

RESEARCH ARTICLE

The needs of freelancers and the characteristics of ‘gigs’: Creating beneficial relations between freelancers and their hiring organizations [version 1; peer review: 2 approved]

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Abstract




More and more workers in Western economies are operating as freelancers in the so-called ‘gig economy’, moving from one project—or gig—to the next. A lively debate revolves around the question as to whether this new employment relationship is actually good for innovation in the 21st century economy. Proponents argue that in this gig process valuable knowledge is created and transferred from one organization to the next via freelancers through their sequence of temporary gigs or projects. Antagonists reason that freelancers are only hired as one-trick ponies on a transactional basis, where knowledge is neither created nor shared. In this study, we focus on the characteristics of gigs. Which project characteristics lead to increased engagement of freelancers, and hence to knowledge-sharing behavior? Our study suggests that the gig economy can indeed lead to increased knowledge sharing by and engagement of freelance workers, provided that organizations and freelancers structure and shape gigs in such a way that they: (1) not only suit the task requirements at hand and (2) fit with the acquired skills of the freelancer, but that these gigs also (3) leave ample of room for the freelancer’s individual growth and development of new skills. This suggests that innovative organizations will need to shape gigs in such a way that freelancers are not only hired for their expertise, but rather that gigs also provide a learning opportunity for freelancers.

Keywords

Gig economy, freelancers, project-based work, knowledge sharing, and engagement

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Introduction

More and more workers in Western economies are operating as freelancers in the so-called ‘gig economy’, moving from one gig—or project—to the next. The status of such gig workers is under debate (Kuhn & Maleki, 2017), and the exact number of freelancers is difficult to estimate with the existing sources of government data. However, their numbers seem to be increasing exponentially. Recently, according to the independent research firm Berland (2014), an estimated 53 million Americans—more than one in three workers—were already freelancers in the early 2010s (see also Cappelli & Keller, 2013). With the rise of the gig economy, growing numbers of professionals no longer hold long-term connections to organizations. Rather, much employment is arranged through temporary contracts with the help of employment agencies such as Randstad and online staffing platforms such as Elance. More than ever before, organizations tend to hire temporary expertise on a project basis. This is not limited to generic and low-value skills, as was the case in the 20th century, but increasingly also extends to very specialized skills offered by valuable and scarce knowledge workers.

It is by no means clear yet, though, whether the expansion of these new forms of temporary labor is positive for individuals, organizations, and/or the economy as a whole. For instance, Friedman (2014) argues that “While the rise of this ‘gig’ economy is praised by some as a response to the wishes of a more entrepreneurial generation, it is more likely that it is driven by the concerns of businesses to lower wages and benefit costs.” The then Democratic presidential candidate Hillary Clinton recently added to this: “This on-demand or so called ‘gig’ economy is creating exciting opportunities and unleashing innovation, but it’s also raising hard questions about workplace protections and what a good job will look like in the future” (Rogers, 2015). Paul Osterman, professor at MIT Sloan Business School, argued that if the jobs “meet people’s needs for flexible employment and provide learning real skills and pay decent wages, then they are certainly a positive for the economy” (Rogers, 2015).

To get a better understanding of the gig economy, and particularly its true impact on individuals and organizations, we need to dig deeper by focusing on the micro level of the individual freelancer, and her/his attitude *vis-à-vis* the hiring organization (cf. Kuhn, 2016). To this aim, the current study is the first, to the best of our knowledge, which seeks to analyze ‘gigs’ in detail empirically, and by doing so, to examine the micro-level building blocks of the macro-level gig economy. Can a series of gigs constitute a good job? Do these gigs engage and develop individuals, or are individuals merely used and exploited by hiring organizations to bring in their expertise? This study focuses on three aspects relating to these questions: (1) freelancers’ individual growth opportunities provided by gigs; (2) engagement of freelancers with projects and organizations; and (3) knowledge sharing of freelancers with their hiring organizations. With our focus on this set of three aspects, we examine what we believe may well be the essential freelancer—organization relationship’s core that may turn out to be mutually beneficial beyond the isolated transaction of a single gig.

Given that we are entering into new territory here, we opted for an exploratory research design. Specifically, we decided to conduct a survey study in a Dutch convenience sample, with 928 usable responses. After reviewing related literature, we adapted validated scales to fit with our specific gig context. Additionally, we developed new scales where we could not find appropriate ones in the extant literature. Our study suggests that the gig economy can indeed lead to increased knowledge sharing by and engagement of freelance workers, provided that organizations and freelancers structure and shape gigs in such a way that they: (1) not only suit the task requirements at hand and (2) fit with the acquired skills of the freelancer, but that these gigs also (3) leave ample of room for the freelancer’s individual growth and development of new skills. Under these three specific conditions, freelancers learn from gigs and are engaged with the contractors, and share their valuable knowledge with these temporary hiring organizations. Then, we have a win-win that benefits both individuals and organizations.

Literature

Despite the fast and unprecedented growth of the gig economy, and hence of the freelancer community, and the associated increased relevance of project-based work, research into project-based organizations and their temporary workers is still scarce. Research on the self-employed is plentiful (for recent examples, see, e.g., Lechmann & Schnabel, 2014; Spanjer & van Witteloostuijn, 2017; van Praag *et al.*, 2013), but many of our organizational theories are still based on the notion that work is permanent and not temporary, rather than on the insight that this work is rapidly changing and organized in the form of temporary contracts in the context of projects. Two notable exceptions are the studies of Lundin & Söderholm (1995) and Whitley (2006), who both have developed insightful theories on project-based organizations.

This is not to say that no research has been conducted on project-based work—quite the contrary. For example, topics such as learning and innovation within project-based organizations have become notable subjects of research. Insightful studies on project learning and innovation are, for example, Prencipe & Tell (2001) and Brady & Davies (2004) on learning processes in project-based organizations, or Keegan & Turner (2002) on the linkage between innovation and project management practices. However, these studies often focus on the organization rather than the freelancer (i.e., organizational learning or organizational capability development), and are set in organizations where full-time employees are executing the work. In the current study, we are instead interested in projects executed by a temporary, professional workforce that moves from one gig to another, with a focus on the freelancer’s perspective.

Freelance careers: the art of stylishly building portfolios

Although freelancing has gradually increased in importance over the last two decades, there is still limited empirical work on freelance careers. Interesting exceptions are van den Born & van Witteloostuijn (2013), Fraser & Gold (2001) and Platman (2003). In these studies, the freelance career is often seen as the archetypical portfolio career. Frameworks such as DeFillippi & Arthur’s (1994) model of the boundaryless career or

Hall's (2004) concept of the protean career are frequently used as the lens through which to describe and examine the challenges and paths of the freelance career. Interestingly, many studies of the freelance career are set in the creative industries. This is understandable, as most creative vocations, from actors to designers and from musicians to translators, earn their living by moving from gig to gig. Careers in the creative industries are centered around portfolios of gigs. The gig is both the vehicle for creative output, as well as the channel that gives shape to the freelance career. Examples of relevant work in these industries are Faulkner (2003) on the careers of composers in the feature film industry and Haunschild (2003) in repertory theatres, and Weissman (2011) and Armstrong (2013) on musical careers. We refer to DeFillippi (2015) for an overview of the work on careers in creative and cultural industries.

One of the key career challenges of every freelancer, regardless of industry, is how to cope with the tendency to type-cast (e.g., Zuckerman *et al.*, 2003). This is the tendency of hiring organizations to prefer professionals with similar prior experience and an unambiguous career path (Jones, 2002). O'Mahony & Bechky (2006) argue that freelancers face a career progression paradox. While learning is central to their livelihood as knowledge workers, hiring organizations do prefer one-trick ponies with extensive experience in one key area. Freelancers reconcile this career progression paradox by pursuing "stretchwork". O'Mahony & Bechky (2006, p. 924) define stretchwork as: "work that largely fits with an individual's previous work experience but introduces a small novel element that extends his or her skills in a new direction." Stretchwork facilitates freelancers to obtain new knowledge, skills and abilities, which later on can be marketed as relevant experience, so extending the portfolio of what they have on offer.

This implies that freelancers require projects with some degree of novelty, whilst hiring organizations do largely prefer those individuals who demonstrated extensive experience and commitment in a certain field of (rather narrow) specialization. The hiring organizations expect freelancers with a high degree of specialization to do a better job. This tendency to hire specialist experts only may not motivate freelancers to do their utmost best for the hiring organization, notwithstanding the fact that learning and overcoming challenges are crucial to both their happiness (Csikszentmihalyi & Csikszentmihalyi, 1991) as well as their careers (Leung, 2014). Freelancers may retaliate by 'not going the extra mile', but by only delivering what is agreed upon – and not by providing anything else or something extra. In terms of psychological contracts (Rousseau, 1990), one may argue that the hiring organization signals a purely transactional contract by offering no developmental possibilities, and by only looking for the perfect project-person fit. The freelancer accepts this transactional proposal by offering just the required services, and nothing more. While this 'contract' may be suitable for many gigs, one may argue that this will hamper the essence of why freelancers are brought in: transferring their external expert knowledge to the organization and bringing the organization to the next level.

Mutual beneficial relations: buyer–supplier relations versus employee relations

In this study, we do not examine the career path of freelancers, but we rather focus on features of the gigs: i.e., (temporary) projects performed for hiring organizations by an external workforce. Under which conditions do these gigs lead to innovation for the organization, and growth and development for the freelancer? That is, when are these gigs beneficial for both worker (i.e., freelancer) and (hiring) organization? As is almost always the case with studies on freelancers, much inspiration can be found in two sources: the literature on employees and the literature on entrepreneurs, as the freelancer is a hybrid with both employee and entrepreneurial features (see van den Born & van Witteloostuijn, 2013). In this instance, we can build on the literature on employment relations, on the one hand, and that on buyer-supplier relations, on the other hand. Together, both strands of literature can provide a good starting point for this study.

