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Digital reputation, skills and uncertainty reduction on global digital labour platforms

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ABSTRACT
Digital labour platforms have become increasingly common for the trade of a range of digitally transferable services. To help participants mitigate the uncertainty that is inherent to trading on digital platforms, feedback mechanisms have become the main tool to gauge the 'performed' quality and reliability of platform participants. Based on an analysis of 750 written feedback texts, this article first examines which freelancer qualities (technical skills, generic skills or personal competences) matter most to clients and, therefore, are instrumental to the building of a freelancer's digital reputation on a platform and, second, how exactly these feedback texts help reduce uncertainty when trading via a platform. Herewith, this paper adds to a deeper understanding of the 'rules of the game' on digital labour platforms.

KEY WORDS
digital labour platforms, digital reputation, generic skills, gig work, online freelancing

Introduction

The ongoing flexibilisation of labour relations, driven largely by the flexibilisation of economic production itself, in combination with producers' desire to bypass the high cost of salaried employees and workers' changing lifestyle choices, fuel the rise of what

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is now known as 'freelance' or 'gig' employment (Graham, Hjorth & Lehdonvirta, 2017; Fabo, Karanovic & Dukova, 2017; Lehdonvirta et al., 2019). Digital labour platforms have emerged as an important tool to facilitate the intermediation of supply and demand for freelance labour (see Beerepoot & Lambregts, 2015; Graham, Hjorth & Lehdonvirta, 2017). Provided with ever more advanced matching mechanisms, quality monitoring systems and payment utilities, digital labour platforms lower transactional barriers to such an extent that even the outsourcing of small, low-budget tasks becomes cost-efficient (Beerepoot & Lambregts, 2015). Many digital labour platforms provide relatively straightforward matching services for local labour markets (e.g. *TaskRabbit*, *Uber*, *Deliveroo*). Others, such as *Freelancer*, *Upwork* and *Fiverr*, transcend geographic boundaries and aim to link supply and demand for freelance labour at a global level. These global platforms typically revolve around modern service activities such as app-making, website and graphic design, virtual assistance, translation and transcription, telemarketing and creative writing (see Wood, Graham, Lehdonvirta & Hjorth, 2019), which sets them apart from platforms dedicated to micro-tasking services like image tagging and taking surveys (e.g., Amazon Mechanical Turk). Formal entry barriers are usually low, which means that anyone literate, with a computer and access to the internet can sign up and use such platforms to either look for or offer electronically transmittable services. Their popularity is rising, with the two largest platforms (Freelancer and Upwork) currently being used by several tens of millions of freelancers around the world (see Lehdonvirta et al., 2019). By offering flexible, technology-enabled employment, digital labour platforms have emerged as a key element of what is more broadly regarded as the Future of Work (see Berg, Furrer, Harmon & Silberman, 2018; World Bank, 2019; ILO, 2021a).

Trading on such platforms, however, is rife with uncertainty. Clients (buyers of labour) and freelancers (sellers of labour) are unlikely to know each other and may be located thousands of miles away from each other, and hail from very different cultural and educational backgrounds (Beerepoot & Lambregts, 2015; Graham, Hjorth & Lehdonvirta, 2017). Moreover, and different from the trade in goods, the quality of the products being traded on such platforms (various kinds of services) is not easily assessed prior to their production and delivery (Yoganarasimhan, 2013). To help participants mitigate the uncertainty that is characteristic of trading on digital labour platforms, such platforms have commonly introduced feedback and reputation mechanisms. Such tools gauge the 'performed' quality and reliability of freelancers and clients (Einav, Farronato & Levin, 2015) by using user satisfaction data (usually a combination of job satisfaction scores and feedback texts given by clients to freelancers and vice-versa) to compile a so-called 'digital reputation' for every platform participant (see also Elbanna & Idowu, 2021; Galperin, 2021). In the buyers' markets that global digital labour platforms typically are, digital reputations, in combination with efficient search and compare tools, make it easier for clients to identify, select and hire only the most reputed freelancers for their jobs (Stanton & Thomas, 2014). The distribution and exclusion effects resulting from this (Gawer & Srnicek, 2021; Braesemann et al., 2022), mean that building and nurturing a good digital reputation has become paramount for (especially) freelancers' success on such platforms.

Against this backdrop, this article addresses two themes. First, the article investigates which combination of skills it takes for freelancers to build a good digital reputation in such crowded, competitive and heterogeneous online arenas. Second, it explores what feedback texts tell us about uncertainty and uncertainty reduction when trading via digital labour platforms. Building on Sutherland, Jarrahi, Dunn and Nelson (2020:465), who observed that 'building a reputation is a complicated process, which requires not only producing quality work, but also developing the social and technical skills to handle temperamental clients and algorithms', and on Wood, Graham, Lehdonvirta and Hjorth (2019), who found that skills and platform reputation are the most important individual resources for online gig work, this article develops a detailed understanding of which particular skills, as Hearn (2010:427) calls them, 'embody the values of their working environment'. In the recently emerging, and diverse scholarship on digital reputation (see, for instance, Yoganarasimhan, 2013; Gandini, 2016; Mikołajewska-Zając, 2018; Van Dijck, Poell & De Waal, 2018), the question of which specific skills combinations matter for successful performance on particular platforms, and hence the building of a digital reputation, remains unexplored.

We investigated the above question by analysing 750 feedback texts (formulated by clients) for two samples of freelancers working via one of the largest global digital labour platforms (375 web developers, representing a highly skilled service category, and 375 administrative support providers, representing a low-skill service category). We ascertained which skills appear most frequently in those feedback texts and which skill combinations are valued most. Next, we looked at the feedback texts more closely and examined what strategies clients use to reduce uncertainty in their transactions. The combined results help to achieve a deeper understanding of the 'rules of the game' on digital labour platforms.

