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THE RESEARCH OF MANAGEMENT ACCOUNTING EVOLUTION IN THE CONTEXT OF ECONOMIC CHANGES

Darius Gliaubicas

Vilnius University, Lithuania, darius.gliaubicas@khf.vu.lt
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Abstract

Information about economic processes is created by accounting systems. Financial accounting measures facts that already emerged inside the company but it does not give information about reasons that caused those facts. Therefore, financial accounting results can be improved with the help of management accounting. When companies become more sophisticated, and competition is always increasing, management accounting phenomenon becomes critical. Attention to understand current state of modern management accounting is very closely related with aspiration to know the evolution of management accounting.

Performed analysis showed, that most powerful countries had crucial influence in development of management accounting practices. In using the International federation of accountants (IFAC) approach was registered all emerged management accounting methods.

Keywords: management accounting evolution, IFAC.

JEL Classification: M21.

Introduction

Effective company's performance depends on quality of decisions that are made by management and owners. These decisions are related to constant need for information that would ensure rational management of resources and strategies. Information about economic processes is created by accounting systems. Accounting includes some general accounting methods and rules that depend on countries economic, social, cultural, political factors that are constantly changing. Accounting variability is related to companies' goal, to measure economic processes in different periods of time. Financial accounting gives retrospective information for outside users, while management accounting helps by providing more operative and perspective information to management. This information is required to ensure planning, controlling, organizing and decision-making functions. Financial accounting measures facts that already evolved inside the company but it does not give information about reasons that caused these facts. Therefore, financial accounting results can be improved with the help of management accounting. In contrast to financial accounting, management accounting information does not have normative nature, but it does have dynamic, orientated to future and pragmatic ideas. When companies become more sophisticated, and competition is always increasing, management accounting phenomenon becomes critical. Maxwell (1930) described a paradoxical situation and pointed, that financial accounting seeks to balance all economic operations up to the last pence, but it does not provide information about how many hundreds of thousands of income was lost due to manufacturing inefficiency. Therefore, information, accumulated in accounts, has a lot of demand, with company's management's purpose. Attention to understand current state of modern management accounting is very closely related with aspiration to know the evolution of management accounting. In historic perspective, management accounting evolution is directly related to historical events. Historical transition from craftsmanship to large-scale manufacturing, during the industrial revolution, provided premises for management accounting to emerge.

Research object – management accounting evolution.

Management accounting development research problem has received a huge attention in academic literature, but previous research were oriented to development in distinct countries, that is why they do not provide whole picture about management accounting history. Most solid management accounting evolution researchers were: Solomons (1954); Chatfield (1977); Chandler (1977); Parker (1980); Johnson & Kaplan (1987); Hopwood (1987); Hockin & Marcve (1988); Loft, (1995); Okano & Suzuki (2007).

This paper has a *research goal* – to analyze management accounting evolution in regions that had the largest impact to this process, such as USA, Great Britain, and Japan by providing general model of management accounting evolution.

Research methods. This research is based on logical analysis, grouping and comparing facts, and synthesis. Historical data was taken from the period of time between 1760s and 2000, because this period reveals most important management accounting development stages.

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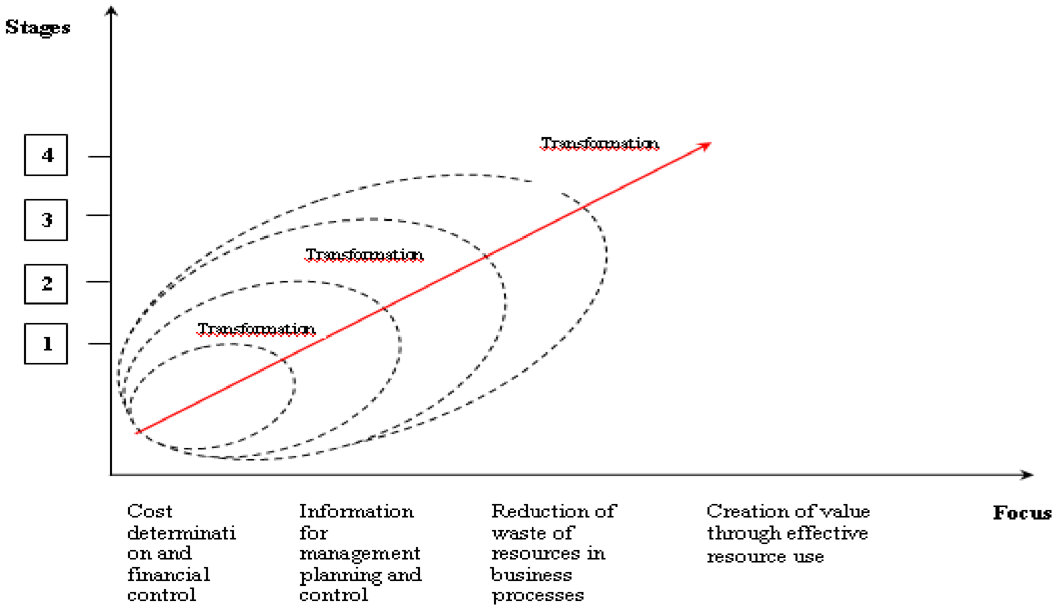
First part of this paper analyses most common theoretical approaches to management accounting evolution. With the analysis results, theoretical research model was formed that helps in reaching the goal of this paper. Second part includes archival management accounting evolution analysis in USA, Great Britain and Japan. In the third part obtained research results will be considered, by organizing them in created theoretical research model.