Interestingly, both the literature on buyer–supplier relationships and that on employee relations distinguish between 'close' versus 'distant' (or 'arms-length') types of relations. For instance, Wuyts & Geyskens (2005) study the formation of buyer–supplier relations and the conditions under which close relationships are formed, as well as when detailed contracts are drawn. This is not so different from human resource management models such as those of Tsui *et al.* (1997) or Lepak & Snell (1999), distinguishing between internal developing and external contracting, or the psychological contract literature that differentiates between relational and transactional relationships.

In a meta-analytical review of the literature on buyer–supplier relationships, Terpend *et al.* (2008) conclude that buyer–supplier relations have deepened over the past two decades: buyers have come to expect more of their suppliers. This suggests that there is merit in close buyer–supplier relationships. This is also clear from various empirical follow-up studies on the matter. For example, Revilla & Villena (2012) reveal that buyers that integrate knowledge with suppliers show improved efficiency as well as innovation. But in a study on the dark side of buyer–supplier relationships, Villena *et al.* (2011) report that not only insufficient social capital hurts the buyer–supplier performance, but that too much social capital is also detrimental. In a recent overview of the literature, Wang *et al.* (2013) confirm this view. Nurturing buyer–supplier relationships can culminate in significant performance improvement, yet these relationships may also lead to damaging results as a consequence of partner opportunism. They argue that firms should improve their use of social capital to curb the harmful effects of opportunism.

The literature on employee relations and the impact of such relations on outcomes dwarfs the literature on buyer–supplier relationships. For the sake of parsimony, we restrict ourselves to the psychological contract work that we believe is particularly relevant in our context. In this literature, the distinction between transactional and relational contracts is well established, and

many performance outcomes of such relationships have been studied. While most of the studies are aimed at investigating the effects of contract breach, many studies have also reported on the impact of the relational *vis-à-vis* transactional aspects of contracts. Meta-analytical studies of the empirical literature on psychological contracts (e.g., [Agarwal, 2014](#); [Zhao et al., 2007](#)) show that relational contracts typically correlate positively with commitment, trust and job satisfaction, whereas transactional contracts tend to be associated with lower commitment, trust and satisfaction.

Related to the above, many studies examine the psychological contract of temporary workers. These workers typically are not freelancers as they do not work for themselves, and generally do not have the high-value skills that many freelancers can bring to the table. Nevertheless, both types of temporary workers share many of the same characteristics, such as a temporary contract and having relations with various employers at the same time, and sequentially. One of the earlier studies on psychological contracts and contingent workers is that of [Pearce \(1993\)](#), who found that commitment was not different between full-time and contracted engineers, counter to her hypothesis. In this argument, transactional contracts are equated with temporary (often part-time) work, and relational contracts with a permanent (often full-time) job. While this seems plausible, many studies have shown that this simplification is besides the mark (e.g., [Guest, 2004](#)). Temporary work arrangements often have relational characteristics, and permanent employees may feel that they have a fully transactional relationship with their employer. Moreover, relationships of temporary workers often start off transactional, but over time become significantly more relational ([Lee & Faller, 2005](#)). It is therefore no surprise that research, by and large, does not find differences between temporaries and permanents on aspects such as satisfaction, commitment, and self-rated performance.

Knowledge sharing

That knowledge of outsiders is important for organizational innovation and knowledge development is by now well established. Especially the work of [Chesbrough \(2006\)](#), and subsequent studies on open innovation (e.g., [Dahlander & Gann, 2010](#)) and external knowledge (e.g., [Lichtenthaler & Lichtenthaler, 2009](#); [Zhou & Li, 2012](#)) have clearly demonstrated the value added of bringing in external knowledge into the organization's innovation process. However, most of these papers have studied this value added in terms of consumer or supplier knowledge; and none of these studies have included freelancers in their design as a potential source of external knowledge.

Equally, that knowledge sharing cannot be taken for granted is firmly established by now. For example, [Parke et al. \(2014\)](#) reveal that face-to-face meetings are important for effective knowledge sharing, even in virtual teams. The literature shows that motivation, ability, and opportunity all play an important role in knowledge sharing (e.g., [Reinholt et al., 2011](#); [Siemens et al., 2008](#)). Interestingly, much research demonstrates the crucial role of reciprocity ([Chiu et al., 2006](#); [Lin, 2007](#)). Reciprocal benefits are positively and significantly associated with

knowledge-sharing behavior in a variety of contexts (e.g., in communities of practice, as well as in organizations). This all suggests that hiring organizations that invest in the relation with their freelancers will benefit from increased influx of knowledge sharing from their freelancers.

Work engagement

Practitioners often recognize that engagement and “going the extra mile” are important for work performance. Since [Kahn \(1990\)](#) described engagement as a unique and important motivational concept, the popular press and many HR consultants have declared that engaged employees will create a competitive advantage for their organizations. Lately, these strong claims have been backed up empirically by a number of studies. One of the first of these studies is [Saks \(2006\)](#), revealing that engagement is strongly related to concepts such as satisfaction, intention to quit, and commitment, arguing that more academic research should look into the concept of engagement. Since then, a series of studies have confirmed these positive effects of engagement. For instance, [Rich et al. \(2010\)](#) show convincingly that engagement is a much stronger predictor of task performance than other, more traditional measures such as motivation, satisfaction, and involvement. In a meta-analytical study on the antecedents and consequences of engagement, [Christian et al. \(2011\)](#) conclude that engagement has a strong relation with both task as well as contextual performance.

Engagement is an active expression of employee wellbeing, which combines pleasure with dedication and activation. This suggests that engagement has a stronger relation with innovation than traditional subjective performance measures of wellbeing, such as job satisfaction. In this respect, [Bakker \(2011\)](#) argues that engaged workers are more open to new information, are more productive, and are more willing to go the extra mile, and [Salanova & Schaufeli \(2008\)](#) show the importance of engagement for proactive behavior of employees, a well-known determinant of innovativeness of firms. To date, the impact of engagement on innovation has scarcely been studied, however, with a few recent exceptions. For example, [Bhatnagar's \(2012\)](#) study reveals strong empirical relationships among work engagement, innovation, and turnover intention. The study of [De Spiegelare et al. \(2014\)](#) uncovers the strong relation between work engagement and innovative work behavior. This all suggests that if freelancers are hired to bring ‘newness’ and innovation to companies, the hiring organizations need to invest in creating engaged freelancers.

Predictions

Much has been written about employee engagement in the human resource management and organizational behavior literatures. In the context of our exploratory study into gigs from a freelancer perspective, we cannot but engage in cherry-picking, focusing on a few insights from this huge literature that we believe are highly relevant in a freelance setting, too. Engagement is commonly found to be positively related to job satisfaction, organizational commitment, lower intentions to quit, and organizational citizenship behaviors ([Saks, 2006](#)). It is therefore a desirable trait in employees that organizations strive for, and

several studies have offered suggestions as to how engagement can be achieved. For instance, Hicks *et al.* (2014) find that employees experiencing a “good fit” with their work environment become more engaged. This applies to both task engagement, which is the engagement toward the tasks that the employee executes, as well as organizational engagement, which refers to the investment of the organization in its workers. If there is a misfit between the employee and the environment, disengagement occurs. If a professional is not challenged enough by the environment, bore-out occurs; in the reverse case of too much challenge (and hence stress), the likelihood of burn-out increases.

Although the literature refers to employees, we believe that the above logic does also squarely apply to the independent professional. In the case of a freelancer, the task relates to the project s/he is hired for to execute. So, in analogy to the task engagement concept, we introduce project engagement, tailored to the role of the freelancer. Similarly, organizational engagement refers to the hiring organization. This gives the following pair of benchmark Hypotheses 1 and 2.

Hypothesis 1 (H1): *Freelancer–project fit is positively associated with project engagement.*

Hypothesis 2 (H2): *Freelancer–project fit is positively associated with organizational engagement.*

This pair of hypotheses can be argued to be tautological. After all, measures of a ‘fit’ will have a positive association with the outcome variable – engagement, in our case – by the very definition of the ‘fit’ concept. So, of course, Hypotheses 1 and 2 are empty without a detailed specification of what fit entails in our specific context. Hence, we detail what we mean by fit in our setting of freelancers in a series of four propositions. In these propositions, we focus on one attribute of the freelancer, and one characteristic of the gig: professional motivation and project environment, respectively. We argue that highly motivated professionals prefer high-opportunity projects (and, *mutatis mutandis*, that lowly motivated professionals have a preference for low-opportunity projects).

Proposition 1 (P1): *If the independent professional is highly motivated, then a high-opportunity project will result in a fit.*

Proposition 2 (P2): *If the independent professional is highly motivated, then a low-opportunity project will result in a misfit.*

Proposition 3 (P3): *If the independent professional is little motivated, then a low-opportunity project will result in a fit.*

Proposition 4 (P4): *If the independent professional is little motivated, then a high-opportunity project will result in a misfit.*

When employees believe that their organization cares about their wellbeing, then they are likely to respond by attempting to fulfill their obligations to the organization by becoming more engaged (Saks, 2006). Related to this, organizational support will be positively related to job engagement and organizational

engagement (Saks, 2006). Such (perceived) organizational support signals to the employees to care about the interests of the organization, and to help to achieve the organization’s goals (Rhoades *et al.*, 2001). *Mutatis mutandis*, this applies to the context of freelancers, too, with the difference that a freelancer is concerned with (perceived) project-related organizational support – not overseeing the whole organization, but being in close contact with the hiring organization’s supervisor of the project at hand. We coin this supervisor support. This gives our next pair of Hypotheses 3 and 4.

