The Impact of AI on Small Architecture Firms

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[ABSTRACT]
This study investigates the impact of integrating artificial intelligence (AI) in architectural design practices, focusing on typical firms in Turin, Italy. Building on existing research that predominantly highlights experimental cases in large firms, this study explores the use of AI tools in smaller architectural practices. The integration of generative AI tools throughout the design process was examined through a mixed-methods approach involving a survey and subsequent in-depth interviews with eight selected firms. The findings reveal that while AI enhances efficiency and creativity in initial design phases, its limitations necessitate human oversight, particularly in addressing complex legal and project-specific constraints. This study contributes to the understanding of AI as a nuanced, situated tool in architectural design, highlighting implications for future professional roles and design methodologies.

Keywords: Architectural Design Practices, Artificial Intelligence, Small Firms, Science and Technology Studies

1. INTRODUCTION

The rapid development of artificial intelligence (AI) is opening up possibilities for incorporating these tools into the architectural discipline to support the design process. Initially tested in large firms, AI is rapidly gaining traction in smaller offices due to its accessibility and ease of experimentation. This research explores how the use of architectural practice changes the design process and affects daily operations in architecture offices. Previous studies have focused on integrating AI tools into architecture and identifying specific techniques for application. The research gap pertains to their current application and integration within architectural practice, primarily in small architectural offices, to understand how this new way of working impacts their design processes.

The study was conducted in the Metropolitan City of Turin, Italy, collaborating with the local Chamber of Architects and including professional architects registered with the Chamber. Data were collected through a survey and subsequent in-depth interviews with selected firms, revealing insights into the practical application and impact of AI tools on design processes. The findings highlight several themes that emerge from the intersection of traditional practices and these tools.

First, the paper explores the theoretical background based on previous research on AI and the intersection of architecture and digital technologies. Then, we describe the methodology used to gather data and finally discuss themes such as work redistribution, delegation, limitations, and competencies that have significant potential impacts on architectural practices.

2. THESIS AND BACKGROUND

The research question addressed is how the introduction of AI is transforming design processes. To investigate this transformation, Steinfeld's three categories of change provide a starting point (Steinfeld 2021) to explain the transition from one model of computer assistance to the next. AI's challenge to traditional design authorship and redistribution of tasks, which replaces some roles and creates new ones, demands new knowledge and collaboration among architects and other disciplines.

The interpretation is grounded in a theoretical framework where the agency of a project is shaped by the performative production and exchange of documents, enabling the progressive establishment of the project's legitimacy (Armando and Durbiano 2017). This approach reveals that contingency largely governs architectural design, emerging as a process carried out within a structure of uncertainties (Yaneva 2012). In this context, the architect is not merely implementing preconceived ideas but acts as a 'team player,' navigating negotiations and exchanges with various entities involved (Latour 2007). Incorporating AI tools in the design process, such as image generation software, optimization workflows, and natural language assistants, can be seen as introducing a new entity into the actor-network of the project, reconfiguring relationships and interactions.

AI's influence on architectural design has garnered increasing academic interest, highlighted by conferences such as the International Conference on Computational Design and Robotic Fabrication (Digital Futures 2023b) and journals dedicating special issues to AI and

architecture (Brown 2023; Del Campo 2024). Scholars have explored how intensive automation and machine learning can be integrated at different stages of the design and construction process, either augmenting or replacing human labor. For instance, Chaillou (2022) investigated the historical foundations that led to the rise of AI in architecture and then experimented with various innovative AI applications within the field. Similarly, Del Campo (2024a) and Leach (2022) examined diffusion models that challenge conventional notions of creativity and authorship in design. These studies concentrate on exemplary projects or cutting-edge AI tools in architecture, speculating on their potential future applications while leaving a gap in understanding how these technologies are currently integrated into everyday practices. Building on this, Bernstein (2022), at the prompting of the Royal Institute of British Architects (RIBA), compared the phases of the RIBA Plan of Work and the AIA's Owner-Architect Agreement to identify how AI could streamline everyday activities by automating repetitive tasks or enhancing human efforts. However, concrete examples of how many firms are progressing in this area remain scarce.

