AI in the commercial photography labour market

The effect of double-sided artificially intelligent platforms on the on-demand commercial photography labour market

Student Name: Natalia Raben
Student Number: 543744

Supervisor: Filip Vermeylen

MA Cultural Economics and Entrepreneurship
Entrepreneurship Erasmus School of History, Culture and Communication
Erasmus University Rotterdam

Master Thesis
June 2021

ABSTRACT

Double-sided artificially intelligent platforms are something new, recently emerged. They claim to be disrupting the photography processes and promise new opportunities to freelance photographers. The algorithms of such platforms take over the majority of the tasks previously performed by photographers, including client search, client booking, administration, post-processing of images, accounting as well as hiring. One matter that still cannot be replaced, however, is the photoshoot process itself as photographers still need to go to a location in person to take photos and, therefore, be hired. The objective of this thesis is to study how the emergence of these artificially intelligent double-sided platforms affects the on-demand commercial photography labour market. It is interesting and important to research how these process innovations affect the photography labour market in general, the income and attention distribution within the market, photographers' transaction costs as well as the opportunities and threats brought by the use of AI technology. To what extent are the algorithms impacting the often visible in the artist markets superstar effects and the level of transaction costs? Is it nothing but opportunities for the freelancers, as the companies promise? Or does the reality differ and to what extent? Are photographers who do not work for such innovative double-sided platforms perhaps better off?

The research includes a comparative quantitative survey distributed among freelance commercial photographers who work for the said platforms as well as those photographers who work through other channels. The research tested notions of the superstar phenomenon, the long-tail hypothesis and the transaction cost theory. The findings show that photographers who work for AI-driven platforms earn less than photographers who work through other channels yet they do receive more jobs. They also value the opportunities of earning extra income through these markets but, at the same time, they do not find this income satisfactory. On the other hand, however, they do experience lower transaction costs than their peers who do not work through artificially intelligent platforms.

Keywords: artificial intelligence, commercial photography, artists' labour market, freelance photographers, double-sided markets

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1. Introduction

Consider the following scenario: a freelance photographer is recommended a certain online platform through which he (or she) might potentially get more jobs. Unless this creative is an extremely popular freelancer with a fully booked schedule (a rare case in the cultural and creative industries), the photographer decides to check this interesting new website. The first thing it displays is a promise to "provide work opportunities and remove post-production and accounting tasks from your plate" (BOOM, 2021a, para. 2). A hopeful sentence encouraging further exploration, slowly revealing that the promise is made by an online agency operating as a double-sided market, driven by artificial intelligence. It is designed to connect freelance commercial photographers with multinational clients in need of photos for commercial use (BOOM, 2021a).

The photographer finds out that in order to work for this platform, he must go through a vetting process to assure that he is a professional possessing the skills to deliver high-quality photographs. The freelancer is sent a brief with a specific assignment that he must complete within a certain period of time. If he passes this 'test', he signs a non-exclusive contract with the agency. After filling in his data regarding his location, skills, equipment and availability, the further steps of the process become slightly unexpected and certainly innovative, something the creative likely has not experienced before (BOOM, 2021c).

Based on the four criteria of location, skills, equipment and availability, the algorithm of the platform assigns the photographer to a job. He has limited time to accept or refuse the assignment before the algorithm sends the proposal to another freelancer who is the second-best match for the job. Once he accepts it, the creative studies the client's guidelines and meets him or her at the day, time and location previously arranged by the agency. The photographer has a limited time to take the exact number of photos in the exact style and technique mentioned by the studied brief. Afterwards, he quickly returns home as he has until midnight to upload the unedited photographs to the agency who takes over the rest of the process (BOOM, 2021e).

The post-processing of the images is performed by the platform. Not by the platform's employees, however, but by the artificial intelligence and machine learning system developed by the agency (BOOM, 2021b). Essentially, the photographer only needs to accept a photoshoot once he receives a notification, read the client's guidelines, come to the photoshoot location for an hour or two and upload unedited photos by the end of the day. Throughout the whole time, the photographer only interacts with an algorithm. He does not

have any contact with the agency representatives. A day or two later, the system updates the accounting profile and even provides the creative with a score out of 5 to let him know how he performed and what specific elements should be improved the next time.

For many freelancers this process sounds very appealing. First of all, few creatives would ever get the chance to work for large clients such as multinational housing rental platforms or global food delivery apps without the help of an agency, especially an online agency which employs freelancers and connects them with clients strictly on objective criteria such as location and availability. The most convincing argument in favour of such innovative AI-driven processes, however, is given by one of the platforms through a posed rhetorical question: "did you know that only 40% of a photographer's working life is actually dedicated to taking pictures?" (BOOM, 2021c, para. 3). The promise of being able to focus on the *actual* job of photographers, that is taking photos, while being able to remain independent as the contracts are non-exclusive, is the core element of "breaking new ground in professional photography" (BOOM, 2021a, para.1).

The reality, however, is not always as brilliant. Unsurprisingly, disadvantages and inconveniences are preferably unmentioned by the platforms and are often experienced by the freelancers later in the process. First of all, the photographer working for the large exciting clients must remain anonymous. They do not get any credit for their work as the platform holds all the copyrights to the photographs. Moreover, the payment is not as high as they would likely have imagined or hoped for when hearing big company names. The reason is the number of intermediaries between the photographer and the final client. For example, while a freelancer works for the agency, the agency's client is a food delivery company whose client is a restaurant located in the freelancer's proximity. Hence, at least two intermediaries are taking a commission from the original payment.

The knowledge of this process comes from the personal experience of the thesis author who works for multiple double-sided artificially intelligent photography platforms. These platforms are new to the market, certainly rapidly developing and gaining more clients and photographers each day. They are raising millions in funding with the long-term goal of becoming "the Amazon of commercial photography" (Caballar, 2020, para. 1). The above introductory description was based on one of these agencies, BOOM Image Studio, which was launched in January 2018 in Milan. By January 2021 it had expanded not only across Europe but also the US and employed over 120 people (BOOM, 2021b). Currently, it works with over 35 thousand professional photographers in more than 80 countries (Caballar, 2020).

The success of BOOM, as well as other competing platforms such as Meero or OCUS, is achieved not only thanks to the innovative processes developed to make photographers' job easier, more efficient and more effective but also due to improved photoshoot cycle accomplished by the use of the AI. The automatized process allows for global clients to request any number of photoshoots anytime and from anywhere and at the same time have the guarantee that the final photographs will fit their brand guidelines and be delivered within approximately 24 hours (BOOM, 2021d; Caballar, 2020; OCUS, 2021; Meero, 2021). In economic terms, it means that the use of AI significantly reduces costs as photoshoots become faster, cheaper, more efficient and more effective.

Although it would be interesting to research the overall effect of this process innovation on all of the stakeholders, the scope of this research will narrow down the effects of the double-sided artificially intelligent platforms on commercial photographers. One creative may be thrilled to work for a company like BOOM while another freelancer may face difficulties accepting the fact that the compensations are lower than what he had hoped for. Personal preferences aside, it is interesting to study what are the effects on the photography labour market in general. Are photographers truly receiving more opportunities? Are they earning more than before joining these platforms? Are they truly spending more time taking photos and less time doing administrative tasks?

1.1 Research question

The thesis will consider and study the above and other aspects by posing the following main research question:

To what extent do double-sided artificially intelligent platforms affect the on-demand commercial photography labour market?

In order to answer the main research question, three sub-questions have been formed which are based on the Theoretical Framework in chapter 2 and their objectives are explained in detail in chapter 3 on the Research Design.

I. To what extent do double-sided artificially intelligent platforms affect the income and attention distribution within the on-demand commercial photography labour market?
II. What are the perceived, by freelance photographers, strengths, weaknesses, opportunities and threats brought to the market by the double-sided artificially intelligent platforms?
III. To what extent do double-sided artificially intelligent platforms affect the transaction costs of freelance commercial photographers?

1.2 Research objectives

The objective of this thesis is to study to what extent double-sided artificially intelligent platforms affect the on-demand commercial photography labour market. In simpler terms, the goal is to study to what extent platforms, such as the previously introduced BOOM Image Studio, and their innovative processes affect the photographers' job market. The research aims to consider elements such as income and attention distribution posing questions as to whether a small portion of creatives receives most of the income, as it often appears to be the case in the cultural and creative industries, or whether that changed after the emergence of the platforms allowing a larger portion of photographers to earn more (Rosen, 1981). Furthermore, the research aims to study to what extent AI-driven platforms affect the photographers' transaction and management costs posing questions on the tasks and responsibilities of the freelancers examining whether the promises of letting photographers focus on their actual job, that is taking photos, are having any empirical evidence and effect on the market in general. Moreover, due to the fact that these photography processes are new and innovative, the research aims to identify strengths, weaknesses, opportunities and threats that the AI-platforms have brought to the labour market.

The research is based on multiple theories, described in detail in the second chapter of the thesis. Notions concerning the artists' labour market such as superstar theory, long-tail hypothesis and transaction cost theory are the core for the formulation of the three sub-questions. Despite that, the paper also considers other existing literature on the artists' labour market, double-sided markets as well as the concepts of commercial photography and artificial intelligence to provide background information relevant to the case. The results of this research hope to contribute to the said theories and in particular provide new insights into the somewhat under-researched photographers' labour market. At this moment, however, it is more than ever relevant to study such digitalized and artificially-driven process innovations

as the world fights with a pandemic of COVID-19. The pandemic required the workforce to limit physical contact to the maximum and transfer most non-essential jobs to the digital sphere. Many industries were severely affected, including the cultural sector which faced one lockdown after another. Could digital solutions such as those proposed by the AI-driven double-sided markets support creatives and the cultural and creative industries? If the empirical evidence presents a positive effect of these platforms on the photographer's labour market, perhaps it could be considered to apply similar technologies to other sectors of the cultural and creative industries, especially at times when the world becomes accustomed to remote work and faces threats of more frequent pandemics in the future (Gill, 2020; Constable & Kushner, 2021). From the perspective of the companies, for BOOM Image Studio the pandemic was certainly an opportunity. As the CEO of the company, Federico Mattia Dolci, said in one online article: "The pandemic encouraged BOOM to double down and serve businesses moving their core products online overnight. 2020 might well be a catalyst for the sector" (Caballar, 2020, para. 13).

The main research question – to what extent do double-sided artificially intelligent platforms affect the on-demand commercial photography labour market? - will be answered using quantitative, comparative research involving a cross-sectional survey redistributed among freelance photographers working within the on-demand commercial photography industry. The research, therefore, is going to be deductive using primary data as no secondary records exist on the subject. Both photographers who work for double-sided artificially intelligent platforms (such as BOOM Image Studio, Meero and OCUS) will be contacted as well as photographers working via other channels (such as other platforms or non-digital outlets). The expected results of the research include more evenly distributed income and attention and lower transaction costs among freelance commercial photographers working for AI-driven platforms than among freelance commercial photographers working for through other channels.

1.3 Thesis structure

The thesis is divided into five chapters. The first chapter provides an introduction to the industry and describes the background and objectives of the research. The second chapter consists of a theoretical framework discussing multiple notions and theories with the core ones being the superstar theory, the long-tail hypothesis and the transaction cost theory. The third chapter describes in detail the design of the research providing an outline of the survey

design and operationalization of the study. The fourth chapter includes the results of the survey research with a comprehensive analysis of the outcomes divided into three sub-chapters organized correspondingly to the three sub-questions. The fifth chapter draws conclusions to the main research question and offers a discussion on the research limitation and suggests areas for further research.

2. Theoretical Framework

2.1 Commercial photography

The focus of this research is put on the commercial photography labour market. Hence, the theoretical framework shall start with a working definition of the commercial photography concept. Although Scott (2014) would argue that any type of professional photography is commercial as without commercial environment professionalism in the industry would not occur, Bennett & McCumber (2020) provide a more descriptive definition referring commercial photography to the process of creating photographs for commercial purposes, in other words for a business or publication, promoting the sale of goods or services.

The main research question further narrows down the industry by mentioning on-demand commercial photography with the purpose of avoiding confusion with stock photography. Fundamentally, on-demand photographs are created after the demand for them is expressed or, in other words, after the client requests them (Scott, 2014). Stock photographs, on the other hand, serve similar commercial purposes but what the client purchases are the licences to already existing photos (Adobe, 2020).

While photography has a long and rich history, commercial photography started in the second half of the nineteenth century. Back then photographs were taken using Daguerre's method which involved recording and altering images on a silver plate. The first photography agency specialized in advertising, Illustrated Journals Photographic Supply Company, was created in 1894 in London. From this time forward photography began to develop more rapidly, different nations, as well as the public, were becoming increasingly interested in this growing type of art (Pinney, 1962). With the later creation of film cameras came easier and cheaper method of producing images. They were finally being reproduced in commercial outlets such as newspapers and used by a larger number of people from various social groups. In 1935 Kodak introduced the first partly-coloured film, which was revolutionary for the industry. The next great development was the creation of instant polaroid and lastly but perhaps, most importantly, the photography industry was introduced to computers and digital cameras (Davenport, 1999)

The technology shifted dramatically in the late twentieth century. With the invention of the Internet, the industry has never been the same. At first clients and photographers still met face-to-face and, naturally, photographs still had to be taken in person. However, with the emergence of numerous online platforms and digital communication technology, the

place where creatives or prospective customers would find one another moved, to a large extent, to the online environment.

2.2 Artificial intelligence

The second concept touched upon in this research, and the latest development in the photography industry, is artificial intelligence, the use of it within the commercial photography business models and its effect on the photographers' labour market. Artificial intelligence is argued to be difficult to define because "there is no such thing as 'the' AI" (Wischmeyer & Rademacher, 2020, p. 5). The authors state that the term AI refers to a variety of concepts, algorithms and techniques as well as machine learning, all, however, entailing "algorithmically controlled, automated decision-making or decision support systems" (Algorithm Watch & BertelsmannStiftung, 2019, p. 9).

It is observed that these systems are currently being applied by more and more companies, both in the public and private sector as well as the cultural and creative industries (McCann & Hall, 2019). The way BOOM Image Studio implements the AI, for example, is not only by connecting photographers with clients using an algorithm but also through "post-production, editing thousands of pictures like a professional editor in seconds, ensuring consistency across all images, and in doing so, tackling the hardest problems of Computer Vision: Instance Segmentation, Object Recognition, and Image-to-Image translation." (Caballar, 2020, para. 10).

2.3 Double-sided markets

BOOM Image Studio and other AI-driven commercial photography platforms such as Meero or OCUS are examples of digital double-sided markets. Other, well-known examples of such markets within the cultural and creative industries include online platforms such as Spotify, Netflix or Etsy. According to Rysman (2009), a two-sided market is defined by two characteristics. First of all, "two sets of agents interact through an intermediary or platform, and 2) the decisions of each set of agents affects the outcomes of the other set of agents, typically through an externality" such as the usage of the platform or having a membership (p. 125). In the case of commercial photography platforms, this essentially means that none of the two agents, that is neither the photographer nor the client, will be interested in using the platform if the other one does not use it (Rysman, 2009).

It must be noted that such platforms are not occupied with the purchase and reselling of goods and services but instead are engaged in facilitating trade, matching buyers with sellers and vice versa. Although there are strong indirect network effects associated with double-sided platforms, what differentiates two-sided markets and keeps them from being studied as network effects is the fact that there is a strong presence and focus on intermediaries and their actions (Rysman, 2009). It is not news to academia that intermediaries influence the artists' labour market one way or another. Vinodrai (2015) summarizes very well the existing academic literature on the subject and the extent of the intermediaries' effect in her paper concerning the design industry:

> intermediaries act as agents to build social and professional networks; contribute to education, training and skills upgrading; enhance collective learning; act as gatekeepers and tastemakers; engage in matchmaking between customers and suppliers; advocate in the policy arena; and broker relationships between firms and the workforce. (Vinodrai, 2015, p. 420)

Rysman (2009), in his paper The Economics of Two-Sided Markets, discusses the common strategies observed at double-sided platforms, especially regarding pricing. He compares one-sided and double-sided markets stating that the pricing strategies of these two forms of business are impacted by different factors. The most important distinction is that while prices at one-sided markets generally are based on the elasticity of demand and the marginal cost of production, double-sided markets must consider "the elasticity of the response on the other side and the mark-up charged to the other side," that is to the side of the photographer or the client (Rysman, 2009, p. 129). Hence, the pricing within double-sided platforms is significantly more complex than within one-sided markets. Such complexity affects the freelance photographers' earnings and the number of reasonably priced and, therefore, accepted job offers. Both aspects will be studied in this research.

