

# ProTech Publishing Co.: Is Print Media Dying in Finland?

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## Abstract

ProTec Publishing Co, working in the media industry was established in the year 2012 which turned into a unicorn in a very short span of time. Company produces a journal and a magazine with internal product reference codes PJJ140 and PMG120 respectively. The case helps analyzing variable and fixed costs with reference to the cost structure of a product. It also helps in developing an understanding that how does cost structure contributes to the profitability of a firm. Ms. Maria, the protagonist of the case struggles to understand the real cause of declining sales as both internal and external factors were seemingly prominent. Was she unable to look at the bigger picture of new trends in consuming media?

## Keywords:

Cost structure, machine hours, Production runs, Print media, diigital media, lease or buy decisions

## Introduction

Ms. Maria was the production head in the ProTec Publishing house at Tampere, the largest inland city of Finland situated in the southern part of the country [1]. The company produced a journal and a magazine with internal product reference codes PJJ140 and PMG120 respectively. PMG120 was produced 12 times a year in monthly production runs and it has far less circulation than the journal. PJJ140 was produced quarterly but in larger production runs. It was in March 2024 that Maria was planning production for the next year and called upon a meeting with the sales head Mr. Oliver and marketing head Mr. Johannes. Maria had a tough time in the meeting as both Oliver and Johannes were insisting on changing the printing machine to one with laser technology to improve upon the quality of production and also to change the design of the cover page. They brought up the point of declining sales of PMG120 and linked it to the quality of printing even though the print media had witnessed a declining trend for the last couple of years. They forecasted an annual sale of 12,000 units for PJJ140 and 6,000 units for PMG120.

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## **Business Activities in Finland**

Finland is a small European country with the highest number of companies registered in Services (195,422 companies in total), followed by Finance, Insurance, and Real Estate (160,186) and Agriculture, Forestry, and Fishing (104,788) [2]. According to the report by HitHorizons database, a total of more than 700,465 businesses are registered in Finland. This culminates in 1.52 percent of all companies available in the HitHorizons database. These Finland-based companies have a share of 1.02 percent of all sales generated by European Union-based businesses and employ 0.45 percent of all EU employees. If someone refers to the Standard Industrial Classification (SIC Code), which is used to assign companies to specific industries, then the top 3 SIC codes for Finland are Real Property lessor; Forestry Services, and Non-classified Establishments (Refer to Exhibit 1 for exact percentage).

The service sector is the largest sector of Finland's economy, which contributes 72.7 percent to the country's gross domestic product (GDP); followed by manufacturing and refining [3]. A report by the Finland Central Chamber of Commerce says that though internationalization came to the Finnish service sector comparatively late whereas the pace of growth had picked up since the 1990s resulting in it being the most contributing sector of the economy [4]. In the 1990s, Finland dismantled a wide range of licensing systems that applied to services [3]. The average size of Finnish service companies has been small, with limited international competitiveness. Market shares of service companies in Finnish ownership have fallen in many business areas. On the other hand, foreign investments have brought international capital and skills in innovation and marketing which were not previously available. Productivity in financial services, telecommunications, and postal services is also at an internationally high level.

## **Mass Media in Finland**

The media industry in general offers a variety of products and services in mass media including publishing media, electronic media, recorded media etc. Advertising, gaming, animation, digital marketing, journalism, and publishing: newspapers, books, journals and magazines, web designing, radio and television production, etc are a few examples. Mass Media in Finland includes a variety of online, print, and broadcast formats, such as radio, television, newspapers and magazines [5]. There are about 600 companies in Finland working in the media industry, which are registered with 'The Finnish Media Federation' comprising of four associations [5]. **'The Federation of the Printing Industry' in Finland** is an organization, which takes care of industrial policy interests of printing houses and production companies in the graphic industry. This association works to improve operating conditions for member companies. 247 members are having 479 different magazines or electronic publications [5]. The association is represented by public media, trade, organizational media, and customer media. In addition, there is one more association named **'The Finnish Publishers Association'**, which is a cooperation and advocacy organization for Finnish book publishers. The

association works to support its members by developing better operating conditions for its members. In general, mass media industries especially television and book publishing are becoming very competitive, whereas magazines and newspaper publishing were highly concentrated [5].

