



How has the COVID-19 pandemic affected the public spending in the Finnish healthcare sector?

An analysis based on THL procurement data 2020-2021

Exploratory descriptive analysis

In 2020-2021, we observe an overall upward trend on THL's total spending volume by procurement categories:

- The annual total spending volume increased by 158.2M EUR (+132%), from 120.2M to 278.3M EUR.
- The number of suppliers increased by 28 suppliers (+1%), from 2,037 to 2,065 suppliers.
- The number of invoices increased by 4,513 invoices (+15%), from 30,725 to 35,238 invoices.

	Category	Total spending ▾	Number of Supplier	Number of invoice
1.	Materials, goods and supplies	40.6M	841	11.9K
2.	Administrative services	27.9M	554	8.6K
3.	Building and area maintenance	17.3M	117	2.5K
4.	Expert and office services	17M	420	3.8K
5.	ICT procurement	10.4M	160	1.6K
6.	Machinery, equipment and vehicles	3.4M	253	1.1K
7.	Human resource services	1.9M	23	400
8.	Educational and cultural services	1M	256	781
9.	Accommodation and catering services	204.3K	82	573
10.	Travel and transportation services	195.1K	70	1K
11.	Construction	115K	26	70
	Grand total	120.2M	2K	30.7K

2020

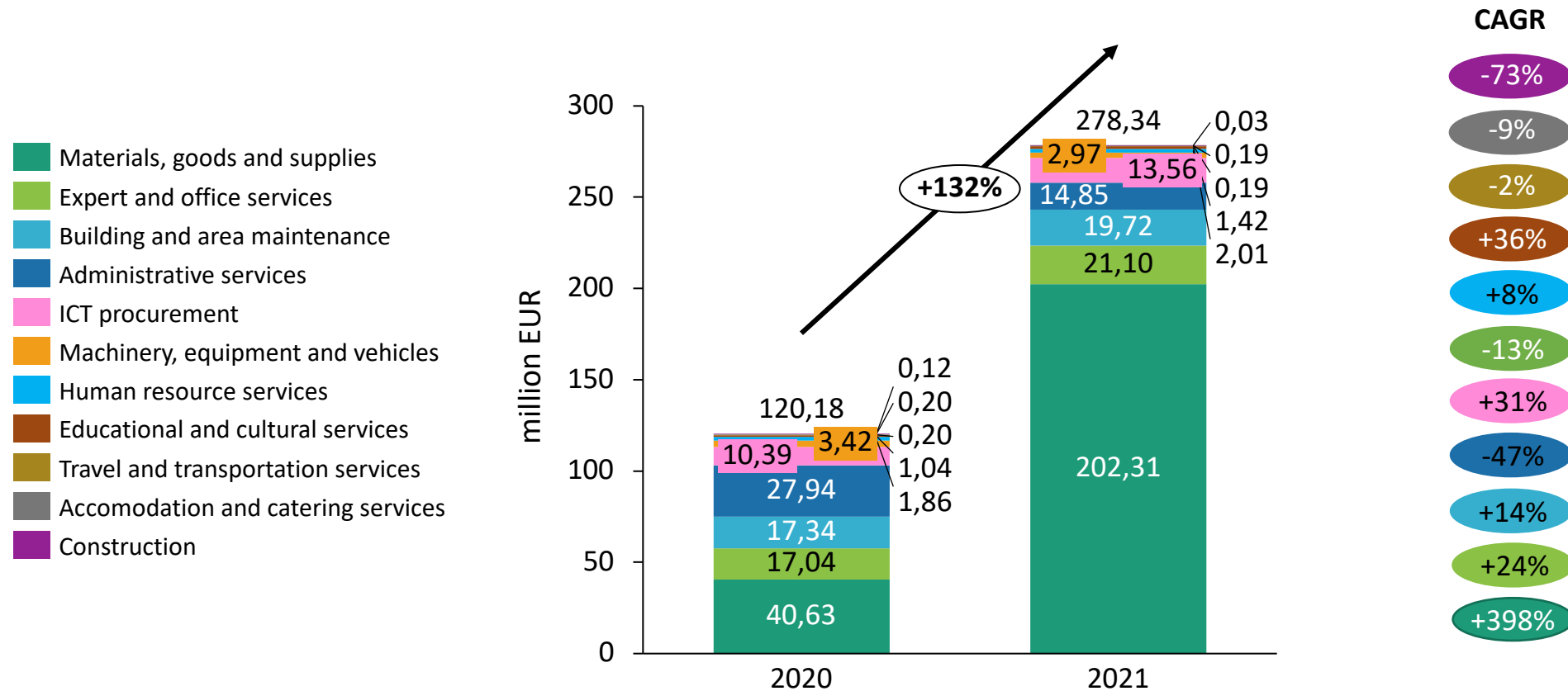
	Category	Total spending ▾	Number of Supplier	Number of invoice
1.	Materials, goods and supplies	202.3M	849	13.1K
2.	Expert and office services	21.1M	382	3.8K
3.	Building and area maintenance	19.7M	127	2.4K
4.	Administrative services	14.9M	589	11.6K
5.	ICT procurement	13.6M	191	2.1K
6.	Machinery, equipment and vehicles	3M	218	1.1K
7.	Human resource services	2M	18	410
8.	Educational and cultural services	1.4M	272	950
9.	Travel and transportation services	191K	67	901
10.	Accommodation and catering services	185.9K	74	617
11.	Construction	30.9K	11	25
	Grand total	278.3M	2.1K	35.2K

