

**On way to zero carbon mobility: maintain industry
competence in EU car industry while keeping
employment loss at minimum**

ECF-ETUI project

workshop

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The automobile industry: a revolution is underway

EU automobile industry: 3.4 million direct manufacturing jobs, total 13.8 M in EU – tectonic changes ahead

Modes of transport: less individual transport; new concepts for urban mobility, CAV, robotaxis – less cars – not in focus here

Greening of individual transport, new technologies: electric cars (much less labour input); from the `car` to `mobility concept`, new technologies, new skills needs; impact on first and second tier suppliers – in focus: BEV, PHEV. (light) HEV penetration (in what composition) vs the retreat of ICE by 2030

Pace of change is accelerating (month by month)

Complete redraw of value-chains – new constellation in economic geography (China + Silicon Valley in lead, where is Europe?)

Effects of digitalisation: shift of value added from engineering to software and data; Industry 4.0 in production process **etui.**

ECF-ETUI study: concept, objective

Q: How to minimize jobs impact of 2050 transition ZEV? – focus on 2030

Question: Is the EU transition to ZEVs inevitable by 2050?

Yes

Hypothesis: driven by policy, but increasingly by markets and technology

Can the dominance of overseas competition be challenged on cells & battery?

Yes

Hypothesis: EU can compete on ZE technologies and must do so urgently to remain future-proof

What are the implications for employment?

Explore:

- Labour intensity of ICE, BEV, PHEV, REEV, FCEV,
- Invest in full value chain or only part?
- Best-case scenario for emissions & jobs

Hypothesis

There are choices that can minimize negative jobs impact

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Employment forecasts on mobility shift and electrification

Forecasts on broad range, lots of uncertainty

There are some `knowns`: major disruption ahead, more effect at suppliers than at OEMS

Many known and unknown unknowns: national, regional and municipal policies on mobility; consumer behaviour, price developments, battery cell manufacturing readiness, shifts in global division of labour (the China factor); how deep modes of transport changes will be (share of individual transport, and within that the share of car ownership vs mobility services)

Transport&Environment 2018 study

While the study saw a major positive effect of electrification on employment at macro level, and marginal employment loss in EU car industry, most studies question the optimism for the latter.

If the European OEMs are to avoid a “**Nokia moment**” (**Kodak, Telefunken, etc**) they need to invest into electrification

<https://www.transportenvironment.org/news/dramatic-job-creation-finding-e-vehicles-study>

Recent studies and forecasts

- FTI Consulting (with ACEA, 2018): making the point of less labour demand for BEVs and resulting job losses in industry
- Boston Consulting (2020): contrary to previous studies, it concludes that BEV-s are not less labour intensive than ICEs, but Battery makes the big difference (50% of value added if compared to a current ICE car > more disruption at suppliers)
- Fraunhofer IAO (Volkswagen, 2020):
https://www.volkswagenag.com/presence/stories/2020/12/fraunhofer-studie/6095_EMDI_VW_Summary_um.pdf – employment loss in manufacturing, but less pronounced than in earlier studies
- Transport&Environment-BNEF study: rapid technological change > BEVs price competitive with ICE from 2025 **etui.**

Volkswagen (Fraunhofer IAO, 2020) study

In German vehicle manufacturing, employment is expected to fall by 12 percent in this decade, but mainly due to planned output volumes and higher productivity. But in component manufacture, labour requirements for BEV powertrain might be 70 percent lower for BEVs than for ICE. Within [VW](#), this "can be cushioned by boosting output volumes and by shifting to the production of new components (for example battery cells)."

Testing also a scenario with 60% BEV share of new car sales in 2030

Questions to discuss

Focus: Employment effects of a fast-track transition to electromobility

This means: preserving a higher share of ICE or synthetic fuels is not (anymore) considered as realistic scenario

Alternatives: what BEV share, PHEV, HEV?

Focus on OEMs, 1-st, 2nd tier suppliers

Regional effects (EU core and periphery)

With and without large scale battery manufacturing in EU (integrated into OEMs or outsourced, local or foreign)

Jobs in charging infrastructure, dealerships, maintenance (as additional info in this study) – but focus on automobile manufacturing (OEMs + suppliers)