



The Impact of ChatGPT on the Consultancy Value Chain

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Abstract

A year into the integration of ChatGPT in the consultancy business, we are witnessing a transformative shift that not only enhances performance but also underscores the urgency for new competencies in a market where consultancy talent is in short supply. Generative AI (Gen AI), and particularly Large Language Models (LLMs) like ChatGPT, are revolutionizing the consulting industry with their efficient, cost-effective capabilities. This evolution is reshaping the conventional functions within consulting, compelling a swift incorporation of LLMs into the strategic framework of consultancy businesses. In response to a growing trend where clients are increasingly experimenting with AI solutions, potentially reducing their reliance on traditional consulting services, business consultants are now called upon to cultivate novel, AI-driven problem-solving methodologies. This article proposes a trio of strategic interventions aimed at recalibrating the consultancy value chain. These include honing specialized skills of LLMs for unparalleled and hardly believable utility, harnessing these technologies to create an unprecedented type of customer value, and transforming the role of consultants to encompass a wider range of expertise.



The Renaissance of Knowledge Work

Imagine the Renaissance, a period of extraordinary cultural and intellectual flourishing. In this era, artists and scholars broke through the boundaries of the known world, propelled by curiosity and innovation. The emergence of ChatGPT for the domain of knowledge work mirrors this kind of historic awakening. Like the Renaissance artists who transformed blank canvases into masterpieces, today's professionals begin to leverage ChatGPT to paint their own landscape of possibilities. The fusion of human intellect and AI is rewriting the rules of what seems possible. But is this still a claim or does preliminary data provide evidence?

An MIT study investigated the impact of an LLM-based conversational assistant on the productivity of over 5,000 customer support agents. The introduction of this tool led to a 14 percent average increase in the number of issues resolved per hour, with a sur-

prising 34 percent improvement for novice workers. Notably, the impact on experienced and highly skilled workers was minimal (Brynjolfsson, et al., 2023). Another MIT study researched the effects of ChatGPT on mid-level professional writing. Involving more than 400 professionals, it found a 37 percent decrease in task time and a 0.4 standard deviation increase in output quality. The technology notably aided lower-ability workers more, leading to reduced productivity inequality. It shifted tasks towards idea-generation and editing, enhancing job satisfaction and self-efficacy (Noy & Zhang, 2023). A third study examined the impact of AI on knowledge worker productivity and quality through a field experiment with Boston Consulting Group consultants (Dell'Acqua, et al., 2023). Key findings included that consultants using AI completed 12 percent more tasks on average and were 25 percent faster, with more than 40 percent higher quality results in specific tasks. Lower-performing consultants showed a 43 percent and higher performers a 17 percent increase.

As far as we can see, the introduction of ChatGPT already has historical parallels. Let us compare its productivity with the revolutionary appearance of steam engines in the early 1800s (Mollick, 2023): While steam power enhanced factory performance significantly by 18 to 22 percent, early controlled experiments with ChatGPT revealed that for individual tasks (including broad activities like coding, writing, and creating marketing and business materials) ChatGPT improved performance by a staggering 30 to 80 (sic!) percent. This level of improvement in productivity is unprecedented in history, dwarfing the already significant gains seen with the advent of steam power.

Beyond the Limits of the Consultant Brain

AI machines have begun to surpass some of the important consultancy cognitive skills, presenting a formidable challenge to even most talented human consultants. Their traditional role becomes increasingly threatened as Gen AI technologies demonstrate capabilities matching or surpassing human cognitive and mental skills across various knowledge domains – even those from highly-gifted humans. That is the reason it already presents a concern for business consultants (The New York Times, 2023). Says economic Ethan Mollick: “... consultants view themselves as very unique and doing [...] things that AI can’t do” (Mollick, 2023).

But this huge advancement of Gen AI is not just a competitive threat. It could even switch into a potential asset. To remain relevant, consultancies must adapt by integrating Gen AI into a new value creation for clients. This imperative is about seizing the opportunity to explore the synergistic potential between human and machine intelligence. It is the fulfillment of the ‘missing middle’ where human creativity and insight combines with AI’s computational power to create new possibilities in consultancy (Dougherty & Wilson, 2018). The future of consultancy lies in harnessing this synergy, transforming the industry into a more innovative and effective domain faster than their given clients. That transformation requires consultants to evolve their roles, embracing continuous learning and technological integration, and to navigate the complexities of this new era effectively. Unfortunately, the difficulty escalates due to another issue that stems from LLMs themselves.

