DIG-IN-KPI: Project: 1st phase report

KEY INDICATORS FOR THE CONSTRUCTION SECTOR IN SLOVENIA, CROATIA AND NORTH MACEDONIA FOR THE YEAR 2021

Co-funded by the European Union

DIG-IN-KPI

СТОПАНСКА КОМОРА НА СЕВЕРНА МАКЕДОНИЈА
ECONOMIC CHAMBER OF NORTH MACEDONIA

Gospodarska zbornica Slovenije
Chamber of Commerce and Industry of Slovenia

Chamber of Construction and Building Materials Industry of Slovenia

HGK 1852
CROATIAN CHAMBER OF ECONOMY

Digital transformation is making its way into businesses - developing key performance indicators to boost sector productivity

Erasmus+ programme, small-scale partnership
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Contents

Key indicators for construction – NACE F, YEAR 2021

A. General indicators for construction

In the project DIG-IN-KPI we have prepared a situation analysis or a cross-section of the construction industry for three project countries (Slovenia, Croatia, both EU members with EUR currency, and Northern Macedonia), non-EU member and without EUR currency) and compared them with the EU-27 countries. We have chosen 2021 as the latest comparison year for which data was available for all countries at the time of writing. It is important to familiarise ourselves with the analysis of the situation of the construction industry, as well as with a somewhat longer time series of data. To further improve our findings, it is essential that we gain an understanding of the state of the construction industry. Longer-term trends in the data are also essential to further improve our findings.

Digitalization indicators are currently being developed and are part of the work programme and final outputs of this project. Therefore, there are not yet many consistent indicators available for the construction industry, but we have included them in this analysis for the three countries in the project.

The construction industry in Europe plays an important role in the economy. It not only creates new residential, industrial and commercial buildings for Europeans to work and live in, but also builds infrastructure and maintains and repairs older structures and buildings.

Construction is an important industry for the European Union for several reasons. First, construction is a significant industry, accounting for up to 10% of GDP in some countries (5.5% on average in the EU-27). This means that it has a direct impact on the economic growth of the countries as a whole. Construction is an important job creator both directly and indirectly. In the EU, the construction industry creates millions of jobs, many of them in skilled trades that require a high level of technical know-how. The construction industry is constantly developing new technologies and materials to increase efficiency and reduce costs. The construction industry makes an important contribution to the environment. Construction projects usually use materials that are designed to reduce energy consumption and pollution. This means that construction is an important sector for the development of green technologies and sustainable materials to reach SDGs.

1. **Share of the value added of the construction in GDP**

One way to measure the size of the construction sector (NACE Rev.2 F) is through the gross value added (GVA) generated by this economic activity as a share of total GVA. In 2021, the member states with the largest shares – all 7 % or more of total GVA – were Finland (7.7 %), Romania (7.3 %), Austria (7.2 %) and Lithuania (7.1 %).

Gross value added of the construction sector in the EU in 2021 was 5.5 % of GDP, in euro area 5.4 %, in Slovenija 6.2 %, Croatia (6 %) and in North Macedonia (5.8 %).

(in % of gross value added)	2017	2018	2019	2020	2021
European Union - 27 countries	5.1	5.3	5.4	5.5	5.5
Euro area	5.0	5.1	5.2	5.3	5.4
Albania	10.5	10.3	9.8	10.3	10.9
Kosovo	10.1	10.4	10.1	9.3	10.6
Finland	7.2	7.4	7.4	7.7	7.7
Serbia	5.0	5.4	6.9	6.6	7.3
Austria	6.4	6.5	6.6	7.1	7.2
Lithuania	6.7	7.0	7.3	7.3	7.1
Poland	7.4	7.9	7.7	7.5	6.9
Romania	6.0	6.6	7.0	7.2	6.9
Estonia	6.7	6.9	6.9	6.8	6.7
Sweden	6.8	6.7	6.5	6.9	6.5
Cyprus	5.2	5.8	6.4	6.1	6.2
Slovenia	5.4	5.7	6.0	6.0	6.2
Hungary	4.2	5.1	5.7	5.7	6.1
Croatia	4.5	4.9	5.4	6.0	6.0
Slovakia	8.2	8.1	6.8	6.7	6.0
Luxembourg	5.3	5.3	6.0	5.6	5.8
Montenegro	6.9	7.0	7.9	7.3	5.8
North Macedonia	7.5	6.2	6.5	6.2	5.8
France	5.5	5.6	5.7	5.3	5.7
Czechia	5.5	5.6	5.6	5.6	5.6
Denmark	5.6	5.7	5.5	5.5	5.6
Spain	5.9	5.9	6.3	6.1	5.6
Germany	4.7	4.9	4.9	5.4	5.5
Latvia	5.8	6.4	6.5	6.3	5.5
Belgium	5.1	5.3	5.3	5.3	5.4
Netherlands	4.5	4.7	5.0	5.4	5.3
Bosnia and Herzegovina	4.8	4.8	5.0	5.4	5.2
Italy	4.2	4.2	4.3	4.4	5.0
Portugal	4.0	4.2	4.4	4.7	4.8
Malta	3.8	4.0	4.7	5.1	4.7
Bulgaria	4.1	4.2	4.5	4.9	3.8
Ireland	2.7	2.6	2.6	2.3	2.2
Greece	1.5	1.6	1.6	1.8	1.8

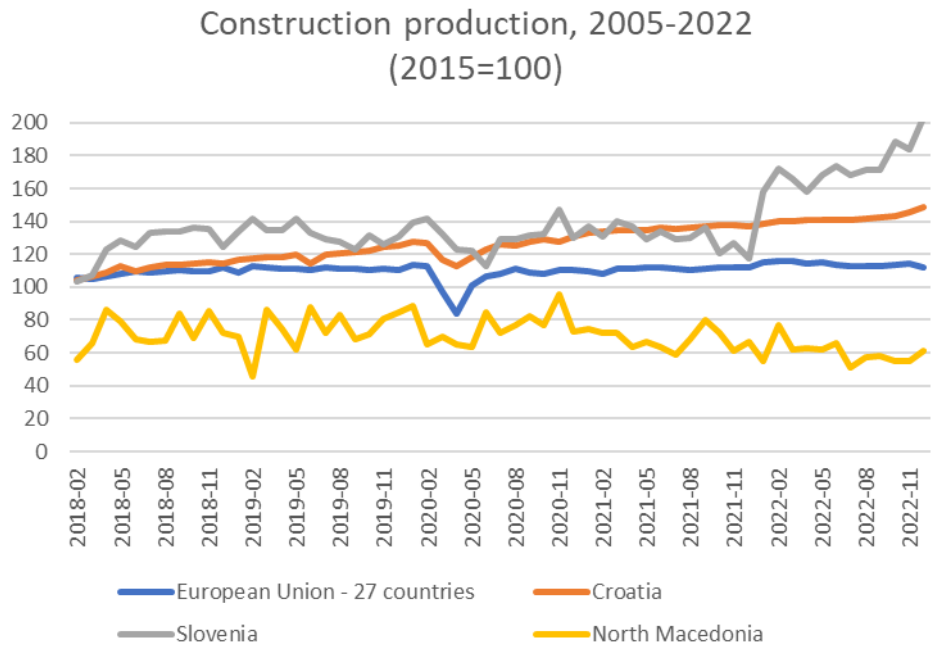
Source: Eurostat *https://ec.europa.eu/eurostat/databrowser/view/NAMA_10_A10__custom_3799699/default/table?lang=en*

2. Indices of the value of construction put in place

The production index for construction (NACE Rev.2 F) is a business cycle indicator which measures changes in the price adjusted output of construction. In 2021, among the monitored countries, the value of construction put in place decreased by 11.4 % in North Macedonia, by 0.5 % in Slovenia, and increased by 9.3 % in Croatia. In 2021, EU countries increased the value of construction put in place by 4.9 %, in the euro area by 5.2 %.

Change in % compared to the previous year	2017	2018	2019	2020	2021	2022
European Union - 27 countries	3.9	2.7	2.5	-5.0	5.0	2.7
Euro area - 19 countries	3.1	1.7	2.1	-5.7	5.3	2.5
Italy	1.3	1	3	-7.8	25.1	12.6
Albania	19.6	5.6	-2.5	9.5	18	12.5
Serbia	7.5	14.8	34.6	-1	16.5	-12.5
Hungary	29.7	21.2	20.7	-9.8	11.9	3.3
France	2.7	-0.2	0.4	-14.8	11.4	2.5
Estonia	21.5	12.3	5.8	-6.1	9.4	-1.2
Croatia	2	5.2	8.2	3.6	9.3	4.8
Austria	6.6	6.9	5.7	-4.4	7.6	3.4
Denmark	4.4	3.3	1.9	2.7	7.2	5.5
Greece	-18.2	-14	-6	-9.6	6.8	24.4
Luxembourg	1.2	4.2	1.2	-8.3	6.1	0.8
Lithuania	9.5	13.6	8.1	-2.1	5.4	4.5
Malta	-1.2	4.9	25.1	5.8	5.3	6.6
Cyprus	27.7	17.3	11.9	-6.7	4.7	:
Belgium	0.6	1.6	-0.3	-8.2	4.2	1.5
Finland	5.2	2.3	-0.2	0.3	3.5	2
Portugal	1.8	3.5	2.8	-3.3	3	2
Bulgaria	5.2	1.5	3.9	-5.5	2.6	0.8
Czechia	3.5	9.1	2.6	-6.1	2.4	2.6
Bosnia and Herzegovina	-1.1	0.4	-2	0.3	2.4	-0.2
Poland	14.2	19.6	3.7	-4.3	1.5	8.2
Sweden	10.6	6.6	0.7	-0.9	1.4	0.4
Netherlands	8.4	4.6	5.2	-0.8	1.3	4.9
Slovenia	20.2	20	3.3	-0.7	-0.5	22.1
Romania	-5.1	-3.9	27.1	16	-1	13.3
Germany	3.2	0.3	3.4	3	-1.6	-1.5
Slovakia	3.6	8	-3.4	-11.5	-1.8	-0.4
Ireland	13.1	10.2	5.8	-9.3	-3	2.1
Montenegro	52.2	26.9	10.5	-4.3	-3.3	-7.7
Latvia	18.7	21.8	2.9	2.7	-6.1	-11.4
Spain	-1	2	-2	-12.9	-6.2	-7.2
North Macedonia	-27.1	-6.9	3.9	1.3	-11.4	-11.9

Source: Eurostat *https://ec.europa.eu/eurostat/databrowser/view/STS_COPR_A__custom_5962705/default/table?lang=en*



Source: Eurostat, calendar and seasonally adjusted data (2015=100) https://ec.europa.eu/eurostat/databrowser/view/sts_copr_m/default/table?lang=en

Change in %	Construction		Buildings		Civil engineering works	
compared to the previous year	**2021**	**2022**	**2021**	**2022**	**2021**	**2022**
European Union - 27 countries	5.5	2.7	6.2	2.7	2.5	2.5
Euro area - 19 countries	5.9	2.5	6.4	2.4	3.1	2.0
Italy	25.1	12.6	:	:	:	:
Albania	18	12.5	:	:	:	:
Serbia	16.5	-12.5	:	:	:	:
France	13.8	2.5	14.4	3	9.3	-2.2
Hungary	11.9	3.3	16.4	6.6	6.5	-1.1
Estonia	9.4	-1.2	:	:	:	:
Croatia	9.3	4.8	9.9	6.5	8.4	2
Austria	7.7	3.4	7	2.9	12.2	5.7
Denmark	7.2	5.5	7.3	4.8	6.8	12.3
Greece	6.8	24.4	15.1	17.2	1.7	29.4
Luxembourg	6.1	0.8	:	:	:	:
Lithuania	5.4	4.5	13.1	5	-3.4	3.6
Malta	5.3	6.6	:	:	:	:
Cyprus	4.7	:	4.7	:	5.3	:
Belgium	4.2	1.5	4.6	0.6	4.8	2.5
Finland	3.5	2	4	2.9	0.7	-3.6
Portugal	3	2	1.4	2.1	5.6	2
Bulgaria	2.7	0.8	0.7	2	5.3	-0.6
Bosnia and Herzegovina	2.4	-0.2	:	:	:	:
Czechia	2.3	2.6	3.5	2.3	-0.3	3.2
Poland	1.5	8.2	3	11.1	-0.3	3.3
Netherlands	1.3	4.9	:	:	:	:
Slovenia	-0.5	22.1	13.7	-5.4	5.9	13.4
Romania	-1	13.3	:	:	:	:
Germany	-1.6	-1.5	-2	-2.1	0.9	3.1
Slovakia	-1.9	-0.4	-2.8	-0.2	-9.5	0.1
Ireland	-3	2.1	-5.5	3	13.4	-2.7
Montenegro	-3.5	-7.7	-17.1	-9.7	7.2	-3.4
Latvia	-6.1	-11.4	-10.6	-9.8	-5	-13.1
Spain	-6.2	-7.2	-4.6	-8.8	-14.8	2.4
North Macedonia	-11.4	-11.9	-9.3	-3	-12.7	-18.5

Source: Eurostat https://ec.europa.eu/eurostat/databrowser/view/STS_COPR_A__custom_5962705/default/table?lang=en

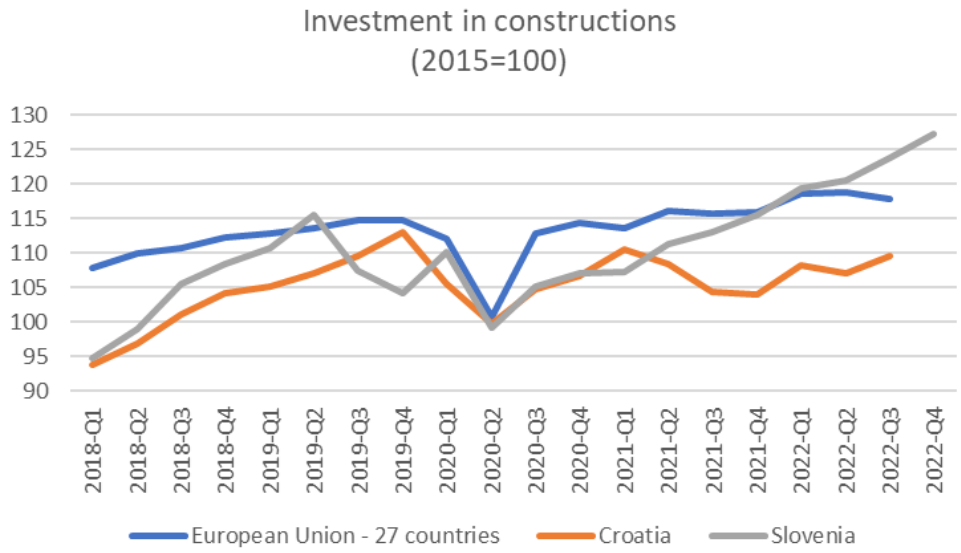
3. Investment in construction

Gross fixed capital formation, abbreviated as GFCF, consists of resident producers' investments, deducting disposals, in fixed assets during a given period. Fixed assets consist dwellings and other buildings. In 2021, 11.1% of GDP on average in EU27 was invested in construction. This share varies between member states, with 8.8% in Slovenia, 10.9% in Croatia, and 12.5% in North Macedonia.