The article is structured as follows: the next section develops the analytical framework for the study. It further examines the significance of uncertainty reduction in digital labour platforms and presents a typology of skills for competitiveness. The following section presents the conceptual model, details the methodology and discusses the data collection and analysis. A fourth section investigates which skills are key to building a digital reputation on digital labour platforms and a fifth examines how feedback texts help in the reduction of uncertainty on digital labour platforms. Conclusions are drawn in the final section.

Theoretical framework

Uncertainty on digital labour platforms

Competition on digital labour platforms is not only intense but also, because of the diversity of the actors involved, a complex game. Clients posting a job on such platforms are likely to be presented with a motley collection of freelancers making a bid, some of whom are likely to be based, raised and educated somewhere half a world away in a profoundly different socio-cultural and educational context than the client's (see Beerepoot & Lambregts, 2015; Graham, Hjorth & Lehdonvirta, 2017). This creates an assessment challenge for clients (Pallais, 2014), and adds a measure of uncertainty to hiring transactions. More uncertainty is created by the digital nature of

the working relation between clients and freelancers. With clients and freelancers located at a distance and the chances of them ever meeting in person being slim, the embedded relations and social monitoring and sanctioning mechanisms that in onsite working environments encourage people to perform well and live up to their promises, carry less weight, making it easier for either freelancers or clients to disengage or otherwise fail their counterparts (Einav, Farronato & Levin, 2015). As Yoganarasimhan (2013:860) argues,

> *buyers face considerable risks in these marketplaces – sellers may deliver low-quality services, abscond with advance payments, hold up the job without completing it and/or delay it, and steal intellectual property given to them during the job and sell it to a competitor or use it themselves.*

Such conditions make digital labour platforms a good example of markets where, in the words of Beckert (2020:286), 'product quality cannot be known in the present because it depends on future developments, which are not yet knowable'.

It is this uncertainty about what qualities and behaviours marketplace participants will bring to a job that fuels the search for, and reliance on, mechanisms to reduce it. Rational market participants, after all, will be seeking to enter into a transaction at minimum risk, and therefore look for counterparts with a proven record of competence, trustworthiness and other relevant qualities (see Bolton, Katok & Ockenfels, 2004). Most digital labour platforms try to reduce uncertainty by enhancing transparency. They usually perform little upfront screening or certification, but instead rely on reputation and feedback mechanisms, used in combination with efficient search and compare tools, to maintain quality (Einav, Farronato & Levin, 2015). Participants have access to information – objective and subjective – about each other's capabilities and trustworthiness (Hagiu & Rothman, 2016). Objectified information about freelancers' skills is produced by enabling freelancers to have their skills uniformly tested, with test scores then being added to a freelancer's profile and made visible to clients and to other freelancers. Subjective information is generated by encouraging clients and freelancers to evaluate each other after a job has been completed. The 'user satisfaction' data so produced is usually composed of a job success rate score and the written feedback freelancers (or clients) have received from previous clients (or freelancers) they have worked with. It reflects, at least in principle, the genuine and *de facto* experiences of past customers. While the job success rate scores allow for quick and easy comparison, the text comments tend to contain the richer, more fine-grained information about market participants' performance (e.g. reliability, commitment, responsiveness) that cannot be conveyed by numbers (Pavlou & Dimoka, 2006). The two in combination amount to what is known as a platform participant's 'digital reputation' (see also Bellesia, Mattarelli, Bertolotti & Sobrero, 2019; Galperin, 2021).

Reputational systems on digital platforms, however, have their limitations. Given that most platforms represent buyers' markets, freelancers are generally more pressured to maintain a well-developed reputation than clients, and thus find themselves in a position of dependency (Kinder, Jarrahi & Sutherland, 2019). The feedback itself may be compromised as well. It is vulnerable to manipulation as lack of oversight of the authenticity and legal continuity of the market participants is not exceptional on digital

platforms (Gefen & Carmel, 2013). This makes it easy for participants to provide fake feedback or disappear and then reappear as someone else (Bolton, Katok & Ockenfels, 2004; Kinder, Jarrahi & Sutherland, 2019). Feedback texts may also be less than original, as a result of clients taking inspiration from other clients' feedback texts for their own (see also Lukac & Grow, 2021). In addition, and more subtly, platforms with bilateral reputation systems (unintentionally) encourage the rating parties to match whatever feedback they receive with feedback of a similar nature (Horton & Golden, 2015). Finally, reputational systems may become subject to 'reputation inflation' (ibid.), a process discussed further below.

Despite such limitations, reputational systems are a main source of information for (prospective) clients (Lukac & Grow, 2021). This has important implications for market conditions on such platforms, as it may lead to a skewed distribution of rewards among participants, and to newcomers having a hard time establishing a foothold in the market (Gawer & Srnicek, 2021; Braesemann et al., 2022). As in other online marketplaces (such as eBay and Amazon.com) where user reviews and performance scores have a large impact on (new) user choices (Ekbia, 2016; Gandini, 2016; Horton & Golden, 2015), reputational systems favour the more established freelancers with a strong digital reputation. After all, the easier it is for clients (buyers) to gauge and compare the strengths and weakness of freelancers (sellers), the more business is likely to flow to the freelancers with the best credentials (who moreover may be able to secure higher wages for their 'proven' trustworthiness). The same conditions are also conducive to the occurrence of exclusion effects. Exclusion effects on digital platforms occur when successful market participation depends not so much on qualities that can be demonstrated upfront (such as diplomas, rates, physical qualities of the product on offer), but rather on the reputation a participant has gained on the back of completed transactions in that market. The more value market participants attribute to other participants' digital reputations, and the more such reputations are informed by qualities that can only be demonstrated 'on the job', the stronger the exclusionary effects can be expected to be.