The Decline of Contemporary Software Education Paradigm

LLM is set to introduce a new human-machine interface, the Command Line Interface (CLI) - although originating from early computer systems. The Unix System 1’s shell in 1969 and its successors like Bourne Shell and bash were instrumental in the CLI’s modern design, even ensuring its continued relevance amid graphical interfaces (Wikipedia, 2023). But the rise of ChatGPT marks a surprising revival of the CLI, and at the same time signals a sophisticated shift in human-machine interaction: Computers talk to humans like humans talk to each other.

But contemporary software training is still blind and unprepared for this change, lacking in educating learners to effectively use ChatGPT and similar AI chatbots. This is due to traditional software trainings focusing on executing given computer command with finite goals instead of providing users to fulfill their intents (Nielsen, 2023). Current curricula provide the skills to select a sequence of commands from a given list, but conversational interfaces now and in the future necessitate a competence to imagine an arbitrary goal. Thus, AI tools like ChatGPT demand a very deep understanding of context, nuance, and the subtleties of human language, while traditional software trainings teach students to learn how to concatenate a number of predefined commands. Software education today prioritizes the skills to learn those commands. From now on, they have to teach interpretive and critical thinking skills. Is this just a hypothesis or do we already see evidence?

A paper titled ‘Why Johnny Can’t Prompt: How Non-AI Experts Try (and Fail) to Design LLM Prompts’ by Zamfirescu-Pereira et al. explored the challenges non-AI experts face in designing effective prompts for LLMs like GPT-3. It details a study using a no-code LLM-based chatbot design tool, BotDesigner, to observe how non-experts approach prompt design. The findings revealed that non-experts struggled with prompt design due to overgeneralization from their limited experiences and expectations deeply rooted in human-to-human interactions (Zamfirescu-Pereira, et al., 2023).

This gap in suitable curricula can lead to a paradox situation: a workforce although technically proficient in using ‘traditional’ software tools is utmost ill-equipped to leverage the full potential of advanced AI systems in solving complex, real-world problems – they just learn the wrong paradigms to exploit human-machine interfaces.

The shift towards ChatGPT necessitates a corresponding evolution in concepts of software education. To fully harness the capabilities of these advanced tools, educational curricula must move beyond the confines of traditional software paradigms and incorporate a broader, more nuanced understanding of AI and natural language processing – either in humans and in machines. Most existing workers and new entrants to the job market will not possess these new, highly specialized skills while talent shortage already is and remains an issue in recruiting (Thunderbird School of Global Management, 2021).

The overarching point here is that managing Gen AI is more of a human resource issue than one of IT or strategy. It involves applying the skills of a new type of education, focusing on people to harness the AI’s capabilities effectively – not its mere technical functionality (Mollick, 2023).

The Specificity of Consultative Skills

Consultants usually excel in consultative selling and of course possess advanced skills in their field. They tend to be innovative and are required to stay at the cutting edge of their industry

(Consulting Quest, 2023). In the consultancy landscape, professionals are distinguished by their unique blend of attributes and skills. They possess deep expertise, coupled with a dedication to continuous learning (Christensen, et al., 2023). Their analytical prowess and outstanding communication skills are essential in translating complex concepts into actionable strategies. Consultants even demonstrate adaptability and flexibility, they also exhibit creativity and resilience, enabling them to navigate unique challenges effectively (Schein, 2004). Consultants are adept at project management and culturally aware, thriving in diverse and high-pressure environments (Hofstede & Minkov, 2010).

A global talent shortage is further severely impacting the whole economy and even more the consultancy sector. It affects both the quantity and quality of human consultants available. Specialized skills, crucial for addressing complex client needs, are becoming increasingly rare. The scarcity is not only in numbers but most likely in the depth of expertise and industry-specific knowledge. As a result, skilled consultants are stretched thin, leading to potential compromises in offerings quality. Even this general talent gap is pushing the consultancy industry towards innovative solutions, including the integration of advanced technologies like LLM, to supplement missing or inferior human expertise. The challenge therefore is dual: addressing the immediate shortage of skilled consultants and reshaping the future of consultancy to adapt to this evolving LLM landscape.