Investment in construction sector (% of GDP)

% of GDP	2017	2018	2019	2020	2021
European Union - 27 countries	9.8	10.2	10.5	10.7	11.1
Albania	18.8	17.9	17	17.8	18.9
Finland	13.6	14.4	14.4	14.6	14.4
Hungary	10	12	13.6	13.8	14.2
France	11.9	12.1	12.5	11.8	12.9
Estonia	14.5	14.8	14.3	14.3	12.8
Romania	13	11.9	12.9	14.5	12.6
Austria	10.6	11	11.4	11.8	12.5
North Macedonia	13.9	11.5	12.1	12.6	12.5
Cyprus	8.7	10.5	11.6	12.4	12.4
Bosnia and Herzegovina	11.2	11.5	12	12.9	12.4
Belgium	11	11.4	11.7	11.6	11.7
Germany	9.8	10.3	10.5	11.3	11.6
Denmark	9.7	10	10.3	10.9	11.4
Netherlands	9.7	10.2	10.6	11.3	11.3
Lithuania	10.3	11	11.7	11.7	11.2
Czechia	10.1	10.7	11.1	11.3	11.1
Portugal	8.3	8.7	9.4	10.4	11
Sweden	11	11.1	10.8	11.1	11
Croatia	9.4	10.1	11	11.8	10.9
Latvia	10.4	12.1	12.3	11.7	10.4
Serbia	7	8	10.2	9.6	10.4
Spain	9	9.7	10.4	10.5	10
Malta	9.2	8.9	9.8	10.5	9.9
Luxembourg	9.9	9.7	10.5	9.9	9.8
Italy	7.8	7.9	8	8.1	9.6
Poland	8.6	9.5	9.8	9.5	9
Slovenia	7.5	8.1	8.4	8.4	8.8
Slovakia	9.1	9	8.7	9.4	8.8
Bulgaria	8.7	8.6	7.8	8	6.7
Ireland	6.6	7	7.2	6.4	6.1
Greece	4.8	4.2	3.5	4.1	4.4

Source: Eurostat https://ec.europa.eu/eurostat/databrowser/view/NAMA_10_AN6__custom_5962724/default/table?lang=en



Source: Eurostat, seasonally and calendar adjusted data

In 2021, 5.6% of GDP was invested in housing in the EU. This share varied among member states, ranging from 7.6% in Cyprus and 7.2% in Germany and Finland to 1.3% in Greece, 2.1% in Ireland, 2.2% in Latvia, and 2.3% in Poland. Slovenia invested 2.4% of GDP in housing in 2021, Croatia 3% and North Macedonia 3.9% of GDP.

Investment in Dwellings - gross (% of GDP)

% of GDP	2017	2018	2019	2020	2021
European Union - 27 countries	5.0	5.1	5.2	5.4	5.7
Albania	9.7	10.8	10.8	10.7	10.3
Cyprus	5	6.5	7.6	8.1	7.6
Germany	6	6.3	6.4	7	7.2
Finland	6.8	7.2	7	7	7.2
France	6.3	6.3	6.5	6.1	6.9
Belgium	**5.7**	**5.9**	**6.1**	**6.1**	**6.3**
Denmark	4.6	4.8	5.2	5.7	6
Netherlands	4.5	4.9	5.1	5.4	5.5
Spain	4.8	5.4	5.8	5.9	5.4
Austria	4.5	4.5	4.7	5	5.3
Sweden	5.7	5.2	4.7	4.9	5.3
Estonia	4.6	4.5	4.9	5.4	4.9
Italy	4	4.1	4	4	4.8
Czechia	4.2	4.3	4.4	4.6	4.7
Malta	3.6	4.2	4.5	4.5	4.6
Hungary	2.7	3	3.2	4.1	3.9
Slovakia	3.1	3.3	3.3	3.8	3.9
North Macedonia	4.2	3.9	3.9	4.1	3.9
Portugal	2.8	3.1	3.2	3.4	3.8
Luxembourg	3.6	3.8	4	3.8	3.3
Romania	2.7	2.1	2.3	2.4	3.1
Croatia	2.4	2.6	2.8	3.1	3
Lithuania	2.7	2.7	3	3.2	3
Bulgaria	2.8	2.7	2.8	2.9	2.8
Bosnia and Herzegovina	3.4	3.3	3.4	2.8	2.6
Slovenia	2.1	2.1	2.2	2.3	2.4
Poland	2.2	2	2.1	2.2	2.3
Latvia	2.1	2.5	2.7	2.6	2.2
Ireland	2.1	2.3	2.3	2.1	2.1
Serbia	1.3	1.4	1.6	1.7	1.9
Greece	0.6	0.7	0.8	1.1	1.3

Source: Eurostat https://ec.europa.eu/eurostat/databrowser/view/NAMA_10_AN6__custom_5962724/default/table?lang=en

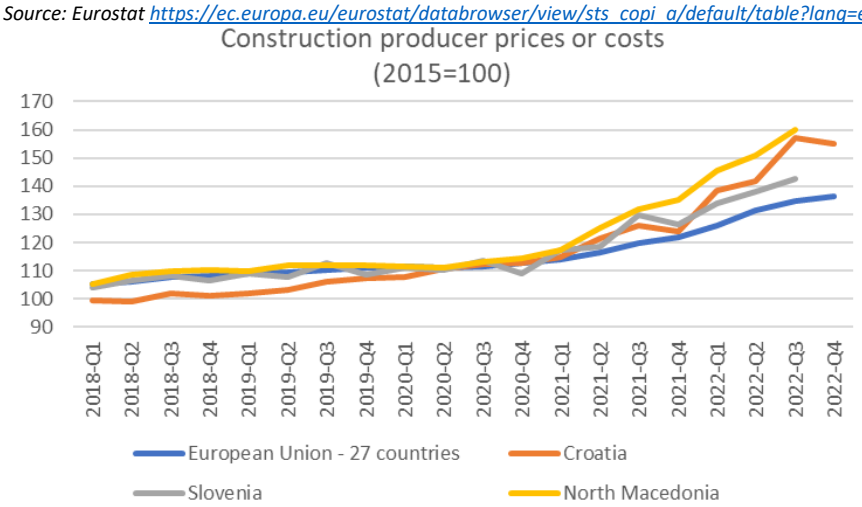
4. Construction cost for new residential buildings

The construction cost index (CCI) or producer prices is a European Union (EU) business cycle indicator showing the trend in the cost for new residential buildings. Countries that do not have data on construction costs may use the construction producer price indices (CPPI, sometimes also referred to as "construction output price index") as an approximation. Some countries produce both - cost and price - indicators.

Construction output price (Construction cost)

Change in % compared to the previous year	2017	2018	2019	2020	2021	2022
European Union - 27 countries	2.3	3.4	3.0	1.7	5.6	11.9
Euro area - 19 countries	2.4	3.3	2.9	1.7	5.6	11.5
Montenegro	6.5	3.6	7	-10.8	17.4	:
North Macedonia	4.9	6	2.6	1.2	13.1	:
Malta	1.7	1.2	1	0.4	12.4	:
Hungary	7	10.2	9.6	7.2	12.2	24
Bulgaria	2.8	2.9	5.6	2.3	11	53.6
Slovenia	4.8	2.7	3.1	1.3	10.7	:
Croatia	-0.3	1.7	4.4	5.9	9.6	21.8
Estonia	1.2	1.9	1.9	0.5	9.4	:
Romania	7.8	11.7	9.8	2	9.2	:
Spain	2.1	2.5	1.1	-0.8	8.4	13.1
Austria	2.8	3.6	3.3	3.2	8	15
Germany	3	4.5	4.4	2.9	7.7	16.4
Latvia	2.5	4.5	4.8	7.3	6.8	:
Lithuania	4.2	3.5	4.9	2	6.6	18
Luxembourg	1.9	1.8	3	3.1	6.5	14.1
Cyprus	0.1	1.3	2.2	0.3	6.4	:
Sweden	2.6	3.9	2.8	-0.2	6.3	12.2
Czechia	1.9	3.6	4.6	3.4	5.8	13
Portugal	1.8	2.3	2.4	1.9	5.8	11.9
Bosnia and Herzegovina	0.8	1	1	1.2	5.8	17.6
Belgium	**1.3**	**2.5**	**2.5**	**1.7**	**5.7**	**:**
Ireland	1.3	4	2.3	1.1	5.4	10.7
Finland	0.3	2.3	1	-0.2	5.4	8.2
Slovakia	2.8	3.8	4.5	2.9	5.1	21.7
France	1.9	2.3	2.7	1.4	4.7	:
Poland	0.8	3.1	4.2	2.9	4.5	:
Denmark	0.8	1.8	0.8	0.8	4	:
Netherlands	6.3	8.8	7	4.4	3.9	:
Greece	-0.2	0.4	-0.4	-0.1	2.3	6.8
Italy	1.2	1.6	0.1	0.4	1.9	7.9

Source: Eurostat https://ec.europa.eu/eurostat/databrowser/view/sts_copi_q/default/table?lang=en



Source: Eurostat, seasonally and calendar adjusted data https://ec.europa.eu/eurostat/databrowser/view/sts_copi_q/default/table?lang=en

5. Labour input in construction

Hourly labour costs - The labour cost survey (LCS) provides structural information on labour costs. The labour cost index (LCI) is a short-term indicator showing the development of hourly labour costs incurred by employers. It is calculated by dividing the labour costs by the number of hours worked. Total labour costs consist of costs for wages and salaries, plus non-wage costs (such as employer's social contributions).

In 2021, average hourly labour costs in construction in the European Union (EU) were €26, with the lowest hourly labour costs recorded in Bulgaria (€5.6) and Romania (€6.4) and the highest in Denmark (€43.1), the Netherlands and Sweden (€39.3).

Hourly labour costs in EUR in construction	2017	2018	2019	2020	2021
European Union - 27 countries	23.5	24.2	24.9	25.6	26
Euro area - 19 countries	26.8	27.5	28.1	29	29.3
Denmark	39.8	41.2	41.2	41.3	43.1
Netherlands	35.8	36.5	37.1	39.7	39.3
Sweden	37.5	37.2	36.3	36.7	39.3
Austria	33.5	34.5	35.7	37.2	37.6
Belgium	35.1	35.5	36.4	36.9	37.3
Finland	33.5	34.6	35	35.1	36.4
France	31.9	32.5	33.3	34.5	34.5
Germany	28	28.9	29.7	30.6	31.4
Luxembourg	26.7	27.2	28.1	28.4	28.7
Ireland	26	27	28	26.2	27.1
Italy	23.4	24	24.2	24.5	24.3
Spain	19.8	19.9	20.1	20.6	20.5
Slovenia	14.1	14.4	15.3	16	17.1
Cyprus	14	14.3	15.1	14.7	16.3
Estonia	12.5	13.2	14.6	14.9	15.9
Czechia	10.4	11.6	12.5	12.6	13.5
Malta	11.3	11.4	10.8	11.1	11.6
Latvia	8.3	9.5	10.4	11.5	11.4
Portugal	9.8	10	10.2	10.5	11.2
Greece	12	11.1	10.3	10.8	10.9
Poland	8.9	9.6	10.1	10.2	10.6
Slovakia	9.1	9.7	10.3	10.1	10.6
Lithuania	7.9	8.8	8.4	9.1	10.3
Croatia	9.1	10.1	9.9	9.7	10
Hungary	7.1	7.5	8.3	8.5	8.9
Romania	4.5	5.2	6.1	6.3	6.4
Bulgaria	4	4.3	4.8	5	5.6
North Macedonia	:	:	:	:	:

Source: Eurostat; enterprises with 10 or more employees
https://ec.europa.eu/eurostat/databrowser/view/LC_LCI_LEV__custom_5962776/default/table?lang=en

Employment (number of persons employed), percentage change compared to same period in previous year in construction sector (NACE Rev.2 F).