On global digital labour platforms, hiring decisions are known to be informed to a substantial degree by user-generated feedback on performed work (Stanton & Thomas, 2014). The distribution and exclusion effects so fostered make it critically important for freelancers to build and maintain their digital reputations. However, which skills, and, in particular, which skills that can only be demonstrated 'on the job', are important to clients and, by extension, key to building and maintaining a digital reputation, remains largely unclear. It is towards these skills that our attention now turns.

Skills for building a reputation in the digital labour market

A common differentiation among qualities or skills necessary for employment is between occupation-specific (technical) skills, generic skills and personal competences (Beerepoot, 2008). The relative importance of these skill categories depends on the structure of the economy, the nature of the knowledge being utilised and the level of development (ibid.). In the comprehensive skills typology of Anderson and Marshall (1994), these three skill sets form the basis for shared norms and values and codes of conduct ('system thinking') that are necessary for organisational performance. In the particular context of digital

labour platforms, system thinking includes the common ground (shared vision, trust) between client and freelancer that reduces uncertainty in a transaction. Generic skills that can be applied across a variety of jobs include communication, problem-solving and general IT skills (see also Laar, Van Deursen, Van Dijk & De Haan, 2020). Personal competence (or 'critical enabling skills') refers to the capacity of an individual to successfully (according to formal or informal criteria) handle certain situations or complete a particular task or job (Ellström, 1998). The combination of these skill sets defines a person's employability in the labour market (s)he operates in (Table 1).

The rise of the information and communications technology sector and the service sector in general have increased the importance of generic skills and, especially, communication skills (Belt & Richardson, 2005). There is a growing consensus in the literature on the importance of transversal skills or 'twenty-first-century skills' such as thinking critically and creatively, solving problems, making informed decisions while using technology, and behaving collaboratively (Berger & Frey, 2016). Occupation-specific skills linked to the use of particular tools or machinery have increasingly given way to more generic and fast-changing skills linked to the use of information and communications technologies (Huws, 2016). For example, apart from the technical or occupation-specific skills, ICT workers need nontechnical skills and competencies such as (English) language skills, project management and organisational skills, teamwork and communication skills, and both creativity and systematic ways of working (Holtgrewe, 2014). Similarly, Laar, Van Deursen, Van Dijk and De Haan (2017, 2020) identify digital skills as technical, communication, collaboration, creativity, critical

Table 1: Knowledge and skills for individual and organisational performance

System thinking ('organisational performance')		
Team working (cooperative, responsive, conflict management, availability) Client orientation (trust-building, business thinking, shared vision, meeting deadlines)		
Skills, knowledge and attitudes for individual performance in a job		
Occupation-specific skills ('hard skills')*	**Generic skills**	**Personal competences ('critical enabling skills')**
– Technical knowledge ('knowing what in a specific domain') – Technical skills ('knowing how in a specific domain') *Examples: Creative writing, search engine optimisation, coding, software development, WordPress programming, graphic design*	– Communication – Problem-solving (analytical skills, reasoning, creativity) – Learning ability – Work process management (organisation, focus) – Craftsmanship (quality awareness, accuracy) – Intercultural skills (cultural awareness, sensitivity)	– Virtues (honesty, reliability) – Social skills (personality, friendliness, patience) – Work ethics/commitment – Efficiency – Adaptability/flexibility – Ability to work independently (self-management) – Entrepreneurialism – Leadership (decisiveness)

*** A selection tailored to global digital labour platforms**

Source: adapted after Anderson and Marshall (1994) and Brewer (2013)

thinking and problem-solving. The digital dimension of these skills refers to their particular application in an ICT-enabled work environment. For each individual, the extent of the overlap between these different skills will depend on the specific nature of that person's occupation and work mode (ILO, 2021b).

The most significant differences between the skills needed by those working in a digital environment and those in traditional employment are flexibility, scalability and being able to engage a broad range of skills and experiences (Bergvall-Kåreborn & Howcroft, 2014). As argued by Ekbia (2016:169), 'The winners of the digital economy are the flexibly and effectively mobile – those who are able to move (between projects and political boundaries), but also socially (between people, communities, and organisations), and mentally (between ideas, skills, and habits)'. Within the particular setting of digital labour platforms, where freelancers have to craft their own careers and handle personal learning (Sutherland, Jarrahi, Dunn & Nelson, 2020), many of these skills can only be learned on the job and competences can only be shown while working via the platform. As elaborated above, this may foster exclusion effects and thus present a key challenge, especially for beginning freelancers.

Methodology

Conceptualising digital reputation

Figure 1 displays our conceptual model. Starting on the right side of the diagram, we take the likelihood of freelancers to be hired on a digital labour platform to be the function of their digital reputation, their technical profile (consisting of CV and hard skills test scores, if any), and possible other factors, such as the remuneration they demand. The digital reputation comprises two components: client evaluation texts and a compound client evaluation score. Client evaluation texts and scores are informed by the freelancer's performance as experienced by the client and may also be influenced by other factors, such as the remuneration agreed upon (e.g. we would expect a client to judge a freelancer's performance more critically if the remuneration is higher). A freelancer's performance, in turn, is conceived to be a function of his/her skills, which we have defined as consisting of occupation-specific skills, generic skills, personal competences and system thinking. Some of these skills (notably the occupation-specific skills) also inform a freelancer's technical profile. Our empirical interest concerns: first,

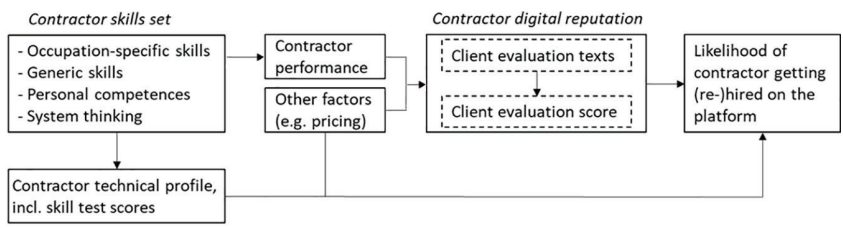

Figure 1: Conceptual scheme – factors influencing a freelancer's reputation and success on a digital labour platform

the skills that appear to matter most to clients and which hence would appear key to the building of freelancers' digital reputations, and second, the strategies platform participants employ to reduce uncertainty (both of which are discussed below).

