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# EXPLORING PROF. EMIL MUNDORF'S 1935 MANAGERIAL ACCOUNTING REPORT ON ISTANBUL FELT FACTORY

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**ABSTRACT**

The goal of this research is to critique the managerial accounting methods of the Istanbul Felt Factory in 1935, as revealed by Prof. Emil Mundorf's report. By evaluating this historical report in the context of Turkey's economic situation in the mid-1930s and comparing it to broader worldwide managerial accounting trends, the research aims to improve knowledge of managerial accounting techniques and methodologies at the time. Furthermore, this research attempts to show how insights gained from historical analyses can help to evolve and adapt accounting methods, with a particular emphasis on improving managerial accounting in modern business contexts.

***Keywords:*** Istanbul Felt Factory, Managerial Accounting, Accounting History.

***Jel Classification:*** L32, M40, M49.

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**PROF. EMİL MUNDORF'UN 1935 TARİHLİ İSTANBUL ÇUHA FABRİKASI YÖNETİM MUHASEBESİ RAPORUNUN İNCELENMESİ**


## ÖZ

Bu araştırmanın amacı, Prof. Emil Mundorf'un raporunun ortaya koyduğu 1935 yılındaki İstanbul Çuha Fabrikası'nın yönetim muhasebesi yöntemlerini eleştirmektir. Araştırma, bu tarihi raporu Türkiye'nin 1930'ların ortasındaki ekonomik durumu bağlamında değerlendirerek ve bunu dünya çapındaki daha geniş yönetim muhasebesi eğilimleriyle karşılaştırarak, o dönemdeki yönetim muhasebesi teknikleri ve metodolojileri hakkındaki bilgileri geliştirmeyi amaçlamaktadır. Ayrıca, bu araştırma, modern iş bağlamlarında yönetim muhasebesinin geliştirilmesine özel bir vurgu yaparak, tarihsel analizlerden elde edilen içgörülerin muhasebe yöntemlerinin geliştirilmesine ve uyarlanmasına nasıl yardımcı olabileceğini göstermeye çalışmaktadır.



***Anahtar Kelimeler:*** İstanbul Çuha Fabrikası, Yönetim Muhasebesi, Muhasebe Tarihi.

***JEL Sınıflandırması:*** L32, M40, M49.


## 1. INTRODUCTION

Accounting history has been established as a concentration within the interdisciplinary accounting study community, alongside various other topics such as public sector accounting, social and environmental accounting, management control, and organizational change (Guthrie and Parker, 2006). Conducting accounting history research brings an important perspective to learning and developing accounting methods in accordance with the changing needs of society and to shaping the present and future of the accounting profession. Hence, studying accounting history allows professionals and scholars to grasp how the accounting discipline has changed throughout time and how it continues to handle the problems and opportunities of today's dynamic corporate world.

One of the indicators of economic advancement is the complexity and quality of management and cost accounting, which are two essential aspects of accounting. At its most basic, cost accounting offers the data required to calculate the true cost of products and decide selling prices. Costing has always played an important role in assessing the efficiency of the manufacturing process and decision-making. Many planning processes rely on cost data, including asset procurement, vertical integration, subcontracting, make-or-buy decisions, technical innovation, and product mix analyses (Fleischman and Tyson, 1993:503).

The rapid development of the economy and trade exchange throughout the capitalist era resulted in the development of accounting (Asllanaj, 2010); from the time of the developing double-sided accounting system to the present, accounting developments around the world have undergone major changes (Berisha and Asllanaj, 2017:165).

Accounting developed in Turkey in parallel with the industrial revolution, with significant advances occurring in both the 19th and 20th centuries. Accounting practices took a new turn because of several legal restrictions enacted in Turkey throughout these years. When the cost accounting system of Sümerbank, which was founded in 1933, is reviewed, it is discovered that steam costs are calculated using the expense distribution method, also known

as the gradual distribution method, in addition to modern cost accounting procedures (Yükçü and Atağan, 2012:41-42).

It is important to conduct research on accounting culture in the early periods of the Turkish Republic to understand how the profession has evolved over time. With the Republic, a new era began that paved the way for the development of the accounting profession. Between 1926 and 1930, legal regulations were made that would constitute the breaking point that affected the century. In this context, the years 1930–1940 were associated with the formation of State Economic Enterprises (SEE) that brought tax-oriented accounting practices, tax auditing, accountant training, and business administration to the agenda (Güvemli et al., 2013:20).

State Economic Enterprises (SEE) are a very important tool in the hands of those who administer economic policy to achieve full employment, a stable price level, a fair income distribution, and a certain development rate, which are the goals of economic policy. SEEs play an important role in both fiscal policy and monetary policy, as well as direct state intervention policy (Sadıklar, 1977:129). SEEs are a very important tool in the hands of those who administer economic policy to achieve full employment, a stable price level, a fair income distribution, and a certain development rate, which are the goals of economic policy (Sadıklar, 1977:129).