2021

Distribution of spending by procurement categories

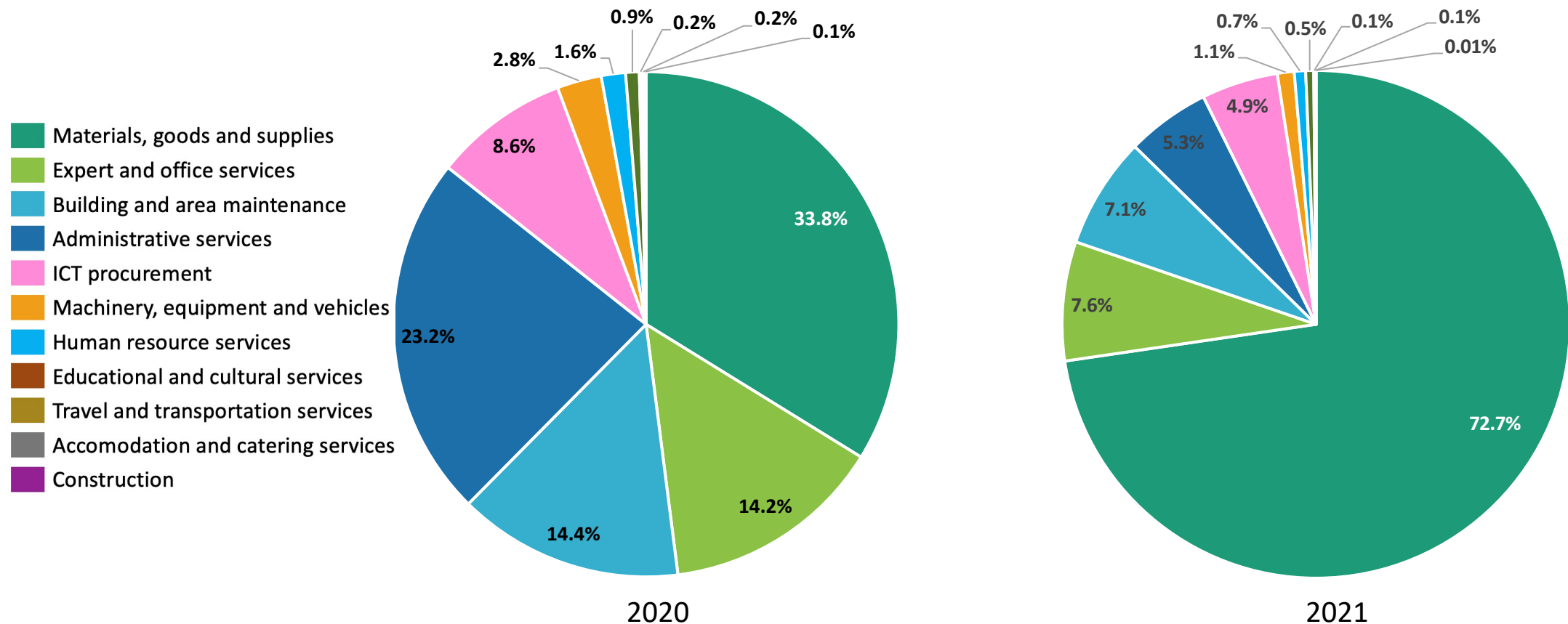
THL's total annual spending increased by 158.2M EUR (+132%), in which:

- Spending on Materials, goods, and supplies has the sharpest increase by 161.7M EUR (+398%).
- Spending on Construction has the sharpest decrease by 0.08M EUR (-73%).



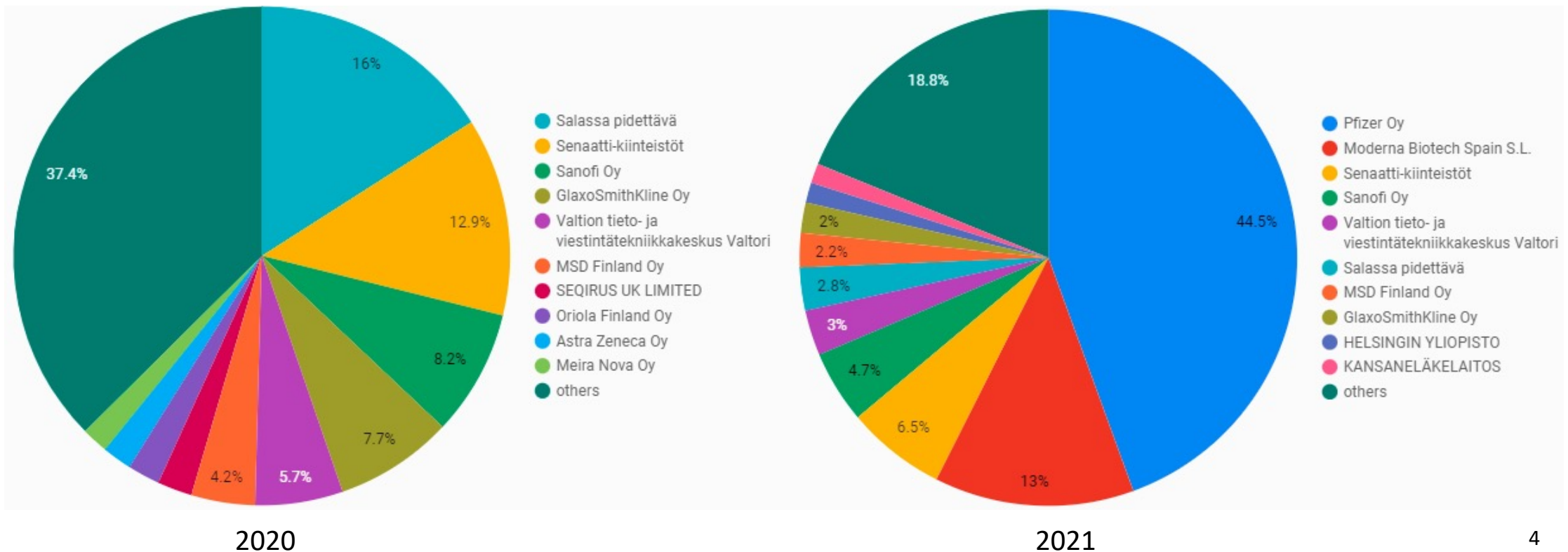
Proportion of spending by procurement categories

- In 2020-2021, *Materials, goods, and supplies* accounts for the largest share of total spending volume and the sharpest share increase (+38.8%), from 33.8% to 72.7%.
- Share of *Administrative services* has the sharpest decrease (-17.9%), from 23.2% to 5.3%.



