

ENABLEMENT VIA GENERATIVE AI: BRIDGING THE TALENT GAP IN THE EMOBILITY TRANSITION

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THE TALENT GAP OF OEMS IN THE E-MOBILITY REVOLUTION

The rapid pivot to e-mobility is reshaping the job market landscape by amplifying the demand for specialized talent. This escalating competition heralds a talent shortage and recruitment complexities.



SUMMARY

- » Germany's e-mobility revolution is experiencing a surge, with BEV production expected to grow at a CAGR >27% until 2030.
- This transition significantly transforms the professional profiles OEMs seek, as evident in evolving job portal recruitment positions.
- The emerging talent demand has ignited fierce competition among OEMs for a limited talent pool, amplifying recruitment challenges.
- Identifying and deploying effective efficiency boosters is critical to manage the talent shortfall and sustain the **e-mobility momentum**.

1 E-mobility-specific: Categorization for a position if it is associated with the company's electric vehicle models, or their exclusively required systems or components Source: Berylls Strategy Advisors, IHS Markit (Q4/2022), BMW job portal, VW job portal FCEV: Fuel Cell Electric Vehicle; BEV: Battery Electric vehicle; PHEV: Plug-in Hybrid Electric Vehicle; ICE: Internal Combustion Engine

BRIDGING THE E-MOBILITY TALENT GAP WITH GPT-ENHANCED WORK EFFICIENCIES

Generative AI emerges as a strategic asset in this context. It streamlines task execution for e-mobility-focused professionals and thereby offsetting the impact of talent scarcity.

METHODOLOGY

EXPOSURE TO GPT is the **benchmark** to assess whether access to a GPT can reduce the time required to complete a Detailed Work Activity (DWA) of an occupation by **at least half (50%)**.

DWA LEVEL ASSESSMENT

- E0 Using GPT results in **no or minimal** reduction in the time to complete a DWA
- E1

E2

Using **GPT** can reduce the time to complete a DWA by at least half (e.g., via ChatGPT, OpenAl playground)

Using GPT alone would not reduce the time. Using additional **GPT-based software** can reduce the time to complete a DWA by at least half (e.g., Github Copilot, Midjourney)

OCCUPATIONAL LEVEL ASSESSMENT

» The assessment of Exposure to GPT of occupation is an aggregation of the exposure evaluations of its all DWAs.

Tack		FN	F1	F2
No.	Task description			
1	Analyze project data to determine specifications or requirements.			х
2	Modify software programs to improve performance.		х	
3	Supervise information technology personnel.	х		
4	Apply mathematical principles or statistical approaches to solve problems in scientific or applied fields.			x
5	Assess database performance.			х
6	Assign duties or work schedules to employees.	х		
7	Collaborate with others to determine design specifications or details.	х		
8	Collaborate with others to resolve information technology issues.	х		
9	Communicate project information to others.			х
10	Coordinate software or hardware installation.	х		
11	Design software applications.	х		
12	Develop perf. metrics or standards related to information technology.			х
13	Develop testing routines or procedures.		х	
14	Document technical specifications or requirements.		х	
15	Identify information technology project resource requirements.			х
16	Manage information technology projects or system activities.	х		
17	Monitor computer system performance to ensure proper operation.			х
18	Prepare data for analysis.			х
19	Provide recommendations to others about computer hardware.		х	
20	Provide technical support for software maintenance or use.		х	
21	Teach others to use computer equipment or hardware.			х
	IN TOTAL ON OCCUPATIONAL LEVEL	7 (33%)	5 (24%)	9 (43%)

EXPOSURE TO GPT EVALUATION (EXAMPLE SOFTWARE DEVELOPER)

SUMMARY

- » Generative AI, particularly the GPT model focused on natural language processing, emerges as a potent tool amid e-mobility transition challenges.
- » The primary benefit lies in its ability to **diminish the time required** for dedicated work activities of a professional.
- » The methodology with "Exposure to GPT" as indicator assesses the efficacy of this GPT application.
- » Expert assessment is conducted with the methodology. For instance, software engineers have been identified as a role with significant potential for efficiency improvements with more than a half of its activities have GPT exposure.

Marked with "x": Indicates compliance

3 EXPLORING GPT EXPOSURE ON THE 8 HIGH-DEMAND EMOBILITY ROLES

Generative AI significantly boosts e-mobility roles, with software developers seeing the most time savings potential.



SUMMARY

- » The most in-demand Emobility roles are assessed of their GPT exposure.
- » There is a **diverse degree** of GPT exposure across different jobs, indicating a spectrum of potential impacts on work efficiency.
- » Between 40% to 65% of the tasks within the job portfolios examined could see substantial enhancements through the adoption of generative Al technologies.
- » Software developers exhibit the highest exposure to GPT due to their reliance on text-based tasks like coding, debugging, documentation, where GPT's ability to generate, analyse, and transform code can significantly expedite their work processes.