Change in % compared to the previous year	2017	2018	2019	2020	2021
European Union - 27 countries	2.0	3.6	3.0	0.5	2.5
Euro area - 19 countries	2.1	3.2	2.4	0.5	2.8
Montenegro	6	12.4	16.4	-20.7	14
Italy	-1.5	0.1	1	2.3	6.2
Estonia	6.4	5	3.5	-5.1	5.9
Hungary	3.7	9.1	18.9	-1.6	5.8
Romania	-0.9	6.2	5.2	3.4	5.2
Serbia	1.2	8	9.7	9.1	4.8
Croatia	3.5	5.2	7.2	6.8	4.7
Denmark	3.4	3.9	1.8	1.3	4.6
Slovenia	3.4	4.8	9.4	2.5	4.4
Belgium	2.2	2.7	2.6	-1.1	4.2
France	0.8	2.1	3.8	2.2	4.1
Spain	5.1	8.3	4.6	-2.6	3.8
Austria	2.8	4.5	5.1	1.7	3.8
Albania	2.8	3.9	2	2.7	3.4
Ireland	8.2	12.1	5.3	-4.7	3.1
Netherlands	3	3.5	3.4	2	2.3
Cyprus	15	13.9	9.6	3.8	2.1
Lithuania	1.7	4.3	1.9	-1.2	2
Bulgaria	3.8	0.8	3	-11	1.9
Sweden	3.6	5.2	2.4	1.1	1.9
Portugal	1.8	2.3	2.2	-0.3	1.8
Germany	2.3	2	1.8	1.3	1.5
North Macedonia	-3	-4.9	-10	-3.3	0.9
Luxembourg	3.1	2.2	2.4	-3.3	0.3
Latvia	4.3	7.4	3.7	-3.1	0.2
Malta	-15.2	-1	6.1	5.2	0.2
Poland	2.2	4.3	5	0.4	-0.5
Finland	5	5.4	-3	0	-3.1
Slovakia	2.5	3.4	6.4	-6	-3.8
Czechia	1.3	1.4	1.8	0.5	-4.2
Greece	4.8	5.6	-19.7	-9.8	-16.2

Source: Eurostat https://ec.europa.eu/eurostat/databrowser/view/sts_colb_a/default/table?lang=en

Volume of work done (hours worked), percentage change compared to same period in previous year (calendar adjusted data) in construction (NACE Rev.2 F).

Change in % compared to the previous year	2017	2018	2019	2020	2021
European Union - 27 countries	1.8	3.0	3.1	-3.3	5.2
Euro area - 19 countries (2015-2022)	2.2	2.6	2.1	-4.0	6.0
Italy	1	0.8	4.1	-6.3	20.2
France	-0.6	2.2	3.5	-5.4	12.7
Cyprus	18.4	16.1	12.4	-3	9.3
Latvia	6.2	3.8	3.2	-6	8
Croatia	-2.8	4.8	20.5	8.4	7.7
Austria	3	4.2	4.7	-2.1	7.7
Belgium	2.8	3.5	0.6	-9.2	7.5
Hungary	2.7	8.9	20.6	-3.3	7.1
Estonia	6.2	8.5	2.7	-7.3	6.6
Denmark	3.1	1.7	1.4	1.5	6.1
Romania	-2.5	6.1	4.5	2.4	6.1
Netherlands	3.6	3.4	3.6	-4	6
Luxembourg	1.3	4	1.7	-9.9	5.8
Sweden	2.6	0.8	7.5	-5.8	3.7
Portugal	1.2	2.1	2.1	-2.6	3
Ireland	7.9	13.7	2.8	-3	2.5
Serbia	0.8	-0.2	8.7	-4.4	2.3
Slovenia	-0.4	-1.2	-0.1	-0.1	1.4
Spain	4.5	2.8	-0.1	-9.3	1.3
Bulgaria	1.3	2.3	2.7	-13.1	1.2
Montenegro	26.5	13.8	3.6	-2.9	0.9
Germany	1.8	1.4	1.6	0.9	0.1
Poland	0.3	5.8	3.9	-0.4	0
Malta	-17.7	-0.6	10	2.8	-0.3
Lithuania	0.4	5.8	3.5	-7	-0.4
North Macedonia	-3.9	-6.2	-9.9	-4.5	-0.9
Slovakia	2.5	1.6	7.2	-8.7	-3.9
Czechia	1.9	0.8	0.5	-4	-5.3
Finland	9.8	6	-5.3	0.3	-8.9
Greece	20.2	7.9	-9.8	-1.8	-9.3

Source: Eurostat https://ec.europa.eu/eurostat/databrowser/view/sts_colb_a/default/table?lang=en

B. Construction statistics according to the national methodology - Slovenia

- **The value of construction**

The value of construction in EUR (2020 - last available data for Slovenia). Include construction works and services, which the companies and establishments engaged in construction activity perform as the main contractor, cobuilder or subcontractor.

Year, 2020	Type of construction activity, in mio EUR		
In mio EUR	Investor -TOTAL	Legal person	Natural person
Classification of type of construction (CC-SI)	**3,534.90**	**2,906.80**	**628.1**
1 BUILDINGS	2,145.40	1,562.80	582.6
11 Residential buildings	1,048.90	519.3	529.6
12 Non-residential buildings	1,096.50	1,043.50	53,0 M
2 CIVIL ENGINEERING WORKS	1,389.50	1,344.00	45,5 M
21 Transport infrastructures	832.9	810	22,9 M
22 Pipelines, communication and electricity lines	420.8	416.2	4,7 M
23 Complex construction on industrial sites	47,0 M	35,7 M	N
24 Other civil engineering works	88.8	82,1 M	6,6 M

Source: Statistical Office of the Republic of Slovenia
Statistical signs: M -less reliable estimate – use with caution; N - too unreliable estimate to be published

- **Structure of employees**

Structure of employees (by education, age, gender). Persons in employment are persons in paid employment and self-employed persons who have compulsory social insurance.

	Persons in employment in construction (NACE Rev.2 F), annual average				
	2017	2018	2019	2020	2021
1 Persons in employment	**55,726**	**58,39**	**63,855**	**64,914**	**67,762**
11 Persons in paid employment	46,117	48,555	53,717	54,469	56,734
12 Self-employed persons	9,609	9,836	10,138	10,445	11,028

Source: Statistical Office of the Republic of Slovenia

	Persons in employment in construction (NACE Rev.2 F), annual average				
	2017	2018	2019	2020	2021
1 Persons in employment - TOTAL	55,726	58,39	63,855	64,914	67,762
11 Citizens of Slovenia - TOTAL	37,288	36,999	37,638	37,508	38,420
12 Foreign citizens - TOTAL	18,438	21,392	26,218	27,406	29,343
121 Citizens of EU Member States	*2,411*	*2,343*	*2,154*	*1,911*	*1,964*
122 Citizens of other countries	*16,027*	*19,049*	*24,063*	*25,495*	*27,378*

**Numbers may not add to totals due to rounding; Annual average.*
Source: Statistical Office of the Republic of Slovenia

	Working population in construction (NACE Rev.2 F), balance as of 13.12.				
	2017	2018	2019	2020	2021
Education - TOTAL	**55,281**	**60,282**	**65,907**	**66,130**	**71,346**
Elementary school or less	9,119	10,560	11,947	11,854	14,569
High school	40,439	43,733	47,521	47,722	49,830
Higher education, higher education	5,723	5,989	6,439	6,554	6,947

Source: Statistical Office of the Republic of Slovenia

	Working population in construction (NACE Rev.2 F), **balance as of 13.12.**				
	2017	**2018**	**2019**	**2020**	**2021**
Age - TOTAL	55,281	60,282	65,907	66,130	71,346
15-19 years	315	475	528	359	535
20-24 years old	3,104	4,150	5,023	5,004	5,563
25-29 years old	5,292	5,841	6,773	6,779	7,769
30-34 years old	7,180	7,765	8,430	8,284	8,834
35-39 years old	8,125	8,785	9,280	9,354	9,854
40-44 years old	8,599	9,091	9,831	9,660	10,082
45-49 years old	7,639	8,098	8,747	9,079	9,721
50-54 years old	7,647	7,859	8,247	7,981	8,335
55-59 years old	5,622	6,049	6,467	6,700	7,292
60-64 years old	1,553	1,920	2,264	2,537	2,887
65 years and over	205	249	317	393	474

Source: Statistical Office of the Republic of Slovenia

- **Wages (gross earnings)**

	Gross salary in construction (NACE Rev.2 F) in EUR				
	2017	**2018**	**2019**	**2020**	**2021**
Gross salary in EUR	1,237.78	1,289.94	1,317.84	1,389.89	1,488.46
Change in %, compared to the previous year	2.7	4.2	2.2	5.5	7.1
Net earnings in EUR	835.13	864.41	878.05	932.73	983.70

Source: Statistical Office of the Republic of Slovenia

C. Construction statistics according to the national methodology - Croatia

- **The value of construction**

Income NACE Rev.2 F (construction)					
Year	**2021**	**2020**	**2019**	**2018**	**2017**
Total (in mio EUR)	**9,387**	**8,188**	**7,960**	**7,046**	**5,844**
Contruction of Buildings NACE Rev.2 F41 (in mio EUR)	4,171	3,548	3,425	3,121	2,689
Civil Engineering v F42 (in mio EUR)	2,620	2,346	2,353	2,121	1,775
Specialised Construction Activities NACE Rev.2 F43 (in mio EUR)	2,594	2,293	2,180	1,803	1,378

Source: Croatian Bureau of Statistics

- **Structure of employees**

	Persons in employment in construction (NACE Rev.2 F)				
	2017	**2018**	**2019**	**2020**	**2021**
Persons in employment - total annual average in thousands	107,250	114,750	110,750	119,250	128,000
Persons in employment in legal entities, total in thousands	75,823	79,717	85,943	92,694	99,732
Persons in employment in legal entities, male in thousands	67,782	71,116	76,707	83,410	89,876
Persons in employment in legal entities, female in thousands	8,041	8,601	9,236	9,284	9,856

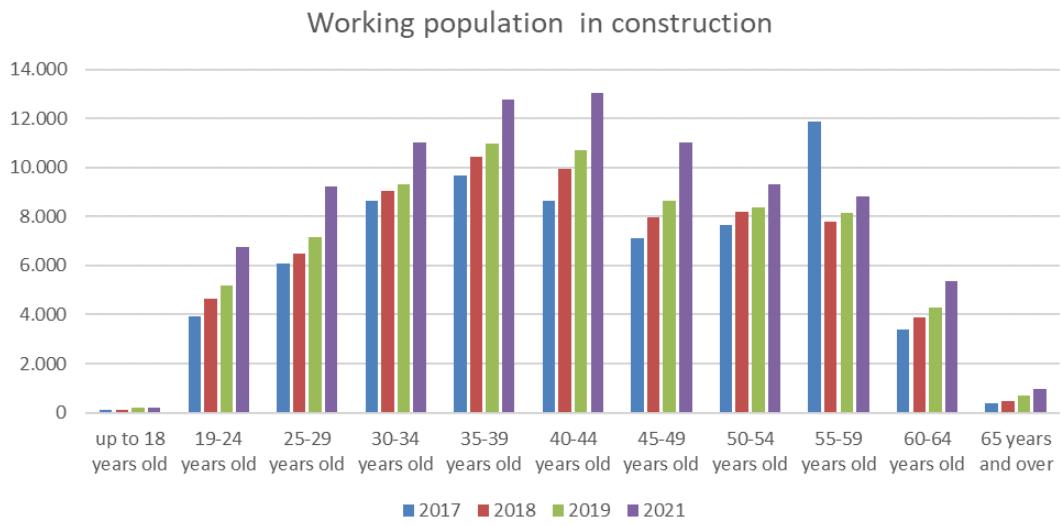
**Numbers may not add to totals due to rounding; Annual average.*
Source: Croatian Bureau of Statistics

	Working population in construction (NACE Rev.2 F), balance as of 31.3. for the respective year				
	2017	**2018**	**2019**	**2020**	**2021**
Education – TOTAL	**62,962**	**68,951**	**73,592**	**82,261**	**88,470**
University degree	5,312	5,812	6,472	6,941	8,201
Non-university college degree	3,276	3,631	3,825	6,100	5,113
Secondary school education	31,933	36,462	39,364	55,190	61,360
Basic school education	2,161	2,354	2,366	7,293	7,187
Highly skilled	901	1,083	1,004	N/A	N/A
Skilled	10,290	10,393	11,039	N/A	N/A
Semi-skilled	2,499	2,579	2,426	5,387	4,984
Unskilled	6,590	6,637	7,096	1,350	1,625

Source: Croatian Bureau of Statistics

	Working population in construction (NACE Rev.2 F), balance as of 13.12. for the respective year				
	2017	**2018**	**2019**	**2020**	**2021**
Age – TOTAL	**62,962**	**68,951**	**73,592**	**82,261**	**88,470**
up to 18 years old	136	131	189	263	213
19-24 years old	3,916	4,644	5,167	6,186	6,735
25-29 years old	6,065	6,465	7,139	8,275	9,228
30-34 years old	8,647	9,053	9,300	10,071	11,016
35-39 years old	9,680	10,424	10,968	12,083	12,789
40-44 years old	8,656	9,922	10,715	11,959	13,023
45-49 years old	7,094	7,970	8,619	10,096	11,016
50-54 years old	7,661	8,206	8,374	9,069	9,319
55-59 years old	7,320	7,776	8,126	8,432	8,819
60-64 years old	3,398	3,874	4,292	4,939	5,352
65 years and over	389	486	703	888	960

Source: Croatian Bureau of Statistics



- **Wages (gross earnings)**

	Gross salary in construction (NACE Rev.2 F) in EUR				
	2017	2018	2019	2020	2021
Gross salary in EUR	914,33	969,67	989,05	1005,64	1030,99
Change in % compared to the previous year		+6.05	+1.99	+1.67	+2.52
Net earnings in EUR	674,76	712,19	725,33	740,59	776,56

Source: Croatian Bureau of Statistics

D. Construction statistics according to the national methodology – North Macedonia

- **The value of construction**

The value of construction in Republic of North Macedonia for 2021 expressed in Euro (average annual rate for 2021 for 1 EUR equals to 61.6 MKD) Include construction works and services, which the companies and establishments engaged in construction activity perform as the main contractor, co-builder or subcontractor.