Management accounting evolution research methodology

Loft (1995) distinguished five different approaches that analyze evolution of accounting: (1) traditional, (2) neo-classical, (3) Johnson-Kaplan, (4) labor process and (5) Marxist. Proponents of traditional approach argue, that constant development is one of main accounting characteristics, and improving methods, that were used is the fact, that determines current state of management accounting (Ede, 1949; Chatfield, 1977). Neo-classic approach agrees with basic principles of traditional viewpoint, but they reviewed and improved historical analysis (Loft, 1995). This approach is known for passive observation of accounting methods that help companies reach their targets. According to Johnson-Kaplan approach, management accounting had lost its relevance, because methods that were used in 1980s were developed before 1925. This approach encourages opinion, that traditional management accounting does not provide proper information to management (Johnson & Kaplan, 1987). Labor process approach is based on idea, that company's control systems are not only neutral mechanisms, but by contraries, their use encourages effective manufacturing processes (Hopwood, 1987). Marxist approach argues that accounting system is a practical mechanism that helps company's management to save labor and other resources every day, to create additional economic value (Hopper & Armstrong, 1991). Management accounting development is considered to be a tool that properly distributes income and assets between social classes.

In addition to above mentioned approaches, it is important to take notice of International Accounting Federation 1998 presented statement about management accounting evolution. It observes management accounting concepts, development stages and economic factors that formed it (IFAC, 1998). Model helps to systematically interpret management accounting evolution (see figure 1).



Source: IFAC (1998)

Figure 1. Management accounting development model

Management accounting evolution model includes four fundamental stages:

1. *Cost determination and financial control stage, until 1950.* The attention is directed to determining costs and financial control of processes. Following factors had influence in management accounting methods development: (1) strong economic position of western countries that encouraged international demand, for its products, (2) relatively weak competition, (3) low attention to quality, (4) large-scale production.

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2. *Information for management planning and control, from 1950 to 1965.* During this stage, the main purpose was to distinguish management accounting information for planning management processes and controlling them. Decision analysis and responsibility accounting methods were formed. This stage is characterized by manufacturing process and company's internal analysis.

3. *Reduction of waste of resources in business processes stage from 1965 to 1985.* Global competition that increased due to Japan's economic progress, caused changes in international trade. Aspiration to accommodate new business environment, became main priority for companies. Competition was encouraged by technologic advantage in manufacturing processes. Companies started seeking better quality and costs reduction, at the same time.

4. *Creation of value through effective resource use stage from 1985 to 2000.* During this stage, companies faced major business uncertainty, technological innovations. Therefore companies started implementing management accounting methods, which assess economic value.

IFAC model becomes a tool, helping to trace and organize management accounting methods by their advancement levels.

In order to fulfill the goal of this research, principles of neo-classical approach and IFAC evolutional model, was used. It means that all management accounting development facts are systemically registered and grouped by IFAC management accounting model stages.

Research of management accounting evolution

Industrial revolution is considered one of the most important events in management accounting development (Johnson & Kaplan, 1987). Industrial revolution was predestined by: (1) scientific revolution, Newton, Boyle scientific discoveries, (2) intellectual revolution, and works of Locke, Voltaire philosophers. Steam engine, telegraph and telephone were invented, railway system was created, cities and factories started intensely growing. Fast formation of capital markets significantly changed internal economical system, craftsmanship, concentrated in the hands of craftsmen, was changed by manufacturing system (see table 1).

