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**CAN E-BANKING
SERVICES
BE PROFITABLE?**

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CAN E-BANKING SERVICES BE PROFITABLE?¹

Olga Luštšik²

Abstract

Over the last few years European banks have spent billions of euros on new electronic channels. However, after some years of excitement it was clear that the banks' long-awaited skyrocketing profits from this area would not be netted. Estonian banks have also invested in expanding and improving the IT systems and a number of new e-banking services have been developed. Until recently, most of the pricing decisions for e-bank services were made on the basis of a gut feeling as the current financial management information systems did not support such analysis. In this article the author explores the implementation techniques of Activity-Based Costing (ABC) in the banking sector on the example of an Estonian bank in order to analyze the cost structure for traditional and electronic channel transactions. The article shows how it is possible to implement ABC in banking and proves empirically that electronic channels help reduce the costs of both banks and their clients.

JEL classification numbers: G21, L11, L86, M40, O31

Keywords: e-banking, profitability, activity-based costing

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1. INTRODUCTION

A few years ago no self-respecting financial consultant would travel without it: the bar chart showing that the marginal cost of Internet banking transactions was a tiny fraction of the cost of branch banking. It was the chart that launched dozens of stand-alone Internet banks. As a result, European banks have poured billions of euros into building direct channels like the Web, upgrading branches and call centers, and trying to integrate all these channels. Major financial futurists predicted bright prospects to electronic banking. But after some years of excitement it appeared that the banks' long-awaited sky-rocketing profits from this area would not be yielded. Around the world, Internet banks are faltering. This situation requires a profound analysis to be able to understand the real cost of e-banking, and e-bank transactions in particular.

Cap Ernst & Young, a consultancy company, reckons that the Internet cut British banks' costs by a mere 0.1% in 1999 while they were, somewhat heroically, hoping for a 25% cut (Hollow..., 2000). Why did it happen?

Is it so difficult to calculate the unit price for e-channel transactions? The answer is "Yes, very difficult". According to Forrester Research (June 2003), only 13 out of 25 European banks were able to measure the fully allocated costs per different distribution channels. But the research of 13 banks showed that on average online transactions cost 14 times less than those made by branch tellers. Most of these banks had applied activity-based costing (ABC) to map the evolution of channel costs over time.

The same trends can be seen in Estonia – almost all banks have invested in expanding and improving the IT systems and a number of new e-banking services have been developed. All

major banks have declared e-business as one of their core strategies for future developments. Until recently, most of the pricing decisions about e-bank services were made instinctively as the current financial management information systems did not support such analysis.

In the article, the author explores the implementation techniques of Activity-Based Costing in the banking sector on the example of an Estonian bank³ in order to analyze the cost structure for traditional and electronic channel transactions. Also conclusions are drawn about the profitability of e-banking transactions.

The article addresses the following questions:

1. How can ABC techniques be implemented in a bank? How it is possible to allocate IT expenses to products?
2. What are the cost elements of e-channel transactions? What are the major cost groups?
3. Are e-channel transactions cheaper than those made via the traditional channels?

The methodological and empirical parts of the article are based on Hansabank's analysis and statistical reports as well as on Hansabank's internal documents that stipulate rules for cost allocation and unit cost calculation.

As unit costs of bank services are confidential and price-sensitive information, it is possible to publish neither all the details nor the absolute numbers for unit cost findings. For this reason, the article presents relative unit costs between the traditional and electronic channels.

The article is organized as follows: Chapter 2 describes the role of e-banking in the overall banking system. Chapter 3 explains the theoretical background to the ABC philosophy. Chapter 4 contains the methodology overview – implementation of ABC by an Estonian bank. Chapter 5 presents the unit cost compo-

³ The example of Hansabank in Estonia is used. Hansabank is the largest bank in the Baltics.

nents for both e-bank channels and the traditional channels. Finally, Chapter 6 draws conclusions about the profitability of e-banking transactions.

2. The role of e-channels in the banking sector

Electronic banking (e-banking) is the newest delivery channel of banking services. The definition of e-banking varies amongst researches partially because electronic banking refers to several types of services through which a bank's customers can request information and carry out most retail banking services via computer, television or mobile phone (Daniel, 1999; Mols, 1998; Sathye, 1999). Burr, 1996, for example, describes it as an electronic connection between the bank and customer in order to prepare, manage and control financial transactions. Electronic banking can also be defined as a variety of the following platforms: (a) Internet banking (or online banking), (b) telephone banking, (c) TV-based banking, (d) mobile phone banking, and (e) PC banking (or offline banking). In this paper, the ATM (Automated Teller Machine) channel is also added to the research.

According to research, in the late 2002, Internet bankers represented 37 percent of Internet users and online banking services now attract 18 percent of all European adults (Forrester, March 2003). Forrester projects that the number of Europeans using online banking will double to reach almost 130 million users in five years — a total of 21 percent. While online banking penetration in the Nordic countries and the Netherlands will climb to 60 percent of Net users in 2003, Italy and Greece, which had fewer than 5 percent of adults banking online a year before, struggled to achieve a situation with a third of Net users banking online in 2003.

According to Forrester, a typical European bank has the following perspective (Figure 1) — in six years the proportion of transactions made online will exceed 40% of all transactions, while the transactions in the traditional branches will be below 10% (Forrester, June 2003).

The Estonian financial services market is unique in several aspects: it is small and compact, and is developing fast. It has a controversial Soviet past, which may be seen either as a negative or positive aspect, depending on viewer's attitude. The reform of the banking system in the former USSR started in 1988. In Estonia, a boom in establishing banks was observed in the first half of 1992, when 21 new commercial banks were issued a license. Before the currency reform in June 1992, the number of banks was the biggest, the total number of commercial banks at the end of 1992 being 41. The number of banks in Estonia has not changed in the last three years; there are still six operating commercial banks. At the end of 2002, over 86.7% of the share capital of banks belonged to foreign owners. The share of two largest banks (Hansabank and the Union Bank of Estonia) amounted to 83% of the sector's total assets.

