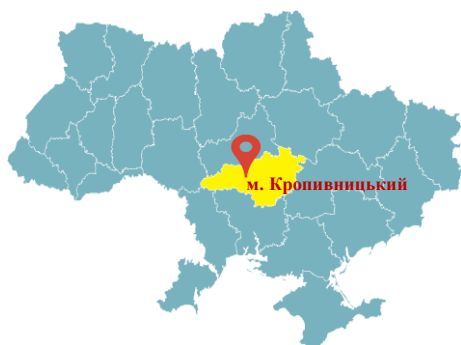


# REPORT

## on economic and innovation potential of the Kirovohrad Oblast

### 1. Economic potential: Kirovohrad oblast



Full results for Kirovohrad oblast are shown in the accompanying Excel file (**S3Ukraine – Kirovograd.xlsx**) including all the calculations.

**Table 2** summarizes the results for Kirovohrad Oblast using the thresholds in **Table 1**.

**Table 1. Thresholds used to show economic situation of Kirovohrad oblast**

Criterion	Threshold	Kirovohrad oblast
Extent of specialization	X	1.25
Critical Mass	Y	0.25%
Change in average wages: relative to region	Z1	0.90
Change in average wages: relative to aggregate industry	Z2	0.90

The initial selection included 138 industries; 39 industries passed at least one of the 4 selection criteria (employment, average wages, employment change, change in average wages).

For the Static analysis 24 industries have been identified using the data for number of employees representing 57.6% of total employment in the region. Using data for average wages 15 industries have been identified representing 38.3% of total employment in the region. Combining the two criteria results in 8 industries representing 36% of total employment in the region.

For the Dynamic analysis 23 industries have been identified using the data for the change in the number of employees representing 13.6 % of total employment in the region. Using data for the change in average wages 15 industries have been identified representing 7.3% of total employment in the region. Combining the two criteria results in 5 industries representing 3.1% of total employment in the region. None of the industries has passed either the static or the dynamic threshold.

**Table 2. Reporting on economic potential: results for Kirovohrad Oblast**

Criteria	Threshold	Number of selected industries	Share of regional employment
1	2	3	4
<b>Initial number of industries included in the analysis</b>	-	138	-
<b>Static analysis</b>			
<b>Employment</b>			
Degree of specialisation	1,25	32	
Critical mass	0,25%	56	
Both		24	57,6%
<b>Employment &amp; Average wages</b>			
Relative to region	90	40	
Relative to aggregate industry	90	19	
Both		15	38,3%
<b>Dynamic analysis</b>			
<b>Employment change</b>			
Relative to region	>0 out of 3 years & period	30	
Relative to aggregate industry	>0 out of 3 years & period	33	
Both		23	13,6%
<b>Change in average wages</b>			
Relative to region	>0 out of 3 years & period	21	
Relative to aggregate industry	>0 out of 3 years & period	30	
Both		15	7,3%
<b>Employment &amp; Average wages</b>			
Static analysis	-	8	36,0%
Dynamic analysis	-	5	3,1%
<b>Both static and dynamic</b>	-	-	-

**Table 3** shows the identified industries for each of the categories. Industries that passed both criteria for either the static or the dynamic analysis are highlighted in bold. The combination of selected industries represents 24.7 % of total employment in the region.

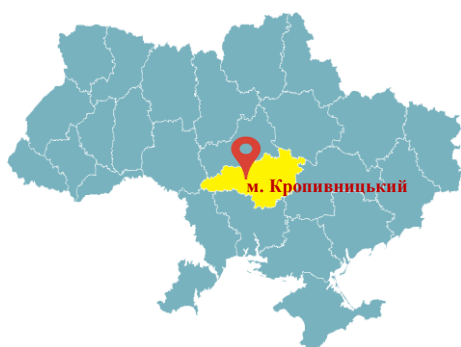
**Table 3. Identified industries for economic potential for Kirovohrad Oblast**

