Code and Craft: How Generative AI Tools Facilitate Job Crafting in Software Development

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Abstract

The rapid evolution of the software development industry challenges developers to manage their diverse tasks effectively. Traditional assistant tools in software development often fall short of supporting developers efficiently. This paper explores how generative artificial intelligence (GAI) tools, such as Github Copilot or ChatGPT, facilitate job crafting—a process where employees reshape their jobs to meet evolving demands. By integrating GAI tools into workflows, software developers can focus more on creative problem-solving, enhancing job satisfaction, and fostering a more innovative work environment. This study investigates how GAI tools influence task, cognitive, and relational job crafting behaviors among software developers, examining its implications for professional growth and adaptability within the industry. The paper provides insights into the transformative impacts of GAI tools on software development job crafting practices, emphasizing their role in enabling developers to redefine their job functions.

Keywords: AI-assisted Software Engineering, AI-driven Job Crafting, Work Environment Transformation

1. Introduction

Companies are continually engaging in digital transformation and adopting new tools to stay competitive in the future. Novel technologies like software, data, and artificial intelligence (AI) help to drive this process (Bosch & Olsson, 2021). However, it also forces those companies to redesign digital strategies and upskill employees to work with intelligent technology (Ulfsnes et al., 2023).

The software development industry is continually evolving, driven by rapid technological developments and an increasing complexity of projects (Hamid & Ali, 2019). Generative AI (GAI) tools can assist developers in writing and autocompleting code, generating test cases, and various other tasks (Nguyen-Duc et al., 2023). Previous studies have found that GAI tools can contribute to enhanced developer productivity (Li et al., 2024), team collaboration (Ziegler et al., 2022), and improved code quality (Bouschery et al., 2023).

However, rapid changes in agile organizational settings demand a high level of adaptability from professionals (Jenkin et al., 2019). Moreover, developers often face challenges related to workload management, creativity in problem-solving, and the need for ongoing skill enhancement (Treffinger et al., 2023). Traditional information system development (ISD) processes, methods, and tools may not support developers most effectively in managing their job tasks and roles (Matook et al., 2021). Consequently, there is a growing interest in how new technological tools, such as GAI, can help employees redesign their work activities and facilitate job crafting behavior to consequently improve job satisfaction. Job crafting refers to the process by which employees make changes within their job boundaries to improve their work environment (Wrzesniewski & Dutton, 2001).

Traditional ISD methodologies, such as the Waterfall model, typically involve sequential stages like requirements gathering, design, implementation, testing, and maintenance (Berrisford & Wetherbe, 1979). These methodologies have often been criticized for their rigidity and lack of flexibility in

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accommodating iterative changes or integrating advanced tools such as AI-driven assistants (Matook et al., 2021). Due to their conversational nature, GAI tools, such as the OpenAI tool ChatGPT or GitHub Copilot, are expected to help employees craft their work activities. GitHub Copilot leverages advanced machine learning algorithms to provide real-time code suggestions, automate repetitive coding tasks, and offer insights into best practices (e.g. GitHub, 2024). Integrating GitHub Copilot into the software development workflow allows developers to streamline their coding processes (Yetistiren et al., 2022), which can reduce workload and promote job crafting, by enabling greater focus on creative and complex problem-solving activities. This technological advancement has the potential to significantly impact job crafting behaviors, allowing developers to redefine their roles and enhance their work experience and job satisfaction. However, it remains uncertain which specific work activities can be efficiently supported by AI-driven tools in the SD context, and which activities may not benefit from such integration. For example, while effectively automating tasks and making decisions, AI-driven tools can create a dependency that reduces developers' engagement and decision-making skills, leading to the potential loss of expertise (Candrian & Scherer, 2022). Additionally, concerns about the accuracy of AI suggestions and the need for continuous oversight to maintain quality and security might limit the overall effectiveness of these tools in enhancing job crafting behaviors (Barki & Hartwick, 2001). Despite these challenges, AI tools remain a promising option for enhancing the performance of existing ISD project members (Matook et al., 2021).