Data collection and analysis

To find out which (combination of) skills matter(s) most to clients and thus play(s) a role in the building of a good digital reputation we analysed 750 client evaluation texts (or feedback) received by freelancers for done jobs and their matching feedback provided to clients. Data were manually sourced from the profile pages of freelancers and the clients they worked for on one of the largest global platforms for digital freelance work. Collection took place in 2016 and involved work carried out between 2013 and 2015.[1]

The data collection and analysis involved the following steps. First, to trace whether success in different categories of work relies on different combinations of skills, we selected reviews for work carried out in the job categories of web development and administrative support. Web development, representing the higher-skilled segment, requires specific technical skills and knowledge of specific software programs. Administrative support, representing the lower-skilled segment, only requires more generally available communication and administrative skills. The two activities reflect a key differentiation within the Information and Communication Technology sector, namely between more knowledge-intensive IT work and less knowledge-intensive business process outsourcing (BPO) work (see Beerepoot & Lambregts, 2015).

In the second step, we then manually collected a total of 750 client reviews for Filipino, Pakistani and US freelancers involved in web development or administrative support, 125 reviews per country for each sub-category and a maximum of two reviews per freelancer. The motivation to focus on these three groups was to include cultural proximity as a variable in the research to identify whether the (predominately) Western clients provide different feedback to these different groups of freelancers. Eventually, no major differences were found in the feedback received by these groups and the matter is not further discussed in this paper. The matching freelancer reviews of clients included clients from 43 countries, with most clients coming from the USA, Australia and the United Kingdom. This reflects the North–South division on digital labour platforms,

1 Given the dynamic nature of the online world of work, the fact that these data were collected in 2016 could be seen as a limitation of the article. Yet, there are three factors that make the analysis here presented hold merit today. First, the professionalisation of working relations on digital labour platforms that likely has taken place, and that may affect participants' risk perceptions, risk management strategies (as discussed above) and perhaps even skills appreciation, is at least to some degree accounted for by the fact that our sample included a substantial number of highly experienced participants. Second, while some platform participants over the years may have overcome the issue of uncertainty reduction, for many others this remains a key concern (see Chan & Wang, 2018; Lustig, Rintel, Scult & Suri, 2020; Rahman, 2021). Therefore, much of the rationale that informed participants' risk management strategies and assessment behaviour must be regarded as still in effect today. Third, a recent review of the studied platform revealed that even though the platform has meanwhile been equipped with additional matching mechanisms, there have been no major changes in how work on the platform is evaluated by the participants. Most importantly, platform users still appear to assign high value to the signals of trust that originate from the feedback texts and rating tools (Rahman, 2021; Demirel, Nemkova & Taylor, 2021).

where most clients come from Western countries and most freelancers from the Global South (see also Graham, Hjorth & Lehdonvirta, 2017).

Third, the aim was to use purposive sampling to obtain an even distribution of feedback texts across the performance score groups identified in Table 2. However, scrolling through the profile pages of freelancers it appeared impossible to avoid a bias towards higher feedback scores and thus higher-rated freelancers (see Table 2). Horton and Golden (2015) attribute this bias to 'reputation inflation' in digital labour platforms, with average freelancer feedback scores increasing strongly over time. They show how in 2007, 28% of contracts (on the platform oDesk) resulted in a feedback score of fewer than four stars, whereas by 2014 this had dropped to 9%. Three factors were found to contribute to this. First, low-scoring freelancers will generally find it difficult to land new jobs and after a while are likely to start looking for employment elsewhere, closing their account in the process (or getting their account closed by the platform). Second, it is possible on the platform for freelancers to get a low score removed by repaying the client. Third, freelancers with a paid membership and those with a high overall performance score enjoy a better visibility in the platform's search machine.

Fourth, only client review texts of at least 20 words were included in the analysis, as the very short ones (for example, 'great work', 'thank you for another job done') do not provide enough information for analysis. Subsequently, the matching 'review of client' and transaction-specific information such as the size of the jobs (hours) and financial compensation received and the country of origin of the client were collected from the profile pages. As our primary interest concerned the written feedback data, we did not look for freelancer-specific information such as the variation in hourly rates by freelancers, the number of jobs carried out and the number of hours worked. This means that we do not provide an assessment of the variation in the overall performance of freelancers.

Finally, after the collection of the reviews, Atlas-TI was used to code the data and group the three skill types and system thinking in the review texts of both clients and freelancers. Through manual coding, the feedback texts were filtered and each feedback text was interpreted individually, as clients and freelancers may use different words to describe a similar assessment of the work. The review texts were randomly checked for consistency between the feedback score and the written feedback (with the scores found to generally be reflective of the texts). An additional theme, referred to as 'personal relationship', was added to understand the emergence of trust-based relationships between distant clients and freelancers. This was in order to see if the feedback exchanged is purely professional or whether there is room for informal interaction, and

Table 2: Feedback scores of work carried out by freelancers (N = 750)

	1,00–1,99 stars	2,00–2,99 stars	3,00–3,99 stars	4,00–5,00 stars	Total
Web development	40	34	64	237	375
Administrative support	37	25	73	240	375
Total	77	59	137	477	750

whether the counterparts are – or intend to become – engaged in a long-term professional relationship. The job length ranged from one to nearly 6,000 hours.

