



Monitoring the Bioeconomy

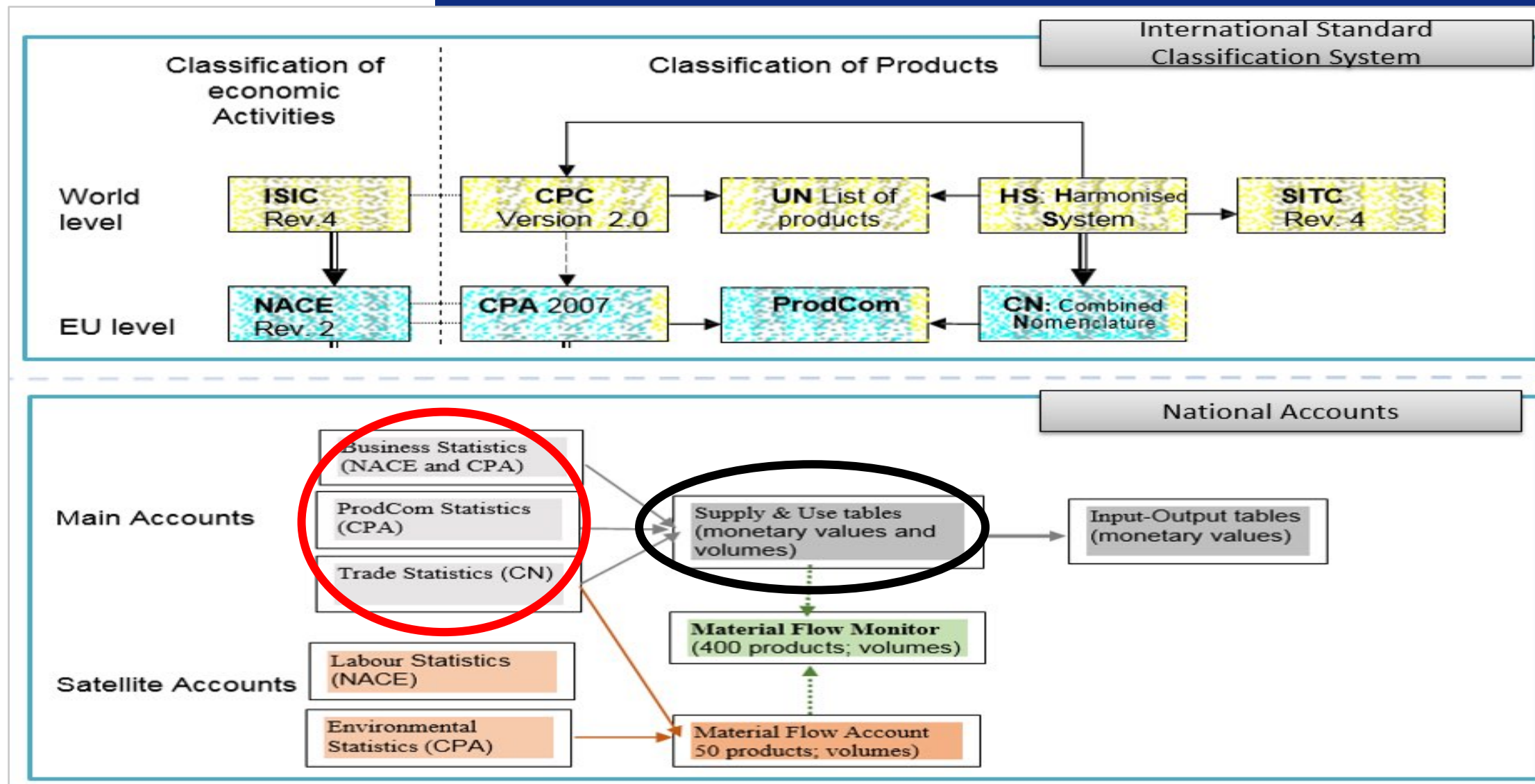
Filling data gaps and constructing detailed SUT for EU Member States