In Finland, the revenue in the Media market is expected to reach US\$3.82bn in 2024 [6]. As per analysts of this market, the growth in this sector is steady as there are new ways of consuming media and industry is embracing technological developments. With the emergence of the metaverse, for instance, the Media market is expected to face a completely new dimension that will improve accessibility quotient for consumers and enable new possibilities for consumption. All in all, what can be observed within the Media market is a shift from traditional channels, such as print or non-digital media, to digital forms of media [6]. This effect is expected to become prevalent throughout the entire market and in all regions. However, as per the report on the Finnish Mass Media 2020, published by the Statistics Finland; the value of electronic media (incl. television, radio, Internet advertising) exceeded the value of the publishing industry for the first time in Statistics Finland's calculation. The growth of the mass media market has in recent years centred on electronic media as the publishing industry shrinks [7]. The value of the mass media market was about EUR 3.8 billion in 2020 [7]. The value of the market contracted by 3.1 per cent or EUR 120 million compared to the year before.

### **ProTech Publishing Co.**

ProTec Publishing Co was established in the year 2012 by Ms. Olivia Korhonen, a young graduate of Hanken School of Economics, which is a leading university with 110 years of experience in research and education in economics and business administration [8]. Ms. Korhonen came from a family business background and her great-grandparents established an IT company a couple of decades ago. However, Ms. Korhonen had a strong writing and reading acumen and decided to convert her interest in writing and reading skills for a living. But on the same hand, she was sure that she did not want to become a writer but an entrepreneur. Her education from Hanken along with learning at home helped her not only to establish ProTech without any difficulty but also to grow it to a Unicorn in just four years. ProTech has its headquarter in the southwest of Tampere city and has 82 employees as of the current year 2024. ProTec Publishing Co is a member of **'The Federation of the Printing Industry'** association as well as of **'The Finnish Magazine Media Association'**, which is a forum for cooperation between magazine publishing companies and publishers. In addition, ProTec Publishing Co. is a member of **'The Finnish Publishers Association'**

### **Production Planning at ProTech Publishing Co.**

Maria agreed to discuss the proposal of buying the laser printing machine with Ms. Emilia, the finance head to buy a , Ms Emila suggested her to consider hiring a laser printing machine on rent and see the effect on sales. According to her, if the sales

improve then she can put up a proposal to the board for the purchase of a laser printing machine next year.

Maria explores and finds out two options. The first option was to sign an annual contract with LasTech Co based on €10 per machine hour used with no fixed charges at all. The second option was with Spido Printings Inc., where there was a minimum commitment of €50,000 and €4 per machine hour used. Maria tried to understand the cost function and cost criteria under both options. She focused on causality function as well. She had past production and costs data which suggests that the machine hours required for printing one unit of the journal is €4 and for one unit of the magazine is €10, because of the insertion of many coloured pictures, graphs, tables, and designs. The discussion with the executives of Spido Printings suggests that the number of machine hours required will not change but the quality of printing on this new machine. She used machine hours required in total for the budgeted sales for the next year and calculated the total cost of laser printings of both the products of the company. Last year, the total overhead cost was €250,000 when the production of PJJ140 required 25 inspections and PMG120 required 120 inspections. These inspections were carried to ensure quality standards and compliance with duly defined product specifications. After all her homework, Maria ends her day with huge satisfaction.

However, while driving back home she still had the data on her mind which she read through the report on Mass Media published by Statistics Finland/Media Statistics in 2020 (Exhibits 3 & 4). Though Maria felt that she had resolved the issue of laser printing very well, but her mind was still contemplating the relationship of declining sales with the rising adoption of digital media. The situation reminded her of examples, her professors used to quote at her university about those businesses which could not adapt to technological developments and changing needs of customers and failed. These thoughts were very scary while thinking about the fate of ProTec Publishing Co. which was offering only these two print media products. She was constantly raising a question to herself ‘Does ProTec Publishing Co also need to diversify into electronic media space?’ Was the concern of the sales team about the print quality real or just an excuse? Was the sales team unable to look at the bigger picture of new trends in consuming media?