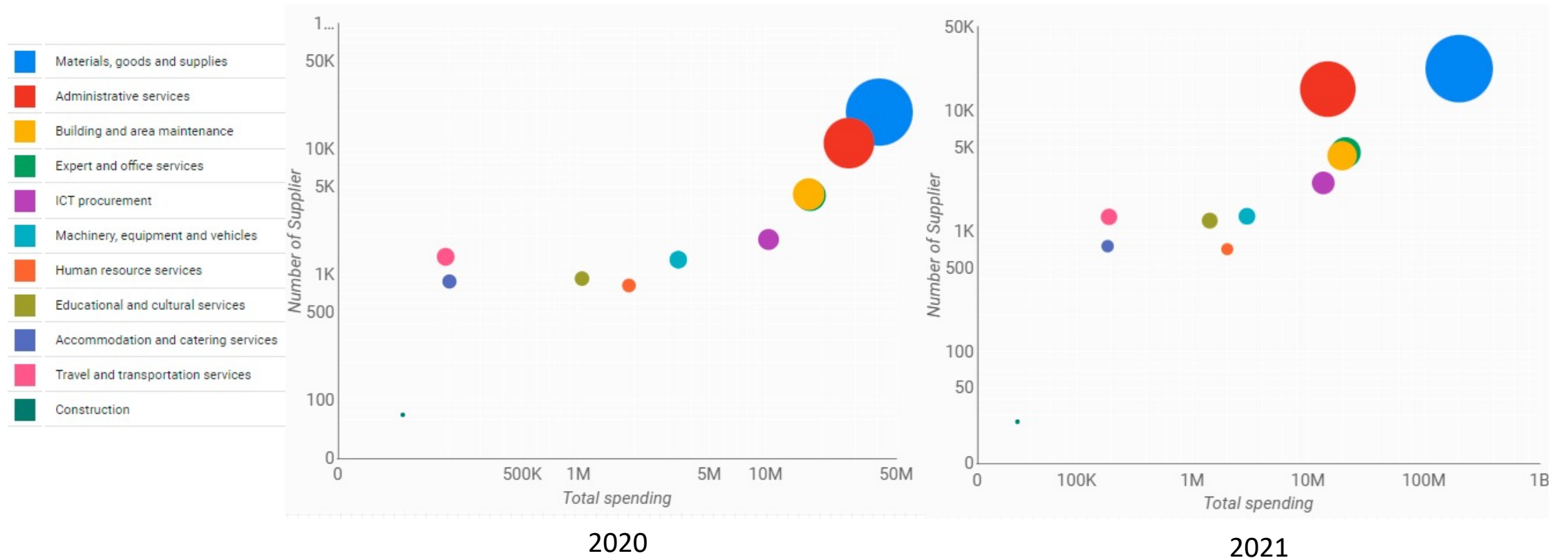
Proportion of spending by suppliers

- In 2020, *Salassa pidettävä* accounts for the highest share of total spending at 16.0%, followed by *Senaatti-kiinteistöt* at 12.9%. In 2021, these two suppliers receive only 2.8% (-13.2%) and 6.5% (-6.4%) of the total spending.
- In 2021, two COVID vaccine suppliers *Pfizer Oy* and *Moderna Biotech Spain S.L.* dominated the total spending at 44.5% and 13.0% respectively.