Wietse Dol, Frans Godeschalk, David Verhoog, WEcR

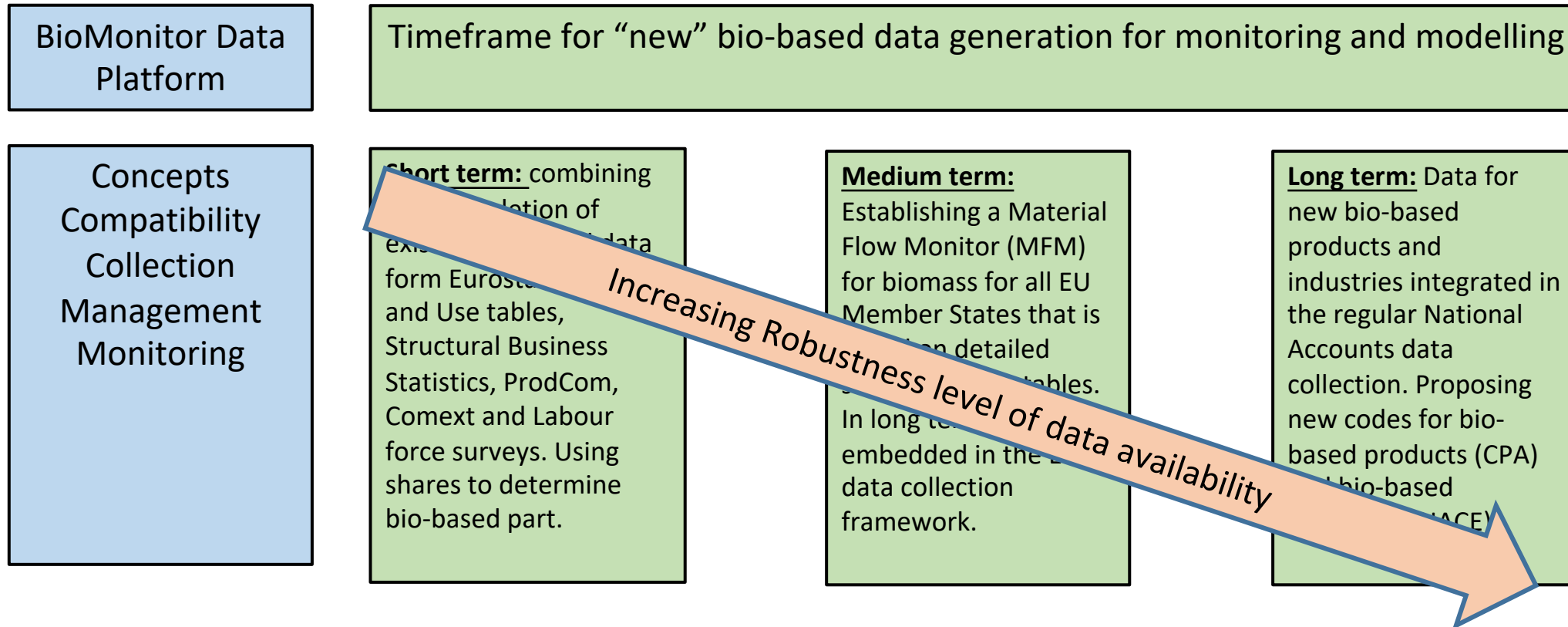


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- Establish a **statistics** and modelling framework for the bioeconomy to enable quantification of the impact of the bioeconomy in the EU and Member States
- Statistics framework must be:
 - Supported by stakeholders
 - **Compatible** with existing statistical systems and databases (e.g. Eurostat)
 - Based on National Accounting statistics
 - Compatible with international standards (NACE: sectors, CPA: products)
 - Implementable by statistical offices and industries
 - Provide input for indicators and modelling framework



- Short term methodology:
 - Start with existing statistics
 - ProdCom (production data on product level: 8digits),
 - Comext (trade data on product level: 8 digits),
 - SBS (structural business statistics for NACE sectors, data on e.g. employment, value added, production value)
 - SUT (supply and use tables NACE 64/64 for Member States)
 - Apply bio-based shares
- Medium term methodology:
 - Material Flow Monitor (MFM)
 - Based on detailed supply and use tables (SUT) and environmental accounts
 - Takes into account flows between sectors of the economy, supply and use of waste and green house gas emissions
 - Balancing use and supply of biomass in the economy
 - Use of all biomass flows including non-monetary flows (circular economy)
 - Apply bio-based shares
- Long term methodology:
 - Proposing new codes for actual recording of bio-based products (CPA) and sectors (NACE) by statistical offices (replaces the shares used in short and medium term)



- The drawback of existing databases in Eurostat:
 - Gaps:
 - (:C)=Confidential,
 - (:CE)=Confidential Estimated,
 - (:E)=Estimated, reliable national estimated figures are displayed in red and italic
 - Coverage:
 - SBS and ProdCom don't cover for example: agriculture, forestry and fishing
 - SBS are based on enterprises or parts of enterprises and classified under the enterprise's main activity
 - PRODCOM statistics are compiled from the enterprises that cover at least 90 % of the national production per NACE class and employ at least 20 people.
 - SBS has regional specification, ProdCom only national level
 - SBS and ProdCom have no detail on innovative **bio-based** sectors and products
 - Detail level:
 - SBS goes to 4 digits in NACE while the SUT for some sectors only provides aggregated figures (e.g. C10-12 (containing all food processing, beverages and tobacco))

- Production and trade of manufactured goods
- 3900 different types of manufactured products (changing over years)
- Products are identified by an 8-digit code:
 - the first four digits correspond to NACE and the first six to the CPA
 - Most product codes correspond to one or more Combined Nomenclature (CN) codes
- Gaps identified by:
 - (:C)=Confidential, (:CE)=Confidential Estimated, (:E)=Estimated, reliable national estimated figures are displayed in red and italic
- Because of confidential data no real EU totals, but EU totals with a range:
 - instead of publishing a real value of 52.178, a value of 52.000 with base value of 500 might be published, indicating that the true value lies somewhere between 51.500 and 52.500.

