

# THE RISE OF ENGINEERING MANUFACTURING

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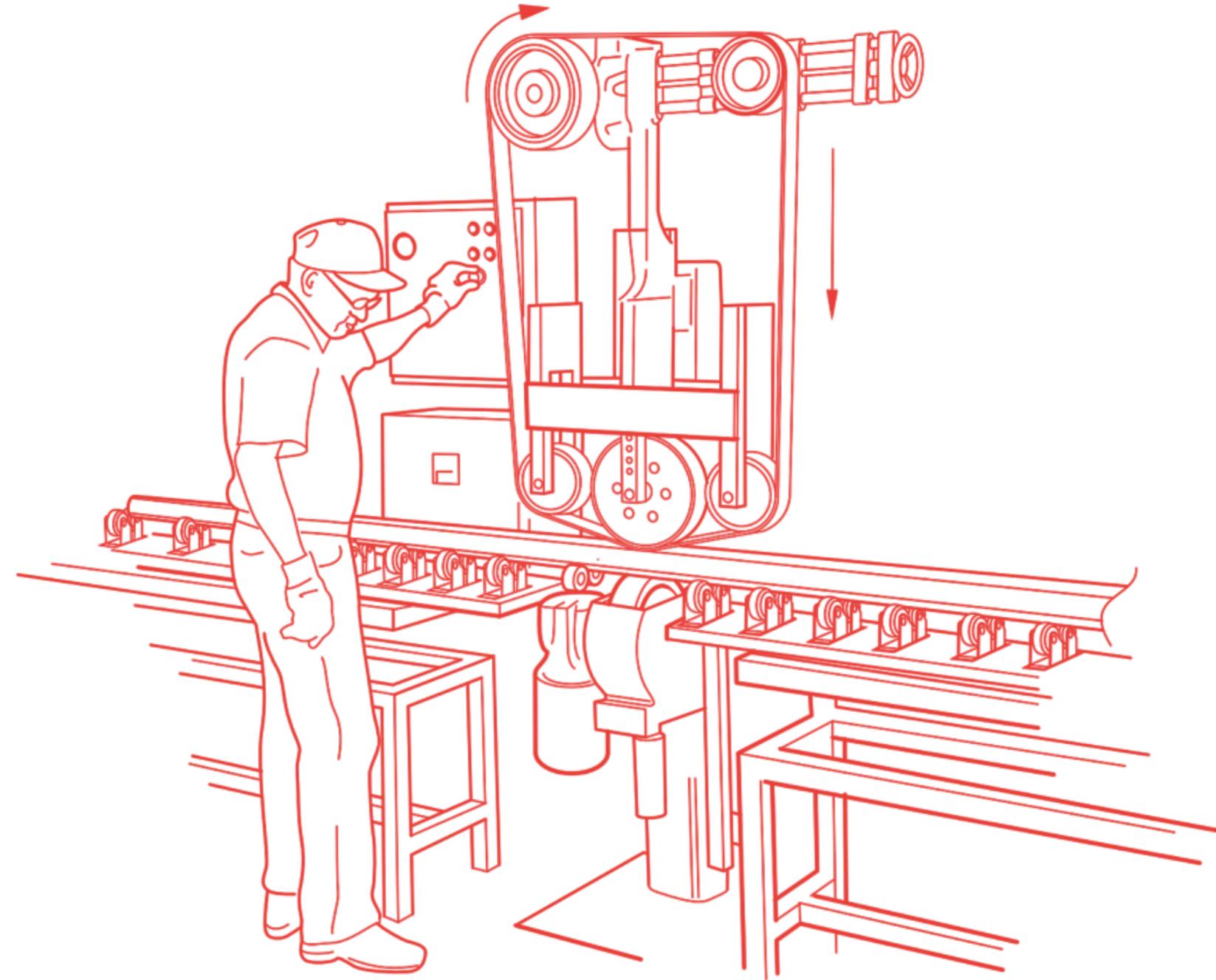
What is the structure of a modern industrial economy?