Knowledge and skills for building a digital reputation

For (aspiring) freelancers on digital platforms, the key challenge is to build and maintain a digital reputation. By examining which skills are most frequently mentioned when jobs are evaluated, it can be identified which skills play a role in building a digital reputation. This in turn, as argued above, reveals to what extent digital labour markets benefit more experienced freelancers or offer good opportunities for newcomers. It also points to the key skills that freelancers who land their first job should focus on to establish their position on the platform.

Table 3: Significance of different skills in client reviews

	Web development (N = 375)		Administrative support (N = 375)		Total (N = 750)	
	(no.)	(%)	(no.)	(%)	(no.)	(%)
Occupation-specific skills	124	14.6	77	9.7	201	12.2
Technical skills	*100*	*11.8*	*61*	*7.7*	*161*	*9.8*
Technical knowledge	*24*	*2.8*	*16*	*2.0*	*40*	*2.4*
Generic skills	299	35.3	291	36.6	590	35.9
Communication	*116*	*13.7*	*101*	*12.7*	*217*	*13.2*
Responsiveness	*87*	*10.3*	*90*	*11.3*	*177*	*10.8*
Craftsmanship (accuracy)	*19*	*2.2*	*36*	*4.5*	*55*	*3.3*
Willing to learn (follow	*24*	*2.8*	*29*	*3.6*	*53*	*3.2*
instructions)	*20*	*2.4*	*11*	*1.4*	*31*	*1.9*
Take initiative	*33*	*3.9*	*24*	*3.0*	*57*	*3.5*
Other						
Personal competencies ('critical	217	25.6	240	30.2	457	27.8
enabling skills')	*73*	*8.6*	*87*	*10.9*	*160*	*9.7*
Pace of work	*50*	*5.9*	*44*	*5.5*	*94*	*5.7*
Reliable	*15*	*1.8*	*26*	*3.3*	*41*	*2.5*
Work ethics/ commitment	*9*	*1.1*	*19*	*2.4*	*28*	*1.7*
Social skills/personality	*15*	*1.8*	*11*	*1.4*	*26*	*1.6*
Flexibility	*55*	*6.5*	*53*	*6.7*	*108*	*6.6*
Other						
System thinking	208	24.5	188	23.6	396	24.1
Self-management (meeting	*51*	*6.0*	*60*	*7.5*	*111*	*6.8*
deadlines, independence)	*57*	*6.7*	*49*	*4.0*	*106*	*4.4*
Teamwork (availability,	*35*	*4.1*	*31*	*3.9*	*66*	*4.0*
cooperative)	*23*	*2.7*	*18*	*2.3*	*41*	*2.5*
Client orientation (shared vision)	*42*	*5.0*	*30*	*3.8*	*72*	*4.4*
Going beyond what is asked for						
Other						
Total count of skill references	848	100	796	100	1,644	100

Table 3 summarises the core findings produced by our analysis of client reviews. It shows the relative importance of different skill categories and highlights the most significant individual skills within each category.

In our total sample of client reviews, generic skills are the most frequently mentioned, followed by personal competencies and system thinking skills. System thinking might be the most challenging in a virtual environment where a freelancer is (in the first instance) hired for a single (sometimes very short) task by a distant client and sometimes works for multiple clients at the same time. System thinking in this particular work setting involves a common understanding of what is required in a transaction (cooperation, shared vision, availability) and an ability to carry out work independently (self-management). More specifically, four individual skills clearly matter more than others for clients when reviewing the work: communication, responsiveness, technical skills and the pace of work (a euphemism for hard working). The biggest differences between web development and administrative support are found in occupation-specific skills and personal competences. Technical skills are substantially more frequently mentioned in client reviews for web development jobs (11.8%) than for administrative support jobs (7.7%), confirming the skill intensity of the former, while social skills, commitment and the pace of work clearly matter more in administrative support.