Several leading architectural firms have been integrating AI into their workflows for a considerable time, resulting in the development of AI-driven processes and proprietary software applications. At Zaha Hadid Architects, AI is deeply embedded in the design process, from initial image generation using diffusion models (Digital Futures 2023a) to layout optimization through agent-based parametric semiology (Leach 2022, 108–10). Coop Himmelb(l) au designed its own generative AI model, Deep Himmelblau, which produces architectural semantics aligned with the firm's unique formal language (dPrix et al. 2022). MVRDV's NEXT research team created an optimized workflow to design and standardize the facade tile pattern for their Valle project using an evolutionary algorithm (MVRDV 2019). Due to the project's success, MVRDV is now integrating workflows into studio practices to generate preliminary design images using micro-databases from the Valley project (ACC Lectures 2024 2024). Foster + Partners' Applied R+D team is developing predictive models to assist designers, such as a "Natural Language Design Assist" trained on construction code and machine learning tools to analyze visual and spatial connectivity (Holzer 2023).

Alongside large firms using their technical and economic expertise to explore the potential of AI-driven tools and push the boundaries of architectural innovation, other relevant questions arise: What is happening in smaller practices? Are these firms also experimenting with AI-based tools, and if so, with what outcomes? Indeed, smaller architectural firms often face challenges different from those of larger firms regarding goals, resources, expertise, and constraint management. Small to medium firms demonstrate various ways of adapting to changing conditions, as exemplified by research conducted by Judith Blau across New York's landscape of practitioners (Blau 1988). However, recent studies addressing the use of AI in everyday practice remain limited.

A RIBA survey conducted in 2023 involving over 500 members revealed that while 41% of firms had attempted to apply AI in occasional projects, only 6% had consistently integrated it into their work (Royal Institute of British Architects, 2024). Another 2023 survey by The

American Institute of Architects (AIA), to which 183 members responded, indicated that one-fifth of respondents expect to use AI for product research and specifications (The American Institute of Architects, 2023). Despite this emerging trend, detailed research on how AI is integrated into smaller innovative firms remain sparse.

In the broader context of digital technologies in architecture, Loukissas examined architectural practice as co-designed by human and non-human actors, including digital entities. This revealed the use of simulations as a site of negotiation among different actors at the boundary of various disciplines (Loukissas 2012). Cardoso Llach immersed himself in the collaborative digital environment of a large architectural project, critically engaging with data as ethnographic material to expose the "socio-digital" infrastructures underlying contemporary design practices (Cardoso Llach 2015). Yaneva and Armando applied "distant ethnography" to investigate the impact of COVID-19 on architectural firms, documenting potential shifts within the field (Yaneva 2023; Armando and Yaneva 2024). These studies share a common foundation rooted in the well-established tradition of Science and Technology Studies (Yaneva 2018), which also informs this research. This approach aims to grasp the socio-material dimension of architectural practices, portraying architecture as a collective negotiation process involving humans and a wide array of non-human actors, such as materials, models, software, and images. These 'assemblage ethnographies' follow the parameters of 'no hierarchy,' situatedness, attention to detail, and symmetry. By scrutinizing the texture of ordinary life for designers, they produce 'thick descriptions' of the knowledge practices of different participants in the design process (Yaneva 2018).

Despite the growing interest in AI within architecture, most research has focused on large, well-funded architectural firms that can experiment with cutting-edge tools. However, it is equally important to consider how small-sized practices, with their limited resources and expertise, incorporate AI into their daily workflows. Since smaller firms represent a significant portion of architectural practitioners, studying their experiences with AI is crucial for understanding potential transformations in architectural design. This study, therefore, has three primary aims: to investigate how small architectural firms in Turin are experimenting with AI tools, to explore the impact of these tools on their design processes, and to identify the challenges and opportunities AI presents for these practices. The next section outlines how this investigation was conducted, detailing the methods and strategies used to collect and analyze the data.

3. METHODOLOGY

To organize a study on the current use of AI-based software in architectural firms, it was essential to identify a sample of potential firms and architects. Key early decisions included determining the type of empirical analysis to conduct and how to select the sample. For instance, the theoretical framework, research location, participant involvement, and strategic need to limit the scope for a more detailed examination were all considered. A qualitative approach is suitable in a context where AI-based software tools are continuously updated, architectural practices evolve, and the tools are chosen and tested on an individual basis.

The Chamber of Architects is the professional organization representing architects in Turin's metropolitan province. They became a strategic partner in research. Through this partnership, access to their communication platforms and networks served as a key starting point. The aim was to find practitioners who engaged with AI tools at any level. To this end, a survey was designed with input from a sociologist and architectural theorist to ensure that the questions, tone, and format were appropriate. The survey was available online for three months, from late July to mid-September 2023. While the Chamber has around 7,000 members, the number of active event participants is just over 1,000. Using communication channels like Telegram and the institutional newsletter, 74 responses were collected (Figure 1 top).

