



# Voorburg Task Force – Alignment of Methodology and Scope between Service Producer Price Indices (SPPIs) and Consumer Price Indices (CPIs)

## Developing a framework for using CPIs in SPPI calculation

### *Presentation of participation at Ottawa meeting and progress update*

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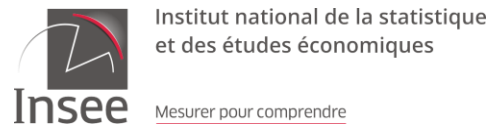
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# Voorburg Task Force - A framework for using CPIs in SPPIs

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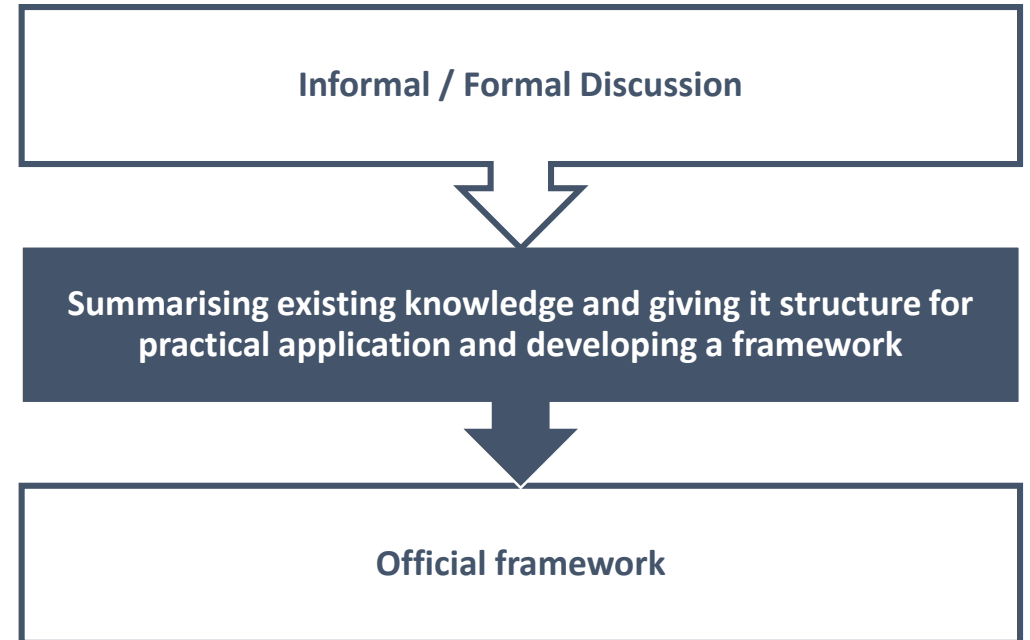
## Foreword

### Foreword

This Voorburg Group Task Force was formed with the mandate of improving knowledge regarding the utilization of CPIs as proxy and/or directly comparable replacements to SPPIs.

Official presentations on CPI usage in SPPIs have been made most recently at the Ottawa Group meeting (2022), 36th Voorburg Group meeting (2021), 34th Voorburg Group meeting (2019), 29th Voorburg Group meeting (2014) and via the second edition of the Eurostat-OECD Methodological Guide for Developing Producer Price Indices for Services (2014).

A formal framework, however, is yet to be officially established. The paper that this task force has developed takes a further important step in the establishment of such an official framework.