Hypothesis 3 (H3): *A caring organizational environment is positively associated with organizational engagement.*

Hypothesis 4 (H4): *Supervisor support is positively associated with organizational engagement.*

The relation between task-related (or project-related, in our setting) engagement and organizational engagement has not been studied before. Given the temporary nature of freelance work within an organization, we argue that professionals will not feel engagement toward a hiring organization *ex ante*. However, *ex post*, next to fit and the organizational environment, the professional may derive organizational engagement from the project engagement s/he feels. Professionals who sell their knowledge are often part of larger investment projects within the hiring organization, implying that their engagement with the project may well result in successes for the organization as a whole, beyond the project at hand. This suggests Hypothesis 5.

Hypothesis 5 (H5): *Project engagement is positively associated with organizational engagement.*

Next to having positive relations with such concepts as job satisfaction and the intention to stay, engagement has been found to be positively associated with knowledge sharing: Work engagement is an important predictor of knowledge-sharing behavior. It is believed that without engaging in tasks, employees are unlikely to share task-related knowledge proactively (Chen *et al.*, 2011). This is because a lack of engagement with the task has been found to limit proactive behaviors, amongst which knowledge sharing is a key one. As explained above, we argue that where work engagement applies to employees, project engagement will be a valid concept in the context of independent professionals. This provides Hypothesis 6.

Hypothesis 6 (H6): *Project engagement is positively associated with knowledge sharing.*

Organizational engagement has not directly been linked to knowledge sharing, to date, but has been shown to be related to a component of organizational citizenship behavior in the form of the willingness to take the time to help others who have work-related problems (Saks, 2006). Logically, sharing knowledge would be part of such an activity (Ford, 2008). From this, we have Hypothesis 7.

Hypothesis 7 (H7): *Organizational engagement is positively associated with knowledge sharing.*

Finally, *Cabrera et al. (2006)* find that a person will be more inclined to exchange knowledge with others to the extent that approval from supervisors is expected. We predict that this will also be the case for independent professionals, who have a tight connection to their supervisors in the hiring organizations to execute projects correctly and properly. This gives our final Hypothesis 8.

Hypothesis 8 (H8): *Supervisor support is positively associated with knowledge sharing.*

Figure 1 visualizes the full conceptual model, with references to our four propositions and eight hypotheses. Note that we refer to propositions regarding professional motivation and project environment, instead of hypotheses, as a comparison of the scores for this pair of variables will feed into the fit measure, as explained below.

Methods

Data

The research was executed in the Netherlands, a country that has seen a recent surge in independent professionals, especially those who have received higher education. The data was collected through online surveys. Potential respondents were approached

via email, through the network of an online freelancer community (i.e., Dutch Network Group) and a company that mediates between independent professionals and hiring organizations (i.e., HeadFirst). The freelancer network published the link of the survey and communicated the research widely within their community. This triggered 531 fully completed responses. The intermediary organization targeted 11,730 independent professionals, which generated 397 useable responses. The useable response rate is about 4%, which is quite good for online surveys. In total, we have 928 responses appropriate for data analysis.

Of course, the above implies that ours is a convenience sample, associated with many well-known downsides. Specifically, we have no way of knowing whether our sample is representative for the wider population of Dutch freelancers, and to what extent our sample is plagued by endogeneity as a result of selection (i.e., response) bias. Moreover, to increase the likelihood of response, we deliberately developed a very short survey instrument (see below), with 38 questions only (12 involving multiple-item scales). As our study is exploratory in nature, being the first of its kind, to the best of our knowledge, we believe that both choices are defensible. Of course, this implies that all our findings must be interpreted with caution, and that much replication work (with expanded surveys and other samples, also from

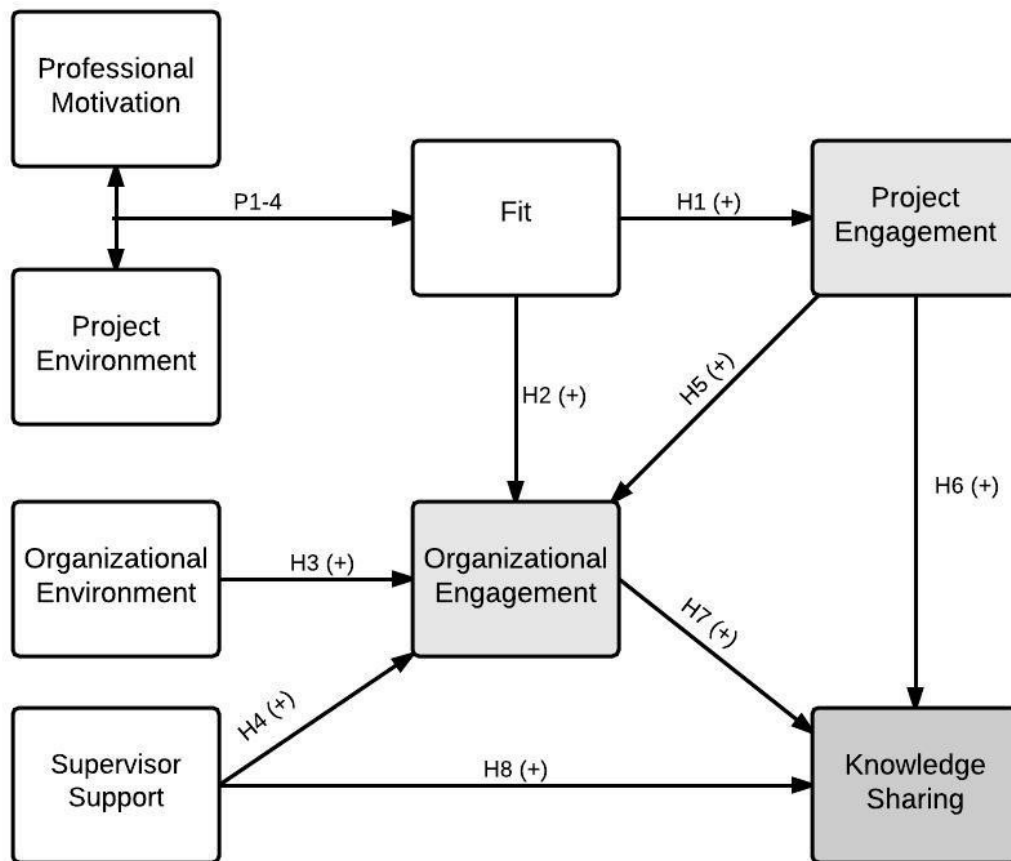


Figure 1. Conceptual model.

other countries) is needed to further examine the internal and external validity of our results, as well as to extend what we do here.

Measures

We developed an online survey with 38 questions, including all measures for all variables needed to examine Figure 1's conceptual model. A few elements that were included in the questionnaire—e.g., the scale for the Big Five personality traits—turned out to be of psychometrically very low quality (results available upon request). Hence, these were not added to our empirical model. Below, we only introduce the variables that could be used for empirical analysis. The full data are accessible through Barlage (2019), and the full survey (originally in Dutch) is in the Extended data (Arjan, 2019), translated in English and organized per variable (see below). To the extent available, we adopted and adapted validated scales from the literature – e.g., regarding engagement and knowledge sharing of professionals. Additionally, we constructed several tailor-made items and scales, which were pilot-tested with knowledgeable freelancers. This is a contribution of our study in and of itself.

Professional motivation. We measure a freelancer's professional motivation by means of a scale with eight items, tailored at a freelancer's project work, which was used earlier in van den Born (2009) and van den Born & van Witteloostuijn (2013). Respondents had to indicate on a five-point Likert-type scale to what extent they look for various aspects in their projects. Examples of items are "I am an independent professional because I have more flexibility to schedule my work" and "I am an independent professional because I can make more money". An exploratory factor analysis produced a single factor with an Eigenvalue larger than one and explained variance of 55.72%, which includes the following three types of professional motivation: (1) autonomy and professionalism; (2) variety and personal development; and (3) work-life balance and flexibility. The factor with three items is associated with acceptable (just) reliability, with a Cronbach's alpha of 0.60.

Project environment. To measure the key characteristics of the project (i.e., gig), we developed a new scale of twelve items based on interviews with several freelancers. Respondents had to indicate on a five-point Likert-type scale to what extent their current gig had a pre-specified list of characteristics. These project characteristics had to do with clarity of deliverables, income security, monetary rewards, visibility, fit with resumé, fit with current competences, possibility to increase network, level of autonomy, level of flexibility, and distance from home, all reflecting key attributes of the project environment. These were all important aspects related to the project as revealed by various freelancers in a series of pilot interviews. An exploratory factor analysis generated a single factor with an Eigenvalue larger than one and explained variance of 54.17%, including the following five key attributes of a project: (1) the project offers challenging work; (2) the project offers opportunities for getting a similar project in the future; (3) the project strengthens my visibility and reputation in the market; (4) the project is a clear asset to my resumé / portfolio; and (5) the project strengthens my network.

With a Cronbach's alpha of 0.77, the five-item scale's reliability is good.