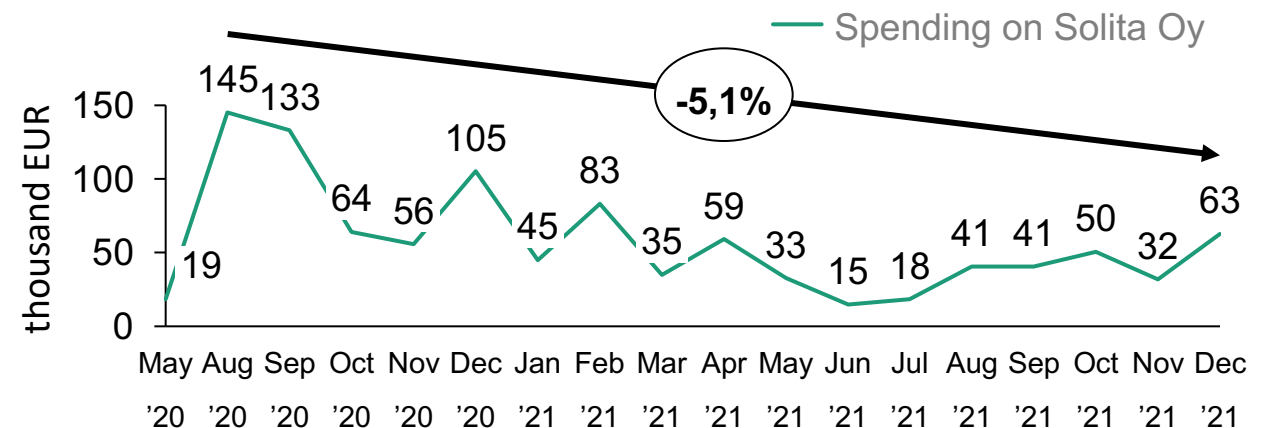
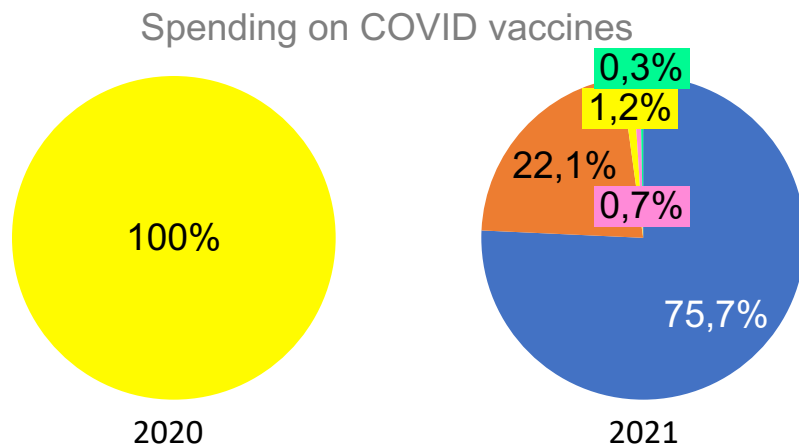
Relation between the spending volume and #suppliers per procurement category

- In 2020-2021, based on the Pearson's r correlation analysis, there is a very strong **0.91** positive correlation between the spending volume and the number of suppliers per category.
- This means that the larger the spending is, the higher the number of suppliers would be for each category.



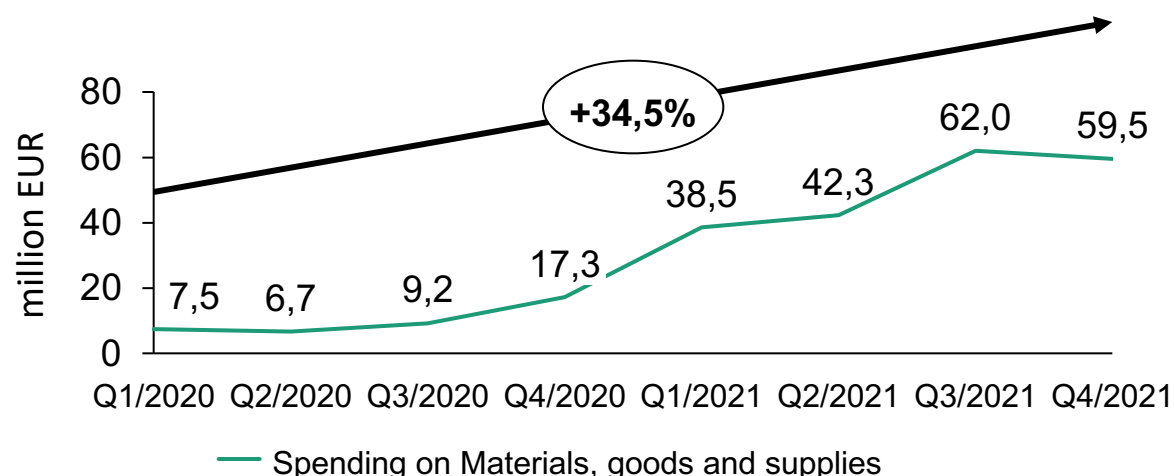
Temporal patterns due to COVID – spending on vaccines and COVID applications