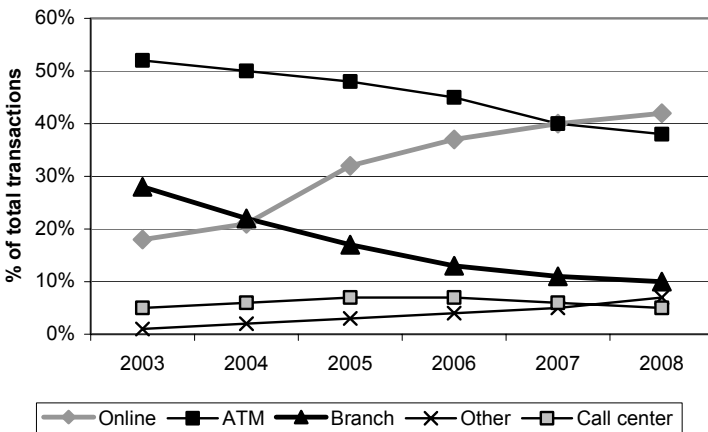


Figure 1. Transaction volume by channel in a typical European bank (Forrester, June 2003).

The history of Estonian electronic banking is only a few years younger than the history of Estonian commercial banking in general. Hansabank started its first offline electronic banking solution Telehansa in 1993. The first Internet banking services in Estonia were introduced in 1996.

Estonia in general is highly suitable for electronic banking applications due to the relatively high penetration of personal computers and Internet access. The proportion of Internet users was 43% of the Estonian population aged 15–74 in Q4 2002⁴. Compared with other countries, Internet penetration among Estonians is higher than in other East-European countries (see Figure 2). Those who have used the Internet during a week have done it for the following purposes (Emor, 2002): 76% sending and reading mail, 57% visiting portals, 56% using search engines, 57% using the Internet bank. Based on this information, it can be concluded that the number of Internet bank users in Estonia was 260,000, which is 25% of the Estonian population aged 15–74.

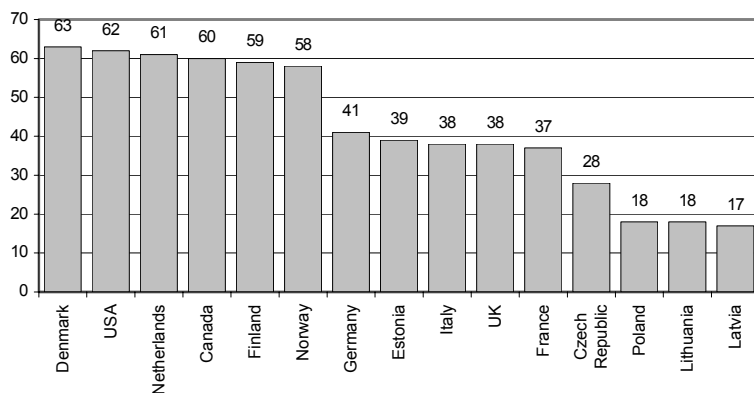


Figure 2. Internet penetration 2Q 2002⁵ (Emor, 2002).

⁴ In Q4 1999, the percentage of Internet users was 25%

⁵ Internet users, who have used the Internet at least once during the previous 6 months, % of the 15–74 age group

Internet bank services are used actively and most of the payment transactions are concluded via e-channels. The growth of self-service has been exponential but access to the Internet is blocking further increase in the share of Internet payments (Kerem et al, 2003). Most of the consumers who start banking online do it because they need to pay bills frequently and would like to do it with minimum effort. Besides that, people use the Internet bank to keep an eye on their money matters, view their account balance and check receiving payments from other parties. On average, 95% of the total volume of all payments is effected via e-bank facilities – online and offline Internet banks and other electronic channels. Figure 3 shows that in Hansabank the percentage of transactions done over the Internet has been continuously growing and in the last years, e-channels have become the main transaction channels. The part of branch network in the payments area decreased from 27% in 1999 to 5% in 2002. In Hansabank, 31% of all the private clients have also Internet banking contracts and log in on average 6.5 times a month. It can be concluded that the clients using the Internet bank are generally more active in using the banking services.

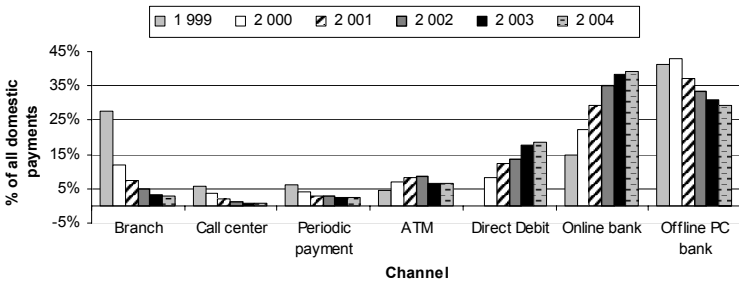


Figure 3. Usage dynamics of different transaction channels in Hansabank between 1999 and 2002 (% of total transactions number)⁶.

⁶ The author's calculations on the basis of Hansabank data.

Compared with e-banking leaders in the world financial markets, Estonian banks have quite active e-bank clients – on average every online bank customer made 2.5 transactions per month (see Figure 4) (this number does not include automatic direct debit payments).

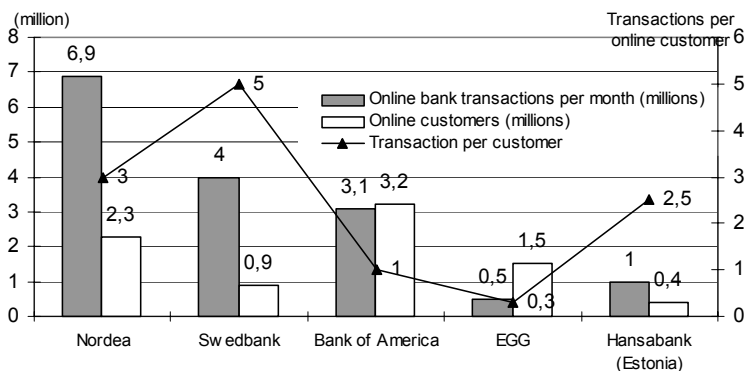


Figure 4. Online banking activity (source: Dynamo..., 2001).