Nowadays, within the photography industry, there is a large number of online double-sided markets. Some of these platforms are photography-specific (Perfocal, 2021; SweetEscape, 2021). Other feature photography services only as a sub-category (Upwork, 2021; Freelancer, 2021). Undoubtedly, digitalization led to the emergence of a large variety of platforms allowing clients to find any type of photographers, be that portrait photographers, wedding, commercial, event or even pet photographers. The same applies to the levels of expertise. Both professionals as well as amateurs and enthusiasts are able to find

jobs or simply connect with potential clients (Perfocal, 2021; SweetEscape, 2021; Upwork, 2021; Freelancer, 2021). Despite that, photography platforms feature more than only hiring-related activities. There are also websites facilitating the rent of photography gear or photography studios and creative spaces (Gearbooker, 2021; MisterLocation, 2021). Furthermore, the industry sees a number of photography-specific social media platforms (Verzosa, 2021).

Within an industry so crowded with double-sided markets, innovation processes led to the emergence of an additional type of double-sided platforms, driven by artificial intelligence. A certain clarification must be made in order to differentiate the newly developed platforms from other double-sided markets occupied essentially with the same commercial photography services. One might think that every digital platform is driven to a certain extent by an algorithm. Hence, what is the difference? A correct statement is the fact that algorithms are present in every platform and as McCann & Hall (2019) state, "algorithms are not new … they're becoming part of almost every aspect of our lives" (para. 2). However, the way these algorithms are used and how they affect the decision-making processes is what creates the factual difference. A quote directed at an AI-driven platform Meero, from *A Letter To Our Competitor* by Splento (2019), perfectly exemplifies this argument:

> You … have managed to cut a niche in the photo industry by hastening and automating image editing with the aid of artificial intelligence … we at Splento firmly believe that … your AI algorithms are admirable and certainly a few steps in to the newer age. (Splento, 2019, para. 8)

2.4 Artists' labour market

The aim of this research is to study to what extent AI-driven double-sided photography platforms impact the photography labour market. Therefore, the primary interest of this research is the characteristics of the artists' labour market. According to Benhamou (2011), the artists' (including photographers') job market is characterized by an oversupply of artists, mostly due to low entry barriers and high intrinsic motivation to work in this sector. Cultural and creative products are highly differentiated, or 'infinitely diverse' as Caves (2000) would call it, and typically present experience good characteristics. The term 'experience goods' refers to products and services one "needs to experience in order to have information about it and judge [their] quality" (Towse, 2019, p. 151-152). Because of these characteristics and the

oversupply of artists, the creatives' most valuable items are experience and reputation (Benhamou, 2011). Furthermore, the artists' labour market is characterised by flexible working patterns, often project-based employment and short-term contracts. Such constant change of working circumstances and, consequently, costs spent on search and efforts to get hired for the next project is another reason why reputation is such a valuable asset to the creatives (Benhamou, 2011).

Of special interest and attention within the cultural and creative industries is the income (and attention) distribution between the artists. Several theories aim at explaining the market situation, including the superstar theory suggesting disproportional income skewness and a long-tail hypothesis suggesting the skewness presenting more proportional distribution caused by digitalization. Both theories are explained in detail in the subsequent sections.

2.4.1 Superstar theory

Cultural and creative industries are characterized by the presence of superstars. A superstar is, for example, a particularly popular musician such as Justin Bieber, experiencing a very high number of listeners and, hence, income from sold concert tickets or albums. In comparison to other, less popular pop musicians, Bieber is a superstar. Are his talent and voice worth such fame? That is highly debatable. The notion of talent will be returned to in the subsequent paragraph. First, however, it must be explained that the superstar effect is not limited to only individuals but also institutions or physical objects. Rosen (1981) explains this phenomenon as "economic activity [where] there is concentration of output among a few individuals, marked skewness in the associated distributions of income and very large rewards at the top" (p. 845). In relation to the photography labour market, this would mean that there is a small number of photographers that earn a lot while the majority, in comparison, earns very little.

Rosen (1981) argues that "small differences in talent translate into large differences in earnings" (Schulze, 2020, p. 401). He explains this notion by saying that customers, when faced with an infinite list of artists, prefer to choose those that are popular as in this way they can assure their quality. After all, in the mind of a customer, if artists are popular or sought-after, this must mean they are good at what they do. This is associated with the experience good characteristics of the cultural products where the quality cannot be assured prior to the consumption of the good and customers search for signals of quality, such as the popularity of the product (Towse, 2010). Accordingly, the choice of the popular artist indicates that the

customers have a high willingness to pay for their services. Consequently, popular artists receive higher income while less-popular creatives earn little in comparison.

Rosen's (1981) theory suggesting that differences in talent impact differences in earnings is difficult to measure empirically. While earnings are easy to quantify, talent is not. As Schulze (2020) mentions, many tried to empirically test the superstar effect but few succeeded. Adler (1985), on the other hand, proposes a theory suggesting that the superstar effect is not based on differences in talent but on the initial advantage a person holds while entering the market as well as on taste formation. In his view, the more people consume an artist's work, the more they want to consume it in the future as art holds addictive qualities. Furthermore, once they get 'addicted' to a certain art or artist, they discuss it more with others, eventually creating a network effect. Schulze (2020) summarizes this theory by saying that superstars "may be born because initially … more people happen to know one artist … and communicate about him or her more with others. Artist-specific consumption capital is built up more rapidly, and this artist will snowball into a star" (p. 402-403). He mentions the importance of an initial advantage of an artist which aligns with MacDonald (1988) who suggests that artists with positive quality signals such as good first reviews are more likely to become superstars while those with bad first reviews are likely to promptly leave the market.

2.4.2 Digitalization

A largely discussed phenomenon of recent years is the long-tail hypothesis suggested by Anderson (2004). The Long Tail is a concept proposing that because of digitalization, the online market is no longer only selling superstar products but also the 'infinite list' of goods. As Anderson (2006) mentions in his book title, *The Long Tail: Why the Future of Business is Selling Less of More,* the future of business is… selling less of more. The hypothesis essentially entails that digital goods, such as music recordings or digital books, hold marginal costs close to zero. Hence, the costs of offering an infinite number of products are significantly lower than offering them physically. A small bookstore, for example, can afford to store only a limited number of books on their shelves and since each book costs a certain price to produce and supply, the bookstore will most likely choose to supply only popular pieces as those are more likely to get sold. An online bookstore selling eBooks, on the other hand, will not face the same cost concerns. It will afford to supply a significantly larger number of books since the costs of supplying and selling each additional eBook is close to zero. The risk that customers will not buy it will not bring substantial consequences to the

bookstore while the possibility that several customers will buy it could bring noteworthy revenues (Anderson, 2004).

If related to the photography industry and the photography labour-market, the long-tail hypothesis would mean that digitalization would allow a larger number of photographers to offer their services online than offline. It would mean that the uneven income distribution letting only a few photographers earn high income would change its skewness and present a more proportional allocation of jobs. After all, listing photography services online is significantly cheaper than searching for clients through traditional, offline channels. Moreover, online double-sided markets driven by algorithms often work through a recommendation system suggesting to customers less-popular options in order to reduce the customers' search costs and present the large offer of the digital products. All of this, of course, with the main objective of attracting more sales and increasing revenues (Anderson, 2004).

However, not everyone agrees with Anderson (2004) and his hypothesis. Epstein (2017) argues that although in theory digitalization and technology should allow any niche products (or service) to find its audience, in practice it is not the case as the number of available products online is so large that for many customers is it almost impossible to find these products. Debating Anderson's (2004) hypothesis, Epstein (2017) suggests that "the tail is indeed long, but it is very skinny" (para. 5). In his view, the algorithms recommend products creating network effects based on products that similar customers enjoyed. Moreover, people are social beings and like to share things with others and, therefore, tend to choose the simple solution of selecting products that are on top of the popular list. Hence, he argues that the *winner-takes-all* concept is not decreased by the use of technology and the market "is not "selling less of more", as Mr Anderson put it, but selling a lot more of less" (Epstein, 2017, para. 7). Translating it to the photography labour market, Epstein (2017) suggests that digitalization will not necessarily improve the imbalanced income distribution but simply sell more services of less-popular photographers while retaining the sales of the superstar creatives.

To conclude the subchapter on the artists' labour market and refer back to the case of the artificially-intelligent double-sided markets, it should be said that the AI-driven business models seem to provide opportunities in favour of the more balanced income distribution. The algorithms hide photographers' identities and assign jobs to creatives fairly assessing criteria such as their location, equipment, availability and expertise. They seem to tackle the problem of quality uncertainty where due to the experience good nature of the creative

product, a client "needs to experience [the photographer's service] in order to … judge its quality" (Towse, 2019, p. 151-152). This, in theory, should evade the phenomenon of superstar creation as customers cannot differentiate which photographer is the best one. While this is something more traditional double-sided platforms have to deal with because they reveal the creatives' identities, portfolios and ratings, the artificially intelligent double-sided platforms automatically assign jobs to photographers based on the mentioned criteria previously agreed upon with the client. Hence, it is predicted that income and attention are more evenly distributed among freelance commercial photographers working for the AI double-sided platforms than among freelance commercial photographers working through other channels.

2.5 Transaction cost theory

To lure photographers to work through their platform, BOOM Image Studio asks a rhetorical question: "Did you know that only 40% of a photographer's working life is actually dedicated to taking pictures?" (BOOM, 2021c, para. 3). A freelance photographer often operates as a sole entrepreneur and that, in other words, is a one-person business entity. Therefore, the individual, except for taking photographs and performing photography-related activities, must also perform business-related tasks such as accounting, client search, booking, contract negotiation and formation, planning or administrative tasks. All this involves costs as well as requires resources such as time, money and effort. To perform these tasks, the photographer must use the market.

Coase (1937) refers to such costs as transaction costs. In his theory, presented in The Nature of the Firm, using the market is costly. The need to reduce costs associated with market transactions is the reason why firms emerge and integrate within their activities the tasks previously performed in the marketplace. However, integrating additional tasks requires their management which creates, as Coase (1937) calls them, management costs. These costs could be perceived as the other side of the coin of the transaction costs, making the use of organization equally costly to the use of the market. This theory, however, holds only if the system is efficient which, in reality, rarely proves to be true. Essentially, firms are faced with decision-making between either doing something by themselves or outsourcing a task. This can also be referred to as a make-or-buy decision (Towse, 2010).

Transaction costs can be classified into three categories: (1) search and information costs, (2) bargaining and decision costs and (3) policing and enforcement costs (Dahlman,

1979). Search and information costs include the costs of identifying opportunities and potential gains as well as gathering information. “In order for an exchange between two parties to be set up it is necessary that the two search each other out, which is costly in terms of time and resources” (Dahlman, 1979, p. 147). In the case of the freelance photographer, this would include the search for potential clients, gathering information relevant to the potential job, search and gathering of resources needed to perform the job or search for any other opportunities within the market.

Bargaining and decision costs include costs related to the time and resources spent on the decision-making process as well as contracts and agreements. “Agreeable terms between parties can only be determined after costly bargaining between the parties involved” (Dahlman, 1979, p. 148). For freelance photographers, such costs would refer to nothing other than the discussion of terms with their clients and the negotiation and formation of contracts. The last type of transaction costs is policing and enforcement costs which refer to the monitoring costs on whether the signed contracts are respected. “After the trade … there will be the costs of policing and monitoring the other party to see that his obligations are carried out as determined by the terms” (Dahlman, 1979, p. 148). Freelance photographers have to monitor whether their clients pay the amount agreed upon, within the allocated time as well as whether they respect the copyrights agreements such as not altering the photographs or using them for any other purposes than stated in the terms.

The application of the transaction costs theory would suggest that freelance photographers aspire to reduce their transaction costs and the constant use of the market. The promise that the double-sided markets and their implemented AI technology will allow the creatives to spend less time on activities creating transaction costs and more on actual photography-related activities must be tempting to the freelancers. However, it must be considered that the work for AI-driven platforms is usually non-exclusive which means that the creatives are allowed to continue working through other channels and via non-digitized ways. Consequently, this raises the question of whether these AI-driven platforms actually bring any difference to the photographers’ labour market or do they occasionally reduce transaction costs but on a scale of the entire industry where photographers continue working through a variety of channels it is not sufficiently recognised? This will be addressed in the third sub-question of the thesis. Nonetheless, following the transaction cost theory, it is predicted that freelance commercial photographers working for the AI double-sided platforms experience lower transaction costs than other freelance commercial photographers working through other channels.

3. Research Design

The main research question – *to what extent do double-sided artificially intelligent platforms affect the on-demand commercial photography labour market?* - will be answered using quantitative, comparative research consisting of a cross-sectional survey redistributed among freelance photographers working within the on-demand commercial photography industry. Therefore, the research will use a deductive methodology collecting primary data. The participant creatives will be divided into two groups. The first group will consist of freelance photographers working for double-sided artificially intelligent platforms such as BOOM Image Studio, Meero and OCUS. The second group will include freelance photographers working via other channels such as other digital platforms or traditional offline outlets. The survey results of the two groups will be compared.

The photographers will be contacted through various digital channels. Some are expected to be reached through platform-specific online photographer communities that the author has access to. An example of such a community is one created by OCUS on a Mixlab platform where hundreds of OCUS photographers working all over the world connect and share their experiences. Other freelancers are planned to be contacted individually through job market platforms such as LinkedIn, photography-related groups on Facebook and LinkedIn as well as individually through social media platforms such as Instagram and word-of-mouth. There is no nationality nor geographical location restriction to join this research. However, the participants must be 18 years old or older and, of course, work as freelance commercial photographers. Due to the difficulty of finding a sufficient sample of at least 150 freelance commercial photographers within the allocated time for the research, the study will apply convenience and snowball sampling. This aspect may create research limitation as there is a risk of not achieving a representative sample group (Bryman, 2012).

In order to answer the main research question, three sub-questions have been formed. Sub-question 1 and 3 are based on the literature presented in Chapter 2: Theoretical Framework whereas sub-question 2 is based on small-scale content analysis. The complete list of survey questions is located in appendix B.

3.1 Sub-question 1

Sub-question: to what extent do double-sided artificially intelligent platforms affect the income and attention distribution within the on-demand commercial photography labour market?

Hypothesis: income and attention are more evenly distributed among freelance commercial photographers working for the AI double-sided platforms than among freelance commercial photographers working through other channels

The first sub-question refers to the superstar theory by Rosen (1981), Adler (1985) and MacDonald (1988) as well as the longtail hypothesis by Anderson (2004, 2006) and Epstein (2017). The variables of income and attention distribution are operationalized with four indicators. Income distribution is aimed to be determined by asking the survey respondents about their average revenue per month as well as the average revenue per job/project. Attention distribution, which refers to the number of received job enquiries (not necessarily accepted enquiries), is aimed to be determined through the average number of received job proposals per quarter (3 months) as well as the average number of rejected proposals per quarter.

Table 3.1: Operationalization of sub-question 1

Theory	**Concept**	**Variable**	**Indicator**
Adler (1985) Anderson (2004) Anderson (2006) Epstein (2017) MacDonald (1988) Rosen (1981)	(1) Superstar effect (2) Long-tail effect	Income distribution	(1) Average revenue per month (2) Average revenue per job/project
		Attention distribution	(3) Average number of job proposals per quarter (3 months) (4) Average number of rejected job proposals per quarter

To demonstrate how the research is aimed to be conducted using the quantitative survey, please refer to the below sample survey questions covering indicators (1) and (2) regarding the income distribution:

1. What is your average income per month?
    a. What is your average income per month earned through AI-driven platforms?
2. What is your average income per photo job/photo project?
    a. What is your average income per photo job/photo project earned through AI-driven platforms?

The first and the second question will be posed to both group 1 (photographers working for AI-driven platforms) and group 2 (photographers working through other channels). This way

it will be possible to determine whether the average incomes differ among the two groups. Question 1a and 2a will be posed to only group 1 photographers to determine what proportion of their income is earned through the AI-driven platforms and whether that proportion explains the differences in incomes between the two groups of respondents.

3.2 Sub-question 2

Sub-question: what are the perceived, by freelance photographers, strengths, weaknesses, opportunities and threats brought to the market by the double-sided artificially intelligent platforms?

Hypothesis: this sub-question does not test a hypothesis.

The second sub-question is meant to find out what is the photographers' perception of the platforms and their effects. Through this sub-question, the study will identify the perceived strengths and weaknesses of the AI-driven markets as well as opportunities and threats these platforms bring to the photographers' working lives and, therefore, to the overall labour market. In order to quantify this query rather than ask the respondents open survey questions, a small content analysis was performed to identify indicators for the four SWOT variables. The content analysis composed of evaluating 54 Google reviews of three AI-driven platforms – Meero (25 reviews), OCUS (25 reviews) and BOOM Image Studio (4 reviews). BOOM, unfortunately, has only 12 published Google reviews, 8 of which did not include any comment. The 25 reviews for Meero and OCUS were the top 25 "most relevant" opinions (as judged by Google). The complete list of the reviews is located in appendix A. Table 3.2 presents the identified indicators.