The possible implications of GAI-enabled assistants (GAI assistants) on job crafting in ISD seem apparent (Rajbhoj et al., 2024). By automating routine tasks, GAI assistants allow developers to allocate more time to activities that require higher levels of creativity and critical thinking Furthermore, the use of Copilot may encourage developers to proactively seek out new learning opportunities and expand their skill sets, contributing to their professional growth and adaptability in a fast-paced industry. In both examples, GAI would allow employees to alter their work, accordingly, to craft their jobs (Demerouti, 2014).

Given these potential benefits, this paper addresses the following research question: RQ: *How does the inclusion of GAI assistants in software development influence employees' job crafting behaviors?* Through this investigation, we aim to provide initial insights into the transformative impact of GAI tools on the software development landscape and their role in reshaping job dynamics for the betterment of developers and the industry. Our research contributes to a better understanding of the job crafting potentials of GAI in the context of software development, enriching existing job crafting research and providing guidelines for practitioners on how to provoke self-initiated changes among their employees.

2. Related Work

2.1. The Use of Generative AI in Software Development

AI is increasingly becoming an integral part of the software development landscape, assisting developers in different tasks such as code generation, comment maintenance, defect resolution, and automated code reviews (Mastropaolo et al., 2021). AI-driven coding tools draw on extensive open-source software datasets and leverage recent advancements in AI to enhance programming efficiency and accuracy. Among these tools, Microsoft's GitHub Copilot, powered by OpenAI's Codex model as well as OpenAI's ChatGPT, stands out significantly (GitHub, 2024). They have been trained on billions of lines of code enabling them. The selection of Copilot and ChatGPT for this study is motivated by their demonstrated capabilities and recent scholarly attention (Mastropaolo et al., 2023). This paper explores GAI assistants' practical applications and impacts on software development and considers their potential to transform traditional ISD practices.

2.2 Job Crafting

To investigate and categorize the potential of using GAI in software development, we draw on the concept of job crafting from occupational psychology (Demerouti, 2014). Job crafting is considered a promising approach to understanding the self-directed behavior of employees who change their work within the boundaries of their job description for self-perceived benefits (Wrzesniewski & Dutton, 2001). Job crafting behaviors are bottom-up processes that employees initiate. This requires, for example, autonomy and support as resources that can be utilized to positively affect the individual and the organization (Lyons, 2008). For the individual, job crafting is associated with positive outcomes such as well-being (Berg et al., 2010), positive affect (van den Heuvel et al., 2015), and work engagement (Petrou et al., 2012). For the organization, job crafting is positively associated with employee fit (Kim et al., 2018) and performance (Petrou et al., 2015). Wrzesniewski and

Dutton (2001) emphasize that contextual factors such as information and communication technology (ICT) can influence employees' perceived opportunities to shape work in the workplace. Similarly, Bakker and Demerouti (2007) suggest that the demands and resources inherent in each job and task can influence job crafting, as suggested by the Job Demands-Resources (JD-R) model (Tims & Bakker, 2010). Recent studies have demonstrated that ICT can significantly influence job crafting behavior (Li et al., 2022; Tarafdar & Saunders, 2022). This means the extent to which employees use technology to thrive in their roles and achieve job satisfaction by emphasizing positive behaviors, structures, and processes (Mukherjee & Dhar, 2023).

Job demands refer to challenging conditions in the workplace that lead to strain, while job resources are seen as contributing to motivation in the workplace (Demerouti, 2014). Job resources are viewed as characteristics that are functional to achieve goals & reduce demands, e.g., autonomy (Lee et al., 2017). Figure 1 shows the relationship between job resources, job demands, and job crafting and their influence on outcomes like work engagement or stress.