How Central and Eastern Europe transform its industry?

When will Romania and Bulgaria catch up?

The mid-sized emerging economies of Central and Eastern Europe are countries with populations between 5 and 20 million people. They are big enough to need a diverse and sustainable engine of economic development such as manufacturing, the term for all tangible production at stages after mining and farming. They are also geographically and culturally close enough to their Western neighbors, which have prospered mainly through advancement of their industrial capacities.

**The modern European manufacturing is dominated by discrete productions such as machine building, automotive, commercial vehicles (planes, trains, ships), home appliances, electronics, medical equipment, etc.** The wide range of those original equipment manufacturers, as well as their tier one and even tier two suppliers, we call **ENGINEERING MANUFACTURING**



# INDICATOR FOR INDUSTRIAL DEVELOPMENT

**As countries advance in their development, the share of the those industries in total manufacturing employment increases.** In the most developed industrial economy of Germany, that share is about 2/3. Emerging economies of Eastern Europe, such as Romania and Bulgaria, still have that share at less than 1/2.

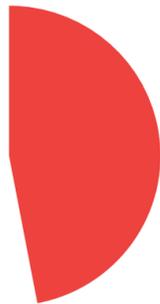
Engineering industries as % of manufacturing employment

41%



Bulgaria

47%



Romania

64%



Slovakia

65%



Germany



# ***BULGARIA'S ENGINEERING PRODUCTIONS ARE SMALLER THAN SLOVAKIA'S BY 100,000 JOBS***

**Mid-sized economies of Central and Eastern Europe advance in their development through investments in manufacturing and creation of more productive jobs.**

Romania has about 1.2 million industrial jobs, as much as Czechia, which is half the size in population.

Bulgaria and Slovakia are two of the most industrial nations of EU, as share of manufacturing employment in population, but differ substantially in structure. Slovakia, though a smaller nation, has 100,000 more jobs in engineering industries than Bulgaria.

('000 jobs)	Bulgaria	Romania	Slovakia	Germany
Engineering industries	<b>225</b>	<b>564</b>	<b>327</b>	<b>4890</b>
Other manufacturing	<b>330</b>	<b>642</b>	<b>186</b>	<b>2593</b>
Total manufacturing	<b>555</b>	<b>1206</b>	<b>513</b>	<b>7483</b>

Source: Trakia Tech with data from Eurostat for 2018

## ***JOB CREATION IS MAINLY IN ENGINEERING INDUSTRIES***

Even in the heavily outsourcing Germany, engineering industries grew by half a million jobs after 2010. In the emerging economies in EU other (non-engineering industries) have been shrinking. Slovakia was able to gain 70,000 more jobs in engineering industries. Bulgaria and Romania are still shrinking the number of jobs in their non-engineering industries (mostly in apparel and food production).

Change for the past 8 years ('000 jobs)

	<u>Engineering industries</u>	<u>Other manufacturing</u>
Bulgaria	↑ 50	↓ 32
Romania	↑ 133	↓ 55
Slovakia	↑ 70	↓ 8
Germany	↑ 527	↑ 32

Source: Trakia Tech with Eurostat data for 2010-2018

Wages in the engineering industries of the catching up economies of Bulgaria and Romania grow much quicker than Germany, but also twice as quick compared to Slovakia. **Bulgaria has the quickest wage rise in the emerging industrial countries of EU, however mostly driven by productivity gains.**

In other countries of Central and Eastern Europe wages have been artificially moved up, thus surpassing the productivity growth. Germany was much more relaxed on its labor market where average wages in engineering industries grew slower than average productivity.