Strengths and weaknesses have the same indicators as anything from the quality of the assignments on the platforms through responsiveness to the speed of payment could be perceived either positively or negatively. The survey questions will present the listed elements and ask the respondents to pick their top three elements for each of the SWOT variables. For photographers from group 2 who do not work for the AI-driven platforms, the question will ask what do they think or imagine to be the strength, weakness, opportunity or threats brought by such double-sided markets. Perhaps freelancers from group 2 share negative opinions of the AI platforms which could explain their lack of involvement with these organizations.

Table 3.2: Variables and indicators used in sub-question 2

Strengths/weaknesses	Opportunities	Threats
Quality of the assignments	Development of personal photography business	Loss of copyrights to the images
Support system	Working with big clients	Lack of personal relationship with clients
Organization	Gaining photography experience	Reduced creative freedom
Responsiveness	Networking opportunity	Lack of sufficient number of jobs
Professionalism	Being part of a photography community	Inability to negotiate payment amount
Flexibility of work	Earning extra income	Unstable monthly income
Payment amount	More time spent shooting than editing	Too low payment per job
Copyright issues	Opportunity to work anywhere	Lack of control over image usage
Amount of work		
Speed of payment		
Quality of feedback		
Other, please specify: …	Other, please specify: …	Other, please specify: …

3.3 Sub-question 3

Sub-question: to what extent do double-sided artificially intelligent platforms affect the transaction costs of freelance commercial photographers?

Hypothesis: freelance commercial photographers working for the AI double-sided platforms experience lower transaction costs than other freelance commercial photographers working through other channels.

The third sub-question refers to the transaction cost theory by Coase (1937) and Dahlman (1979). Three variables have been recognised, in accordance with the types of transaction costs described by Dahlman (1979): (1) search and information costs, (2) bargaining and decision costs and (3) policing and enforcement costs. Each of the three variables is operationalized with two indicators which are outlined in table 3.3. To show how these

variables are incorporated into the survey research, beneath is a survey question integrating all six variables.

1. How much time and resources do you spend on:
    a. Searching for potential clients?
    b. Gathering information and resources for a job?
    c. Negotiation of terms and conditions with clients?
    d. The formation of contracts?
    e. Monitoring clients' respectful execution of the contracts?
    f. Enforcing clients' respectful execution of the contracts?

Table 3.3: Operationalization of sub-question 3

Theory	**Concept**	**Variable**	**Indicator**
Coase (1937) Dahlman (1979)	Transaction cost theory	Management costs/control variables	Time and resources spent on: (1) Taking photos (2) Post-production
		Search and information costs	Time and resources spent on: (3) search for potential clients (4) gathering of information and resources for a (potential) job
		Bargaining and decision costs	Time and resources spent on: (5) negotiation of terms and conditions with clients (6) formation of contracts
		Policing and enforcement costs	Time and resources spent on: (7) monitoring of the respectful execution of the contracts (8) enforcing respectful execution of the contracts

In theory, time and resources are easy to quantify since time is measured in hours or minutes and resources in whole numbers or currency. Unfortunately, in practice, people do not count how many hours they spend searching for potential clients or chasing past clients to complete payment. Hence, the measurement for this question is done through the use of a 5-point Likert scale (1-none at all, 2-a little-, 3-a moderate amount, 4-a lot, 5-a great deal). Forming a question this way will additionally allow to rank the variables and determine which type of

transaction costs absorbs most of the photographers' time and resources. Again, responses between photographers from group 1 and group 2 will be compared to establish any differences.

However, while transaction costs cover a large part of costs and tasks related to the non-photography activities of the photographer's business, they do not cover all the aspects that AI-driven platforms promise to help with. Those additional tasks include management costs or photography-related activities such as post-production of the images. Moreover, there is also the activity of taking photos, which is said to be photographers' primary occupation after joining the AI-driven platforms. Hence, these two variables – taking photos and post-production of images – will also be measured in terms of the time spent on these activities.

4. Results

The survey research ran for 10 days from the 19th till the 28th of April 2021. During this time, 212 freelance commercial photographers have participated in the research out of which 157 completed their surveys and 55 submitted partial responses. This chapter will present the results of the research starting with a presentation of the respondents' demographics and continuing with a discussion of the theory-related data divided accordingly to the three sub-questions. The complete survey findings are attached in appendix C.

The majority of respondents were male (69.6%) and over half (54.4%) was from Europe. A quarter of the photographers (24.7%) was from North America and 11.4% from Asia (see table 4.1). Photographers participating in the research presented a wide range of ages. The youngest respondents were 18 years old while the oldest 68 years old. The most prevalent age range representing the middle 50% of the participating photographers was between 27 and 44 years old (see figure 4.1 for age distribution).

Table 4.1: Survey results summary table with demographic variables.

Survey question	Answer	%	Count
Do you work for photography platforms that implement artificial intelligence into their photography processes?	Yes (group 1)	34.43%	73
	No (group 2)	65.57%	139
You indicated that you work for AI-driven photography platforms. Which ones? *only for group 1 photographers	Meero	25.42%	30
	BOOM Image Studio	29.66%	35
	OCUS	30.51%	36
	Other, please specify:	14.41%	17
What is your gender?	Male	69.62%	110
	Female	30.38%	48
Which continent are you from?	Asia	11.39%	18
	Africa	1.27%	2
	Europe	54.43%	86
	Australia	3.16%	5
	North America	24.68%	39
	South America	5.06%	8

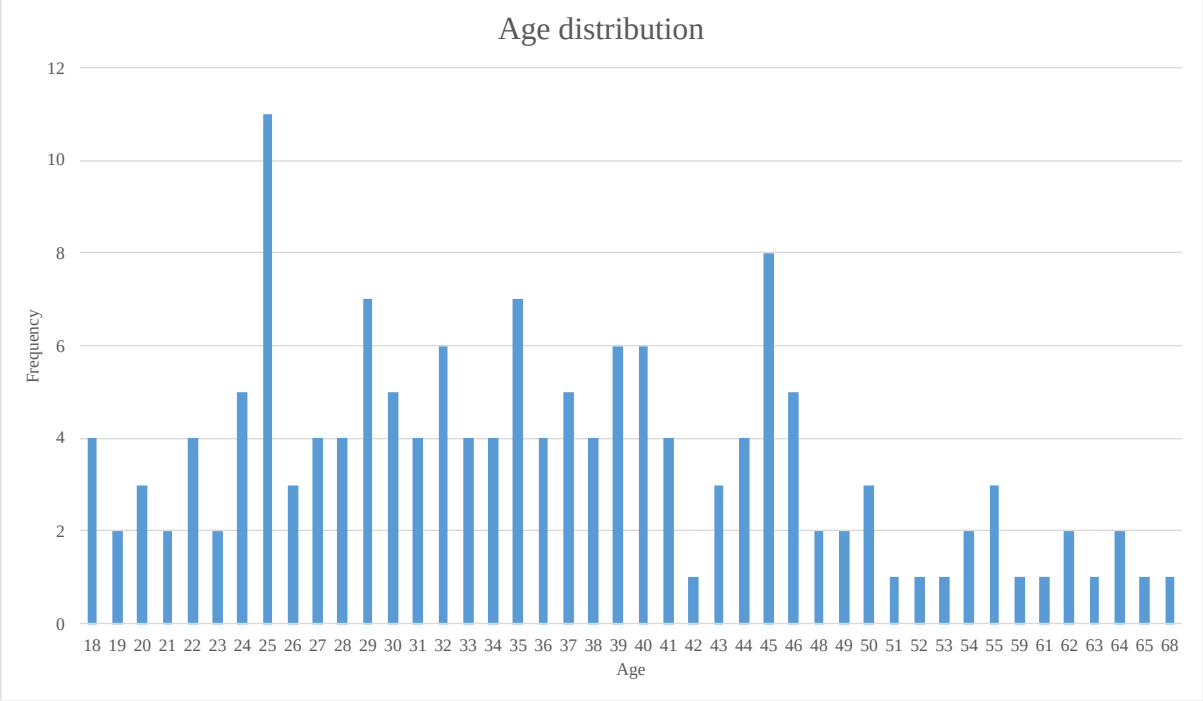

Figure 4.1: Survey respondents' age distribution.

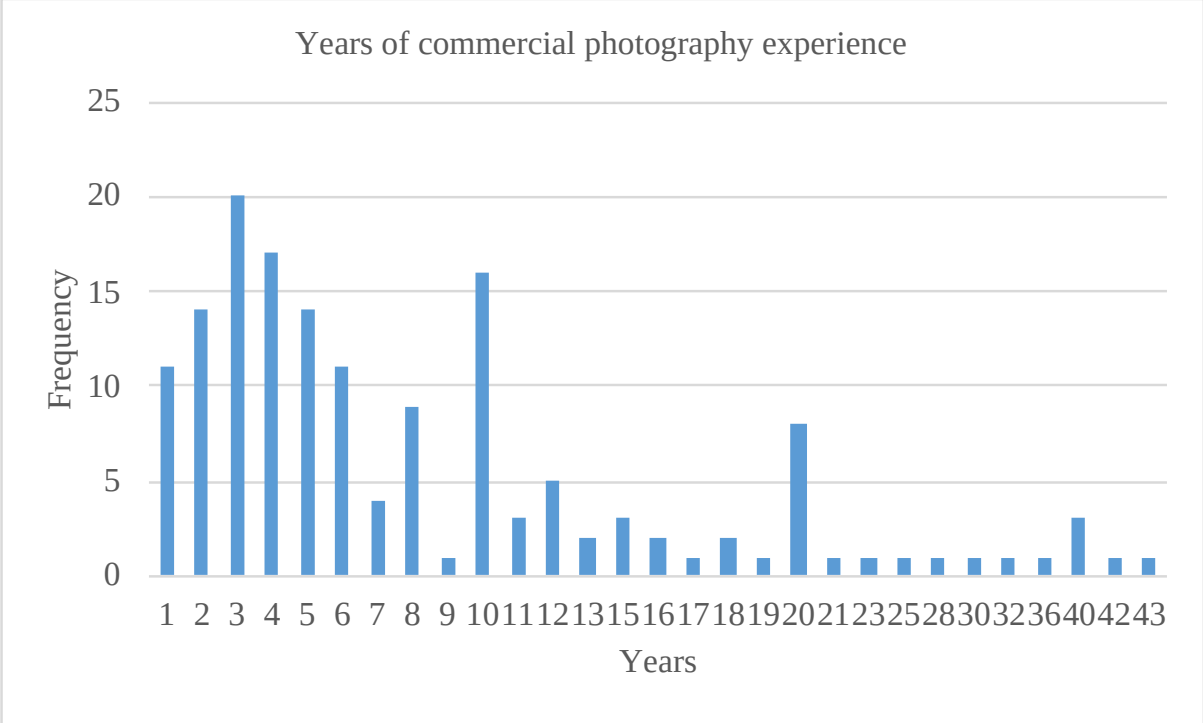

Figure 4.2: Survey respondents' years of commercial photography experience.

As mentioned in the research design, the aim was to compare the survey results of two groups of photographers. The first group consisting of freelance photographers working for double-sided artificially intelligent platforms and the second group including freelance photographers working via other channels such as other digital platforms or traditional offline outlets, further referred to as **group 1 photographers (working for AI platforms) and group 2 photographers (not working for AI platforms).** Out of the 212 collected responses, 73 (34.4%) belonged to the first group and 139 (65.6%) to the second group. The fact that there are significantly fewer photographers in the first group than in the second one resembles the population where there are certainly considerably more commercial photographers working through a wide range of channels than those working through innovative AI-driven online platforms.

Freelancers from group 1 were additionally asked which AI-driven platform do they work for. The most popular choices were OCUS (n=36) and BOOM Image Studio (n=35) though these frequencies may be influenced by convenience sampling error as it is the Meero platform which is considered to be the biggest agency of such kind. While many Meero photographers were invited to participate in the research, they were not as responsive as those working for other platforms. Additionally, the freelancers from both groups were asked how many years of experience do they have in commercial photography. As it was with the age variable, the answers presented a wide range (18 – 43 years). The majority of photographers (55.9%) indicated having 6 or fewer years of experience with the most commonly chosen answer being 3 years (n=20). Five photographers answered to have 40 or more years of commercial photography experience (see figure 4.2).

4.1 Sub-question 1

The first sub-question posed by this research is *to what extent do double-sided artificially intelligent platforms affect the income and attention distribution within the on-demand commercial photography labour market?* To answer it, the survey respondents have been asked questions regarding their monthly income, income per project/job as well as the quarterly number of both received and rejected job offers. Each question was asked to both group 1 photographers (those working for AI platforms) and group 2 photographers (those working through other channels). Freelancers belonging to group 1 were additionally asked to indicate their income and the number of jobs received specifically through artificially intelligent platforms. The hypothesis tested by this sub-question states that income and

attention are more evenly distributed among freelance commercial photographers working for the AI double-sided platforms than among freelance commercial photographers working through other channels. The analysis divides accordingly to the sub-question's two variables: income distribution and attention distribution.

4.1.1 Income distribution

Figures 4.3-4.6 visualize the survey data related to the income distribution of freelance commercial photographers. Since findings such as the photographers' monthly income do not provide much insight by themselves, the data is paired with a logically corresponding match and presented in a comparative approach.

The first figure (4.3) presents the comparison between group 1 and group 2 photographers' monthly income. The data straightforwardly suggests that photographers who work through AI platforms earn lower monthly income than photographers who work through other channels. The graph presents that group 1 freelancers indicated to earn income below €500 per month more frequently than group 2 photographers. The opposite can be said about income higher than €3500 per month which is more repeatedly earned by group 2 freelancers. This is supported by the statistical averages as group 1 has a mean equal to 1.97 while group 2 a mean equal to 2.40 (where 1=below €500 and 5=more than €3500). This additionally suggests that income is more evenly distributed among photographers who do not work through artificially intelligent platforms. Such a finding goes against the established research hypothesis.

As previously explained, group 1 photographers work through AI-driven platforms. However, most of the time they do not work exclusively through such platforms. This is just one source of their income. When asked about monthly income, this referred to their photography income in general, from all sources, including traditional outlets and other online channels. A separate survey question has been formed to identify how much of that income comes from AI platforms specifically. As seen in figure 4.4, a majority (63.4%) of the creatives earn below €500 and nobody earns more than €3500 per month. From the perspective of the superstar theory, it could be said that none of the photographers whose income comes only from the AI platform could qualify as a superstar. The mean income from AI platforms is also lower than the mean general income (M = 1.97 group 1 vs. M = 1.55 group 1 AI). This could explain the differences in monthly incomes between groups 1 and 2. Assuming that all photographers have the same amount of time to execute photoshoots and a

similar number of job offers, with lower compensation from one source of their income, that is lower monthly income from AI-driven platforms, their general monthly income decreases too as they do not have more time left to perform other photoshoots to contribute financially to their overall earnings.

Looking at figures 4.5 and 4.6, similar findings can be observed regarding income per photography job/project. In comparison to group 2, group 1 photographers receive lower compensation per job (M = 2.41 group 1 vs. M = 3.08 group 2) with the most commonly chosen answer for both groups being €50-€200. Concerning how group 1 photographers' average income per project compares to their income per job offered by the platforms, again it is observed that the mean income from AI-platforms is lower (M = 2.41 group 1 vs. M = 1.72 group 1 AI).

The finding that group 1 freelancers' income per project is lower from group 2 photographers is not a surprising discovery as it is already established that a similar phenomenon applies to monthly income which is formed simply by multiplying income per job times the number of jobs. However, an interesting insight comes from the last comparison between group 1 income per project and the same group's income per project from AI platforms (see table 4.6). One element to clarify here is the fact that AI-driven platforms offer a certain compensation per project which is a non-negotiable price. If photographers do not approve of it, they simply do not get the job. In most other circumstances, that is when the photographers receive a job from any other source, they can quote a price that they find appropriate. One could imagine that photographers would choose to quote higher pricing on their projects executed outside of AI platforms to contribute financially to their overall earnings. To exemplify, if the AI platform offers €50 per project, the photographer may choose to ask for €150 for a project outside of the platform (from a private client) in order to earn a mean income of €100 per job.

To a certain extent, this does appear to be the case as, as seen in figure 4.6, the general income per project is slightly more evenly distributed than income per project from AI platforms. However, the general income of group 1 freelancers continues to be lower than group 2 photographers (as seen in figure 4.5). Why are not group 1 photographers improving their overall earnings by charging more for projects executed outside of AI platforms? Are they accustomed to lower pricing for their services? While this thesis does not have an answer to this question, it is certainly an invitation for future research.