Table 1. Internal and manufacturing systems characteristics comparison

	Internal system	**Manufacturing system**
Labour methods	Manual work	Machinery
Location	Home	Factory
Ownership and working tools	Minor manual tools, that belong to worker	Powerful machinery, that belongs to owners of the capital
Production output	- Small volume production - Production is usually sold only in local market - Manufacturing is based on individual orders	- High volume production - Production is sold in international markets - Production is based on demand
Labor environment	Worker produced whole product from beginning, till the end.	- Worker produced only one part of whole production - Henry Ford production line system
Working hours	Worker used to work as much as he could, taking in account number of orders	Worker had fixed working hours
Workers and employers	Workers effort determined his income	Workers income was determined by his employers profitability

Source: Mokyr (1998)

Technological progress created new demand for accounting information. Accounting specialist had to provide information, necessary for costs control and production pricing (Wyatt, 2004). Although management accounting concept was first mentioned only after World War II, its synonym, cost accounting, was used since the beginning of industrial revolution.

USA

Costs determination first time was used in textile mills around 1800. Cost information allowed to: (1) assess production expediency, (2) identify effective production processes and (3) product price; (4) decide whether additional investments to new machines and production space were needed (Tyson, 1998).

According to Hoskin & Macve (1988) research results, from Springfield Armory factory accounting, at around 1840s this company applied standard cost accounting method, for the first time. This method allowed comparing actual costs with anticipated cost standards, and analyzing deviation reasons.

While first modern railway companies were establishing, a need to solve large-scale investment and their financing sources, appeared. Capital attraction expanded number of company's owners. It became hard for owners to make decisions and control the company. Therefore company's agent-principal problem became very relevant. First time in history, owners transferred company's management functions to executives (Fleischman & Tyson, 2007). In terms of accounting development, railway companies started register cost information in accounts (Chandler, 1977). In order to control costs more precisely Lousville and Nashville created ton-mile ratio (Heier, 2000). It allowed reasonably calculating costs experienced and at the same time it, became a reliable tool in controlling activities. Carnegie at around 1860s came to conclusion, that there are indirect costs independent from production (Johnson & Kaplan, 1987). Management accounting development was highly influenced by scientific management theory, based on which accounting received academic basis and directions for purposeful development (Chatfield, 1977). There was a widespread ideas about the fact that: (1) observing worker task performing processes, and collecting and using workers knowledge, can help in finding the most effective way to improve those tasks, (2) effective ways to perform tasks were registered in written rules (3) it was also offered, to responsibly choose workers, to ensure efficient task performing, when using rules determined in advance, and also (4) create reasonable payment system for performed tasks. Also, under performance of scientific management theory, a need for operative and perspective information has formed (Fleischman & Tyson, 2007). Metcalfe ideas had high influence on cost accounting development. In his book "The cost of manufactures", published in 1885, he discussed separation of direct and indirect costs in order to make effective management decisions. Formation of modern management accounting methods, were also influenced by General Motors ideas. In 1919 it was created promoting salary system; started implementing flexible budgets, developed transfer pricing method.

Du Pont Powder company, was one of the first USA companies, that started developing several activities at the same time (Johnson & Kaplan, 1987). When company diversified its activities, management required such accounting system that would help controlling all products value chains, coordinate performance of individual subdivisions, while meeting owners' interests. Du Pont company's executives, wanted to control return on capital that owners invested, and at the same time justify investment financing decisions. That is why was created ROI ratio.

When World War I ended, cost accounting became a profession (Loft, 1990). Under the influence of great depression in 1933, USA government established mandatory provision, to form fair practice codex, which would include paying employees' reasonable wages and determining weekly working hours. Therefore cost accounting specialists had to ensure two main functions, while following fair practice codex: (1) ensure, that prices would not be lower than prime costs and (2) to harmonize costs calculating rules and methods (Johnson & Kaplan. 1987). During World War II, the importance of standard cost accounting method has reduced, because government wanted to trade only with those companies, whose production costs were close to actual, not standard costs (Fleischman & Tyson, 2007). About 1954, management accounting definition was mentioned for the first time. In Simon (1954) research that included employees from 7 biggest USA companies, it was found that management accounting information is used to fulfill three main control functions: (1) registering performance results, (2) managing attention and 3) solving problems. Performance results were given in financial reports. Attention managing was based on comparison of plans budgets and actual results. Problem solving function has been implemented by making decisions, such as: manufacture or buy, what if analysis or alternative pricing decisions. Also, a need to calculate direct production costs, to perform absorption and marginal costing has grown at about 1950 (Chatfield, 1977). In 1960s, when USA companies influence in worldwide economy has decreased, responsibility accounting has formed, which allowed determining who is responsible for individual scope (Kaplan, 1983). In 1970s first costs managing accounting methods were created. Activity based cost management method, and value adding costs and product lifecycle analysis methods were formed (Hoskin & Macve, 1988).