Year, 2021	Type of construction activity, in mio EUR		
In mio EUR	TOTAL	Private ownership	Public Ownership
Classification of type of construction (CC-MK)	**734,3**	**418,3**	**316,0**
1 BUILDINGS	405,5	374,2	31,2 M
11 Residential buildings	298,5	284,9	13,6 M
12 Non-residential buildings	107,0	89,4 M	17,6 M
2 CIVIL ENGINEERING WORKS	240,4	29,4 M	211,0
21 Transport infrastructures	138,8	0,9 M	137,9
22 Pipelines, communication and electricity lines	61,2 M	3,4 M	57,9 M
23 Complex constructions on industrial sites	47,0 M	6,7 M	7,3 M
24 Other civil engineering works	2,9 M	0,4 M	2,5 M
25. Construction works	23,5 M	18,0 M	5,5 M

Source: State Statistical Office - Republic of North Macedonia

- **Structure of employees**

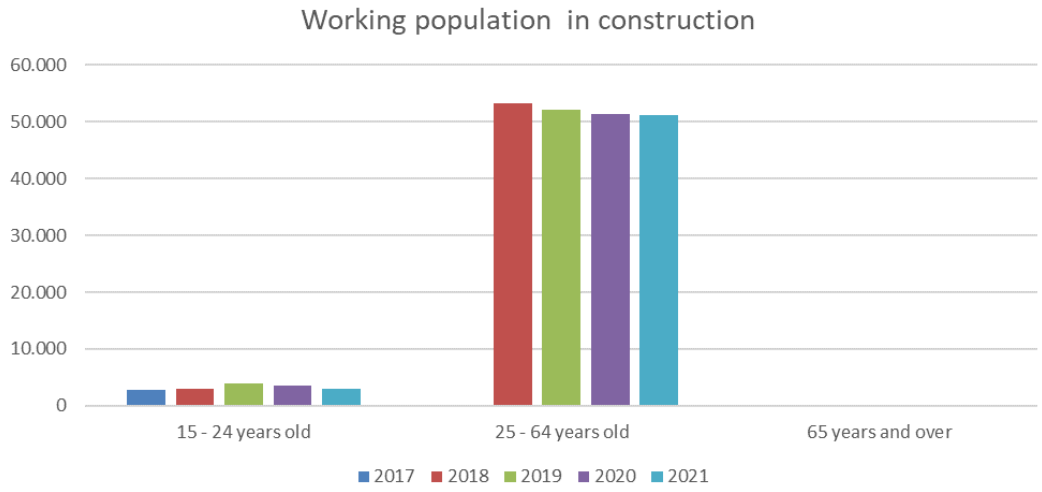
	Persons in employment in construction by activity and type of ownership (NACE Rev.2 F), annual average				
	2017	2018	2019	2020	2021
1 Persons in employment	**53,391**	**56,263**	**56,036**	**55,165**	**54,380**
11 Private	52,033	54,361	53,565	52,361	51,160
12 Other	1,358	1,902	2,470	2,804	3,219

Source: State Statistical Office - Republic of North Macedonia

State Statistical Office - Republic of North Macedonia does not provide segregated data for employed foreign citizens by sectors (the only information regarding Foreign citizens is linked to their numbers and dispersions by statistical regions), therefore, these data are not included in the analysis.

	Persons in employment in construction by age (NACE Rev.2 F)				
	2017	2018	2019	2020	2021
Age - TOTAL	**53,346**	**56,250**	**56,002**	**54,960**	**54,180**
15 - 24 years old	2,713	2,905	3,836	3,622	2,898
25 - 64 years old	50,630	53,345	52,166	51,338	51,282
65 years and over	0	0	0	0	0

Source: State Statistical Office - Republic of North Macedonia



	Persons in employment in construction by gender (NACE Rev.2 F)				
	2017	2018	2019	2020	2021
Total person employed in construction	**53,391**	**56,263**	**56,036**	**55,165**	**54,380**
Male	49,866	51,014	52,384	51,751	50,867
Female	3,525	5,249	3,652	3,414	3,513

Source: State Statistical Office - Republic of North Macedonia

	Persons in employment in construction by level of education (NACE Rev.2 F)				
	2017	2018	2019	2020	2021
Education - TOTAL	**31,010**	**29,502**	**33,366**	**32,840**	**N/A**
Elementary school or less	3,928	10,049	11,746	11,724	**N/A**
High school	20,374	14,829	16,361	15,956	**N/A**
Higher education, higher education	6,708	4,624	5,259	5,160	**N/A**

Source: State Statistical Office - Republic of North Macedonia

- **Wages (gross earnings)**

Brutto (gross) salary is best defined as the sum of salary before the deduction of tax and insurance(s). Netto (net) salary is the result of initial pay including tax and other sorts of deductions made. These deductions depend on local/national legislation where employees are required to pay certain amounts of tax to the government. Gross salary in North Macedonia consists of the Net salary + Fringe benefits (28 % of gross salary) + Personal tax on salary (10 %). The Fringe benefits consist of (18.8 % of gross salary - pension and disability insurance + 7.5 % of gross salary -health insurance + 1.2 % of gross salary - employment fund + 0.5 % of gross salary - additional health insurance), while the personal tax on salary is flat and it is 10 %. Due to the fact that the average gross wage by sectors of activity is reported on monthly level, the table represents gross wage in December (M12) for each year. The average exchange rate for 2021 was 1 EUR = 61,6 MKD.

	Gross salary in construction (NACE Rev.2 F) in MKD and EUR				
	2017	2018	2019	2020	2021
Gross salary in MKD	30,265	33,230	37,582	38,994	43,852
Gross salary in EUR	491.3	539.4	610.1	633.0	711.9
Change in % compared to the previous year	-3.5	9.8	13.1	3.8	12.5
Net earnings in MKD	20,691	22,633	25,333	26,257	29,566
Net earnings in EUR	335.9	367.4	411.3	426.3	480.0

Source: State Statistical Office - Republic of North Macedonia

E. Other databases and international publications for construction

- n this DIG IN KPI project desk research analysis we have identified some other international publication-based sectoral databases where we can find out about the construction industry and which contain data from EU countries.
  We recommend companies involved in construction and sectoral organisations to consider them when looking for cross-border business opportunities!

  Please consult the following links:

  ECONOMIC ACTIVITY PERFORMANCE AND STATISTICAL PROJECTIONS

  FIEC - European Construction Industry Federation:
  - Construction activity for Slovenia https://fiec-statistical-report.eu/slovenia
  - Construction activity for Croatia (HUP UPG is a member, but the analysis for Croatia has not been done
  - Construction activity for North Macedonia (no available data, if MK become FIEC member their data cloud be included)

  EUROPEAN CONSTRUCTION SECTOR OBSERVATORY (ECSO): it profiles the construction industry in the 27 EU countries and the UK, and produces detailed country fact sheets (CFS) for each country. They define the construction sector very broadly. They include the F-construction, L - Real estate activities, some activity in C -Manufacturing (NACE Rev. 2).
  Source: https://single-market-economy.ec.europa.eu/sectors/construction/observatory_en
  - Slovenia - ECSO country fact sheet https://single-market-economy.ec.europa.eu/sectors/construction/observatory/country-fact-sheets/slovenia_en
  - Croatia - ECSO country fact sheet https://single-market-economy.ec.europa.eu/sectors/construction/observatory/country-fact-sheets/croatia_en
  - North Macedonia (no available data)

  EUROCONSTRUCT: it covers construction market reports, currently members from 19 European countries, all consulting and non-profit research institutes specialized in construction.
  Slovenia, Croatia and North Macedonia are not members, so they are not included in the Euroconstruct Country Report. Source: https://www.euroconstruct.org/ec/reports

  CONSTRUCITON SECTIOR DIGITALIZATION

  Digitalisation in the construction sector -ESCO report
  ESCO Digitalization in construction sector – analytical report (survey) for some EU countries (Slovenia and Croatia included, no data for MK). Source:
  https://ec.europa.eu/docsroom/documents/45547/attachments/1/translations/en/renditions/native

  Digitalisation in the construction sector – focused EC web site dedicated to support SMEs
  Source: https://digital-construction.ec.europa.eu/handbook

F. Financial results of construction companies

1. Annual detailed enterprise statistics for construction - database Eurostat

Annual detailed enterprise statistics for construction (NACE Rev.2 F), **Eurostat**. Structural business statistics (SBS) describes the structure, conduct and performance of economic activities. The survey covers **market business entities with turnover, employees or investment perform during the observation period**. Last available data in Eurostat are for year 2020.

	Enterprises - number		Turnover or gross premiums written - million euro		Value added at factor cost - million euro		Employees - number	
TIME	**2019**	**2020**	**2019**	**2020**	**2019**	**2020**	**2019**	**2020**
European Union - 27 countries	3,413,290	3,536,996	75,988	75,405	20,201	19,937	10,021,134	10,109,655
Belgium	120,581	127,121	8,689	11,770	2,150	2,685	213,691	213,814
Bulgaria	20,985	21,297	35,738	34,865	8,302	8,282	142,188	139,419
Czechia	183,632	185,705	39,107	40,203	13,267	13,621	212,743	213,145
Denmark	33,937	34,755	333,069	373,864	132,211	140,230	167,224	175,252
Germany	376,853	393,852	6,245	5,950	1,414	1,399	2,306,615	2,294,823
Estonia	12,448	12,958	28,059	29,196	8,650	8,030	48,288	50,064
Ireland	59,175	62,664	10,564	10,375	2,101	2,348	118,924	115,911
Greece	61,720	62,056	156,502	137,701	49,919	44,202	88,403	87,458
Spain	382,186	379,025	331,315	314,881	103,076	99,647	1,046,973	967,226
France	486,876	501,189	7,841	7,823	2,146	2,449	1,566,240	1,658,565
Croatia	22,959	24,044	165,236	159,750	52,555	50,782	108,122	114,999
Italy	479,574	490,251	4,329	4,249	1,156	1,127	812,589	843,261
Cyprus	9,001	9,310	4,874	4,504	1,254	1,213	32,731	34,843
Latvia	11,658	11,558	6,887	7,096	1,975	2,108	64,862	63,582
Lithuania	33,036	33,264	9,258	9,444	3,344	3,403	98,849	99,145
Luxembourg	4,244	4,309	24,122	23,583	6,199	5,650	48,427	49,900
Hungary	93,130	101,797	1,516	1,568	574	542	193,547	196,745
Malta	4,308	4,360	114,561	120,401	34,457	36,752	9,559	10,354
Netherlands	203,549	217,460	56,620	57,880	20,033	21,011	329,658	335,610
Austria	36,707	37,261	89,073	91,207	24,233	23,189	295,411	296,313
Poland	355,562	387,740	23,256	23,645	7,422	7,660	730,273	751,338
Portugal	90,430	92,328	23,720	26,741	7,586	7,894	300,786	308,943
Romania	60,047	66,205	6,299	6,245	1,924	2,032	396,164	432,511
Slovenia	19,600	20,164	12,547	11,665	2,624	2,466	60,459	60,325
Slovakia	109,133	110,982	39,731	40,381	11,771	12,062	82,085	75,743
Finland	41,403	42,375	82,240	84,781	25,917	26,669	184,850	181,135
Sweden	100,497	102,966	1,512	1,501	480	:	361,521	339,231
North Macedonia	5,076	5,191	2,024	2,104	595	609	31,152	:
Albania	3,930	4,294	8,012	8,115	1,646	1,930	44,653	47,951
Serbia	7,899	8,320	2,114	2,224	642	730	77,815	81,054
Bosnia and Herzegovina	4,249	4,451	75,988	75,405	20,201	19,937	37,160	37,573