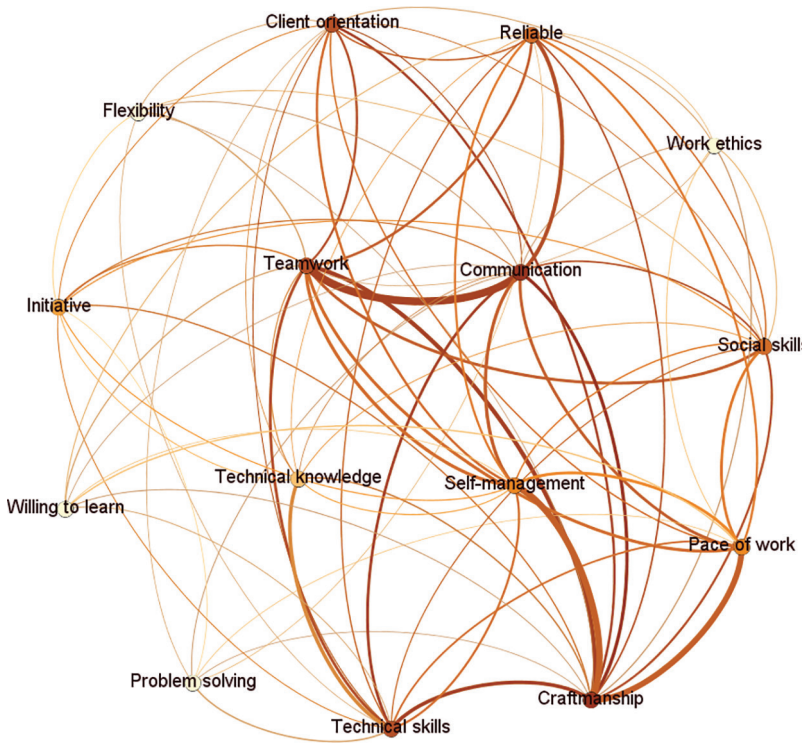

Figure 2a: Co-occurrence of skills in feedback to freelancers

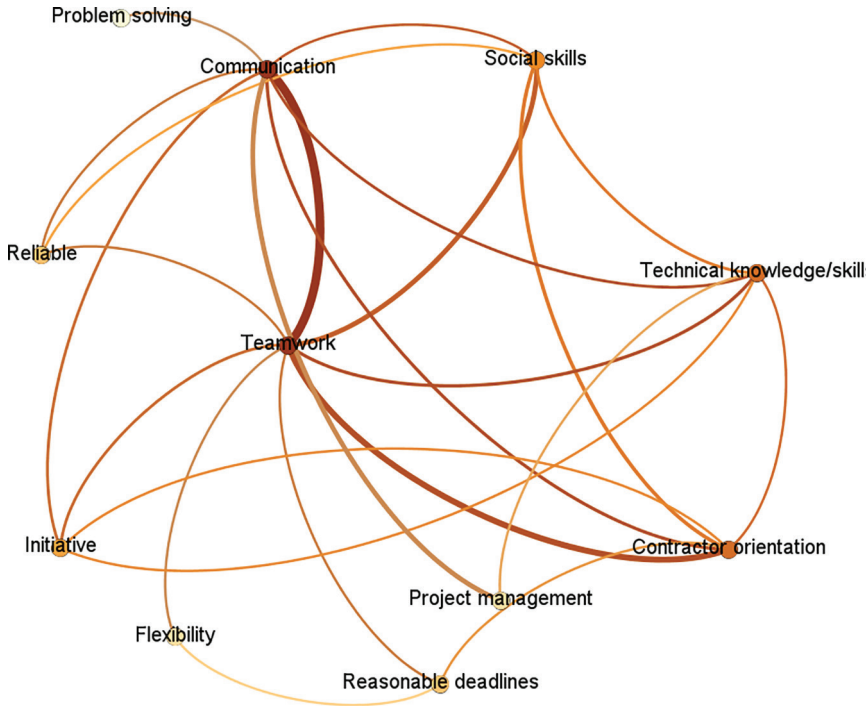

Figure 2b: Co-occurrence of skills in feedback to clients

Next, we investigated which skills appear in combination with each other in the feedback texts, so as to identify which packages of skills matter most. The co-occurrence network in Figure 2a provides a graphic visualisation of associated skills in feedback texts to freelancers. It shows that clients in their assessment of performed jobs most frequently discuss communication skills, teamwork (availability, cooperativeness) and self-management in combination. The most frequent co-occurrence was between communication and teamwork (40 network relations), followed by self-management and craftsmanship (32 network relations). Craftsmanship is a container of related skills (quality awareness, accuracy, experience) which is also frequently assessed in combination with pace of work.

In addition, the co-occurrence network of skills-related feedback from freelancers to clients (Figure 2b) reveals how freelancers perceive the 'rules of the game' of operating on a digital labour platform. Feedback to clients is generally less elaborate (e.g. 'easy to talk with, responsive and cooperative') and is often missing for contracts that received a low rating from clients. The most frequent co-occurrence – again – is between communication and teamwork (17 network relations), followed by teamwork and freelancer orientation (10 network relations). Reliability is of less significance for freelancers (or already assessed through other means) and equally remarkable is the limited significance attached to reasonable deadlines. In some cases, freelancers use feedback to clients to draw attention to their own skills and competencies ('he was an impeccable judge of developer experience and

capability') and to underline their own good rating – an illustration of how freelancers can strategically use feedback texts to strengthen their own digital reputation.

Taken together, we find that the skills that matter most to both clients and freelancers (Table 3 and Figures 2a–b) closely resemble those that are identified in the literature as critical in twenty-first-century (digital) working environments (as discussed above). While communication skills, responsiveness, teamwork capabilities and the ability to self-manage are important in most contemporary working environments, it is easy to understand why they have risen to prominence in the 'distanciated' working environment offered by digital platforms. For freelancers, to have the technical capabilities to complete a job, obviously, and especially for more knowledge-intensive activities, remains a pre-requirement, but these skills have to be complemented by a rich set of more generic skills that help to negotiate the difficulties and uncertainties inherent to the online working relationship. The high value attached to communication and responsiveness corresponds to the desire among platform participants to reduce uncertainty. The generic skills, moreover, are all skills that cannot be shown through skills tests, or through posting samples of work, but can only be demonstrated 'on the job', after which they may be assessed and possibly praised in feedback texts. This suggests that digital labour platforms, thanks to the specific skills that tend to get valued on such platforms, and thanks to the reputational systems used by such platforms, are prone to exclusion effects (as discussed above), with newcomers without digital reputations facing a potentially significant handicap compared to their already established peers.

Finally, while the above relates to skills utilised and displayed 'on the job', freelancers also require skills that help them to navigate the unpredictable and rapidly changing labour market they operate in. This may include moving from job to job on a given platform, moving between platforms, and moving between platform and non-platform working environments. In order to be successful, freelancers need not only to continually be looking out for new jobs (search and acquisition skills), but also to smartly market themselves (Leung, 2014; Bellesia Mattarelli, Bertolotti & Sobrero, 2019). These skills typically do not get assessed in reviews of work performed, but they are as critical to the (tacit) operations of labour platforms as the other skills discussed above.