Organizational environment. Comparable to the measurement of the project attributes, we also aimed to measure sponsor attributes – or organizational environment. To capture the key characteristics of the sponsor (i.e., hiring organization), we developed a new scale of twelve items, again based on pilot interviews with several freelancers. Respondents had to indicate on a five-point Likert-type scale to what extent their current project was associated with a pre-specified set of characteristics, all relating to the hiring organization's environment. These characteristics involved monetary rewards, fairness, reliability, security, procurement processes, growth opportunities, education, image, social climate, and work-life balance. An exploratory factor analysis gave a single factor with an Eigenvalue larger than one and explained variance of 52.17%, capturing the following four attributes of the hiring organization: (1) the organization has an attractive image; (2) the organization offers a pleasant work environment and engaging colleagues; (3) the organization takes my private circumstances into account; and (4) the organization does not differentiate between employees with temporal or permanent employment status. The reliability of this four-item scale is acceptable, with a Cronbach's alpha of 0.69.

Supervisor support. We follow the same procedure as Eisenberger *et al.* (2002) to measure perceived supervisor support by adapting the eight-item Perceived Organizational Support (POS) scale (Shore & Tetrick, 1991) to relate this to a freelance setting. Example items are "My supervisor appreciates my contribution to the goals", "My supervisor genuinely cares about my wellbeing" and "My supervisor is proud about my performance". A confirmatory factor analysis reproduces the measure, with a single factor with an Eigenvalue larger than one and explained variance of 51.90%. The reliability of this eight-item scale is very good, with a Cronbach's alpha of 0.86.

Project engagement. We use the five-item scale of Saks (2006) to measure project engagement, with "job" referring to the freelancer project (rather than employee task) context. Again, respondents had to indicate their assessments on a five-point Likert-type scale. In a confirmatory factor analysis, the five items of this scale load onto two factors, while there should only be one, according to Saks (2006). We decided to remove two items, implying that a one-dimensional project engagement three-item scale remained with an acceptable Cronbach's alpha of 0.68, an Eigenvalue larger than one, and explained variance of 60.93%. The three retained items are "I really throw myself into the job", "Sometimes I am so into my job that I lose track of time" and "This job is all consuming; I am totally into it".

Organizational engagement. To measure organizational engagement, we also used the scale from Saks (2006), with six items and a five-point Likert-type scale. In a confirmatory factor analysis, all six items load onto a single factor with an Eigenvalue larger than one. Example items are "Being a member of this organization is very captivating", "I am not really interested in the course of events in this organization" (reverse-coded),

and “I am highly engaged with this organization”. The reliability of this six-item scale is good, with a Cronbach’s alpha of 0.82. The explained variance is 55.13%.

Knowledge sharing. Finally, we adjusted the scale from Bock *et al.* (2005) to measure knowledge sharing in the freelancer project context, with four five-point Likert-type items. A confirmatory factor analysis confirmed this scale, generating a single factor with an Eigenvalue larger than one and explained variance of 70.95%. Example items are “I share all implicit knowledge with my client, free of additional charges” and “Sharing knowledge is good for me and my client”. The reliability of this four-item scale is very good, with a Cronbach’s alpha of 0.86.

Fit. The fit measure is constructed on the basis of items related to the variables *Professional motivation* and *Project environment*. We constructed a dummy measure referred to as *Fit*, where a fit is given a 1 and a misfit a 0. To do so, we first categorized the *Professional motivation* score into high and low motivation, and the *Project environment* measure into high and low opportunity. Average scores above 3 for both variables are considered to be high, and 3 or below to be low. We chose 3 as the threshold to distinguish high from low because of the nature of the associated five-point Likert-type scales. With average scores above 3, respondents agreed (considerably or fully) that their professional motivation or the project environment features a certain characteristic, while with average scores of 3 or below they are neutral or disagreeing. Furthermore, the attributes of the scales of *Professional motivation* and *Project environment* consist of multiple items each, decreasing the probability of having scores of exactly 3. Only 6% of all respondents had an average of 3 on *Professional motivation*, and just 3% of all respondents rated an average of 3 for *Project environment*. Hence, most observations fall easily above or below the threshold of 3.

In Table 1, we list all measures used in subsequent analyses, providing Cronbach’s alpha and explained variance per scale. In the *Extended data* (Barlage, 2019), all the retained items are included (i.e., all with factor loadings larger than 0.46, after reversing negative items), translated from Dutch into English. In all analyses below, we take the average score across all remaining items per scale as our dependent or independent variables, with the exception of *Fit*, which is a 0-1 dummy.

Analysis

We apply path analysis in the form of a series of Ordinary Least Squares (OLS) regressions, using Stata 13. A path analysis is like a structural equation model, but without the latent variables. Several equations are estimated simultaneously, creating measures of model fit or explained variance for the full model. Stata 13 reports direct and indirect effects, as well as total effects and their standard errors. We estimate the standard errors using the Huber-White sandwich estimators. Such robust standard errors are appropriate when the data are associated with minor concerns about failure to meet the standard OLS assumptions, such as non-normality, heteroscedasticity, and few observations exhibiting large residuals, leverage or influence.

A final methodological remark relates to our single-respondent design. Because all data are self-reported and all data are collected through the same questionnaire during the same period of time with a cross-sectional research design, common-method variance (CMV) may cause systematic measurement error, further biasing the estimates of the actual relationship among our theoretical constructs. CMV involves variance that is attributed to the measurement method rather than the constructs of interest. Method variance can either inflate or deflate observed relationships between constructs, thus leading to both Type I and Type II errors (Podsakoff *et al.*, 2003). We took precautionary measures to prevent CMV, such as guaranteed anonymity for respondents (Chang *et al.*, 2010). Moreover, it is very unlikely that respondents’ implicit theories include the complex effects of fit as predicted by Hypotheses 1 and 2 (Siemsen *et al.*, 2010). Still, after data collection, Harman’s one-factor test was conducted on all questionnaire items to test the potential presence of a common-method effect (Podsakoff *et al.*, 2003). The result from the factor analysis is that at the most 20.24% of the variance can be attributed to one factor. Hence, none of the factors is responsible for the majority of the variance. From this, we can conclude that the data are unlikely to suffer from a common-method bias.

Evidence

The mean age of the sample is 50.82, 76% is male, and 99% is highly educated (50% holding a university degree).

The descriptive statistics in Table 2 reveal that most professionals’ motivations are in line with the project environment: most of the time, they are highly motivated and find themselves in a challenging project environment. For 18% of the professionals, there is a misfit: about half of the time, the professional is highly motivated but not challenged by the project environment (bore-out); and in the other half of the observations, the misfit is reversed (burn-out). Overall, freelancers rate their projects, supervisors and organizations with an above-neutral score. Especially, they perceive that they share much knowledge with the hiring organization (a score of 4.17 out of 5), and that their supervisor is very supportive and understanding. Surprisingly, professionals do not feel highly engaged with their projects, but

Table 1. Factor analysis results.

Variable	Cronbach’s alpha	% explained variance
Professional Motivation	0.60	55.72
Project Environment	0.77	54.17
Organizational Environment	0.69	52.17
Supervisor Support	0.86	51.90
Project Engagement	0.68	60.93
Organizational Engagement	0.82	55.13
Knowledge Sharing	0.86	70.95

Table 2. Descriptive statistics.

Variable	Mean	Std. Dev.	1.	2.	3.	4.	5.
1. Fit (= 1)	0.82	0.39					
2. Organizational Environment	3.51	0.69	0.06				
3. Supervisor Support	3.80	0.61	0.03	0.44			
4. Organizational Engagement	3.64	0.63	0.10	0.36	0.31		
5. Project Engagement	3.30	0.70	0.09	-0.04	0.00	0.16	
6. Knowledge Sharing	4.17	0.57	0.01	0.11	0.23	0.29	0.17

rather are more engaged with the hiring organization than with the project. The bivariate correlations between *Organizational environment*, *Supervisor support* and *Organizational engagement* are moderate (0.31) to fairly high (0.44), and the variance inflation factor (VIF) of 1.24 is well below any worrisome threshold values.

The result of the regression estimation can be found in [Table 3](#). Estimations were realized with control variables (age, gender, and education level), but we found the model to be robust, and addition of control variables did not improve the model fit. Hence, we decided to exclude control variables from the model.

The number of observations and the R^2 noted at the bottom of the table are for the full model, as the path analysis estimates all equations simultaneously. We find that all our hypotheses are supported. *Fit* is positively associated with both *Project engagement* (H1), and the coefficient is marginally significant for *Organizational engagement* (H2), although the effects are greater for the *Project engagement*. *Organizational engagement* is also positively associated with *Organizational environment* (H3), *Supervisor support* (H4) and *Project engagement* (H5). *Organizational environment* has the greatest impact on *Organizational engagement*. *Organizational engagement* has the strongest (and a statistically significant) association with *Knowledge sharing* (H6), but there is also a positive significant relation with *Project engagement* (H7) and *Supervisor support* (H8).

A path analysis provides information about the total effects (i.e., the effect of an independent variable on a dependent variable whilst accounting for simultaneity in the system) and indirect effects (i.e., the total effect minus the direct effect). Although we have not formulated specific hypotheses about the total and indirect effects, we briefly discuss these effects below. [Table 4](#) and [Table 5](#) provide the total and indirect effects, respectively.

What we can take away from this pair of tables is that the size of the direct effects is much greater than of the indirect effects. For example, the total effects of *Organizational environment* and *Fit* on *Knowledge sharing* are small (although significant). They rather partially feed the engine of engagement that increases knowledge sharing, but do not have impact of practical significance.