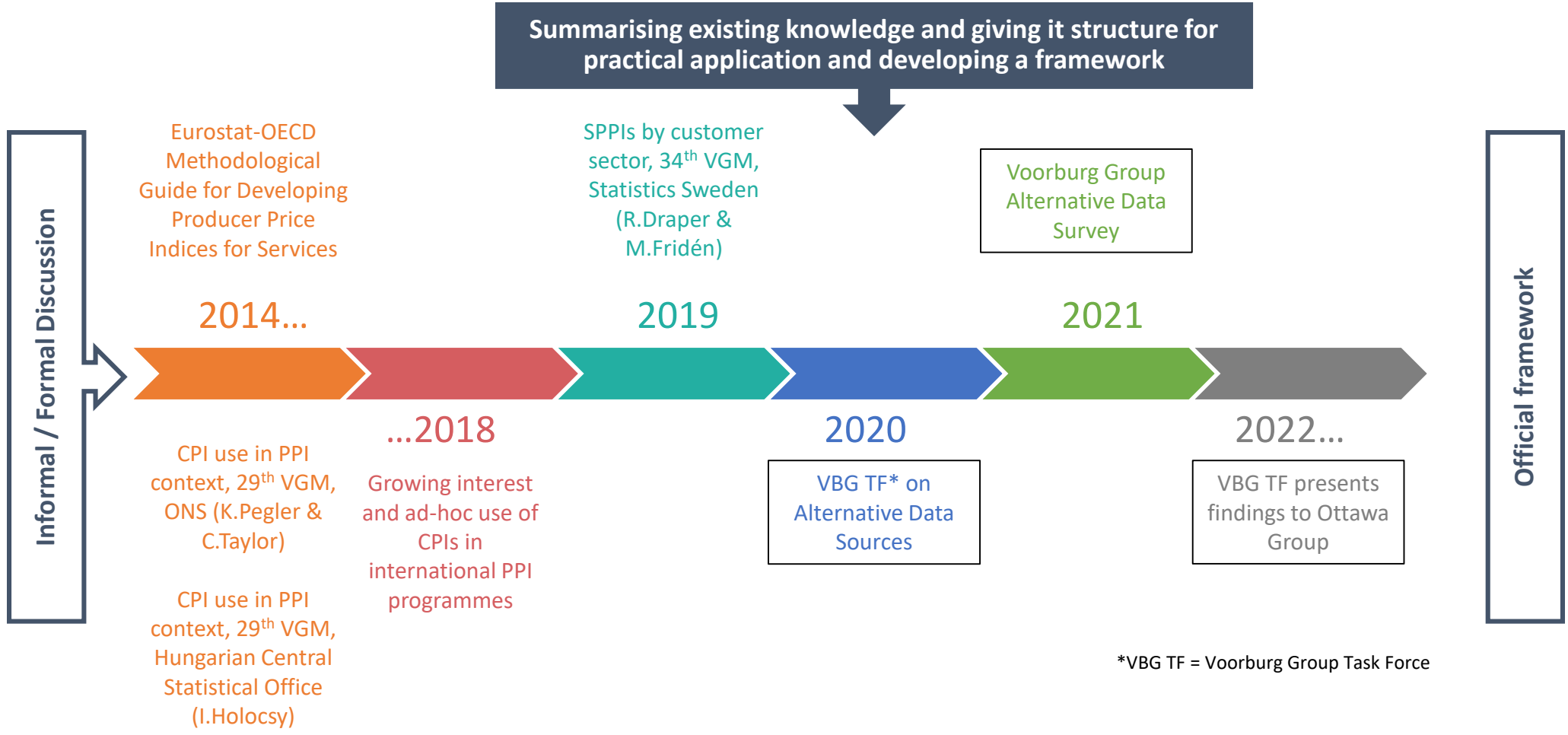




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# Voorburg Task Force - A framework for using CPIs in SPPIs Recap – Timeline



\*VBG TF = Voorburg Group Task Force



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Differences in valuation basis presents a significant risk to representativeness when using CPIs in SPPIs

