Collaboration, Invisible Work, and the Costs of Macrotask Freelancing

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Online labour platforms promise efficient, low-friction matching of workers with clients at scale and on-demand. Prior studies on Upwork have shown that the combination of specialized knowledge and expertise, high autonomy, and extent of client-worker engagement makes macrotasks a unique category of 'on-demand' work. However, there is a need to unpack the nature of macrotask work from the freelancers' perspective. Based on a qualitative study of 21 freelancers on Upwork, this paper fills this important gap by delineating how freelancers reason about accomplishing macrotasks, their interaction with clients, the key challenges that they face in various stages of the work process, and the strategies they devise to mitigate the costs and overhead. This paper shows that freelancers perceive accomplishing macrotasks as a collaborative achievement with the client. It also demonstrates that the skill-intensive nature of tasks implies that matching freelancer with the task/client is of enormous importance. It describes three programmatic solutions that the platform offers to facilitate the matching process along with their benefits and limitations. It, then, shows how freelancers seek to minimize the costs and work associated with matching and collaboration through repeat hiring along the benefits they result in. Lastly, the paper highlights how the same set of core issues is mirrored for both the freelancer and client sides of the market, which need to be addressed in order to enhance the ease and effectiveness of client-freelancer collaboration.

CCS Concepts: • **Human-centered Computing** → **Empirical studies in HCI**

Additional Key Words and Phrases: Gig Economy; Freelance Economy; On-demand Labour; Knowledge Work; Invisible Work; Collaboration; Macrotask Work

1 INTRODUCTION

The promise of on-demand labour platforms is that they offer those who need to get work done a low-friction, low-cost, and always-available labour pool. Conversely, they offer workers a

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centralized location to find work. The tasks that can be done on-demand can be broadly classified into microtasks and macrotasks. The most well-known and well-studied microtask platform is Amazon Mechanical Turk (MTurk), where typical tasks include image tagging, audio transcription, or translation. Alternately, companies expect their employees to use macrotask platforms like Upwork to help get 'non-core' tasks done so that they have more time and capacities to focus on their 'core job' [12, 20]. Typical tasks on Upwork include graphic design, content creation, and software development [7, 14, 15]. 'Clients', who post the tasks on Upwork, are often employees working at organisations that do not have the necessary skill in-house or have an unexpected surge in workload with which they need assistance in coping [10, 20]. Many macrotasks require specific training, skills, knowledge, and experience and the quality of the output itself may be subjectively evaluated by the client.

With the rise of the on-demand economy, which McKinsey estimates as accounting for two percent of global GDP by 2025 [21], more and more work is expected to come through online labour platforms, including macrotask platforms like Upwork. Since this type of work will be an important part of the future of work, we conducted a qualitative study of 21 experienced freelancers using Upwork, encompassing diverse skills, domains, and clientele. We conducted our study with freelancers for two reasons. First, we need an in-depth understanding of how work gets done in this context before we analyse how outcomes can be improved for clients and freelancers. Second, we wish to build on and extend the contributions from prior work which has examined Upwork, focusing on the platform-freelancer dyad [7, 14, 15, 37] and from the client perspective [20] by unpacking the nature of macrotask work from the freelancers' perspective. We provide an in-depth account of how freelancers reason about accomplishing macrotasks in practice, the key challenges they encounter in this regard, the transaction costs and overhead they negotiate in the process of finding work, and their strategies to mitigate them. This paper also unpacks the key imperatives that shape the need for client-freelancer collaboration over the course of specific tasks and longer periods as well as the associated benefits. Lastly, we show that the same set of core issues with respect to various aspects of work, namely – task definition, pay determination, the collaboration process, the process of matching freelancers with clients/tasks, awareness of work context, and evaluation post-task completion – are *mirrored* for both client and freelancer sides of the market. We argue that it is important for these issues to be tackled in order to improve the effectiveness of client-freelancer collaboration and thereby outcomes. We organize our findings around three research questions.

The first research question that this work addresses is: How do online freelancers reason about accomplishing macrotasks in practice? Macrotasks are often complex, knowledge- and skill-intensive in nature. This, in turn, necessitates high-touch interaction between the clients and freelancers. From this key observation stems a major consequence for on-demand work as well as how clients and freelancers get macrotasks done in practice. Our study shows that freelancers perceive accomplishing the task as a collaborative achievement with clients. Given that they are 'outsiders' to the client's team/organisation and work by themselves, coupled with the fact that the client needs to approve the final output, freelancers expect a hands-on involvement from the client in getting the task done. This creates a tension as clients perceive managing freelancers as an overhead [20]. Our study delineates the key challenges that freelancers experience in this regard as well as the strategies they devise in response.

Since accomplishing macrotasks requires expertise and skills in niche areas, the process of matching freelancers with the client/task assumes paramount importance, which motivates our second research question: How does platform design shape the process of matching freelancers

with clients/tasks? What are the implications for the power relations between freelancers and clients? The skill-intensive nature of the tasks implies that freelancers are not eligible for just any available task on the platform and, consequently, incur sunk costs and put in non-trivial work to find work. This is mirrored for the clients too, for whom finding the right freelancer for the task is a major challenge in itself [20]. As the platform mediating between the two parties, it is in Upwork's interest too to facilitate the matching process in a low-cost, low-friction manner. In this context, it provides three programmatic solutions to reduce the transaction costs, namely: the reputation system, "connects", and "talent clouds". We analyse the key benefits and limitations of each of these solutions, along with the importance of the reputation system in shaping freelancers' job prospects as well as its impact on the power relations between clients and freelancers.

It is well established that on-demand workers across platforms endure transaction costs and overhead when searching for work and in the process of getting work done [1, 4, 10, 18, 19, 22, 30, 38, 42]. Thus, our third research question is: What strategies do freelancers adopt to reduce the transaction costs and the overall precarity at work? We show that freelancers seek to do this by trying to get repeatedly hired. Repeat hiring reduces the costs and effort involved in finding work for freelancers as *'work' finds them instead*. It further mitigates the precarity of on-demand work by enabling a more reliable, steady income stream. Importantly, it facilitates sharing of tacit knowledge between the client and the freelancer over time, thus enabling freelancers to develop awareness about the broader work context on the client's side and collaborate more effectively in getting the tasks done. This, in turn, makes it more feasible for clients too to hire the same freelancer(s) time and again.

The paper is organized as follows. We first explore prior literature to see how macrotasks fits into the online freelancing landscape. Prior studies on Upwork have primarily investigated the platform-freelancer dyad [7, 14, 15, 37] as opposed to the client-freelancer dyad (with exception of [20]). We build on and extend this body of research by studying the client-freelancer dyad in terms of the work involved in macrotasking from the freelancer perspective. We describe our methodology and participants' background in section 3. We, then, present our findings in section 4, which is broadly divided into: how macrotasks are accomplished in practice, the process matching workers with tasks/clients, and the motivations and experiences of repeat hiring for freelancers. In our discussion in section 5, we explore how studying the collaboration between clients and freelancers that is integral to accomplishing macrotasks could help inform the future of work. In addition to contributing to scientific understanding, the insights shared from the worker's perspective could help both skilled knowledge and creative workers new to online macrotask freelancing understand what it takes to be a successful freelancer online, and also help clients (large enterprises, small businesses, and start-ups alike) understand how to collaborate with skilled freelancers across the globe more effectively.

2 RELATED WORK

2.1 Invisible Work and Remote Collaboration

What is understood as 'work' in a given context is relational i.e., it depends on who is viewing and defining the activity at hand and who is performing the activity [35], and thus on considerations such as what is classified as 'work' in formal descriptions of work versus what is excluded or rendered 'invisible' [6, 26, 34, 36, 41]. Star and Strauss use the term 'visible' and 'invisible' work in relation to the kinds of effort that get noticed and recognized as 'work' versus those that do not [35]. Suchman further highlights a tendency of 'work' often getting stereotyped as the distance

between those engaged in performing it and those defining it increases [36], which in turn, creates problems when developing technologies for work. Ignoring invisible work often results in the system not being used (as intended) or furthering inequities [11]. This has been documented across various offline and online contexts such as healthcare [6, 39, 41], software development [3, 5, 24, 25], and microtasking [10, 13, 22]. Even in contexts where systems do acknowledge and support work, new infrastructures have been shown to transform the very nature of 'work' and what is classified as 'work' [6]. For instance, remote collaboration has been shown to result in increased unpaid time and effort for software developers, thus blurring the difference between 'work' and 'articulation work' [3]. This creates tensions because of differences in what workers understand to be part of their 'work' and 'extra work' (which is not acknowledged, let alone paid) that they are required to perform for successful remote collaboration [25].