PRODCOM Code	Unit	flag EU28	Volume EU28	Base EU28	Belgium	Bulgaria	Czech Republic	Denmark	Germany
07101000	kg	:R	40000000	20000000	0 :C		:C	53 CE	
07291100	kg		1680836		0	626577	0	0	0
07291200	kg		42758		0	0	0	0	0
07291300	kg	:R	2000000	500000	0	0	0	0	0
07291400	kg		23520		0	0	0	0	0
07291500	kg		1892906		0	445244	0	0	0
07291900	kg		81517		:C	0	:C	0	0
08111133	kg	:R	6300000	700000	0 :C		:C	0	103633
08111136	kg		3080615		0 :C		:C	0	127132
08111150	kg	:R	14400000	300000	:C	75544	0	0	60541
08111233	kg	:R	8100000	900000	:C	0	221990	148	60812
08111236	kg	:R	1180000	20000	:C	0	20535	103	6404
08111250	kg		6497617		:C	0	:C	0	64918
08111290	kg	:R	11200000	700000	0	924541	:C	4	:C

- The biomonitor project uses biobased shares for splitting hybrid/mixed products into a bio-based part and a fossil-based part
- In the BioMonitor project the bio-based shares from nova-institute are used
- Piotrowski et al. 2019
(<https://biconsortium.eu/library/bioeconomy-figures>)

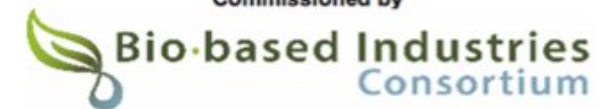
European Bioeconomy in Figures 2008 – 2016

Authors

Dr. Stephan Piotrowski, Michael Carus (nova-Institut), Dr. Dirk Carrez (BIC)

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Forestry House, Rue du Luxembourg 66, B-1000 Brussels, Belgium
info@biconsortium.eu, www.biconsortium.eu

nova-Institute for Ecology and Innovation

Chemiepark Knapsack
Industriestraße 300
50354 Hürth
Germany

Tel. +49-2233-48-12 40
Fax +49-2233-48-14 50
Email: contact@nova-institut.de
Internet: www.nova-institute.eu



- Example textiles (c13)
 - For EU28: ProdCom data are already completed by Eurostat
 - Eurostat provides total values + (for some products) **ranges**
 - C13 contains over 200 products on 8 digit level
 - First 4 digits determine NACE code:
 - 13108550  13.1 Preparation and spinning of textile fibres
 - 13201100  13.2 Weaving of textiles
 - 13301110  13.3 Finishing of textiles
 - 13911100  13.9 Manufacture of other textiles
 - Apply bio-based shares on 8 digit level ProdCom data

Results of top 10 products in 13.10 for EU28 from original ProdCom (no gaps filled yet)

	Value	Volume	Price	Share		CPA-code
Yarn of carded wool or fine animal hair, n.p.r.s.	629895	67441	9.34	9.3		(13105010)
Yarn of combed wool or fine animal hair, n.p.r.s.	514837	42648	12.07	7.6		(13105030)
Other vegetable textile fibres, processed but not spun	449337	417606	1.08	6.6		(13102900)
Yarn of synthetic staple fibres mixed with wool, n.p.r.s	410677	54696	7.51	6.1		(131083Z0)
Man-made filament yarn, p.r.s. (excluding sewing thread)	404740	70076	5.78	6.0		(13108150)
Yarn (other than sewing thread) containing ≥ 85 % by weight of synthetic staple fibres, n.p.r.s.	371901	83727	4.44	5.5		(13108210)
Synthetic staple fibres, carded, combed or otherwise processed for spinning	350400	175000	2.00	5.2		(13103100)
Multiple or cabled synthetic filament yarn, n.p.r.s.	311079	59003	5.27	4.6		(13108110)
Sewing thread of man-made filaments	304434	23221	13.11	4.5		(13108510)
Cotton yarn of uncombed fibres, n.p.r.s.	286186	117036	2.45	4.2		(131061Z1)
Totaal top 10 (CPA-code-13.10)	4033487			59.6		

	PRODCOM code	EU28 prod (1000 euros)	Share in total (%)	Bio-based share (%)
Yarn and fibers	13.10	6773011	11.0%	54.6%
Woven fabrics	13.20	13291951	21.5%	53.2%
Dyeing, Bleaching and finishing	13.30	4453185	7.2%	41.9%
Other textiles	13.90	37224212		
- Knitted or crocheted fabrics	13.91	3180256	5.2%	0.0%
- Housing: bed and table linen, curtains, tents	13.92	10840973	17.6%	13.7%
- Carpets	13.93	5441259	8.8%	0.0%
- Twines, nets, cables	13.94	1616518	2.6%	8.3%
- Non-wovens	13.95	5910079	9.6%	20.0%
- Other textiles	13.96/99	10235126	16.6%	20.0%
Total NACE 13		61742359	100.0%	28.3%

- Collect PRODCOM data on Member State level from Eurostat (from 2008)
 - Conclusion: lots of data gaps
- Column totals and row totals needed for entropy (RAS) method.
- Use EU28 for row total
- Use country level statistics from SBS for column total
 - Need for filled SBS database (no gaps)
 - Check and clean the SBS data for outliers
 - Apply entropy method in R to make SBS data complete and consistent over regions, NACE-levels and years

PRODCOM Code	Unit	flag EU28	Volume EU28	Base EU28	Belgium	Bulgaria	Czech Republic	Denmark	Germany
07101000	kg	:R	40000000	20000000	0	:C	:C	53	CE
07291100	kg		1680836		0	626577	0	0	0
07291200	kg		42758		0	0	0	0	0
07291300	kg	:R	2000000	500000	0	0	0	0	0
07291400	kg		23520		0	0	0	0	0
07291500	kg		1892906		0	445244	0	0	0
07291900	kg		81517		:C	0	:C	0	0
08111133	kg	:R	6300000	700000	0	:C	:C	0	103633
08111136	kg		3080615		0	:C	:C	0	127132
08111150	kg	:R	14400000	300000	:C	75544	0	0	60541
08111233	kg	:R	8100000	900000	:C	0	221990	148	60812
08111236	kg	:R	1180000	20000	:C	0	20535	103	6404
08111250	kg		6497617		:C	0	:C	0	64918
08111290	kg	:R	11200000	700000	0	924541	:C	4	:C

1. CheckParentChildren

For value Parent \leq sum(Children with data) give the parent the value of the children and set all missing cells to 0.