SEEs are classified as either Economic State Enterprise (ESE) or Public Economic Organization (PEO). For SEEs with varied aims and activity structures, the appropriate one of these statuses is preferable. According to Decree Law No. 233 on Public Economic Enterprises, it is stipulated that ESE is an SEE whose capital is entirely owned by the state and was established to operate in the economic field according to commercial principles (Arslantürk, 2022:92). The importance of ESEs is great in the first years of the Turkish Republic because they can play a crucial role in the development and stability.

The Istanbul Feshane Felt Factory (Feshane-i Âmire) was established in the second quarter of the 19th century and played a significant role in both civilian and military life until its closure. It is in the Defterdar District in the Eyüp district of Istanbul. The structure, which was built in 1835 to produce felt and fez, two significant Ottoman Empire industrial products, is the first prefabricated steel construction textile factory of its sort, with a building production characteristic. The building's columns were cast in Belgium and shipped to Istanbul. With this feature, the building holds a significant place in our architectural history (Irmak, 2013).

The Istanbul Feshane Felt Factory was an institution that was a pioneer of industry in the Ottoman Empire, formed by Mahmud II in 1826 to furnish uniforms for the army constituted when the guild of Janissaries, which had become corrupt and had no military contribution, was disbanded. The Istanbul Feshane Felt Factory was a factory that operated during both the Ottoman Empire and the Republic of Turkey (Köse and Abdioğlu, 2021:67; Şahin, 2019: 5). Since it was built by the state, it was considered an example within the scope of ESE.

Prof. Emil Mundorf, the founder of the Aachen Woollen Fabric Institute, was born in 1866. Between 1908 and 1936, he applied to the Deutsche Patent und Markenamt for sixteen patents for industrial machines and procedures, and he also applied for patents in France, the

United Kingdom, and the United States. In a 1910 application, he stated that he was a "Technical School Superintendent" in Boxgraben, Aix-la-Chapelle; in other applications, he stated that he was a "Professor, Boxgraben, Aachen." Professor Emil Mundorf, a noted German fabric expert, was recruited to Turkey by Sümerbank to increase production at the Hereke Factory, which has the capacity to make European quality materials (Akgöz, 2020:193-194).

The aim of this study is to criticize the Istanbul Felt Factory's managerial accounting methods in 1935, as revealed in Prof. Emil Mundorf's report. The research intends to expand understanding of management accounting techniques and methodologies during that era by examining this historical report within the context of Turkey's economic landscape during the mid-1930s and comparing it to broader worldwide managerial accounting trends. Furthermore, the purpose of this research is to show how historical insights can contribute to the evolution and adaptation of accounting methods, with a particular emphasis on improving managerial accounting in contemporary business settings.

## 2. TURKEY'S ECONOMIC AND INDUSTRIAL LANDSCAPE IN 1935

Having inherited a mostly agriculture-based economy battered by the recent Great War, debts from its lost empire, and significant losses by the majority of its business and artisan classes, the postwar Turkish Republic suffered from a lack of capital accumulation, entrepreneurship, and an established industrial workforce from its beginnings in 1923 (Akgöz, 2020:183; Keyder, 1987). In the early years of the Republic, the liberal economic policy, which attaches importance to private entrepreneurship, was adopted, and the private sector was supported. The state's participation and interventions in economic life are limited in this period. The state has tried to create more physical and institutional infrastructure (Durmuş and Aydemir, 2016:163; Şahin, 2002:54).

With the Law for the Encouragement of Industry enacted on March 28, 1927, support for the industry began to increase even more. The aim of this law is to create private enterprises and produce domestic goods. This law, however, stated that "only organizations that were considered large enterprises and employed at least 1500 daily workers during the year could benefit" (Doğan, 2013:216; Sevgi,1994:25). As a result, the Law for the Encouragement of Industry may not benefit all enterprises. The economic troubles that started in the world in 1929 also affected the Republic of Turkey, but investments were made to overcome this crisis and efforts were made to ensure production and employment (Doğan, 2013:216).

The Law for the Encouragement of Industry is the most important document reflecting the concept of the national economy, which is expressed as the transfer of capital revenues to national elements and their transformation into investment. The concept of the national economy will be called statism over time (Kahraman, 2005:12; Yaşa, 1980:180).