Source: Eurostat

	Gross value added per employee - thousand euro		Gross operating surplus/turnover (gross operating rate) - percentage		Value added at factor cost in turnover or gross premiums writte – percentage *		Investment rate (investment/value added at factors cost) – percentage **	
TIME	2019	2020	2019	2020	2019	2020	2019	2020
European Union - 27 countries	54.8	54.1	10.6	10.7	32.2	31.9	12.6	11.2
Belgium	94.5	93.2	11.6	12.0	26.6	26.4	26.1	28.1
Bulgaria	15.1	19.3	12.2	12.9	24.7	22.8	34.4	32.6
Czechia	39.0	38.9	11.6	11.7	23.2	23.8	26.4	27.2
Denmark	79.3	77.7	8.6	8.8	33.9	33.9	6.0	6.8
Germany	57.3	61.1	12.3	12.4	39.7	37.5	8.1	7.9
Estonia	29.3	28.0	6.8	6.7	22.6	23.5	14.3	16.9
Ireland	72.7	69.3	14.1	12.8	30.8	27.5	7.7	6.6
Greece	23.8	26.8	8.0	11.0	19.9	22.6	12.3	13.7
Spain	47.7	45.7	9.2	8.7	31.9	32.1	11.8	7.5
France	65.8	60.1	6.6	6.1	31.1	31.6	12.0	11.1
Croatia	19.8	21.3	9.5	11.9	27.4	31.3	20.5	18.5
Italy	64.7	60.2	13.2	13.5	31.8	31.8	8.8	6.6
Cyprus	35.3	32.3	11.4	10.3	26.7	26.5	8.6	7.6
Latvia	19.3	19.1	8.9	8.5	25.7	26.9	15.3	15.6
Lithuania	20.0	21.3	9.0	10.0	28.7	29.7	22.1	18.4
Luxembourg	69.1	68.2	11.0	11.3	36.1	36.0	13.6	14.8
Hungary	32.0	28.7	16.7	13.8	25.7	24.0	21.1	19.9
Malta	60.1	52.3	25.9	21.3	37.9	34.6	11.7	6.2
Netherlands	104.5	109.5	13.2	13.9	30.1	30.5	9.4	9.6
Austria	67.8	70.9	8.6	9.6	35.4	36.3	6.9	7.4
Poland	33.2	30.9	16.6	14.9	27.2	25.4	25.6	12.5
Portugal	24.7	24.8	9.6	9.5	31.9	32.4	19.6	14.7
Romania	19.1	18.3	15.7	15.1	32.0	29.5	64.6	59.2
Slovenia	31.8	33.7	10.1	10.7	30.5	32.5	15.8	13.7
Slovakia	32.0	32.6	11.2	11.0	20.9	21.1	20.3	33.5
Finland	63.7	66.6	8.0	8.7	29.6	29.9	9.5	9.6
Sweden	71.7	78.6	7.7	7.9	31.5	31.5	12.3	11.7
North Macedonia	15.4	:	19.6	:	31.7	:	61.4	:
Albania	13.3	12.7	20.0	19.4	29.4	28.9	32.4	45.6
Serbia	21.2	23.8	10.2	12.4	20.5	23.8	26.4	19.3
Bosnia and Herzegovina	17.3	19.4	17.7	19.9	30.4	32.8	21.8	17.4

**Value added at factor costs is the gross income from operating activities after adjusting for operating subsidies and indirect taxes. Value adjustments (such as depreciation) are not subtracted.*

***Investment - Gross investment in tangible goods is defined as investment during the reference period in all tangible goods. Included are new and existing tangible capital goods, whether bought from third parties or produced for own use (i.e. Capitalised production of tangible capital goods), having a useful life of more than one year including non-produced tangible goods such as land. Investments in intangible and financial assets are excluded.*

Source: Eurostat

2. Financial indicators from the annual reports for Slovenia based on national methodology

Slovenia - Financial indicators from the annual reports - Financial data of business subjects - legal persons and individual private entrepreneurs.

Year 2021	Business subjects in F-construction (Nace Rev. 2), by annual reports			
	Number of companies	Number of employees	Revenues, mio EUR	Value added per employee, EUR
Business subjects - legal persons Total	**7,876**	**49,419**	**6,342**	**34,600**
Micro	6,721	19,174	1,585	24,718
Small	1,075	20,656	2,600	36,567
Medium	67	5,743	1,136	48,279
Large	13	3,846	1,021	52,882

Source: Ajpes, Kapos CCIS

Year 2021	Individual private entrepreneurs in construction (Nace Rev. 2), by annual reports			
	Number of Individual private entrepereneurs (self employed)	Number of employees	Revenues, mio EUR	Value added per employee, EUR
Micro	10,115	10,332	1,136	35,400

Source: Ajpes, Kapos CCIS

	Business subjects in F-construction (Nace Rev. 2), by annual reports				
Year 2021	2017	2018	2019	2020	2021
Number of companies	7,154	7,206	7,283	7,575	7,876
Number of employees	37,216	41,012	45,594	46,08	49,419
Revenues, mio EUR	4,0	4,9	5,2	5,2	6,3
Net revenues from sales, mio EUR	3,85	4,80	5,04	5,01	6,09
Value added, mio EUR	1,1	1,3	1,5	1,5	1,7
Value added per employee, EUR	29,161	31,567	32,054	32,859	34,600
Net profit / loss, mio EUR	83,9	157,0	169,0	144,0	156,0

Source: Ajpes, Kapos CCIS

3. Financial indicators from the annual reports for Croatia based on national methodology

	TOTAL TURNOVER (mio EUR)		FINANCIAL YEAR'S PROFIT OR LOSS (mio EUR)		GROSS INVESTMENTS (mio EUR)		NUMBER OF EMPLOYEES (mio EUR)		NUMBER OF CONSTRUCTION COMPANIES (mio EUR)	
FOR YEAR	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021
MICRO	1,846	2,206	-112.9	94.8	40.8	35.2	5,698	6,084	2,050	2,254
SMALL	2,859	3,053	182.3	141.6	35.3	34.2	4,844	5,082	205	221
MEDIUM	1,899	2,218	80.2	110.8	30.5	38.1	1,934	2,192	18.7	20.9
LARGE	1,578	1,917	27.7	59.2	336.7	425.2	1,504	1,609	2.8	3.2
TOTAL	**8,182**	**9,394**	**177.3**	**406.5**	**443.3**	**532.7**	**13,98**	**14,967**	**2,277**	**2,500**

Source: https://digitalnakomora.hr/home

4. Financial indicators from the annual reports for North Macedonia based on national methodology

Year 2021	Performance of enterprises by industrial activities and size class by number of persons employed, by NKD REV 2			
	Number of companies	Number of employees	Revenues, mio EUR	Value added at factor cost, million EUR
Total number of enterprises	**5,487**	**32,550**	**1.678**	0.474
Micro (0-9 employees)	4,891	11,933	0.459	0.133
Small (10-49 employees)	527	9,938	0.539	0.146
Medium (50-249 employees)	60	5,746	0.376	0.110
Large (250 + employees)	9	4,933	0.304	0.086

Source: State Statistical Office - Republic of North Macedonia

Year 2022	Need of labour in Construction sector for 2022					
	Number of employers that have need for labour	Level of required education for the job position				
		Expected employments	Elementray school	High School	Upper of higher school	University
Construction sector	125	792	164	467	64	97

Source: Employment Service Agency - Republic of North Macedonia

Year	Business subjects in F-construction (Nace Rev. 2), by annual reports				
	2017	2018	2019	2020	2021
Number of companies	4,483	4,925	5,076	5,242	5,487
Number of employees	33,294	32,765	31,469	31,511	32,550
Revenues, mio EUR	1.44	1.38	1.51	1.51	1.68
Net revenues from sales, mio EUR	N/A	N/A	N/A	N/A	N/A
Value added at factor cost, mio EUR	0.45	0.44	0.48	0.45	0.47
Personnel costs mio, EUR	0.19	0.18	0.18	0.18	0.20
Net profit / loss, mio EUR	0.26	0.26	0.30	0.25	0.28

Source: State Statistical Office - Republic of North Macedonia

G. Digitalization in companies for the project's partner countries

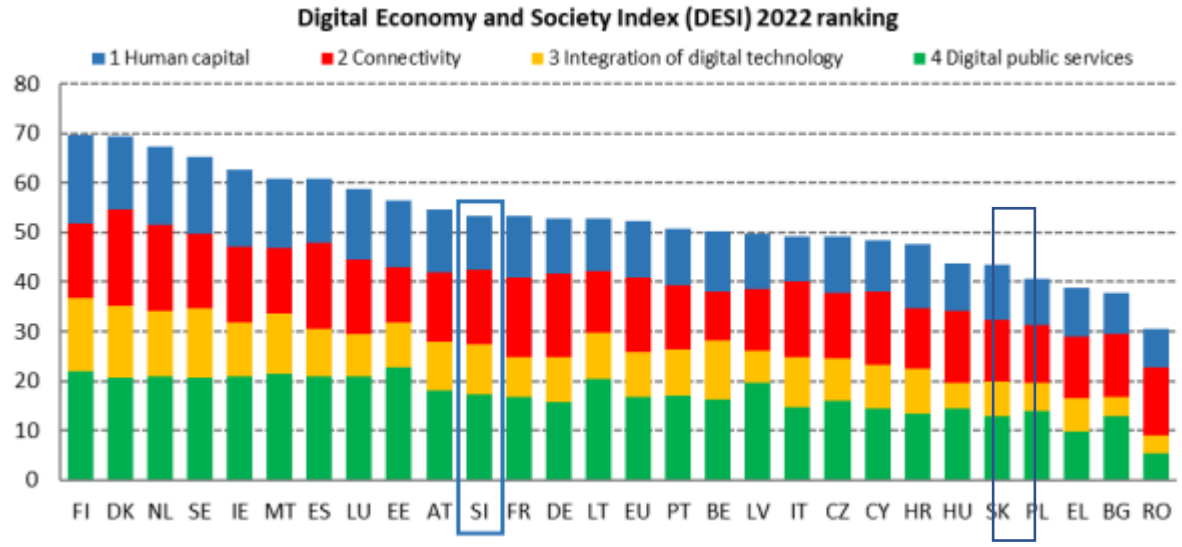
1. Digital Economy and Society Index (DESI) for Slovenia and Croatia (no data for MK)

Digital transformation through the use of technology changes the business operations of companies and can thus help to reduce costs and increase productivity. The European Union has been monitoring the progress of member states since 2014. In the overall ranking of the index, which measures the digital progress of the Member States, Slovenia moved up two places. Slovenia ranks 11th among the 27 EU Member States in the 2022 edition of the DESI. The country's relative progress 1 generally aligns with the EU average. Slovenia remain above the European average in the field of connectivity, where we have also contributed to excellent results through broadband network building, and in the area of integration of digital technologies, especially cloud services and artificial intelligence. Based on the same methodology, the DESI Index is available for Slovenia and Croatia, but not for North Macedonia.

In the period 2017–2022, Slovenia improved its ranking among EU Member States in the area of digitalisation of the economy and society, but at the same time its lead over the EU average (according to DESI) continues to shrink, and in the global comparison Slovenia even fell from 31st to 37th place between 2020 and 2022. Slovenia's competitive advantage over the EU has also gradually narrowed and its gap with innovation leaders in the areas of digitalisation and automation of the business sector has widened, with Slovenia remaining relatively competitive in robotisation and e-sales.

The pace of a profound digital transformation of companies is slow and not even the COVID-19 crisis has noticeably helped to accelerate progress: the crisis mainly led to an accelerated use of basic digital tools (e.g. communication tools) and, for example, an increase in online sales, while its impact on the use of more sophisticated technologies or their integration was much smaller.

Croatia ranks 21th of 27 EU Member States in the 2022 edition of the Digital Economy and Society Index (DESI).



Source: European Commission https://digital-strategy.ec.europa.eu/en/policies/desi

Slovenia ranks 17th among the 27 EU countries in the **Human capital** dimension. In Human capital, Croatia ranks 9th of the 27 EU countries.

	Slovenia			EU	Croatia		
	DESI 2020	DESI 2021	DESI 2022	DESI 2022	DESI 2020	DESI 2021	DESI 2022
1a1 At least basic digital skills % individuals	NA	NA	50% 2021	54% 2021	NA	NA	63% 2021
1a2 Above basic digital skills % individuals	NA	NA	20% 2021	26% 2021	NA	NA	31% 2021
1a3 At least basic digital content creation skills[4] % individuals	NA	NA	66% 2021	66% 2021	NA	NA	81% 2021
1b1 ICT specialists % individuals in employment aged 15-74	3.9% 2019	4.4% 2020	4.8% 2021	4.5% 2021	3.2% 2019	3.7% 2020	3.6% 2021
1b2 Female ICT specialists % ICT specialists	20% 2019	17% 2020	17% 2021	19% 2021	21% 2019	18% 2020	21% 2021
1b3 Enterprises providing ICT training % enterprises	28% 2019	26% 2020	26% 2020	20% 2020	23% 2019	23% 2020	23% 2020
1b4 ICT graduates % graduates	3.5% 2018	4.1% 2019	4.1% 2020	3.9% 2020	4.0% 2018	4.4% 2019	4.7% 2020

Source: European Commission

Slovenia ranks 9th among EU countries on **integrating digital technology** in business activities. Slovenian SMEs with at least a basic level of digital intensity level up with the EU average of 55 %. Croatia ranks 14th among EU countries on the Integration of digital technology.

	Slovenia			EU	Croatia		
	DESI 2020	DESI 2021	DESI 2022	DESI 2022	DESI 2020	DESI 2021	DESI 2022
3a1 SMEs with at least a basic level of digital intensity % SMEs	NA	NA	55% 2021	55% 2021	NA	NA	50% 2021
3b1 Electronic information sharing % enterprises	33% 2019	33% 2019	36% 2021	38% 2021	26% 2019	26% 2019	24% 2021
3b2 Social media % enterprises	24% 2019	24% 2019	30% 2021	29% 2021	22% 2019	22% 2019	24% 2021
3b3 Big data % enterprises	10% 2018	7% 2020	7% 2020	14% 2020	10% 2018	14% 2020	14% 2020
3b4 Cloud % enterprises	NA	NA	38% 2021	34% 2021	NA	NA	35% 2021
3b5 AI % enterprises	NA	NA	12% 2021	8% 2021	NA	NA	9% 2021
3b6 ICT for environmental sustainability % enterprises having medium/high intensity of green action through ICT	NA	74% 2021	74% 2021	66% 2021	NA	75% 2021	75% 2021
3b7 e-Invoices % enterprises	62% 2018	58% 2020	58% 2020	32% 2020	12% 2018	43% 2020	43% 2020
3c1 SMEs selling online % SMEs	17% 2019	17% 2020	19% 2021	18% 2021	21% 2019	30% 2020	29% 2021
3c2 e-Commerce turnover % SME turnover	11% 2019	12% 2020	14% 2021	12% 2021	9% 2019	14% 2020	13% 2021
3c3 Selling online cross-border % SMEs	12% 2019	12% 2019	13% 2021	9% 2021	10% 2019	10% 2019	13% 2021

Source: European Commission

2. Digital Economy and Society Index (DESI) for North Macedonia

Since the Digital Economy and Society Index (DESI) covers data only for Member states of EU, countries from Western Balkans including North Macedonia have not adopted yet the full methodology of DESI index. In the case of North Macedonia only Connectivity indicators are harmonized and collecting data for these group of indicators is done by the Broadband Competence Office of Republic of North Macedonia which was founded by the Ministry of Information Society and Administration.

