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Digital Economy and Digital Labour Terminology: *Making Sense of the “Gig Economy”, “Online Labour”, “Crowd Work”, “Microwork”, “Platform Labour”, Etc*

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Abstract

Confused about the gig economy vs. platform economy vs. on-demand economy? Befuddled by online labour vs. digital labour vs. platform labour? Bemused by microwork vs. crowdwork vs. digital work? Then read on.

This paper analyses the myriad terminologies that have arisen in relation to the digital economy and digital labour. In detailed tables, it assesses the prevalence and currency within research literature of nearly 30 different terms. It then provides a definition for each and summarises the typical content of literature using the term. It also summarises current popularity of related Twitter hashtags.

Taking the specific example of online outsourcing of digital tasks, the paper analyses which of the different terms is most appropriate as an identifier (concluding these to be “online labour”, “online outsourcing” and “gig economy” depending on focal interest), and presents a graphical summary. The review data provided can be re-used to identify the most-appropriate term for other labour-related topics in the digital economy.

A. Summary and Application

There is a growing intersection between work and digital technologies, and a diversity of business models relating to that intersection. As a result, a profusion of terminology has emerged. This is directly problematic for researchers because it means that the knowledge base is fragmented; and it is also confusing: what do the different terms mean, and which one should be chosen for planned research or publication?

As a specific instance, I have been researching the outsourcing of digital tasks to workers in developing countries via platforms such as Upwork, Freelancer, Fiverr, Amazon Mechanical Turk, etc. But what should this – my “*focal topic*” – be called? In particular, what name would best connect it with similar research already undertaken?

Based on a short analysis of literature, described below, a summary overview is as shown in Figure 1 with full details provided in Tables 1-5. This suggests that the prime term to be used would be as follows:

- Work and labour focus: **Online Labo(u)r** followed by Crowd Work, Digital Labo(u)r and Microwork.
- Client-side focus: **Online Outsourcing** followed by Microsourcing.
- Overall domain: **Gig Economy** followed by Platform Economy.

The analysis also suggests a large number of terms of much more limited relevance.

Alongside use for the current focal topic, the diagram and tables can also be re-worked for other focal topics; particularly those dealing with labour-related issues in the digital economy.

Note that the relevance of terminology has more static and more dynamic characteristics. As indicated in the tables, one can consider the overall weight of literature using a particular terminology, and the current trajectory of recent usage. Of course both of these will change over time; hence changing the momentum of particular terms.