Companies that benefited from the Law for the Encouragement of Industry between 1932 and 1939 are shown in Table 1 (İlkin, 2012, Ağaoğlu, 1941:45):

**Table 1.** Companies benefited from the Law for the Encouragement of Industry (1932 -1939)

| | | Private | | Public |
|---|---|---|---|---|
| Years | Number of Businesses | One Person Enterprises | Private Company | Public Administration |
| 1932 | 1473 | 831 | 611 | 31 |
| 1933 | 1397 | 806 | 555 | 36 |
| 1934 | 1310 | 738 | 534 | 38 |
| 1935 | 1161 | 631 | 474 | 56 |
| 1936 | 1101 | 554 | 461 | 86 |
| 1937 | 1116 | 562 | 465 | 89 |
| 1938 | 1103 | 529 | 470 | 104 |
| 1939 | 1144 | 522 | 511 | 111 |

**Source:** (İlkin, 2012, Ağaoğlu, 1941:45)

According to Table 1, the number of businesses decreased over the years investigated, whereas the number of companies increased after 1936. Moreover, it has been observed that, as stated before (Doğan, 2013:216; Sevgi,1994:25), the law states that "only organizations that are considered large businesses and employ at least 1500 daily workers during the year can benefit, so private businesses that have a size within the specified criteria benefit from it, not all businesses. In addition, between 1930 and 1938, it was observed that the number of enterprises in public administration increased over the years due to the implementation of the statism approach.

The economic policies implemented in the period 1923–1938, which coincided with the founding years of the Republic of Turkey, had the characteristic of a mixed economic system as a determinant, and in line with internal and external developments, they increasingly focused on public entrepreneurship without ignoring private enterprise, and by the end of the period, they had achieved results that could be considered successful. (Koçtürk and Gölanan, 2010:49; Erim, 1998:2).

In 1929, Turkey conducted its first industrial survey, both in terms of content and method. According to survey figures, 43.59% of the approximately 65,000 businesses were in the agriculture sector, 23.83% in the textile sector, and 22.61% in the mining, machinery construction, and repair sectors (Erdoğan, 1992:377).

Following the 1929 Crisis, the "industry-based economy model" was adopted by the state's administration. Statism, as a unique method of capitalist capital accumulation in Republican Turkey, aided in the growth of capitalism. In contrast to liberalism, the term "statism" has been used to refer to an interventionist economic policy that requires state management. Although the state would engage in economic activity, it continued to promote private-sector investment (Kahraman, 2005:2).

The years 1930–1938 were interventionist and protectionist statist years in which the principle of statism was fully implemented. The establishment of the Central Bank and the Law on the Protection of the Value of the Turkish Currency are, in a sense, proof of the

interventionist state. The state has been a pioneer in all areas, or, to put it more accurately, it had to be a pioneer due to circumstances (Durmuş and Aydemir, 2016:165).

In the report titled "Report on Our Economic Situation" prepared by the Ministry of Economy in 1930, the groups of goods that would be subject to import substitution, especially cotton and woolen textiles, paper, and iron and steel, were discussed. It has been requested to establish and develop factories in these industries (Kahraman, 2005:56; Tezel, 1994:266).

Between 1930 and 1938, when the principle of statism was fully applied, industrial production experienced enormous growth. Statism was applied to industry, and industry began to produce its first results. The most significant change happened in the weaving sector. Domestic output has grown to cover 80% of demand (Durmuş and Aydemir, 2016:165; Kepenek, 1990: 68).

Istanbul Feshane Felt Factory, is of great importance in terms of the textile industry in the Ottoman Empire. The importance of the factory in the historical process can be listed as follows (Köse and Abdioğlu, 2021:72; Gürsoy, 2019: 22–23):

- Since Eyüp is a residential area of ancient civilizations, Feshane-i Amire was located at the center of an ongoing industrial accumulation.
- Feshane-i Amire was the first and most important factory of the industrialization process in the Ottoman Empire after the industrial revolution in the world.
- The Golden Horn, which was the most important region of the Ottoman State industrial network, was part of interrelated industrial structures.
- The industrial production of the Ottoman Empire was a successful production branch worldwide, and it was the first factory for this production.
- As an industrial enterprise inherited from the Ottoman Empire to the Republican period, it was a role model for the factories of the Republican period.
- It was an important witness and even one of the leading actors in the industrial revolution process of the Ottoman Empire and the Ottoman innovation movement.
- Being the most important factory in the region where industrial accumulation began and developed in the Ottoman Empire.
- Feshane building is the first prefabricated steel construction textile factory.
- The impact of the products produced in the factory on the social structure leads to significant changes in terms of sociological and urban planning concepts.

In other words, a woolen weaving workshop was established in Istanbul under the leadership of the state, using 38 masters brought from Thessaloniki in early 1708 and five French prisoners in the shipyard dungeon who learned to be knowledgeable in weaving. This first attempt failed due to the failure to achieve the desired quality in the goods produced and the high cost. Later, with the participation of a non-Muslim Ottoman citizen as an entrepreneur in this initiative of the state, production was restarted with machinery and craftsmen brought from Poland. This second attempt was longer-lasting than the first, and the workshop remained in operation until 1732. However, in that year, the workshop ceased production due to reasons

such as raw material shortages and the cost of production compared to European goods (Genç, 1991).