NACE	Name	Static analysis			Dynamic analysis		
		Employment	Average wages	Both	Employment change	Change in average wages	Both
	<b># of selected industries</b>	<b>24</b>	<b>15</b>	<b>8</b>	<b>23</b>	<b>15</b>	<b>5</b>
1	2	3	4	5	6	7	8
<b>1.1</b>	<b>Growing of non-perennial crops</b>	X	X	<b>X</b>			
1.6	Auxiliary activities in agriculture and post-harvest activities	X			X		
<b>2.2</b>	<b>Logging</b>		X		X	X	<b>X</b>
<b>3.1</b>	<b>Aquaculture</b>				X	X	<b>X</b>
3.2	Aquaculture				X		
<b>8.1</b>	<b>Extraction of stone, sand and clay</b>	X	X	<b>X</b>			
<b>10.1</b>	<b>Manufacture of meat and meat products</b>	X	X	<b>X</b>			
10.4	Production of oil and animal fats	X					
10.8	Manufacture of other food products	X			X		
11	Manufacture of beverages					X	
14.1	Manufacture of wearing apparel other than fur		X				
16.1	Sawmilling and planing production	X					
16.2	Manufacture of articles of wood, cork, straws and vegetable weaving materials		X				
20.3	Manufacture of paints, varnishes and similar products, printing inks and mastics	X			X		
23.6	Manufacture of concrete, plaster and cement	X					
23.7	Cutting, trimming and finishing of decorative and building stone		X				
<b>24.5</b>	<b>Casting of metals</b>	X	X	<b>X</b>			
25.1	Manufacture of metal structures and products	X					
25.5	Forging, pressing, stamping,		X				

1	2	3	4	5	6	7	8
	shaping; powder metallurgy						
25.6	Treatment of metals and coating of metals; machining of metal products					X	
27	Manufacture of electrical equipment	X					
28.1	Manufacture of machinery and equipment of general purpose	X					
<b>28.3</b>	<b>Manufacture of machinery and equipment for agriculture and forestry</b>	X	X	<b>X</b>			
31	Manufacture of furniture	X					
32.9	Production of products, nvd				X		
33.2	Installation and assembly of machines and equipment				X		
35.3	Supply of steam, hot water and air conditioning	X					
36	Water collection, treatment and supply	X					
<b>38.1</b>	<b>Waste collection</b>	X	X	<b>X</b>			
41.2	Construction of residential and non-residential buildings					X	
<b>42.2</b>	<b>Building communications</b>	X	X	<b>X</b>			
43.3	Works on completion of construction		X		X		
43.9	Other specialized construction work					X	
46.2	Wholesale of agricultural raw materials and live animals	X					
<b>46.6</b>	<b>Wholesale of other machinery and equipment</b>	X			X	X	<b>X</b>
46.7	Other specialized wholesale trade					X	
46.9	Non-specialized wholesale trade				X		
47.3	Retail fuel					X	
47.5	Retail sale of other household goods in specialized stores				X		
<b>49.4</b>	<b>Freight transport by road, provision of transportation services</b>	X	X	<b>X</b>	X		

1	2	3	4	5	6	7	8
<b>52.1</b>	<b>Warehousing</b>	X			X	X	X
52.2	Support activities in the field of transport				X		
56.3	Beverage service				X		
61.1	Activities in the field of wired telecommunication				X		
<b>62</b>	<b>Computer programming, consultancy and related activities</b>				X	X	X
66	Activities auxiliary to financial services and insurance				X		
68.2	Renting and operating of own or leased real estate				X		
68.3	Real estate transactions on a fee or contract basis					X	
71.2	Technical testing and research		X				
74.9	Other professional, scientific and technical activities					X	
77.3	Rental of other machinery, equipment and goods	X					
78	Employment activities					X	
79	Activities of travel agencies, tour operators, provision of other reservation services and related activities				X		
81.1	Complex service of objects				X		
82.9	Business support service activities					X	
85.5	Other types of education				X		

## 2. Innovation potential: Kirovohrad Oblast



Full results for Kirovohrad Oblast are shown in the accompanying Excel file (**S3Ukraine –Kirovograd.xlsx**) including all the calculations.

**Table 5** summarizes the results for Kirovohrad Oblast using the thresholds defined in section **Table 4**. These thresholds can also be changed to select a higher or smaller number of industries.

**Table 4. Reporting of innovation potential: results for Kirovohrad Oblast**

Criteria	Threshold	Kirovograd Oblast
<b>Specialization in the field</b>	LQ	1.25
<b>Specialization in the aggregate industry in the country</b>	LQ	1.25

The primary selection for Kirovograd region included 138 industries.