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## Recap – Trade Flows

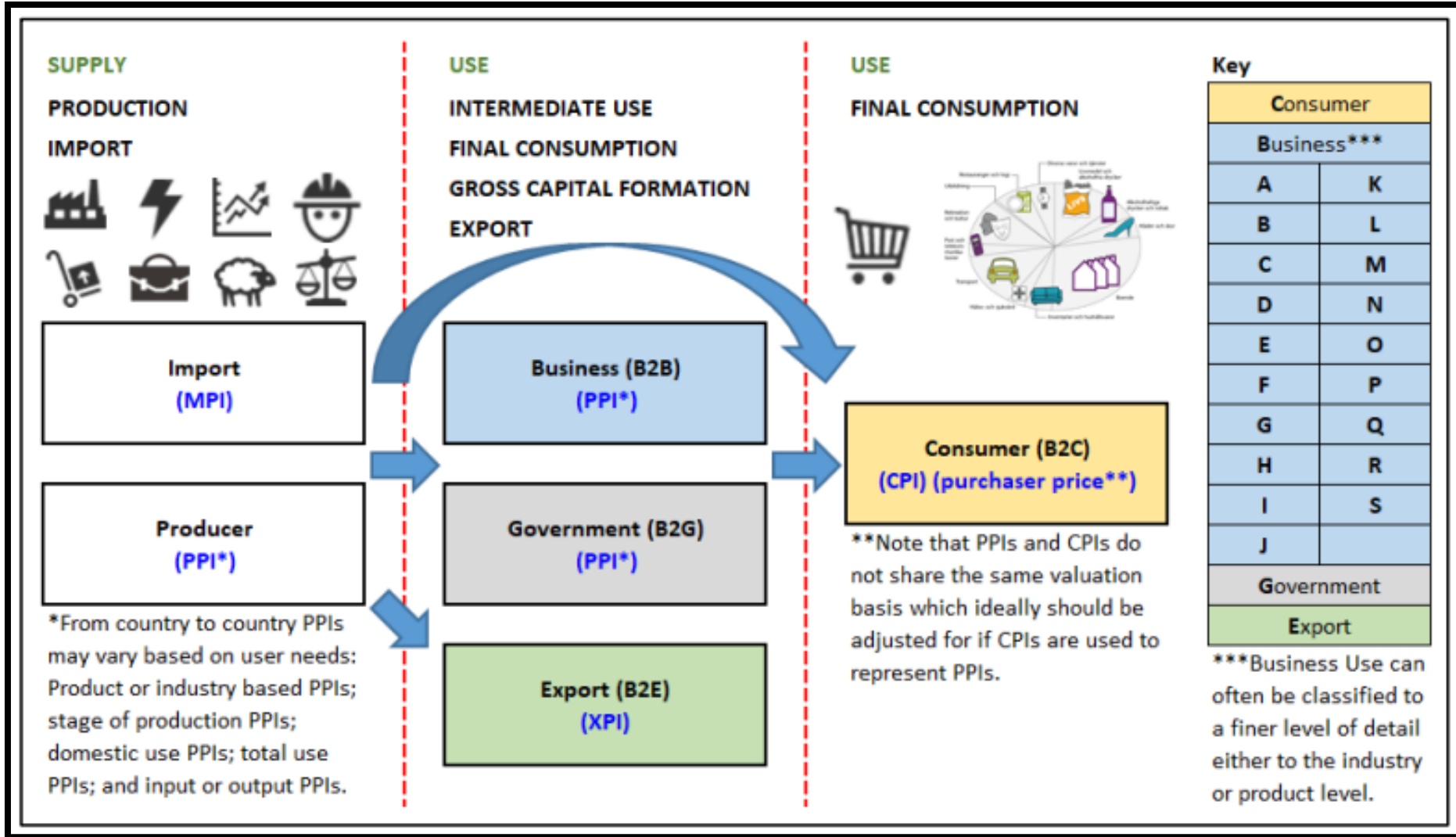


Diagram originates from R.Draper and M.Fridén (Statistics Sweden, 2019) – “SPPIs by customer sector - “the Swedish experience” (34<sup>th</sup> Voorburg Meeting).



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## Recap – Main Considerations

A framework for assessing the feasibility of CPI utilisation in SPPIs should include (but is not limited to) the following aspects:

- Main purpose
- Valuation Principles
- International Trade
- Nomenclature (concordance)
- Product vs Industry
- Supply and Use Tables (practical analysis)

Beyond these aspects there are of course other operational differences in the practical application of, for example: aggregation rules; quality adjustment; imputation methods; different methods of measuring intermediate services, such as banking and insurance services, and coverage of personal consumption components that are not directly paid by the consumer but by a third party.

- Communication / harmonization strategy

*“Blending”  
has been  
added as  
an update  
to the  
original  
report*

# Voorburg Task Force - A framework for using CPIs in SPPIs

## “Blending” – Using CPIs in combination with traditional data source

### Single-source Data Collection “Traditional”





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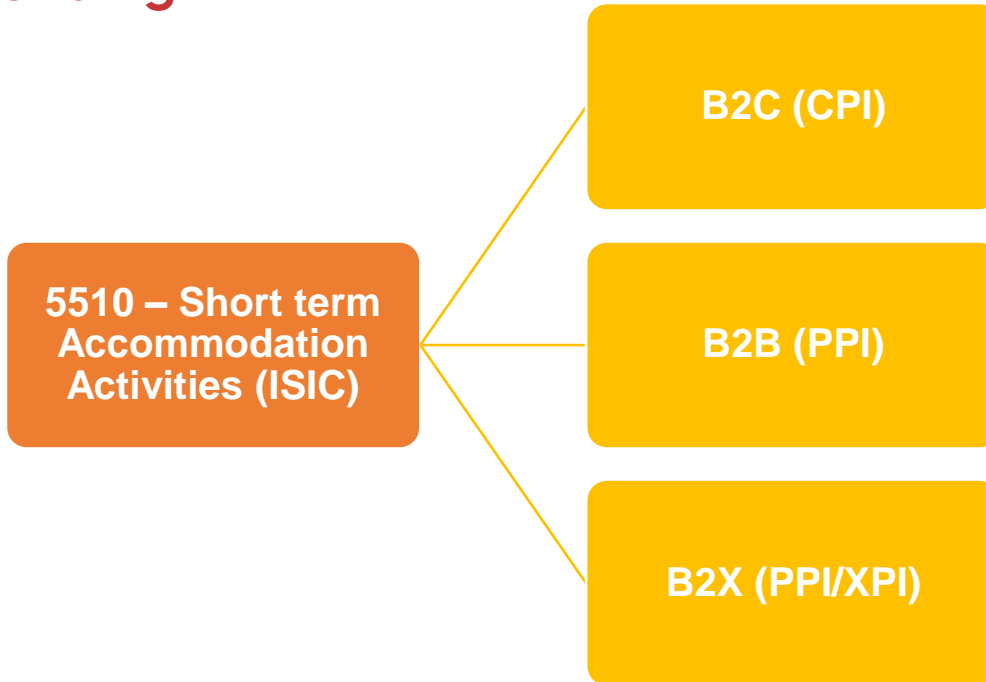
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# Voorburg Task Force - A framework for using CPIs in SPPIs