2. OneMissingChild

If we only have one missing child we give this child the value parent – sum(rest of the children).

3. FindNearest

Find when a cell has a missing the nearest value then scale the missings so that they aggregate to the gap (i.e. the Value of the Parent – sum of Children that have a value). This is the central approach for filling missing cells.

4. FindNearestExplanatoryVariable

Replace the missing values by an explanatory variable using the same approach as in the findNearest.

5. AllOtherFails

When we don't know anything just use the equal distribution over all the missing cells.

6. CheckChildrenGreaterParent

Check Parent and Children: if sum children \neq parent and we have no missing values in the children: we have to correct the parent = sum(Children). This method is always executed, so even when a parent doesn't have missing child(ren)

The original data												
geo	nace_r2	indic_sb	2008	2009	2010	2011	2012	2013	2014	2015	2016	
BE	C	V16110	585235	556893	536365	537614	524310	514956	505698	491822	494490	
BE10	C	V16110							25571	24222	23552	
BE21	C	V16110		115745	110338	111613	107056	106609	103244	101750	102323	
BE22	C	V16110		56088	54475	53624	53520	51629	51345	46154	46574	
BE23	C	V16110		81747	82644	82603	81431	80606	79224	80533	80352	
BE24	C	V16110		40255	37614	38625	34538	33161	33578	31653	31463	
BE25	C	V16110	91501	86080	84228	85518	84131	82176	80247	80174	80703	
BE31	C	V16110			20410	18890	19592	21336	20915	20473	20275	
BE32	C	V16110		55158	54521	55322	53869	51174	48973	46263	46705	
BE33	C	V16110		47004	45781		43063	42602	43298	42719	43600	
BE34	C	V16110			8097				7671	7173	7315	
BE35	C	V16110		10802		10541	10050	9586	9852	9515	10248	

Fill the data with the Nearest value in the year 2011												
geo	nace_r2	indic_sb	2008	2009	2010	2011	2012	2013	2014	2015	2016	
BE	C	V16110	585235	556893	536365	537614	524310	514956	505698	491822	494490	
BE10	C	V16110				25571			25571	24222	23552	
BE21	C	V16110		115745	110338	111613	107056	106609	103244	101750	102323	
BE22	C	V16110		56088	54475	53624	53520	51629	51345	46154	46574	
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BE25	C	V16110	91501	86080	84228	85518	84131	82176	80247	80174	80703	
BE31	C	V16110			20410	18890	19592	21336	20915	20473	20275	
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BE33	C	V16110		47004	45781	43063	43063	42602	43298	42719	43600	
BE34	C	V16110			8097	8097			7671	7173	7315	
BE35	C	V16110		10802		10541	10050	9586	9852	9515	10248	

Scale the missings of 2011 so the sum = GAP													
geo	nace_r2	indic_sb	2008	2009	2010	2011	2012	2013	2014	2015	2016		
BE	C	V16110	585235	556893	536365	537614	524310	514956	505698	491822	494490		
BE10	C	V16110				26953.00906			25571	24222	23552		
BE21	C	V16110		115745	110338	111613	107056	106609	103244	101750	102323		
BE22	C	V16110		56088	54475	53624	53520	51629	51345	46154	46574		
BE23	C	V16110		81747	82644	82603	81431	80606	79224	80533	80352		
BE24	C	V16110		40255	37614	38625	34538	33161	33578	31653	31463		
BE25	C	V16110	91501	86080	84228	85518	84131	82176	80247	80174	80703		
BE31	C	V16110			20410	18890	19592	21336	20915	20473	20275		
BE32	C	V16110		55158	54521	55322	53869	51174	48973	46263	46705		
BE33	C	V16110		47004	45781	45390.38086	43063	42602	43298	42719	43600		
BE34	C	V16110			8097	8534.610079			7671	7173	7315		
BE35	C	V16110		10802		10541	10050	9586	9852	9515	10248		