Prior studies in CSCW on outsourcing in the context of software development have made important contributions towards building our understandings of remote collaboration and the implications of 'invisible work'. For example, outsourcing has been shown to result in 'extra work' for clients in terms of specifying the software development tasks that the vendor is expected to accomplish, the effort and time needed to communicate with remote collaborators frequently, and creating detailed documentation on methods, processes and the like [5, 25]. This challenge is *mirrored* for the offshore team located in countries like India whose work is critically dependent on the contextual information (such as domain knowledge and business requirements) about the task that they are expected to accomplish [24]. This, in turn, creates dependencies on the clients to provide the requisite information to accomplish the tasks [8]. Part of what makes remote collaboration challenging in this setup is the lack of visibility on the work done by the offshore team in India for the client in Europe. Such lack of visibility into how work is actually accomplished in practice has, in fact, been shown to result in project failure [24]. Visibility into work progression and deliverables has, therefore, been argued to enable a better understanding of what is required for remote collaboration in a global context [25]. Furthermore, getting to know one's remote collaborators and establishing rapport with them has been shown to change the perspectives of workers (for example, from viewing instant messaging notifications from remote colleagues as 'interruptions' to work to them becoming an integral part of work) and thus positively impact the effectiveness of collaboration [3].

In this paper, we will show that *the client-freelancer collaboration in accomplishing macrotasks is a type of invisible work in itself.* More specifically, this work is (and remains) visible mostly to the client and the freelancer working on a task, and whatever work or collaborative activity takes place via the platform (for instance, communication, file sharing, worklog, payment etc.) enables some visibility of this work to the platform. Otherwise, this collaboration and the work involved remains mostly invisible to everyone else including client's team members and organisation. So, the 'invisible work' done here goes beyond things like 'the work to find work' for freelancers [38] or 'the work to hire the right talent for the task' for clients [20]. It runs throughout the different stages of the task completion process (which we analyse in Table 2 in section 5).

2.2 On-demand Work and Online Freelance Platforms

The growth of online freelance platforms is propelled by several interrelated factors such as the proliferation of niche areas of expertise, a trend towards 'taskification' of work, companies looking to hire fewer full-time workers in favour of project- and task-oriented contractual hiring, and the availability of necessary digital infrastructure to match clients with freelancers online efficiently and at scale [9]. 'Work' and 'workers', in this context, become increasingly less defined by an

affiliation with an organization or employer, identification with a particular occupation, or a specific workplace. Work is task-oriented, and the individual's expertise is valued over past organizational or educational credentials [7]. The 'taskification' of work also means that labour relations are increasingly transaction-based, leading to the worker doing more and more unpaid labour to sustain their livelihoods [7, 15]. Whilst the promise of 'freedom and flexibility' has been a major draw for workers to take up 'on-demand' work, it has also been shown to result in tensions between workers' need for autonomy and platforms' need for control [19, 42]. Others argue that this paradox is itself a result of platforms' desire to control labour whilst stopping short of considering them 'employees' or taking responsibility for any of the associated overhead [30]. That said, prior studies have shown that certain mechanisms that Upwork provides freelancers in terms of creating a portfolio, the freedom to reject tasks, wage negotiation, and evaluating clients enable freelancers to enjoy higher degrees of autonomy and control [14, 15, 37]. Prior studies have thus shown that the combination of specialized knowledge and expertise, skill in niche areas, high autonomy, and extent of client-worker engagement makes macrotasks a unique category of 'on-demand' work [4, 15, 17, 20], thus warranting an examination in its own right.

In their analysis of different types of 'on-demand' work, Alkhatib et al. delineate the characteristics of these various types that make them similar to as well as distinguish them from historical piecework [2]. For instance, they argue that, in case of both 'on-demand' work and piecework, 'work' is decomposed into smaller, discrete tasks with expectation that it can be accomplished independently i.e., without collaboration. In this paper, we will not only show how this assumption extends to the case of macrotasks as well, but also the key problems that stem from such an assumption from the freelancers' perspective and how they negotiate them [specifically in sections 4.1.1, 4.1.3, and 4.3]. Alkhatib et al. further contend that, in case of both on-demand work and piecework, the payment is often made for output, rather than for time [2]. This is a key area where freelancers performing macrotasks on Upwork enjoy a higher degree of freedom and flexibility. For instance, neither the platform nor the client unilaterally determines the pay in this context [17, 20, 37]. The platform allows both parties to negotiate the pay. In our Findings, we extend these insights to show how freelancers not only exercise the freedom to choose between being paid by the hour versus per task, but also develop sophisticated strategies to minimize unpaid or undercompensated work and optimize their earnings by basing their pay rates on the nature of the task.

Regarding the very nature of 'work' and how it lends itself to decomposition into smaller tasks (a key characteristic of piecework), Alkhatib et al. argue that complex, knowledge-intensive, and creative work is inherently heterogeneous and difficult to decompose [2]. The underlying reasoning is that, when the cognitive effort involved in understanding what the task is outweighs the effort involved in executing it, then decomposition is unviable. Macrotasks on Upwork, by and large, fall under this category. This, in turn, necessitates various transaction costs for freelancers as well as clients, necessitating a high-touch interaction. Lustig et al. provide an in-depth analysis of these issues from the clients' perspective [20], and this paper complements their insights by providing the freelancers' perspective. In this context, Alkhatib et al. further predict that, the greater the decomposition of the task in such cases, the higher the risk that the worker loses the necessary context to accomplish the task [2]. We build on and extend their insights by confirming their prediction.

Lastly, prior studies on Upwork have shown that freelancers are not passive respondents to managerial control and strategies by the platform. They develop certain competences over time in order to make sense of the algorithms at work (e.g., ranking in search results, ratings) [14]. For

example, they set up client accounts on the platform and approach it from the other side of the market to make sense of semi-transparent processes that impact their position and thereby job prospects in the marketplace [17]. Platform workers also make use of platform's resources when making decisions on transacting with unknown clients. For instance, freelancers negotiate the risk of being 'scammed' by malicious clients as well as the risk of taking on tasks that offer little payment or unfair working conditions [14, 15, 37]. Consequently, they have been found to rely on features such as the platform's 'verified payment method' feature as a proxy for evaluating a client's trustworthiness [17]. Such competences are part of what Sutherland et al. term 'gig literacies' that freelancers develop over time [37]. These could be in the way of learning how not to fall for 'scams' or avoid 'bad gigs', securing payments, trying to make sense of the evaluation systems and workarounds devised to overcome certain constraints that they face. For instance, freelancers have been reported to leverage their social media use to extend their professional reach online to larger audiences as well as make use of external tools when built-in tools on Upwork do not suffice [17]. Blaising et al. report similar strategies employed by freelancers, particularly over a longer term, to mitigate the overhead associated with online freelancing at large such as 'multihoming' (a term used to denote workers using more than one platform for work) and domain- and skill-expansion in response to market demand [4].

Formulations such as 'gig' or 'platform literacies' [37] or 'algorithmic competences' [14] have certainly made significant contributions to our understandings of platform work in the context of macrotasks and Upwork. However, they are mostly focused on the 'platform-freelancer relationship' or 'platform-client relationship' [how clients make use of and negotiate platformic affordances and constraints] as opposed to the 'client-freelancer relationship'[2]. Although Kinder et al. conducted interviews with both clients and freelancers on Upwork in their study, their focus is on Upwork's attempts to make itself indispensable for both sides of the market, the various affordances and control mechanisms it has put in place in this regard, and how they are circumvented by freelancers and clients to regain displaced agency [17]. These formulations do not focus on the needs, experiences and reasonings of freelancers in relation to matching, interacting, and collaborating with clients, an important gap that this paper aims to fill by providing the freelancers' perspective. In other words, the orientation in this paper is towards unpacking how macrotask work is organized and accomplished from freelancers' perspective. Lustig et al.'s study provides the clients' perspective and highlights several important challenges that they face [20]. In addition to the difficulty with vetting workers at the time of hiring, they take on the overhead of specifying the task in concrete terms, determining what 'fair pay' is, and managing freelancers over the course of the task [ibid]. Consequently, defining a task, hiring a freelancer for the task, figuring out pay rate, and getting it done, can be a hassle for clients. There is comparatively less knowledge, however, on how and when these problems surface and are negotiated by freelancers. There is a need to understand how freelancers reason about accomplishing macrotasks in practice, the challenges that they encounter in this process, and their strategies to overcome them. There is also a need to understand the nature of collaboration over the course of specific tasks and longer periods between clients and freelancers which is the overarching focus of this paper.