3. BACKGROUND TO THE ABC PHILOSOPHY

3.1. Definition of activity-based-costing (ABC)

ABC is a new dimension of cost analysis that was first presented in a formal way by professor Robert Kaplan, Robin Cooper and Thomas Johnson in Harvard in 1987 (Agbejule, 2000). It has since been developed in many organizations, mainly in manufacturing industries.

ABC addresses deficiencies in the Traditional Cost Accounting Systems. As a product and customer mix becomes more

diverse, the assignment of overhead and indirect expenses becomes much more complicated. As a result, many organizations have cost systems that can support financial reporting but provide distorted information about individual products. Other companies, recognizing the arbitrariness of the volume-based overhead allocation scheme, chose not to allocate any overhead at all; instead, they based their decisions on the contribution margin (price less short-term variable costs). Both assumptions have proven to be wrong (Seward, 1999).

ABC is a cost measurement system that provides the cost of each product, service or customer by analyzing each activity needed to produce a product or service for the customer. The difference from the traditional methods is illustrated in Figure 5. For example, a product that has a short processing cycle may use a disproportionate amount of inventory space or time on the receiving dock. When indirect costs are allocated to products based on the wrong cost driver, the products will appear less or more expensive than they actually are. ABC is used to identify all activities, direct and indirect, and thus allocate the costs associated with these activities more precisely (Seward, 1999).

3.2. ABC in the banking industry

As defined in banking, *Activity-Based Costing* (ABC) is a system for the calculation of the cost of products and services, while the cost components arise from the activities related to the development, administration, and sale of the product (Luštišik, 2003). In banking, the information received by means of the ABC technique is essential for a number of fields:

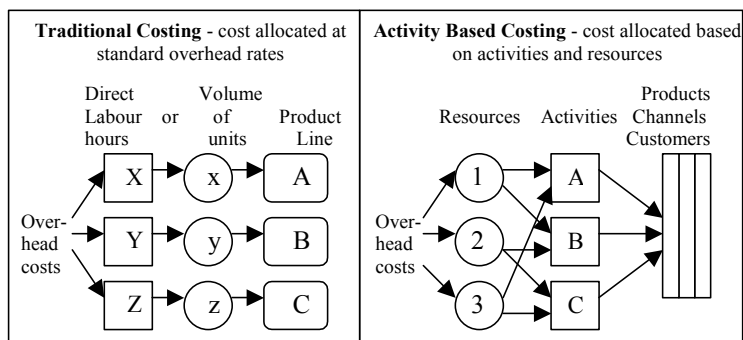


Figure 5. Cost allocation under the two approaches — Traditional costing and ABC (Seward, 1999).

1. Bank service cost – based on this information, bank service pricing decisions can be made; also, economic consequences of providing special client fee rates can be evaluated.
2. Bank service cost components – based on this information, cost-increasing components can be identified (and influenced).
3. Efficiency of bank processes – by analyzing this information, decisions can be made in respect of processes related to bank products (overlapping of processes in different structural units, process inadequacy in certain fields, etc.).
4. Input for profitability calculations – product costs calculated with the ABC methodology are applied. Information on product profitability is essential for making decisions on the issues of product vitality and usefulness from the viewpoint of the bank. The knowledge of segment profitability guides the focus to profitable client groups of the bank, enables the evaluation of the profitability of clients in the client manager portfolio, and provides necessary information to segment managers for decision making.

3.3. The two-dimensional ABC model structure

According to Turney (1991), ABC has two main views: cost assignment and process view.

1. Cost assignment view

Cost assignment view reflects the organization's need to trace or allocate resources to activities or cost objects (including customers as well as products and channels) in order to analyze critical decisions about such things as pricing, product mix, sourcing, and distribution channel management. The underlying assumption is that cost objects (customers, products, channels) create the need for activities and activities create the need for resources.

2. Process view

Process view reflects the organization's need for information about events that influence the performance of activities and activity performance — that is, what causes work and how well it is done. Organizations use this information to help improve performance and thus increase the value received by customers.

The two-dimensional ABC model structure is presented in Figure 6. The **cost assignment view** is constructed from 3 main building blocks:

1. *Resources* are economic elements that are applied or directed to the performance of activities: they are the sources of costs.
2. Resources flow to *Activities*, which are processes or procedures that cause work to be performed in an organization.
 - a. Various factors, which are referred to as *resource drivers*, are used to assign the costs of resources to activities.
 - b. *Activity driver* is a measure of the use of the activity by the cost objects.
3. *Cost object* is any activity, organizational unit, contract, or other work unit for which a separate measurement of cost is

desired. It is, in short, the reason why work is performed in the company and may be either a product or a customer.

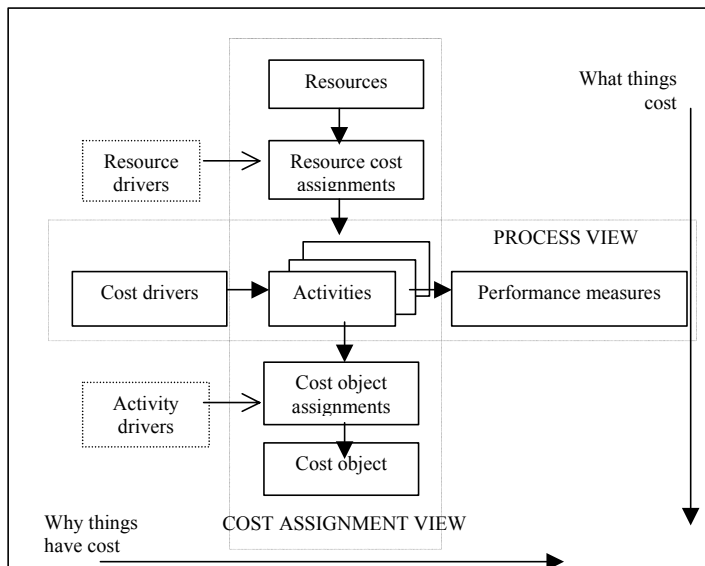


Figure 6. The two-dimensional ABC model structure (Raffish, Turney, 1991).