Conectivity indicators in DESI 2019	EU	MKD (First BCO Report March 2020)	MKD (Second BCO Report September 2020)	MKD (Third BCO Report March 2021)	MKD (Fourth BCO Report September 2021)	MKD (Fifth BCO Report March 2022)
1a1 Fixed broadband coverage %households	97,4% 2020	97,87%	97,87%	99,08%	99,48%	99,48%
1a2 Fixed broadband take-up %households	77% 2020	70,91%	72,95%	73,58%	75,79%	77,92%
1b1 4G coverage %households (avarage of operators)	99,7% 2020	99,36%	99,38%	99,39%	99,39%	99,39%
1b2 Mobile broadband take-up Subscriptions per 100 people	71% 2019	70,06%	64,83%	64,95%	66,78%	75,83%
1b3 5G readiness Assigned spectrum as a % of total harmonised 5G spectrum	51% 2021		22,2 % (July 2020)	22,2%	22,2%	22,2%
1c1 Fast broadband (NGA) coverage %households	87% 2020	78,61%	78,61%	82,84%	82,84%	82,84%
1c2 Fast broadband take-up %households	41% 2018	21,03%	27,43%	28,27%	29,89%	32,62%
1d1 Ultrafast broadband coverage %households	60% 2018	43,8%	43,8%	63,1%	63,1%	63,1%
1d2 Ultrafast broadband take-up %households	26% 2019	0,98%	1,74%	1,81%	1,97%	2,32%
1e1 Broadband price index Score (0 to 100)	69 2020					

Source: Broadband Competence Office – Republic of North Macedonia
https://bco.mioa.gov.mk/wp-content/uploads/2022/11/Sixth-Report-for-broadband-development-in-the-country-and-implementation-of-National-Operational-Broadband-Plan.pdf

Aside from these Data, a Market report: "Monitoring the Digital Economy and Electronic Communications Services in the Western Balkans and Turkey" issued in 2019 by the European Commission, shows data for the 6 countries from Western Balkans and Turkey regarding the monitoring of key digital developments which will serve as a tool for tracking the progress made in digitalization in the region using the Digital Economy and Society Index (DESI) and associated indicators to monitor market developments for electronic communications and digital services in the seven countries. This data is incomparable with the one of EU countries since it does not include the human capital.

Data for North Macedonia

Indicator		2018	2019
1. Connectivity		28	23
Indicator for which data available		5	7
	EU Average 2019		
1 A.1 Fixed BB Coverage %	97%	41%	98%
1 A.2 Fixed BB take-up %	76%	18%	66%
1. B.1 4G Coverage %	91%		100%
1. B.2 Mobile BB take-up (per 100 pop)	90	59	69
1. C.1 NGA Coverage %	50%	50%	50%
1. C.2. Fast BB Take-up	34%	13%	21%
1. D.1 Ultrafast BB Coverage	57%	n/c	
1. D.2. Ultrafast BB Take-up %	15%	n/c	1%
1. E.1 Broadband Price index	87		
2. Digital skills			
Indicator for which data available		5	3
	EU Average 2019		
2 A.1 Internet Users %	81%	70%	78%
2 A.1 B Individs Not Using the Internet %	13%	23%	18%
2. A.2 At least Basic Digital Skills %	57%	34%	
2. B.1 ICT Specialists %	4%	15%	12%
2. B.2 STEM Graduates	19%	7%	

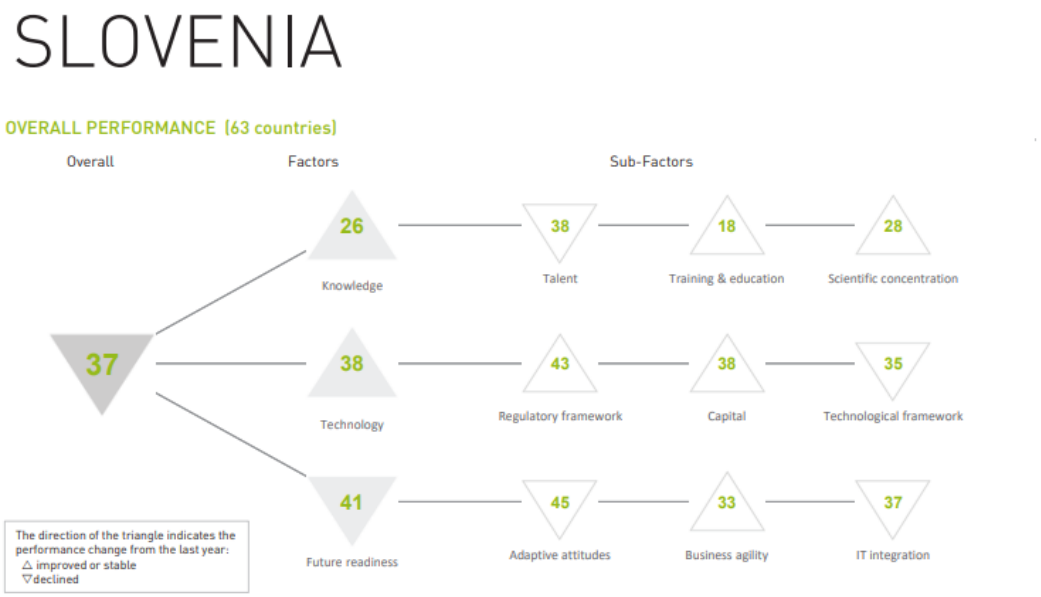
4. Business technology integration
Indicator for which data available

	EU Average 2019	6	2
4. A.1 Electronic Information Sharring %	34%		
4. A.1 B Business Connectivity %	97%	94%	82%
4. A.3 Social Media %	21%	16%	
4. A.4 eInvoices %	23%	6%	
4. A.5 Cloud %	26%	4%	11%
4. B.1 SME Selling Online %	17%		
4. B.2 eCommerce Turnover %	10%	2%	
4. B.3 Selling Online Cross-border %	8%	1%	

Source: Publication Office of the European Union
https://op.europa.eu/en/publication-detail/-/publication/a54e990d-1fb3-11ea-95ab-01aa75ed71a1/language-en

3. IMD World Digital Competitiveness Ranking 2022 for Slovenia and Croatia

The broader framework of digital competitiveness in the context of global economies is shown by the Digital Competitiveness Index (IMD), on which Slovenia ranked 37th and Croatia ranked 43th in 2022, out of 63 countries in the world. Based on the same methodology, the IMD World Digital Competitiveness Ranking is available for Slovenia and Croatia, but not available for North Macedonia.

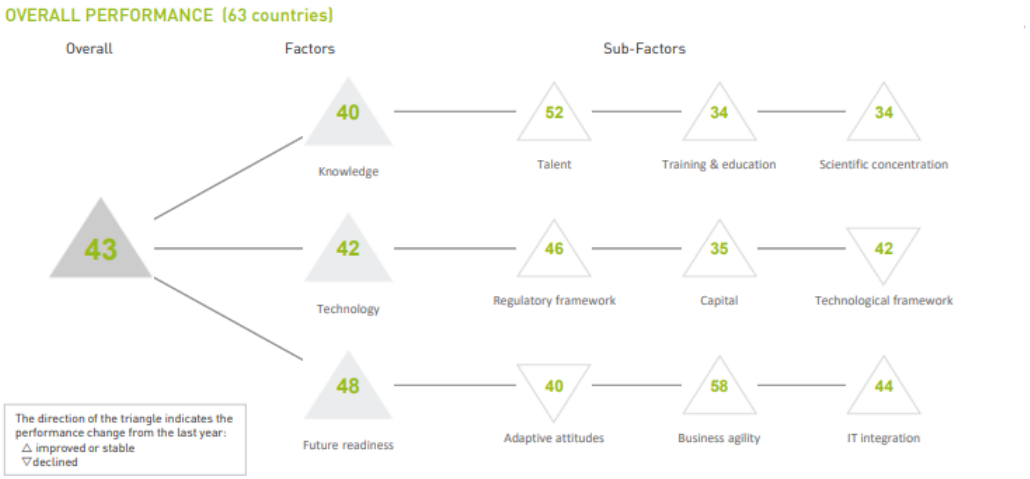


OVERALL & FACTORS - 5 years	2018	2019	2020	2021	2022
OVERALL	34	32	31	35	37
Knowledge	26	27	29	30	26
Technology	38	35	35	39	38
Future readiness	35	36	37	40	41

Source: IMD https://www.imd.org/centers/wcc/world-competitiveness-center/rankings/world-digital-competitiveness-ranking/

According to the digital competitiveness ranking (IMD World Digital Competitiveness), Croatia ranked 43rd in 2022 and improved its digital competitiveness by 12 places.

CROATIA



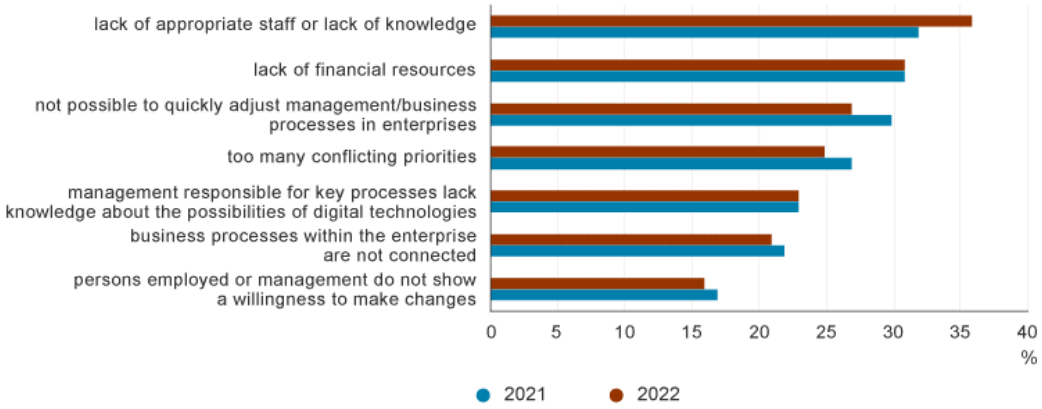
OVERALL & FACTORS - 5 years	2018	2019	2020	2021	2022
OVERALL	44	51	52	55	43
Knowledge	43	42	41	47	40
Technology	49	50	49	50	42
Future readiness	54	60	62	60	48

Source: IMD

4. **Digitalization in companies for Slovenia -** National database

The Statistical Office of the Republic of Slovenia collects and publishes data on the degree of digitization in **companies with at least 10 employees and the self-employed**. In digital transformation, the use of technologies changes the enterprise's business operations and can enable cost reduction, increased productivity, etc. 58% of enterprises with 10 or more employees and self-employed are hampered by problems in digital transformation of business (in 2021: 60%): 56% of small, 67% of medium-sized and 79% of large enterprises. 26% of enterprises have no problems with digital transformation and 43% stated that digital transformation is not essential for the successful performance of the enterprise (in 2021 46%).
A fifth of the enterprises have a digital strategy for digital transformation of business that was approved by the management (in 2021: 17%): 17% of small, 30% of medium-sized and 56% of large enterprises.

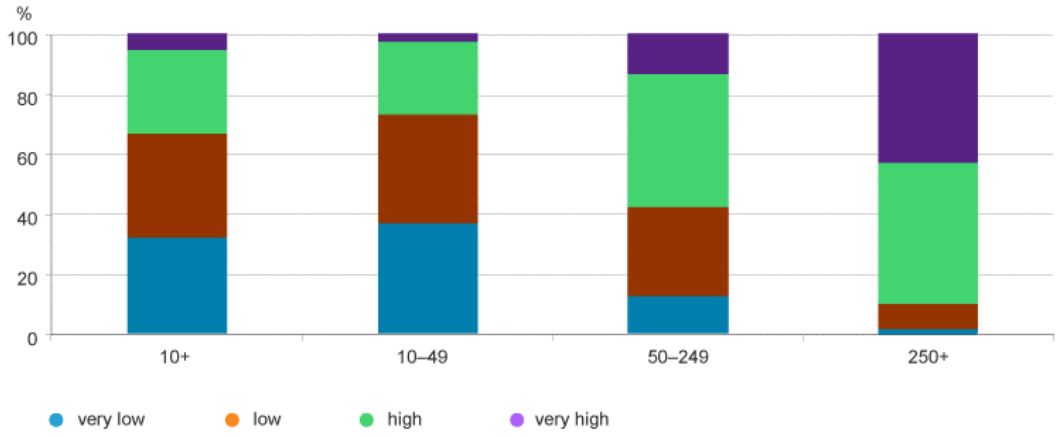
Share of enterprises with 10 or more employees and self-employed by problems limiting digital business transformation, Slovenia



Source: Statistical Office of the Republic of Slovenia

The rate of digitization of enterprises with at least 10 employees and self-employed is monitored by the digital intensity index, which consists of 12 indicators used to monitor the use of ICT in enterprises in an individual year. In 2022, the largest share of enterprises with at least 10 employees and self-employed had a low digital intensity index (35%). 32% of enterprises had a very low, 28% a high and 5% a very high digital intensity index. Among small enterprises 37% had a very low and the same share a low index, among medium-sized 44% had a high index and among large enterprises 47% had a high index.