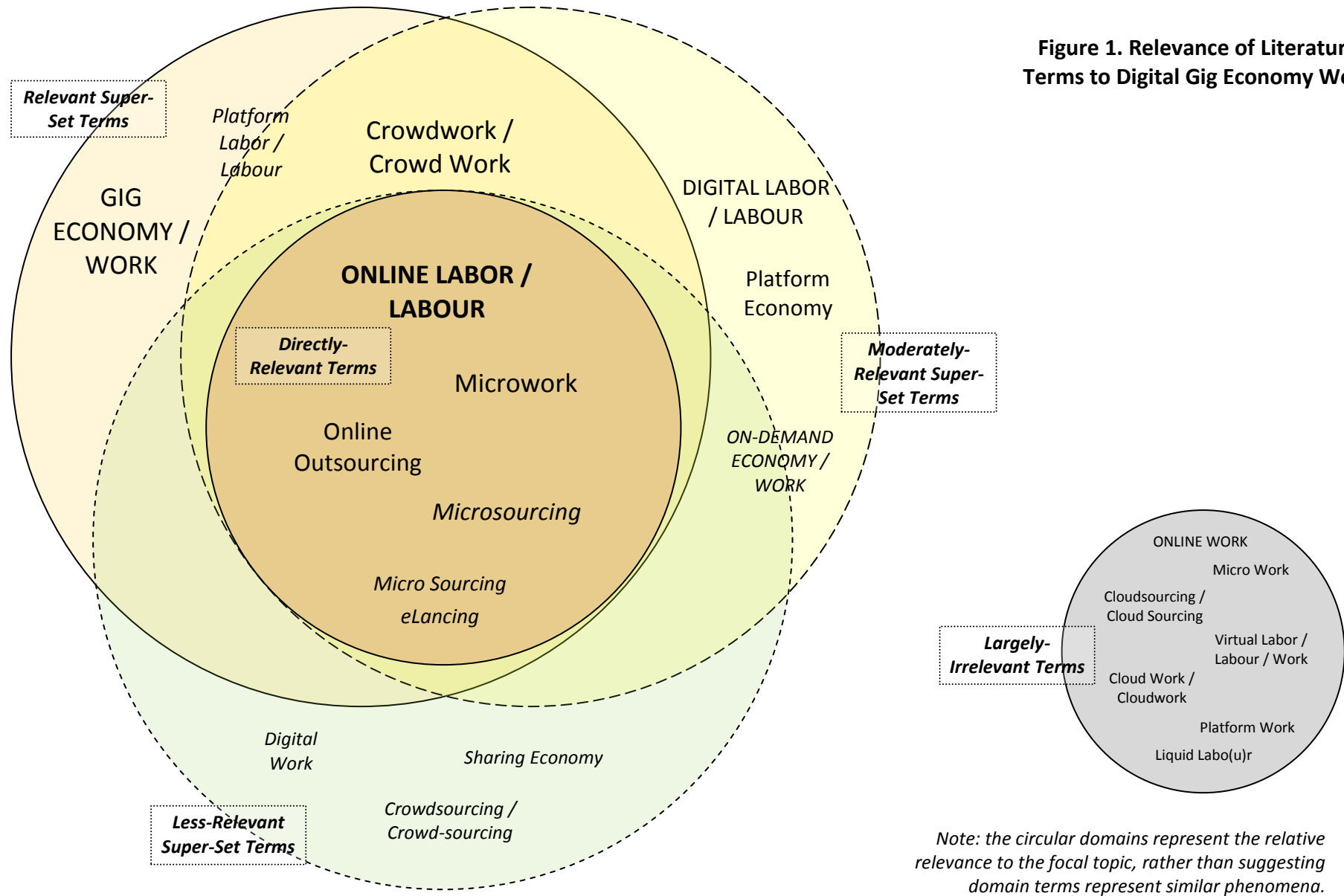


Figure 1. Relevance of Literature Terms to Digital Gig Economy Work

Note: the circular domains represent the relative relevance to the focal topic, rather than suggesting domain terms represent similar phenomena.

B. Review Method

The steps of the literature review were as follows:

- Step 1: a set of key terms was collated from all known literature on the topic; with further snowball collation of terms from items citing this literature.
- Step 2: in mid- 2017, a Google Scholar search was undertaken for published English-language literature in which those terms appeared in the title. To get a measure of currency and trend for each term, the number of items published since 2016 was compared to the overall number of items appearing, and a proportion calculated¹.
- Step 3: the returned search hits were reviewed for definitions of the search term, and for an overview sense of relevance to the focal topic.

Following this (Step 4), the findings were sorted into five categories:

- Relevant Super-Set: a term broader than the focal topic but containing a significant number of items about that topic.
- Directly Relevant: a term solely and specifically coterminous with the focal topic.
- Moderately-Relevant Super-Set: a term broader than the focal topic but containing some items about that topic.
- Less-Relevant Super-Set: a term broader than the focal topic but containing only a few items about that topic.
- Largely-Irrelevant: a term almost always relating to something different from the focal topic.

The results are reported in the five tables below, with colouring used to indicate suitability of terms to the focal topic (see Appendix).

In addition, a search was made on frequency of use of terms as Twitter hashtags. All measures exclude use of the hashtag for non-relevant purposes and for those marked '*' this was a significant proportion of overall usage e.g. #DigitalWork referring to digital artwork. Results were not used in determination of relevance of terms but can be categorised as follows excluding largely-irrelevant terms:

- High-usage hashtags (>1,000 per month): #Sharing Economy (6240), #GigEconomy (5510), #Crowdsourcing (2100). Just as a comparison, #DigitalEconomy shows 10440 tweets per month.
- Medium-usage hashtags (40-200 per month): #PlatformEconomy (153), #DigitalLabor (121), #OndemandEconomy (54), #GigWork (50), #DigitalLabour (45)

¹ Google Scholar search is imperfect: e.g. of 10 online outsourcing items listed only 6 actually had the specific phrase "online outsourcing" in the title. However, there was no reason to assume a particular bias for or against any particular one of the terms used; in other words, any search imperfections were assumed to not make any difference to the relative results across terms or time bands. In addition, all search hits did appear to be relevant to the search term used.