Discussion

In this article, we report the findings from a study into the engagement and knowledge-sharing behavior of independent professionals within the organizations that have hired them on a (temporary) project basis. Engagement and knowledge sharing have been studied before from an employee perspective, but not in the context of independent professionals who have temporary positions within the organization. In so doing, our study seeks to answer a relevant practical question, too, as firms increasingly hire highly educated independent professionals for their expertise. Can the organization engage them and seduce them to conduct proactive behaviors to the benefit of the hiring organization in the form of knowledge sharing? We developed a path model of inputs, such as professional-project fit, the organizational environment and supervisor support, and find that these all positively influence project and/or organizational engagement. These feelings of engagement in combination with perceived supervisor support positively influence the degree of knowledge sharing that the independent professional does execute.

As any other study, ours is not without limitations, particularly given the fact that our study is the first of its kind. Specifically, the research design is not ideal, as the cross-sectional survey design implies that the causality between the variables of interest cannot be empirically established; only theory can help to suggest causal linkages. Moreover, we would have preferred to have had a larger and representative sample. For future research, therefore, a longitudinal (preferably, a balanced panel) design with (many) more observations representative for the population is to be recommended. Moreover, it would be highly interesting to include additional personal information about the professionals, such as their experience, personality and network. Regarding personality, we attempted this in the survey by including the short Big Five personality inventory, but the psychometrics demonstrated that the scales were not reliable enough to be included in the empirical analyses. Notwithstanding the downside of adding substantially to the length of the questionnaire, we plan to include instead the 60-items HEXACO personality scale in future work (cf. [van Witteloostuijn et al., 2017](#)).

The managerial implications to take from this study are fairly positive. Professionals who have been hired for their expertise share knowledge to a great extent. This proactive behavior, which is examined in the literature for (permanent) employees,

Table 3. Direct effects.

Dependent variables	Independent variables	Coefficient
Project Engagement		
	Fit	0.16* (0.070)
Organizational Engagement		
	Project Engagement	0.15*** (0.035)
	Organizational Environment	0.26*** (0.039)
	Supervisor Support	0.19*** (0.042)
	Fit	0.11~ (0.058)
Knowledge Sharing		
	Organizational Engagement	0.19*** (0.037)
	Project Engagement	0.11* (0.031)
	Supervisor Support	0.15*** (0.039)
N		693
R ²		0.202

Standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05, and ~ p<0.1.

Table 4. Total effects.

Dependent variables	Independent variables	Coefficient
Project engagement		
	Fit	0.16* (0.070)
Organizational engagement		
	Project engagement	0.15*** (0.035)
	Organizational environment	0.26*** (0.039)
	Supervisor support	0.19***
	Fit	0.13* (0.059)
Knowledge sharing		
	Organizational engagement	0.19*** (0.037)
	Project engagement	0.13*** (0.032)
	Supervisor support	0.18*** (0.038)
	Organizational environment	0.05*** (0.012)
	Fit	0.04* (0.016)

Standard errors in parentheses; *** p < 0.001, ** p < 0.01, * p < 0.05, and ~ p < 0.1 (intercept estimated, but not recorded in table).

Table 5. Indirect effects.

Dependent variables	Independent variables	Coefficient
Organizational engagement		
	Fit	0.02~ (0.012)
Knowledge sharing		
	Project engagement	0.03*** (0.007)
	Organizational environment	0.05*** (0.012)
	Supervisor support	0.04** (0.011)
	Fit	0.04* (0.016)

Standard errors in parentheses; *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, and ~ $p < 0.1$.

appears to be quite strongly embedded in the independent (temporary) freelancer as well. Independent professionals can also be engaged, surprisingly enough not only with their project, but (on average) even more so with the hiring organization. The results demonstrate that organizations will likely benefit from having the right professional in the right place for the right project. Fit is key. Although most projects are challenging and require a highly motivated professional, for those projects that are fairly simple, and do not contribute much to the portfolio of the professional, it would be preferable to hire a professional who is okay with that, instead of an overly motivated freelancer. Also, what is important, but perhaps more commonly overlooked by organizations, is to provide a caring organizational environment with high supervisor support to the freelancer professional. Even though independent professionals often portray themselves as little businesses, they very much appreciate being treated as a welcome

temporary member of the workforce. A caring and supportive environment, where they are treated not much differently from the employees in the organization, triggers freelancers to engage with the hiring organization, rather than the project. This may be beneficial for knowledge sharing, and possibly might make the hiring organization more attractive to return to in case of another project.

Ethical considerations

In the Dutch context at the time of the survey, ethical approval was not needed. Participation in the survey was voluntary, with their consent implied by their participation. All data were treated as strictly confidential, which was announced in the survey.

Data availability

Underlying data

Zenodo: Read me with DOI. <http://doi.org/10.5281/zenodo.2555739> (Barlage, 2019).

Data are available under the terms of the [Creative Commons Zero “No rights reserved” data waiver](#) (CC0 1.0 Public domain dedication).

Extended data

Zenodo: Gig Survey. <http://doi.org/10.5281/zenodo.2566243> (Arjan, 2019).

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References

- Agarwal P: **The Psychological Contract: A Review Model**. Indian Institute of Management Ahmedabad, Research and Publication Department. 2014.
[Reference Source](#)
- Arjan: **Gig Survey (Version 2)**. [Dataset]. Zenodo. 2019.
<http://www.doi.org/10.5281/zenodo.2566243>
- Armstrong V: **Women’s musical lives: self-managing a freelance career**. *Women: A Cultural Review*. 2013; **24**(4): 298–314.
[Publisher Full Text](#)
- Bakker AB: **An evidence-based model of work engagement**. *Curr Dir Psychol Sci*. 2011; **20**(4): 265–269.
[Publisher Full Text](#)
- Barlage M: **melody-barlage/gigs: Read me with DOI (Version V1.0.1)**. [Dataset]. Zenodo. 2019.
<http://www.doi.org/10.5281/zenodo.2555739>
- Berland E: **Freelancing in America: A national survey of the new workforce**. *Freelancers Union and Elance-oDesk*. 2014.
[Reference Source](#)
- Bhatnagar J: **Management of innovation: role of psychological empowerment, work engagement and turnover intention in the Indian context**. *Int J Hum Resour Man*. 2012; **23**(5): 928–951.
[Publisher Full Text](#)
- Brock GW, Zmud RW, Kim YG, et al.: **Behavioral intention formation in knowledge sharing: examining the roles of extrinsic motivators, social-psychological forces, and organizational climate**. *MIS Quarterly*. 2005; **29**(1): 87–111.
[Publisher Full Text](#)
- Brady T, Davies A: **Building project capabilities: from exploratory to exploitative learning**. *Organ Stud*. 2004; **25**(9): 1601–1621.
[Publisher Full Text](#)
- Cabrera Á, Collins WC, Salgado JF: **Determinants of individual engagement in**

knowledge sharing. *Int J Hum Resour Man.* 2006; 17(2): 245–264.

[Publisher Full Text](#)

Cappelli P, Keller JR: **Classifying work in the new economy.** *Acad Manage Rev.* 2013; 38(4): 575–596.

[Publisher Full Text](#)

Chang S-J, van Witteloostuijn A, Eden L: **From the editors: Common method variance in international business research.** *J Int Bus Stud.* 2010; 41(2): 178–184.

[Publisher Full Text](#)

Chen ZJ, Zhang X, Vogel D: **Exploring the underlying processes between conflict and knowledge sharing: a work-engagement perspective.** *J Appl Soc Psychol.* 2011; 41(5): 1005–1033.

[Publisher Full Text](#)

Chesbrough HW: **Open innovation: The new imperative for creating and profiting from technology.** Harvard Business Press. 2006.

[Reference Source](#)

Chiu CM, Hsu MH, Wang ET: **Understanding knowledge sharing in virtual communities: An integration of social capital and social cognitive theories.** *Decis Support Syst.* 2006; 42(3): 1872–1888.

[Publisher Full Text](#)

Christian MS, Garza AS, Slaughter JE: **Work engagement: A quantitative review and test of its relations with task and contextual performance.** *Pers Psychol.* 2011; 64(1): 89–136.

[Publisher Full Text](#)

Csikszentmihalyi M, Csikszentmihalyi M: **Flow: The psychology of optimal experience.** 1991; 41: HarperPerennial New York.

[Reference Source](#)

Dahlander L, Gann DM: **How open is innovation?** *Res Policy.* 2010; 39(6): 699–709.

[Publisher Full Text](#)

DeFillippi R: **Managing project-based organization in creative industries.** *The Oxford Handbook of Creative Industries.* 2015; 268.

[Publisher Full Text](#)

DeFillippi RJ, Arthur MB: **The boundaryless career: A competency-based perspective.** *J Organ Behav.* 1994; 15(4): 307–324.

[Publisher Full Text](#)

De Spiegelaere S, Van Gyes G, De Witte H, et al.: **On the relation of job insecurity, job autonomy, innovative work behaviour and the mediating effect of work engagement.** *Creat Innov Manag.* 2014; 23(3): 318–330.

[Publisher Full Text](#)

Eisenberger R, Stinglhamber F, Vandenberghe C, et al.: **Perceived supervisor support: contributions to perceived organizational support and employee retention.** *J Appl Psychol.* 2002; 87(3): 565–73.

[PubMed Abstract](#) | [Publisher Full Text](#)

Faulkner RR: **Music on demand: Composers and careers in the Hollywood film industry.** Transaction Publishers. 2003.