**Exhibit1: Finland: Breakdown of Companies by SIC Code**

S.No	Name of the City	Percentage of Share
1	Real property lessor	19.35
2	Forestry services	11.18
3	Non classified establishment	10.74

Source: Compiled by authors from the HitHorizons database

**Exhibit 2: Depicting the Cost Structure of products: PJL140 and PMG120**

Cost Head	PJL140	PMG120
Inspections per unit	25	120
Machine Hours required per unit	4	10

**Exhibit 3: Finnish Mass Media market 2019 - 2020, EUR million**

Mass Media	2019 EUR Mill.	2020 EUR Mill.	2020%	% Change 2019-20
Daily Newspapers	734	679	17.9	-7.5
Other Newspapers	129	118	3.1	-8.5
Free-Distribution papers	57	43	.1	-24.6
Magazines & periodicals	400	370	9.8	-7.5
Books	526	489	12.9	-7.2
Publishing Total	1846	1699	44.9	-8.0
Television	1307	1339	35.4	2.4
Radio	75	60	1.6	-19.6
Internet Advertising	460	528	14.0	14.8
Electronic Media Total	1842	1927	50.9	4.6
Audio Recordings	89	93	2.5	4.4
Videos	23	19	0.5	-18.2
Cinemas	104	46	1.2	-55.3
Recorded Media Total	216	158	4.2	-26.7
All Total	3904	3784	100	-3.1

Source: Statistics Finland/Media statistics 2020

**Exhibit 4: Sector shares of the Mass Media market 2000 - 2020, per cent**

Year	Publishing per cent	Electronic media per cent	Recorded media per cent	Total per cent	Total EUR mill.
2000	72	20	8	100	3133
2001	71	21	9	100	3176
2002	70	21	9	100	3231

2003	69	22	9	100	3311
2004	68	23	9	100	3464
2005	68	24	8	100	3584
2006	67	25	8	100	3724
2007	66	26	8	100	3938
2008	64	28	8	100	4079
2009	63	30	7	100	3870
2010	62	31	7	100	3995
2011	61	32	7	100	4046
2012	60	33	7	100	4030
2013	58	35	7	100	3904
2014	56	38	6	100	3771
2015	55	39	6	100	3679
2016	54	40	6	100	3732
2017	53	42	6	100	3810
2018	50	45	5	100	3881
2019	47	47	6	100	3904
2020	45	51	4	100	3784

Source: Statistics Finland/Media statistics 2020

### End Notes

1. The case has been written using hybrid approach: (i) the secondary data from published sources after due acknowledgment and (ii) the hypothetical business situation on the basis of pragmatic approach i. e. using over two decades of classroom teaching experience of one of the authors.

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## TEACHING NOTE

### Synopsis

The case has been written with the help of secondary data and hypothetical situation while using pragmatic approach. The case can be used in teaching the concepts of marginal cost and its application in lease and buy decisions. It can further be used to teach the concepts of variable and fixed cost and their role in deciding the profitability of a firm. Before starting with the case discussion, the instructor can begin with the concept of linear cost function and effect of variable and fixed cost on the total cost of a product. This case can be used teaching cost-volume-profitability analysis and cost structure in strategic cost management and advance management accounting courses. Lastly, this case can be used to study the effect/role external factors on the fate of a firm in a strategic management course.

**Objectives:** The aim of the study is to help readers differentiate between variable and fixed costs in the context of cost structure of a product. The study also aims to develop decision making skills under lease and buy decisions situations.

**Link to Theory/Concept:** Case is based upon cost structure and linear cost function concepts of strategic cost management used to understand profitability and as decision criteria base for lease or buy decisions.

### Learning Objectives:

1. Describe linear cost functions and three common ways in which they behave.
2. Explain the importance of causality in estimating cost functions.
3. Understand various methods of cost estimation.
4. Calculating costs from a variable budget.
5. Analyzing cost structure and its contribution in profitability of a firm.
6. Analyzing macro level factors affecting sales of a firm.

### Requirements/Questions:

Q1. If Maria would have decided to go for LasTech Co for hiring laser printing option, then what kind of liner cost function would have been for the ProTec Publishing house for its machine hour cost?

Q2. If Maria decides to go for Spido Printing after focusing on causality function; what kind of cause-and-effect function do you think she would have considered under the given scenario?

Q3. How much is the expected total cost of machines hours used for the laser printing of PJJ140 and PMG120 to the ProTec Publishing house for the next year, if the company decided to go with Spido Printings Inc.?

Q4. Which of the four cost estimation methods, Maria has used for her decision making in the given case?

Q5. Can you help Maria in preparing a comparative report on both the proposals, which she need to present to the management? The report should focus on comparing the total cost of machine hours used based on the projected sales.

Q6. Do you think that the Maria's concern on dying print media in Finland and its impact on declining sales of PJJ140 and PMG120 has some substance in it?