### 2014:

18 industries have innovative potential in the region,  
17 industries have innovative potential in the aggregate industry of the country,  
16 industries have innovative potential on two criteria.

### 2016:

18 industries have innovative potential in the region,  
20 industries have innovative potential in the aggregate industry of the country,  
18 industries have innovative potential on two criteria.

Combining 2014 and 2016, 8 industries have innovative potential over these years, accounting for 9.4% of total employment in the region.

Using an alternative, selecting industries that have completed at least 3 of 4 criterion in 2014 and 2016, we will get 11 industries, representing 14.9% of total employment in the region.

**Table 5. Identified industries for innovation potential for Kirovograd Oblast**

Criteria	Threshold	Number of selected sectors	Share of regional employment
1	2	3	4
<b>The initial number of industries included in the analysis</b>	-	138	
<b>2014</b>			
Innovative potential for the area	LQ above 1.25 in 2 types of innovation	18	

1	2	3	4
Innovative potential for the aggregate industry	LQ above 1.25 in 2 types of innovation	17	
Both	-	16	
<b>2016</b>			
Innovative potential for the area	LQ above 1.25 in 2 types of innovation	18	
Innovative potential for the aggregate industry	LQ above 1.25 in 2 types of innovation	20	
Both	-	18	
<b>2014 and 2016</b>	All criteria for 2014 and 2016	8	9,4%
<b>2014 and 2016 - alternative</b>	At least 3 out of 4 criteria for 2014 and 2016	11	14,9%

**Table 6** shows the identified industries for each of the categories. Industries that passed both criteria for both 2014 and 2016 are highlighted in bold. Industries that also passed the alternative by selecting industries that passed at least 3 out of the 4 criteria in 2014 and 2016 results are highlighted in bold and italics.

**Table 6. Identified industries for innovation potential of Kirovohrad Oblast**

NACE	Name	2014			2016			Both 2014 and 2016	At least 3 criteria
		Rel. to region	Rel. to industry	Both	Rel. to region	Rel. to industry	Both		
		<b>18</b>	<b>17</b>	<b>16</b>	<b>18</b>	<b>20</b>	<b>18</b>		
1	2	3	4	5	6	7	8	9	10
8.1	Stone extraction. sand and clay					X			
10.1	Processing and preserving of meat and production of meat products				X	X	X		
<b>10.4</b>	<b>Manufacture of vegetable and animal oils and fats</b>	X	X	X	X	X	X	<b>X</b>	<b>X</b>
10.5	Dairying	X							
<b>10.6</b>	<b><i>Manufacture of grain mill products, starches and starch products</i></b>	X	X	X		X			<b>X</b>
10.7	Manufacture of bakery and farinaceous products	X	X	X					
10.8	Manufacture of other food products	X	X	X					
10.9	Manufacture of prepared animal feeds	X	X	X					
<b>14.1</b>	<b>Manufacture of wearing apparel, except fur apparel</b>	X	X	X	X	X	X	<b>X</b>	<b>X</b>

1	2	3	4	5	6	7	8	9	10
16.2	Manufacture of products of wood, cork, straw and plaiting materials				X	X	X		
<b>18.1</b>	<b>Printing and related services</b>	X	X	X	X	X	X	<b>X</b>	<b>X</b>
20.3	Production of paints, varnishes and similar products, printing ink and mastic				X	X	X		
22.2	Manufacture of plastic products				X	X	X		
23.3	Manufacture of clay building materials				X	X	X		
23.6	Manufacture of articles of concrete, cement and plaster	X	X	X					
<b>23.7</b>	<b>Cutting, finishing and finishing of decorative and building stone</b>	X	X	X	X	X	X	<b>X</b>	<b>X</b>
23.9	Manufacture of abrasive products and non-metallic mineral products n.e.c.				X	X	X		
24.4	Manufacture of basic precious and other non-ferrous metals								
24.5	Casting of metals	X	X	X					
25.1	Manufacture of metal structures and products				X	X	X		
25.9	Manufacture of other fabricated metal products	X	X	X					
<b>27</b>	<b>Manufacture of electrical equipment</b>	<b>X</b>			<b>X</b>	<b>X</b>	<b>X</b>		<b>X</b>
<b>28.1</b>	<b>Manufacture of general-purpose machinery</b>	X	X	X	X	X	X	<b>X</b>	<b>X</b>
28.2	Manufacture of other machinery and equipment of general purpose	X	X	X					
<b>28.3</b>	<b>Manufacture of agricultural and forestry machinery</b>	X	X	X	X	X	X	<b>X</b>	<b>X</b>
<b>29</b>	<b>Manufacture of motor vehicles, trailers and semi-trailers</b>	X	X	X	X	X	X	<b>X</b>	<b>X</b>
<b>31</b>	<b>Manufacture of furniture</b>	X	X	X	X	X	X	<b>X</b>	<b>X</b>
35.3	Steam and air conditioning supply				X	X	X		