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[2] Blaising et al. present some findings around the 'client-freelancer relationship' although their primary focus is on mapping the career trajectories of online freelancers and the sustainability of online freelancing over a longer term [4].

3 METHODOLOGY

We present the findings from a qualitative study involving in-depth, semi-structured interviews conducted with 21 freelancers from the US and India using Upwork during June-August 2019. Freelancers were recruited for the study by advertising a call for participation as a 'job' on Upwork. Upwork is the world's largest online freelance marketplace and has freelancers from over 180 countries and diverse backgrounds using the platform [16]. Our sampling strategy, therefore, included four main criteria: 1) to include freelancers from diverse areas of expertise and skill; 2) to include both freelancers who are relatively new to the platform (using it for less than two years) and those who have been a part of it for several years; 3) to include freelancers who have done at least one job for an 'enterprise client'[3]; and 4) given that Upwork has freelancers across the globe, to include freelancers from outside of the United States. We chose India because the country is home to one of the largest freelance labour markets in the world besides the US [40][4] and, at the time of conducting the study, had the second highest percentage of freelancers working with enterprise clients after the US.

Interested participants expressed their willingness to take part in the study by responding to our 'job' post on Upwork. Our sample consisted of fourteen male and seven female participants. Sixteen were from the US whereas five were from India. Interviewees came from diverse backgrounds such as design, audio production, video editing, marketing, copywriting, customer service and so on (see Table 1 in the next section for details). Typical tasks they had done for clients on Upwork included designing business presentations, making e-learning videos for MOOCs (Massive Open Online Courses), ghost-write articles for clients on sites like WordPress and LinkedIn, conduct market research, assist with producing and editing podcasts and so on. Given the geographical spread of our participants, interviews were conducted online using video conferencing software (either Skype or Upwork's built-in calling facility). Interviews were scheduled based on participants' convenience and conducted in English. Informed, written consent was electronically obtained from all interviewees via Upwork prior to the commencement of interviews. Separate consent was obtained for recording the interviews. The audio tapes were transcribed verbatim subsequently. The consent process involved explicitly informing freelancers that their participation, responses, and duration of engagement were entirely voluntary. At the outset, participants were informed that they could stop at any time or refuse to answer any questions. Although the interviews ranged in duration from 30 to 70 minutes, this did not affect their compensation rate, nor were they rated differently. All interviewees received a flat rate of 50 USD as compensation for participation. This amount was in escrow and freelancers knew beforehand that they would get paid regardless of how long they engaged with us. The research team, therefore, took these steps to diffuse potential power imbalances as per standard practices.

The interview protocol covered a range of topics such as their work/job, their motivations to take up freelancing (part-time or full-time), the challenges they experienced with it, their use of Upwork, what they liked about the platform and what they did not, their experiences working with different kinds of clients and tasks, how they managed their work, and the tools they used as part of their work. Interview transcripts were analysed to identify relevant themes [32]. Working through concrete instances of freelancers' interactions with the platform as well as clients, their

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[3]The differences between working with 'ordinary' clients versus 'enterprise' clients for freelancers are expounded in detail in the Findings section.

[4] Recent estimates indicate that the Indian freelance market comprises around 15 million freelancers as of 2020 [31] and is the second fastest growing freelance market in the world [33].

organization of work, their use of tools, themes were constructed around how they made freelancing 'work' for them, how Upwork and working with different kinds of clients and tasks impacted their work and financial practices, and advantages and difficulties they experienced over time.

Table 1. Participants' Demographics, Skill/Area of Expertise, and Freelance Type/Experience

Sl. No.	Gender	Location	Skill/Area of Expertise	Full-time or Part-time	Freelancing Experience (years)
P1	M	US	Design	Full-time	10
P2	F	US	Technical Writing and Email Marketing	Full-time	2
P3	M	US	Voiceover	Full-time	15
P4	F	US	Writing	Full-time	20
P5	F	US	Business Consultancy and Financial Modelling	Full-time	10
P6	M	US	Writing and Editing	Part-time	3
P7	M	US	Software Development	Full-time	3
P8	M	US	Video Production	Full-time	10
P9	M	US	Content Creation and Animation	Full-time	20
P10	M	US	Translation and Software Localization	Full-time	12
P11	F	US	Writing and Editing	Part-time	1.5
P12	M	US	Audio Production and Engineering	Full-time	5
P13	M	India	Graphic Design	Full-time	13
P14	F	US	Motion Graphics and Visual Effects	Full-time	3
P15	F	India	Academic Research and Statistical Modelling	Full-time	3
P16	F	US	Graphic Design and Animation	Full-time	14
P17	M	US	Video Production	Full-time	4
P18	M	India	Design	Full-time	6
P19	F	US	Marketing	Full-time	10
P20	M	India	Market Research and Design	Full-time	3
P21	M	India	Design and Content Creation	Full-time	3

4 FINDINGS

Our findings are divided broadly into - how macrotasks are accomplished in practice, the process of matching freelancers with tasks/clients, and the motivations and experiences of repeat hiring for freelancers. In 4.1, we unpack freelancers' accounts of how accomplishing macrotasks is perceived as a collaborative achievement with the client. We break this down into the following parts: a) scoping the task and vetting the client (4.1.1); b) determining the pay (4.1.2); and c) freelancers' reasonings about the process of getting the task done (4.1.3). We discuss how freelancers go about making informed decisions about applying for or accepting a task, how they devise their payment strategies based on the nature of the task to minimize

unpaid/undercompensated work and optimize earnings, and the challenges they negotiate in getting the task done. Given the complex, high-touch nature of accomplishing a macrotask, the process of matching freelancers with tasks/clients assumes paramount importance, which is discussed in 4.2.1. We also show that, since the tasks require a high degree of specialized knowledge and skill, freelancers are not eligible to apply for just any available task on the platform. This, in turn, entails upfront costs and non-trivial work for freelancers as they search for work. We, then, delineate the key programmatic solutions (in sections 4.2.2-4.2.4) that Upwork offers to help mitigate the transaction costs for freelancers and clients via 'connects', 'talent clouds', and the reputation system. We also show how and when these solutions help and where they fall short as far as freelancers are concerned. We, then, analyse the importance of platform reputation in shaping freelancers' job prospects as well as its role in shaping the power dynamics with respect to clients. In section 4.3, we discuss how freelancers seek to minimize the costs associated with the collaborative work involved in getting macrotasks done along with the difficulty of finding well-paying tasks via 'repeat hiring', along with the gains it results in.

4.1 How macrotasks are accomplished in practice

4.1.1 Scoping the task and vetting the client. The first step in establishing a relationship between a freelancer and a client is for the freelancer to understand the task on which they would be working. To do so, freelancers read the task description posted by a prospective client on the platform, not only to understand the proposed task, but also to infer how the collaboration might unfold. Freelancers carefully examine the task description, the stipulated terms of the task/contract, the expected duration, and the pay rate. If one or more of these aspects is not satisfactory, they just move on with their search. Freelancers expect clients, when posting tasks on the platform, to be clear and precise about what the task entails. Applying to tasks with vague descriptions and unclear deliverables is perceived as a waste of time, effort, and 'connects' (see Section 4.2.2 for more elaboration on 'connects'). For instance, P4, an experienced copywriter from the US, remarks, "There are plenty of clients who will post a job and it's like, 'I need help with the job'... literally, those are the words... and you're like 'Nobody knows what that means'."

This creates an impasse when the clients do not know how to get a particular task done themselves. Freelancers argue that, if a client posts a task in an attempt to pass the buck onto freelancers and think that it would get done *somehow*, then it is an indication of their lack of understanding of how to get work done with freelancers. Narrating a negative experience that she had with an enterprise client in the US, P2 says, "I think she (the client) was very young and inexperienced. She didn't clearly define the parameters of the job. I think she had just been given the job and she thought that it was just going to come back... you know... and so I felt like every time I asked a question... I was kind of poking holes in her confidence or lack of knowledge. It didn't make her happy."