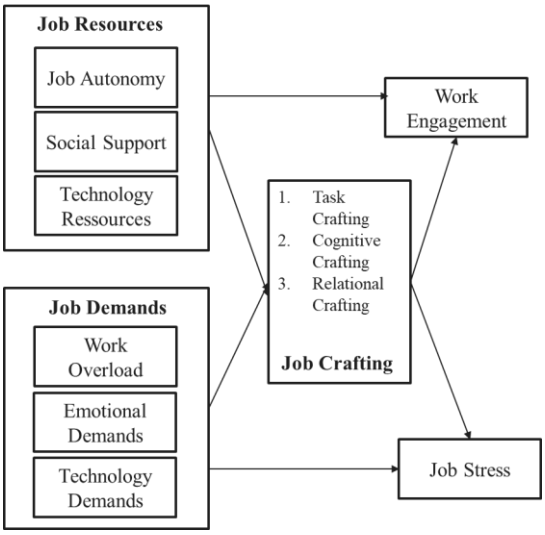

Figure 1. Job demands-resources model in association with job crafting (Lee et al., 2017).

3. Research Approach

To examine job crafting behavior in the software development context, we employed a qualitative research design, focusing on the exploration of job crafting behaviors of IT experts using GitHub Copilot in their software development activities. Following the methodological recommendations by Gioia et al. (2013), our study involved "knowledgeable agents", referring to participants possessing substantial expertise in software development.

Upon completing the expert interviews, which were subsequently transcribed, we engaged in an iterative analysis process to derive conclusive insights. This methodological approach allowed for a nuanced exploration of the experiences and perspectives shared by participants, providing a robust foundation for drawing meaningful conclusions regarding job crafting behaviors of IT experts in software development.

3.1. Data Collection

We conducted semi-structured interviews following Myers and Newman (2007), with 24 IT experts from our case company, "TeleComp". TeleComp, a leading company in the telecommunication and software industry, offers a wide range of services, including B2B, B2C, infrastructure, telecommunication, and software-as-a-service (SaaS). With over 500 IT experts in Europe, TeleComp is a strong representative of its industry, making our findings relevant to other software development companies. The company employs the Scaled Agile Framework (SAFe) (Scaled Agile Framework, 2024), promoting a flexible and adaptive environment that allows employees to quickly respond to changing demands.

Each interview was at least 45 minutes long, held via Microsoft Teams or in person. The interviews were conducted in German or English and automatically transcribed using Microsoft Teams Live Transcription. We carefully reviewed and corrected transcription errors by comparing them with the original audio recordings. Table 1 provides an overview of the interviewed experts and their role within SAFe.

Table 1. Overview of interviewed experts.

ID	SAFe Role of the Interviewee
I01	DevOps Engineer
I02	Release Train Engineer
I03	DevOps Engineer
I04	Leader for Teams Development
I05	DevOps Engineer
I06	DevOps Engineer
I07	Leader for Teams / DevOps Engineer
I08	DevOps Engineer
I09	Product Owner & Platform Architect
I10	Release Train Engineer

I11	Senior DevOps Engineer
I12	Product Manager
I13	Data Governance Manager
I14	STE
I15	DevOps Engineer
I16	Tribe Chief
I17	DevOps Engineer
I18	Head of DevOps@Software
I19	Head of DevOps@Software
I20	Leader for Teams / Product Owner
I21	Leader for Teams (Scrum Manager)/ DevOps Engineer
I22	Agile Coach
I23	System Security Architect/ DevOps Engineer
I24	DevOps Engineer

3.2. Data Analysis

We conducted a detailed qualitative analysis of the interview transcripts, adhering to the standards of credibility, dependability, reliability, and transferability, as described by Merriam and Grenier (2019). In our inductive analysis, we employed axial, and selective coding techniques (Saldana, 2021) based on the guidelines provided by (Strauss & Corbin, 1998). This approach allowed us to systematically organize the data while capturing the nuanced expressions of IT experts in software development regarding their job crafting behaviors. In case of uncertainty, transcripts were coded by an additional author to cast a wider analytic net and provide a "reality check" for each other. Afterward, discrepancies were discussed in terms of the content and the methodology until a consensus for a unified coding was reached, which ensured a unified approach to data interpretation. All interviews and analyses originally in German were translated into English using DeepL and verified by two researchers. to maintain the accuracy of the coding. The use of the program Atlas.ti facilitated thorough transcription and coding.