[Reference Source](#)

Ford DP: **Disengagement from knowledge sharing: the alternative explanation for why people are not sharing.** In *ASAC.* 2008; 29.

[Reference Source](#)

Fraser J, Gold M: **'Portfolio workers': Autonomy and control amongst freelance translators.** *Work Employ Soc.* 2001; 15(4): 679–697.

[Publisher Full Text](#)

Friedman G: **Workers without employers: shadow corporations and the rise of the gig economy.** *Rev Keynes Econ.* 2014; (2): 171–188.

[Publisher Full Text](#)

Guest D: **Flexible employment contracts, the psychological contract and employee outcomes: an analysis and review of the evidence.** *Int J Manag Rev.* 2004; 5–6(1): 1–19.

[Publisher Full Text](#)

Hall DT: **The protean career: A quarter-century journey.** *J Vocat Behav.* 2004; 65(1): 1–13.

[Publisher Full Text](#)

Haunschild A: **Managing employment relationships in flexible labour markets: The case of German repertory theatres.** *Human Relations.* 2003; 56(8): 899–929.

[Publisher Full Text](#)

Hicks RE, O'Reilly G, Bahr M: **Organisational engagement and its driving forces: A case study in a retail travel organisation with international outreach.** *Int J Manag Cas.* 2014; 16(3): 4.

[Reference Source](#)

Jones C: **Signaling expertise: How signals shape careers in creative industries.** *Career Creativity: Explorations in the Remaking of Work.* 2002; 209–228.

[Reference Source](#)

Kahn WA: **Psychological conditions of personal engagement and disengagement at work.** *Academy of Management Journal.* 1990; 33(4): 692–724.

[Reference Source](#)

Keegan A, Turner JR: **The management of innovation in project-based firms.** *Long Range Planning.* 2002; 35(4): 367–388.

[Publisher Full Text](#)

Kuhn KM: **The rise of the "gig economy" and implications for understanding**

work and workers. *Industrial and Organizational Psychology.* 2016; 9(1): 157–162.

[Publisher Full Text](#)

Kuhn KM, Maleki A: **Micro-entrepreneurs, dependent contractors, and instasers: Understanding online labor platform workforces.** *Academy of Management Perspectives.* 2017; 31(3): 183–200.

[Publisher Full Text](#)

Lechmann DSJ, Schnabel C: **Are the self-employed really jacks-of-all-trades? Testing the assumptions and implications of Lazear's theory of entrepreneurship with German data.** *Small Business Economics.* 2014; 42(1): 59–76.

[Publisher Full Text](#)

Lee GJ, Faller N: **Transactional and relational aspects of the psychological contracts of temporary workers.** *South African Journal of Psychology.* 2005; 35(4): 831–847.

[Publisher Full Text](#)

Lepak DP, Snell SA: **The human resource architecture: Toward a theory of human capital allocation and development.** *Academy of Management Review.* 1999; 24(1): 31–48.

[Publisher Full Text](#)

Leung MD: **Dilettante or renaissance person? How the order of job experiences affects hiring in an external labor market.** *Am Sociol Rev.* 2014; 79(1): 136–158.

[Publisher Full Text](#)

Lichtenthaler U, Lichtenthaler E: **A capability-based framework for open innovation: Complementing absorptive capacity.** *J Manag Stud.* 2009; 46(8): 1315–1338.

[Publisher Full Text](#)

Lin HF: **Effects of extrinsic and intrinsic motivation on employee knowledge sharing intentions.** *J Inf Sci.* 2007; 33(2): 135–149.

[Publisher Full Text](#)

Lundin RA, Söderholm A: **A theory of the temporary organization.** *Scand J Manag.* 1995; 11(4): 437–455.

[Publisher Full Text](#)

O'Mahony S, Bechky BA: **Stretchwork: Managing the career progression paradox in external labor markets.** *Acad Manage J.* 2006; 49(5): 918–941.

[Publisher Full Text](#)

Parke MR, Campbell EM, Bartol KM: **Setting the stage for virtual team development: Designing teams to foster knowledge sharing.** *Academy of Management Proceedings.* 2014; 2014: 17244. Academy of Management.

[Publisher Full Text](#)

Pearce JL: **Toward an organizational behavior of contract laborers: Their psychological involvement and effects on employee co-workers.** *Acad Manage J.* 1993; 36(5): 1082–1096.

[Publisher Full Text](#)

Platman K: **The self-designed career in later life: a study of older portfolio workers in the United Kingdom.** *Ageing Soc.* 2003; 23(3): 281–302.

[Publisher Full Text](#)

Podsakoff PM, MacKenzie SB, Lee JY, et al.: **Common method biases in behavioral research: a critical review of the literature and recommended remedies.** *J Appl Psychol.* 2003; 88(5): 879–903.

[PubMed Abstract](#) | [Publisher Full Text](#)

Prencipe A, Tell F: **Inter-project learning: processes and outcomes of knowledge codification in project-based firms.** *Res Policy.* 2001; 30(9): 1373–1394.

[Publisher Full Text](#)

Reinholt MIA, Pedersen T, Foss NJ: **Why a central network position isn't enough: the role of motivation and ability for knowledge sharing in employee networks.** *Acad Manage J.* 2011; 54(6): 1277–1297.

[Publisher Full Text](#)

Revilla E, Villena VH: **Knowledge integration taxonomy in buyer-supplier relationships: Trade-offs between efficiency and innovation.** *Int J Prod Econ.* 2012; 140(2): 854–864.

[Publisher Full Text](#)

Rhoades L, Eisenberger R, Armeli S: **Affective commitment to the organization: the contribution of perceived organizational support.** *J Appl Psychol.* 2001; 86(5): 825–836.

[PubMed Abstract](#) | [Publisher Full Text](#)

Rich BL, Lepine JA, Crawford ER: **Job engagement: antecedents and effects on job performance.** *Acad Manage J.* 2010; 53(3): 617–635.

[Publisher Full Text](#)

Rogers K: **Hillary Clinton calls out the sharing economy.** 2015.

[Reference Source](#)

Rousseau DM: **New hire perceptions of their own and their employer's obligations: A study of psychological contracts.** *J Organ Behav.* 1990; 11(5): 389–400.

[Publisher Full Text](#)

Saks AM: **Antecedents and consequences of employee engagement.** *J Manage Psychol.* 2006; 21(7): 600–619.

[Publisher Full Text](#)

Salanova M, Schaufeli WB: **A cross-national study of work engagement as a mediator between job resources and proactive behaviour.** *Int J Hum Resour Man.* 2008; 19(1): 116–131.

[Publisher Full Text](#)

Shore LM, Tetrick LE: **A construct validity study of the survey of perceived organizational support.** *J Appl Psychol.* 1991; **76**(5): 637–643.

[Publisher Full Text](#)

Siemsen E, Roth AV, Balasubramanian S: **How motivation, opportunity, and ability drive knowledge sharing: The constraining-factor model.** *J Oper Manag.* 2008; **26**(3): 426–445.

[Publisher Full Text](#)

Siemsen E, Roth A, Oliveira P: **Common method bias in regression models with linear, quadratic, and interaction effects.** *Organ Res Methods.* 2010; **13**(3): 456–476.

[Publisher Full Text](#)

Spanjer GA, van Witteloostuijn A: **The entrepreneur's experiential diversity and entrepreneurial performance: A panel study of self-employed in the US, 1979-2010.** *Small Bus Econ.* 2017; **49**: 141–161.

[Publisher Full Text](#)

Terpend R, Tyler BB, Krause DR, et al.: **Buyer–supplier relationships: Derived value over two decades.** *J Supply Chain Manag.* 2008; **44**(2): 28–55.

[Publisher Full Text](#)

Tsui AS, Pearce JL, Porter LW, et al.: **Alternative approaches to the employee-organization relationship: does investment in employees pay off?** *Acad Manage J.* 1997; **40**(5): 1089–1121.

[Reference Source](#)

van den Born JA: **The drivers of career success of the job-hopping professional in the new networked economy: The challenges of being an entrepreneur and an employee.** Born to Grow. 2009.

[Reference Source](#)

van den Born JA, van Witteloostuijn A: **Drivers of freelance career success.** *J Organ Behavior.* 2013; **34**(1): 24–46.

[Publisher Full Text](#)

van Praag M, van Witteloostuijn A, van der Sluis J: **The higher returns to formal education for entrepreneurs versus employees.** *Small Bus Econ.* 2013; **40**(2): 375–396.

[Publisher Full Text](#)

van Witteloostuijn A, Esteve M, Boyne G: **Public sector motivation and fonts: personality traits as antecedents of the motivation to serve the public interest.** *J Publ Adm Res Theor.* 2017; **27**(1): 20–35.

[Publisher Full Text](#)

Villena VH, Revilla E, Choi TY: **The dark side of buyer–supplier relationships: A social capital perspective.** *J Oper Manag.* 2011; **29**(6): 561–576.

[Publisher Full Text](#)

Wang Q, Li JJ, Ross Jr WT, et al.: **The interplay of drivers and deterrents of opportunism in buyer–supplier relationships.** *J Acad Mark Sci.* 2013; **41**(1): 111–131.

[Publisher Full Text](#)

Weissman D: **The music business: career opportunities and self-defense.** Three Rivers Press. 2011.

[Reference Source](#)

Whitley R: **Project-based firms: new organizational form or variations on a theme?** *Ind Corp Change.* 2006; **15**(1): 77–99.

[Publisher Full Text](#)

Wuyts S, Geyskens I: **The formation of buyer–supplier relationships: detailed contract drafting and close partner selection.** *J Marketing.* 2005; **69**(4): 103–117.