The **process view** includes the information about cost drivers and performance measures for each activity or process in the customer chain. These cost drivers and performance measures are primarily non-financial. They are used in helping to interpret and improve the performance of an activity and of the process as a whole.

1. *Cost drivers* are any events that cause a change in the total cost of an activity. They are the factors that determine the workload and effort required to perform an activity. Cost drivers tell **why** an activity (or chain of activities) is performed.
2. *Performance measures* are indicators, either financial or non-financial, of the work performed and the results achieved in an activity, process or organizational unit. They

will tell **how well** an activity is performed and communicate how well the activity meets the needs of its internal or external customers. For example:

- a. Efficiency of the activity:

$$\frac{\text{Activity output volume}}{\text{Resources needed to sustain that activity}}^7$$

- b. Time required to complete the activity,
c. Quality of the work done.

4. METHODOLOGY: ABC IN THE BANKING SECTOR (ON THE EXAMPLE OF AN ESTONIAN BANK)

Attempts to introduce Activity-Based Costing in the Hansabank Group⁷ have been made since 1997. Since Hansabank has a complex and constantly changing organization, the project has repeatedly experienced setbacks. At present the ABC methodology is successfully implemented in the Hansabank Group.

4.1. Defining cost objects, e.g. for what services unit costs are calculated

As bank services are a lot more complex than the products of a manufacturing company, a different approach was needed for defining the cost objects. The cost of a bank's product, for example, payment, varies mainly according to the channel where it is effected: we can assume major differences to occur in the branch and online bank channel cost structure for a single

⁷ Hansabank Group consists of Hansabank in Estonia, Hansabanka in Latvia, Hansabankas in Lithuania, Hansa Capital and Hansa Leasing Russia

payment. Likewise it is important what kind of a client uses the product: for example, all transactions of students are more expensive for the bank as a lot of marketing campaigns are made (and money spent) to attract this segment to the bank. In order to solve this complex problem, a three-dimensional ABC model was introduced. The three dimensions are:

1. Bank **product** (service, transaction),
2. Product sales (transaction performance) **channel**,
3. Client **segment**.

In Hansabank, unit costs are calculated for 170 products in 16 channels made by 16 different client segments, which gives approximately 10,000 different combinations (unit costs).

The products are divided into three major groups: savings, lending, and non-fund products. (1) The savings product group includes investment, life insurance, pension funds and short-term money management products (deposits, money-market funds). (2) The lending products group includes corporate, residential, consumer and vehicle financing products (loans, factoring, leasing contracts). (3) The non-fund products are cards, account information services, cash operations, payments, securities & derivatives trading and settlements.

The costs of the saving and lending products are split into two parts: selling and maintenance. The “selling” part consists mainly of selling expenses, such as the tellers’ time and marketing expenses, while the “maintaining” part consists of IT and product development and operational costs.

The channels comprise two major groups: the traditional channels and e-channels. (1) The traditional channels are defined on the basis of the type of human assistance: teller, retail or corporate manager. (2) E-channels are divided into 4 sub-groups on the basis of how the channel is seen by clients, with some exceptions based on the technological processes of transaction execution: Internet-based (online bank for corporate clients Telehansa.net, online bank for private clients Hanza.net, offline bank for large corporate clients Telehansa), card-related (ATM – Automated Teller’s Machine and POS – payment

terminal), Phone channels (call center, IVR, mobile bank) and Automated channels (“virtual” bank core channels where direct debit and incoming payments are effected).

The **segmentation** of clients is done by the marketing department according to the products used by bank customers. There are 8 business client segments and 14 retail client segments.

4.2. Allocation principles for direct and indirect costs

The following information is included in the ABC models on a monthly basis:

1. Bookkeeping cost accounts accounted to cost centres in a particular month.
2. The statistics (volumes and amounts) of the sales and maintenance of the products in particular channels by different client segments in a particular month.

In internal accounting, all costs are recorded based on the combination of cost account and cost center. In Hansabank, cost centers are all the departments and branches of the bank, as well some bank channels (internet bank, ATM). Internal cost accounting by cost centers helps split all operational costs based on the units producing the costs. For example, fixed assets depreciation expenses of the head office in internal accounting are accounted to different departments situated in the head office by square meters they use.

The cost allocation chain in ABC models is presented in Figure 7.

In Hansabank’s income statement approximately 400 cost accounts are used, so an additional cost account grouping is made in order to build homogeneous groups of bookkeeping cost accounts.

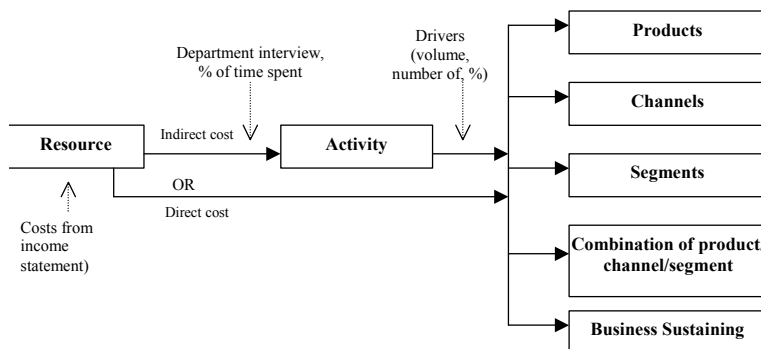


Figure 7. Cost allocation chain in the Hansabank ABC model (Luštišik, 2003).

