance of the supermarket customer which buys the fish fingers by adding a lower markup, and Fish Division may find that the existing price for fish fingers (€1.80 per kilogram) is the maximum that the supermarket is willing to pay. If so, this is a problem because it is below the cost (€2.13) which Fish Division incurs in supplying this product. But it would be naïve to expect the small retail stores to pay a price which is based on an inflated estimate of the cost to Fish Division of the fish fillets. Instead, the solution lies in achieving cost savings in the ways suggested below.

- Second, the costs arising from any cost driver activity can be reduced by performing the activity **more cheaply** (i.e., by lowering the cost driver rate) and/or by performing the activity **less often**. For example:
 - Reduce the frequency of deliveries. For example if fish fillets were to be delivered only twice each per month (i.e., the same frequency as fish fingers) then the monthly cost savings would apparently be: (8 - 2 = 6 deliveries eliminated) * €400 = €2,400.
 - Find ways of reducing the hourly cost of the "cutting" activity, e.g., by increased maintenance of the cutting machinery. For instance, if this cost driver rate could be reduced by €15 per hour then the savings per month would be (120 hours * €15) = €1,800.
- Third, a good way to secure the long-profitability of operations would be for Fish Division to achieve cost savings and then pass these cost savings on to the customer through price reductions. In this example, the **fish fingers** are disproportionately expensive to package. Specifically, the fish fingers are equivalent to only (10,000 / 50,000 = **20%**) of the production volume of the fish fillets, but:
 - Packing materials for the fish fingers cost (€2,300 / €3,500 = approximately **66%**) of those for the fish fillets;
 - The fish fingers (500 kilograms per hour) are much slower to pack than the fish fillets (1,000 kilograms per hour).

If Fish Division can work together with the supermarket chain to develop a cheaper and simpler form of packaging for the fish fingers, then this will reduce costs to the potential benefit of both parties.