The full procedure results in													
geo	nace_r2	indic_sb	2008	2009	2010	2011	2012	2013	2014	2015	2016		
BE	C	V16110	585,235	556,893	536,365	537,614	524,310	514,956	505,698	491,822	494,490		
BE10	C	V16110	27,394	30,269	27,090	26,953	28,508	27,752	25,661	24,281	23,618		
BE21	C	V16110	123,997	115,745	110,338	111,613	107,056	106,609	103,609	101,997	102,609		
BE22	C	V16110	60,087	56,088	54,475	53,624	53,520	51,629	51,526	46,266	46,704		
BE23	C	V16110	87,575	81,747	82,644	82,603	81,431	80,606	79,504	80,729	80,577		
BE24	C	V16110	43,125	40,255	37,614	38,625	34,538	33,161	33,697	31,730	31,551		
BE25	C	V16110	91,501	86,080	84,228	85,518	84,131	82,176	80,530	80,369	80,929		
BE31	C	V16110	21,865	24,160	20,410	18,890	19,592	21,336	20,989	20,523	20,332		
BE32	C	V16110	59,090	55,158	54,521	55,322	53,869	51,174	49,146	46,375	46,836		
BE33	C	V16110	50,355	47,004	45,781	45,390	43,063	42,602	43,451	42,823	43,722		
BE34	C	V16110	8,674	9,585	8,097	8,535	8,552	8,325	7,698	7,190	7,335		
BE35	C	V16110	11,572	10,802	11,167	10,541	10,050	9,586	9,887	9,538	10,277		

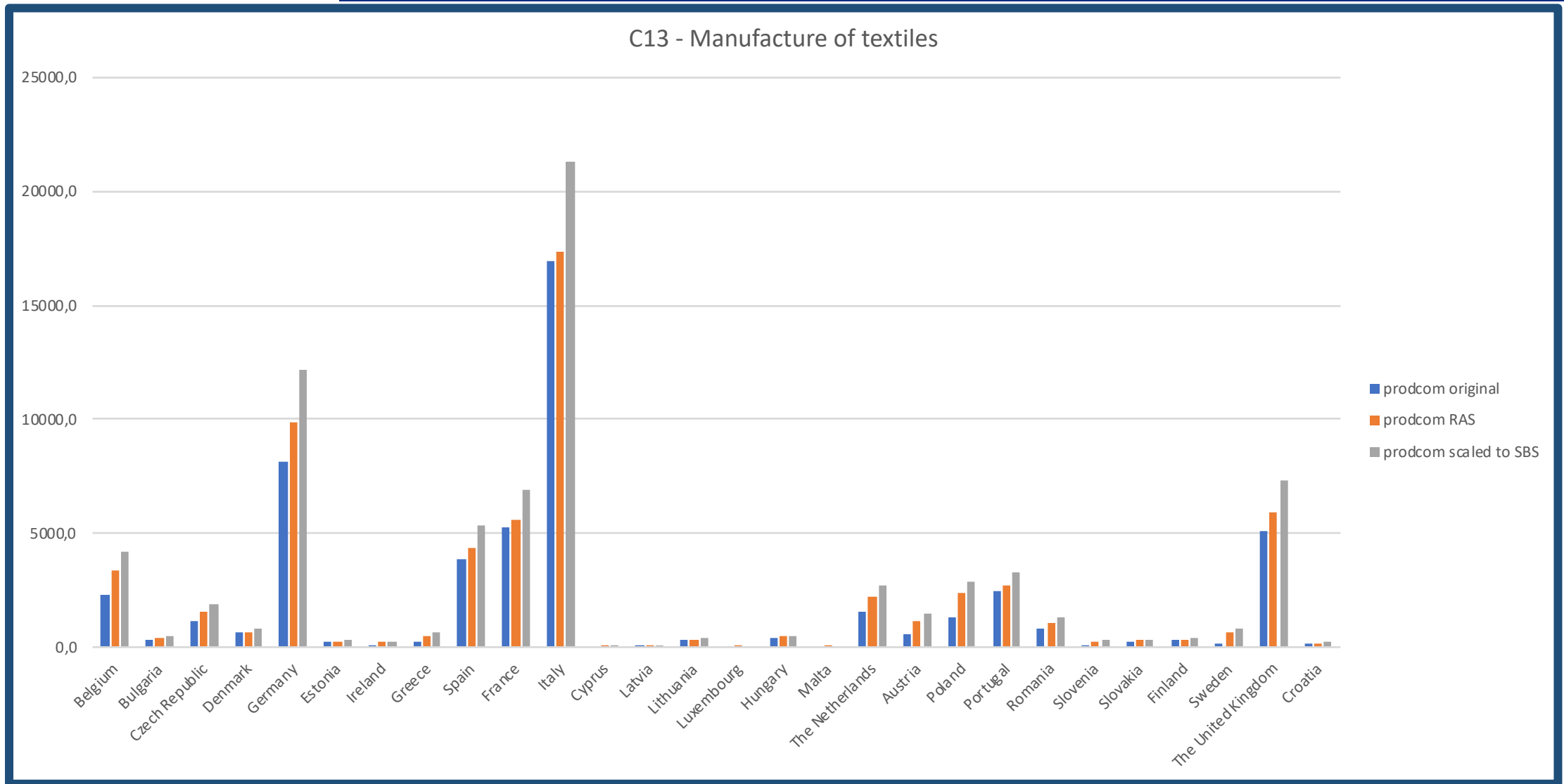
- Collect PRODCOM data on Member State level from Eurostat (from 2008)
- Use EU28 for row total
- Use SBS level as proxy for column totals
- When column totals and row totals are in place, use entropy (RAS) method to fill missing data in matrix
 - Column total equal to row total
 - Small entropy on sector (product group) level
 - Scale entropy result to SBS