## 3. MANAGERIAL ACCOUNTING PRACTICES IN BETWEEN THE 1800S AND 1930S: A GLOBAL PERSPECTIVE

The first modern businesses that required internal accounting information for decision-making and management were the mechanized, multi-process cotton textile factories that appeared in England and the United States around 1800. These textile companies employed cost accounting to calculate the direct labor and overhead expenses of transforming raw materials into finished yarn and fabric. These double-entry cost accounts, which are the first known, differ significantly from any earlier accounting records used in corporate organizations. Businesses used accounts solely to record market exchange results from the inception of double-entry accounting until the introduction of the modern factory. With the introduction of the integrated, multi-process textile mill, accounts were required to synthesize information about the cost of internal, administratively coordinated production processes (Johnson, 1981:512; Loveday, 1980).

Further research into early nineteenth-century textile mills in the United Kingdom has shown promising results. In 1810, Stone discovered cost accounting procedures at Chorlton Mills that were 'not believed to have been in use until the early twentieth century'. This included allocating overhead to cost centers based on specified rates and providing basic examples of transfer pricing (Fleischman and Tyson, 1993:503; Stone, 1973:77).

The extended economic crisis of the 1870s caused a continued reduction in demand, resulting in excess capacity and lower pricing. Manufacturers looked for new ways to improve efficiency and shifted their focus away from technology and toward better operational management. During this time, operations became more capital intensive, and while initial capital expenditures were cheap and output provided adequate funding for expansion, new capital injections were now necessary. The entrepreneurs who founded the companies eventually reduced their stakes and engagement in the organization's management. By 1917, family and banking institution representatives had minimal influence on the management of organizations (Shotter, 1999:221; Chandler, 1977:491).

At the end of the nineteenth century, most of these major manufacturing organizations in iron and steel, foodstuffs, petroleum, chemicals, machinery-making, and so on continued to engage in the same essential activity as the early textile firms: the conversion of raw materials into finished goods (Johnson, 1981:514; Chandler, 1977). It is possible that refined and extensive versions of the conversion cost systems that emerged in early textile factories provided the management accounting information necessary to govern operating operations in the huge successors of the first textile mills. It is also probable that these capital-intensive, huge corporations paid more attention than early textile companies to the issue of allocating fixed costs to periods or products (Johnson, 1981:514).

Between 1885 and 1920, cost accounting moved from approaches resembling medieval bookkeeping to best practices that matched descriptions in modern textbooks. Following the

1920s, managers used cost accounting not just to preserve assets and regulate expenditure but also to make decisions, as the emphasis shifted from gathering accurate cost information to determining the value and utility of certain figures (Shotter, 1999:221; Chatfield, 1977:160).

In the USA, it was detailed using the same approach that is still used today when he developed material and supplies, direct labor, manufacturing expense, work-in-process, and finished goods accounts in 1911. It's worth noting that he called the technique "accounting cost system" or "financial cost system," implying that it was only based on financial accounting records (Okamoto, 1966:35; Wildman, 1911:12). It would thus be regarded as a type of cost system, however basic at the time (Okamoto, 1966:35).

In Britain, the necessity for armament during World War I resulted in a significant restructuring of British manufacturing. The chances for profiteering created by scarcity, along with the lack of an evident "fair market price" for war weaponry, gave rise to the idea that the payment manufacturers should receive should be tied to cost. Simultaneously with this, almost as an afterthought during the legislative preparation process, came the government's right to investigate the costs. The government's wartime laws implicitly required manufacturers to have official knowledge about the costs of their business operations. What was meant to be visible to manufacturers was to be taken by the state for the benefit of the British people. Unfortunately for the government, many manufacturers did not have these statistics available, and the attempt to obtain them resulted in cost accountants and cost accounting "coming into the light." (Loft, 1986:148).

In China, the reforming efforts of Xu, the 1929 Company Law, and the dramatic growth of Chinese business activity allowed for the fusion of the Westernized debit-credit model and the Chinese traditional accounting system. It was complicated, in part because two opposing groups—reformationists and transformationists—had conflicting perspectives on scientific accounting improvement. However, what happened was that small to medium-sized entities clung to the Chinese traditional indigenous bookkeeping system, while other small to medium-sized entities were willing to adopt Xu's reformed Chinese-style method, and large entities were willing to engage with Western forms of accounting (Peng and Brown, 2017:177). It is worth noting that the Western debit-credit approach and Xu's reformed Chinese-style method coexisted following the 1930s movement. Medium and large-sized enterprises chose the Western debit-credit technique, but traditional small and medium-sized corporations adopted Xu's revised Chinese-style method. Many industrial and commercial firms continued to use various receipts and payment statements, including those advised by Xu's reformed Chinese-style system. Xu’s modified Chinese-style system grew into two methods for receiving and making payments. One represented the cash receipts-and-payments accounting technique with left records shou (like debit) and right records fu (like credit). This system was like the Western debit-credit method and was used by banking institutions such as the Chinese Renming Central Bank. It utilized left records fu (like debit) and right records shou (like credit). This system, like the debit-credit method, was implemented by the Ministry of Finance following the establishment of the People's Republic of China (Peng and Brown, 2017:193; Song, 2009).