[Publisher Full Text](#)

Zhao H, Wayne SJ, Glibkowski BC, et al.: **The impact of psychological contract breach on work-related outcomes: a meta-analysis.** *Pers Psychol.* 2007; **60**(3): 647–680.

[Publisher Full Text](#)

Zhou KZ, Li CB: **How knowledge affects radical innovation: Knowledge base, market knowledge acquisition, and internal knowledge sharing.** *Strateg Manage J.* 2012; **33**(9): 1090–1102.

[Publisher Full Text](#)

Zuckerman EW, Kim TY, Ukanwa K, et al.: **Robust identities or nonentities? typecasting in the feature-film labor market¹.** *Am J Sociol.* 2003; **108**(5): 1018–1073.

[Publisher Full Text](#)

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Review

The needs of freelancers and the characteristics of 'gigs': Creating beneficial relations between freelancers and their hiring organizations. Melody Barlage, Arjan van den Born and Arjen van Witteloostuijn. Emerald Open Research 2019, 1:8

Paul Rutten.

Research Professor, Research Centre Creating 010, Rotterdam University of Applied Sciences.

The increasing number and role of free-lancers is a typical feature of today's network economy. A host of different causes have led to the outsourcing of elements of labour from firms to external actors, of which free flyers have taken up a significant amount. The application of information and communication technology enabled firms to outsource tasks and projects, manage efficient execution and sustain (a network of) free-lance professionals to be called upon for work that in earlier years would have been, in most of the cases, taken up in house. On the other hand, the advent of digital technology has enabled professionals to acquire and execute projects more easily than before. An increasing number of professionals have taken up the challenge to meet the demand that has arisen, partly inspired by the entrepreneurial spirit that has emerged among them and partly forced by the downsizing of the labour force among many firms in the market. The COVID-19 crisis that hit the world economy resulting in an increasing number of lay-offs may force an increasing number of professionals to become free-lancers, at least for the time being.

In their research article *The needs of freelancers and the characteristics of 'gigs': Creating beneficial relations between freelancers and their hiring organizations*, Barlage, van den Born and Witteloostuijn explore the question whether the new employment relationship based on free-lance work is good for innovation. More specifically they investigate the conditions that promote knowledge sharing by freelancers with hiring firms, based on their work in tasks and projects. Their research is based on a conceptual model that includes engagement of freelancers with projects executed and the organisations they work for. Given the fact that earlier research has

shown that outsider knowledge is important for organizational innovation and knowledge development the researchers conclude that it is surprising that the contribution of freelancers to innovation of firms remains unexplored. The authors stress that research on knowledge sharing indicates the importance of reciprocity when it comes to knowledge sharing, thereby suggesting that hiring organizations that invest in relationships with freelancers will benefit from the resulting influx of knowledge from freelancers.

The research is based on an online survey among freelancers working in the Netherlands using databases of an online freelancer community and a firm that mediates between freelancers and hiring organizations. The survey resulted in a convenience sample of 928 responses. The researchers point to the fact that, given the nature of the sample, findings must be interpreted with caution because they cannot claim representativity and generalisation of the outcomes is limited. However, their work intends to be a kick-off for additional work into the subject. Its outcomes suggest that the gig economy can lead to both engagement of and knowledge sharing by freelancers depending on the way gigs, offered to freelancers, are structured and shaped. More specifically the fit of the professional freelancer with the project, the organizational environment s/he works in as well as the supervisor support provided, have a positive influence on the engagement with the project and/or the organisation. That will in turn positively influence the degree of knowledge sharing by the independent professionals and potentially strengthen organizational innovation of the hiring companies.

As an exploration of uncharted territory, the article is a valuable contribution to research on innovation in the network economy. Moreover, it addresses an important economic and managerial issue. The research findings and managerial implications are convincing and appeal to common sense. However further work is needed, specifically on the validation in other contexts, with bigger samples and preferably based on longitudinal data, as the authors indicate.

Some elements of the research design and the nature of the sample and its implications for the results of the research could have used some more considerations and debate. The same goes for suggestions for future research.

The choice in the research project and the resulting article to restrict to free-lance work in projects that produce potential valuable knowledge for hiring organisations, and thereby excluding Uber drivers, for instance, is not explicated, despite that the gig economy holds highly skilled professionals that consciously choose this mode of work as well as unskilled workers that have no alternatives.^[1]

The information on the composition of the sample, necessary to assess the value and the validity of the findings and implications of the study, is scarce. The article indicates that the average age of the respondents in the sample is 51, the majority is male, and the vast majority is highly educated. No external validation of the sample composition is reported and there is no debate about the consequence of eventual biases in the sample. Information about the age distribution is lacking. The same goes for information about the specific sectors the freelancers work in. The review of literature indicates that many studies on freelancers are set in the creative industries since many professions within that sector are for the biggest part, and even traditionally freelance professions. Moreover, many freelance professionals within arts, entertainment and design for instance combine a high level of education with low income, thereby distinguishing themselves from others, eventually in high tech or business consultancy. These differences can, theoretically,

have implications for the findings in the project. Income acquired with freelance work could also be influential in terms of the relationships investigated. The same goes for the sample composition in terms of the amount of time devoted to free-lancing or a potential combination of freelance work with a part time contractual relationship with an employer.

An interesting future avenue to explore is the combined investigation of the parties involved in the reciprocal sharing of knowledge as defined by the authors of the article: hiring organisations on the one hand and freelancers on the other. Research could focus on the optimisation of knowledge accumulation for the hiring firm and for the free-lancer and the potential contribution to innovation for the firm and gain in reputation and market position for the independent professional. In that context, an important issue is which type of knowledge an organisation is willing to acquire from freelancers or wants to keep internally, embodied in the organisation. An in-between solution could be to commit a freelancer for a string of projects to the firm. Additionally, it would be interesting to explore the potential benefits of an independent professional vis-à-vis a consultancy firm.

On a more general level, this research article invites to take a meso or macro perspective to specifically investigate the role and performance of freelancers in the wider economy as far as knowledge sharing and innovation are concerned. The question occurs if and how freelancers function as knowledge brokers within the gig or network economy, in regions for instance, and cater for knowledge spill overs that serve innovation, maybe but not exclusively for small and medium enterprises. In that context, it is also relevant to look at networks in which freelancers often cooperate to take on tasks and projects that either ask for more capacity than one individual can cater for or that seek professionals that cover complementary skills. Knowledge sharing then concerns an exchange between independent professionals as well as with the hiring firm.

[1] <https://zety.com/blog/gig-economy-statistics>

Is the work clearly and accurately presented and does it cite the current literature?

Yes

Is the study design appropriate and is the work technically sound?

Yes

Are sufficient details of methods and analysis provided to allow replication by others?

Yes

If applicable, is the statistical analysis and its interpretation appropriate?

Yes

Are all the source data underlying the results available to ensure full reproducibility?

Yes

Are the conclusions drawn adequately supported by the results?

Yes

Is the argument information presented in such a way that it can be understood by a non-

academic audience?

Yes

Does the piece present solutions to actual real world challenges?

Yes

Is real-world evidence provided to support any conclusions made?

Yes

Could any solutions being offered be effectively implemented in practice?

Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Digitisation and Innovation, Creative Industries, Policy Studies

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Author Response 25 Feb 2021

Arjen van Witteloostuijn, Vrije Universiteit Amsterdam, Amsterdam, Netherlands

We highly appreciate the constructive remarks made by both reviewers. And we cannot but agree with the issues they put forward. Indeed, our study is exploratory, with a convenience sample that limits our findings' generalizability. This clearly implies that much future work is needed to deepen our understanding of these and other modern "gig economy" phenomena. Replications in other contexts, in other countries and populations, are key. Indeed, our convenience sample is highly biased – to traditional freelance professions, to males, to the not-so-young, to the Netherlands, et cetera. We particularly support the suggestion to study the novel niches in the platform-based gig economy, and to further explore the subtle processual interaction between the parties involved – individuals, organizations, and their networks. What are the features of such processes that generate win-win outcomes, in which all parties involved progress on the learning ladder of knowledge accumulation? What is the role of algorithms and / or humans in these processes? And what policies would facilitate such processes, also taking care of the social downsides of the modern gig economy? These and many more questions are highly topical, and extremely important to understand the Industrial Revolution 4.0 disruption that is further accelerated during the COVID-19 pandemic.

Arjen van Witteloostuijn

Competing Interests: No competing interests were disclosed.

Reviewer Report 03 April 2019

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One of the most interesting and far-reaching impacts of technological innovation in recent times is the rise of the digital platform economy. Many digital platforms, benefiting from advances in machine learning and cloud computing, have become familiar household names. Examples include *AirBnB* (a home sharing platform), *Amazon* (a trading platform), *BlaBlaCar* (a carsharing platform), *Deliveroo* (a food-delivery service platform), *eBay* (a second-hand goods platform), *Facebook* (a social networking and trading platform) and *Uber* (an on-demand, lift-hailing platform).