We integrated job crafting theory into our theoretical coding to examine the inherent changes in the way IT experts adapt their work with tools like GitHub Copilot. This metatheoretical lens helped us identify and articulate the actions and interactions of IT experts engaging in relational, cognitive, and task crafting aspects of work, reshaping how employees approach their daily tasks and interactions. In total, we derived six aggregated dimensions in 15 codes and assigned 94 code segments. Table 2 shows illustrative insights into the interview findings in the four dimensions with exemplary quotes from the interviews.

Table 2. Illustrative interview data examples of the selective coding process.

Dimension	Illustrative Data
Use of GAI as a Job Demand	*"All employees need to be able to use it and I think that requires a certain basic understanding."* (I17)
Use of GAI as a Job Resource	*"locally many are trying to use these tools and technology to eliminate boring tasks, but also to become more efficient from their point of view."* (I16)
Relational Crafting	*"if someone discovers a cool GAI feature, it's simply shared within the team."* (I11)
Cognitive Crafting	*"it [GitHub Copilot] has helped me and improved my performance and also my time management." (I06)*
Task Crafting	*"What has changed is that now I work much more with chatbots than before. Thanks to it [ChatGPT], I am able to quickly consolidate and process information."* (I04)
Job Crafting Outcomes	*"It [GAI], has helped me and improved my performance and also my time management."* (I06)

4. Results

Our analysis reveals that employees' use of GAI tools, such as ChatGPT and GitHub Copilot influences workplace dynamics, which can be divided into different job crafting-related categories: (1) GAI as a job demand (how tools reshape the job demands placed on employees), (2) GAI as job resource (how they help with work), (3) relational crafting (how they alter collaboration within teams), (4) cognitive crafting (how they influence attitudes towards work), and (5) task crafting (how they redefine task execution). Moreover, we look at the mentioned outcomes of job crafting for employees.

4.1 Use of GAI as a Job Demand

The advent of GAI has escalated the demands placed on employees, particularly in effectively understanding and leveraging GAI capabilities. Interviewee 17 (I17) highlighted the necessity for all

employees to have a basic understanding of GAI, emphasizing that while the tools are new and complex, they are essential for modern workflows. This shift necessitates a continuous learning mindset and an openness to evolving technological landscapes. I02 adds the training need for using GAI tools: *"In all areas, the requirements are simplified to a certain extent. But absolutely in all areas, I believe, we are lagging behind. We absolutely need to train people to understand what the limitation of GAI is, to use it efficiently and correctly, and where it might be better not to use AI."*

Moreover, software developers are expected to be more productive and efficient, particularly in routine tasks. This inhibits evolving requirements, focusing on fast responses: *"Things are changing so fast, and certain tasks that we have to perform, we just accept them and use them. That means the requirements for us are really moving towards adaptability and quick responses. But that also potentially brings many unpredictable changes, especially for people who like repetitive tasks"* (I12).

However, other software engineers perceive the heightened demand through GAI rather as an adaptation stage that requires but does not lead to an increase in long-term demand. I23 mentioned that these changing skill requirements will adapt after some time: *"For me, it's also a question of time. I believe that in the next two to three years, not much will change. It will be more of an adoption phase"*. I19 adds that *"all employees must be able to use the AI, [...] And I find it hard to imagine that this would be a major obstacle."* Moreover, I15 expressed initial skepticism about the integration of GAI into their workflow that changed over time: "*Initially, I was skeptical about integrating GAI into my workflow. It took time and practice to optimize the results, as there's rarely a straightforward problem that can solve immediately. At first, I resisted; if obtaining a simple answer required considerable effort, I preferred to search Google myself."* I05 shared persistent concerns regarding the reliability of these tools: "*I wouldn't say that much has changed because the problem at the moment is that I don't fully trust it [GitHub Copilot]."*

4.2 Use of GAI as a Job Resource

GAI assistants can be utilized as a resource to support task execution, leading to motivational job crafting practices. Employees are confident that people *"engage with these technologies, to understand the possibilities and limitations, and to work deeply with them."* (I19). I16 adds that *"you can see that many people locally are trying to use these tools"*. I13 also mentions that it is important to promote openness to technology for the company to progress and stay competitive in the market.