To avoid experiences like these that could end up in poor collaboration which could, in turn, result in poor reviews, freelancers seek to gather as much information about the task parameters as possible beforehand so that they make an informed decision on whether or not to apply for/accept the task. Emphasizing the importance of such an exercise, one of our participants remarks about the dangers of working with clients who assume that the freelancer knows what is needed to get the task done, "We all operate under the curse of knowledge. We assume everybody knows what we know. So, they (clients) don't always realize that I don't know."

Unlike 'on-demand' work contexts such as ridesharing where workers are automatically matched to tasks (and therefore cannot really choose with whom they work), freelancers on Upwork are interested not only in the task that they want to work on but also in the client posting

the task on the platform. Being a freelancer allows them not only the freedom of what they want to work on but also with whom they want to work. The choice to pursue some clients and turn down others is cherished as one of the best things about freelancing. A common strategy employed by experienced freelancers before they even decide to bid on a task or respond to an invitation is to vet clients based on other freelancers' reviews. P2, an experienced writer and digital marketer from the US, underscores its importance as follows,

"I like that I can get a little bit of insight into the client's history. I can look at how many people they've worked with, do they leave ratings, what kinds of ratings do they leave, how much money do they spend on the platform, how long have they been using it etc. […] I think a lot of people do not take advantage of the rating system. When someone sends me an invite, one of the first things I do is go check their ratings."

In fact, the ability to vet clients is appreciated as a core advantage of working on Upwork, one that helps them make informed decisions about the task, the collaboration they are about to embark upon, as well as longer-term prospects and professional relationships.

4.1.2 Determining the pay. Upwork provides freelancers and clients with the opportunity to negotiate the pay, which could be on an hourly basis or a fixed rate. Once again, it is the task definition that significantly shapes freelancers' preferences and strategies for fixed versus hourly payments which, in turn, shapes their interaction with clients as well as their work. Whilst some prefer fixed rates because it allows the client to have an estimate of the total costs upfront and decide whether or not they have the budget to hire them, others feel that hourly rates are better suited, owing to the nature of the task.

Freelancers essentially try to optimize their earnings for a given task by typically preferring: 1) fixed payments for tasks that have relatively well-defined parameters and set of deliverables; and 2) hourly payments for tasks that are more amorphous, involve 'scoping' (which is also seen as a collaborative effort with the client), and might entail multiple iterations and review cycles. Those who prefer fixed payments enjoy the in-task flexibility it provides them. For instance, P10, who does translation and localization work, says, "If I work on a fixed rate, then it doesn't really matter if I work fast or slow because the flat rate is what it is." In other words, hourly payments do not really incentivize freelancers to complete a task faster because they would, then, get paid less. In many cases, a preference for fixed rates also stems from a need for privacy. For hourly payments, Upwork has a tracker that tracks mouse-clicks and takes screenshots of the screen activity at random times for the entire duration that the freelancer is billing the client. This is sometimes seen as invasive, which is a concern that prior studies have also reported [17]. Hourly payments also take about two weeks to be processed and transferred to the freelancers' accounts. Upwork provides clients a week's time to review the work and number of hours billed and complain in case of any disputes. With fixed payments, freelancers do not have to worry about such delays.

This is not to claim that fixed rates necessarily work well in all cases. Freelancers feel that fixed rates are ill-suited for tasks whose 'scope' has not been properly defined. They prefer to charge by the hour for tasks where 'scope-creep' is deemed to be a potential issue. They also find it problematic when there is a mismatch between clients' expectations and theirs in terms of what a lump-sum rate entails. In cases where clients expect several reviews and iterations for a flat rate, freelancers find themselves in a fix. P8 sums up the conundrum as follows,

"When people are giving you a set amount, and yet feel like they are owed a big chunk of your time... this is kind of what I mean by 'changing goal posts'. If it's an hourly rate, then, you know, I

am getting paid for as long as I am working on it. So, then, it's more reasonable to let things go that way."

Although freelancers as a rule do not like 'scope creep' and try to avoid it, their willingness to accommodate it and let the client have it their way is, to a great extent, shaped by hourly rates. The incentive scheme affects what is and is not considered acceptable in the collaboration between the freelancer and client. However, what freelancers expect is for clients to understand the inherent trade-off involved between quality, time, and cost and believe therein lies the fundamental problem. Summing it up as something that every freelancer faces at one point or another in their career, P10 says, "I tell a lot of these clients 'Here are 3 things you need: you want it fast. You want it good. And you want it cheap. Pick two. You're not going to get it all."

4.1.3 How do freelancers reason about the process of getting the task done? Once the decision to accept a task is made and a contract is drawn up, client-freelancer collaboration on accomplishing the task begins. First, freelancers invariably schedule a meeting with the client, typically via a video conferencing tool like Upwork's messenger, Skype or Zoom. Even though the task description is available, freelancers prefer to have at least one meeting with their clients to make sure that both their expectations and understandings of the task, the duration and the deliverables align. This 'alignment work' also entails activities like setting up milestones and is seen as an opportunity to inform clients of their requirements, be it in terms of becoming aware of the work context or obtaining access to enterprise tools and data. Emphasizing its importance, one of our participants says,

"There's always assumptions… everybody makes assumptions. We assume that everybody knows this, everybody knows that, and so, that's partly why I ask the why-s at the beginning… you know… it's a checklist. You really do have to ask some why-s and make sure you're delivering what the client wants."

Since they work with different clients across the globe, freelancers need to learn how to be flexible in order to coordinate effectively across different time-zones and juggle between multiple tasks and competing deadlines. For instance, our sample included freelancers in India working for clients from Australia, Europe, and the US, whilst freelancers in the US worked for certain clients in India and the Middle East. Although chat on Upwork's messenger or email are the most frequently used modes of communication with clients, they are not always seen as the most useful or preferred modes. For example, clients can sometimes be non-responsive to emails or there would be delays in getting replies. On the limitations of different modalities of communication, one of our participants remarks, "I try to have at least one meeting because […] things just get lost in translation when you are sending just text message. So, the more input you get, the better."

To make the coordination work easier, freelancers also use scheduling applications that allow clients to view their calendar and schedule a meeting at a mutually convenient time, in addition to using project management tools like Asana and Trello to mitigate the associated overhead. As far as the actual task is concerned, workers in the freelance economy are typically expected (and often required) to work by themselves, and thus lack support from colleagues or mentors (unlike traditional employees). The tasks are designed with the assumption that they can be completed by a skilled worker without external assistance beyond the client. Only under rare circumstances are workers allowed to seek others' help in accomplishing the task, and even on these occasions, they are expected to first inform the client and seek permission a priori. Consequently, in addition to a sense of isolation, they also encounter a lack of assistance when it comes to troubleshooting problems that they might encounter over the course of accomplishing a task. In case freelancers

run into a problem over the course of a task, they are often required to search on the internet for relevant information that can help them resolve the issue. P17 draws a contrast between being a traditional worker employed at an organization and a freelancer in this context as follows,

"I think when you're working for a company, you have other people to rely on. You have your co-workers, you have your bosses, your managers, and you can learn from them. They can mentor you. You can learn from their mistakes. You can learn from their achievements. But being a freelancer, you're kind of on your own. You're your own boss, but at the same time, you have to make the final decision. Whether you're right or you're wrong, it's all on you... which is a good thing... and a bad thing. It's challenging because I don't have that boss... that mentor to lean on."

The need for flexibility in this context also stems from having to accommodate clients' preferences for using certain tools for working on the task, communication, storing and sharing the deliverables (which more often than not contains sensitive information and intellectual property). This requires freelancers to have subscription to or own tools over and above what they prefer, thus adding to the costs that they incur. However, it is not the costs associated with purchase or subscription to tools per se that frustrates freelancers as much as clients' lack of understanding of how the task is done. Clients are reported to regularly underestimate the complexity of the task, the time required to get it done, and the freelancers' informational requirements to do the task well. P7, an experienced video producer in the US, remarks,

"[...] the lack of knowledge is what makes it very difficult for me to do my job because some clients either think that there's a magic app on the phone that makes videos or else or that I will just pull an idea out of a hat and say, "OK... here you go. Let's work on this." It's a big thing in software development. It does take time to come up with requirements and figure out what it is that needs to be done before you start the work. You don't just start working immediately."