1	2	3	4	5	6	7	8	9	10
<b>36</b>	<b>Water collection, treatment and supply</b>		X		X	X	X		X

### 3. Economic and innovation potential: Kirovohrad Oblast



**Table 7** summarizes the results for the economic and innovation potential for industries in NACE B-E in columns 3 to 6. Column 7 shows if an industry has both economic and innovation potential and column 8 shows the employment share of that industry.

**Table 7. Industries with an economic and innovation potential for Kirovograd Oblast: NACE B-E only**

NACE	Industry	Employment		Innovation 2014 and 2016	Innovation – at least 3 criteria	Economy & Innovation	Share in regional employment
		Static	Dynamic				
	<b># of selected industries</b>	<b>16</b>	<b>4</b>	<b>8</b>	<b>11</b>	<b>6</b>	<b>13,3%</b>
1	2	3	4	5	6	7	8
8.1	Extraction of stone, sand and clay	X					
10.1	Processing and preserving of meat and production of meat products	X					
<b>10.4</b>	<b>Manufacture of vegetable and animal oils and fats</b>	<b>X</b>		<b>X</b>	<b>X</b>	<b>X</b>	<b>3,3%</b>
10.6	Manufacture of grain mill products, starches and starch products				X		
10.8	Manufacture of other food products	X	X				
14.1	Manufacture of wearing apparel, except fur apparel			X	X		
16.1	Sawmilling and planing production	X					
18.1	Printing and related services			X	X		
20.3	Manufacture of paints, varnishes and similar products,	X	X				

1	2	3	4	5	6	7	8
	printing inks and mastics						
23.6	Manufacture of concrete, plaster and cement	X					
23.7	Cutting, trimming and finishing of decorative and building stone			X	X		
24.5	Casting of metals	X					
25.1	Manufacture of structural metal products	X					
<b>27</b>	<b>Manufacture of electrical equipment</b>	<b>X</b>			<b>X</b>	<b>X</b>	<b>2,1%</b>
<b>28.1</b>	<b>Manufacture of machinery and equipment of general purpose</b>	<b>X</b>		<b>X</b>	<b>X</b>	<b>X</b>	<b>2,2%</b>
<b>28.3</b>	<b>Manufacture of agricultural and forestry machinery</b>	<b>X</b>		<b>X</b>	<b>X</b>	<b>X</b>	<b>1,7%</b>
29	Manufacture of motor vehicles, trailers and semi-trailers			X	X		
<b>31</b>	<b>Manufacture of furniture</b>	<b>X</b>		<b>X</b>	<b>X</b>	<b>X</b>	<b>1%</b>
32.9	Production of products, nvd		X				
33.2	Installation and assembly of machines and equipment		X				
35.3	Supply of steam, hot water and air conditioning	X					
<b>36</b>	<b>Water collection, treatment and supply</b>	<b>X</b>			<b>X</b>	<b>X</b>	<b>3%</b>
38.1	Waste collection	X					

Key performance indicators for each of these regions are included in **Table 8**. Criteria where an industry has passed the thresholds are highlighted in blue, if they passed all static or dynamic economic criteria scores are highlighted in bold. If the innovation criteria were passed, all scores for that year are highlighted by surrounding them by a box.