However, other interviewees mentioned that GAI is not yet utilized as a resource efficiently due to organizational structures and cultural aspects, which I06 confirms *"right now we're not effectively using AI."*. I19 remarks that *"[they] can't make much use of the possibilities due to the limitations we've imposed on ourselves."*. I16 emphasizes that *"up to now, nothing groundbreaking has happened that has massively changed the use of GAI in the company. That [mindset] is still missing. "*

In reflecting on GAI's practical application and perceived value, multiple employees articulated the current shortcomings in the effective integration of these tools into their daily work processes. I23 noted, "*I must say, at the moment, very little has changed. Currently, I mainly use our internal ChatGPT, but not yet concretely in the work process. [...] We need to consider in the future what we can do to better utilize these tools*." Similarly, I12 expressed frustration with the developmental stage of the tools, stating, "*It's true, but not much more because we are still developing certain tools. And I don't yet have enough pre-made prompts myself when things get complicated because I really have to work on them.*" Meanwhile, I09 acknowledged a usage gap compared to peers: "*No, I hear how others are using it, and I realize that I'm using it way too little.*" Additionally, the potential for a more tailored tool was suggested by I15 who mentioned, "*I would consider GAI to be a useful tool for me if I could actually get a virtual assistant*." Lastly, five interviewees highlighted the need of diligence when collaborating with GAI assistants (I23, I12, I09, I15, I05). I05 argues: "*It [GitHub Copilot] doesn't help me that much at the moment because I have to check everything again anyway*."

4.3 Relational Crafting

GAI tools have the potential to alter traditional collaboration dynamics between employees. I17 and I11 shared discoveries of GAI functionalities within their teams, respectively, pointing out that GAI changes how team members interact and share knowledge. Three interviewees (I05, I12, I15) brought

up the importance of knowledge sharing about GAI features and use cases with colleagues. In that vein, I15 claims that *"so I won't say within our team we are using a lot of GAI tools or a lot of use from the virtual assistant for anything. But one thing I've noticed for sure is that if there is any such thing, any such tool, or any such idea that comes up in [the company] or outside, we should always try to have a discussion on if and where can we use it in our team."*

Additionally, changes in collaboration patterns have emerged as GAI tools become more integrated into daily workflows. Instead of seeking expert advice from colleagues, employees are increasingly turning to GAI for quick inputs. I13 illustrates this shift in information-seeking behavior: "*Sometimes I also ask for some input to get an idea, where previously I might have gone to a specialist in the team or organization."* In that vein, using GAI is sometimes regarded as easier than getting feedback from a colleague (I17). I07 proposed a stronger effect for younger colleagues, who are more literate in GAI use *"the younger colleagues, are already using it more [...].Instead of briefly talking to the other person for exchange, like, 'Hey, I thought of this, I would do it this way, what do you think?', ChatGPT is asked, and one takes the answer and uses it."*

The integration of GAI tools altered the emotional dynamics of communication between individuals. I16 noted, *"Also, on an emotional level, it takes away a lot of stress*." This comment refers to how GAI maintains a more factual tone in communications, particularly beneficial when discussing sensitive issues like prolonged absences due to mental health problems. This change can lead to more efficient workflows, allowing emotional aspects of team interactions to be handled separately from email communication. Additionally, some developers have expressed that the feeling of being supported '24/7' by GAI tools is a significant benefit. For instance, I17 reported that tools like GitHub Copilot or ChatGPT are *"constantly open"* on their devices, highlighting an ongoing reliance on and integration of these tools into their daily work routines.