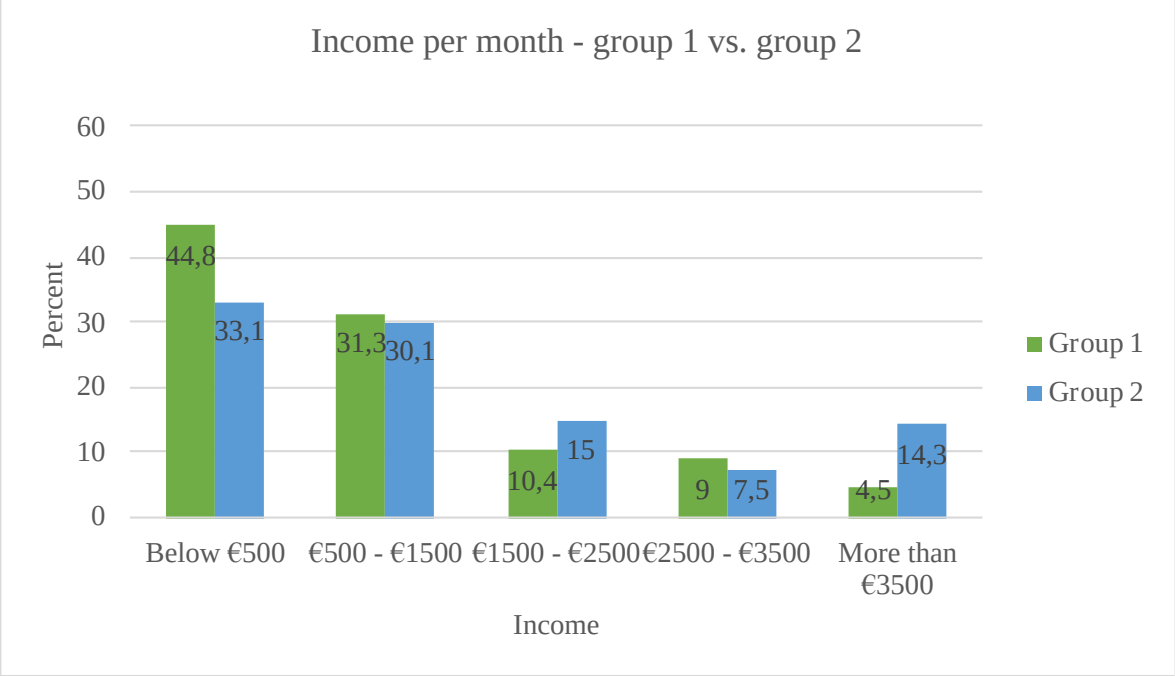

Figure 4.3: Monthly income of group 1 (*M* = 1.97, *SD* = 1.15) vs. group 2 photographers (*M* = 2.40, *SD* = 1.39).

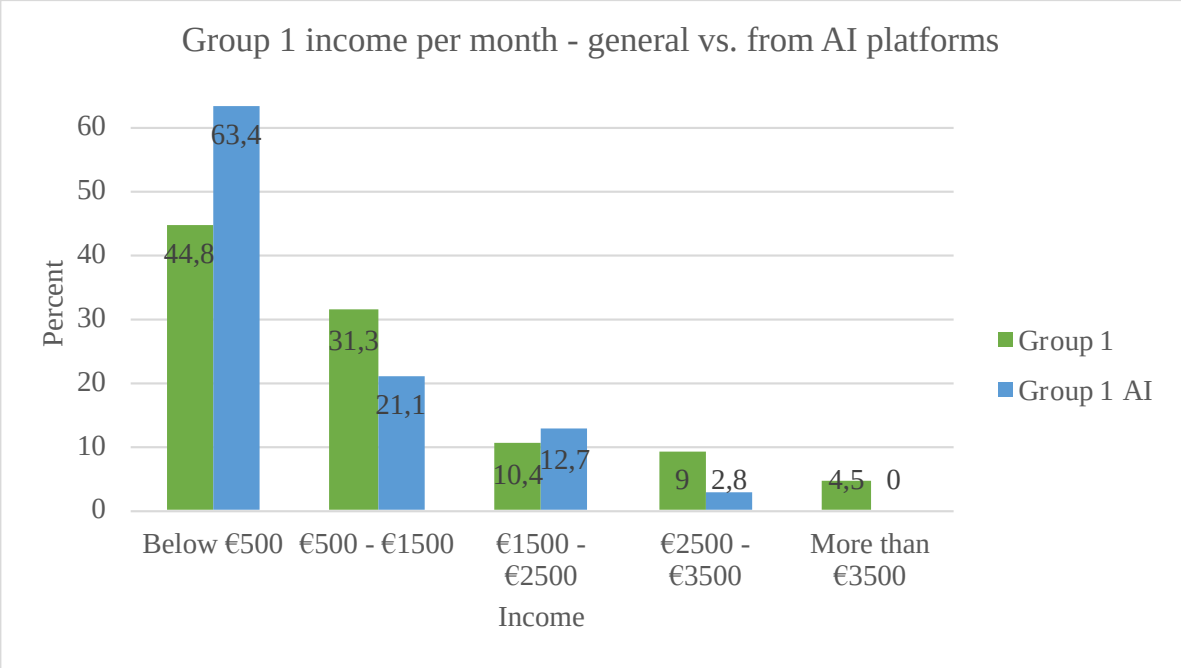

Figure 4.4: Group 1 photographers' monthly income generally (*M* = 1.97, *SD* = 1.15) vs. from AI-driven platforms *M* = 1.55, *SD* = 0.82).

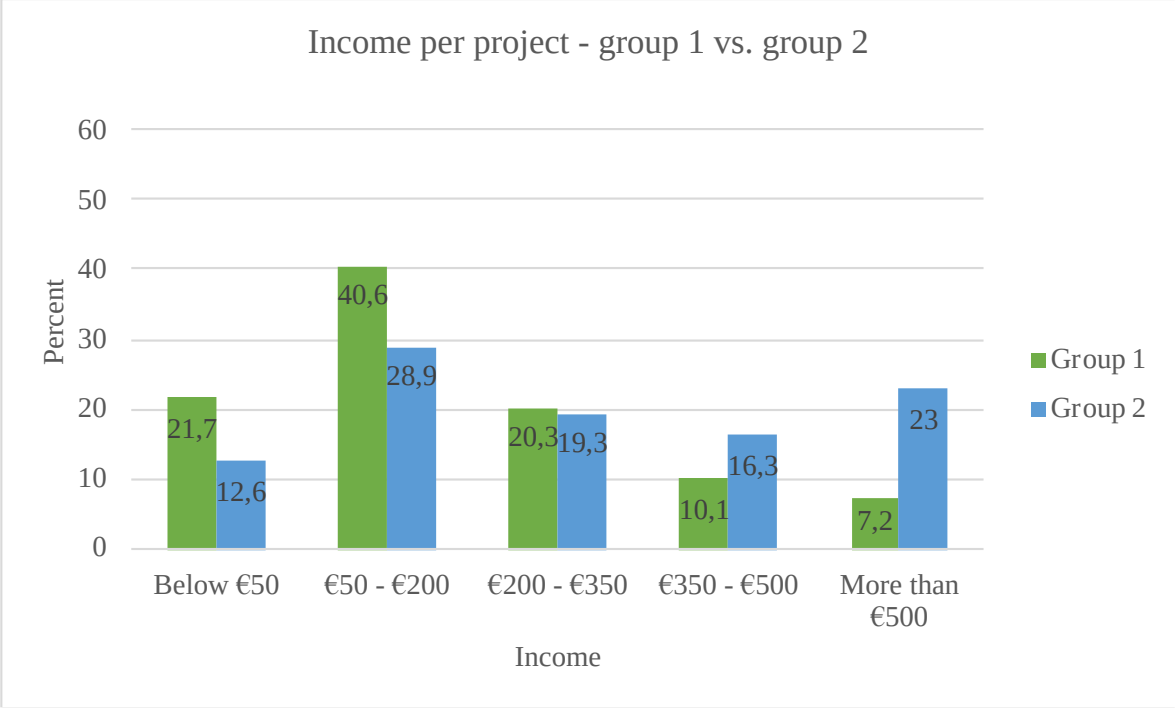

Figure 4.5: Income per project group 1 (*M* = 2.41, *SD* = 1.15) vs. group 2 photographers (*M* = 3.08, *SD* = 1.37).

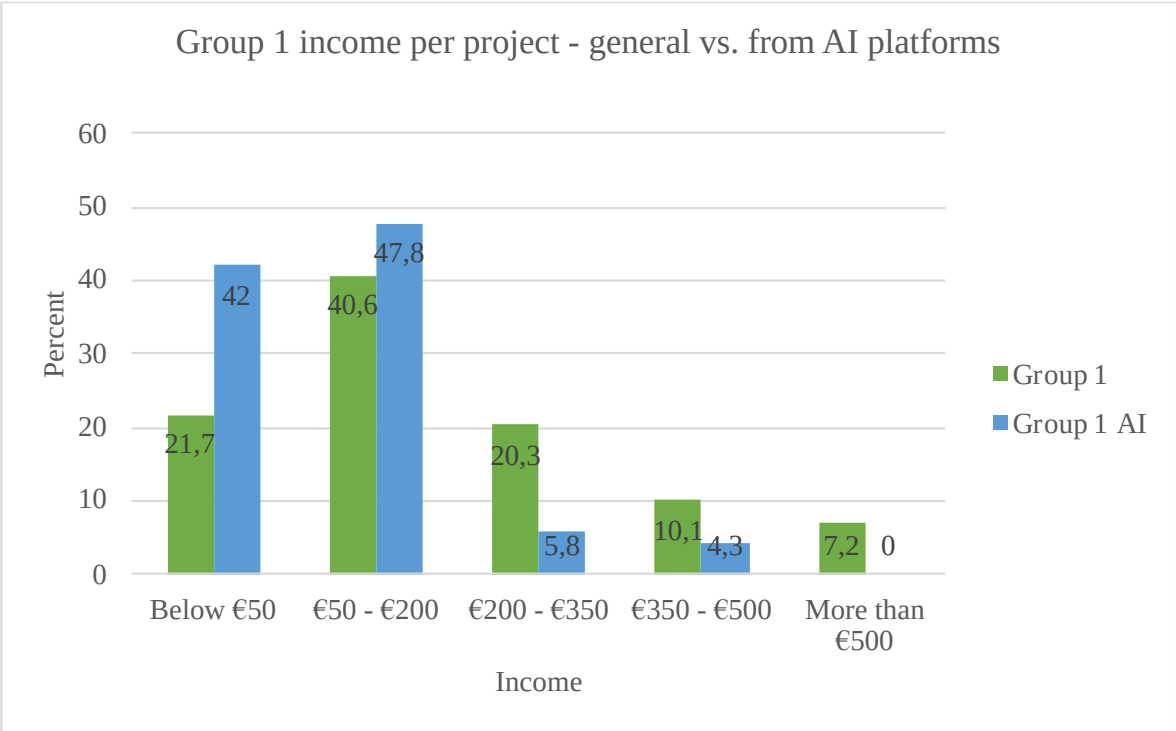

Figure 4.6: Group 1 photographers' income per project generally (*M* = 2.41, *SD* = 1.15) vs. from AI-driven platforms (*M* = 1.72, *SD* =0.77).

One element that must be mentioned in the discussion of income distribution is the fact that artificially intelligent platforms adjust their compensation to the income realities of the countries where the jobs are executed. A few illustrations from the researcher's experience can demonstrate this. For example, platform OCUS organizes food photoshoots for client UberEats which is a multinational food delivery corporation serving many countries across the world. For the same jobs done for UberEats, OCUS pays its photographers €60 in the Netherlands and €42 in Poland. Platform Meero for the same jobs for client JustEat offers €75 in the Netherlands and €37 in Poland. Not adjusting currency and not considering income realities of different countries in the survey research certainly creates some limitations as the compared incomes are not truly equal in measurement. Ideal research would convert the data into adequately corresponding figures.

4.1.2 Attention distribution

Figures 4.7-4.10 visualize the survey data related to the attention distribution of freelance commercial photographers. To remind, attention refers to the number of received job offers (but not necessarily accepted offers). Essentially, the term entails that the more attention a photographer receives, the more jobs he or she is offered.

Starting with the comparison between the number of job offers received by both group 1 and group 2 photographers, it is observed that freelancers who work through AI platforms receive a slightly higher number of project proposals (M = 2.00 group 1 vs. M = 1.89 group 2). Group 1 photographers receive more frequently more than 55 offers per quarter and less frequently below 25 offers. This is an interesting insight as even though group 1 freelancers receive more project proposals, they continue to earn lower monthly income. This corresponds with the data on income per project where group 2 is said to charge more per photography job. In other words, freelancers working through AI platforms receive more job offers but are paid less per each project and therefore result in earning lower monthly income than photographers working through other channels.

Figure 4.8 additionally emphasises the scale of the number of jobs offered to photographers through AI platforms (M = 2.00 group 1 vs. M = 2.21 group 1 AI). Most interesting is the frequency of picking an answer 'more than 55' indicating that many photographers are offered a relatively large number of projects through the platforms. Looking at figures 4.9 and 4.10 it appears that rarely these jobs are being rejected as in the vast majority of the cases photographers refuse less than 10 proposals per quarter (3 months).

When jobs do get rejected, the ones that do tend to get refused more frequently are those offered by the AI platforms.

Although the reason for job rejections was not tested in this research, the cause might simply be located in the way some of these platforms operate. Platform Meero and BOOM Image Studio, for example, send job proposals with an already assigned time and data when the photoshoot must be executed. Platform OCUS, on the other hand, allows the photographers to schedule an adequate time directly with the client. In the case of a food photoshoot for UberEats, that would mean scheduling directly with the concerned restaurant. Finding out reasons for jobs acceptance/rejections is an element inviting for future research on the topic. Most likely such data is already gathered by the platforms themselves as they do ask photographers why they choose to refuse certain project proposals. A challenge might be accessing such data.

To conclude, the hypothesis stating that income and attention are more evenly distributed among freelance commercial photographers working for the AI double-sided platforms than among freelance commercial photographers working through other channels holds for attention distribution but not for income distribution. Photographers working through AI platforms earn less and their income is less evenly distributed than among photographers working through other channels. Regarding attention distribution, the situation is the opposite. Photographers working through AI platforms receive more job offers and their project proposal distribution is more evenly distributed than among photographers working through other channels.

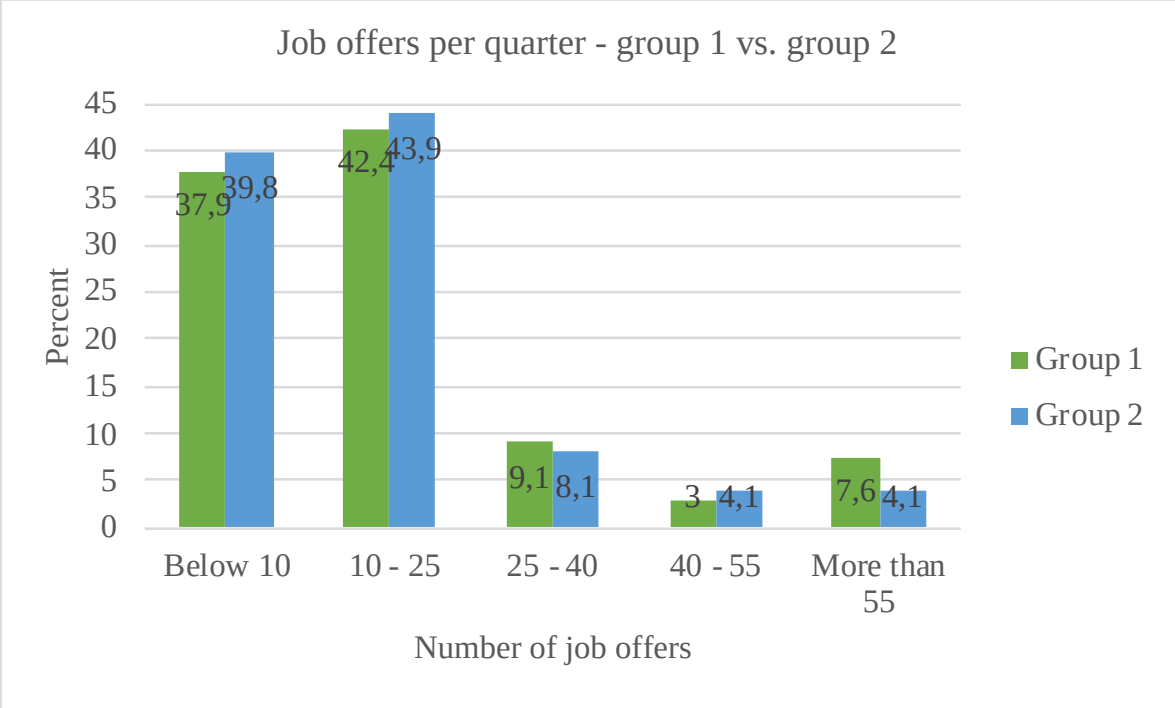

Figure 4.7: Number of received job offers per quarter (3 months) group 1 (*M* = 2.00, *SD* = 1.14) vs. group 2 photographers (*M* = 1.89, *SD* = 1.00).