In total 6 industries in NACE B-E show both an economic and innovation potential representing 13.3% of total employment:

**Manufacture of oil and animal fats (NACE 10.4)** was determined based on the current strong specialization, the high proportion of employees in the industry and the average wage per employee in the area. The innovation potential is mainly due to the relatively high share of process and marketing innovations in 2014; product, process and marketing innovations in 2016;

**Manufacture of electrical equipment (NACE 27)**

was identified on the basis of current strong specialization and average wage per employee in the area. The increase in indicators is significant compared to industry at the national and regional level. Innovation potential is mainly driven by the relatively high share of process innovations compared to the regional average in 2014 and the relatively high share of products, processes and marketing innovations in 2016 compared to industry and national average;

**Manufacture of machinery and equipment of general purpose (NACE 28.1)**

was identified based on the current strong specialization and average wage per employee in the area. Innovation potential is mainly driven by the relatively high share of innovation across all criteria compared to the national average in 2014-2016;

**Manufacture of machinery and equipment for agriculture and forestry (NACE 28.3)**

it is an industry that has been identified on the basis of economic growth potential (current strong specialization and average wage per worker, both in the region and in the country). The growth in these indicators is also significant compared to industry at the country level. Innovation potential is driven by a high share of innovations in 2014 and 2016;

**Manufacture of furniture (NACE 31)**

was identified based on the current strong specialization, high share of industry employees in the area and industry growth for the area. Innovation potential is mainly due to the relatively high share of process, product and marketing innovations in 2014 and 2016;

**Water collection, treatment and supply (NACE 36)**

was identified based on current strong specialization and average wage per employee, as well as industry-wide growth at the national level. The industry shows a relatively high proportion of all innovations, except for the 2014 process innovations.

**Table 8. Key performance indicators for industries with economic and innovation potential for Kirovograd Oblast**

NACE	Industry	Degree of specialisation, average for 2012-2017	Share in regional employment, average for 2012-2017	Wages per employee for 2012-2017		Employment change, 2012-2017 (positive for # years)		Wages per employee change, 2012-2017 (positive for # years)		Innovations															
										2014								2016							
										Innovation, degree of specialisation relative to region				Innovation, degree of specialisation relative to industry in country				Innovation, degree of specialisation relative to region				Innovation, degree of specialisation relative to industry in country			
										relative to region	industry in country	relative to region	industry in country	relative to region	industry in country	relative to region	industry in country	Product innovation	Process innovation	Organisational innovation	Marketing innovation	Product innovation	Process innovation	Organisational innovation	Marketing innovation
	<i>Critical value</i>	<i>1,25</i>	<i>0,25</i>	<i>90</i>	<i>90</i>	<i>Posirive for 3 years</i>				<i>1,25 (2 types of innovation)</i>															
10.4	Manufacture of vegetable and animal oils and fats	8,091	3,3%	137	72,1	-4,8 (2)	-39,2 (2)	-26,8 (2)	-59,3 (2)	3,01	0	2,30	1,65	1,72	0	1,85	1,09	1,64	1,92	1,77	2,67	1,68	2,01	1,20	2,19
27	Manufacture of electrical equipment	2,086	2,1%	118,6	89,2	34,9 (1)	52,6 (2)	56,1 (2)	71,7 (2)	0	1,55	0	3,42	0	1,16	0	3,49	2,77	1,62	0	2,25	1,76	1,52	0	2,56
28.1	Manufacture of machinery and equipment of general purpose	2,471	2,2%	140,6	89,0	-4,8 (2)	12,6 (1)	-90,2 (0)	-59,0 (1)	4,70	4,65	7,18	6,84	2,92	2,53	6,33	5,63	5,54	4,32	3,97	3,00	3,00	2,82	3,00	2,67
28.3	Manufacture of agricultural and forestry machinery	5,359	1,7%	129,5	120,6	16,4% (2)	15,8% (2)	-10,1% (1)	5,2% (1)	5,37	2,66	4,10	2,93	1,34	0,88	2,01	1,26	6,33	3,71	3,40	5,14	1,63	1,51	1,7	1,36
31	Manufacture of furniture	1,792	1,0%	66,7	63,0	52,6 (2)	47,6 (2)	7,1 (1)	-29,6 (1)	2,09	2,07	0	4,56	1,25	1,10	0	2,14	3,16	1,85	0	5,14	1,51	1,38	0	1,98
36	Water collection, treatment and supply	2,174	3%	100,4	88,0	25,8 (1)	25,8 (1)	-36,6 (1)	6,7 (1)	0,82	0,82	1,26	0	5,63	0,88	2,17	0	1,68	1,47	1,80	0	4,76	1,55	2,27	0