4.4 Cognitive Crafting

Cognitive crafting through GAI includes a reinterpretation of one's job role, crafting the sense-making that the job provides. During our interviews, this topic came up in discussing the redistribution of agency and responsibilities. Thereby several employees highlighted significant shifts, such as a shift of task and job requirements: I01 noted that *"certain activities will disappear, which otherwise would have been done by humans or would have been part of your responsibilities."* This shift is further complicated by a lack of critical engagement with GAI outputs, as observed by I07*: "They [colleagues using GAI assistants] can't draw on the knowledge to question it critically; instead, it's simply accepted and sold as a solution."* Moreover, some developers change their interpretation of the job by seeing the utility of GAI, which is useful for additional opinions. I13 expressed a shift in acknowledging anthropomorphic characteristics and calls for *"seeking an additional opinion from GAI, I do see that."*

The shifts in responsibility lead to a redefinition of job identities, particularly within software development. I22 contemplates the broader implications: *"I believe it has the potential to completely change every role as we know it today."* This sentiment is echoed in practical experiences, as a colleague of I22 questioned their place within the work system when GAI comes into play: *"Since the introduction of GitHub Copilot, my colleagues have also been questioning their own job role in the sense of 'why do they still need me here?"* (I24).

4.5 Task Crafting

GAI significantly influences task execution in several areas of the daily work of software development. This includes administrative tasks, ideation or creative tasks, as well as information retrieval tasks and problem-solving tasks. Firstly, GAI supports by assisting with routine tasks such as document generation. This support allows employees to allocate more time to complex problem-solving and strategic planning. I01 and I04 shared how GAI tools have become integral in their daily routine operations, helping them consolidate information quickly and prepare structured documents. Delegating routine tasks to GAI spans a wide range of activities. I16 detailed this shift, saying, "*Whether it's scheduling, where Outlook already incorporates GAI, or text generation, creating slides, drafting initial versions, generating ideas, or tedious emails where one might have spent an hour racking their brain and can now generate a first draft response.*"

Task crafting can also happen for non-routine tasks such as information retrieval "*everything that comes to mind where a change could likely happen is*

in information retrieval" (I18). Further, I01 explained that the way of approaching tasks changed due to the integration of GAI: "*When a new topic comes up, I usually use GAI first instead of Google. I have a prompt that I use, and it gives me an insight into how to get started. From there, I decide whether to continue finding new things through Google or to go deeper into this interview style. This has definitely changed significantly how I approach things*." The interviews outline that employees can devote more time to tasks that they enjoy more, such as engaging in creative or strategic work rather than writing texts or creating presentations. I02 shared, "*I try to let myself be inspired by GAI to find certain solutions*." I16 articulates this shift in task allocation: *"I would say it's cool that I have to do fewer tasks that I don't enjoy"*. Further, I23 discussed how GAI could facilitate the planning of ISD-related workshops: "*For instance, when leading a workshop, I approached it by considering, 'What does ChatGPT offer me? What specific questions do I need to ask, and what issues require follow-up and how should these be addressed?' This helped me establish clear connections and expectations*."

Handling core development tasks might largely be transformed with GAI tools. As I13 illustrates: "*Especially during the analysis phase, and also in implementation, I've increasingly relied on tools for assistance. Previously, I often turned to Google to check if there were existing reports or if someone had published something relevant, whether related to text or code. Now, I integrate this approach more thoroughly into the analysis phase and also during implementation, particularly when writing code.".* I04 pointed out how GAI supports leadership by handling administrative tasks: *"GAI helps to make my work faster and better, and then to spend a bit more time on other topics, which mainly involve human matters."*

Lastly, the integration into internal systems was highlighted by I12, who uses GAI to complement existing knowledge bases: "*I primarily use GAI tools as an initial step to let me explain stuff I don't know yet. However, for internal matters, I often need to consult our wiki [internal knowledge system] because we don't have a company-specific database to interact with. For example, when I need to check a relevant documentation or other resources that are only available in our wiki."*

4.6 Job Crafting Outcomes

Job crafting practices are associated with positive outcomes for the employees working in the software department and for the organization. In our study, we identified job crafting outcomes related to the integration of GAI tools in IT departments. One well-researched outcome of ICT-assisted job crafting on the individual level is employees' occupational well-being**.** An interviewee highlighted this, noting, *"I feel like there could be some changes happening there. Yeah, it does seem to be changing, and generally, there's more flexibility among us. Resilience, that's definitely changing"* (I12).