## “Blending” – Using CPIs in combination with traditional data source

### Multi-source Data Collection

#### “Blending”



Checklist for fitness of CPI data:

- ✓ Valuation Principles
- ✓ International Trade Shares
- ✓ Nomenclature (concordance)
- ✓ Supply and Use (representativeness)

*“Blending” has been added as an update to the original report*





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# Voorburg Task Force - A framework for using CPIs in SPPIs

## “Blending” – Using CPIs in combination with traditional data source

*“Blending”  
has been  
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to the  
original  
report*

### Single Source Data Collection “Alternative Data”

5510 – Short term  
Accommodation  
Activities (ISIC)



B2All

Direct data collection  
Majority of  
production destined  
for B2C (or B2B price  
change equals B2C)

# Voorburg Task Force - A framework for using CPIs in SPPIs

## “Blending” – Using CPIs in combination with traditional data source

CPI frequency as an alternative data source for a particular 4-digit classification.

Class	Name	Frequency
<b>H</b>	<b>Transportation and storage</b>	
4911	Passenger rail transport, interurban	8
4912	Freight rail transport	1
4921	Urban and suburban passenger land transport	9
4922	Other passenger land transport	7
4923	Freight transport by road	2
5011	Sea and coastal passenger water transport	6
5021	Inland passenger water transport	1
5110	Passenger air transport	6
5221	Service activities incidental to land transportation	4
5310	Postal activities	3
5320	Courier activities	2
<b>I</b>	<b>Accommodation and food service activities</b>	
5510	Short term accommodation activities	7
5520	Camping grounds, recreational vehicle parks and trailer parks	4
5590	Other accommodation	2
5610	Restaurants and mobile food service activities	11
5621	Event catering	1
5629	Other food service activities	4
5630	Beverage serving activities	5
<b>J</b>	<b>Information and communication</b>	
5811	Book publishing	4
5813	Publishing of newspapers, journals and periodicals	5
5819	Other publishing activities	1
5820	Software publishing	1
5911	Motion picture, video and television programme production activities	2
5913	Motion picture, video and television programme distribution activities	1
5914	Motion picture projection activities	4
5920	Sound recording and music publishing activities	1
6020	Television programming and broadcasting activities	2
6110	Wired telecommunications activities	5
6120	Wireless telecommunications activities	3
6312	Web portals	1
6399	Other information service activities n.e.c.	1

<b>N</b>	<b>Administrative and support service activities</b>	
7710	Renting and leasing of motor vehicles	1
7722	Renting of video tapes and disks	1
7729	Renting and leasing of other personal and household goods	2
7740	Leasing of intellectual property and similar products, except copyrighted works	1
7911	Travel agency activities	2
7912	Tour operator activities	3
7990	Other reservation service and related activities	1
8121	General cleaning of buildings	1
8129	Other building and industrial cleaning activities	1
<b>P</b>	<b>Education</b>	
8510	Pre-primary and primary education	2
8521	General secondary education	2
8522	Technical and vocational secondary education	3
8530	Higher education	1
8541	Sports and recreation education	1
8542	Cultural education	1
8550	Educational support activities	1
<b>R</b>	<b>Arts, entertainment and recreation</b>	
9311	Operation of sports facilities	4
9312	Activities of sports clubs	2
9321	Activities of amusement parks and theme parks	1
9329	Other amusement and recreation activities n.e.c.	1
<b>S</b>	<b>Other service activities</b>	
9511	Repair of computers and peripheral equipment	1
9512	Repair of communication equipment	1
9521	Repair of consumer electronics	1
9522	Repair of household appliances and home and garden equipment	1
9523	Repair of footwear and leather goods	1
9601	Washing and (dry-) cleaning of textile and fur products	3
9602	Hairdressing and other beauty treatment	5
9603	Funeral and related activities	4
9609	Other personal service activities n.e.c.	2

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Alternative  
Data Survey  
– CPI Usage.

Results  
represent  
2021  
responses.

See the  
latest  
results on  
the  
Voorburg  
website.