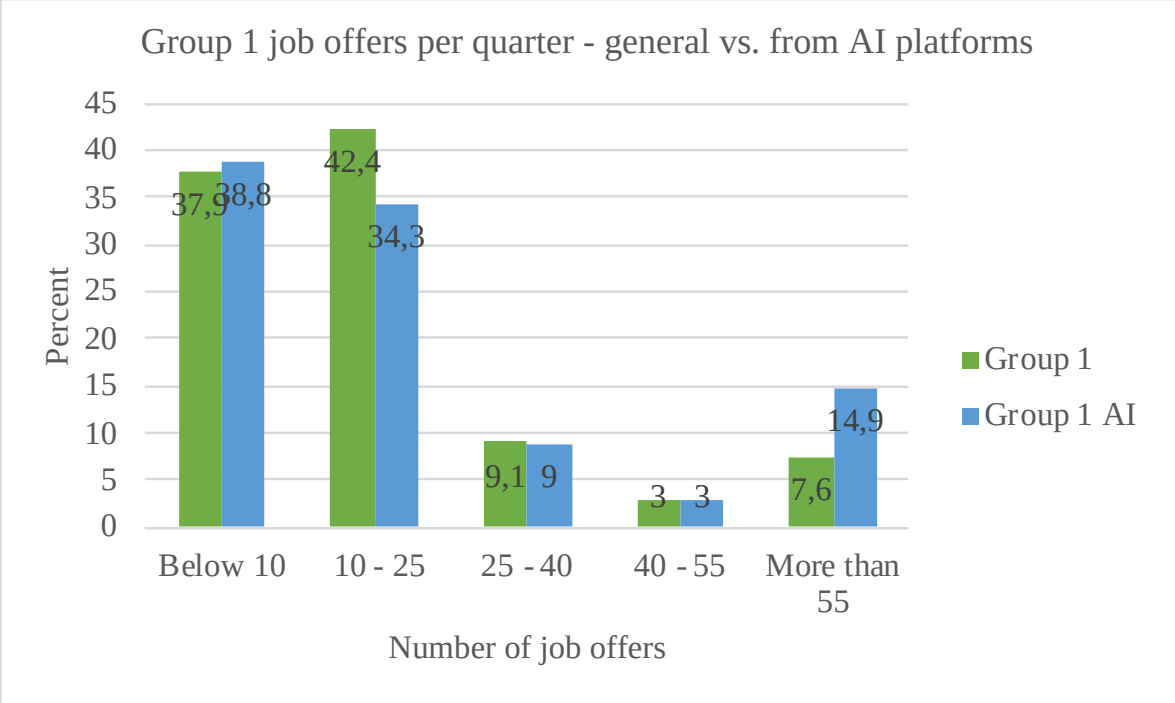

Figure 4.8: Group 1 photographers' number of received job offers per quarter (*M* = 2.00, *SD* = 1.14) vs. number of job offers per quarter from AI-driven platforms (*M* = 2.21, *SD* = 1.39).

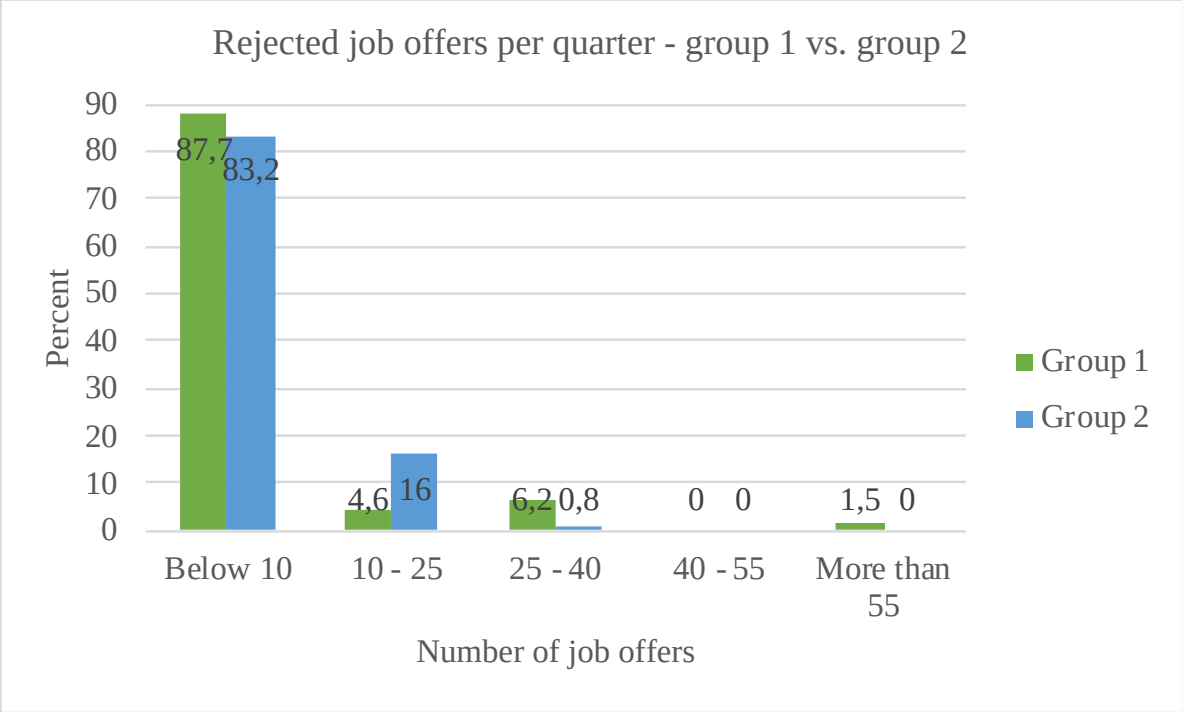

Figure 4.9: Number of rejected job offers per quarter group 1 (*M* = 1.23, *SD* = 0.70) vs. group 2 photographers (*M* = 1.18, *SD* = 0.40).

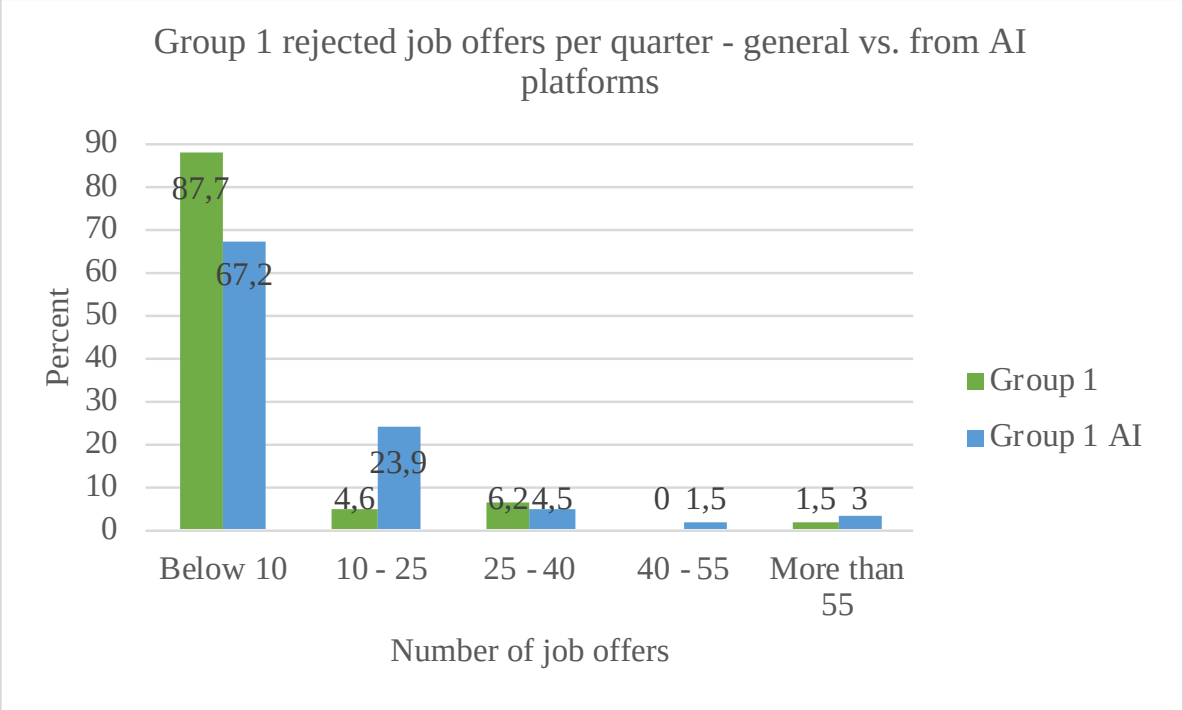

Figure 4.10: Group 1 photographers' number of rejected job offers per quarter (*M* = 1.23, *SD* = 0.70) vs. rejected job offers per quarter from AI-driven platforms (*M* = 1.49, *SD* = 0.89).

4.2 Sub-question 2

The second sub-question posed by this research is *what are the perceived, by freelance photographers, strengths, weaknesses, opportunities and threats brought to the market by the double-sided artificially intelligent platforms?* To answer it, the survey respondents have been presented with previously identified through a content analysis strengths, weaknesses, opportunities and threats and asked to pick three that they consider the most adequate. Most respondents did not follow the rule of picking a maximum of 3 answers. That, however, does not constitute a problem but explains the high count of the picked indicators. Group 1 photographers were asked to answer the four questions based on their experience with the platforms while group 2 photographers were asked to indicate what they think/imagine could be the strengths, weaknesses, opportunities and threats. The analysis will be presented chronologically with the survey questions and conclude with a SWOT analysis of the most frequently picked elements. This sub-question has an explorative objective and does not test any hypothesis.

4.2.1 Strengths and weaknesses

Photographers were presented with the same indicators for both strengths and weaknesses as each element can be perceived either positively and negatively (such as the quality of the assignments on the platforms). Beginning the discussion with photographers who work for AI platforms, the respondents indicated flexibility of work to be the greatest strengths of the double-sided markets. The frequency of picking this choice (n = 46) far outnumbers the second-best perceived strength of the platforms being their organization (n = 26). The third position is occupied by two indicators picked equally frequently (n = 21): the platforms' support system as well as the amount of work offered to the photographers. Freelancers who do not work for such platforms indicated to perceive similar strengths associated with working for such agencies. They likewise picked flexibility of work the most frequently (n = 43) and placed the organization of these platforms on a second position (n = 39). They did not, however, share the view regarding the third-best strength. Again, two factors were scored equally frequently: responsiveness of the platforms (n = 25) and the amount of payment (n = 25).

To review, group 1 photographers placed support system and amount of work as third-best strengths of the platforms while group 2 photographers placed responsiveness and the amount of payment. Responsiveness could be argued to be related to the support system

and the communication between the freelancer and the agency. A similar point could be made about the amount of work and the amount of payment since both contribute to higher financial gains. Hence, with regards to the strengths of the AI-driven double-sided markets, both groups of photographers appear to somewhat agree. The fact that some elements were not as frequently chosen as others, however, should not be understood as those being perceived as less advantageous. The respondents were simply asked to pick their top three choices so, logically, some were not perceived as strongly.

Regarding weaknesses of the AI platforms, photographers from both groups again somewhat agreed. Both chose the same top three variables though they appear in a different order. Group 1 chose (1^{st}) the payment amount offered by the platforms (n = 32), (2^{nd}) the quality of the offered projects (n = 29) and (3^{rd}) issues related to copyrights of the images (n = 25). Group 2 also placed payment amount on the first place (n = 40), followed by copyrights issues (n = 38) and quality of the assignments (n = 34).

A large share of the presented findings does not offer any particularly interesting insights other than indicating the perceived strengths and weaknesses of the AI platforms. There is, however, one noteworthy element concerning choices picked by freelancers who do not work for these markets. Group 2 indicated payment amount as both one of the greatest strengths (3rd position) and weaknesses (1st position) of the agencies. This certainly suggests a conflict of perceptions. A potential reason could perhaps be associated with the income realities of the countries where the photographers work. One respondent informally reported to the researcher that the payment offered to him in Brazil by one of the platforms is so low that he cannot execute the jobs as it will not even cover his expenses. Hence, an additional analysis was performed to discover whether location plays a role in the indication of payment amount as a strength or a weakness.

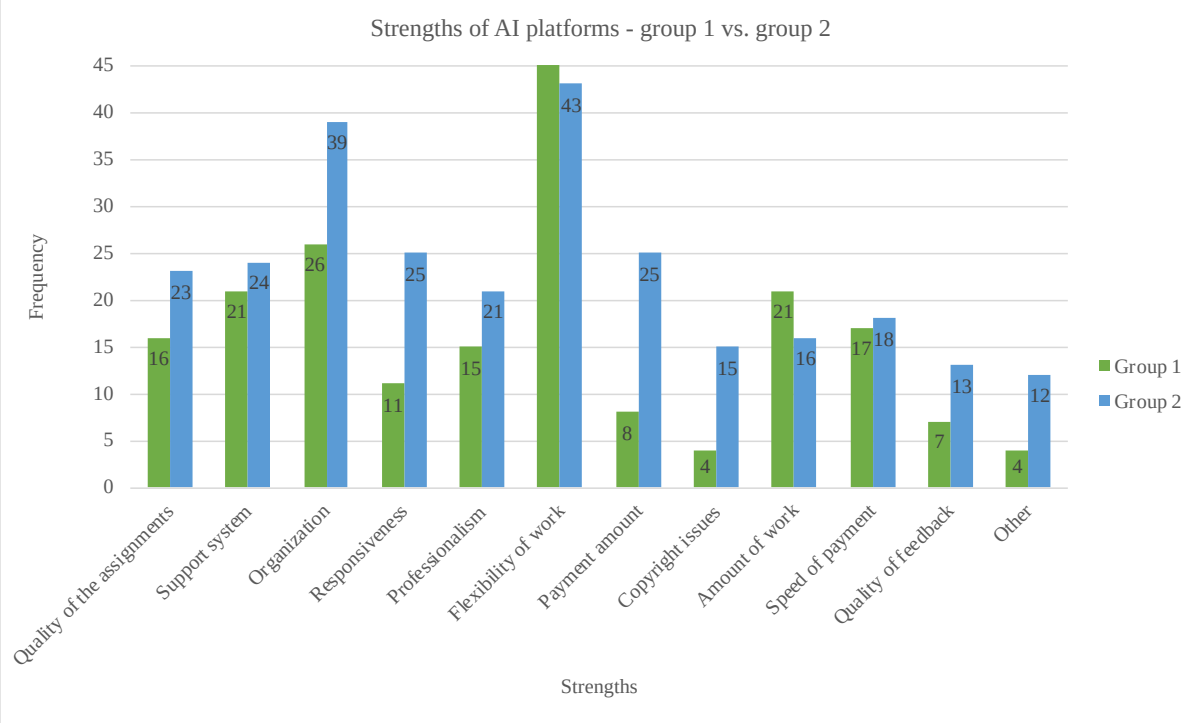

Figure 4.11: Strengths of AI platforms as perceived by group 1 and group 2 photographers.

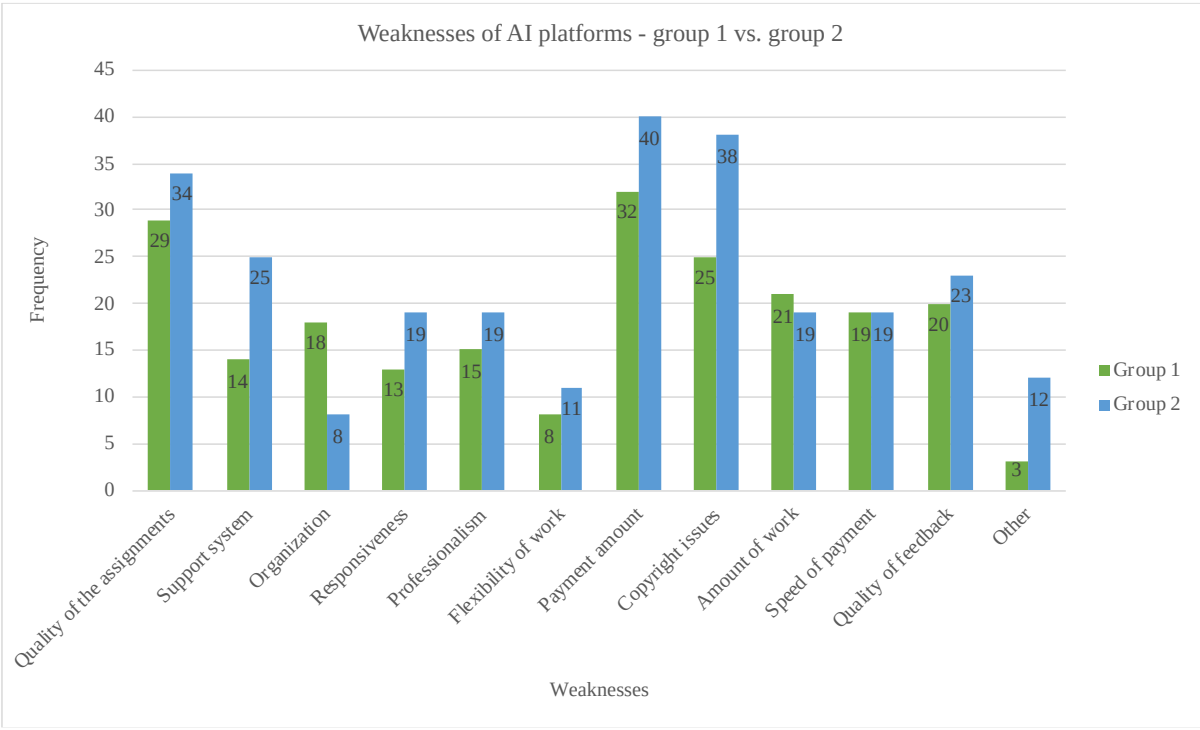

Figure 4.12: Weaknesses of AI platforms as perceived by group 1 and group 2 photographers.