The survey titled "What is the influence of AI on architectural design?" contains two sections divided by a pivot question. The first part is more general, consisting of ten questions regarding the respondents' information. Following this, a central question is posed: "Is your firm currently utilizing or exploring AI technologies throughout the design phase?" This is a yes or no question that leads to either the end of the survey or the second part. The survey is structured around seven questions, which are both multiple-choice and open-ended. These questions focus on usage time, types of tools adopted, the person experimenting with them, and the design activities performed. The purpose of this survey is to evaluate how and to what extent practitioners in Turin use AI tools and their initial experiences with them to identify firms for further research. Among the 74 responses, 21 indicated they use AI. From these, eight architectural firms were selected for in-depth interviews based on their responses regarding tool usage, availability for follow-up contact, and answers to key questions about tools, design activity, and reflections on AI (Figure 1 bottom). The interviews aimed to assess the experimental use of AI-based tools in some design practices. They took place between October and January, involving one representative from each firm for one to two hours. The interviews were conducted in person and in Italian, using semi-structured, open-ended questions to obtain detailed accounts of individual experiences. Practitioners were asked about their firsthand experiences with the tools, followed by a thorough discussion of the project representative of that experience. Interviewed practitioners explained the depth of their experiments with these tools and their usual design activities, specifying the criteria they used to observe changes in their activities. The interviews sought to gain a comprehensive understanding of this experience and to build upon it by allowing themes and topics to emerge that would connect architectural theory to potential shifts in practices through AI adoption.

3.1 Reliability and Validity

This study is contextualized, not statistical. The interview transcripts were translated into English to preserve their meaning, and all identifying information was changed to protect participants' identities.

The precision with which the findings reflect the data ensures the study's validity. Small firms comprised 68.9% of survey responses, accurately representing the sampled group. The interviews are contextually relevant because they demonstrate how small architectural firms are integrating AI into their practices. Direct quotations from the interviews further anchor the

results in real experiences. However, the findings cannot be fully generalized, as they may not apply to larger practices or different contexts.

The 74 participants' survey replies are consistent due to standardized questions (e.g., which AI tools are used in specific applications). Additionally, common themes (e.g., efficiency, skills, and constraints) were explored through the interviews, which describe the research method's consistency.

4. RESULTS

4.1 Quantitative Analysis

The majority (68.9%) of the 74 architectural practices surveyed work in small firms with 1 to 5 employees; smaller firms dominate the sample (Figure 2). The study revealed that 71.6% of respondents were not using or experimenting with AI tools in design, while 28.4% had started using and integrating them (Figure 3). Most of these users have only utilized these tools briefly. This result suggests that while AI is gradually being adopted, most practitioners are still in the early stages of adoption.

Among the 21 respondents using AI tools in their design processes, ChatGPT is the most popular, with 71.4% of participants strongly preferring text-based AI applications. In contrast, more specialized AI platforms, such as Midjourney (47.6%) and DALL-E (38.1%), show significant adoption (Figure 4).

Respondents were also asked to provide examples of how AI tools had helped them. The most common application was inspiration or concept development (71.4%), which highlights AI's growing influence in the early stages of creative imagination. Additionally, 57.1% of respondents use text production for project reports and graphic rendering, demonstrating AI's effectiveness in document and visual content creation. Modeling alternative designs is also common (42.9%), but more advanced applications such as generative design (23.8%) and data analysis (19%) are less popular (Figure 5).

The sample's positive responses to adopting AI tools were used to identify the most interesting firms to interview.

4.2. Qualitative Analysis

The qualitative research focused on eight interviews, which were transcribed and analyzed to identify recurring codes: proficiency with the tool, time reduction, quality and responsibility, prompt elaboration, feasibility, more projects, quantity, verification, and in-depth study. By analyzing how these codes relate, some patterns emerged, and macro themes were recognized: work redistribution, delegation, limits of AI tools, and competencies.

Many architects remarked that AI accelerates early stages, such as concept creation and rendering, freeing up time for other activities. However, they highlighted various skills, constraints, and the changing work environment. AI-generated visuals and mood boards are commonly utilized in client presentations, and Architect E notes that these tools frequently spark new creative ideas. However, the architect's function and authorship have been called into question. A new skill set is also forming, with Architect G emphasizing the significance of understanding AI prompts, which could lead to new vocations.