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*Green  
represents a  
positive  
factor in  
deciding if  
an activity is  
a suitable  
candidate  
for using a  
CPI as an  
alternative  
data source*

# Voorburg Task Force - A framework for using CPIs in SPPIs

## Prevalence of household consumption (B2C)\*

Product (use)	Australia B2C	Australia B2E	Australia Import	Austria B2C	Austria B2E	Austria Import	Denmark B2C	Denmark B2E	Denmark Import	France B2C	France B2E	France Import
Total product at purchaser's prices	27%	9%	...	22%	20%	...	20%	23%	...	24%	13%	...
Total product at basic prices (bp)	26%	9%	10%	20%	21%	20%	17%	24%	21%	23%	14%	21%
Products of agriculture, forestry and fishing, bp	12%	17%	2%	20%	8%	31%	11%	34%	25%	19%	14%	15%
Products of agriculture, hunting and related services, bp	11%	17%	2%	22%	10%	33%	12%	34%	23%	19%	15%	14%
Products of forestry, logging and related services, bp	2%	10%	3%	14%	2%	24%	5%	8%	8%	22%	3%	4%
Fish and aquaculture products, support serv. to fishing, bp	32%	17%	3%	43%	3%	56%	4%	46%	45%	21%	14%	41%
Mining and quarrying, bp	2%	59%	7%	0%	7%	78%	4%	33%	30%	0%	5%	89%
Coal and lignite, bp	0%	92%	0%	...	...	...	...	...	...	...	...	...
Crude petroleum and natural gas, bp	10%	51%	20%	...	...	...	...	...	...	...	...	...
Metal ores, bp	0%	63%	6%	...	...	...	...	...	...	...	...	...
Other mining and quarrying products, bp	0%	16%	10%	...	...	...	...	...	...	...	...	...
Mining support services, bp	0%	1%	2%	...	...	...	...	...	...	...	...	...
Manufactured products, bp	26%	15%	42%	11%	42%	42%	10%	41%	44%	18%	31%	38%
Food, beverages and tobacco products, bp	47%	22%	20%	36%	35%	29%	21%	42%	32%	48%	17%	19%
Food products, bp	43%	23%	18%	...	...	...	...	...	...	...	...	...
Beverages, bp	66%	17%	27%	...	...	...	...	...	...	...	...	...
Textiles, wearing apparel, leather and related products, bp	58%	9%	81%	48%	32%	72%	25%	58%	83%	30%	37%	69%
Textiles, bp	34%	5%	58%	...	...	...	...	...	...	...	...	...
Wearing apparel, bp	79%	5%	95%	...	...	...	...	...	...	...	...	...
Leather and related products, bp	40%	22%	77%	...	...	...	...	...	...	...	...	...

\*based on a limited sample to exemplify the concept



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*Green represents a positive factor in deciding if an activity is a suitable candidate for using a CPI as an alternative data source*

# Voorburg Task Force - A framework for using CPIs in SPPIs

## Prevalence of household consumption (B2C)

Product (use)	Australia B2C	Australia B2E	Australia Import	Austria B2C	Austria B2E	Austria Import	Denmark B2C	Denmark B2E	Denmark Import	France B2C	France B2E	France Import
Accommodation and food services, bp	71%	12%	14%	77%	9%	6%	68%	2%	0%	71%	0%	0%
Accommodation services, bp	46%	32%	41%	...	...	...	...	...	...	...	...	...
Food and beverage serving services, bp	78%	6%	7%	...	...	...	...	...	...	...	...	...
Information and communication services, bp	17%	4%	7%	13%	18%	18%	14%	13%	18%	17%	9%	9%
Publishing services, bp	32%	10%	31%	29%	17%	35%	20%	19%	31%	32%	6%	8%
Audiovisual and broadcasting services, bp	16%	2%	12%	13%	10%	24%	16%	4%	9%	9%	10%	9%
Motion picture, video & TV programme production serv., etc., bp	15%	3%	24%	...	...	...	...	...	...	...	...	...
Programming and broadcasting services, bp	18%	2%	0%	...	...	...	...	...	...	...	...	...
Telecommunications services, bp	32%	3%	3%	36%	9%	9%	40%	7%	10%	37%	7%	7%
Computer programming, consultancy and related serv., Information serv., bp	6%	3%	3%	0%	23%	16%	1%	14%	17%	1%	11%	10%
Computer programming, consultancy and related services, bp	0%	4%	3%	...	...	...	...	...	...	...	...	...
Information services, bp	17%	2%	2%	...	...	...	...	...	...	...	...	...
Telecommunications services, bp	32%	3%	3%	36%	9%	9%	40%	7%	10%	37%	7%	7%
Computer programming, consultancy and related serv., Information serv., bp	6%	3%	3%	0%	23%	16%	1%	14%	17%	1%	11%	10%
Computer programming, consultancy and related services, bp	0%	4%	3%	...	...	...	...	...	...	...	...	...
Information services, bp	17%	2%	2%	...	...	...	...	...	...	...	...	...
Financial and insurance services, bp	35%	2%	2%	25%	11%	8%	36%	5%	4%	24%	6%	3%
Financial services, except insurance and pension funding, bp	29%	2%	1%	14%	13%	9%	32%	5%	3%	11%	9%	4%
Insurance, reinsurance & pension funding services, exc. compulsory S.S., bp	83%	1%	1%	58%	11%	9%	66%	5%	6%	66%	4%	2%
Services auxiliary to financial services and insurance services, bp	6%	2%	2%	9%	3%	2%	15%	6%	7%	0%	0%	0%
Real estate services, bp	64%	1%	0%	62%	0%	0%	73%	0%	0%	73%	0%	0%
Imputed rents of owner-occupied dwellings, bp	98%	1%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Real estate services excluding imputed rents, bp	0%	0%	0%	32%	0%	1%	52%	0%	0%	39%	0%	0%