PRODCOM Code	Unit	flag EU28	Volume EU28	Base EU28	Belgium	Bulgaria	Czech Republic	Denmark	Germany
07101000	kg	:R	40000000	20000000	0	:C	:C	53	CE
07291100	kg		1680836		0	626577	0	0	0
07291200	kg		42758		0	0	0	0	0
07291300	kg	:R	2000000	500000	0	0	0	0	0
07291400	kg		23520		0	0	0	0	0
07291500	kg		1892906		0	445244	0	0	0
07291900	kg		81517		:C	0	:C	0	0
08111133	kg	:R	6300000	700000	0	:C	:C	0	103633
08111136	kg		3080615		0	:C	:C	0	127132
08111150	kg	:R	14400000	300000	:C	75544	0	0	60541
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		Belgium	Bulgaria	Czech Republic	Denmark	Germany	Estonia	Ireland	Greece	Spain
		BE	BG	CZ	DK	DE	EE	IE	EL	ES
SBS-total		4171.6	459.8	1862.8	797.8	12151.5	309.0	259.8	623.9	5335.0
		2301.5	319.5	1131.2	647.8	8164.7	257.7	44.7	239.7	3841.4
"13101000"	13101000		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
"13102100"	13102100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
"13102200"	13102200			0.0	0.0	0.0	0.0	0.0	0.0	6.0
"13102300"	13102300	0.0		0.0	0.0		0.0	0.0	0.0	
"13102400"	13102400			0.0	0.0	0.0	0.0		0.0	
"13102500"	13102500	0.0		0.0	0.0		0.0	0.0		9.9
"13102600"	13102600	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
"13102900"	13102900	41.8	0.0		0.3		0.0	0.0	0.0	
"13103100"	13103100		0.0	0.7	0.0	32.2	0.0	0.0	0.0	14.0
"13103200"	13103200	0.0		0.0	0.0		0.0	0.0	0.0	0.9
"13104010"	13104010	0.0		0.0	0.0	0.0	0.0	0.0		0.0
"13104030"	13104030	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
"13104050"	13104050	0.0	0.0		0.0		0.0	0.0	0.0	
"13105010"	13105010		1.2		0.0	8.0	0.0	0.0	0.0	14.4
"13105030"	13105030				0.0	0.0	0.7	0.0	0.0	0.5
"13105050"	13105050	0.0	0.0	0.0	0.0		0.0		0.0	5.8
"13106132"	13106132			5.3		22.2	0.0	0.0		52.8
"13106133"	13106133	0.0		0.0			0.4	0.0		42.0
"13106135"	13106135			0.0			0.0	0.0		19.4
"13106152"	13106152			3.3	0.0		0.0	0.0		

		Belgium	Bulgaria	Czech Republic	Denmark	Germany	Estonia	Ireland	Greece	Spain
		BE	BG	CZ	DK	DE	EE	IE	EL	ES
SBS-total		4171.6	459.8	1862.8	797.8	12151.5	309.0	259.8	623.9	5335.0
		3396.3	374.3	1516.6	649.5	9893.0	257.8	211.5	507.9	4343.4
"13101000"	13101000	18.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
"13102100"	13102100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
"13102200"	13102200	1.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	6.0
"13102300"	13102300	0.0	0.1	0.0	0.0	2.3	0.0	0.0	0.0	3.5
"13102400"	13102400	28.2	2.0	0.0	0.0	0.1	0.0	3.4	0.0	85.7
"13102500"	13102500	0.0	0.1	0.0	0.0	3.7	0.0	0.0	0.5	9.9
"13102600"	13102600	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
"13102900"	13102900	41.8	0.0	0.1	0.3	0.7	0.0	0.0	0.0	1.0
"13103100"	13103100	3.3	0.0	0.7	0.0	32.2	0.0	0.0	0.0	14.0
"13103200"	13103200	0.0	0.1	0.0	0.0	4.2	0.0	0.0	0.0	0.9
"13104010"	13104010	0.0	1.8	0.0	0.0	0.1	0.0	0.0	6.9	0.1
"13104030"	13104030	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
"13104050"	13104050	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.4
"13105010"	13105010	38.6	1.2	15.4	0.0	8.1	0.0	0.0	0.0	14.5
"13105030"	13105030	47.2	3.4	18.8	0.0	0.1	0.7	0.0	0.0	0.7
"13105050"	13105050	0.0	0.0	0.0	0.0	10.6	0.0	0.6	0.0	5.8
"13106132"	13106132	4.3	0.3	5.3	0.0	22.2	0.0	0.0	1.2	52.9
"13106133"	13106133	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.1	42.0
"13106135"	13106135	4.5	0.3	0.0	0.0	9.0	0.0	0.0	1.2	19.4
"13106152"	13106152	1.1	0.1	3.3	0.0	2.2	0.0	0.0	0.3	3.3