The analysis shows that while AI boosts efficiency and creativity, architects should still evaluate and adjust AI outputs to meet project-specific requirements. The interviews emphasize the importance of balancing technological and architectural skills to fully leverage AI's potential in this industry.

5. DISCUSSION

This section discusses the results of the interview process, revealing several themes. Practitioners reported experiences like reduced task completion time, improved client interactions, and fewer bureaucratic issues, especially in written communication. However, they also expressed concerns about using these tools, facing challenges to their specific expertise, and excitement about the potential opening of previously unforeseen opportunities.

The analysis of transcribed interviews identified recurring practices and concepts shared among professionals. Four themes emerged from analyzing relevant citations extracted from the interviews: *work redistribution*, *delegation*, *competencies*, and *limits*.

5.1. Work Redistribution

The first theme concerns the redistribution of work facilitated by AI tools. The testimonies of the architects involved in this study revealed a tendency to prioritize speed during the initial phases of the design process. Clients often seek preliminary ideas to visualize the project's direction. However, generating ideas and visual outputs can be time-consuming. Therefore, interviewees stated that they used AI to address these initial project phases, allowing for quicker discussions with the client while significantly reducing the time spent producing drawings and renderings. Architect A stated, "The results of AI tools were decent. To achieve the same outcome in the past, we would have had to work for fifteen days, but instead, we only needed two. Regarding assistance and collaboration, ArchiCAD AI Visualizer functions well" (Architect A, personal communication, October 26, 2023).

Instead of spending weeks developing a 3D model and renderings that are likely to undergo significant changes in subsequent phases, architects can now achieve a level of image clarity comparable to what could have been reached after weeks of work in the past. Architect B suggests: "The advantage is that it gives us more time to plan. We no longer have to waste time using a program that takes three hours to make a render when we can do it in five minutes. AI gives us more time to do our job" (Architect B, personal communication, November 7, 2023).

Now, it is even possible to produce multiple design options to present to clients, enabling the architect to focus more on the concept phase of the project and less on traditional image production. Architect C reports, "The time saved, I use for other jobs. There is more quality in what is proposed. Waste of energy no longer means the quality of the final result" (Architect C, personal communication, November 27, 2023).

This initial increase in speed allows architects to allocate time differently. Testimonies showed that the time gained is utilized in various ways; some prefer to invest it in the strategic and conceptual aspects of the project, while others choose to focus on different projects, enhancing office productivity.

5.2 Delegation

What is the Architect willing to delegate to AI Tools? This investigation highlighted using two specific types of tools: image generators like Midjourney and text generators like ChatGPT. Image generation tools, such as Midjourney and StableDiffusion, are used to create mood boards and project images during the initial design phase. This approach replaces traditional searches for design references on archive platforms or architectural firm websites. Architects find this method lengthy and less effective concerning the inspirations they present to clients. Architect E states: "Instead of conducting document research by project types, [we tell the tool], 'this is the imagery, and I want to achieve that.' This (insert the antecedent here) works for us with our working method for private clients where, in a preliminary phase, we create reference mood boards [...] that can be supportive" (Architect E, personal communication, November 11, 2023). Architect F asserts that the mood boards created with AI not only help visualize a preliminary idea but also stimulate further creative insights that can be integrated into the final project: "I have an idea in my head. I ask the AI [tool] to try to give me a visualization of that idea. However, that visualization inspires me to find something else I can ground in a concrete project" (Architect F, personal communication, October 31, 2023) (Figure 6).

Other designers also emphasize how AI speeds up the production of specific deliverables while stimulating architects' creativity, offering new perspectives and solutions that can be integrated into the final design. This is the case for Architect B, who designed a family tomb by exploiting the suggestions provided by image generation tools: "[...] when the client comes to you with proposals or asks for solutions, obviously, as an architect/creative, you have a certain response, right? And so, you put this response into the software, and it gives you something else that allows you to have other mental images and proposals, right? So, it is certainly a stimulus [...]" (Architect B, personal communication, November 7, 2023) (Figure 7).

When it comes to image generation, many professionals question the authorship of the products created by these tools. However, text generation seems to raise fewer concerns. Architect E states: "Probably because it is not our job to write, we cut ourselves more slack [...] we use this tool more lightly, with more freedom of spirit [...]" (Architect E, personal communication, November 11, 2023). Studio H used ChatGPT to prepare a presentation portfolio for design competitions, aligning their text with the text provided by the organizing entity, which listed the requirements and selection criteria. Architect E adds, "We also used it for applications for competitions abroad. We use it as somewhat of an interlocutor [...] By providing the information for each firm, we [used ChatGPT to] create a complete bio for everyone, and we asked it to draft a presentation text for the group and connect it to the competition's requirements" (Architect E, personal communication, November 11, 2023) (Figure 8).