In Japan in the 1930s, capital investment increased dramatically. Between 1928 and 1932, total investment in Japan's largest businesses reached 1.6 billion yen, and between 1936

and 1939, it increased to more than 3 billion yen. Internally developed reserves, reflected by depreciation expenses, were one source of company funds, but equity issuance was especially active during this period to keep up with the rapid expansion (Masayoshi et al., 2021; Hashimoto, 1984:280). Moreover, the Financial Management Commission of the Industrial Rationalization Bureau at the Ministry of Commerce and Industry began developing a "cost accounting guide" in 1930. Despite being the most effective tool for control, the cost system was still in its infancy. The Commission believed that improving the cost system was necessary before accounting could be used as a control tool. The Commission released the "Cost Accounting Guide (draft)" in 1933 and revised it in 1937, resulting in the "Manufacturing Cost Accounting Guide." during the Second World War. Although these manuals addressed basic cost accounting, they emphasized historical cost accounting because it was widely used by businesses at the time (Matsumoto, 1953:41).

In Japan, when comparing standard cost accounting theory before and after the Second World War, there are some distinguishing features. Setting cost standards and standard cost accounting were considered similarly before the war, but they were clearly distinguished afterward. Setting cost standards is simply perspective accounting, but standard cost accounting entails not only perspective accounting but also the determination of actual costs, a comparison of actual costs to standard costs, and cost variance analysis. Another distinguishing feature is that prior to the war, the idea of standard cost accounting emphasized the establishment of cost standards and cost variation analysis. After the war, determining the actual costs, as well as comparing actual costs to standard costs and conducting cost variance analyses, were considered crucial (Matsumoto, 1953:45-46).

Standard costing became widely utilized in large industrial corporations in the early twentieth century to improve control and efficiency. The implementation of standard costing in Russia has its own story. The difficulties of preliminary planning and standardization of production processes were explored in the works of Russian authors P. Reinboth, Ed. Feldgauzen, R. Veizman, and A. Rudanovsky at the end of the nineteenth and beginning of the twentieth centuries. These concerns were extensively researched in the 1920s and 1930s because of the implementation of a system of plans to control the national economy. Soviet academics and practitioners performed an active scientific search for ways to rationalize cost accounting practice, increase accounting workload, and measure industrial output. Soviet scholars Zhebrak, Stotsky, and Lieberman developed the ideas of normative cost accounting, which was based on standard costing, between 1932 and 1933 (Marina et al., 2019: 385-390).

## 4. PROF. EMİL MUNDORF'S 1935 ACCOUNTING REPORT: AN ANALYSIS

### 4.1.Analysis of the First and Second Pages of the Report

**General Condition of the Factory and Efficiency Issues:** Prof. Emil Mundorf observed low production efficiency during his time studying operations at the Hereke facility. Upon arriving at the Feshane factory, he identified similar efficiency problems. At the request of the General Manager, Mundorf examined the factory's overall condition and prepared a report emphasizing the need to address production errors and improve profitability.

**Production Volumes and Calculations:** In 1934, the total operating hours of the Feshane factory were 261,666 (6,183) hours. Assuming normal conditions would allow for 70% efficiency, and considering a production rate of 85 weft threads per minute, the theoretical output per hour (at full capacity) would be calculated as follows:

- At 85 wefts/minute × 60 minutes × 116 machine × 70/100 = 414,120 wefts per hour
- For 6,183 hours, the expected production was 2,560,503,960 wefts (6,183 hours × 414,120 wefts/hour = 2,560,503,960 wefts).

Only 1,617,881,150 wefts were produced, indicating a 44.2% efficiency rate and a shortfall of 942,622,810 wefts. This shortfall reflects a severe deficiency in efficiency with significant economic implications.

**Cost and Savings Calculations:** The report calculates that at a 44.2% efficiency level, manufacturing costs per 1,000 wefts—excluding raw materials and wages—amount to 36.6 kuruş per 1,000 wefts. The factory might have saved a significant amount of money if it had reached the targeted 70% efficiency. According to the report, a saving of 13.1 kuruş per 1,000 wefts could be achieved, totaling approximately 335,428.89 Turkish Lira in overall savings. The report also notes that 1,400 wefts correspond to one meter of military-grade cloth (çuha), and that producing an additional 673,300 meters of cloth would yield a gain of 20 Turkish Lira per 1,000 meters. Thus, for 673,300 meters, a profit of 673,300 × 20 TL = 134,660 TL could be obtained.

**Critical Analysis:** Prof. Mundorf's detailed examination of the factory's current state focuses on efficiency and cost issues. Considering that no Turkish-language cost accounting textbooks had been written at that time, Mundorf's report was forward-looking for its era. Identifying the factory's cost structures and efficiency problems was an advanced endeavor under the conditions of the period.