Consultancy Business Under Siege

In an environment marked by rapid technological advances, the consultancy sector faces a pivotal challenge. The emergence of ChatGPT and comparable Gen AI technologies represents a significant upheaval to traditional consulting business models. Those innovative tools are proficient in automating and accelerating a variety of consultancy tasks, particularly those involving analytical and problem-solving skills, those knowledge work domains where consultants have historically contributed significant value.

A notable shift is even occurring in client preferences. Increasingly, clients are leaning towards AI solutions as opposed to traditional consultancy services. The allure lies in the AI’s ability to offer faster, more cost-effective alternatives for critical business functions such as data analysis, trend forecasting, and decision support. This trend signals a paradigm shift in how clients seek and utilize external consulting expertise, marking the need for a transformative period in the consultancy industry.

The rescue of consultants is to quickly understand how to exploit LLMs. Consultancies will only pace the race if they can in time match their unique expertise and superior cognitive capabilities in strategy and human-centric perspectives to remain competitive and relevant in an evolving business landscape (Dell’Acqua, et al., 2023).

This is only possible because at the current pace of development LLMs are remarkable cognitive tools but lack easy utilization

which makes them best useful and manageable for already highly skilled experts in their respective subject matter domain. While ChatGPT can significantly enhance productivity and problem-solving, its effectiveness is only maximized when used with domain expert knowledge for the topic under consideration and a systematic approach to facilitate turn-talking, iterative interactions and independent verification of its outputs (Mollick, 2023) (Azaria, et al., 2023) (Hannigan, et al., 2023).

This situation opens a window of opportunity to leverage LLM capabilities even under harsh recruiting conditions looking for those talents that are best suited to make effective use of LLMs.

Urgent and Important Questions

With the advent of ChatGPT, numerous critical inquiries arise within the dynamic realm of consultancy: How are LLMs poised to transform the current consulting industry, potentially disrupting conventional revenue models? While some estimate that ‘AI consulting doesn’t require a complete overhaul’ (Maras & Orlic, 2023), it is quite plausible that the reality will be more drastic: Could it be that the entire field of business consulting requires a fundamental overhaul and enhancement?

Experts predicted that Gen AI will give rise to new class of products and services (Boston Consulting Group, 2023) (PricewaterhouseCoopers, 2024). But how will those look like especially for consultancies? What strategies can consult firms adapt to embrace LLMs as a tool rather than competitors to their work? And what are the best practices for integrating LLMs into the consultancy value chain? What competencies will be essential to excel in a consultancy future populated by LLMs?

Such questions highlight the urgent and important need to understand the very key factors redefining today’s consulting business in response to the transformative power of LLMs.

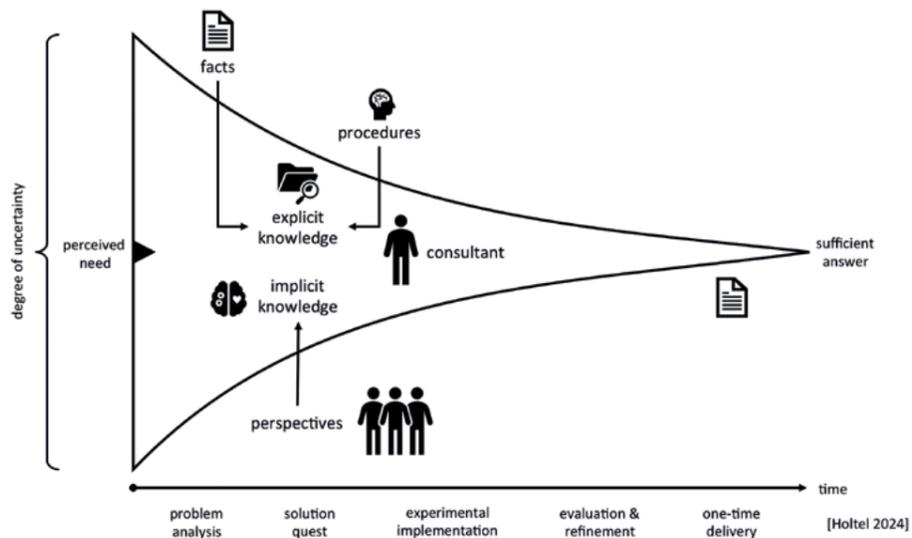


Figure 1: Consulting Cone of Uncertainty (without LLM)

The Consulting Cone of Uncertainty

The inherent unpredictability of severe business problems qualifies consultancies as the challengers of ‘wicked problems’ (Rittel & Webber, 1973). It is their unique selling proposition. They want to reduce a client’s uncertainty about an urgent issue usually on a tight time frame under harsh specific circumstances. Any project follows a ‘cone of uncertainty’ (Chambers, 2018). It runs through a process from a point of ‘perceived need’ to ‘sufficient answer’ (Figure 1). It seems plausible that clients especially request consulting support if they think they cannot resolve their uncertainties by means of internal resources.