*Green represents a positive factor in deciding if an activity is a suitable candidate for using a CPI as an alternative data source*

# Voorburg Task Force - A framework for using CPIs in SPPIs

## Prevalence of household consumption (B2C)

Product (use)	Australia B2C	Australia B2E	Australia Import	Austria B2C	Austria B2E	Austria Import	Denmark B2C	Denmark B2E	Denmark Import	France B2C	France B2E	France Import
Arts, entertainment and recreation services, bp	57%	4%	5%	60%	6%	6%	45%	1%	6%	34%	3%	1%
Creative, arts, entmnt, library, museum, other cult. serv., gambling, bp	60%	3%	6%	55%	8%	9%	46%	1%	9%	38%	5%	3%
Creative, arts and entertainment services, bp	17%	3%	4%	...	...	...	...	...	...	...	...	...
Gambling and betting services, bp	92%	4%	7%	...	...	...	...	...	...	...	...	...
Sporting services and amusement and recreation services, bp	54%	4%	5%	71%	2%	1%	42%	1%	0%	29%	0%	0%
Other services, bp	83%	1%	1%	40%	0%	1%	30%	1%	10%	37%	6%	5%
Services furnished by membership organisations, bp	...	...	...	3%	0%	0%	12%	1%	0%	0%	0%	0%
Repair services of computers and personal and household goods, bp	...	...	...	27%	1%	2%	100%	0%	0%	44%	0%	0%
Other personal services, bp	83%	1%	1%	84%	0%	1%	54%	0%	27%	64%	14%	12%
Services of HH as employers, undif. G&S prod. by HH for own use, bp	...	...	...	100%	0%	0%	6%	0%	0%	88%	0%	0%
Services provided by extraterritorial organisations and bodies, bp	...	...	...	...	...	...	...	...	...	...	...	...
Taxes less subsidies on products	58%	0%	...	65%	1%	...	59%	0%	...	58%	0%	...

*Multi-source data collection should be considered with care.*

*Methodologists and quality colleagues can be a good source of support when reviewing this.*

# Voorburg Task Force - A framework for using CPIs in SPPIs

## “Blending” – Using CPIs in combination with traditional data source

### *Multi-source Data Collection – A Practical approach to “Blending”*

- Once appropriate PPI candidates have been identified for coverage by CPIs and CPIs have themselves been deemed fit-for-purpose, explicit weights may be constructed for their inclusion in the aggregation structure of the PPI.
- The paper proposes a potential practical way of blending the indices together. Predominantly, this is based on the proportion of B2C and B2B shares of output with the Supply-Use-tables (SUTs) providing the price statistician with a sensible starting point.
- SUTs generally hold the information needed to create weights for blending the data sources together, but there are a few steps needed to calculate the output shares. Just as the SUTs can be utilized to support determining suitability of CPIs as a proxy, the same calculation can be utilized to build a weighting structure.



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*Multi-  
source data  
collection  
should be  
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with care.*

*Method-  
ologists and  
quality  
colleagues  
can be a  
good source  
of support  
when  
reviewing  
this.*

# Voorburg Task Force - A framework for using CPIs in SPPIs

## “Blending” – Using CPIs in combination with traditional data source

Occurance of institutions using multiple data sources for a particular 4-digit classification.