Share of enterprises with 10 or more employees and self-employed according to the degree of digitalization, expressed by the digital intensity index, Slovenia, 2022



Source: Statistical Office of the Republic of Slovenia

** The rate of digitization of enterprises with at least 10 employees and self-employed is monitored by the digital intensity index, which consists of 12 indicators used to monitor the use of ICT in enterprises in an individual year.*

In 2022, the rate of digitization was calculated on the basis of the following indicators:

- More than half of employees and self-employed have access to the Internet for business purposes – in 55% of enterprises more than half of employees and self-employed have such access (in 2021 50%).
- Enterprise employs ICT specialist – 21% of enterprises.
- Maximum contracted download speed of the fastest fixed Internet connection is at least 30 Mbit/s – 83% of enterprises (in 2021: 79%).
- Enterprise conducted remote meetings – 46% of enterprises.
- Enterprise makes persons employed aware of their obligations in ICT security related issues – 51% of enterprises.
- Enterprise provides training to develop ICT related skills of the persons employed in the previous year – 29% of enterprises.
- Enterprise uses at least three ICT security measures – 68% of enterprises.
- Enterprise has document(s) on measures, practices or procedures on ICT security – 40% of enterprises.
- Employees and self-employed have remote access to e-mail, documents or business apps – 86% of enterprises.
- Enterprise uses robots (industrial or service) – 7% of enterprises (6% industrial and 1% service robots).
- Enterprise generated at least 1% of its turnover in the previous year via computer networks – with orders via websites or via electronic data interchange (EDI) – in 2021 there were 20% of such enterprises, which is the same as in 2020.
- Enterprise generated more than 1% of its turnover via web sales and more than 10% of its web sales to private customers – in 2021 there were 9% of such enterprises (in 2020 8%).

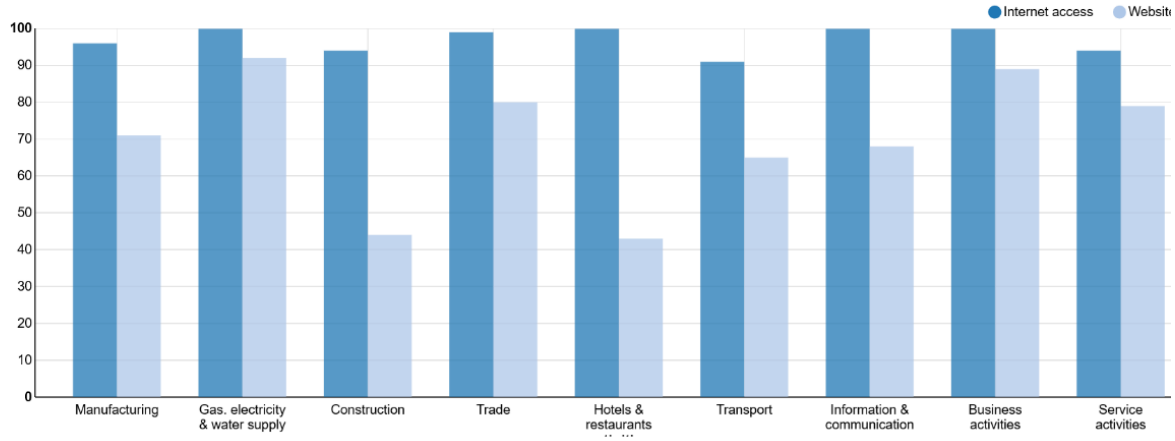
5. **Digitalization in companies for Croatia** - National database

The Croatian Bureau of Statistics conducts an annual survey on *Usage of Information and Communication Technologies (ICT) in Enterprises*.

Regarding the global enterprises in Croatia for 2022, there are some tendencies:

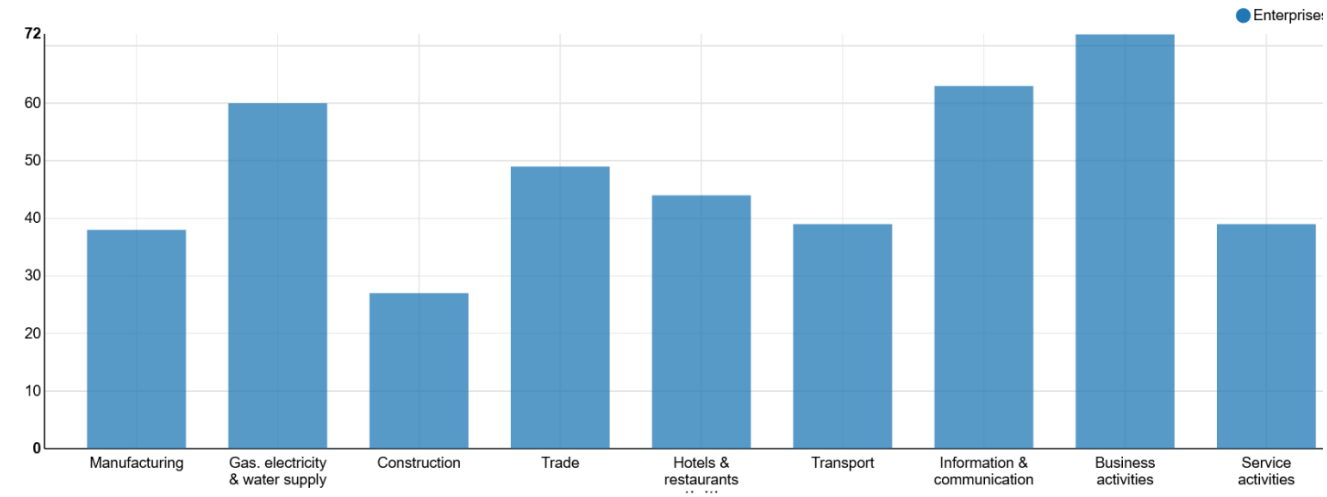
- High level of ICT integration in business conducts; 97% of enterprises used computers with internet access and 69% of enterprises owned a website.
- Usage of broadband internet access prevailed; 94% of enterprises used some type of fixed broadband internet connection.
- Internet sales covered only 17% of the total sales of goods and services.
- Cloud computing internet service as a new technology was used by 44% of enterprises.
- When considered specifically in usage of CRM or ERP cloud solutions, 20% companies use some kind of those solutions.
- Green ICT – 70% of companies took measures to reduce paper consumption, while 40% took measures to reduce the electricity consumption of ICT equipment.

G-1 USAGE OF ICT IN ENTERPRISES, BY ACTIVITIES, 2022



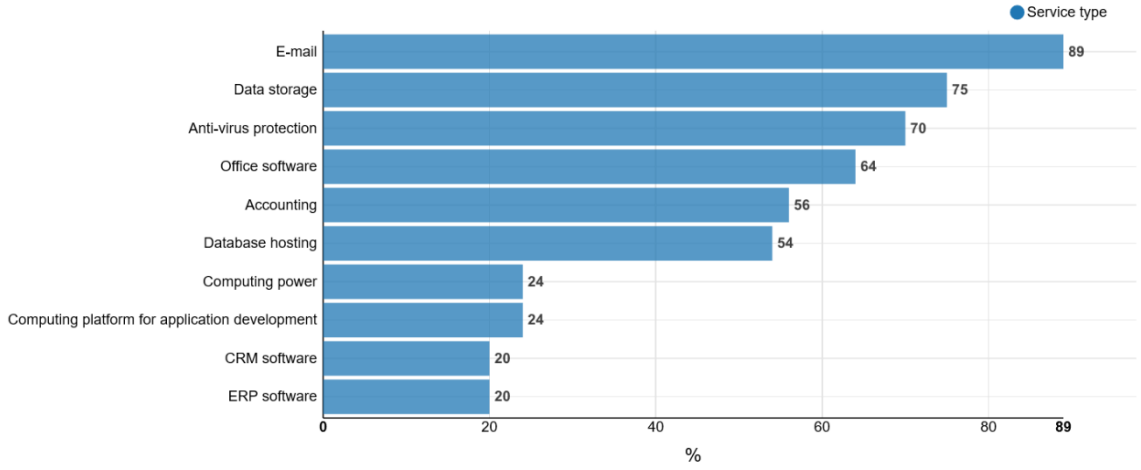
Source: Croatian bureau of Statistics

G-5 USAGE OF INTERNET RESOURCES VIA CLOUD COMPUTING SERVICES, BY ACTIVITIES, 2022



Source: Croatian bureau of Statistics

G-6 USAGE OF CLOUD COMPUTING SERVICES, BY SERVICE TYPE, 2022



Source: Croatian bureau of Statistics

6. **Digitalization in companies for North Macedonia** - National database

Based on data of the State Statistical Office, in 2022, 99,1% of Macedonian enterprises used a computer in their work. From the enterprises with computer use, access to Internet is used by 95.1% and fixed broadband connection to the Internet is used by 89.0% of the enterprises with 10 or more employees.
Regarding e-commerce, 13.4% of the enterprises received e-sales orders via computer networks, and 12.3% of the enterprises received web sales orders for products or services via a website.

T1 Information and communication technologies in the enterprises according to the number of employees, 2022

	Total	Enterprises according to the number of employees		
	(10+)	(10-49)	(50-249)	(250+)
Enterprises with computer	99,1	99,0	99,5	100,0
Enterprises with Internet access	95,1	94,8	96,8	97,1
- Via fixed broadband connection (DSL, cable, fiber optics or other technology)	89,0	88,9	88,7	93,8
- the maximum contracted download speed of the fastest Internet connection is least 30 Mbit/s	73,0	72,8	70,6	89,0
- the maximum contracted download speed of the fastest Internet connection is at least 100 Mbit/s	38,1	37,3	40,0	56,6
Online ordering or reservation or booking, e.g. shopping cart	13,4	12,5	17,7	18,7
Possibility for visitors to customise or design online goods or services	12,3	11,5	16,9	15,1

T2 E-commerce in the enterprises, according to the number of employees, 2022

	Total	Enterprises according to the number of employees		
	(10+)	(10-49)	(50-249)	(250+)
E-sales: have received orders via computer networks	13,5%	12,7%	17,7%	18,7%
Web sales: received orders for products or services via a website	12,4%	11,7%	17,0%	15,1%
= /> 1%	4,5%	4,4%	5,5%	1,5%
< 1%	2,3%	1,9%	4,7%	3,4%
B2C (Sales to private consumers)	5,5%	5,0%	9,0%	4,9%
B2B (Sales to other enterprises) and B2G (Sales to public authorities)	3,1%	2,9%	4,8%	2,4%
EDI-type sales: received orders via EDI-type messages in an agreed format, e.g. EDIFACT, UBL, XML	1,3%	1,3%	1,0%	4,6%

Source: Republic of North Macedonia State Statistical Office

H. Digitization of construction companies for the project's partner countries

The purpose of publishing the data is to present to what extent enterprises with 10 or more employees and self-employed use information-communication technologies (ICT), sell or buy via websites or through computer data exchange, i.e. degree of digitalization of enterprises.
The survey covers a part of the target population on the basis of which we make conclusions about the scope of the usage of information-communication technologies (ICT) and e-commerce of the entire population

1. Indicators of digital society for construction in Slovenia

Number of enterprises with 10 or more employees and self-employed by CONTRACTED FIXED INTERNET SPEED				
	41–43 Construction		Activity – TOTAL	
	2021	2022	2021	2022
0 Number of enterprises	1,413	1,45	7,712	8,131
1 Enterprises with access to the Internet	1,377	1,354	7,67	7,984
1.1. Access via fixed connection	1,164	1,221	7,228	7,73
1.1.1 Less than 30 Mbit/s	217	189	1,117	1,013
1.1.2 30 but less than 100 Mbit/s	344	381	2,186	2,288
1.1.3 At least 100 but less than 500 Mbit/s	392	445	2,706	3,078
1.1.4 At least 500 Mbit/s but less than 1 Gbit/s	67	90	525	722
1.1.5 At least 1 Gbit/s	143	116	693	629

Number of enterprises with 10 or more employees and self-employed by TYPE OF ACCESS AND PROVISION OF PORTABLE DEVICES				
	41–43 Construction		Activity – TOTAL	
	2021	2022	2021	2022
0 Number of enterprises	1,413	1,45	7,712	8,131
1 Enterprises with access to the Internet	1,377	1,354	7,67	7,984
1.1 Access via fixed or mobile connection	1,336	1,354	7,621	7,984
1.1.1 Access via fixed connections, e.g. xDSL, fiber optics, cable	1,164	1,221	7,228	7,73
1.1.2 Access via mobile telephone networks	1,227	1,194	7,06	7,327
2 Enterprises provided a portable device that allows Internet connection via mobile telephone networks	1,227	1,194	7,06	7,327

Number of enterprises with 10 or more employees and self-employed by WEBSITE FUNCTIONALITY				
	41–43 Construction		Activity – TOTAL	
	2021	2022	2021	2022
0 Number of enterprises	1,413	1,45	7,712	8,131
1 Enterprises with a website	1,019	856	6,424	6,594
1.1 Description of goods or services, price information	982	846	6,271	6,496
1.2 Online ordering or reservation or booking	54	76	1,687	1,616
1.3 Online order tracking	9	Z	674	869
1.4 Possibility for visitors to customise or design the products or services	36	19	540	631
1.5 Personalised content on the website for regular/repeated visitors	Z	29	515	581
1.6 Link to enterprise profile on social networks	227	-	3,078	-
1.7 Advertisement of job positions or online job application	227	198	2,51	2,653
1.9 Is multilingual	-	202	-	3,543