A walk through the ‘Consultancy Cone of Uncertainty’ begins with that ‘perceived need’ (Figure 1, left) where a client recognizes a problem or opportunity, leading to a consultation request. As consultants gather information and analyze the situation, the process transitions into the ‘problem analysis’ phase, where more uncertainties are resolved. The ‘solution quest’ phase follows,

with consultants proposing specific ideas for resolution, further significantly reducing uncertainty. The ‘experimental implementation’ phase executes the most promising solution (sometimes only partially resolving the issue), but providing concrete results and further narrowing uncertainties. Finally, the ‘evaluation & refinement’ phase offers a ‘sufficient answer’ to the perceived need (Figure 1, right), with the outcomes of the consultancy efforts clearly expressed and uncertainties at least minimized or vanished. The result of such an interpretation of the consultancy process is a ‘one-time delivery’ as an evidence of consultancy value (Figure 1, down right).

The utmost goal of such a consulting process is to continually decrease the uncertainty for a given topic through finding an answer to a need that sometimes is deeply rooted. Final value has been created if the client accepts that his uncertainty is either eliminated or at least sufficiently diminished.

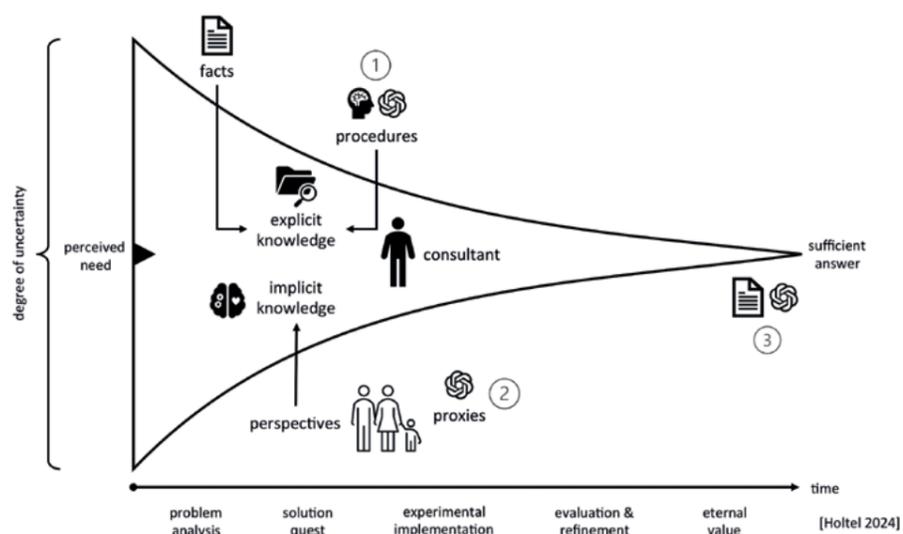


Figure 2: Points of disrupting the consultancy cone of uncertainty (by means of LLM)

While walking through this cone from beginning to end, consultants all the time cope with two types of knowledge: explicit knowledge that can be either declarative (‘facts’) or procedural (‘procedures’) (Figure 1, upper part of the cone) or implicit knowledge (infusing as ‘perspectives’ from humans within the organization involved in the issue under consideration) (Figure 1, lower part of the cone). This dichotomy of implicit and explicit knowledge represents two fundamental different types of human memory and understanding (Anderson, 1996): Declarative knowledge, often referred to as ‘knowing that’, encompasses facts and information that one can consciously recall and articulate. It includes specific data and concepts; for example, knowing the capital of France (Paris) is declarative. Procedural knowledge, or ‘knowing how’, involves skills and procedures that are usually performed unconsciously or without detailed introspection, such as riding a bicycle or typing on a keyboard.