The outcomes show that it was mostly European photographers who picked payment amount as a strength whereas the same variable was perceived as a weakness mostly by freelancers from North America as well as, again, Europe. It could be deduced that photographers from richer regions of the world would like to see the platforms offer higher compensation for their projects. On the other hand, however, some European freelancers share an opposite opinion. Could this reflect the different income realities between Western and Eastern Europe? Certainly, representatives from both these European regions took part in the study as the researcher used convenience sampling in both Netherlands and Poland to reach additional participants. Unfortunately, the survey research did not ask the respondents about the exact country where they work in. Hence, there is no one conclusive answer to this enquiry. On the other hand, however, some simply share a different opinion. In the 'Other, please specify…' text box, the written views were fairly divided. One respondent felt the need to say that "they [the AI platforms] pretty much suck" while another mentioned that "they [the AI platforms] have no apparent weaknesses".

4.2.2 Opportunities and threats

When it comes to photographers' top choices regarding the opportunities and the threats of the AI platforms, their perceptions were more differentiated. Group 1 freelancers identified (1st) earing extra income (n = 40), (2nd) gaining photography experience (n = 32) and (3rd) networking prospects (n = 30) as the most promising opportunities (see figure 4.13). Meanwhile, freelancers who do not work for AI-driven platforms shared similar views only regarding earning extra income placing the indicator in a second position (n = 43). Group 2 photographers perceive working with big clients (n = 45) as the greatest opportunity with the development of the personal photography business (n = 38) being the third-best highlight.

It can be agreed that earning extra income is the most noteworthy opportunity for the freelancers valued by both those that work and those that do not work for AI platforms. However, as one photographer shared in the 'Other, please specify…' text box, the term *extra income* is not an appropriate term to use for the freelancers' compensation:

> "The fact that you will be spending time and using your skills for the project, it should not be considered "extra" but actual income perse. Some companies will use the term "extra income" to justify unfair compensation for the work that you do as a photographer. Extra income can sound right if you are not a professional

> photographer and just want to do it once in a blue moon. Otherwise, if you are a professional photographer, this is your bread and butter and not just something "extra".”

The websites of agencies Meero, BOOM and OCUS do not mention the term *earning extra income*. Rather, it was the term suggested by photographers themselves who reviewed the websites and whose analysed Google opinions were used as a foundation for this sub-question. They mention the benefits of being able to “expand income”, “earn extra income”, “improve monthly income”, etc. Agreeing with the respondent’s criticism of the term *extra income* and the argument that *professional* photographers require fair compensation and not just something *extra,* could it be assumed that for most professionals such agencies are not the “bread and butter” but a convenient place to “improve/expand income”? Unfortunately, the survey research did not ask the respondents question on the status of their employment and whether their work through AI platforms is their full or part-time freelance occupation. While a question on the number of received job offers provides some insights, it is not conclusive regarding the dilemma of *extra income* vs. *bread and butter*.

From the analysis of strengths and weaknesses, it is already established that the payment amount feels important to the photographers and is perceived both positively and negatively. Now the assessment of opportunities again puts income in a positive light. What about threats? For photographers working through the platforms, the greatest threat is… too low payment per job (n = 43). So, here again, the offered income leads to both a positive and negative sentiment. As for other threats, the second-worst identified risk is the photographers’ reduced creative freedom during projects (n = 41) and the loss of copyrights to the images (n = 34). Group 2 freelancers identified (1st) the lack of personal relationship with clients, (2nd) loss of copyrights to the images and (3rd) inability to negotiate the payment amount. The issue of copyrights appears to be important to photographers as losing rights to their images stops them from gaining opportunities such as the previously mentioned development of personal photography business as without author copyrights the images cannot be showcased in the photographers’ portfolios.

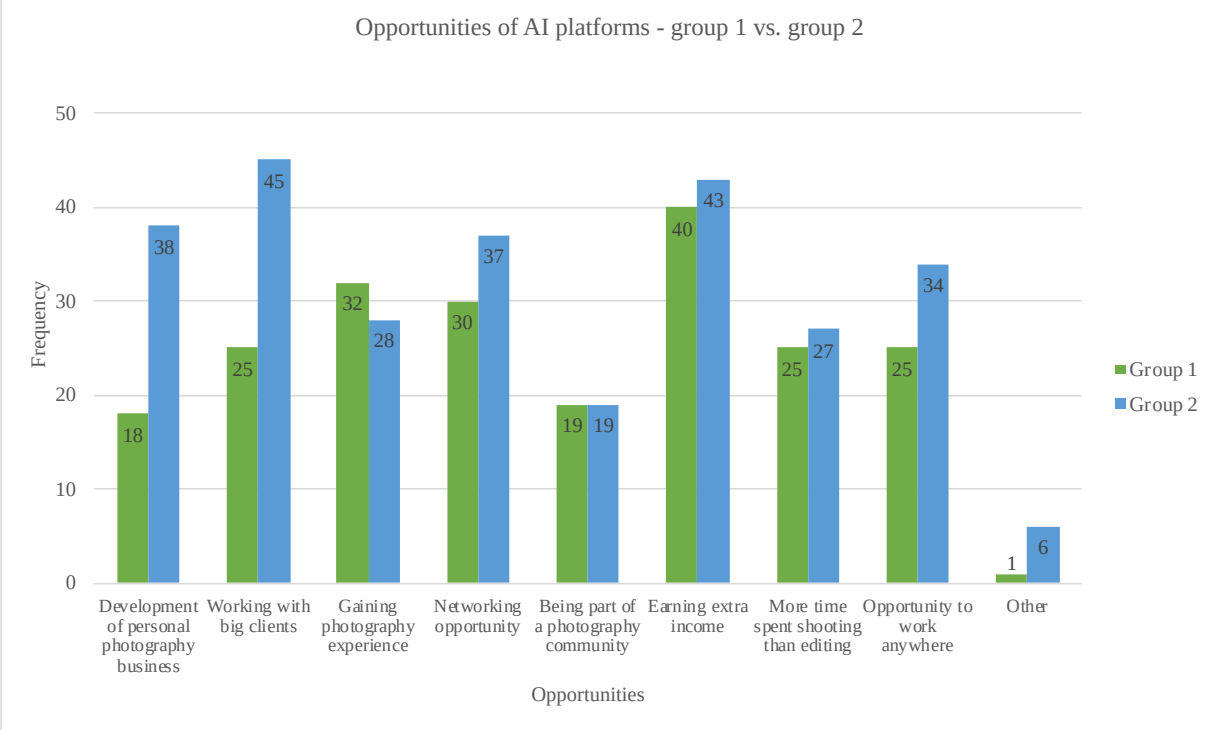

Figure 4.13: Opportunities coming from AI platforms as perceived by group 1 and group 2 photographers.

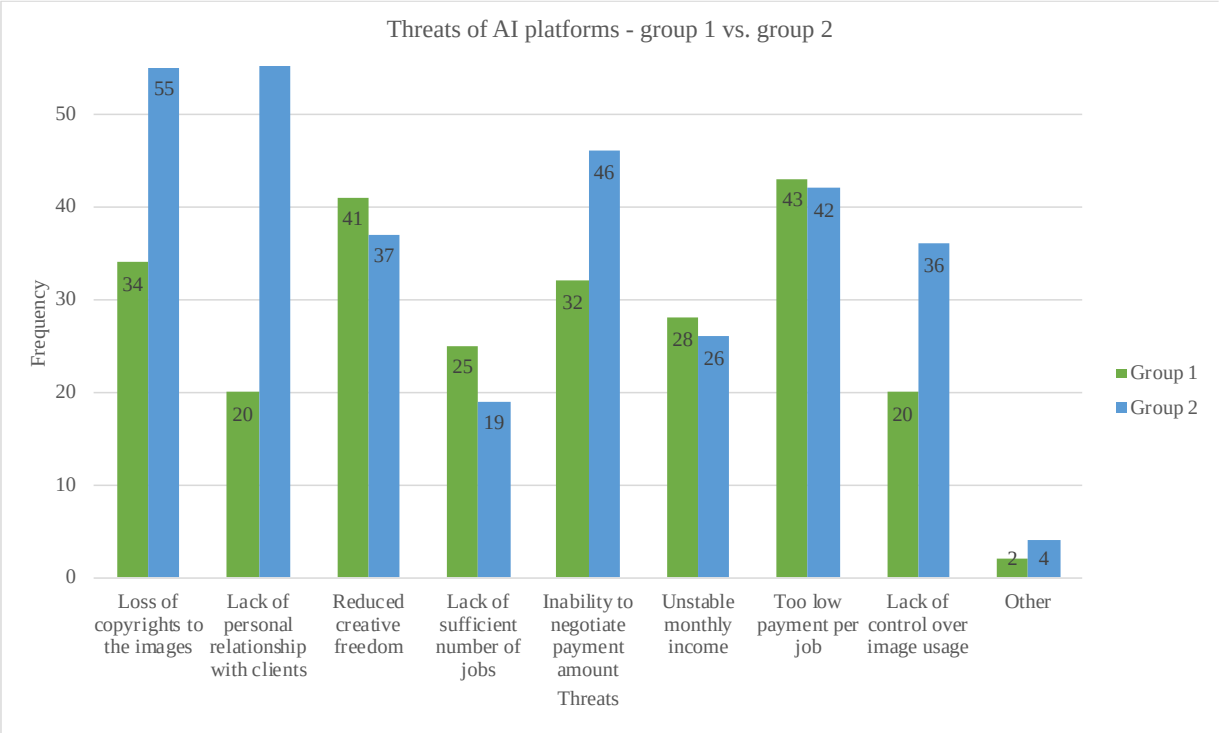

Figure 4.14: Threats coming from AI platforms as perceived by group 1 and group 2 photographers.

Coming back to the threat of too low payment per job, there is one further aspect to this topic that should be discussed. As reviewed previously in the paper, there are usually two intermediaries between the photographer and the end client. Each of these intermediaries takes a commission resulting in the freelancer getting a rather low final payment amount. The researcher's experience can exemplify this. One day the researcher was offered €60 by an AI platform to take real estate photographs. The client was a double-sided real estate website whose client was a local realtor. The realtor paid €140 to the real estate website which took a €40 commission paying €100 to the AI-platform which also took a €40 commission paying €60 to the researcher. Once the realtor and the researcher discovered this, they agreed to a payment of €100 for all future projects and a direct collaboration without the involvement of any intermediaries. Certainly, it can be agreed that the AI platform allowed the researcher to earn extra income, gain photography experience and most importantly created networking opportunities. On the other hand, however, the too low payment for the job led to a classic principal-agent problem where the agent (photographer) refused to act in the best interest of the principal (AI platform) as the compensation was not worth it in the agent's perception.

How often do such situations happen? The monetary incentives likely suggest that relatively often especially since, as the research shows, the photographers are repeatedly unsatisfied with their compensation. This raised a question: how sustainable are these double-sided photography market business models? How long will it be before the majority of the agents act against the principal?

4.2.3 SWOT

A SWOT table has been created in order to summarize the discussion and answer the question on what are the perceived, by freelance photographers, strengths, weaknesses, opportunities and threats brought to the market by the AI platforms. The most essential take-aways of the discussion is the fact that the amount of payment/level of income is of great importance to both photographers who work and those who do not work for artificially intelligent platforms. However, there are large differences in the perception of the income-related indicators. While some creatives appreciate the additional income opportunities, others find it as a negative quality of the agencies. In table 4.2, the income-related indicators have been marked red to present how recurrently the findings encounter a conflict of perceptions between the photographers. Essentially, it can be concluded that the freelancers value the opportunities of earning additional income yet they do not find the amount of that

income satisfactory. Looking at how much the flexibility of work is appreciated among both group 1 and group 2 photographers it might be expected that indeed AI platforms are more on the *extra income* side when it comes to their occupational statuses rather than the *bread and butter* one.

Table 4.2: SWOT analysis of the AI-platforms.

Strengths		**Weaknesses**	
Group 1	Group 2	Group 1	Group 2
1. Flexibility of work 2. Organization 3. Support system + amount of work	1. Flexibility of work 2. Organization 3. Responsiveness + payment amount	1. Payment amount 2. Quality of the assignments 3. Copyright issues	1. Payment amount 2. Copyright issues 3. Quality of the assignments
Opportunities		**Threats**	
Group 1	Group 2	Group 1	Group 2
1. Earning extra income 2. Gaining photography experience 3. Networking opportunity	1. Working with big clients 2. Earning extra income 3. Development of personal photography business	1. Too low payment per job 2. Reduced creative freedom 3. Loss of copyrights to the images	1. Lack of personal relationship with clients 2. Loss of copyrights to the images 3. Inability to negotiate payment amount

4.3 Sub-question 3

The third sub-question posed by this research is to *what extent do double-sided artificially intelligent platforms affect the transaction costs of freelance commercial photographers?* To answer it, the survey respondents have been asked questions regarding the amount of time and resources they spent on specific photography and photography business-related tasks. A list of eight tasks was presented to both group 1 and group 2 freelancers. For each one of the tasks, the photographers indicated on a Likert scale (1-none at all, 2-a little-, 3-a moderate amount, 4-a lot, 5-a great deal) how much time and resources it costs them. The question included two control tasks or, in academic terms, activities referred to as management costs: the act of taking photos and the post-production of the images. The two were followed by six photography business-related activities or, in academic terms, tasks referred to as transaction costs. The hypothesis tested by this sub-question states that freelance commercial

photographers working for the AI double-sided platforms experience lower transaction costs than freelance commercial photographers working through other channels. The analysis of the results begins with the discussion of management costs followed by transaction costs divided accordingly to their three types: search and information costs, bargaining and decision costs and policing and enforcement costs. The visualization of the findings is presented in figure 4.15.

4.3.1 Management costs

The term management costs refers to two tasks that are almost always performed by the photographers themselves: taking photos and post-producing the images. While traditionally these tasks were the core of the photographer's job description, the market began to change it with the emergence of the AI platforms which only use the freelancer to take photos and later take over the process of post-production editing the photos for the photographer. With this in mind, it can be expected that photographers working for the AI platforms would spend more time taking photos and less time editing them in comparison to freelancers who do not work for these agencies.

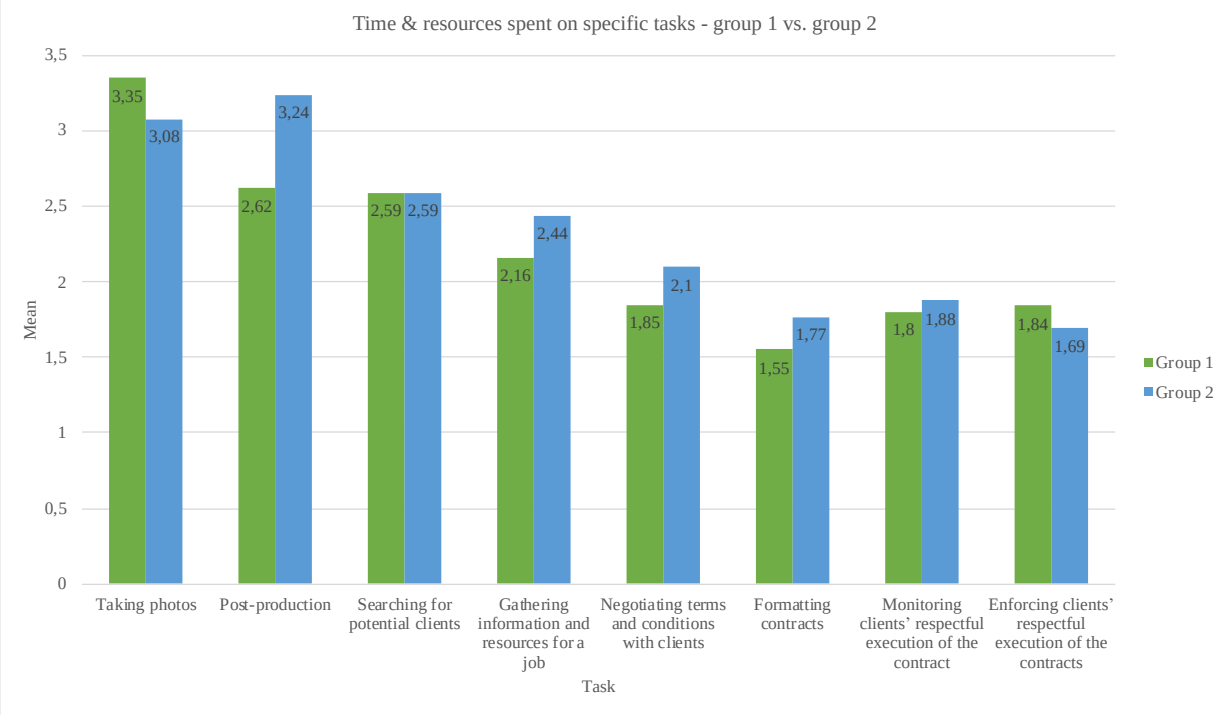

Figure 4.15: Time and resources spent on specific tasks by group 1 and group 2 photographers. The numbers on top of the bars represent the means.