Our interviewees reported several positive implications following the delegation of routine tasks to GAI tools. For instance, enhanced creativity, as one interviewee noted: *"the use of GAI also creates space for creativity, after calming down or when more time is available."* (I12) and improvement of task and job performance. I04 emphasized the widespread adoption and impact of these technologies: *"due to the fact that practically everyone is using GAI, especially now with GPT, I believe that our quality has improved, so has the effectiveness.*" This increase in efficiency was also emphasized by I15 and I01. Moreover, the integration of GAI in work processes leads to higher job satisfaction and intrinsic motivation. I04 emphasized the motivational uplift these tools have provided: *"I feel much more motivated. [GAI tools] have really helped me to do things better and faster*." I17 expressed a newfound competence and confidence due to this technological support: *"I feel better and believe I can actually fulfill any task that may be required, no matter how complicated it is."*

However, alongside these positive changes, problematic outcomes were identified. A significant issue is the potential over-reliance on GAI, which can contribute to deskilling in certain areas (I24).

On an organizational level, the use of GAI in routine and repetitive tasks is prompting a consolidation of existing job roles, as noted by several of our interviewees. I12 highlighted this trend, stating, "*we know that certain activities in our work process need to be repeated. Those are things that can be best done with artificial intelligence*." Similarly, I22 pointed out the increasing necessity for automation: "*we know that much more will need to be automated."* *T*his consolidation of job roles also introduces significant uncertainties about the future of employment within organizations. I14 expressed this sentiment: *"I believe it's widely recognized that we are on the brink of a significant change. However, the exact impact on specific job roles—determining which will be more necessary and which less so—is still being defined and not fully understood."*

At the same time, the integration of GAI can lead to the creation of new roles, particularly as new

challenges emerge, such as those related to increased demands as, for instance, security. I05 discussed the exciting opportunities in these new fields: *"GAI requires even more security than we have today... The work is also very interesting because everything is new. You can get into new areas that didn't exist before, where there aren't many specialists yet. So, that is very interesting."* Leadership roles are also prone to change using GAI tools. Interviewed leaders reported being able to shift their responsibilities, enabling them to focus more on their employees, such as guiding and managing. This feeling is captured by I04: *"GAI helps to make my work faster and better, and then to spend a bit more time on other topics, which mainly involve human matters."*

5. Discussion

In our analysis of GAI's effects on job crafting within SD departments, we observed a diverse range of experiences among employees. This spectrum of responses highlights GAI's varied impact on job crafting and opens avenues for further research into how these technologies are reshaping work structures.

Our research extends the ISD literature by answering the call for research by Matook et al. (2021) to study the impacts of AI on ISD practices. We apply job crafting as a theoretical lens to study the impact of GAI assistants like GitHub Copilot and ChatGPT on ISD. Our results show that GAI assistants address all three prevalent streams of research, including ISD stakeholders, ISD processes and ISD outputs. Traditional user problems and missing knowledge and user participation (e.g. Barki & Hartwick, 1994) are revisited our task crafting results, whereas relation crafting showcases its impact on typical ISD communication issues among the ISD team (e.g. Hahn & Lee, 2021). We also provide first insights into how task crafting is emerging bottom-up, influencing established ISD practices (Matook et al., 2021). Lastly, our job crafting outcomes provide an employee-oriented dimension, such as job satisfaction, based on the bottom-up emerging job crafting outcomes, adding to the traditional focus on ISD process and product performance.