Uncertainty reduction on digital labour platforms

By frequently referring to such skills as communication and responsiveness in feedback texts, clients, in particular, make it known how important uncertainty and the management thereof is for them. Uncertainty on digital labour platforms is caused by a variety of factors (as discussed above) and presents itself at different stages of the transaction. It is most manifest first when a client needs to select a freelancer for their job (am I hiring the right person for my job?), and second during the work process (will we be able to manage our work relationship successfully and will I receive the product I need in time?). Managing uncertainty involves strategies that help actors either reduce uncertainty (risk management) or cope with it (strategic management) (Sharma et al., 2020). Reducing uncertainty can be achieved with the help of information gathering, proactive collaboration and networking. Coping with uncertainty, in turn, involves

flexibility (diversification and operational adaptation), imitation (copying competitors and early movers), reactive collaboration, control and avoidance (ibid.) (see Table 4). Little is known, however, about if and how such strategies are used on digital labour platforms. In the remainder of this section, therefore, we revisit our collection of feedback texts and explore what they teach us about the strategies platform participants (clients in particular) use to manage uncertainties pertaining to freelancer selection and the work process.

Feedback texts and uncertainty reduction

Feedback texts get written on the back of completed jobs and as such are not instrumental to the management of uncertainty in the jobs they review. They do, however, tend to contain information that firstly reveals how the writers have coped with uncertainty during the job and/or secondly helps their intended readers to reduce uncertainty. They may contain rather blunt risk-reducing advice ('Do not work with this customer if you do not want your profile to be ruined'), or more articulate reflections on past experiences ('I have dealt with quite a few different freelancers and there always seem to be issues with quality, communication or availability'), and as such are instrumental to the building of digital reputations. Such reputations, subsequently, as Gandini (2016:37) argues, function 'as the source for trust to be built across a socio-economic context where actors are quasi-strangers'.

Risk management strategies (information gathering, proactive collaboration, networking)

Reputational systems and their constituent feedback texts are a main source of information for platform participants in general and for (prospective) clients looking to hire a freelancer in particular (Stanton & Thomas, 2014; Lukac & Grow, 2021). They enable clients to make better-informed hiring decisions and allow inquisitive readers to learn from the broader platform experiences of others. Yet, participants may feel a need to gather more information than feedback texts alone provide ('After all the searching and interviews, finally found someone that can do what he says he can do, on time, for the price agreed and actually calls you back. I didn't think such a person existed'), and eventually still have to make their own risk assessments, which may work out well ('I took a chance to ignore the one bad review and it paid off'), or not so ('Skill level was not as presented'; 'There was no forewarning about being unavailable'; 'I got charged over $1000 – without getting anything I could use').

Proactive collaboration and cooperation are manifest through the importance participants attach to teamwork and reliability (as discussed above). Clients feeling positively impressed by the qualities of the contracted freelancer may even employ that freelancer for further collaborative efforts ('His integrity was rock solid and he served as a model for other developers to join the team'; 'He was very forthcoming and we worked well as a team to find additional freelancers to support the core work'). Such practices can be seen as coping strategies during the work process, but also as a means to contribute to risk reduction in (add-on and future) hiring processes.

Networking, in turn, on digital platforms happens most frequently through the *rehiring* of trusted freelancers and the building of personal and longer-term

relationships with them. In 292 cases, clients mentioned that they would re-hire the freelancer in question. This also works the other way around: 151 freelancers voiced their willingness to work for the same client again. Re-engaging with trusted counterparts is, of course, the ultimate way to reduce uncertainty in hiring and job acceptance decisions. These displays of loyalty contradict the common understanding of 'gigs' as incidental and short-lived work relations between freelance workers and their (multiple) clients. Within the volatile labour market environment that digital labour platforms represent, both clients and freelancers do seek longer-term engagements (see also Sutherland, Jarrahi, Dunn & Nelson, 2020).

Coping strategies (flexibility, imitation, reactive collaboration, control, avoidance)

An uncertainty coping strategy applied by clients is to build in flexibility in the hiring process, for instance, by hiring freelancers for test projects ('Upon hiring him for a test project, he was a real disappointment') before assigning them larger projects ('This is just a trial contract and I will surely be getting him again'). Alternative flexibility strategies (e.g. diversification and operational adaptation) did not surface frequently in the feedback texts, but this may also be due to the generally brief nature of such texts. Not many reviewers provided elaborate accounts of how a job in terms of design and process was brought to completion.

To hire freelancers with a good digital reputation (i.e. with a track record proven by other clients) is essentially an imitation mechanism. Positive review texts such as 'His communication skills, work ethic, dedication and attention to detail is what makes him stand above the rest' or, more simply, 'I wish more freelancers were like her' are likely to make other clients feel more confident about the hiring decision they are going to make.

Some clients engage in reactive collaboration, for instance by training freelancers to make sure their skills meet their requirements. Such efforts are obviously appreciated by the freelancers involved ('Their training was very organised and members of the staff were always available to me for questions and guidance'), but do not always deliver the desired results ('He could not seem to understand and apply our standards no matter how much time we spent training him'). As with the strong willingness to re-engage, these training initiatives, which are significant investments in a labour relation, are somewhat at odds with the common image of platform work as non-committal, for clients in particular.

Clients can administer control through milestone payments and the use of tracking and monitoring software (Kinder, Jarrahi & Sutherland, 2019). While these did not feature frequently in feedback texts, situations do occur where clients feel compelled to intervene in the work process in order to avoid further loss ('I had to end the contract due to a lack of communication and the fact that more than one deadline was missed'). In extreme cases, this results in feedback texts warning other platform users to avoid the counterpart in question ('I will NOT recommend his services to anyone'), with avoidance, of course, being practised as a strategy by all those who refuse to engage with a counterpart with a bad digital reputation or without one. The frequent mentions by clients of how lucky they had been finding a particular freelancer, how they had

suffered negative experiences with previous freelancers (11 mentions), or how they had been cheated by freelancers running away with the money (10 mentions) further demonstrate how real the risks are on digital platforms and how great the relief after a well-completed job can be.