Mundorf explicitly criticizes the low efficiency of the factory and emphasizes that the resulting elevated costs negatively impact profitability. Due to low efficiency, the factory operates far below its potential production capacity. He stresses the need for corrective measures and more effective management.

It appears that the report does not differentiate between fixed (overhead) and variable costs, nor does it distinguish between direct and indirect labor expenses. Instead, all labor costs seem to be included under general manufacturing costs.

Mundorf provides concrete suggestions for improving productivity and reducing costs. He recommends adopting a more precise cost allocation method and improving work processes. He also underlines the necessity of worker training and investment in modern machinery. These proposals aim to enhance the factory's sustainable profitability in the long term.

### 4.2. Analysis of the Third and Fourth Pages of the Report

**Efficiency and Worker Training:** On the third page of his report, Prof. Mundorf refutes the notion that low production is caused by workers' lack of skill. He attributes the primary issue to inadequate work scheduling and flawed working methods. He acknowledges that workers are diligent and skilled but insists that the tasks assigned to them must match their abilities and qualifications and must be supported by systematic, scientifically-based training methods.

> *"This country's worker is diligent, skillful, and hardworking. One must ensure that the assigned tasks are compatible with the worker's abilities and qualifications and subsequently apply a systematic and continuous scientific training method."*

> *"It may occur to some to blame the workers' lack of skill for low efficiency. Based on my observations and experiences, I reject this idea. The real cause lies in the failure to properly determine the work program in the first place and in errors in the working methods."*

**Improving Training and Production Processes:** Prof. Mundorf recommends organizing special training programs for workers. He emphasizes the usefulness of evening courses to train both skilled foremen and assistant foremen, suggesting these courses can be held within the factory premises using appropriate technical materials.

**Production Methods and Cost Control:** The report suggests technical improvements to enhance yarn quality, including more systematic drying, cutting, and combing processes. Additionally, Mundorf stresses the importance of applying modern techniques and materials in the production processes, enabling workers to be more effective and productive.

> *"Based on my experiences in practical and instructional fields, I recommend organizing evening courses exclusively for workers. This evening courses would render great services in training foremen and assistant foremen."*

**Cost Savings:** Mundorf analyzes potential cost savings in detail. For instance, he notes that careful handling of yarns and minimizing waste would reduce production costs. Such improvements would lower overall expenses and increase the factory's profitability.

**Efficiency Gains and Cost Savings:** On the fourth page, Mundorf explains how efficiency improvements can yield cost savings. Enhancing yarn quality, reducing waste, and optimizing production processes are among his recommendations. Such improvements would enhance the factory's overall cost structure and profitability.

**Calculations and Cost Analyses:** This section presents detailed calculations of cost savings. By providing concrete numerical examples, Mundorf demonstrates how improvements in specific production stages would affect costs. These calculations offer the factory tangible data to guide efforts in boosting efficiency and reducing costs.

*"If the necessary 70% efficiency (2,560,503,960 wefts) had been achieved, the manufacturing cost per 1,000 wefts would have decreased, resulting in a savings of 35.6 kuruş per 1,000 wefts."*

**Critical Analysis:** Mundorf's recommendations for worker education and improved production processes aim to increase efficiency. This perspective is notably progressive for the time. Identifying and remedying the factory's cost structure and efficiency issues is crucial for ensuring the enterprise's sustainable profitability.

Mundorf openly criticizes the factory's low efficiency and highlights the adverse economic consequences of high costs. By pointing out that the factory operates far below its potential production capacity, he emphasizes the need for structural improvements.

His proposals, including efficiency gains and cost reductions, offer concrete steps to enhance profitability. Implementing optimized production processes, reducing waste, and producing higher-quality yarns would contribute to a more sustainable enterprise in the long run.

### 4.3. General Evaluation

Prof. Emil Mundorf's 1935 report provides a comprehensive analysis of the low production efficiency and high costs at the Istanbul Feshane Çuha Factory. For its era, the report represents an advanced application of cost accounting principles and offers practical measures to improve the factory's efficiency. Mundorf's vision and critiques offer a profound understanding of the factory's current state, and his development proposals seek to enhance the company's profitability.

Mundorf explicitly criticizes the factory's low efficiency and the associated economic repercussions. He provides concrete suggestions to remedy efficiency shortfalls and reduce costs, aiming to increase the factory's sustainable profitability over time.

The report's detailed analyses and data-driven recommendations serve as an important guide for improving efficiency and cost-effectiveness. Mundorf's forward-looking approach and meticulous cost calculations make a significant contribution to the cost accounting practices of the period. In this sense, the report constitutes an important milestone in the history of Turkish accounting, particularly in the development of cost accounting applications.