		Belgium	Bulgaria	Czech Republic	Denmark	Germany	Estonia	Ireland	Greece	Spain
		BE	BG	CZ	DK	DE	EE	IE	EL	ES
SBS-total		4171.6	459.8	1862.8	797.8	12151.5	309.0	259.8	623.9	5335.0
		4171.6	459.8	1862.8	797.8	12151.5	309.0	259.8	623.9	5335.0
"13101000"	13101000	22.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
"13102100"	13102100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
"13102200"	13102200	2.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	7.4
"13102300"	13102300	0.0	0.1	0.0	0.0	2.9	0.0	0.0	0.0	4.3
"13102400"	13102400	34.6	2.5	0.0	0.0	0.1	0.0	4.2	0.0	105.3
"13102500"	13102500	0.0	0.2	0.0	0.0	4.5	0.0	0.0	0.6	12.2
"13102600"	13102600	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
"13102900"	13102900	51.4	0.0	0.2	0.3	0.8	0.0	0.0	0.0	1.2
"13103100"	13103100	4.1	0.0	0.8	0.0	39.5	0.0	0.0	0.0	17.2
"13103200"	13103200	0.0	0.2	0.0	0.0	5.1	0.0	0.0	0.0	1.1
"13104010"	13104010	0.0	2.2	0.0	0.0	0.1	0.0	0.0	8.5	0.1
"13104030"	13104030	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
"13104050"	13104050	0.0	0.0	0.1	0.0	0.3	0.0	0.0	0.0	0.5
"13105010"	13105010	47.5	1.4	18.9	0.0	9.9	0.0	0.0	0.0	17.8
"13105030"	13105030	58.0	4.1	23.1	0.0	0.1	0.9	0.0	0.0	0.8
"13105050"	13105050	0.0	0.0	0.0	0.0	13.1	0.0	0.8	0.0	7.2
"13106132"	13106132	5.3	0.4	6.5	0.0	27.2	0.0	0.0	1.5	64.9
"13106133"	13106133	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.1	51.6
"13106135"	13106135	5.5	0.4	0.0	0.0	11.1	0.0	0.0	1.5	23.9
"13106152"	13106152	1.3	0.1	4.0	0.0	2.7	0.0	0.0	0.4	4.0



- Entropy method developed in R for filling data gaps in SBS on NUTS-level already looks promising
- RAS-method on ProdCom is giving first results on country level. Better integration between data filling exercise in SBS and RAS on ProdCom is still needed
- Once the method works on ProdCom, country specific bio-based shares on products are needed to calculate national bio-based shares of industries (sectors)
- Next step is to integrate the completed ProdCom into the SUT 64/64 to get more detailed SUT for each Member State
- Ultimately these industry shares can also be used as a starting point to split sectors in models and improve the Material Flow Monitor

- The MFM methodology needs detailed physical SUT for Member States
 - SUT contains sectors (NACE) in columns and products (CPA) in rows
 - Detailed physical SUT can be obtained from monetary SUT
- Monetary SUT are an underlying statistics for National Accounts
 - Should be available in all EU Member States
- Pilot project in 3 Member States (Latvia, Slovakia and Spain)
- Problems:
 - Statistical offices not willing to provide detailed SUT, only official 64/64 SUT
 - Detailed tables provided not detailed enough
- Solution:
 - Build detailed SUT based on available statistics in Eurostat

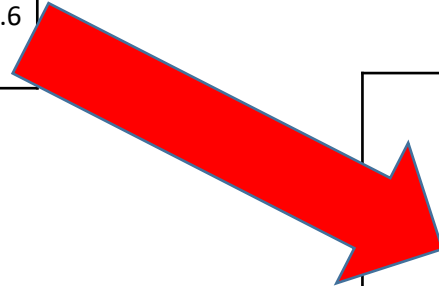
- Data sources used to expand 64/64 SUT:
 - For Ao1 (Agriculture): Economic Accounts for Agriculture (EAA), Farm Accountancy Data (FADN)
 - For manufacturing (c10-12, c13-15, c20): Structural Business Statistics (SBS) for distribution and ProdCom for detail
 - Imports and exports from COMEXT (EU trade database)
 - Household consumption data (COICOP statistics)
- Supply-side looks promising, use-side more difficult
- Check result for Netherlands with available detailed table from Statistical Office

Example 64/64 supply table for Spain

		A01	A02	A03	B	C10-12	C13-15	C16	C17	C18	C19	C20
CPA_A01	Products of agriculture, hunting and related services	44894.2	116.5	0	0	0	0	0	0	0	0	0
CPA_A02	Products of forestry, logging and related services	1.7	1216.1	0	0	0	0	0	0	0	0	0
CPA_A03	Fish and other fishing products; aquaculture products; support services to fishing	0	0	2371.1	0	0	0	0	0	0	0	0
CPA_B	Mining and quarrying	0	4.6	0	5482.5	0	0	0	0	0	0	0
CPA_C10-12	Food, beverages and tobacco products	981.7	0.1	697.3	0	132953.4	36.8	0	0	0	0	360.3
CPA_C13-15	Textiles, wearing apparel, leather and related products	0	0	0	0	0	18290.6	14.6	9.4	19.4	0	99.4
CPA_C16	Wood and of products of wood and cork, except furniture; articles of straw and plaiting materials	0	3.7	0	0	0.6	4.4	5770.2	0	0	0	0.6
CPA_C17	Paper and paper products	0	0	0	0	0	85.4	77.2	11313.2	1086.2	0	365.9
CPA_C18	Printing and recording services	0	0	0	0	0	36.6	3.3	82.3	5860.8	0	0.4
CPA_C19	Coke and refined petroleum products	0	0	0	11	0	0	0	0	0	28029.6	1082.1
CPA_C20	Chemicals and chemical products	0	0	0	85.8	411	295.3	10	4.4	0	2221	42185
CPA_C21	Basic pharmaceutical products and pharmaceutical preparations	0	0	0	0	32	12.4	0	0	0	0	249.1
CPA_C22	Rubber and plastic products	0	0	0	0	0	192.2	32.5	73.4	63.5	0	466.8
CPA_C23	Other non-metallic mineral products	0	0	0	2.6	5.4	0.6	0	0	0	0.1	114.5
CPA_C24	Basic metals	0	0	0	0	0	0	0.4	3.4	0.3	0	15.4