C. Analytical Tables

Table 1: Relevant Super-Set Terms

Term	No. in Title	No. in Title from 2016	Post-2015 Proportion	Twitter Hashtag	Typical Definition	Relevance and Focus
Gig Economy / Work	137	96	70%	5,510 / mo		<p>Super-set of focal topic, which covers both digital work (crowd work) plus non-digital on-demand work such as Uber (de Stefano 2015).</p> <p>Fair overlap: majority of items include focal topic, but alongside non-digital work examples.</p> <p>Focus on the nature of task and employment relations.</p>
<i>Gig economy</i>	132	91	69%	5,460 / mo	<i>Workers “hired under ‘flexible’ arrangements, as ‘independent contractors’ or ‘consultants,’ working only to complete a particular task or for a defined time” (Friedman 2014).</i>	
<i>Gig work</i>	5	5	100%	50 / mo	<i>Online gig work: “paid work allocated and delivered by way of internet platforms without an explicit or implicit contract for long-term employment” (Graham et al 2017).</i>	

Term	No. in Title	No. in Title from 2016	Post-2015 Proportion	Twitter Hashtag	Typical Definition	Relevance and Focus
Crowdwork / Crowd Work	94	36	38%	3 / mo		<p>Mainly a super-set of focal topic because also includes unpaid group work such as wiki writing, or data wrangling during a disaster. Some difference where a narrower definition is used: of multiple people working on a single task (whereas focal topic would typically see one person working on a single task).</p> <p>Fair overlap: many sources cover focal topic, especially those using the 'crowd work' variant.</p> <p>Focus on work processes, including design and impacts.</p>
<i>Crowdwork</i>	32	12	38%	3 / mo*	<i>"mobilizing a large group of people to perform meaningful tasks for society on-line" (Barrenechea 2016).</i>	
<i>Crowd work / Crowd-work</i>	62	24	39%	n/a	<i>"engaging a geographically distributed workforce to complete complex tasks on demand and at scale" (Kittur et al 2013).</i>	
Platform Labor / Labour	6	2	33%	0 / mo	"digitally mediated service work" (van Doorn 2017)	<p>Synonymous with online gig work, but strong overlap with particular focus on focal topic.</p> <p>Too few sources for a clear focus.</p>
<i>Platform labour</i>	3	1	33%	0 / mo		
<i>Platform labor</i>	3	1	33%	0 / mo		

Table 2: Directly-Relevant Terms

Term	No. in Title	No. in Title from 2016	Post-2015 Proportion	Twitter Hashtag	Typical Definition	Relevance and Focus
Online Labor / Labour	132	27	20%	1 / mo		Directly relevant: almost all items relate to focal topic. Focus particularly on labour markets; their operation and impacts.
<i>Online labor</i>	105	19	18%	0 / mo	<i>Work done in an online labor market “where (1) labor is exchanged for money, (2) the product of that labor is delivered ‘over a wire’ and (3) the allocation of labor and money is determined by a collection of buyers and sellers operating within a price system.” (Horton 2010).</i>	
<i>Online labour</i>	27	8	30%	1 / mo	<i>Work done in online labour markets “that bring together buyers and sellers of intangible knowledge and service work” (Lehdonvirta et al 2014) .</i>	
Online Outsourcing	10	4	20%	0 / mo	“outsourcing of tasks from clients to freelancers via platforms such as Upwork, Guru, Freelancer and Fiverr” (Malik et al 2017).	Directly relevant: almost all items relate to focal topic. Focus on governance and impact.
Microwork	19	7	37%	2 / mo	“small tasks performed on crowd work platforms” (Morris et al 2017) .	Directly relevant: almost all items relate to focal topic. Focus on potential and impact.
Microsourcing / Micro Sourcing	13	1	8%	0 / mo		Directly relevant: almost all items relate to focal topic.
<i>Microsourcing</i>	5	1	20%	0 / mo*	<i>“a new form of outsourcing that is organized over online platforms for the performance of relatively small service tasks” (Lu et al 2016).</i>	<i>Too few sources for a clear focus.</i>
<i>Micro sourcing / Micro-sourcing</i>	8	0	0%	n/a	<i>As per ‘microsourcing’.</i>	<i>All but one are by same authors and relate solely to Malaysia’s Micro Sourcing initiative.</i>