Digital platforms also mediate the world of work (Kenney and Zysman, 2016¹). Here digital labour platforms, such as *Upwork*, *Clickworker*, *Amazon Mechanical Turk*, *Microworkers* and *Crowdfunder*, have had a huge impact on temporary, flexible, and online forms of work. These platforms “include both web-based platforms, where work is outsourced through an open call to a geographically dispersed crowd (‘crowdwork’), and location-based applications (apps) which allocate work to individuals in a specific geographical area” (Berg et al., 2018²). In the former, location of workers does not matter: they are what Baldwin (2019)³ terms “telemigrants”. The market for telemigrants is tracked by the *Online Labour Index* (OLI) which shows that the market, as measured by the number of tasks posted on major digital labour platforms has grown by 25 percent over 2016 to 2017 (Kässi and Lehdonvirta, 2018⁴). Although difficult to measure, it is estimated that 35 percent of workers in the USA and 16 percent in the EU do freelancing, including ‘gig’ work (Hussenot, 2017⁵).

Both telemigrants, using web-based platforms, and local gig workers using apps, respond to demands from businesses for specific projects or tasks (or “gigs”). By “breaking down jobs into ‘tasks’, platforms facilitate new ways of commodifying labour, and selling it on demand to businesses and others who are looking to outsource some aspects of their workload at a lower cost” (Berg et al., 2018²). As such, digital labour platforms creates markets for tasks, rather than for jobs (Chen and Horton, 2016⁶). Tasks are either requested from individuals, for example when a business wishes to temporarily hire a software engineer through the freelance platform *Upwork*; or from the crowd, for example when a business calls a contest for a new company logo through the design-sourcing platform *99designs*.

The implications of the rise of digital labour platforms and with it the on-demand and gig-economies has generated a heated debate. The concerns are, broadly, twofold. One, while digital platforms improve labour market matching and flexibility, and create new and additional opportunities for labour market participation and income for people constrained by say child-rearing responsibilities, ill-health, age, or stagnant local labour demand conditions, it can increase the prevalence of poor-quality jobs and non-decent, exploitative working conditions. Wages are low and social security is absent. And two, by essentially allowing businesses to outsource tasks

across the world, to where labor is cheapest, it can create unemployment and wage disruption in advanced economy labour markets – as part of what Baldwin (2018)⁷ describes as “globalization 4.0”. The consequence is, as Baldwin (2019³) puts it that “anyone with a laptop, internet connection and skills can potentially telecommute to US and European offices...this means that people living in countries where ten dollars an hour is a decent middle-class income will soon be your workmates or potential replacements”.

There has been much debate in recent years about how to deal with these two groups of concerns, especially under the heading of the “Future of Work”. The International Labour Organization (ILO) for example put forward 18 criteria to promote decent work through digital platforms (see Berg et al., 2018²).

The paper by Barlage M *et al.* entitled “*The needs of freelancers and the characteristics of ‘gigs’: Creating beneficial relations between freelancers and their hiring organization*” makes a welcome contribution towards this debate. In particular, the authors address a surprising neglected issue – also neglected for instance by the ILO in their 18 criteria for decent work through digital platforms – namely that of the extent to which gigs provide a “learning opportunity” for freelancers. Being able to learn on the job is a characteristic of a quality job. The question that Barlage et al. poses, is if this can be achieved by freelancers moving from one gig to another? Importantly, they argue that this is not only of benefit to the freelancer, but also to the businesses that hire them in, as it is more likely in such a case that the freelancers can share more of their “valuable knowledge with these temporary hiring organizations” (p.3), which could boost innovation in these organizations. What is thus most desirable, is that the growth in digital labour platforms contribute to growth both in the skills of the freelancer and in innovation at the hiring business firm. In this respect, their paper contributes not only to the debate on the impact of digital labour platforms on the quality of jobs, but also on their potential for global labour market disruption, since business firms will more and more need to compete on innovation and not so much anymore on labor cost advantages, given that arbitrage will over time erode geographic differences in wages. If business firms can, through establishing an environment in which its freelancers will be engaged and be able to promote their “careers”, also boost its knowledge and innovation, it is as the authors point out, a win-win outcome.

How the relationship between freelancer and business firm should be filled in to facilitate this outcome is wherein this paper makes its contribution. It recommends, based on an exploratory empirical survey that captured 928 responses from freelancers in the Netherlands, that “*what is important, but perhaps more commonly overlooked by organizations, is to provide a caring organizational environment with high supervisor support to the freelancer professional. Even though independent professionals often portray themselves as little businesses, they very much appreciate being treated as a welcome temporary member of the workforce. A caring and supportive environment, where they are treated not much differently from the employees in the organization, triggers freelancers to engage with the hiring organization, rather than the project. This may be beneficial for knowledge sharing, and possibly might make the hiring organization more attractive to return to in case of another project*” (p.12).

In other words, in an age of digital labour platforms, the human touch is what matters.

While the authors acknowledge the exploratory nature of their research, and the shortcomings of using a convenience sampling method, with its potential for selection bias, the manner in which they deal with this is rather convincing, and also novel, for instance their development of a new

scale to measure the characteristics (or attributes) of a gig from the point of the freelancer. Their findings resonate with that elsewhere in the literature, for instance that most (82%) freelancers tend to be very motivated and challenged by the gig: for instance, Gallup in the USA found, consistent with this, that freelancers tend to have higher levels of subjective well-being and work engagement than traditional workers (Gallup, 2018⁸).

The paper is thus to be welcomed as it throws new light on the current debates on the future of work and global disruption of labour markets (globalization 4.0) by emphasizing that the relationship between business firms and freelancers are important. They do so by using a careful and appropriate research design, attempting to reduce the potential biases from their sampling method – and in general from doing exploratory research which is much needed in this regard.

The fundamental shortcoming of the paper is its general applicability. One should be careful to generalize the findings and the authors could do more to caution in this regard. One reason is because the world of work as affected by digital labour platforms are very heterogenous, as the discussion in the aforementioned implied. The present paper under review focuses more on traditional freelancers, who are self-employed and take up temporary work through local employment agents or web platforms (Dutch Network Group / HeadFirst): and not so much the more typical gig workers using apps to connect with tasks, nor online telemigrants working at a distance.

These two latter categories of digital labour platform workers - gig workers and telemigrants - are likely of a completely different demographic than the traditional freelancer in this paper. For example, in this paper the mean age of a freelancer is 51 years, with 99% being highly educated (and 76 % male in the present sample). In the gig economy, the typical example perhaps being a student doing deliveries for *Deliveroo*, the majority freelancers in the Netherlands are young; crowdworkers especially, tend to be students. In some sectors, such as domestic work, levels of education tend to be low, and dominated by women (ter Weel et al., 2018⁹). Thus, the idea that innovation can benefit from the way in which business firms relate to their freelancers, is probably **only relevant for a very small subset of freelancer and gigs.**

It is also more likely that in the cases of gig workers and telemigrants, as opposed to the more traditional professional freelancers studied in this paper, that the digital platform companies who hire them are more likely to subject them to what is termed “algorithmic management”(Lee et al. 2015¹⁰). Their schedule, performance management, feedback and reward systems tend not to be done by humans, but by software. A well-known example is of the freelancers working for Uber as taxi drivers who often loses their sense of engagement due to a lack of human supervision (see Möhlmann and Zalmanson, 2017¹¹). It is also in this case, difficult to see how businesses will boost their innovation given the current state of algorithmic management. It would be interesting to know to what extent algorithmic management is spreading across various categories and types of freelancers and how this will over time also affect more traditional, higher skilled and professional workers and entrepreneurs. Perhaps, the authors' results could be used to argue for some regulatory push-back against algorithmic management?

Finally, much of the discussion on the quality of jobs in the gig economy elsewhere has been concerned with regulation and social protection. Do the authors see a role for these, given their interest in the motivation, engagedness, and knowledge transfer aspects of the freelancer-employer relationship? Would reducing the risk of not having to take up a mediocre gig, through

for instance social insurance or basic income grant, not perhaps facilitate freelancers' learning?

References

1. Kenney M, Zysman J: The Rise of the Platform Economy. *Issues in Science and Technology*. 2016; **33** (3). [Reference Source](#)
2. Berg J, Furrer M, Harmon E, Rani U, et al.: Digital Labour Platforms and the Future of Work: Towards Decent Work in the Online World. *Geneva: International Labour Organization*. [Reference Source](#)
3. Baldwin R: The Globotics Upheaval: Globalization, Robotics and the Future of Work. *Weidenfeld and Nicolson*. 2019.
4. Kässi O, Lehdonvirta V: Online Labour Index: Measuring the Online Gig Economy for Policy and Research. *Technological Forecasting and Social Change*. 2018; **137**: 241-248
5. Hussenot A: The Future of Work Could Lie in Freelancing. *World Economic Forum*. 2017.
6. Chen D, Horton J: Research Note—Are Online Labor Markets Spot Markets for Tasks? A Field Experiment on the Behavioral Response to Wage Cuts. *Information Systems Research*. 2016; **27** (2): 403-423 [Publisher Full Text](#)
7. Baldwin R: If this is Globalization 4.0, what were the other three?. *World Economic Forum*. 2018. [Reference Source](#)
8. The Gig Economy and Alternative Work Arrangements. *Gallup*. 2018. [Reference Source](#)
9. ter Weel B, van der Werff S, Bennaars H, Scholte R, et al.: The rise and growth of the gig economy in the Netherlands. *Seo Amsterdam Economics*. 2018. [Reference Source](#)
10. Lee Mk, Kusbit D, Metsly E, Dabbish L: Working with Machines: The Impact of Algorithmic and Data-Driven Management on Human Workers. 2015. [Reference Source](#)
11. Möhlmann M, Zalmanson L: Hands on the wheel: Navigating algorithmic management and Uber's autonomy. *Proceedings of the International Conference on Information Systems*. 2017.

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Yes

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Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Entrepreneurship and innovation economics, technological change and economic development, trade and geographical economics, labor markets

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.