This expectation is accurately reflected in the findings of the survey. Group 1 photographers show to have a higher mean regarding the task of taking photos (M = 3.35) than group 2 photographers (M = 3.08) proving that they spend more time and resources on going out and performing photoshoots, relatively to the rest of their activities. The opposite can be said concerning the post-production of images where group 1 presents a mean equal to 2.62 and group 2 a mean equal to 3.24 proving that photographers working for artificially intelligent platforms spend less time editing photos. Nonetheless, taking photos and editing them continues to be the all of the photographer's main occupation and most absorbing activity.

4.3.2 Search and information costs

The variable search and information costs covers two indicators/tasks: the photographer's search for potential clients and the process of gathering information and resources for a job. When it comes to search for potential clients, photographers from both groups present the same mean value equal to 2.59. This suggests that working for AI platforms has no influence on the freelancer's time and resources spent on client search. This is quite an interesting finding considering that a large part of the platforms' concept and raison d'être is based on facilitating the process of client search and booking. Previous findings also support this idea. The number of jobs offered to photographers by the AI platforms appears to be, on average, relatively high. Group 1 photographers also list the amount of work being a great strength of these agencies. So why do they still spend an equal amount of time and resources searching for clients as photographers who do not work for these platforms? Perhaps the reason is the repeatedly mentioned payment amount. Considering that the compensation for projects from AI platforms is relatively low, the photographers for whom this activity is the *bread and butter* rather than a side hustle, need to continue searching for clients to get more projects and, hence, earn sufficient income.

On the other hand, however, there is the task of gathering information and resources for a job. AI platforms provide the photographers with all the necessary information before the photoshoot. That information includes the date and time of the photoshoot (in most cases), the address of the photoshoot location, the contact information to the client and, most importantly, a detailed list of client guidelines including what equipment to use, how to compose the image, which camera settings to use, the dos and don'ts before, during and after the photoshoot, etc. The photographer is practically equipped with all the necessary material and one might argue that the freelancer is nothing more than a finger on the camera's shutter

button. This is most likely why many photographers listed reduced creative freedom as the platforms' second-greatest threat. But returning to the indicator itself, the survey findings present that group 1 photographers indeed tend to spend less time and resources gathering information and resources for a job (M = 2.16) in comparison to group 2 photographers (M = 2.44). Perhaps the fact that group 1 photographers spent less time gathering information, post-processing images and doing other tasks (more about them later), simply allows them to take the opportunity of having extra time to search for potential clients and this way improve their overall earnings.

4.3.3 Bargaining and decision costs

Bargaining and decision costs include the tasks of negotiating the terms and conditions with clients and the process of formatting contracts between the photographer and the client. The findings present that for group 1 photographers these two activities are the least absorbing tasks on their plate (M = 1.85 negotiating terms, M = 1.55 formatting contracts). The same, however, cannot be said about photographers who do not work for AI platforms. Their respective means are significantly higher than those presented by group 1 freelancers (M = 2.10 negotiating terms, M = 1.77 formatting contracts). These findings straightforwardly support the sub-question's hypothesis and show evidence that AI platforms do decrease photographers' time and resources spent on many of the photography-unrelated but photographer business-related tasks.

4.3.4 Policing and enforcement costs

The analysis of policing and enforcement costs, which include tasks of both the monitoring and the enforcing of the client's respectful execution of the contracts, does not present as straightforward results as the analysis of bargaining and decision costs. Starting with the task of monitoring clients' respectful execution of the contracts, the mean answers of the two groups of photographers differ only by 0.08 points (M = 1.80 group 1 vs. M = 1.88 group 2). With such small differences, it should not be unquestionably concluded that AI platforms indeed reduce the time and resources spent on this task, especially since the measurement concerned the photographers' perceptions rather than objective, absolute values.

The task of enforcing clients' respectful execution of the contracts, on the other hand, presents results that reject the sub-question's hypothesis as the mean value of group 1 photographers (M = 1.84) is higher than group 2 photographers (M = 1.69) indicating that

those working for AI platforms spend more time enforcing adequate contract execution. This is a rather curious finding for which the researcher could not think of a possible explanation as when it comes to their work with AI platforms, the photographers do not have the power to control and/or negotiate how their images are used or reproduced. Hence, why spent time enforcing correct terms execution? This uncertainty towards the meaning of such findings and original expectation to discover opposite research results is certainly an element that invites further research.

To summarize, in most cases, that is for the task of post-producing the images, and four out of six transaction cost activities (gathering information and resources for a job, negotiating terms and conditions with clients, formatting contracts and monitoring the client's respectful execution of the contracts), the time and resources spent are lower among group 1 photographers than among group 2 freelancers. Therefore, on average, the findings support the hypothesis stating that freelance commercial photographers working for the AI double-sided platforms experience lower transaction costs than other freelance commercial photographers working through other channels. Furthermore, group 1 photographers are least likely to spend their time and resources on bargaining and decision type of transaction costs whereas group 2 freelancers spend the least of their time and resources on policing and enforcement type of costs.

5. Conclusion and discussion

The objective of this thesis was to research how the emergence of artificially intelligent double-sided platforms affect the on-demand commercial photography labour market. A particular interest was given to the photographers themselves and their experience within the labour market. Consequently, the research has been conducted fully from their perspective. To find out the effects of these double-sided markets, a quantitative survey has been distributed among both freelance commercial photographers that work for artificially intelligent platforms as well as those that work outside of such agencies. The latter took a form of a control group and the responses have been discussed in a comparative approach. The aim was for the insights drawn from the survey results to have a point of reference and suggest a factual change within the labour market.

The research posed three sub-questions. The first one aimed to examine the effects of the AI platforms on the income and attention distribution among freelancers. As the findings suggest, photographers working through AI platforms earn less and their income is less evenly distributed than among photographers working through other channels. Regarding attention distribution, the situation is the opposite. Photographers working through AI platforms receive more job offers and their project proposal distribution is more evenly distributed than among photographers working through other channels. In other words, photographers working through AI platforms receive more jobs offers but they are paid less per project.

The variables of income and attention distribution referred to the theories related to the artists' labour market, especially the superstar theory by Adler (1985), Rosen (1981) and MacDonald (1988) and the long-tail hypothesis by Anderson (2004; 2006) and Epstein (2017). The formed hypothesis expected the digitalization and the emergence of AI platforms to lead to a more evenly distributed income and attention. However, as the findings show, the hypothesis only holds for attention distribution but not income. In order words, the insights regarding attention distribution agree with the long-tail hypothesis suggested by Anderson (2004). The insights concerning income distribution, however, reject the long-tail notion.

While Rosen (1981) suggests that the superstar phenomenon entails "concentration of output among a few individuals, marked skewness in the associated distributions of income and very large rewards at the top", that does not appear to be the case with income distribution either (p. 845). While the income is not more evenly distributed, there also is no indication of the output being concentrated only among a few individuals. What appears to be

the case falls closer to the notion brought by Epstein (2017) who suggests that digitalization will not necessarily improve the imbalanced income distribution but simply sell more services of less-popular photographers while retaining the sales of the superstar creatives. In other words, instead of "selling less of more" as Anderson (2004) suggest, the market is "selling a lot more of less" (Epstein, 2017, para. 7).

The second sub-question aimed to explore the strengths, weaknesses, opportunities and threats of the AI platforms as perceived by freelance photographers. While it did not test any particular theory or notion, it did contribute greatly to the overall findings of the research. The most essential takeaway is the fact that the level of income coming from AI platforms leads to a range of sentiments, both positive and negative ones, showing a conflict of perceptions as presented in the SWOT analysis (table 4.2). Essentially, the findings suggest that photographers value the opportunities of earning additional income yet they do not find the level of that income satisfactory. Looking at how much the flexibility of work is appreciated among all of the participating photographers it might be expected that AI platforms are treated more as a source of extra income rather than the main source of income.

The unsatisfactory level of income suggests a likely consequence threatening the activities of the AI platforms. The main concern is the principal-agent problem where agents, lured by financial incentives, might attempt to work directly with the clients, removing the involvement of intermediaries and their substantial commissions. Such action could easily threaten the revenue streams of AI platforms and, consequently, their future. It raised the question of how sustainable are such business models and to what extent should incentives be reviewed to prevent principal-agent problems from occurring on regular basis.

The third sub-question aimed to examine the effects of the AI platforms on the transaction costs of freelance commercial photographers. On average, the findings support the formed hypothesis stating that freelance commercial photographers working for the AI double-sided platforms experience lower transaction costs than other freelance commercial photographers working through other channels. In most cases, that is for the task of post-producing the images, and four out of six transaction cost activities, the time and resources spent are lower among photographers working through AI platforms than among freelancers working outside of them. Moreover, the findings show that the promise made by the platforms about their implemented AI technology allowing the creatives to spend less time on activities creating transaction costs and more on actual photography-related activities proves to be kept and realistic.

The sub-question was based on transaction cost theory by Coase (1937) and Dahlman (1979) who categorize transaction costs into three types: (1) search and information costs, (2) bargaining and decision costs and (3) policing and enforcement costs (Dahlman, 1979). While the findings straightforwardly suggest lower bargaining and decision costs among freelancers working through AI platforms, the findings are not as convincing for the other two types of transaction costs. Photographers working through the AI-driven markets are least likely to spend their time and resources on bargaining and decision type of transaction costs whereas photographers working outside of them spend the least of their time and resources on policing and enforcement type of costs. Nevertheless, the insights showing that those freelancers who do not work through AI platforms have higher, on average, transaction costs do agree with Coase's (1937) notion that using the market is costly.

To remind, the main research question this thesis posed was: *To what extent do double-sided artificially intelligent platforms affect the on-demand commercial photography labour market?* The findings suggest that AI-driven photography platforms have a great impact on the photography labour market. The fact that there is a difference, at times relatively large, in insights and results between the two groups of photographers participating in the research shows that the platforms certainly have an impact on how the freelancers experience the labour market. Photographers working through these platforms appear to experience different levels of income as well as the number of job offers than photographers working outside of these platforms. The same applies to the level of transaction costs. Identification of strengths, weaknesses, opportunities and threats also suggests differences in employment statuses and organization of work. However, while the effects of these platforms are certainly noticed and experienced to a large extent, it is not as easily identifiable whether that extent is positive or negative. The reasons are the conflicting findings such as the promising increased level of job offers among photographers working through AI platforms but, at the same time, a decreased level of income per project.

5.1 Research limitation and recommendation

The research certainly featured some limitations, starting with the omission of multiple demographic variables (country, employment status) which could have added an extra level of insight to the research findings. The main limitation, however, is believed to be the neglect to adjust the questions regarding income to the income realities and currency of the countries where the photographers work. As it was previously explained in the paper, the platforms

tend to pay different amounts for projects in different geographical locations. An additional limitation was the omission of ‘why?’ questions which could have potentially provided reasons as to why photographers charge a certain price for their services or why do they reject certain jobs.

A recommendation for future research would certainly be to study the aspects omitted in this research. The study of potential reasons, perhaps using a qualitative approach, would provide depth to the findings and a sharper, bigger picture of the modern photography labour market. Another recommendation is to study similar labour markets and compare the findings to the photography sector. AI-driven platforms appear more and more frequently in different areas of the cultural and creative industries and their effects could be studied across multiple sectors.

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Appendices

Appendix A: Platforms' Google reviews

Meero Google Reviews

25 top reviews judged at 'most relevant' by Google.

1.

Positive: Quality

I work for the Meero as a photographer for almost 2 years. They have been great support trough developing my personal photography business, very well organized, friendly and helpful.

I would recommend future collaboration with this company.

2.

Positive: Professionalism, Quality, Responsiveness, Value

Meero is a great company to work with,. Very responsive, highly professional in their business.

Highly recommended.

3.

Positive: Professionalism, Responsiveness

I've been working with Meero for 1,5 years and they've always been helpful and responsive

4.

I've been working with meero as a freelancer for over a year. I appreciate the flexibility and the pay is on time and reasonable. What I still have an issue with is the mileage reimbursement. You get some money but often if you have multiple shoots the actual mileage driven is under calculated sometimes up to 40%. The customer service has improved a lot since first joining. I've had a few interesting interactions with some of the production and higher ups but my impression is that they are growing faster than they can organize themselves so there is some oversight from the top of the company down to the boots on the ground photographers It would be great if there was a role such as photographer liaison. Overall I'm fairly happy with what they provide.

5.

Vibrant and modern culture, full of positive energy.

6.

I have been doing business with Meero for some over a year and find they service very Professional and the response level is very good. Looking for many years of working with Meero on different projects in 2021

7.

I've worked with Meero for over a year and absolutely love this company. Extremely well-run, professional, and fun to work with.

8.

Positive: Professionalism

With a platform of portraiture, real estate, dining, and video, Meero can give experience for photographic endeavour. It can also be an opportunity to meet communities of caring workers.

9.

Positive: Professionalism

Great company to partnership with. Quality assignments and great support.

10.

Positive: Professionalism

A great platform of professionals

11.

Positive: Professionalism, Quality, Responsiveness, Value

Meero is a fantastic company, the detailed feedback and ease of booking jobs has made me a better photographer.

12.

Positive: Professionalism, Quality, Responsiveness, Value

Meero lets my imagination run reality and wild.

13.

The photo agency is pretty good for the most part when they give me a reasonable amount of work, which they have been doing since the end of October 2019, all the better.
Their communication process between clients, their office and photographers is Extremely Computerized and Automatic, which is fine, except that 5% or 10% of the time something goes wrong and in those case we all have to rely on "traditional" communication to get things straight and clear, like talking on the phone and sending e-mails and SMSs.

14.

Positive: Professionalism, Quality, Responsiveness, Value
Good Platform for both Clients & photographers

15.

Positive: Professionalism, Responsiveness
It was really a great experience as a meero partner

16.

Meero's customer support is quite reasonable and fast. However, the photographers are not that great. We have been using them for a while and we have had several issues due to them not reading instructions and/or taking bad quality pictures.

17.

As being a freelance photographer it gives me flexibility of work whenever, wherever i wanted.
Had no any issue ever with the payment.
I would recommend 101% to anyone.

18.

Positive: Professionalism
Professional, fast and dedicated photo agency

19.

great cooperation! As a photographer I have a chance to work with great, various projects and what's important the most I can improve my monthly income

20.

Its excellent platform for freelancer to showcase there talent and creativity. Also very good customer service for both client and freelancer employee.

21.

Meero are a great partner to work with. The platform is superb to use, they're very organised, the communication channels are clear and concise and the team is extremely helpful.

22.

I've been working with Meero since the beginning of the year and I ❤ IT!
There are many different types of photography that are possible with Meero - Food - Real Estate - Portraits, etc.. It's well worth it! ❤ ❤ ❤ ❤ ❤

23.

With Meero, it's been a great experience working with this Company. It helps me develop more of my knowledge in Photography. I was able to communicate well with the client. And very much thankful for being a part of this awesome team.

24.

I had such great time with meero and I’m still working working with this company,

25.

I simply love meero, thanks to meero team for offering me work.

OCUS Google Reviews

25 top reviews judged at ‘most relevant’ by Google.

1.
This is working well, I am totally happy with my partnership.
A very fun way to shoot, a variety of topics, good for the creative juices ;)

2.
Ocus is a great company! I had fun doing my initial shoots with Ocus.

3.
Ocus is a great team and I am honored to have the opportunity to meet and participate

4.
Garbage. DO NOT LET THEM TAKE PHOTOGRAPHS OF YOUR BUSINESS PROPERTY. You will never get access to them. It will be a waste of your time and you'll regret it. Absolute bs.

5.
OCUS is a professionally driven organization and the support staff are dedicated to assisting and supporting field photographers.