Moreover, our results indicate that integrating GAI assistants, in our context GitHub Copilot and company internal ChatGPT instantiations, has led to significant transformations for some employees. Some interviewed experts reported a significant change in their work routine, profoundly transforming their capability to perform tasks, suggesting a transformative effect in task crafting. This was shown through the delegation of routine tasks to GAI tools that enabled employees to concentrate on more personally and professionally fulfilling aspects of their work. This is in line with research from Drescher (2017) who argues that task delegation leads to more satisfaction by the delegator. Further, the change in responsibilities supported employees to focus on other parts of their job that are more meaningful to them. This outlines the effect of GAI on cognitive crafting (Wrzesniewski & Dutton, 2001). This strategic shift in responsibility and agency allows employees to focus on roles that are genuinely interesting and integral to their professional identities. Our results indicated a shift in the collaboration between humans but also in exchange with the GAI, i.e., relational crafting. Unlike previous technology, GAI is observed and used as a collaborator being assigned tasks but also used instead of human colleagues. This implies that the way humans collaborate with technology and the way they perceive it is changing with the upcoming GAI with enhanced agentic features. This is currently researched by some works like Jakob et al. (2024) who argue that intelligent agents are becoming co-workers.

Conversely, other employees view these tools as augmentative, enhancing existing processes without significantly altering them. They reported marginal changes in their work processes, for instance, asking ChatGPT instead of googling it.

These diverse experiences underline the need for a nuanced understanding of how GAI impacts different individuals within IT environments. The variation in responses suggests that GAI's role may be deeply contextual, influenced by specific job roles, team dynamics, and organizational culture.

We contribute to the existing literature on ICT-assisted job crafting outcomes. In our study, we identified additional job crafting outcomes related to the integration of GAI tools in IT departments. One well-researched outcome of ICT-assisted job crafting on the individual level is employees' occupational well-being. We were able to confirm prior research that found a positive relation between job crafting and well-being constructs like job satisfaction, reduced stress, and enhanced motivation (e.g., Harju et al., 2021; Tims et al., 2013).

6. Conclusion

In conclusion, we provide initial empirical insights into the effects of GAI assistant-enabled job crafting within the software development domain. We suggest job crafting as a viable theoretical lens to study this phenomenon. Furthermore, we introduce the job crafting perspective to the information system development literature to study how employees in this context perceive and actively craft their jobs with GAI. Our results indicate that GAI tools can improve job

design and employee well-being by delegating routine tasks, allowing focus on more meaningful work. Moreover, GAI assistants provide benefits on peripheral and core development tasks. This integration calls for a revised theoretical framework that includes GAI's role in reshaping tasks and relationships. Practically, this implies that strategic GAI implementation should consider individual differences and offer customized training and support. Additionally, recognizing AI as a collaborator necessitates reevaluating team dynamics to promote effective human-AI partnerships.

The results, while insightful, have limitations, highlighting areas for further research. Methodologically, relying on a sample of participants from one company limits the generalizability and depth of the insights gained. This limits the representation of diverse opinions and experiences, potentially introducing biases. Socially desirable responses could also skew the results (Bergen & Labonté, 2020).

Future research should examine a more diverse sample and the long-term effects of GAI tools on developers' job crafting behavior, including negative effects. It could also be interesting to further explore the reasons behind job crafting facilitated through GAI. Furthermore, examining the effect of task routinization enabled by GAI assistants that, over time, supports job crafting. Moreover, deeper insights into the effectiveness of GAI tools on specific job crafting activities are necessary. For instance, the impact on task crafting seems straightforward, but the changes in relational crafting with GAI perceived as a coworker require further investigation. Another insightful aspect will be to examine the personal characteristics of employees in relation to their use of GAI for job crafting, for instance, by including the Big Five inventory from psychology. These future research directions further outline the necessity to include quantitative methods for insights into how GAI affects employees' job crafting in SD.

7. References

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