**Q1. If Maria would have decided to go for LasTech Co for hiring laser printing option, then what kind of liner cost function would have been for the ProTec Publishing house for its machine hour cost and how can it be expressed in a mathematical formula?**

If Maria would have decided to go for LasTech Co, then the cost function would have been affected by the numbers of hours of machines used in the production, which means the cost function would have been variable in nature. The same can be expressed in the following mathematical equation:

$$y = \text{€}10X$$

Where  $y$  = total machine hours cost; and  $X$  = number of machines hours used in production.

**Q2. If Maria decides to go for Spido Printing after focusing on causality function; what kind of cause-and-effect function do you think she would have considered under the given scenario?**

It Ms. Maria decides to go for Spido then seemingly she(i) has clarity on contractual arrangement, where the number of machine hours run would affect the total cost for machine hours used and (ii) has an understanding of the operations of the printing process. That is why she would decide to go for an agreement with Spido Printing and not with the LasTech Co. Maria knows that at LasTech Co., the cost driver was only the number of machine hours used, whereas in the case of Spido Printing, both fixed cost as well as variable cost is involved.

Since the annual printing requirements are based on annual sales forecast, which for the current year are of 12,000 units for PJJ140 and 6,000 units for PMG120, she knows that she can go for an agreement with Spido Printing.



**Q3. How much is the expected total cost of machines hours used for the laser printing of PJJ140 and PMG120 to the ProTec Publishing house for the next year if Maria goes with Spido Printing?**

The total cost expected for machine hours used for the laser printing of PJJ140 and PMG120 is €482,000 as calculated in the below table:

Details/Particulars	PJJ140	PMG120	Total Variable Cost for Machining
Budgeted Production in units	12,000	6,000	
Number of machine hour per unit of product	4	10	
Total machine hours required	48,000	60,000	
Per hour cost of machine	€ 4	€4	
Total Cost of machine hours used	182,000 (A)	240,000(B)	432,000(A + B)
Fixed cost of machine hours used			50,000 (C)
<b>Grand Total (A + B + C)</b>			<b>€482,000</b>

**Q4. Which of the four cost estimation methods, Maria has used for her decision making in the given case?**

Maria has used Industrial Engineering method which is also called the work-measurement method. This method estimates cost functions by analyzing the relationship between inputs and outputs in physical terms. She uses numbers of machine hours required to produce one unit of each PJJ140 and PMG120.

**Q5. Can you help Maria in preparing a comparative report on both the proposals, which she need to be present to the management? The report should focus on comparing the total cost of machine hours used based on the projected sales.**

Below is the comparative analysis of both the proposal, which Ms. Maria may like to present to the management:

**Comparative Analysis**

Details/Particulars	Option 1: Spido Printings Inc		Option 2: LasTech Co	
	PJL140	PMG120	PJL140	PMG120
Budgeted Production in units	12,000	6,000	12,000	6,000
Number of machine hour per unit of product	4	10	4	10
Total machine hours required	48,000	60,000	48,000	60,000
Per hour cost of machine	€ 4	€4	€10	€10
Total Cost of machine hours used	€192,000 (A)	€240,000(B)	€480,000 (A)	€600,000(B)
Fixed cost of machine hours used	€50,000 (C)		Nil	Nil
Grand Total	€482,000 A + B + C)		€1,080,000 (A + B)	

If the company decides to go for an agreement with Spido Printings Inc, the the total cost expected for machine hours used for the laser printing of PJL140 and PMG120 is €482,000 as calculated above.

If the company decides to go for an agreement with LasTech Co, the the total cost expected for machine hours used for the laser printing of PJL140 and PMG120 is **€1,080,000** as calculated above.

**Proposal:** Based on the above calculation, hereby propose to go with the Spido Printings Inc as the ProTec Publishing house will save €598,000 (€1,080,000 - €482,000) annually.

**Q 6. Do you think that the Maria’s concern on dying print media in Finland and its impact on declining sales of PJL140 and PMG120 has some substance in it?**

Maria’s concern about dying print media in Finland and its impact on declining sales of PJL140 and PMG120 has certainly some substance to it. Data exhibited in Exhibits 3 & 4 indicates the shift towards increasing consumption of electronic media. Though, Maria has taken care of the requirement for laser printing at its firm level, however, she cannot ignore factors at macro level. All macro-level factors comprising political, economic, social, and technological are important to be addressed timely and responded to carefully for long-term sustenance of any business.