Source: Berylls Strategy Advisors, O*net 27.2 database (2023)

4 EXAMPLE USE CASES IN JOBS WITH HIGH GPT EXPOSURE

The productivity enhancements offered by generative AI are not speculative. Concrete use cases underscore the technology's capability to deliver immediate and tangible results.

JOB GROUP	TASK	EXPOSURE	USE CASE OF GPT TOOLS	TOOL REFERENCE
SOFTWARE DEVELOPER	Modify software programs to improve performance.	E1	In an instance where API integration code needs optimization, a developer input a command in human language to a GPT-enabled tool. The tool generates optimized code, annotating changes with clear comments.	OpenAl API
	Develop testing routines or procedures.	E1	In a scenario of building testing routines, a developer need to test diverse user profiles. He can utilize a GPT tool by inputting requirements to develop these profiles. The tool understands this and generates profiles accordingly.	ChatGPT
ELECTRONICS ENGINEER	Estimate technical or resource requirements for development or production projects.	E2	An Electronics Engineer is planning a new product development project. By detailing the project's scope to a GPT-enabled estimation tool, the Al processes the information and provides a detailed estimation of necessary components, time allocation for each development phase, and human resource needs. This allows the engineer to create a more accurate budget and timeline, ensuring efficient resource allocation.	GPT-4 32K API
	Analyze operational data to evaluate operations, processes or products.	E2	An Electronics Engineer needs to optimize a circuit for energy efficiency. Using a GPT-powered analytics tool, they input the system's performance data. The AI evaluates the data against best practices and suggests modifications, such as altering component values for better power consumption, providing actionable insights quickly.	Autogpt

SUMMARY

- The efficiency improvements offered by generative AI are not just theoretical – there are already practical use cases where this technology is in application.
- » Through targeted application of GPT and GPT-based tools, employees can significantly reduce time spent on specific tasks.

5 POTENTIAL TO REDUCE TALENT GAP IN E-MOBILITY

E-mobility's progression globally has been constrained by a talent deficit. Generative AI provide potential in reducing up to 25% of the current talent shortage in production related Emobility areas.

ASSUMPTIONS

- » The allocation of E0, E1, and E2 corresponds to the average assessment results across the eight job profiles analysed.
- A further 10% of outlier activities is considered, referring to potential activity incompleteness in the GPT exposure assessment.
- » If activities is compliant with E1 or E2, time reduction of 50% is assumed with generative AI application.
- » The number of required job is linearly dependent on work activity duration.

LIMITATIONS

- » The analysis focuses on jobs related to emobility production areas.
- » The analysis is restricted to current tasks and positions, without considering future dynamics or emerging positions.
- » The potential impact of jobs consolidation is not considered.
- » The impact of technology adoption processes on jobs is not considered.

REDUCTION IN WORK ACTIVITY DURATION EO Out. E2 E1 Activities 100% 29% duration 10% 39% 22% w/o GPT Reduction with **GPT** application Activities 10% 25% duration 39% 11% 15% w/ GPT

Legend 🔳 Outlier 📃 E0 📃 E1 📕 E2 🧰 Reduced duration

COST SAVINGS FROM GAP REDUCTION

Total employment in Top 10 Automotive OEMs (A)	2.643.115
Ratio of the 8 job profiles in OEM employment (B)	1%
Job vacancy reduction potential with generative Al (C)	25%
Average salary of affected employees (D)	81.962€
Total annual savings from generative Al- induced job reductions (A x B x C x D)	549 M. €

SUMMARY

- » Global OEMs are at a critical juncture in their transition to electrification. During this transition, reducing costs to maintain competitive advantage has become a priority.
- » In this context, leveraging generative Al in e-mobility-centric roles can lead to a **significant reduction** in work activity time, by up to **25%**.
- » Considering the Top 10 largest automotive OEMs, the reduced job vacancy by the application of generative AI in e-mobility-related roles can result in annual savings of 549 million €. This demonstrates a substantial financial impact, aligning cost efficiency with the forward momentum of the electric vehicle sector.

Source: Berylls Strategy Advisors, Glassdoor, Statista

6 ENTERPRISE SOLUTIONS VS. OPEN SOURCE IN GENERATIVE AI ADOPTION

Industry incumbents are well-advised to kickstart their journey with off-the-shelf solutions to expedite capacity building. As proficiency matures, Free and Open-Source Software represents an attractive route to high customization.



Source: Berylls Strategy Advisors

OVERALL STRATEGY FOR GENAI IMPLEMENT IS THE KEY

Generative AI goes beyond simple uses and brings the chance to deeply change company workflows. To fully harness the transformative power, a holistic strategy is essential.



SUMMARY

- Implementing generative AI within an organization requires both top-down and bottom-up approaches.
- » From the top-down, various initiatives across the management need to be coordinated to identify the most promising use cases. From the bottom-up, the workforce needs to be equipped with the necessary skills and motivated to incorporate generative Al into their daily tasks.
- » Consideration of **frameworks** and identification of **boosters** are critical elements in this process.
- Therefore, a comprehensive strategy is key to the successful implementation of generative Al within the organization.

Source: Berylls Strategy Advisors; Pictures are generated by Midjourney

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