Number of enterprises with 10 or more employees and self-employed by STRUCTURE OF INVOICES SENT IN THE PREVIOUS YEAR				
	41–43 Construction		Activity – TOTAL	
	2021	2022	2021	2022
0 Number of enterprises	1,413	1,45	7,712	8,131
1 Sent invoices in standard structure suitable for automated processing (e-invoices) in the previous year	656	645	4,479	4,919
1.1 Sent less than 10% of all invoices in standard structure suitable for automated processing (e-invoices)	385	362	2,199	2,093
1.2 Sent at least 10% but less than 25% of all invoices in standard structure suitable for automated processing (e-invoices)	106	120	866	845
1.3 Sent at least 25% but less than 50% of all invoices in standard structure suitable for automated processing (e-invoices)	77	70	546	779
1.4 Sent at least 50% but less than 75% of all invoices in standard structure suitable for automated processing (e-invoices)	15	32	372	452
1.5 Sent at least 75% of all invoices in standard structure suitable for automated processing (e-invoices)	72	61	496	750
2 Sent invoices in electronic form not suitable for automated processing (e.g. e-mail, attachment as PDF) in the previous year	874	958	5,849	6,54
3 Sent invoices in paper form in the previous year	1,336	1,261	7,201	7,302

Number of enterprises with 10 or more employees and self-employed by ELECTRONIC EXCHANGE OF INFORMATION IN THE ENTERPRISE				
	41–43 Construction		Activity – TOTAL	
	2021	2022	2021	2022
0 Number of enterprises	1,413	1,45	7,712	8,131
1 Usage of ERP software package in enterprises for sharing information between different functional areas	242	181	2,76	3,16
2 Usage of CRM software package in enterprises	73	97	1,684	2,08
2.1 Usage of CRM software package for capturing and storing information about clients	73	97	1,684	2,08
2.2 Usage of CRM software package for analysing the information about clients	40	58	972	1,379
3 Usage of software solutions for paperless office, e.g. document system, BPM (Business Process Management) systems for business process management	70	99	1,225	1,69
4 Usage of software solutions for human resource management (HRM)	9	37	670	958
5 Usage of tools to support teamwork and collaboration, e.g. MS Teams, Skype, Slack, Google Chat	300	324	4,077	4,424
6 Have a digital business transformation strategy	79	57	1,334	1,619

Number of enterprises with 10 or more employees and self-employed by ELECTRONIC SALES IN THE PREVIOUS YEAR				
	41–43 Construction		Activity – TOTAL	
	2021	2022	2021	2022
0 Number of enterprises	1,413	1,45	7,712	8,131
1 Enterprises sold via websites or EDI in agreed format in previous year	49	56	2,119	2,109
1.1 Enterprises generated at least 1% of their turnover with sales via websites or EDI	18	56	1,537	1,645
1.2 Enterprises generated at least 2% of their turnover with sales via websites or EDI	Z	20	1,354	1,475
1.3 Enterprises generated at least 5% of their turnover with sales via websites or EDI	Z	10	1,133	1,224
2 Enterprises sold via websites in previous year	49	50	1,833	1,81
2.7 Enterprise sold via enterprise website	45	20	1,33	1,289
2.8 Enterprise sold via e-commerce marketplace	Z	30	698	864
2.9 Enterprises sold via websites to private consumers	Z	40	1,289	1,265
2.10 Enterprises sold via websites to other enterprises, public authorities	27	40	1,276	1,34
2.11 Enterprises received orders via websites from customers located in Slovenia	Z	50	1,707	1,617
2.12 Enterprises received orders via websites from customers located in other EU Member States	-	10	903	912
2.13 Enterprises received orders via websites from customers located in other countries	-	10	368	369
3 Enterprises sold via EDI (Electronic Data Interchange) in previous year	9	6	462	544

Value (million EUR) in enterprises with 10 or more employees and self-employed by VALUE OF E-COMMERCE SALES IN THE PREVIOUS YEAR				
	41–43 Construction		Activity – TOTAL	
	2021	2022	2021	2022
0 Turnover in the previous year (excluding VAT)	3,888	5,735 M	76,102	92,462

Number of employees and self-employed in enterprises with 10 or more employees and self-employed by ICT USAGE AMONG EMPLOYEES AND SELF-EMPLOYED				
	41–43 Construction		Activity – TOTAL	
	2021	2022	2021	2022
0 Number of employees and self-employed	38,488	40,07	415,87	423,368
1 Number of employees and self-employed with access to the Internet for business purposes	12,808	15,921	242,211	261,634
2 Number of employees and self-employed provided with a portable device that allows Internet connection via mobile telephone networks	9,172	9,964	149,101	155,493

Number of enterprises with 10 or more employees and self-employed by PURCHASE OF CLOUD COMPUTING SERVICE		
2021	41–43 Construction	Activity – TOTAL
0 Number of enterprises	1,413	7,712
1 Enterprises purchasing cloud computing services	374	3,292
1.1 E-mail	274	2,418
1.2 Office software, e.g. word processors, spreadsheets	215	2,158
1.3 Hosting the enterprise's database	185	1,251
1.4 Storage of files (all types of files, backup files of enterprise)	72	838
1.5 Finance or accounting software applications	13	693
1.6 Enterprise Resource Planning (ERP) software applications	278	2,374
1.7 Software application for managing information about customers (CRM)	176	1,414
1.8 Security software applications, e.g. antivirus program, virtual private network (VPN), network access control	247	2,165
1.9 Computing power to run the enterprise's own software, e.g. virtual processors	41	936
1.10 Computing platform providing a hosted environment for application development, testing or deployment, e.g. reusable software modules, application programming interfaces (APIs)	53	746
1.11 Other cloud computing services	10	275

Number of enterprises with 10 or more employees and self-employed by TYPE OF PERFORMER OF ICT FUNCTIONS		
2022	41–43 Construction	Activity – TOTAL
0 Number of enterprises	1,450	8,131
1 ICT functions performed by own employees (incl. those employed in parent or affiliate enterprises)	251	2,902
2 ICT functions performed by external suppliers	796	6,132

Number of enterprises with 10 or more employees and self-employed by REASON FOR USAGE OF ROBOTICS		
2022	41–43 Construction	Activity – TOTAL
0 Number of enterprises	1,450	8,131
1 Enterprises using robotics	13	537
1.3 To enhance safety at work	6	400
1.4 To ensure high precision or standardized quality of processes and/or goods and services produced	6	504
1.5 To expand the range of goods produced or services provided by the enterprise	13	316

Number of enterprises with 10 or more employees and self-employed by USAGE OF ROBOTICS		
2022	41–43 Construction	Activity – TOTAL
0 Number of enterprises	1,45	8,131
A1 Enterprises using robotics	13	537
A1.1 Industrial robots, e.g. robotic welding, laser cutting, spray painting	13	504
B1.1 Enterprises using less than 5 robots	13	375
The usage of Internet of things by purpose in enterprises with 10 or more employees and self-employed by USAGE OF INTERNET OF THINGS		
2021	41–43 Construction	Activity – TOTAL
Number of enterprises – TOTAL	1,413	7,712
.Enterprises using interconnected devices or systems that can be monitored or remotely controlled via the Internet (Internet of Things)	540	3,815
..For energy consumption management, e.g. smart-meters, smart-lights, smart-thermostats	178	1,48
..For premises' security, e.g. smart-alarm systems, smart-smoke detectors, smart-door locks, smart-security cameras	421	2,921
..For production processes, e.g. sensors or RFID tags used to monitor or automate the process	55	912
..For logistics management, e.g. sensors for tracking products or vehicles in warehouse management	240	1,409
..For condition-based maintenance, e.g. sensors to monitor maintenance needs of machines or vehicles	58	322
..For other purposes	18	192

Number of enterprises with 10 or more employees and self-employed by PROBLEM LIMITING DIGITAL BUSINESS TRANSFORMATION				
	41–43 Construction		Activity – TOTAL	
	2021	2022	2021	2022
0 Number of enterprises	1,413	1,45	7,712	8,131
1 Have a digital business transformation strategy	79	57	1,334	1,619
2 Have problems with digital transformation	758	735	4,641	4,745
2.1 Persons employed or management do not show a willingness to make changes in the enterprise	231	247	1,276	1,309
2.2 Lack of appropriate staff or lack of knowledge	428	406	2,489	2,922
2.3 Management responsible for key processes (e.g. marketing and sales, production, development of new products and services) have insufficient knowledge about the possibilities of digital technologies	281	285	1,762	1,836
2.4 It is not possible to quickly adjust management or business processes in enterprises, e.g. quick experimentation with the usage of digital technologies, adaptation to changes	415	353	2,318	2,201
2.5 Business processes within the enterprise are not connected	414	353	1,717	1,698
2.6 There are too many conflicting priorities in the enterprise	328	331	2,078	1,999
2.7 Lack of financial resources	337	449	2,374	2,534
2.8 Digital transformation is not essential for the successful performance of the enterprise	813	757	3,535	3,48
3 Do not have problems with digital transformation	397	314	2,19	2,112

Number of enterprises with 10 or more employees and self-employed by ORIGIN OF USED ARTIFICIAL INTELLIGENCE TECHNOLOGIES		
2021	41–43 Construction	Activity – TOTAL
0 Number of enterprises	1,413	7,712
1 Using artificial intelligence technologies	Z	905
1.1 Developed by own employees (including those employed in parent or affiliate enterprise)	10	243
1.2 Commercial software or systems were modified by own employees (including those employed in parent or affiliate enterprise)	5	314
1.3 Open-source software or systems were modified by own employees (including those employed in parent or affiliate enterprise)	5	241
1.4 Commercial software or systems ready to use were purchased (including examples where it was already incorporated in a purchased item or system)	50	683
1.5 External providers were contracted to develop or modify them	14	322

Number of enterprises with 10 or more employees and self-employed by PURPOSE OF USAGE OF ARTIFICIAL INTELLIGENCE TECHNOLOGIES		
2021	41–43 Construction	Activity – TOTAL
0 Number of enterprises	1,413	7,712
1 Using artificial intelligence technologies	Z	905
1.1 For marketing or sales	11	239
1.2 For production processes	-	230
1.3 For organisation of business administration processes	4	124
1.4 For management of enterprises	9	184
1.5 For logistics	-	78
1.6 For ICT security	36	615
1.7 For human resource management or recruiting	-	24

Number of enterprises with 10 or more employees and self-employed by USAGE OF ARTIFICIAL INTELLIGENCE TECHNOLOGY		
2021	41–43 Construction	Activity – TOTAL
0 Number of enterprises	1,413	7,712
1 Using artificial intelligence technologies	Z	905
1.1 Technologies performing analysis of written language (text mining)	-	59
1.2 Technologies converting spoken language into machine-readable format (speech recognition)	10	115
1.3 Technologies generating written or spoken language (natural language generation)	23	267
1.4 Technologies identifying objects or persons based on images, e.g. image, fingerprint, face, object, video	36	585
1.5 Machine learning (e.g. deep learning) for data analysis	-	247
1.6 Technologies automating different workflows or assisting in decision-making (artificial intelligence based software robotic process automation)	-	163
1.7 Technologies enabling physical movement of machines via autonomous decisions based on observation of surroundings, e.g. autonomous robots, self-driving vehicles, autonomous drone	Z	45

Number of employees and self-employed in enterprises with 10 or more employees and self-employed by REMOTE ACCESS AMONG EMPLOYEES AND SELF-EMPLOYED		
2022	41–43 Construction	Activity – TOTAL
0 Number of employees and self-employed	40,070	423,368
1 Number of employees and self-employed with remote access to the e-mail system of the enterprise	7,139 M	160,714
2 Number of employees and self-employed with remote access to documents of the enterprise, e.g. files, spreadsheets, presentations, photos	4,314 M	120,283
3 Number of employees and self-employed with remote access to business applications, software of the enterprise, e.g. access to accounting, sales, orders, CRM	3,383 M	101,58

Source: Statistical Office of the Republic of Slovenia
z- statistical confidentiality
(-) no data
M -less reliable estimate – use with caution
Methodological explanation https://www.stat.si/statweb/File/DocSysFile/8096

2. Indicators of digital society for construction in Croatia

The Croatian Bureau of Statistics conducts an annual survey on *Usage of Information and Communication Technologies (ICT) in Enterprises*. Regarding the 4 main categories for the construction industry, it is obvious that basic computer and internet usage is widespread, but more advanced integration of ICT technologies in most companies is lacking and without visible trend of improvement.

NACE Rev.2 F	Computer usage	Internet access	Company website	Cloud computing
2022	N/A	94%	44%	27%
2021	N/A	91%	38%	18%
2020	N/A	87%	50%	23%
2019	93%	93%	44%	18%
2018	95%	95%	56%	25%
2017	94%	94%	53%	20%

Source: Croatian Bureau of Statistics

3. Indicators of digital society for construction in North Macedonia

Compared to other sectors, according to the given parameters, the construction sector does not lag behind other sectors, although generally speaking in a broader sense of digitization, out of the total number of companies, only 8% of digitally mature companies according to economic activity are from the construction sector.
According to the available data from the State Statistics Office, the construction sector is one of the sectors that has the lowest share of e-sales, with only 7.4%, which is expected given the nature of the sector and the degree of digitization of the other sectors. E-sales in construction entirely include web sales and no sales via EDI (Electronic Data Interchange) have been recorded.

T3 ICT usage by activities, 2022

Sector: Construction (Division 41-43)	Activity according to the National Classification of Activities (Rev.2)
Enterprises with computer	98,5%
Enterprises with Internet access	92,6%
- Via fixed broadband connection (DSL, cable, fiber optics or other technology)	89,0%
-- the maximum contracted download speed of the fastest Internet connection is least 30 Mbit/s	63,7%
-- the maximum contracted download speed of the fastest Internet connection is at least 100 Mbit/s	31%
E-sales (web or EDI)	7,4%
Web sales	7,4%
EDI-type sales	0,0

Source: Republic of North Macedonia State Statistical Office


Statistical
Analysis
PLAN-A