Whilst clients working at capacity is acknowledged as a reason why they might be unable to provide quick responses, freelancers do not condone clients' unwillingness to put in the work and time needed to do the task well. They see accomplishing the task as an *inherently collaborative effort.* For instance, P5 laments, "A lot of it is really educating the clients about what I need to give them what they need."

Clients being non-responsive creates uncertainty for freelancers in terms of how to go about the task. Whilst clients not controlling every aspect of the task means that freelancers do enjoy sufficient creative freedom, it can easily turn into a waste of time and effort if the client does not approve of the final output. Reflecting on the need for clarity with deliverables, P10 says,

"I ask about what they want included and what they want excluded as well because it forces a client to think on their own needs and what should be in there. That kind of thought process will often show you where the gaps are as well."

For these reasons, regular communication with the client along with their proactive, hands-on involvement over the course of getting the task done is valued immensely and even expected by freelancers.

4.2 Matching skills with tasks: the work to find work

4.2.1 The importance of finding good matches. Since freelancers cannot depend on a single client for their livelihood, they must constantly look for tasks on the platform based on eligibility and interest. The 'work to find work' is non-trivial, as are the costs involved. Noting the substantial effort involved in finding well-paying tasks and clients, P3, an experienced voiceover artiste from the US, remarks, "Finding good jobs and clients... that's probably the hardest part and most demanding... you spend 90 percent of your time looking for 10 percent of the work." This 'work to

find work' strongly resonates with a range of studies in CSCW that have examined the multifarious ways in which work entails a mix of paid work and unpaid, articulation work [which are invisible in formal work descriptions] that are seamlessly integrated in practice [6, 35, 36, 41].

Being a successful freelancer, then, requires workers to be skilled at a range of things, in addition to their 'core skill' for which they are hired. These include but are not limited to - learning how to set up one's profile, build portfolio, search for tasks, prepare the proposal, bid for those tasks, set up the contract and milestones, negotiate the rate, and build reputation on the platform. Although the 'work to find work' is characteristic of the 'on-demand' economy in general [e.g., 1, 10, 18, 19, 22, 30, 42], what sets macrotasking apart is that the nature of tasks coupled with the fact that workers are not eligible for just any available task. This, in turn, means that, for clients, finding the right talent for the task is a challenge in itself. This problem is *mirrored* for freelancers and necessitates that they perform additional work in terms of preparing their profiles and portfolios to maximise their visibility and chances of getting picked by clients with whom they want to work (and potentially get hired time and again). For example, P1, a top-rated freelancer from the US remarks how being a skilled Python programmer or an Android developer is good but not sufficient in itself, "You have to be not only an expert at what you do as a service, but you have to become a salesman. You have to learn how to pitch to a client and how to gain their business."

4.2.2. 'Connects' make applying for tasks expensive in the face of uncertainty. The fact that there is a global labour pool to choose from on the platform exacerbates the overhead of vetting and hiring freelancers for clients, a non-issue for them in case of contractors hired via staffing agencies [20]. Here, Upwork has a programmatic solution in the way of 'connects' to address this problem. 'Connects' are a token or platform currency that freelancers need in order to apply for tasks. For freelancers, this translates into costs incurred a priori when applying for tasks, in addition to the effort that it entails. The idea behind a 'connect' is that if the platform limits the number of tasks for which a freelancer can apply in a certain duration (say, a month), then freelancers would do so more thoughtfully and would be more selective when applying for tasks. They would seek to apply for only those tasks for which they are a good fit, thereby reducing the overhead on clients and producing better matches. In fact, some freelancers find 'connects' to be beneficial. They see 'connects' as a mechanism that ensures only interested, qualified freelancers apply to a given task. This, in turn, ensures that there is competition only amongst eligible workers whilst eliminating 'spam'. Their view is that clients, if burdened with hundreds of applications for a task they have posted, would not bother investing the time and effort to go through each profile. For instance, P7 notes,

"[...] freelancers were just spamming out a whole lot of proposals without really putting any thought into them... the fact that you have to pay for 'connects' if you run out of them is a good thing. I know it's controversial but, to me, I feel like it does help weed out some of that."

In practice, this seemingly simple logic is made a lot more complicated by the opacity around how 'connects' are allocated and deducted. 'Connects' are paid for upfront, regardless of whether or not the freelancer gets hired for a particular task. If a freelancer runs out of 'connects', they need to pay and purchase more. The number of 'connects' required to apply for a given task could vary from two to six. However, there is little information available on why the number of 'connects' varies from task to task in the first place, or on whether any unused 'connects' automatically carry over to the next month. Freelancers are frustrated about having to make decisions around how many 'connects' to buy in a month, particularly in the face of the twin

uncertainties around: a) how many 'connects' a given task might need (and therefore how many 'connects' they might need in a month overall); and b) whether or not they are going to get hired for the task for which they have applied at all. If they do not get hired for the task, it's a loss as the 'connects' are paid for upfront and represent sunk costs. Freelancers are thus concerned about the sunk costs incurred via 'connects' in addition to the platform fees deducted by Upwork and how this impacts their earnings. For instance, P10, an experienced freelancer specializing in translation and software localization, laments,

"You have to buy the 'connect' nowadays. You already pay for the 'connect' upfront. Most jobs require multiple. That way, you easily lose 15-20% of your earnings. I suppose it's the biggest downside that I have noticed lately and it's a great motivator for people to take their business outside Upwork".

4.2.3 Talent Clouds: only the "in-crowd" need apply.
Since the task could potentially involve working with sensitive, proprietary data (for instance, preparing financial models, legal advice on corporate law and intellectual property rights), the problem of hiring for clients is further compounded by issues of trust and accountability. These factors together make the process of vetting workers even more laborious and time-consuming. To help clients with this process, Upwork has designed the system of 'talent clouds'. Not all tasks posted on Upwork are made visible to all freelancers, especially those posted by enterprise clients (clients who are managers and employees of large companies with 'enterprise account' subscriptions which, in turn, provides them with distinct advantages). These clients look for freelancers with demonstrable credibility so that they can be trusted with the task. Freelancers are automatically added to 'talent clouds' upon completing their first task with an enterprise client. P6 sums up the inherent advantage for clients as follows,

"My understanding is that it [talent cloud] is a semi-private job board for candidates to quickly sign on with a reputable company... so that they are hiring someone who's... you know... experienced and qualified and so on... and don't have all of that overhead themselves... of vetting candidates."

It is fair to conclude, then, that getting hired for the very first task by an enterprise client can be a game-changer of sorts for freelancers. This, then, begs the question of how freelancers are hired to work on tasks with enterprise clients in the first instance. In the absence of a client hiring a freelancer directly, they need to be first invited by Upwork's 'talent scouts' to submit a proposal for a given 'task'. Unsurprisingly, these invites often go out to the top-rated freelancers in a given domain. The biggest advantage with becoming a member of different 'talent clouds' is the access freelancers obtain to the various tasks posted by well-paying enterprise clients that remain invisible otherwise. Coupled with the fact that only a small sub-section of Upwork's freelancers is part of these 'talent clouds', this effectively allows freelancers to choose from more, diverse tasks and face a lot less competition. Conversely, those who are new to a platform and still trying to gain a foothold find it difficult to get invited to these tasks as they have not accumulated enough reputation and credibility and, therefore, end up having access to fewer tasks in the midst of greater competition.

4.2.4 The reputation system and its shortcomings.
Given the high-touch, collaborative nature of accomplishing macrotasks and the paramount importance of matching, it is understandably in the platform's interest to make matching not only easy and convenient but most importantly trustworthy (for reasons discussed above). In this regard, Upwork allows both freelancers and

clients to evaluate each other, and vet each other based on prior reviews. At first glance, it might appear that this would be a programmatic solution to the problem of freelancers and clients matching with one another. Whilst it certainly helps, it is not a panacea.