Indirect cost accounts are grouped in the cost pools according to similarities in cost allocation principles. The major groups are:

1. Personnel related (benefits, remuneration, rewards, taxes, trips, training etc),
2. Business related (info, office, phone, post, bought services),
3. Marketing and public relations (advertising, marketing info, professional services, publishing etc),
4. Fixed assets related (buildings, maintaining, premises, room etc),
5. Specific costs.

Indirect cost pools are re-allocated on the basis of the following principles:

1. Allocation of personnel, marketing, business, and fixed assets related costs of a particular department are based on interviews of this department (more details presented on p. 4.3.).
2. For allocation of marketing and business development costs, monthly reports are used which specify the nature of

the expenses and their connection with specific products, client segments or channels in a particular month.

3. Specific costs are allocated case-by-case depending on the nature of the cost. Specific costs include several cost groups, such as insurance costs, different taxes, membership fees, financial inspection payments, different costs concerning annual and quarterly reports, board meetings, shareholders meetings and stock exchange shares listing.

Direct cost accounts, such as losses and fee costs, are allocated directly to the corresponding products and/or channels.

Some costs (**Business sustaining costs**) are not considered as bank product expenses. Business Sustaining costs are costs that are not taken into account in the calculations of bank services unit cost, bank clients' profitability and bank channels' effectiveness (Luššik, 2003). The major groups of Business Sustaining costs are the internal and external audit, board expenses, brand management, investor relations, general sponsorship, financial accounting, general risk management activities, and liquidity management. On average, business sustaining costs do not exceed 10% of total costs.

4.3. Activities and ABC interviews

ABC interviews are the most important part of activity-based costing. They help understand what activities departments perform and how they affect expenses development. On a regular basis, the head of the department sets the aggregated percentages of the department's activities. In some cases, the percentages can be adjusted by salary weight of a particular employee, when the cost of employee is higher in all cost pools, e.g. the activities performed by this employee have a higher cost weight amongst other employees. The head of the department has to define with what products, channels and/or clients the activities are connected as well as the drivers of distribution (for examples, see Table 1).

Table 1.

Example 1 (author's example).

Activity	Connected with	Driver
"Processing payments"	Different types of domestic and foreign payments	Number of different payment types
"Advising private wealth management clients"	Client segments "Private Wealth Management clients" and "TOP business clients"	Number of clients in these segments
"Maintaining the Internet bank Hanza.net"	Channel "Hanza.net"	Direct

If the activity is related to a specific combination of product and channel, or product and client segment, or product, channel and segment, this has to be pointed out during the interview as well (for examples, see Table 2).

Table 2.

Example 2 (author's example).

Activity	Connected with	Driver
"Incasso service from ATM's"	Channel "ATM" and products "Cash Out" and "Cash In"	Volume of transactions "Cash in" and "Cash out" in the ATM channel
"Selling products to clients in the branch office"	Different products in channel "Branch"	Number of products sold (adjusted by time weights for selling different products) in the Branch channel

Branch network activities are measured in a more detailed way, as the sales of different bank products take different efforts. To solve this problem, the measuring of the time needed to sell a bank product was made. In randomly selected branches "photographing" of the working day was performed using a stop-watch. As a result, it was estimated how much time is spent, on average, on effecting a domestic payment, cash out

service, currency exchange, and so on. According to this “weighted measure”, expenses of the branch network (salaries, fixed assets, IT support) are allocated to the products sold in this distribution channel.

4.4. Allocation principles for IT costs

The allocation of IT costs is done in 4 steps. **First**, all expenses of IT cost centers as well as all IT bookkeeping accounts are taken into an ABC model for further re-allocation. All expenses are divided into two groups — personnel-related expenses (remuneration, benefits, rent, training, etc) and IT expenses (hardware⁸, software⁹, external services providers¹⁰, data communication¹¹). **Second**, the following principles are applied:

1. IT personnel expenses are allocated by real work time based on Time Manager reports. All IT development area employees have to fill in Time Manager reports in order to specify with which projects they were working in the respective month (for IT services area employees, quarterly updated working time usage questionnaire reports are used).
2. Data processing and depreciation costs are allocated as follows: *Decentralized costs* – to the services directly linked to the cost (for example, some ATM-related expenses directly to ATM maintenance service), *Centralized costs* — based on the assessment, measurement and analysis of the use of resource by IT specialists, e.g. “best opinion”.

⁸ Hardware expenses and fixed assets depreciation (IT equipment)

⁹ Software expenses and intangible assets depreciation (IT licenses and programs)

¹⁰ External development and maintenance costs (agreements) of software & hardware

¹¹ Communication lines (WAN, LAN)

Third, all cost pools are allocated to Development services and Operational services. (1) Development services are split by development areas such as Analysis and CRM, Branch Network, Cards, Payments, Markets and insurance. Each development area consists of development projects done in the current period. (2) Operational services are split into two groups:

1. Business and back-office services — applications related to the bank's external and internal customers (such as online and offline bank, external webpage, financial accounting application Oracle Financials, Reuters, etc).
2. Support services — internal services by business units that are directly supporting internal processes (computer working place, network, content, security, client support and telecommunication services, and external links).

Fourthly, the allocation of IT costs to products is made. Applications' IT costs are allocated to the products/channels/clients utilizing each activity pool applications. For example, the cost of online bank application is allocated directly to the online bank channel. Business units' IT support services are allocated to the products/channels/clients based on departments' activities. For example, the PC costs of the Finance department are allocated to the activities of this department.

5. COST STRUCTURE OF E-BANKING TRANSACTIONS

5.1. Unit costs for transactions through different channels

The main goal of any company is to maximize profits for its owners, and banks are no exception. Automated e-banking services offer a perfect opportunity for minimizing costs (see Table 3).

Table 3.

Unit costs for transactions in different distribution channels.