Finally, how feedback can be used to simultaneously help other platform users to reduce uncertainty, draw attention to valuable skills, and help the receiver with the acquisition of new jobs is illustrated in the feedback that a US client wrote to a Philippine freelancer (name changed for privacy):

> *Janet is one of the most reliable, honest, talented and responsible freelancers you will ever find. In addition, her cost is extremely reasonable. She is very responsible and will help you steer most difficult situations with the utmost personal touch and care: Hire this individual, as you will never be disappointed by her great personality, kindness, intelligence and talent (plus rate).*

From the feedback text, it can be derived that, aside from the low pay rate of the freelancer (mentioned twice), personal competences (personality, kindness, intelligence) and uncertainty-reducing, trust-building, 'system thinking' (reliable, honesty, utmost care, help you steer) are regarded to have been of key importance in the transaction. By addressing fellow clients ('you will ever find', 'hire this individual'), this feedback text is clearly also meant to support the freelancer with new applications. By using adverbs such as 'most', 'ever', 'very', 'extremely', 'utmost', 'great' and by using the word 'responsible' twice, the feedback exceeds what one would expect for a proofreading job of 109 hours and a total compensation of $588. Such elaborate feedback for a relatively simple job not only demonstrates how clients help each other to cope with uncertainty, but also shows how the 'rules of the game' of the platform further include a commitment to support the freelancer beyond the duration of the project. Similar encouragements to recruit a particular freelancer were found in 141 other cases, which further signals how hard it is for new entrants without a digital reputation to gain a foothold in this market.

Conclusion

This article has engaged with the question of which freelancer qualities are most valued by clients and are hence critical to the building of freelancers' reputations on a global digital labour platform, and what strategies participants (clients in particular) use to reduce uncertainty while operating on such platforms. In doing so, we have aimed to arrive at a better understanding of what it takes to successfully navigate this newly emerging world of work (see also D'Cruz & Noronha, 2016; Huws, 2016; Fabo, Karanovic & Dukova, 2017), in which competition for jobs is increasingly global, employment relations become more flexible, and participants rely on reviews and performance scores for securing new jobs and risk reduction.

Our analysis reveals that a combination of mostly generic skills (revolving around communication, responsiveness, teamwork, self-management, and the pace of work) takes centre stage in feedback texts, suggesting that freelancers would do well to hone these, especially to support their digital reputations. Interestingly, these skills cannot be demonstrated upfront but only 'on the job', meaning that newcomers to the platform,

who arrive without a proven track record, find themselves at a disadvantage compared to their already established and successful peers. Global digital labour platforms, in other words, through a combination of high dependency on reputation mechanisms and high appreciation of generic skills, throw up barriers to new entrants. Clients' inclination to emphasise communication skills, responsiveness and the ability to collaborate also points to how real the issue of uncertainty is for them. Additional analysis of feedback texts revealed how, especially, clients apply a variety of risk reduction and coping strategies aimed at making better-informed hiring decisions, in particular. The two analyses in combination exemplify the complex nature of work on digital labour platforms and the 'rules of the game' on such platforms. They highlight, in particular, the important role played by written feedback and digital reputations as a trust-building mechanism capable of influencing decision-making by clients. In the critical scholarship on gig work via digital labour platforms and the related calls for 'fair work' (e.g. Graham & Woodcock, 2018), this complexity and the intrinsic unevenness in the operation of digital labour platforms for different freelancers remains a relatively unexplored topic.

The dynamics on digital labour platforms here observed give an initial insight into what may come to affect a range of professions (see Berger & Frey, 2016; ILO 2021a). As emphasised in the *World Development Report* (2019), technological advances are changing the skills being rewarded in the labour market. Not only do generic (socio-behavioural) skills become more important, but it is also increasingly indispensable for individuals to possess combinations of different skills. Digital labour platforms operate as frontrunners in the changing world of work (see Berg, Furrer, Harmon & Silberman, 2018), which demands skill sets that enhance the adaptability of workers and allow them to transfer easily from one job (and client) to another. Combinations of relevant soft skills are often central to a person's employability (see Beerepoot & Hendriks, 2013), which, in digital labour markets, includes teamwork with distant clients. More critically evaluated, freelancers are required to be compliant and to be able to adapt to the (changing) needs of clients in a context where longer-term contracts cannot always be taken for granted.

This initial investigation into digital reputation and uncertainty reduction paves the way for a variety of follow-up studies. First, the relationship between skills, digital reputation and success on digital labour platforms could be further investigated: first, by looking deeper into the feedback that freelancers with excellent and very poor digital reputations have received over the duration of their platform careers, so as to get a better understanding of the individual contributions various skills make to a digital reputation; and second, by performing a large scale, quantitative analysis aimed at revealing if and how freelancer digital reputation scores correlate with (financial) success, and whether highly rated freelancers indeed manage to capture the largest share of the gains. Such research can be expanded to look into the role that gender plays on digital labour platforms. Clients' hiring decisions are known to be affected by gendered occupation stereotypes (see Galperin, 2021; Chan & Wang, 2018), making it imperative to investigate if and how gender-based stereotypes play a role in the evaluation of work conducted on digital labour platforms and the particular skills that are highlighted therein.

Second, more direct engagement with clients and freelancers operating on digital labour platforms, for instance, via interviews and/or surveys, can provide new insights into how these actors perceive and deal with uncertainty during their operations. What selection criteria do they use when choosing freelancers for their jobs? And how risk-averse does the reputation system make freelancers? The analysis above has provided some first clues, but there is significant scope for further exploration of this topic.

Finally, research into the ways labour platforms are managed could reveal how platform policies (e.g. ranking algorithms) favour some freelancers over others (see also Sutherland, Jarrahi, Dunn & Nelson, 2020). Another question is how and through which channels freelancers acquire new skills for maintaining competitiveness on digital labour platforms. The analysis presented in this paper could also be extended to other types of platforms where reviews play a major role in participants' decision-making and co-shape the modus operandi of the platform.

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