Term	No. in Title	No. in Title from 2016	Post-2015 Proportion	Twitter Hashtag	Typical Definition	Relevance and Focus
eLancing / e-Lancing	5	1	20%	1 / mo	“in which freelancers get in touch with clients via the Internet, work as teleworkers, and transfer work results via ICT networks.” (Gareis 2002).	<p>Directly relevant: almost all items relate to focal topic.</p> <p>Too few sources for a clear focus.</p>

Table 3: Moderately-Relevant Super-Set Terms

Term	No. in Title	No. in Title from 2016	Post-2015 Proportion	Twitter Hashtag	Typical Definition	Relevance and Focus
Digital Labor / Labour	188	47	25%	156 / mo		<p>Super-set that sometimes overlaps with the focal activity; an overlap which may be greater in more-recent work.</p> <p>Some difference in sources on whether work is the super-set within which labour is the paid sub-set; or vice versa.</p> <p>Focus quite often as much on deep theorisation as related to actual practice, with a particular interest in unpaid labour.</p>
<i>Digital labour</i>	103	26	25%	45 / mo	<p><i>“paid and unpaid work within the digital economy” (Bukht & Heeks 2017)</i></p> <p><i>“the creative work of individuals expended on the social web” (Whiting et al 2015).</i></p>	
<i>Digital labor</i>	85	21	25%	121 / mo	<p><i>Waged and unwaged work undertaken on digital media (Scholz 2012).</i></p> <p><i>“alienated digital work” (Fuchs 2015).</i></p>	
Platform Economy	62	45	73%	153 / mo	<p>“one in which tools and frameworks based upon the power of the internet will frame and channel our economic and social lives” (Kenney & Zysman 2015)</p>	<p>Super-set of the focal topic that covers economic and social uses of all platforms – Amazon, Google, eBay plus gig economy platforms.</p> <p>Some overlap with the focal topic.</p> <p>Focus on business models, impact and regulation.</p>

Term	No. in Title	No. in Title from 2016	Post-2015 Proportion	Twitter Hashtag	Typical Definition	Relevance and Focus
On-Demand Economy / Work	71	36	51%	54 / mo		<p>Super-set though more often associated with non-crowd work elements of gig economy (e.g. Uber, Airbnb).</p> <p>Some limited overlap with focal topic, though may be slightly greater in recent years.</p> <p>Focus on business models, and employment rights.</p>
<i>On-demand economy</i>	61	33	54%	54 / mo	<p><i>“economic activity created by technology companies that fulfill consumer demand via the immediate provisioning of goods and services.” (Jaconi 2014).</i></p> <p><i>Sometimes used synonymously with gig economy, or seen as a sub-set with a specific focus on co-location of client and physical provision of goods/services (de Stefano 2015).</i></p>	
<i>On-demand work</i>	10	3	30%	0 / mo	<i>Work in the on-demand economy (Salehi 2016).</i>	