	Europe average (Forrester, 2003)		US average (Booz et al, 1996)		Nordea (Fin) (Dynamo, 2001)		Union Bank (Est) (Toomla, 2003)
Channel	Euro	%	US \$	%	US \$	%	%
Branch	2.00	100	1.07	100	1	100	100
Call Center	0.96	48	0.54	50			67
Mail	0.27	14					161
ATM	0.22	11	0.27	25			14
IVR	0.19	10					
Online	0.14	7	0.01	1	0.11	11	7
Direct debit	0.04	2					1
PC bank			0.015	1			2

According to a survey by Booz, Allen and Hamilton (1996), an estimated cost providing the routine business of a full-service branch in the USA is \$1.07 per transaction, compared to 54 cents for telephone banking, 27 cents for ATM and 1.5 cents for Internet banking. In the Nordea Bank, Finland, one online transaction costs the bank an average of mere 11 cents, compared to \$1 per transaction in the branch (Dynamo..., 2001). The difference in net cost between the US and Finnish banks can be explained by Finland's smaller population and the scale effect in case of the USA. Forrester research (June 2003) covered Europe's largest banks and found that on average online transactions cost 14 times less than those made by branch tellers'.

According to the ABC calculations data provided by Hansa-bank, the relative costs of simple domestic payments through different bank distribution channels are as follows (see Figure

8)¹²: online bank payments are 12.5 times cheaper, offline bank payments are 30 times cheaper, and direct debit is 50 times cheaper than traditional transactions concluded in the branch network. The largest distribution channel for payments is the online bank (34% of all payments). The second biggest channel is the offline bank – 33%, and the third is direct debit – 20%.

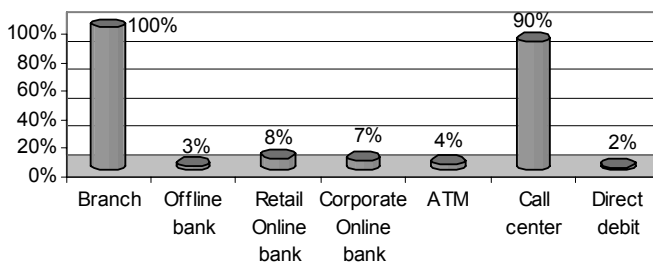


Figure 8: Relative costs of domestic payments through different Hansabank distribution channels.

The comparison of the results for payment expenses in the traditional and e-channels is summarized in Figure 9. According to ABC results, Hansabank bank transfers cost structure between different channels is quite similar to the respective results in other Estonian banks (Union Bank, Toomla 2003) as well as the results for 13 European banks' average (Forrester Research June 2003).

According to the ABC calculations data provided by Hansabank, the relative costs for cash withdrawal through different bank distribution channels are as follows: ATM withdrawal is 10 times cheaper than the same service concluded in the branch network. The biggest distribution channel for cash withdrawal is ATM, where 97% of all cash withdrawals are effected.

¹² The unit cost calculations are based on 2003 January-September average data and contain simple domestic payments conducted by bank clients in bank channels.

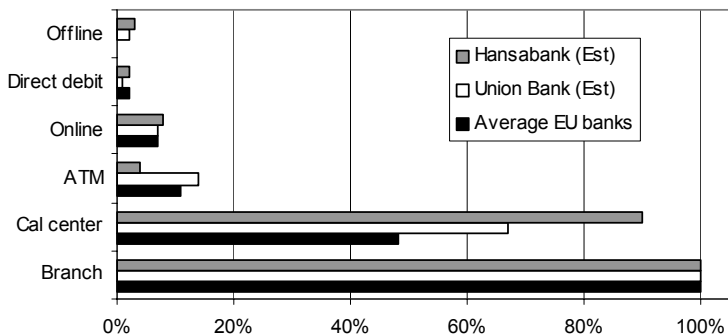


Figure 9. Bank transfer unit costs in different channels.

5.2. Cost components of e-banking transactions compared to the traditional channels

In order to understand the cost structure of e-banking transactions, a detailed analysis of unit cost components has to be conducted. The following transactions in e-banking and traditional channels are analyzed in this article (see Table 4):

Table 4.
Transactions in different channels in Hansabank.

Channel	Domestic payment	Cash withdrawal
Branch	X	X
ATM	X	X
Retail Online bank Hanza.net	X	
Corporate Online bank Telehansa.net	X	
Offline bank Telehansa	X	
Phone bank with operator (call centre)	X	
Automatic channel (direct debit)	X	

Cost components for a Domestic payment

By “domestic payment” we mean a bank transfer in the home currency of a particular country. The biggest distribution channels for domestic payments are online (34%) and offline banks (33%):

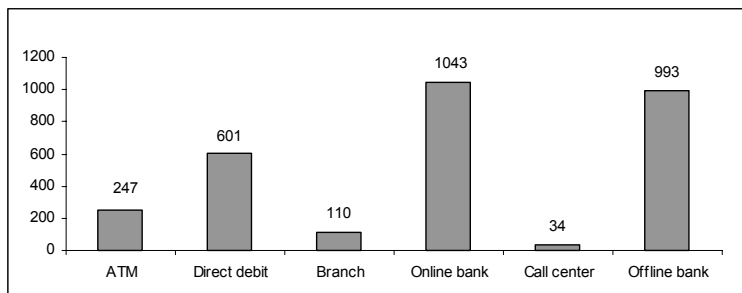


Figure 10. No of domestic payments in different bank channels (per month, thousands) (Hansabank data, author's calculations).

The expenses for the domestic payment unit cost (comparable to 100% for branch payment) can be split into the following unit cost components (see Table 5):

Table 5.

Unit cost components for a domestic payment
(comparable to 100% for branch payment)
(Hansabank data, author's calculations).