Industr	Class	Name	Count
H	5110	Passenger air transport	6
H	5310	Postal activities	4
J	6110	Wired telecommunications activities	4
L	6820	Real estate activities on a fee or contract basis	4
M	6910	Legal activities	4
H	4922	Other passenger land transport	3
H	4923	Freight transport by road	3
H	5320	Courier activities	3
J	6120	Wireless telecommunications activities	3
K	6419	Other monetary intermediation	3
H	4912	Freight rail transport	2
H	5011	Sea and coastal passenger water transport	2
H	5012	Sea and coastal freight water transport	2
H	5221	Service activities incidental to land transportation	2
H	5223	Service activities incidental to air transportation	2
I	5510	Short term accommodation activities	2
M	7120	Technical testing and analysis	2
N	7710	Renting and leasing of motor vehicles	2
N	7740	Leasing of intellectual property and similar products, except copyrighted works	2
N	7810	Activities of employment placement agencies	2
N	8129	Other building and industrial cleaning activities	2

*Multi-source data collection should be considered with care.*

*Methodologists and quality colleagues can be a good source of support when reviewing this.*

# Voorburg Task Force - A framework for using CPIs in SPPIs

## “Blending” – Using CPIs in combination with traditional data source

*When utilizing CPIs in the PPI some important factors are worth considering:*

- **Communication** – the need for closer communication between the CPI and PPI teams to ensure large changes in methodology and/or price movements are discussed and considered.
- **Harmonization (general)** – general principles and their application, for example, pricing methods; quality adjustment; imputation and sampling should be well understood and harmonized where appropriate.
- **Harmonization (per period)** – ensuring that quality adjustment and imputation methods used in reaction to evolving phenomenon are compatible and retain fitness-for-purpose (for example, imputation needs and imputation application used during the recent pandemic).



# Voorburg Task Force - A framework for using CPIs in SPPIs

## Ottawa Group Meeting, June 2022

- **Cooperation.** Agreed with VG that there is a need to cooperate; also emphasized the growing importance of services. They were, for example, interested in hearing more about the practical application and use of CPI in NSIs today. Particularly where CPIs are being utilized as a proxy for BtoB activities.
  
- **Harmonization.** Interest in how CPI and PPI prices track each other over time and how valuation aspects can be controlled for such an analysis. This line of work was considered to have great potential but concluded that much more work needed to be done to be able to conduct such an analysis at a high quality. Example concerns:
  - **Stability (price)** - markups can be very different over time (and across markets)
  - **Quality Adjustment** - likely very different in a consumer versus a producer context. Can we reliably say that adjustments made for CPI purposes are equivalent for PPI purposes. A mention was made of CPI using hedonic regressions that might not be a representative match for PPI.
  - **Product Perception** - likely different when considering firms versus consumers. An example was raised regarding telecom, where firms think in regards to turnover per gigabyte whereas consumers do not.

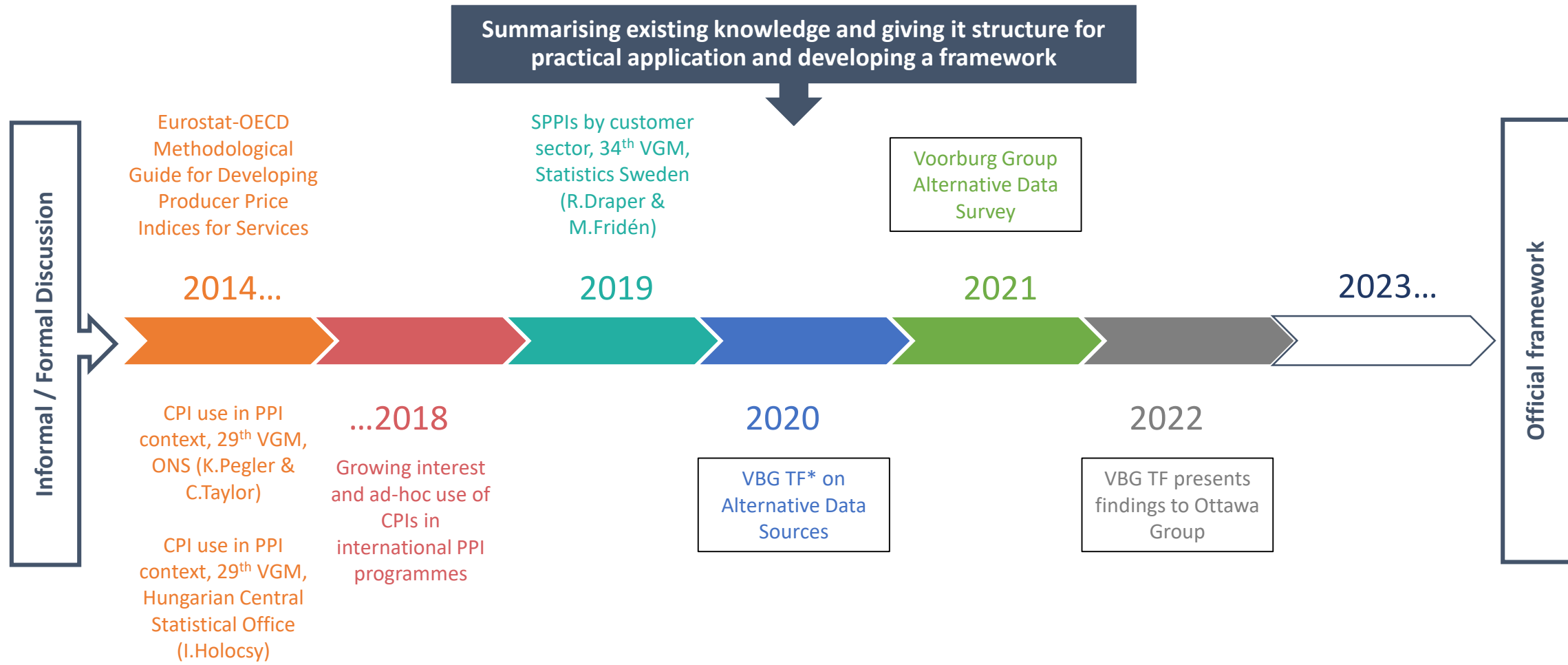
A general summary of the meeting was that cooperation on this subject would be a worthwhile pursuit and a greater level of cooperation within NSIs (e.g. “system of price statistics”) a potential value add (e.g. data collection cooperation; “collect once use many times”).