Some freelancers acknowledge how the rating system can be a win-win. For instance, P11 remarks, "[…] they also feel more comfortable working with me because they can see those ratings for me as well." As far as their own evaluations from clients are concerned, freelancers' accounts highlight both the importance of maintaining good reputation on the platform as well as the opacity in the design and workings of the evaluation system. Worker evaluation on Upwork involves both star-based ratings based on various parameters as well as qualitative reviews. Prior studies have found that clients value and make use of evaluative metrics such as the 'job success score' and 'top rated status' as it enables them at-a-glance awareness of potential freelancers' quality without examining each profile [17]. Even though some clients are cognizant of the power asymmetries between freelancers and themselves, and thus look upon the evaluations as a moral obligation [ibid], at the same time, this also causes clients *not* to trust numerical scores over concerns of inflation. Instead, they prefer to look at qualitative reviews when making hiring decisions [37]. Clients have been further found to examine the portfolios of freelancers instead of basing the decision on ratings [20] and even get them to perform pilot tasks before hiring [17]. At the same time, these are also what make the process of hiring a freelancer for a task cumbersome for clients.

In contrast, freelancers argue that the 'job success score', which is an aggregate of the star-based ratings and qualitative reviews, is the most important metric that impacts their position (in terms of where they show up in search results, 'top rated' status, and membership in various 'talent clouds') and job prospects on the platform. Freelancers argue that clients often do not have the time or willingness to go through numerous potential applicants' profiles in detail when hiring for a task. They feel that the 'job success score', which is computed as a percentage, is often the main metric which determines hiring, and thus their overall prospects on the market. For example, P5 remarks,

"The problem inside Upwork isn't one bad rating. Your overall rating on Upwork… it just plummets… and I've tried to figure out their algorithm. They have an algorithm, you know, how often you're online, how quickly you respond to things, plus rating, plus this plus that… but… man… one bad rating will take your Upwork thing… your overall score… way down […]On Upwork, if you don't have five stars… if it's four stars, it really affects your standing. It's really hard to recover because the ratings stay in the system."

Upwork also provides clients with the option of leaving private feedback, which is also argued to impact the 'job success score'. Since, *by design*, this feedback is meant to be private and therefore not to be shared with freelancers, it compounds their difficulty in making sense of how the evaluation system works, and what they need to do to improve their scores or what not to do so that their scores do not drop. The opacity in terms of how the 'job success score' is computed and the underlying criteria exacerbates the information asymmetries that freelancers already experience. They find the information available on Upwork website to be insufficient and vague. P17 sums up the problem as follows,

"I actually don't know what factors into that […] but it almost seems arbitrary like how they factor it in. 99 percent of the time I will get five-star reviews and then 1 percent time I will get a four-star review, and it will just completely drop my score […] it's strange how arbitrary it is."

This underscores the findings from recent studies on Upwork that the calculation of 'job success score' is a major point of collective sensemaking on freelancer forums on social media

platforms like Reddit [17]. What makes this process problematic is also the fact that Upwork does not make it mandatory for clients to leave a feedback upon task-completion. Freelancers are aware of this and argue that clients leaving no feedback at all is worse than clients leaving a bad feedback. This is for two reasons: a) freelancers argue that this causes their job success score to drop; and b) if clients do not provide feedback upon task-completion, then it can take several days or even weeks before Upwork intervenes and 'terminates' the 'job contract'. For instance, P15 remarks,

"The major struggle I have had is... like... once the project is completed, the client may completely disappear. Of course, your payment is not affected per se. But you wouldn't know how your work was received […] the feedback process would be stalled."

Although this problem is not specific to newer freelancers, they are arguably the most impacted by it as they are still trying to build a reputation and gain a foothold in the market. The significance attached to ratings and feedback is thus shaped by how important Upwork is to sustain their livelihoods. For example, P4 is an experienced writer from the US who, over time, started online courses for female freelancers on how to get started with their freelance careers and succeed on Upwork. On the one hand, she appreciates the ability to evaluate and vet clients and admits that she no longer worries much about ratings on an individual level. On the other hand, she categorically states that it is vastly different for those new to Upwork like her students who write to her regularly for advice on their Facebook group or course channel. She says,

"I think it's too easy right now for clients to hold freelancers hostage. Like, 'well, if you don't do these things, I'm going to give you a bad rating' and freelancers don't have a lot of recourse […] I see it happen to my students... especially when they are newer and they are trying to build their reputation on the platform, it can be very difficult."

That clients and freelancers are on an uneven footing on the platform is acknowledged openly by freelancers, even by experienced, top-rated freelancers particularly when recalling their earlier days when they were new to freelancing. Therefore, whilst freelancers certainly appreciate the ability to rate and vet clients, they also acknowledge that it does not make the power asymmetries between job creators and job seekers vanish, the reason being that the impact of a poor or unfair evaluation is highly asymmetrical. It is this disparity in relation to the impact or consequences of poor evaluation on prospects at the workplace that puts freelancers at a disadvantage. Freelancers argue that, on a platform that allows access to a global labour pool, clients can always find a different freelancer to do the task often for a cheaper rate, whereas for them (most of whom in our study were freelancing on a full-time basis), it is ultimately a matter of livelihood. They cannot afford to lose their foothold on the platform. A drop in the job-success-score (JSS) could adversely impact their job prospects, particularly in the context of the competitive pressures that they must withstand and the fact that they do not have a steady income. P8 sums it up as follows:

"I don't like to really argue with clients because of how Upwork works... with the rating system... like... I have to be aware of not upsetting the clients and not getting bad ratings because I know if I got low ratings, I won't be getting as much work."

4.3   The motivations and experiences of repeat hiring for freelancers

We have already discussed the key programmatic solutions that the platform offers in an attempt to reduce the costs of matching freelancers with tasks/clients, namely: 'connects', 'talent clouds', and the reputation system. We highlighted the key benefits as well as their limitations, particularly for freelancers. Additionally, both freelancers and clients try to reduce the overhead involved with hiring/finding work as well as the collaborative effort involved in accomplishing the

task. In their study of clients who use Upwork, Lustig et al. point to concerns amongst clients over taking on management overhead that was previously handled by a staffing agency [20]. Clients reported feeling as if they were reinventing the wheel every time they hired a new freelancer, because they were required to invest a significant amount of time and effort in teaching a new freelancer about their organization's norms and culture. They also highlighted a lack of consistency in the quality of outputs produced by freelancers, which often rendered them unusable. Clients thus sought to hire the same freelancers, time and again, in an attempt to mitigate the overhead and overcome the issues around quality of deliverables. In this section, we provide the motivations and experiences of around repeat hiring from freelancers' perspective. Our study found that freelancers are driven by a desire to reduce the costs of searching and applying for tasks, much of the overhead associated with per-task collaboration, and to reduce the overall precarity at work, in looking to get repeatedly hired.

With repeat hiring, the primary advantage for freelancers is that they expend less effort and time to find 'work'. Rather, 'work' finds them. This creates a strong sense of job stability and income security amongst freelancers. For example, P4, an experienced copywriter from the US, remarks,

"Early in my career it felt very difficult to ever turn down work because what if I never have another client, what will I do? Today, that's much less for me. Most of my work is ongoing retainer work with clients who love me and who are happy, and I feel really good. So, I feel like I have real income stability right now."

Second, clients wanting to re-hire them is seen as a testament to their skills, the success of their collaborative work on previous occasions and their professional relationship. P17, an experienced video editor from the US, remarks,

"I would say... for bread and butter, it's my repeat clients definitely. Maybe three fourths to 80%, but yes. I work with the same three or four people, project managers, and they just keep sending me videos to do. The fact that the project managers keep coming back to me [...] makes me feel like I'm their go to video editor. They're obviously happy with my work, my work ethic, my communication, my client service. So that right there, I think, speaks a lot of volume and gives me a lot of recognition."

Third, repeat hiring is seen as an important mechanism which reduces their precarity at work not just in terms of improving job/income stability but also reducing their dependency on the rating system, particularly the 'job success score', to sustain their livelihood. The larger the share of tasks from repeat clients, the less vulnerable they feel in relation to the platform's rating system, as 'work' finds them regardless of any fluctuations in their score. For instance, when one of our participants was asked if the client review or the job success score impacted his job prospects on Upwork, he replied, "I used to but less now, because it's a lot more repeat business. I would say right now... umm... 90% of my business is all repeat clients and they have jobs regularly for you."