Type of expense / Channel	ATM	Direct debit	Branch	Retail Online bank	Off-line bank	Corporate Online bank	Call center
Development	0.5%	0.4%	1.1%	1.7%	0.7%	1.3%	8.9%
HR related	0.9%	0.1%	96.0%	1.1%	0.1%	0.1%	58.5%
IT operational	1.8%	0.3%	1.8%	3.5%	0.8%	4.1%	21.6%
Marketing	1.2%	1.2%	1.2%	1.4%	1.2%	1.2%	1.2%
Total	4.3%	1.8%	100.0%	7.7%	2.7%	6.6%	90.1%

By “Development”, business and IT development is meant. In case of a simple bank product, as a domestic payment is, the development is mostly performed for channels, and not for products. Higher IT development expenses occur in Online bank channels, while in Operator Phone bank mostly business development is performed. Under “Marketing” expenses we mean costs for managing client relations, as well as the channels’ marketing expenses (for example, online bank marketing expenses). These expenses do not vary amongst different payment channels, as they are mostly connected with the client segment.

By “Human Resource related” expenses we mean costs that are connected with human-channels management and overall human involvement. In the ATM channel, these expenses are connected with ATM administration, such as daily monitoring for paper and money supply. In the branch and Call center, there are costs for payments processing by tellers, the tellers’ time for transaction-making, the branch management and personnel training. Online banking involves the expenses for client support (back-office personnel and client managers, responsible for online bank clients’ support and problem solving).

By “IT operational expenses” we mean IT-related expenses for the maintenance of the channel, client and product. In the ATM channel, these expenses are mostly ATM terminal’s fixed assets depreciation costs (67%) and communication lines maintenance (14%). In branch channel, the major IT expense is “Light teller” application, which is the application for the teller’s transactions. The retail online bank (hanza.net) channel’s IT expenses consist of the following items: servers and communication lines (50%), software (14%) and storage (22%). The corporate online bank’s (telehanza.net) expenses involve mostly spending on servers and communication lines (63%), and software (23%). The offline bank’s – Telehanza – IT operational expenses are mostly connected with internal maintenance (31%) and communications line costs (16%). The call center channel’s major IT operational expense is on software (70%), servers (13%) and Phone bank operators’ work application for entering transactions (Light Teller) expenses (8%).

The weight of every particular cost element for domestic payment in different channels is presented in the Table 6.

Table 6.

The unit cost structure for domestic payment made in different channels (as % of total unit cost) (Hansabank data, author's calculations).

Type of expense/ Channel	ATM	Direct debit	Branch	Retail Online bank	Offline bank	Corporate Online bank	Call center
Development	11%	21%	1%	23%	25%	20%	10%
HR related	20%	3%	96%	14%	2%	1%	65%
IT operational	42%	14%	2%	46%	30%	61%	24%
Marketing	27%	62%	1%	18%	43%	18%	1%
Total	100%	100%	100%	100%	100%	100%	100%

For ATM payment, the most important part of expenses is associated with fixed assets – automatic teller machine rent or depreciation, ATM installation costs, maintenance of machine software and hardware.

For direct debit, it was actually impossible to calculate IT operational expenses with sufficient quality. Direct debit payments are effected in the so-called “automatic channel” in the bank's core, so we were not able to split the use of IT servers and other resources by this channel.

For branch and Call center payments most of the costs are connected with Human resource activities expenses. “Branch activities” represent branch network and call center personnel expenses (remuneration, management, work-place expenses, branch network and call center fixed assets depreciation) and also the payment processing activity performed by the branch and call center personnel in order to submit and re-check

outgoing payments submitted to the branch. The Call center's IT expenses are high due to software maintenance that was developed internally by the bank.

The online bank channel has two major cost elements: (1) servers depreciation and communication lines for online bank application and (2) storage cost (at present, the history of 3 years' transactions is available online to clients). The Offline bank solution was developed internally and therefore there are not any external license or maintenance fees for this channel, so most of the unit cost for domestic payment in the offline bank arise from other-than IT areas (for example, marketing and business development).

As appears from Tables 5 and 6, in the traditional or man-guided channels the biggest expenses come from service personnel activities; the major cost component for electronic channels payments lies in IT operational expenses. IT operational expenses can be explained as follows:

- “Servers & communication” cost includes depreciation of servers and communication lines where the particular bank application is running.
- “Software” cost includes software bought from outside (different modules or partial development from third parties) and license and maintenance fees of the software platform on which a particular channel works.
- “Storage” cost includes the cost of information volumes available online to clients.
- “Internal IT maintenance” cost includes personnel expenses of different IT departments (System Administration, IT Services Maintenance, IT Help Desk, monitoring departments).

Some steps for reducing IT operational expenses in online channels can be taken by:

1. Decreasing the storage expenses by shortening the information query history available online. For example, if 95% of all information of account queries is made for the up to 1-year history period, then holding 3-year period information

in online-archives can be extremely inefficient and expensive. Information storage can be then moved to offline-archives, thus queries for older info can be made offline.

2. Decreasing the “first-page” information can decrease required server volumes. In Hansabank with the first log-in to the online bank, the client sees not only his/her account statement, but also loan balances, credit card balances, pension account balances and so on. For the online bank application, opening this first page requires a lot of servers’ power to retrieve this information to the client’s screen. The solution can be to show the first log-in page with as little information as possible, and further queries for clients can be based on the client’s request.

Cost components for cash withdrawal

By “cash withdrawal” we mean taking cash out of the customer’s own account in home currency. The biggest distribution channel for cash withdrawal is ATM, where 97% of all cash withdrawals are made.

The expenses for cash withdrawal unit cost (comparable to 100% for cash withdrawal in the branch) can be split into the following unit cost components (see Table 7):

Table 7.

Unit cost components for cash withdrawal
(comparable to 100% for cash withdrawal in the branch)
(Hansabank data, author’s calculations.)

Type of expense / Channel	ATM	Branch
Development	0.5%	1.3%
Fee	1.6%	
HR related	3.6%	96.9%
IT operational	2.2%	0.3%
Marketing	1.5%	1.5%
Grand Total	9.3%	100.0%

Under the “development” cost component there is business development of the work-process of cash withdrawal in different channels. “Fee” is the fee paid by the bank for joint ATM usage service: in case a Hansabank’s client uses an ATM of another bank, Hansabank has to pay a fee for the joint usage service. Cash withdrawal from an ATM also has a fee for joint cash withdrawal with credit card, payable to the issuer of the credit card.