## 4. CONCLUSION

This study examines Prof. Emil Mundorf's 1935 report on the Istanbul Feshane Felt Factory, shedding light on the accounting thought of the period. The report demonstrates how accounting practices of the era were tailored to the prevailing economic and industrial conditions, with a particular emphasis on efficiency and cost control.

Prof. Mundorf's report provides detailed analyses of the factory's inefficiencies and cost structures, reflecting the analytical approach of the time, which prioritized economic optimization. The report goes beyond mere criticism, offering systematic solutions to improve efficiency and reduce costs within the factory. This indicates that managerial accounting was

not merely a tool for reporting but also served as a mechanism for improving business operations and supporting decision-making processes.

Mundorf's forward-thinking strategy and careful cost estimations significantly influenced the era's cost accounting procedures in Turkey. When other cost accounting practices in the world are examined, developing material and supplies, direct labor, manufacturing expense, work-in-process, and finished goods accounts, the same methodology that was still used in the 1960s was documented in the USA. Thus, even if it was simple at the time, it would be considered a form of cost system (Okamoto, 1966:35). Standard costing gained popularity in Russia in the early 1900s to increase efficiency and control in large industrial companies. To raise the accounting workload, monitor industrial output, and rationalize cost accounting practice, Soviet academics and practitioners conducted an aggressive scientific search (Marina et al., 2019: 385-390). In Japan, before the war, standard cost accounting and setting cost standards were viewed similarly, but during the war, they were distinguished from one another. Simply said, setting cost standards is perspective accounting; however, standard cost accounting also includes determining actual costs, comparing actual costs to standard costs, and analyzing cost variances. Before the war, the concept of standard cost accounting placed a strong emphasis on cost standards and cost variance analysis, which is another characteristic that sets it apart. Following the war, it was thought to be essential to ascertain the true costs, compare them to standard costs, and do cost variance analysis (Matsumoto, 1953:45-46). Considering these developments in different countries of the world, Mundors's report's comprehensive evaluations and data-based suggestions are a valuable manual for raising productivity and cost-effectiveness. In this context, the study constitutes an important turning point in Turkish accounting history, especially in terms of the evolution of cost accounting, and is a model application close to cost accounting practices in different countries around the world during the same period.

But the report doesn't seem to make a distinction between direct and indirect labor expenses or between fixed (overhead) and variable costs. Rather, it appears that general manufacturing costs include all labor costs. The report does not demonstrate that the standard cost method is not used. Therefore, standards were not established based on cost components, and no comparison with actual costs was conducted to analyze differences. Rather, general production costs were calculated using the efficiency criterion capacity utilization rate without any cost differentiation. Since the study sets 70% efficiency as the goal, it is assumed that the normal (practical) capacity is used. However, it is not clearly stated in the report why this capacity rate is used.

Moreover, the report introduces significant innovations in cost accounting, contributing to the evolution of accounting culture in Turkey, where modern cost accounting systems were still in their infancy. The comprehensive and detailed nature of the report highlights the sophistication of accounting thought during the period, especially in a context where advanced accounting practices were not yet widespread.

In conclusion, Prof. Mundorf's 1935 report represents a vital reference for understanding the accounting mindset of the time. It provides valuable insights into the development of accounting practices in Turkey and the role of accounting in business management within a

historical context. This report not only underscores the technical dimensions of accounting but also positions it as a tool for offering economic and managerial perspectives, marking it as an essential resource for accounting history research.