Fourth, repeat hiring helps build awareness of the broader work context which, in turn, fosters more effective collaboration as well as enriches the professional relationship with clients over longer periods of time. Freelancers often experience not only a sense of isolation as self-employed workers working alone, but also a strong sense of disconnect in relation to the task that they are hired to accomplish. They feel hampered by a lack of insight into how the task might fit into a broader effort on the part of the client. P9, who previously worked as a full-time employee at a large tech company in the US and had switched to full-time freelancing over time, highlights the contrast as follows:

"When I was working as a full-time employee, I knew what my team was trying to get done. I knew what the pain points were, and so, anything I did, I could set up within that context, whereas now... going on Upwork... it's like... here's this one thing and I really don't know what's going on elsewhere. [...] I feel bad for the client. I ask all these bizarre questions and there's all the stuff that they have to think about... which they don't have to think about with their team members."

Freelancers thus feel that their 'outsider' status in relation to the client's organization creates an inevitable dependency on the individual client to fill in any gaps in their understanding as they are the sole point of contact and assistance. With repeat hiring, however, they feel that they become less and less dependent on the client over time as they gain a better, deeper understanding of how the task fits into the broader work context. P17, a video producer from the US whose work mostly comprises tasks from repeat clients, describes the trajectory as follows:

"In the beginning especially, I was like, 'Why are we doing this? What's the main purpose?' But I guess now I have a better understanding of the context and why we're implementing it, how we're implementing it... just because I've worked for almost two years now with the same team members. I can see a pattern and understand what they want on a deeper level, since I've worked with them for so long."

Although clients cannot see what the freelancer did for other clients in terms of the work content, repeat-work and long-term collaboration show up as part of freelancers' profiles and work history on the platform and help them bolster their reputation on the platform, whilst also engendering a sense of credibility and trust in clients when vetting freelancers. Clients have been reported to look for freelancers who have previously worked with their organization or similar organizations with the expectation that they are more likely to be aware of the norms and culture of their organization [20].

Whilst the discussion so far revolved around the *why* of repeat hiring, we now discuss the *how* of getting repeatedly hired. Freelancers constantly evaluate the trade-offs between short-term goals (e.g., clarity about job parameters, fair pay) and long-term goals (e.g., repeat work, reputation building) and make informed decisions. P1 provides an illustration of the decision-making process as follows,

"I have definitely had jobs where we agreed on one thing but then they might add something at the last minute that could constitute a 'scope creep', but depending on the client, I let it go. Like... if it's a repeat client, I'm like, 'Okay.' I value the repeat work more than fighting over a few bucks."

In this vein, Blaising et al. report a dilemma that freelancers face in this context from their study of online freelancers using Upwork and Fiverr over a longer term [4]. Whilst long-term clients are perceived as critical to reducing financial uncertainty and the effort involved in seeking new jobs/tasks, in addition to developing a rapport that reduces 'relational overhead', freelancers in their study also report clients expecting them to go 'above and beyond' in producing the deliverables, which caused burnout for freelancers. Freelancers thus engage in what Martin et al. term 'interpretative labour', which is the 'work undertaken by workers to understand and accommodate the needs and perspectives of clients and be non-confrontational in their interaction with the latter' [23]. The importance of such 'interpretative labour' in the context of macrotasks, however, goes beyond just securing good ratings or reviews. It becomes crucial for effective collaboration to get the task done as well as fostering and sustaining long-term relationships with clients, which is, in turn, critical for freelancers to get repeat work. For instance, P10, an experienced freelancer from the US who does translation and software localization work, remarks,

"I think the most difficult part is managing the client relationship. As a freelancer, you are kind of always the underdog in a way... because it's just you versus some clients who are... I guess... at Fortune 500 companies. So, you sometimes have to bend your will a little bit to theirs."

5 DISCUSSION

Our investigation into macrotask freelance work reveals key characteristics that macrotasks share with other forms of on-demand work as well as the main points of departure. For one, macrotasks also essentially involve a work and payment structure that breaks down 'work' into discrete tasks. Whilst, historically, piecework entailed payment made for output rather than for time [2, 10], freelancers on Upwork have the freedom to negotiate between getting paid by the hour or per task. Our findings in section 4.1.2 demonstrate how freelancers try to minimize unpaid/undercompensated work and optimize their earnings by developing strategies for choosing between hourly and flat rates based on the nature of the task (in addition to considerations such as preserving 'positive invisibility' [35] from platform's surveillance mechanisms such as the tracker tool for hourly payments). For instance, freelancers are generally more accommodative of 'scope creep' and changing job parameters midstream when they get paid by the hour as any additional workload is compensated.

Second, both on-demand work and piecework are designed with the assumption that it can be accomplished independently and without collaboration [2]. Our findings on macrotasking show that freelancers are currently required to work independently by necessity, including figuring out troubleshooting strategies on their own in case they run into any problems[5]. This work structure creates an inevitable dependency for freelancers on the client, who is often the sole point of contact and support, over the course of a task. They reach out to clients to help resolve their needs such as access to proprietary tools and data as well as fill in any gaps in their understanding in order to get the task done. They are frustrated when clients are non-responsive as it creates delays in terms of the next steps, as well as uncertainty in terms of whether the final output will be met with approval. All of this amounts to new types of 'invisible work' for freelancers.

The larger pain point for freelancers in this context is that, if clients are dissatisfied with the deliverable and it gets reflected in a poor evaluation, then it not only also causes their 'job success score' to plummet, which impacts their job prospects on the platform, but also becomes visible to prospective clients in the future as part of their profile/work history on the platform (a problem that [17] also report). Thus, freelancers look for tasks that are defined concretely, vet clients based on prior freelancers' reviews on responsiveness, pay, timeliness of feedback, evaluation, and look for any other red flags (such as instances of 'scope creep'). At the same time, freelancers perceive the ability to rate and vet clients less in terms of a mechanism that mitigates power asymmetries between clients and themselves, and more in terms of a mechanism that allows them to make more informed decisions *a priori* about what to work on and what not to work on, and whom to work with and whom to turn down. It is precisely the *asymmetrical impact of reputation*, discussed in section 4.2.4, that shapes their preference to pre-emptively avoid tasks and client encounters that could end up in poor collaboration, poor pay, and/or an unfair rating in the first place, as

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[5] Blaising et al. highlight how freelancers on platforms like Upwork and Fiverr cope with the overhead resulting from this work structure (for e.g., in terms of managing workload, filling in skill-gaps) by sub-delegating the tasks to skilled professionals in their family, friends and social networks [4]. However, our participants reported that this is a somewhat risky endeavour as clients need to approve such practices beforehand, particularly in cases of tasks involving sensitive data. Consequently, none of them engaged in 're-outsourcing' (at least not without obtaining client's consent).

opposed to trying to get grievances redressed *after* they occur. Without workers having sufficient opportunities to choose from in terms of what to work on or with whom to work, and clients having to compete with one another for attracting the best talent, market power will be disproportionately wielded by those who require labour, not those who supply it. This is a major issue for platforms to resolve to ensure a fair, equitable future of work.

Prior studies have also argued that as work gets more complex and heterogeneous, it becomes more difficult to decompose into smaller tasks [2]. In such a scenario, the greater the decomposition of the task, the higher the risk that workers lose the context required to do a good job [ibid]. Our study reveals how freelancers, as 'outsiders' to the client's organization, experience a 'disconnect' of the task, for which they are hired, from the broader work context and face difficulties in terms of developing awareness about the same. They are thus unable to understand how the task they need to get done fits into the broader scheme of things on the client's side. This, in turn, also creates overhead for the individual clients in terms of facilitating access to enterprise tools and data, as well as sharing requisite knowledge (without violating their organization's norms around intellectual property and confidential information). Lastly, prior studies have claimed that when the cognitive effort involved in figuring out what needs to be done outweighs the effort involved in executing the task, decomposition is unviable [2]. Our study confirms this prediction in the context of macrotask work from the freelancers' perspective.