In 1981 strategic management accounting definition was introduced. Management accounting purpose became helping company's management to manage its strategies (Johnson & Kaplan, 1987). Porter (1985) created value chain model. Also, at 1985, competitors' analysis has grown stronger, because of five competitive forces, PEST and SWOT methods (Porter, 1985). These methods allowed assessing, not only company's internal environment, but also to foresee performance risk factors in external environment, this way creating a competitive advantage. In 1987, customers' profitability analysis was discussed (Anandarajan & Christopher, 1987). Kaplan & Norton (1996) created a balanced scorecard system, which allowed company's management to transform objectives provided in strategy, vision and mission into performance indicators, which allow assessing the success of implementing competitive performance strategy.

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Great Britain

Cost accounting was mentioned for the first time in 1779 (Boyns & Edwards, 2007). There was a quite significant need for farmers, to have accurate data about all their costs. But only at 1887 cost accounting received exclusive attention. Garcke & Fells published a book "Factory accounts, their principles and practice". Application of scientific management theory in cost accounting has encouraged its development. In 1875 formed the first costs system, based on which, indirect costs were allocated to products (Wright, 1962). Since 1890 companies were seeking to uniform cost accounting, adopt general calculating methods and definitions, standardized cost accounting method has spread (Boyns & Edwards, 2007). Newman (1921) noticed that increased attention to costs calculating comes from manufacturers dream to give up such performance managing methods, which do not encourage business effectiveness and stability. Todman (1922) marked out 5 scientific cost accounting elements: (1) correct costs ascertainment, (2) providing reliable basis for costs evaluation, (3) materials and unfinished production control, (4) unfinished production and finished production value finding and (5) preparing statistical information for management.

When World War I ended at 1922, costs accounting became a profession (Loft, 1990).

Important factor that provided more accurate calculation of costs was the aim to relate cost accounting with financial accounting. Cost accounting was created by engineers (Johnson & Kaplan, 1987).

Standard cost accounting method was used for the first time in chemical industry in 1902 (Solomons, 1954). Durman (1934) marked 7 advantages of standard costs system: (1) actual and anticipated costs comparison, (2) detailed analysis of deviations, (3) performance measurement, (4) reduction of bureaucratic effort, needed when supervising activities, (5) faster expense calculation, (6) ability to anticipate effects of changes in wage and material expenses, (7) activity policy formation.

Creating budgets in company's activities was mentioned for the first time in 1907 (Solomons, 1954). Quennell (1925) accepted the fact that due to increasing competition it is not enough to identify costs, it is also important to know all incurred costs, so they could reduce them and sustain respective level of mark-up.

In 1935 marginal costs accounting method was presented. Based on it, fixed indirect production costs were accounted as period expenses (Solomons, 1954). England and Wales institute of certified accountants, after World War II described the benefits of costs accounting to company's management (ICAEW, 1947). Costs accounting included 4 stages: (1) financial accounting, (2) identifying costs, (3) budgeting and (4) standard costs accounting.

Japan

Social and cultural environment in Japan forced management accounting to effectively mobilize many managing functions in to one entirety (Yoshikawa, 2001). Costs accounting methods in Japan started spreading in 1873, when a book Choai-no-Ho was published (Okano & Suzuki, 2007).

First budgets as a tool to plan and control activities were implemented in Mitsubishi in 1882 (Okano & Suzuki, 2007). In addition this company has learned to change budgets, when competition in the market became more intense. Widespread of scholastic management theory in Japan began in 1911. First companies to implement scientific management ideas were Mitsubishi Electric, Toyobo (Boynds & Edwards, 2007). Main purpose of scientific management was not only fulfilling economic needs of management and employees, but also developing an idea, that company's workers form one big family. This idea, which marks Japan's management philosophy, is called Keiei Kazoku principle (Hazama, 1963). This specific management practice in Japan, had one attribute, salary rising was related to seniority (Loft, 1995).