***PRODUCTIVITY GROWTH IS  
DRIVEN BY THE ENGINEERING INDUSTRIES***

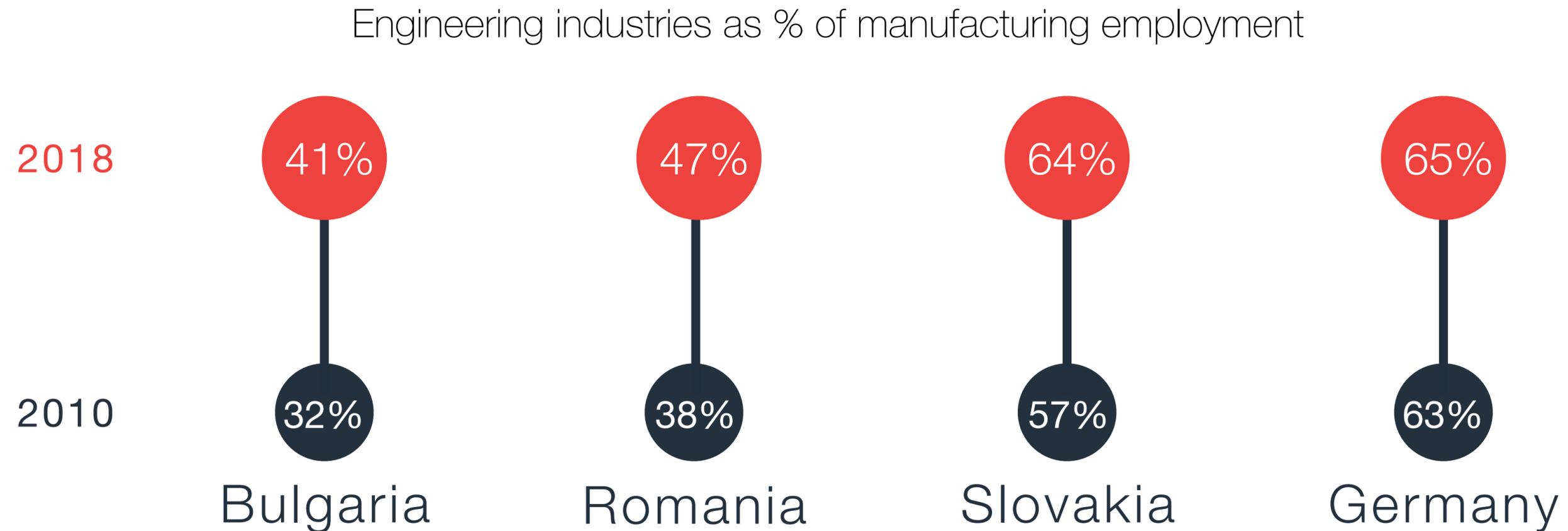
Annual average growth	Bulgaria	Romania	Slovakia	Germany
Productivity	9.5%	5.7%	3.1%	3.1%
Wages	8.8%	7.8%	4.8%	2.6%

Source: Trakia Tech with Eurostat data for 2010-2017

# ***BULGARIA AND ROMANIA STILL HAVE A LONG WAY TO GO, BEFORE THEY CATCH UP***

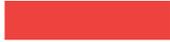
Quicker change of industrial structure in Romania and Bulgaria, starting from a less advanced industrial structure, is now fueled by both net job creation in engineering industries and also a substantial net job destruction in other, non-engineering industries.

**Romania is now very close to the structure of Poland, Bulgaria lagging behind, Slovakia and Czechia well close to the German structure.**

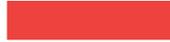


Greenfield investments in emerging economies like Bulgaria have been predominantly in engineering industries. First wave of such capital inflows were in mass production facilities. Meanwhile local machine builders have sharpened their competitive edge with craft-like manufacturing. **Now we are at the dawn of the second wave, when the foreign capital inflows are shifting from mass production to a “leaner” and in some cases craft custom and small series productions.**

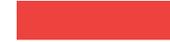
## ***MASS PRODUCTION WILL GIVE WAY TO “LEANER” FOREIGN DIRECT INVESTMENTS***



Tech companies and start-ups with technological solutions will play even bigger role in the new industrial landscape.



Custom production, especially machine building, will become more agile to serve more complex, customized and faster orders.



Production will become more dispersed, with micro plants serving regional markets.