Other professionals have attempted to use it for drafting specific technical documents, asking the tool to organize the regulatory framework behind each project or generate texts with consistent structure and information across projects – for example, to draft professional fees. Architect F states: "I used it for the basic things I get bored doing: professional fees. It is always the same; the numbers change, but the preliminary project description is four lines, just like for

the executive project, [...] And so one day I said, 'Let's leave this to ChatGPT'" (Architect F, personal communication, October 31, 2023).

In other cases, AI quickly created informative texts for client reports or presentations. This speed reduces the risk of plagiarism and eliminates the need to invest hours in research and synthesis beforehand. There has also been a shift from consulting various websites to using tools like ChatGPT to quickly gain knowledge about topics, site-specific regulations, and design themes that may only be needed for one project. Architect C explains, "To understand chocolate-related issues [industry production, I used ChatGPT for insights. You have to] always filter, but since it is a general concept [...] How useful can knowledge of a chocolatier be? I will not be doing this all the time" (Architect C, personal communication, November 27, 2023).

Finally, AI can act as an emotional mediator in distance communications, such as emails and messages. This ability is beneficial for smoothing out harsh tones when managing certain working relationships, as Architect C points out: "To smooth out the emotional component, sometimes I use ChatGPT to write a formal letter or a speech with the right tone and politeness" (Architect C, personal communication, November 27, 2023).

5.3. Limits of AI tools

The interviews highlighted various ways AI tools are integrated into design practice. However, interviewees also pointed out some limitations, revealing a clear boundary between the architect's activities and the capabilities of these tools.

Some architects attempted to use tools like ChatGPT to write technical reports and verify specific facts about Italian legislation in the construction sector. However, many interviewees indicated that the tool often failed to provide accurate or valuable information. Human intervention remains necessary to fact-check the results produced by the tool or to obtain answers that AI cannot provide. Architect C's testimony highlights this knowledge gap within the tool: "I have noticed that you always need to filter the content returned from ChatGPT; a large part of the Italian legislation is not processed" (Architect C, personal communication, November 27, 2023).

Interviewees also noted that AI tools cannot recognize and apply specific design constraints to a project. If an architect provides AI with an image along with a set of restrictions to follow, the tool cannot adhere to all these parameters, resulting in limited control over the outcome. This limitation could pose issues, especially when working with existing buildings that have many constraints to consider. Architect B pointed out, "We created the final renderings using the old way. […] Let's say that by working in three dimensions with layers, we gave exactly all the directions: internally, this part must be in plaster, then the tombstones in Carrara marble. We wanted to give the right texture to the floor, something that cannot be done with AI - perhaps one day we will be able to dominate the object, but at this stage, it is not good enough to be used at the executive stage of the project" (Architect B, personal communication, November 7, 2023).

The tools alone are not enough to eliminate the architect's presence from the process. Indeed, many interviewees, such as Architect D, pointed out that these tools do not meet

construction and technical feasibility requirements: "Then you must also have the ability to say, can I do it? How much does it cost? Is it feasible? [...]" (Architect D, personal communication, November 17, 2023). They emphasized that the architect's skill in analyzing and refining AI-generated results remains essential.

5.4 Competencies

The analysis allowed reflection on a final question: What skills does a designer need to integrate these tools into their practice effectively? Architects have emphasized the importance of providing the correct input to the tool and even hypothesized the emergence of a new profession: the "prompt editor" for architecture. A deep knowledge of the application field is indispensable for properly interrogating the tool. Architect G explains: "There will be new jobs that we cannot even imagine now, that is, the job of the engineer or the prompt editor [...] if you are an excellent prompt editor who can do anything with a prompt, you have a job that did not exist until yesterday and potentially has great value [...]" (Architect G, personal communication, November 14, 2023).

If the ability to construct a compelling prompt involves implementing skills to obtain a final product from the tool, the most exciting aspects emerge when considering the actions required from the designer once AI generates a result.