The need for cost accounting has grown stronger in 1920, when it was needed to decrease companies` activities costs. During this period, the need for standard accounting and budget control had become more active (Hazama, 1963). During World War II, importance of cost accounting has increased due to governmental influence, which aimed to effective manufacturing (Loft, 1995). In 1939 cost accounting rules, for factories, producing military weapons, were published. In 1940 costs accounting rules for marine weaponry manufacturing, were approved. In 1942 cost accounting rules for manufacturing companies were published. Government consistently implemented economical control policy was growing, and cost accounting became one of most effective control measures (Loft, 1995). When war became more intense, cost accounting rules were reviewed and simplified. It is worth mentioning, that during this period, attention was transferred from traditional cost accounting, to manufacturing control by Gentani principles (Kato, 1991). Gentani system – is a real-time processes observation system, which stresses the importance of constant supervision, not only calculating of incurred costs (Okano & Suzuki, 2007). This system was aimed

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to maximum efficiency (Nagao, 2004). In 1953 NEC company for the first time implemented double standard cost accounting method, whose one of the goals was accurate inventory assessment, another – costs management (Okano & Suzuki, 2007). Also this company implemented responsibility accounting and management by Koto-mae principle (before negative effects occur). In 1955 constant production processes improvement method, it is called Kaizen (Kato, 1991). In 1960 Toyota started using Target cost accounting method. Main purpose of this method was reducing costs in product research and development stages (Kato, 1991). In 1962 cost accounting standards were released (Yoshikawa, 2001). Standards provided principles for accurate inventory assessment in order to help financial accounting. However the main idea of these standards was helping companies` management to control their companies (Okano & Suzuki, 2007). In 1970 Toyota created Just In Time system (JIT). JIT approach is based on constant company's obligation to seek advantages in all manufacturing stages and systems (Loft, 1995). In 1975, use systematic general quality control method started in Japan`s companies (Okano & Suzuki, 2007). The method started changing management style from approach to business as a single unit, towards continuous performance improvement.

Results

The results of archival analysis are depicted on table 2. There are registered all management accounting methods that were developed in USA, Great Britain and Japan in order to make the common picture of management accounting evolution. Each stage comprises methods meeting the requirements of company's management such as planning, controlling, cost and strategic analysis. The focus of information on the first phase are further developed and used on another stages.

Table 2. The results of management accounting evolution

	Methods \ Stages	Cost determination and financial control	Information for management planning and control	Reduction waste of resources in business processes	Creation of value through effective resource use
Information for decision making		**1760-1950**	**1950-1965**	**1965-1985**	**1985-2000**
	Cost determination and accounting	Cost determination			
		Standard cost accounting	Double standard cost accounting		
		Direct cost accounting			
		Records of cost accounting			
		Allocation of indirect costs			
		Uniform cost accounting	Marginal cost accounting	Activity based accounting	
		Absorption cost accounting	Target cost accounting	Activity based management	
	Planning	Budgeting	Discounted cash flow		
			Transfer costing		
	Controlling	Budgeting control	Responsibility accounting		
		Return on investments (ROI); Ton-mile ratio	Gentani system	Constant improvement method	
		Variances analysis	Kaizen system	Just in time system	
	Strategic analysis			Life cycling costing	Value chain analysis
					Five forces model
					PEST, SWOT analysis
					Customer profitability and Competitors analysis
					Balanced scorecard

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Conclusion

After summarizing performed research on management accounting evolution in the context of economic changes, these conclusions can be made:

1. Development of management accounting research covers a certain level of risk not fully analyzed the facts which caused the development of management accounting in individual countries. However, a generalized management accounting evolution model makes it possible to distinguish in our opinion the most important management accounting methods developed in the historical period.
2. Management accounting methods constantly were improved to better meet the requirements of management in making decisions. Management accounting evolution model includes four phases: (1) costs determination and financial control, (2) information for management planning and control, (3) reduction waste of resources in business processes and (4) creation of value through effective resource use. Each stage comprises methods meeting the requirements of company's management such as planning, controlling, cost and strategic analysis. The focus of information on the first phase are further developed and used on another stages.
3. The methods designed on the first and second stages, such as cost determination, direct cost accounting, indirect cost allocation, absorption and marginal costing, budgeting, and financial ratios were used to control the effective usage of resources. When the economic factors started to change dramatically after World War I and II they directly intensified the competition and brought strict attention to the use of resources in creating value. More sophisticated methods such as activity based costing, competitors' analysis, balanced scorecard started to emerge.
4. The archival research showed that all countries used the similar methods in their management accounting systems.

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