Exceptional consultants exhibit two key strengths: firstly, they have a talent for identifying the most suitable procedural knowledge for a specific task and customizing it effectively (Davis, et al., 2007) (Friga & Raisel, 2001). Secondly, they are highly skilled in gathering and assimilating declarative knowledge, which includes elements like data records, reports, academic papers, interview protocols, or outcomes from meetings, and incorporating this information effectively into the workflow. Now, LLMs open the possibility to reallocate these tasks: LLMs dramatically change the way consultants can adjust and exploit procedural knowledge, and at the same time lowering the bars to feed declarative knowledge into the consulting process. LLMs are particularly adept at transforming the laborious parts of guiding through the deep analysis of those wicked problems that are rooted in a high degree of uncertainty.

1. The Reallocation of Consulting Tasks

As said, consultancies excel in coping with two distinct types of knowledge, that is implicit and explicit knowledge (Figure 2, middle).

Implicit knowledge can be distinguished in either declarative or procedural knowledge (Anderson, 1996). From now on LLM-driven chatbots will take the burden of accompanying the adaption of procedural knowledge into the consulting process (Figure 2, ①). Human consultants benefit from that steady infusion and seamless execution of procedural knowledge (with or without being personally involved) while keeping a focus on collecting and aggregating the declarative knowledge and keep the process flowing. Procedural knowledge is injected

By means of LLMs consultants can excel in two distinct yet interconnected areas: On one hand, they more efficiently process vast amounts of data by means of LLMs, a task traditionally considered low skill but is crucial in knowledge consultancy work. On the other hand, LLMs help to understand the intricate process of problem analysis, merging this with a dedicated burst of human creativity. This unique combination will uncover key insights that might remain hidden under more rigid, methodology-bound approaches.

Where and how will LLMs exactly disrupt the consulting value chain?

LLM Injections into the Consulting Value Chain

In the context of consultancy, the advantages of LLM are not any more vague but rather specific and highly impactful: LLMs will execute so-called ‘prompt pattern’ (White, et al., 2023) that have wisely been chosen by human consultants beforehand and will help them to smoothly guide the infusion of much of such ‘project context’ information that often goes unnoticed today (Figure 2).

More specifically, LLMs offer three possible points for a dramatic consequence for today’s consulting value chain. Each itself can already been considered a paradigm shift while all three together will turbocharge consultancy for those that understand how to leverage their capabilities.

into the consulting process by means of wisely selected ‘prompt pattern’. Those patterns reflect a concept deeply ingrained in the history of software engineering (White, et al., 2023). They offer structured, efficient ways to communicate with an LLM, drastically augmenting a consultant’s ability to leverage such cognitive technology for insightful, nuanced work. The challenge for a consultant will be to become a master of ‘prompt pattern languages’ that represent such knowledge for clearly framed procedural domains.

The implicit knowledge relates to specific organizational characteristics that is either bad or not codified at all. It arrives from personal encounters, information-rich images, is hidden in interview pro-

cedures, emerges from summaries of unconventional group discussions, or reports from workshops. These sources reveal important project knowledge through inference and sophisticated context analysis. Consultants can request a strong stakeholder opinion with nor or only weak interaction with that stakeholder at all. For the first time it is possible to simulate client interviews by means of Gen AI and affected parties without even addressing individuals explicitly (Figure 1, Figure 2, solid vs. outlined people pictograms, ②) (Argyle, et al., 2023). This will open advantages to collect data in the future that was previously hardly available at all or highly inaccurate or speculative. How would that look like?

A study by Gerosa et al. already explored potential of LLMs as ‘substitutes’ for human

subjects in software engineering research. It discusses how AI can automate data collection in various methodologies, such as interviews, focus groups, and surveys, by simulating human interaction and feedback. The study suggested a balanced approach, where AI and human-generated data co-exist, to achieve the most effective research outcomes (Gerosa, et al., 2023). Another study investigated ChatGPT's ability to assist in requirements elicitation processes. The study suggests LLMs potential utility in enhancing the requirement engineering process, demonstrating promising results in generating high-quality requirements and highlights areas needing improvement (Ronanki, et al., 2023).

The LLM capability described above offers the first systematic opportunity to receive and incorporate data from all three levels of the seminal „cultural framework“ introduced by organizational theorist Edgar Schein, namely basic assumptions, values, and artifacts and creations (Schein, 2004).

The further quest to reallocate tasks between humans (infusing considerable facts) and machines (contributing 'how to' knowledge) will harness the unique strengths of future consultants, leading to an outstanding performance of cognitive work (Price, et al., 1982).