Table 4: Less-Relevant Super-Set Terms

Term	No. in Title	No. in Title from 2016	Post-2015 Proportion	Twitter Hashtag	Typical Definition	Relevance and Focus
Digital Work	211	36	17%	18 / mo*	“the organisation of human experiences with the help of the human brain, digital media and speech in such a way that new products are created” (Fuchs & Sevignani 2013).	Super-set that is generally about online work, or work in the digital sector. Some limited overlap with focal topic. Very varied focus of topics.
Crowdsourcing / Crowd-sourcing	7,748	1,707	22%	2,100 / mo		Super-set relating to getting groups to work on tasks online. Limited relevance of overall literature to focal topic: a large number of sources relate to unpaid work e.g. citizen science, disaster support, public participation tasks; or to collaborative activities e.g. of scientists. Focus is on large size of group that can be brought to bear on a task.
<i>Crowdsourcing</i>	<i>7,090</i>	<i>1,590</i>	<i>22%</i>	<i>2,100 / mo</i>	<i>“an online, distributed problem-solving and production model” (Brabham 2008). Note there are a number of papers analysing and discussing definitions e.g. Estelles-Arolas & Gonzalez-Ladron-de-Guevara (2012).</i>	
<i>Crowd sourcing / Crowd-sourcing</i>	<i>658</i>	<i>117</i>	<i>18%</i>	<i>n/a</i>	<i>As for ‘crowdsourcing’.</i>	
Sharing Economy	1,200	534	45%	6,240 / mo	“any marketplace that brings together distributed networks of individuals to share or exchange otherwise underutilized assets” (Koopman et al 2015).	Rarely seems to overlap: focus is on on-demand economy examples outside the scope of digital labour.

Table 5: Largely-Irrelevant Terms

Term	No. in Title	No. in Title from 2016	Post-2015 Proportion	Twitter Hashtag	Typical Definition	Relevance and Focus
Virtual Work	947	46	5%	140 / mo	“work that spans one or more discontinuities. A partial list of different types of discontinuities includes temporal work location (e.g., working asynchronously across time zones), geographic work location” (Watson-Manheim et al 2002)	Rarely if ever overlaps with focal topic: focus on teleworking, geographically-distributed teams collaborating online, and also the physics meaning of ‘virtual work’.
Virtual Labo(u)r	17	2	12%	0 / mo	Too varied to provide a single definition.	Not relevant.
Platform Work	35	2	6%	0 / mo	Too varied to provide a single definition.	Almost all irrelevant: e.g. about work on physical platforms.
Micro Work / Micro-work	20	2	10%	1 / mo		Not relevant; e.g. covers microscopic-scale work.
Online Work	147	26	18%	27 / mo	Work undertaken online.	Not relevant: much broader super-set, with focus e.g. on virtual team working, or virtual learning
Human Cloud	17	3	18%	45 / mo		Almost all irrelevant: e.g. using wearable technology as sensors.
Cloudsourcing / Cloud Sourcing	50	6	12%	1 / mo	“outsourcing data, services and infrastructure to cloud providers” (Moyano et al 2014)	Almost all irrelevant: e.g. about sourcing technical assets.
Cloud Work / Cloudwork	11	1	9%	5 / mo	Too varied to provide a single definition.	Not relevant.
Liquid Labo(u)r	0	0	-	0 / mo		

References

- Barrenechea, M. B. (2016). *The Crowdrouter Framework: Addressing Issues of Software Design in Support of Crowdsourcing*, Doctoral dissertation, University of Colorado at Boulder, Boulder, CO.
- Brabham, D. C. (2008). Crowdsourcing as a model for problem solving: An introduction and cases. *Convergence*, 14(1), 75-90.
- Bukht, R., & Heeks, R. (2017). Defining and measuring the digital economy in developing countries, paper presented at international workshop on *Development Implications of Digital Economies: Mapping and Issues*, Yogyakarta, Indonesia, 25-26 May.
- De Stefano, V. (2015). *The Rise of the 'Just-In-Time Workforce': On-demand work, crowd work and labour protection in the 'gig-economy'*, International Labour Office, Geneva.
- Estellés-Arolas, E., & González-Ladrón-de-Guevara, F. (2012). Towards an integrated crowdsourcing definition. *Journal of Information Science*, 38(2), 189-200.
- Friedman, G. (2014). Workers without employers: shadow corporations and the rise of the gig economy. *Review of Keynesian Economics*, 2(2), 171-188.
- Fuchs, C. (2015). Dallas Smythe and digital labor, in: *The Routledge Companion to Labor and Media*, R. Maxwell (ed.), Routledge, New York, NY, 51-62.
- Fuchs, C., & Seignani, S. (2013). What is digital labour? What is digital work? What's their difference? And why do these questions matter for understanding social media? *tripleC: Communication, Capitalism & Critique*, 11(2), 237-293.
- Gareis, K. (2002). eLancing—the future of work?, in: *Challenges and Achievements in E-business and E-work*, B. Stanford-Smith et al (eds), IOS Press, Amsterdam, 448-457.
- Graham, M., Lehdonvirta, V., Wood, A., Barnard, H., Hjorth, I., & Simon, D. P. (2017). *The Risks and Rewards of Online Gig Work at the Global Margin*, Oxford Internet Institute, Oxford, UK.
- Horton, J. (2010). Online labor markets, in: *Internet and Network Economics*, A. Saberi (ed.), Springer, Berlin, 515-522.
- Jaconi, M. (2014). The 'on-demand economy' is revolutionizing consumer behavior — here's how, *Business Insider*, 13 Jul <http://www.businessinsider.com/the-on-demand-economy-2014-7?IR=T>
- Kenney, M., & Zysman, J. (2015). Choosing a future in the platform economy: the implications and consequences of digital platforms, paper presented at *Kauffman Foundation New Entrepreneurial Growth Conference*, Amelia Island, FL, 18-19 Jun.
- Kittur, A., Nickerson, J. V., Bernstein, M., Gerber, E., Shaw, A., Zimmerman, J., ... & Horton, J. (2013). The future of crowd work, paper presented at *The 2013 Conference on Computer Supported Cooperative Work*, San Antonio, TX, 23-27 Feb.