- In 2020, *Astra Zeneca* received 100% of the total spending on COVID vaccines (2.3M EUR), which was 1,9% of THL's total spending in 2020.
- In 2021, there was an upward trend in spending towards COVID vaccines (increased to 163.4 M EUR) as they became more available.
 - *Pfizer* received 44,5% of the total spending (75,7% of spending on COVID vaccines)
 - *Moderna Biotech* received 13% of the total spending (22,1% of spending on COVID vaccines).
 - After further research was done on the limitation to the *Astra Zeneca* vaccine, their share of total spending fell to 1.1% in 2021 (1.9% of spending on COVID vaccines).
 - The *Johnson&Johnson* vaccine also entered the Finnish market but received only 0,2% of the total spending on COVID vaccines.
- We also observe the downward trend on the spending towards *Solita Oy*. We observe a spike in 2020 when the company developed the Koronavilkku application. Second spikes in spending can be observed when the company was allocated the development of the Koronapassi application without a competitive tendering process (Talouselämä, 2021).



Temporal patterns due to COVID – supplies and services

- *Materials, goods, and supplies*: a significant upward trend in these purchases can be seen. This is due to spending on items such as facemasks and vaccines starting from Q3/2020. It is assumed that these purchases will decrease in the upcoming years as the population has been largely vaccinated and the amount of COVID vaccines needed per year will decrease.
- *Administrative services*: a clear downward trend can be observed in these purchases between 2020 and 2021. This may be a sign that more administrative services were required in 2020 at the start of the pandemic but the need for these services decreased in 2021.
- *Expert and office services*: an upward trend can be seen. This may be due to increased spending on expert services and translation and interpretation services related to the pandemic and vaccines.



Changes on spending by procurement categories

(unit: million EUR)	2020	2021	Changes (value)	Changes (%)
Materials, goods and supplies	40.6	202.3	161.7	397.9%
Construction	0.1	0.0	-0.1	-73.1%
Administrative services	27.9	14.9	-13.1	-46.8%
Educational and cultural services	1.0	1.4	0.4	35.6%
ICT procurement	10.4	13.6	3.2	30.5%
Expert and office services	17.0	21.1	4.1	23.9%
Building and area maintenance	17.3	19.7	2.4	13.7%
Machinery, equipment and vehicles	3.4	3.0	-0.4	-13.2%
Accommodation and catering services	0.2	0.2	0.0	-9.0%
Human resource services	1.9	2.0	0.1	7.7%
Travel and transportation services	0.2	0.2	0.0	-2.1%

Future outlook

As the COVID pandemic has incurred unexpected significant expenses for the government, there are a few approaches that THL can consider:

- Risk management: emergency budgets, adaptive procurement systems
- Setting thresholds for each category, determining make-or-buy decisions (Tapionen, 2022)
- Contracts negotiations depending on supply and demand risks (Kraljic's matrix) and maximizing efficiency as well as cost-saving factors
- Maintaining strategic relationships with suppliers in highly disruptive industries including health and safety via economic policies.
- Attracting competition between suppliers to achieve better contract terms during bids (Klemperer, 2000)

Limitations on the analysis

- The data focus specifically on COVID-19 pandemic period, conclusions drawn from the case are not necessarily applicable for other cases and in hindsight, there might be biases to plan future procurements according to these assumptions as the risks could stem from other issues.
- The lack of information about contexts in which the government is operating also prevents us from having a holistic view on the issues, therefore potential optimizations or risks might be overlooked.

References

- Talouselämä. (2021). "*THL ei kilpailuttanut koronapassin tarkastussovelluksen hankintaa – diili meni Koronavilkun kehittäjälle.*" [online] Available at: <<https://www.talouselama.fi/uutiset/thl-ei-kilpailuttanut-koronapassin-tarkastussovelluksen-hankintaa-diili-meni-koronavilkun-kehittajalle/e1a19e71-a9c5-4386-99d9-8846ca1aea08>> [Accessed 11 February 2022].
- Klemperer, P. (2000). Why every economist should learn some auction theory. Available at SSRN: <http://dx.doi.org/10.2139/ssrn.241350>.
- Tapionen. (2022). Lecture 9 (Public Procurement)