2. The Rise of 'Eternal' Value

LLMs open the possibility to create 'perpetual knowledge', that is value emerging from deliverables after they have been handed over to a client (Figure 2, 3). By means of LLMs each single delivery can be 'updated' with minor time and effort by feeding it into an LLM and customize it to

Each of these three strategies represent a significant transformation in the evolving consultancy landscape, which is rapidly progressing. For many consultancy firms, these areas remain largely unexplored. However, the need to adapt to the dynamic capabilities of LLMs, arising from an increasingly diverse and ever-evolving business world, will soon become imperative. The first firm to effectively leverage the potential of LLMs will position itself as a trailblazer in a market shift likely to significantly reshape the consultancy industry.



a task that had not been known at the time the current project ended.

This capability would embed a kind of 'upgrade' mechanism into a one-time delivery which could lead to new marketing and pricing schemes not possible before (e.g. freemium to premium) (paddle, 2020).

Such a fundamental concept signifies a paradigm shift in value creation: Consultancy deliverables are no longer static 'snapshots' at a point in time, but rather never-ending starting points for ongoing, evolving insights that emerge from a given deliverable whenever circumstances might change. LLMs are there to infuse such changes with minimal effort, keeping the value of a deliverable high by just 'upgrading' its content.

The perpetual nature of deliverables allows for continuous updates and reviews with minimal effort, autonomously done through LLMs (partly on the client's side or with further consultancy guidance by teaching prompt pattern). This approach ensures that the solutions and strategies provided remain relevant and highly adaptable to changing conditions, representing a significant advancement in the way knowledge and expertise is deployed and maintained on a client's side.

3. Consultants become Generalists and Problem Experts

No longer confined to the cognitive load of memorizing or facilitating procedural knowledge or large volumes of declarative domain expertise (because LLMs provide an infinite number of assistants doing whatever can or delegated) to machines

or tediously gathering implicit knowledge, consultants must develop a different skill set to remain competitive: They will enhance their expertise to become more adept facilitators, responsible for advancing the consulting process as such; they will transform into sophisticated storytellers, simplifying complex organizational issues for their target audience; they will emerge into highly effective motivators, mentors, and coaches.

Emphasizing that shift from domain-specific specialists to versatile generalists, consultants are poised to evolve into experts of identifying and understanding problems much better than their clients and far less providing ready-made solutions. Consultants transform into well-suited 'combinators' that merge the characteristics of a well-trained generalist with the attitudes and capabilities of a strong problem-analyzer ... – not a solution-expert (Holtel, 2024).

This role transition also underscores the commitment to addressing the talent shortage gap. Hiring should be less on credentials but more on skills to identify those talents that fill the new job profile (McKinsey, 2023). The essential skills for this emerging consultant role include strong critical thinking abilities, widely recognized as one of the most sought-after skills for the future, not merely by chance (World Economic Forum, 2020). But even if those consultant candidates cannot achieve full mastery, by means of LLMs they can demonstrate proficiency at a good level comparable to 'McKinsey on a Shoestring' (Holtel, 2023). LLMs will serve as enhancement tools, boosting the cognitive abilities of consultants in a manner similar to the performance improvement of novice call center agents, as highlighted in the referenced MIT study (Brynjolfsson, et al., 2023).

ABOUT THE KEY VISUAL

Keywords from article for AI prompt: consulting industry, value chain, transformation, artificial intelligence, large language models. – Illustrate these terms together by using a single object. **AI response** (queried 5 times): smart mirror, transformer robot, a stylized bridge, compass, stylized interconnected network or chain made up of different puzzle pieces. **Illustration** Humber Bay Arch Bridge, Toronto, Canada, bridge for pedestrians and cyclists only (Image: builtbymath / pixabay.com)

 **Your feedback to author and editors**
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Stefan Holtel is currently the Curator of Digital Change at PricewaterhouseCoopers Germany. He plays a pivotal role in navigating the digital transformation of an accounting firm, melding technology, sociology, and philosophy. In a 2018 TEDx Talk, he foresaw the emergence and extensive impact of a chatbot akin to ChatGPT, though he was uncertain about witnessing such advancement in his lifetime. This view changed with ChatGPT's unexpected arrival. Now, as a knowledge management expert, he recognizes ChatGPT as the 'Ford Model T' of new knowledge work tools, poised to revolutionize mental labor similarly to how the assembly line transformed manual work. He anticipates a transformative effect on all work processes, potentially reshaping cognitive task landscapes and fundamentally redefining our interaction with machines.

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