Koopman, C., Mitchell, M. D., & Thierer, A. D. (2015). The sharing economy and consumer protection regulation: The case for policy change, *The Journal of Business, Entrepreneurship & the Law*, 8(2).

Lehdonvirta, V., Barnard, H., Graham, M., & Hjorth, I. (2014). Online Labour Markets- Levelling the Playing Field for International Service Markets?, Oxford Internet Institute, Oxford, UK.

Lu, B., Zhang, T., Wang, L., & Keller, L. R. (2016). Trust antecedents, trust and online microourcing adoption: An empirical study from the resource perspective. *Decision Support Systems*, 85, 104-114.

Malik, F., Nicholson, B., & Heeks, R. (2017). Understanding the development implications of online outsourcing, in: *International Conference on Social Implications of Computers in Developing Countries*, J. Choudrie et al (eds), Springer, Cham, 425-436.

Morris, M. R., Bigham, J. P., Brewer, R., Bragg, J., Kulkarni, A., Li, J., & Savage, S. (2017). Subcontracting microwork, in: *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*, G. Mark et al (eds), ACM, New York, NY, 1867-1876.

Moyano, F., Beckers, K., & Fernandez-Gago, C. (2014). Trust-aware decision-making methodology for cloud sourcing, in: *International Conference on Advanced Information Systems Engineering*, M. Jarke et al (eds), Springer, Cham, 136-149.

Salehi, N. (2016). The context of on-demand work. *XRDS: Crossroads, The ACM Magazine for Students*, 23(2), 30-33.

Scholz, T. (Ed.). (2012). *Digital Labor: The Internet as Playground and Factory*. Routledge, New York, NY.

van Doorn, N. (2017). Platform labor: on the gendered and racialized exploitation of low-income service work in the 'on-demand' economy. *Information, Communication & Society*, 20(6), 898-914.

Watson-Manheim, M.B., Chudoba, K. M., & Crowston, K. (2002). Discontinuities and continuities: A new way to understand virtual work. *Information Technology & People*, 15(3), 191-209.

Whiting, R., Roby, H., Symon, G., & Chamakiotis, P. (2015). Digi-housekeeping: a new form of digital labour?, paper presented at *WORK2015 Conference, New Meanings of Work*, Turku, Finland, 19-21 Aug.

Appendix: Colour Guide to Suitability of Terms

	No. in Title (Overall Presence / Weight of Term)	Post-2015 Proportion (Currency / Trendiness of Term)
Red	1000+	60+%
Orange	100-999	40-59%
Yellow	10-99	20-39%
Blue	0-9	0-19%

Shading:

- Relevant Super-Set & Directly Relevant: 25%
- Moderately-Relevant Super-Set: 20%
- Less-Relevant Super-Set: 15%
- Largely-Irrelevant: not shaded