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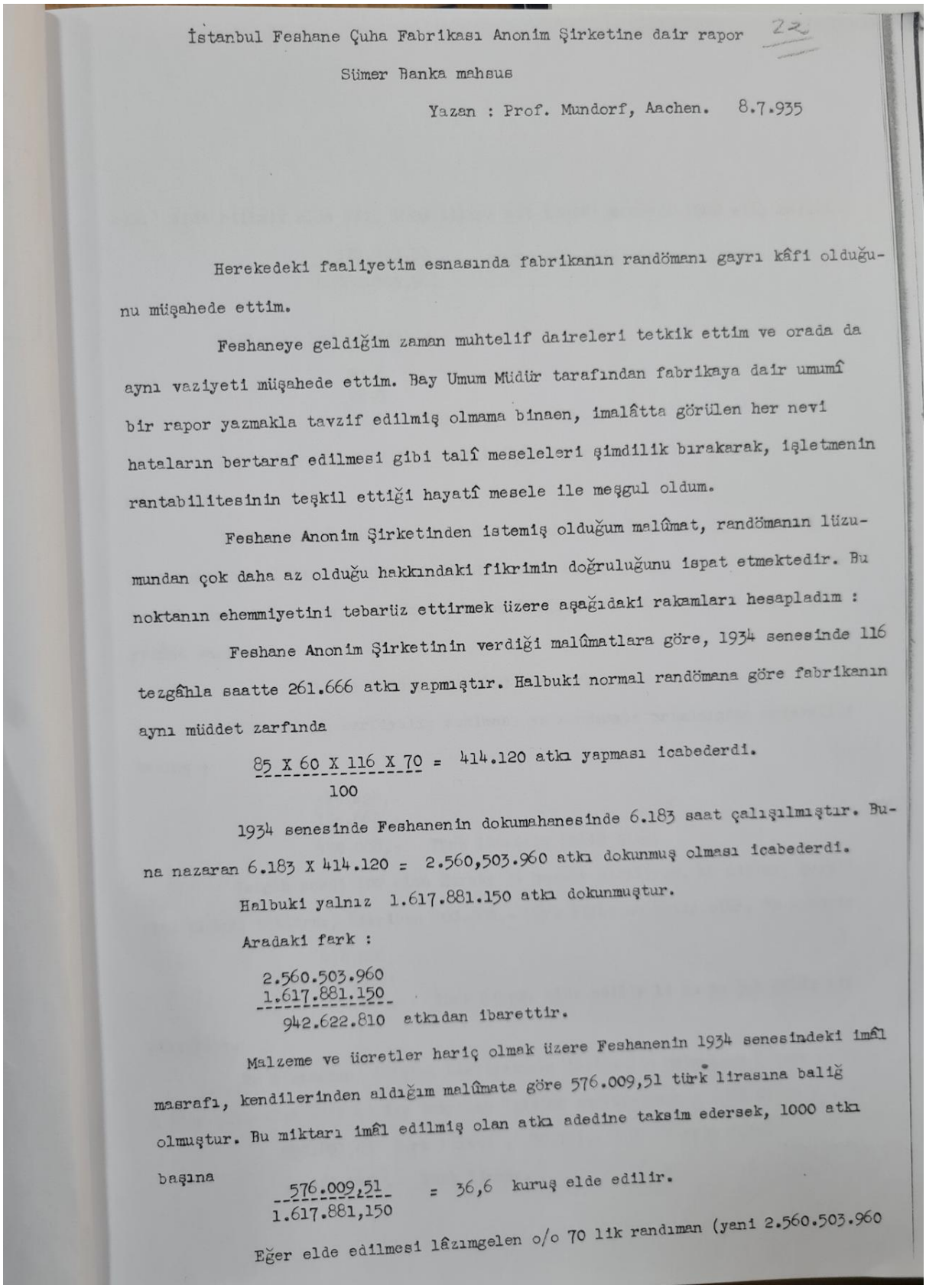
## APPENDIX

### Appendix 1: The first page of Prof. Mundorf's report



İstanbul Feshane Çuha Fabrikası Anonim Şirketine dair rapor 22

Sümer Banka mahsus

Yazan : Prof. Mundorf, Aachen. 8.7.935

Herekedeki faaliyetim esnasında fabrikanın randömanı gayrı kâfi olduğunu müşahede ettim.

Feshaneye geldiğim zaman muhtelif daireleri tetkik ettim ve orada da aynı vaziyeti müşahede ettim. Bay Umum Müdür tarafından fabrikaya dair umumî bir rapor yazmakla tavzif edilmiş olmama binaen, imalâtta görülen her nevi hataların bertaraf edilmesi gibi talî meseleleri şimdilik bırakarak, işletmenin rantabilitesinin teşkil ettiği hayatî mesele ile meşgul oldum.

Feshane Anonim Şirketinden istemiş olduğum malûmat, randömanın lüzumundan çok daha az olduğu hakkındaki fikrimin doğruluğunu ispat etmektedir. Bu noktanın ehemmiyetini tebarüz ettirmek üzere aşağıdaki rakamları hesapladım :

Feshane Anonim Şirketinin verdiği malûmatlara göre, 1934 senesinde 116 tezgâhla saatte 261.666 atkı yapmıştır. Halbuki normal randömana göre fabrikanın aynı müddet zarfında

$$\frac{85 \times 60 \times 116 \times 70}{100} = 414.120$$ atkı yapması icabederdi.

1934 senesinde Feshanenin dokumahanesinde 6.183 saat çalışılmıştır. Buna nazaran 6.183 X 414.120 = 2.560,503.960 atkı dokunmuş olması icabederdi.

Halbuki yalnız 1.617.881.150 atkı dokunmuştur.

Aradaki fark :

2.560.503.960
1.617.881.150
942.622.810 atkıdan ibarettir.

Malzeme ve ücretler hariç olmak üzere Feshanenin 1934 senesindeki imâl masrafı, kendilerinden aldığım malûmata göre 576.009,51 türk lirasına balığ olmuştur. Bu miktarı imâl edilmiş olan atkı adedine taksim edersek, 1000 atkı başına

$$\frac{576.009,51}{1.617.881,150} = 36,6$$ kuruş elde edilir.

Eğer elde edilmesi lâzımgelen o/o 70 lik randıman (yani 2.560.503.960

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