Example supply table Spain (textiles)

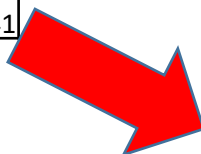
		C13-15
CPA_C13-15	Textiles, wearing apparel, leather and related products	18290.6



		Manufacture of textiles	Manufacture of wearing apparel	Manufacture of leather and related products
CPA_C13	Manufacture of textiles (SBS)	6745	0	0
CPA_C13_pcc	Manufacture of textiles (PRODCOM)	3841	0	0
CPA_C13_bio	Manufacture of textiles (PRODCOM & nova shares)	1214	0	0
CPA_C14	Manufacture of wearing apparel (SBS)	0	5786	0
CPA_C14_pcc	Manufacture of wearing apparel (PRODCOM)	0	3239	0
CPA_C14_bio	Manufacture of wearing apparel (PRODCOM & nova shares)	0	1340	0
CPA_C15	Manufacture of leather and related products (SBS)	0	0	5759
CPA_C15_pcc	Manufacture of leather and related products (PRODCOM)	0	0	3192
CPA_C15_bio	Manufacture of leather and related products (PRODCOM & nova shares)	0	0	1509

Example supply table Spain (textiles)

		Manufacture of textiles
CPA C13	Manufacture of textiles	6745
CPA C13 pcc	Manufacture of textiles (PRODCOM)	3841



		Manufacture of textiles
CPA C13 pcc	Manufacture of textiles (PRODCOM)	3841
13101000	"Wool grease and fatty substances derived therefrom, including lanolin"	22.9
13102100	"Raw silk (not thrown)"	0.0
13102200	"Wool, degreased or carbonised, not carded or combed"	2.0
13102300	"Noils of wool or fine animal hair"	0.0
13102400	"Wool or animal hair, carded or combed (including wool tops)"	34.6
13102500	"Cotton, carded or combed"	0.0
13102600	"Jute and other textile fibres (except flax, true hemp and ramie), processed but not spun"	0.0
13102900	"Other vegetable textile fibres, processed but not spun"	51.4
13103100	"Synthetic staple fibres, carded, combed or otherwise processed for spinning"	4.1
13103200	"Artificial staple fibres, carded, combed or otherwise processed for spinning"	0.0
13104010	"Silk yarn, n.p.r.s. (excluding spun from silk waste)"	0.0
13104030	"Yarn spun from silk waste, n.p.r.s."	0.0
13104050	"Silk yarn and silk waste yarn, p.r.s.; silk-worm gut"	0.0
13105010	"Yarn of carded wool or fine animal hair, n.p.r.s."	47.5
13105030	"Yarn of combed wool or fine animal hair, n.p.r.s."	58.0
13105050	"Yarn of wool or fine animal hair, p.r.s."	0.0
13106132	"Yarn of uncombed cotton, n.p.r.s., for woven fabrics (excluding for carpets and floor coverings)"	5.3
13106133	"Yarn of uncombed cotton, n.p.r.s., for knitted fabrics and hosiery"	0.0
13106135	"Yarn of uncombed cotton, n.p.r.s., for other uses (including carpets and floor coverings)"	5.5
13106152	"Yarn of combed cotton, n.p.r.s., for woven fabrics (excluding for carpets and floor coverings)"	1.3



Thank you.



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	PRODCOM code	EU28 prod (1000 euros)	Share in total (%)	Bio-based share (%)
Industrial gasses	20.11	6881085	1.6%	0.0%
Dyes and pigments	20.12	11768260	2.8%	4.8%
Other inorganic basic chemicals	20.13	20353768	4.8%	0.0%
Organic basic chemicals	20.14	98575021	23.5%	13.3%
Fertilizers	20.15	16927004	4.0%	5.3%
Plastics	20.16	93381003	22.2%	2.9%
Synthetic rubber	20.17	5764878	1.4%	0.0%
Agro chemical products	20.20	9518941	2.3%	1.5%
Paints, varnishes, coatings, tinting inks	20.30	33472297	8.0%	1.4%
Soap and detergents	20.41	19624660	4.7%	4.0%
Cosmetics and personal care	20.42	28447163	6.8%	0.0%
Explosives	20.51	2434481	0.6%	0.0%
Glues	20.52	5469077	1.3%	14.8%
Essential oils	20.53	9381706	2.2%	100.0%
Other chemical products	20.59	51269375	12.2%	8.0%
- Lubricants	20.59.41	2681961		
- Plasticisers (& stabilisers for rubber and plastics)	20.59.56	5804725		
- Biodiesel and mixtures thereof	20.59.58	8597304		
Man-made fibres	20.60	6841789	1.6%	8.4%
Total NACE 20		420110509	100.0%	8.0%