By “Human Resource related” expenses we mean costs that are connected with human-channels management and overall human involvement. In the ATM channel, these expenses are connected with ATM administration (30%) and Cash incasso service bought from the third party (70%). In the branch there are tellers’ time costs for entering cash transactions data (86%) and counting cash (11%).

Under “IT operational expenses” in the ATM channel these expenses are mostly ATM terminal’s fixed assets depreciation costs (66%) and communication lines maintenance (13%). By “Marketing” expenses we mean costs for managing relations with clients.

6. CONCLUSIONS: PROFITABILITY OF THE TRANSACTIONS MADE THROUGH ELECTRONIC CHANNELS

To be able to draw conclusions about profitability, some investigation into the **income** side has to be made as well. In Estonia, the fee for a domestic payment effected in the branch is 12 EEK. Direct debit payments are free of charge, while the fees in ATM and Internet banks cost 0–2.5 EEK, depending on the age of the service user (there are no transaction fees for people younger than 25 and older than 60 years). The usual fee

for cash withdrawal from a branch office is 0.25% of the cash withdrawal amount; cash withdrawal from ATM is free of charge.

Based on this information, it is possible to assume only some proportional data for real fee income on transactions, there being no information available about the proportion of different client segments in particular banks and their behavior statistics. For the sake of analysis, the **cost/fee income ratio between different channels can be used**. On the fee side (or income side from the bank's point of view), average payment in the Internet bank cost 4.8 times less than payment in the branch. On the actual cost side (or cost side from the bank's point of view), payment in the Internet bank cost 12.5 times less than payment in the branch. Direct debit payments and ATM cash withdrawals are free of charge for clients and represent significant channels for these services.

Some controversial explanations to this pricing strategy can be proposed:

1. Estonian banks use the difference in actual net cost and actual transaction fees paid by customers to cross-subsidize the delivery channels. It is possible to assume that the profitability of branch network transactions is much lower than that of electronic channels. But for some reason, banks do not want to lose the traditional channels and cross-subsidizes them on purpose.
2. Banks earn additional profits on the transactions effected via electronic channels. It can also be assumed that e-channel banking services have high profitability for banks, as the absolute unit cost numbers are lower than those of the fees collected from clients.
3. Profitability of transactions is not a priority for banks. It can be assumed that cross-subsidation between different services groups is used. For example, profits from lending and depositing activities compensate for poor profitability from transactions services.

To summarize these assumptions, the following can be stated:

1. It is possible to implement ABC in the banking sector, although the calculations system can become overly detailed to manage.
2. Electronic channels provide cost-saving for banks and their clients. In the case of Hansabank, online bank payments are 12.5 times cheaper and offline bank payments are 30 times cheaper than the traditional transactions made in the branch network.
3. The decrease in transaction costs is slower than expected. The reason for this is that the existing channels cannot be closed at the same speed as new distribution channels are introduced and funds invested in their development and maintenance. As the number of transactions in branches has been steadily decreasing, the unit cost expenses related to branch transactions will increase — the branches will become more focused on consulting and problem-solving than on regular transaction processing (payments, cash operations). The initial investments in e-channels IT and security solutions were high, also IT and product development require major investment at the beginning stage. We can conclude that e-channels transactions will probably become more cost-efficient for banks in a few years' time.

The detailed information provided by the ABC technique can help banks to regulate and reduce some cost components. Understanding of the IT cost components of e-banking distribution channels gives an insight about the fixed and floating components of IT expenses and thus can create the pre-conditions for cost saving.

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KOKKUVÕTE

Kas e-panganduse teenused on kasumlikud?

Olga Luštšik, doktorant

Viimaste aastate jooksul on Euroopa pangad kulutanud mitu miljardit eurot uute elektrooniliste pangakanalite arendusse. Kuid ärevusttekitavaid kasumeid nendest jaotuskanalitest ei ole tekkinud. Eesti pangad on samuti huvitatud IT-süsteemide laiendamisest ja parendamisest. Loodud on mitmed internetipangad. Kuni viimase ajani tehti suurem osa e-panganduse valdkonna teenuste hinnastamise otsuseid nõ. "kõhutunde" järgi, kuna olemasolevad finantsinformatsioonisüsteemid sellist analüüsi ei toetanud.

Käesolevas artiklis uurib autor tegevuspõhise kuluarvestuse (TPK, *Activity-Based Costing*) meetodika rakendamist pangandussektoris ühe Eesti panga näitel. Artikli eesmärgiks on analüüsida traditsioonilistes ja elektroonilistes kanalites tehtud tehingute kulukomponente ning teha järeldusi e-panga teenuste kasumlikkuse valdkonnas.

Artiklis tõestatakse, et:

- TPK rakendamine panganduses on võimalik, kuigi arvutuste süsteem võib kujuneda liiga detailseks ning raskesti hallatavaks.
- Elektroonilised kanalid võimaldavad pankadele ning pangaklientidele kulude kokkuhoidu. Hansapanga näitel on ühe internetipanga (*online* pank) makse omahind 12,5 korda madalam kui kontoris tehtud makse omahind; telepangas (*offline* pank) tehtud makse on aga 50 korda odavam kui kontoris tehtud makse.

- Kiire panga kogukulude langus ei ole saavutatav, kuna juba olemasolevaid jaotuskanaleid ei ole võimalik sulgeda sama kiires tempos, kui arendada uusi. Uute jaotuskanalite arendamisega kaasnevad märkimisväärsed investeeringud.
- Detailne TPK meetodikal saadud juhtimisinformatsioon võimaldab pankadel reguleerida, juhtida ja vähendada teatud kulukomponente. IT kulukomponentidest arusaamine võimaldab analüüsida elektrooniliste jaotuskanalite kulustruktuuri, jaotades need püsi- ja muutuvkuludeks ning luues sellega eelduse kulude kokkuhoiuks.