In Table 2 below, we unify the freelancer and client perspectives to show how the same set of core issues manifests on both the client and freelancer sides of the market. In this exercise, our analytic focus is on the fundamental issues stemming from the very nature of macrotasks and remote collaboration in this context and how they are experienced by either side of the market (as opposed to looking at how specific platformic affordances and control mechanisms put in place by Upwork are negotiated by either side, which prior studies such as [14], [15], [17], and [37] have already done). For example, the act of carving out a piece of one's work into a discrete, well-defined task that can accomplished by a skilled worker, who is not aware of the work context, independently is not straightforward. This challenge is compounded for clients who are new to working with freelancers and/or when they do not know how to get the task done themselves. This creates further overhead in terms of determining what constitutes 'fair pay' for a given task [20]. On the other hand, freelancers prefer to avoid tasks with vague or unclear definitions because they often result in 'scope creep' and increased unpaid effort. Similarly, clients often hire freelancers to fill a skill-gap or because they are operating at capacity and need assistance in coping with any additional workload. In either scenario, clients find the process of managing freelancer to be an overhead [20]. On the other hand, freelancers require the client to be actively involved in 'scoping' the task, figuring out what needs to be done, and providing timely feedback on the different iterations of the task to ensure that the output they deliver matches the clients' expectations. They expect this to mitigate the risks of ending up with a poor evaluation, which can adversely impact their job prospects in the future. Furthermore, with regard to the process of hiring/job search, both clients and freelancers invest a lot of time and effort into ensuring that there is a good match. When clients post a task, they could be flooded with numerous applications, and it is often cumbersome for them to choose the most appropriate candidate. For freelancers, since there is competition on a global scale and the tasks are skill-intensive, they need to spend time and effort in finding tasks for which they are qualified with clients who pay well and submitting proposals, in addition to incurring sunk costs through 'connects' (as discussed in section 4.2). These are three prominent examples of what we call *"mirroring"*, wherein the same core phenomenon manifests on and impacts both sides of the market. Table 2 below lists the core

issues that *mirror* on either side of the market in the macrotask setting. We build on our data to discuss how these issues manifest for freelancers, whilst we rely on the insights provided by Lustig et al. to discuss how they are *mirrored* for clients [20].

Table 2. Fundamental issues negotiated by one side of the market are *mirrored* for the other. How the issues manifest for the client side are drawn from Lustig et al. [20] whilst the findings from the present study inform the freelancer side.

Issue	Clients	Freelancers
Task definition	Clients find it hard to come up with 'task definition' when they lack expertise on how to get a task done themselves. Clients also experience difficulties with designing tasks that can be outsourced to freelancers without worrying about IP/PII.	Applying to or accepting a task that is poorly defined is a waste of time, effort and 'connects'. The onus is on the client to be precise about what the task entails. At a minimum, clients need to be actively involved in the scoping process and figuring out what needs to be done. 'Passing the buck' will invariably lead to an impasse.
Pay Determination	Clients are unsure what 'fair pay' means or entails in this context. E.g., should the pay rate differ based on freelancer's location? They are unsure whether to pay the freelancer a flat rate for the task or by the hour.	Freelancers find it hard to decide how much to bid/quote and also whether to charge hourly or a fixed rate in the midst of competitive pressures on a global scale. Flat rates provide in-task flexibility, whilst hourly rates are better suited for tasks defined poorly.
Collaboration Overhead	Clients reach out to the freelance economy because they are already working at full capacity or experience skill gaps. Clients do not always have a coherent view of the deliverables. In the event of more than one internal stakeholder involved in the decision, internal cohesion from the client's side is easier said than done. In comparison to contractors hired via a staffing agency, clients find it challenging to iterate on tasks multiple times without taking on the overhead of (re-)negotiating the pay.	Freelancers see 'task completion' as an inherently collaborative effort. Clients being non-responsive creates uncertainty for freelancers in terms of how to go about the task. Lack of cohesion, timely help, and feedback from clients is seen as contributing to unnecessary delays by freelancers. They end up experiencing 'scope' creep as a result of changing job parameters midstream, which often go uncompensated. Freelancers incur transaction costs upfront which makes it expensive and unviable for them to apply for jobs with poor/vague 'task definition'. They are frustrated when clients underestimate the complexity of the task and the time required to get the task done.
		Table 2 continues

Issue	Clients	Freelancers
Matching talent and task	Clients find it hard to pick the right talent for the task at hand from a global labour pool.	The skill-intensive nature of the tasks mean that freelancers are not eligible for just any available task. Thus, they need to put in non-trivial effort into finding work.
	Clients contend that the job success scores are inflated, and thus unreliable when making hiring decisions. They prefer to go through qualitative reviews and portfolios instead.	Freelancers vet clients as well. Fear of poor collaboration causes them to pre-emptively avoid some tasks or clients (such as those who have been poorly rated by others regarding pay, responsiveness, or evaluation).
Awareness of work context and access to enterprise tools/data	Clients question the viability of collaborating with 'outsiders' who lack awareness about the work context as well as tacit knowledge about their organisation and its culture. This results in them taking on the overhead of not only facilitating access to enterprise systems and resources for freelancers but also teaching them about various do's and don'ts.	Freelancers expect clients to guide them in terms of do's and don'ts around data storage and sharing as they do not know the organizational rules and policies on the client's side. They also incur additional costs in terms of acquiring subscription to tools and cloud services mandated by the client's organization.
Post-task evaluation	Clients experience an ethical dilemma in cases where the output is not satisfactory or usable. They do not want to automatically shift the blame onto freelancers, and often take responsibility for poor collaboration.	Whilst good reviews facilitate upward mobility (e.g., entry into talent clouds, top-rated status etc.), bad reviews can adversely impact future job prospects. Freelancers fear that the rating system can be a potential lever for clients to have it their way.

Given the rise of 'on-demand' labour platforms like Upwork, Fiverr, and TopTal, it is safe to assume that the future of work will involve more work coming through APIs, not less. This is already exemplified by large enterprises outsourcing more and more of their 'non-strategic' work - i.e., work that is not 'core' to their business - to freelancers hired via online labour platforms 'on demand'. They expect their full-time employees to focus on identifying and addressing novel opportunities and unmet customer-needs as opposed to 'raw execution of tasks' [12]. Whether such efforts are aimed more at cost-savings or have truly freed up employees' capacities to create new value for the organisation or its customers remains a matter of ongoing debate [20, 28, 29]. In this context, analysing the macrotask context and Upwork shows that platforms can, in fact, be rich sites of collaboration and professional relationship-building between skilled professionals across the globe who do the tasks and the clients who hire them to get the tasks done. That said, the fundamental issues that manifest on either side of the market in ways described in Table 2 need to be addressed for the collaboration to be more effective and fruitful. In the meantime, both freelancers and clients actively seek to mitigate the transaction costs associated with matching and collaboration by engaging in repeat hiring. In section 4.3, we discussed the key benefits that freelancers experience from getting repeatedly hired. Our findings show that repeat hiring reduces the overall precarity at work, be it in terms of creating income stability or reducing dependency on platform reputation, for freelancers. It is also seen by freelancers as a testament to their skills

and the success of previous collaborations with clients. Lastly, working with the same client or set of clients over time enables freelancers to develop awareness about the broader work context on the client's side, which in turn, also augments the effectiveness of collaboration.

6 LIMITATIONS

We duly acknowledge that our study has limitations of scale, both in terms of looking at a single platform, a relatively small number of interviewees and only two countries. As is the case with many qualitative studies, the value of rich data from fewer people is that it allows us to describe real-world, lived experiences in depth and to capture the methodical reasonings of the people involved. While we cannot claim full generalizability, Upwork is the world's largest freelance platform and the variety of experiences covered by our participants depict a highly relevant and very fundamental set of tensions that have thus far gone unexamined. Our study thus provides foundational insights on the motivations, needs, reasonings, and interactions of freelancers in finding work and accomplishing it in collaboration with the clients who hire them. We believe that the implications we delineate, when addressed in relation to improving the design and management of macrotask platforms going forward, can enhance the effectiveness of client-freelancer collaboration and result in improved outcomes.

7 CONCLUSION

We interviewed 21 experienced Upwork freelancers spanning the U.S. and India with expertise spread across various knowledge and creative work domains. We found that freelancers perceive accomplishing macrotasks, which are inherently complex, difficult to decompose, and often involve subjective evaluative aspects, as a collaborative achievement with the client. The skill-intensive nature of work coupled with the high-touch interaction critical for successful outcomes, in turn, requires that the freelancer and the client are matched properly. Not only does the freelancer need the requisite skills to get the task done, but the quality of the match is also important to establish a conducive working relationship with the client. We further described three programmatic solutions that the platform offers in an attempt to facilitate the matching process and reduce the transaction costs, via the reputation system, 'connects', and 'talent clouds', along with their benefits and limitations for freelancers. We also showed how freelancers seek to minimize the costs of finding good matches, reduce the overall precarity at work, and collaboration overhead in accomplishing the task by trying to get repeatedly hired.

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