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# Voorburg Task Force - A framework for using CPIs in SPPIs Next Step

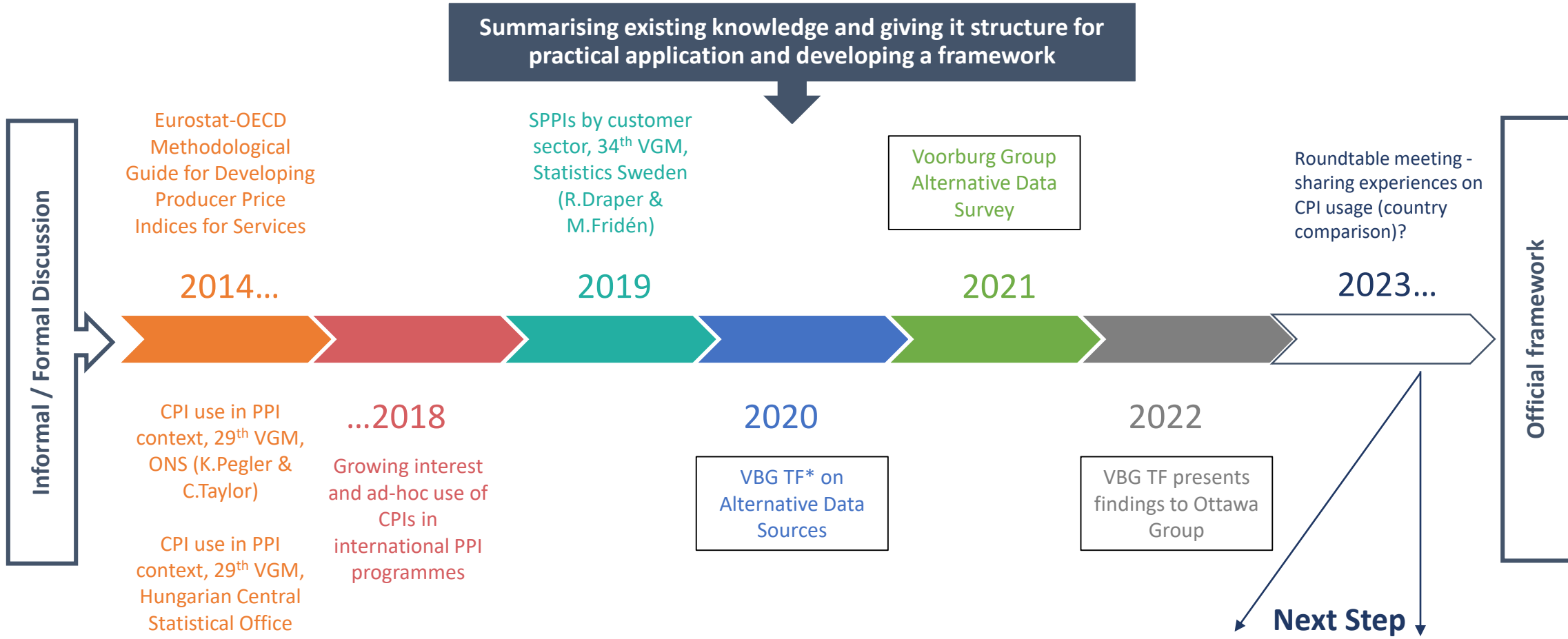




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# Voorburg Task Force - A framework for using CPIs in SPPIs Next Step



- Opportunity for test application and comments
- Addition to SPPI Development Guidance
- Follow-up with Ottawa Group
- Official framework.
- Suggestions are welcome
- Is the Bureau satisfied that this taskforce is concluded successfully?