For example, Architect F emphasizes that the solutions generated by AI often involve naive choices, particularly when considering the feasibility of the proposals. He recounts, "Last Sunday, I was working on an installation for an interior space, and I made these images. The problem is that you have these concepts to show the client, and the client says, "Cool, I want it like this." And then who makes it?" (Architect F, personal communication, October 31, 2023). This problem highlights the need for a critical approach to the tools' output, made possible only by implementing the designer's specific skills. Consequently, many AI-generated solutions may not be feasible in technical, economic, or regulatory terms, requiring the designer to rework and correct them.

Architect D's experience demonstrates that using AI tools in design practice requires specific skills to fact-check results. This necessity creates new specialized roles within the architectural field: "If you do not have great experience in design and construction [...] you show the client something that is not achievable [...] so [you must first filter and then show [the final result to them" (Architect D, personal communication, November 17, 2023).

AI-based tools still lack the autonomy to proceed unsupervised. In all the experiences recounted so far, they have been used in conjunction with the architect's supervision. The architect maintains the expertise to discern which results are suitable for use and which must be disregarded.

5.5 Limitations and Recommendations for Future Studies

As expected in the STS methodological definition, this research is contextually limited and focuses on smaller architectural firms in Turin, Italy, examining the application of specific AI tools. The resulting sample size and non-statistical nature restrict its applicability to the setting. Future studies should broaden the geographic context, include a larger sample size, and

investigate a wider variety of AI tools to better represent diverse practices. Additionally, a multidisciplinary analysis would address ethical issues and provide a comprehensive understanding of AI's impact on architectural design.

6. CONCLUSION

In the broader architectural discourse, investigating the integration of AI tools in smaller architectural practices can offer a critical understanding of the issues these tools obscure. Therefore, the importance of this contextual study is to illuminate how these tools influence the daily activities of architects.

Integrating AI technologies into architectural practice reveals a dual narrative: one of increased productivity and creative stimulation, alongside another highlighting the ongoing need for human supervision and involvement. While AI introduces improvements, it also presents drawbacks, particularly regarding its inability to fully comprehend complex legal systems or meet project constraints. These limitations necessitate human involvement for fact-checking and feasibility analysis. Nonetheless, AI tools have carved a niche even within smaller architectural practices. Practitioners of all sizes have tested and engaged with these tools, presenting intriguing examples of applications that spark research questions once more about redefining the role of architects (Armando and Durbiano 2017). Within the theoretical framework of this research, tools like these play a significant role in reshaping how architects relate to their tools.

The survey reveals that only a few practitioners have the time and resources necessary for experimentation, indicating that integrating AI tools into design practices is neither straightforward nor readily achievable. What emerged through the interviews is that in smaller practices, such as those in Turin, AI prompts efficiency and enables architects to focus on strategy-oriented tasks and client interactions. Moreover, despite the benefits, architects must still rely on their general and local expertise to interpret AI-generated outputs. This expertise is crucial for avoiding errors and the resulting time inefficiencies. This issue suggests that AI tools still face limitations, particularly in adapting to local, legal, and technical constraints, underscoring their role as aids rather than autonomous decision-makers. Furthermore, architects' local and contingent expertise is still necessary, and they should further expand their skills and knowledge to leverage these tools effectively.

Indeed, large-scale practices are protagonists in exploring how AI can reshape design processes, yet their operating conditions are not the norm in the broader architectural landscape. Most architects work in smaller firms, where resources are much more limited and the ability to integrate AI tools is constrained. While understanding how AI impacts large firms is important, it is equally crucial to investigate whether and how these tools are adopted by smaller counterparts. By studying the experiences of these smaller firms, more practical insights can be gained into the everyday realities of AI adoption and the associated challenges. This shift in focus could inform the development of AI tools and training initiatives tailored to architects' specific needs and constraints, ensuring that AI becomes a resource that advances the architectural profession at all levels.

Datasets
This research relies on proprietary datasets that are not freely accessible, specifically the survey and interview data. The surveys and interviews were conducted in Italian, and the interview transcripts were transcribed verbatim. The content derived from these sources has been translated into English with the necessary accuracy to preserve the original meaning and nuances. These datasets provide the foundational data for this study's analysis and findings as unpublished material and have been reported in the reference list.

Data Availability Statement
The survey data was collected in compliance with Art. 13 of Regulation (EU) No. 2016/679 ("GDPR 2016/679"). The materials collected from the interviews were used for academic purposes with the consent of each practitioner. If this work is accepted for publication, further permission from the interviewees will be sought to disclose their names. Their right to anonymity was prioritized. The data supporting the results or analyses presented in the paper can be made available upon reasonable request, reflecting our commitment to ethical research practices and data privacy.

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