6.
Professional company, I had very good experience working with OCUS, GOOD LUCK

7.
very clear instructions for photographers
great support team
all problems solved

8.
I'm a freelance photographer. This is a nice company to work for.

9.

A great place to give creators a chance to create!

10.
great team to work with!

11.
I am glat to working with OCUS :)

12.
Was very professional, arrived on time, offered useful suggestions, did his best, and succeeded in helping us achieve our goals.

13.
I've been working with OCUS in NYC for a few months now. The communication with the team in Paris is fantastic, I haven't had any issues on any of my assignments so far. It is a very structured team and company, and they are very professional. So they make a great photographers agency and a good concept. They work with established clients and have very clear guidelines, so the whole process from getting the shot list and information about the client to shooting and delivering the files is very easy and straight forward which is so important.

14.
Very professional and reliable

15.
I've been working with OCUS since last year and it's been such a great experience! From the assistance to the guidelines given, everything is very well structured.

16.
Ocus is an excellent platform of camera services and has an excellent team behind it, always available and helpful. The ease of use and freedom for professionals like us is to be applauded. The communication between the client and the professionals could not be simpler and more uncomplicated. Well done!
17.

I've been working for OCUS in Lisbon, Portugal and it has been a great experience! The team is very professional, they are always available to answer my questions and help me every time I need. The guidelines for each mission are very detailed with lots of examples and easy to understand. The platform is quite simple to use and easy to take an appointment.

18.

I have worked with OCUS in Saudi Arabia on food photography. Working with OCUS giving me the opportunity to spend more time shooting by being part of the their network, and reach customers that I wouldn't have reached by myself.
The communication with the team is very simple and easy, they are available and I can reach them to answer my questions and help me if I need.
I think it is a great chance for freelance photographers work to expand income.

19.

Happy to work with OCUS.
Hope to get more assignment in other photography project other than a food photography.

20.

I worked with Ocus during ~1 month on a project. Interesting concept. Spend more time shooting by being part of the their network, and reach customers that maybe you wouldn't have reached by yourself.
The communication with the team was good, easy, pleasant and 'modern'. They were open to hear my feedback and answer to my questions. They're also open to improvement, which is very good.
You get very clear guidelines to guide your through your shooting. It was a good experience overall with good financial compensation and the payment came on time, as scheduled.
Looking forward to collaborate again with them. And wish them a bright future and success.

21.

everything was Perfect, Well done.

22.

Great photos, quick responses from the OCUS team too. Would recommend their services to others :)

23.

I have collaborated with Ocus on food photography assignments this summer and I can definitely recommend them. The team is easy to reach via phone or email in case you have questions or issues with the photoshoot. I think it is a great alternative for freelance photographers wanting to earn some extra income and to expand their network. Keep up the good work, guys!

24.

The company has a great vision to develop a global network of photographers, so that freelancers are never out of work, regardless of their geographical location.
Highly recommend joining the network.

25.

One platform i always Dreamt of !! OCUS .. PHOTOGRAPHERS community! Registering with OCUS and getting assignments of all kinds is AWESOME for my exposure & experience !! As i am a professional, its a long term FREE plan with me Always. Thank You OCUS.. Welcome to INDIA

BOOM Image Studio Google Reviews

4 top reviews judged at ‘most relevant’ by Google.
BOOM Image Studio only features 12 reviews on their Google page, 8 of which only include a star review without any comments.

1.
Renowned professional photo shoot studio in Milan.

2.
Best service ever.

3.
(Translated by Google) The boom experience was not a good one. They are very tangled to pay, I let some get together to receive at once and now the sessions don't appear and I can't download the list. They want fast service but to pay for red tape it is too much, they should simplify the processes and be more transparent with the photographers.

4.
Critical: Professionalism

Appendix B: Survey questions

Hi there, fellow photographer!

My name is Natalia. I am a Master's student from Erasmus University Rotterdam and a freelance photographer. For my thesis in Cultural Economics, I am researching the commercial photography labour market. Specifically, I want to find out the effects new artificially intelligent photography platforms bring to the market. Do photographers get more job offers? Do they spend more time taking photos and less time searching for new clients? Let's find out!

The survey should take you 3 minutes. All answers are anonymous. Your participation is voluntary and you are free to withdraw from the research at any point. By completing this survey, you agree to your answers being recorded and analysed. As a token of appreciation, I am offering a €25 Amazon voucher to two lucky freelancers. Leave your email at the end if you want to participate in the draw :)

Are you also curious about the research results? I am more than happy to share the analysis which will be available around July. Again, leave your email at the end of the questionnaire and I will contact you. Questions? Reach out to me at 543744nr@student.eur.nl

1. Do you work as a freelance commercial photographer?

Freelance commercial photographer creates images for commercial purposes and his/her work is project-based. This does NOT refer to stock photography.

Question includes skip logic: if answered "no", the survey ends.

- Yes
- No

2. Do you work for photography platforms that implement artificial intelligence into their photography processes?

Examples of such platforms are Meero, BOOM Image Studio, OCUS or any other platforms which let the algorithms take over the majority of the photographer's tasks like photo editing, client booking, etc.

- Yes
- No

3. You indicated that you work for AI-driven photography platforms. Which ones?

You can pick more than one answer

Question includes display logic: only for group 1 photographers

- Meero
- BOOM Image Studio
- OCUS
- Other, please specify:

4. I want to find out how big are the differences in photographers' incomes. Could you please tell me what is your approximate monthly income earned as a freelance commercial photographer?

- Below €500
- €500 - €1500
- €1500 - €2500
- €2500 - €3500
- More than €3500
- Prefer not to say

5. Could you tell me what is your approximate monthly income earned through AI-driven platforms?

Question includes display logic: only for group 1 photographers

- Below €500
- €500 - €1500
- €1500 - €2500
- €2500 - €3500
- More than €3500
- Prefer not to say

6. Could you tell me what is your approximate income earned per photography job/project?

- Below €50
- €50 - €200
- €200 - €350
- €350 - €500
- More than €500
- Prefer not to say

7. Could you tell me what is your approximate income earned per photography job/project through AI-driven platforms?

Question includes display logic: only for group 1 photographers

- Below €5
- €50 - €200
- €200 - €350
- €350 - €500
- More than €5000
- Prefer not to say

8. Could you please tell me what is the approximate number of photography job offers/proposals you receive per quarter (3 months)?

- Below 10
- 10 - 25
- 25 - 40
- 40 - 55
- More than 55
- Prefer not to say

9. Could you tell me what is the approximate number of photography job offers/proposals you receive per quarter (3 months) through AI-driven platforms?

Question includes display logic: only for group 1 photographers

- Below 10
- 10 - 25
- 25 - 40
- 40 - 55
- More than 55
- Prefer not to say

10. Could you please tell me what is the approximate number of photography job offers/proposals you reject per quarter (3 months)?

- Below 10

- 10 - 25
- 25 - 40
- 40 - 55
- More than 55
- Prefer not to say

11. Could you please tell me what is the approximate number of photography job offers/proposals you receive from AI-driven platforms and reject per quarter (3 months)?

Question includes display logic: only for group 1 photographers

- Below 10
- 10 - 25
- 25 - 40
- 40 - 55
- More than 55
- Prefer not to say

12. Which of the following factors do you consider to be the strengths of AI-driven photography platforms?

If you don't work through such platforms, please answer what you think are the strengths. You can pick a max. of 3 answers.

- Quality of the assignments
- Support system
- Organization
- Responsiveness
- Professionalism
- Flexibility of work
- Payment amount
- Copyright issues
- Amount of work
- Speed of payment
- Quality of feedback
- Other, please specify:

13. Which of the following factors do you consider to be the weaknesses of AI-driven photography platforms?

If you don't work through such platforms, please answer what you think are the weaknesses. You can pick a max. of 3 answers.

- Quality of the assignments
- Support system
- Organization
- Responsiveness
- Professionalism
- Flexibility of work
- Payment amount
- Copyright issues
- Amount of work
- Speed of payment
- Quality of feedback
- Other, please specify:

14. Which of the following factors do you consider to be the opportunities of AI-driven photography platforms?

If you don't work through such platforms, please answer what you think are the opportunities. You can pick a max. of 3 answers.

- Development of personal photography business
- Working with big clients
- Gaining photography experience
- Networking opportunity
- Being part of a photography community
- Earning extra income
- More time spent shooting than editing
- Opportunity to work anywhere
- Other, please specify:

15. Which of the following factors do you consider to be the threats of AI-driven photography platforms?

If you don't work through such platforms, please answer what you think are the threats. You can pick a max. of 3 answers.

- Loss of copyrights to the images
- Lack of personal relationship with clients
- Reduced creative freedom
- Lack of sufficient number of jobs
- Inability to negotiate payment amount
- Unstable monthly income
- Too low payment per job
- Lack of control over image usage
- Other, please specify:

16. I want to find out how much time photographers spend on various tasks. Could you please tell me how much <u>time and resources</u> you spend on the following activities?

- Taking photos
- Post production
- Searching for potential clients
- Gathering information and resources for a job
- Negotiating terms and conditions with clients
- Formatting contracts
- Monitoring clients' respectful execution of the contract
- Enforcing clients' respectful execution of the contracts

Example:

Almost done! Only a few short questions left.

17. How old are you?

Text entry

18. What is your gender?

- Male
- Female

19. Which continent are you from?

- Asia
- Africa
- Europe
- Australia
- North America
- South America

20. How many years of commercial photography experience do you have?

Text entry

21. Would you like me to share with you the survey results analysis? Leave your email below.

Text entry

22. Want to participate in the draw of two €25 Amazon vouchers? Leave your email below.

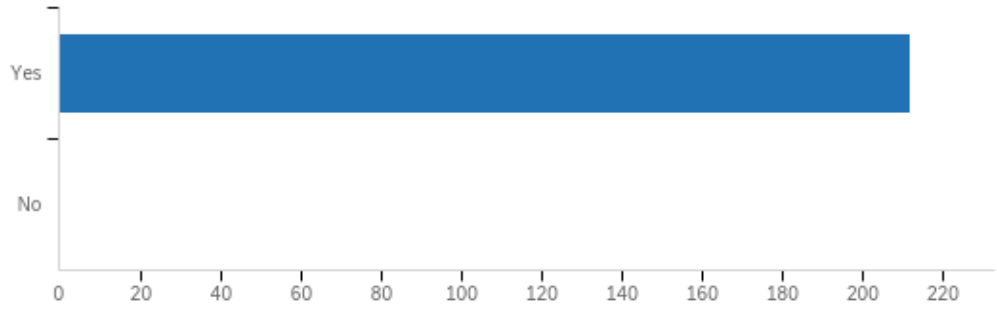
Text entry

Appendix C: Survey results

1. Do you work as a freelance commercial photographer?

Question includes skip logic: if answered "no", the survey ends.

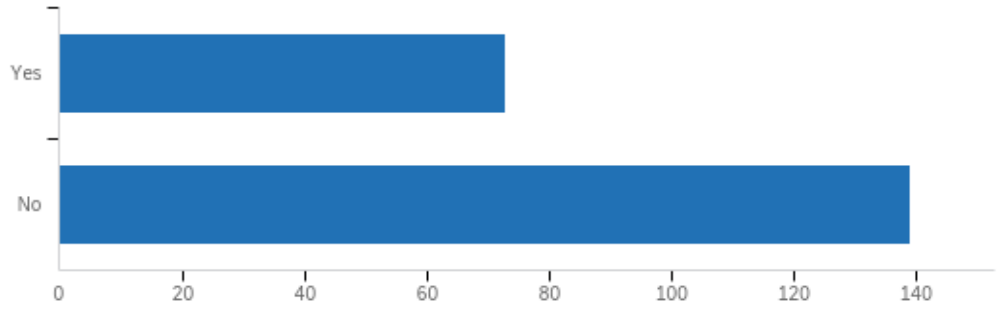
Answer: To participate in the research, the respondents had to answer *yes*. Hence, all 212 participants answered this question positively.



2. Do you work for photography platforms that implement artificial intelligence into their photography processes?

Do you work for photography platforms that implement artificial intelligence into their photography processes?

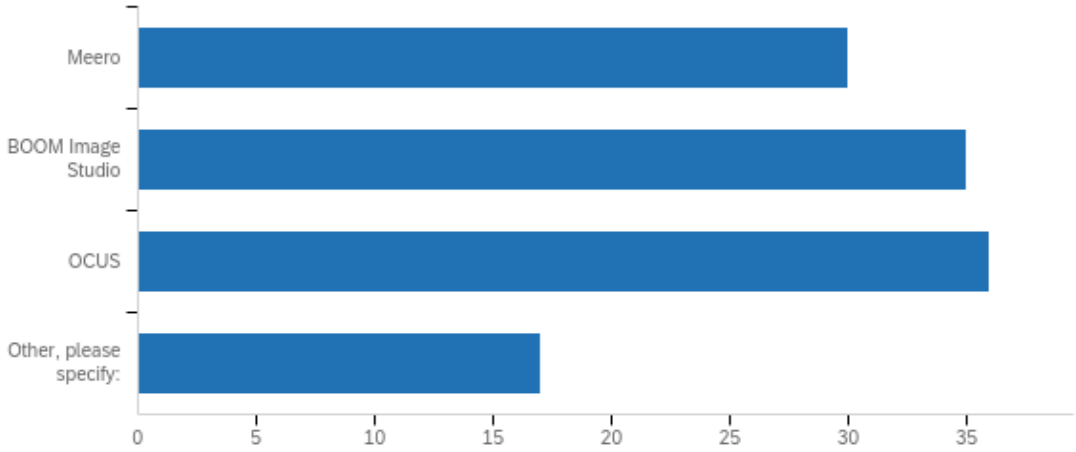
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	73	34.4	34.4	34.4
	No	139	65.6	65.6	100.0
	Total	212	100.0	100.0	



3. You indicated that you work for AI-driven photography platforms. Which ones?

Question includes display logic: only for group 1 photographers

Answer	%	Count
Meero	25.42%	30
BOOM Image Studio	29.66%	35
OCUS	30.51%	36
Other, please specify:	14.41%	17
Total	100%	118



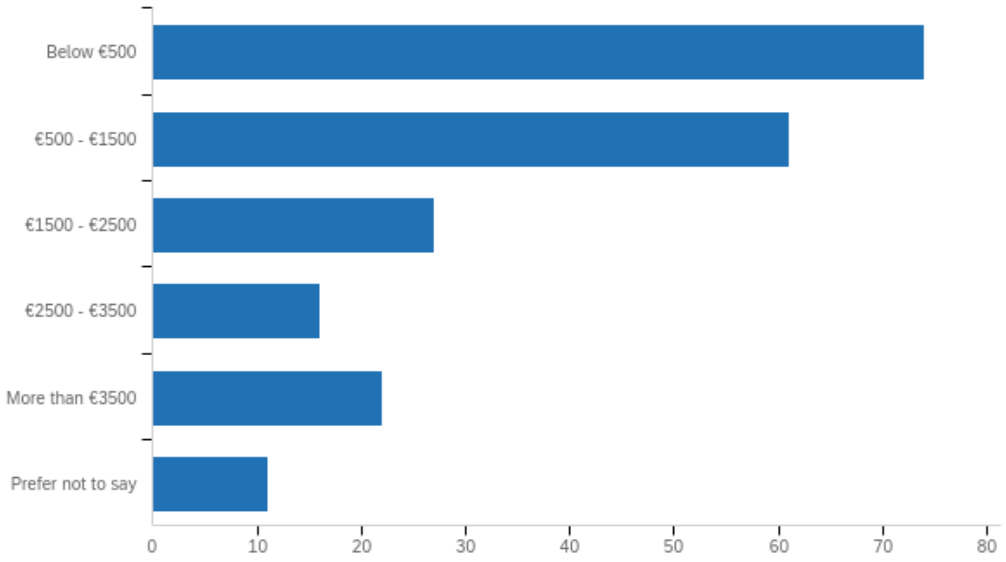
You indicated that you work for AI-driven photography platforms. Which ones? Other: Text

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		198	93.4	93.4	93.4
	bark	1	.5	.5	93.9
	Lemonon	1	.5	.5	94.3
	MyPhotoAgency	1	.5	.5	94.8
	Ocus	1	.5	.5	95.3
	Perfocal, Focal Agent	1	.5	.5	95.8
	Quite honestly, my clients believe they can edit images in Lightroom, photoshop □r their iPhone. □	1	.5	.5	96.2
	Shutterstock Custom	1	.5	.5	96.7
	Snappr	2	.9	.9	97.6
	snapwire, thumbtack, smartshoot, etc	1	.5	.5	98.1
	Snapwire, thumbtack, smartshoot, etc	1	.5	.5	98.6
	Spothopper	1	.5	.5	99.1
	Tenho cadastro nas três mais trabalho mais com a Meero que atua aqui no Brasil	1	.5	.5	99.5
	WEsual, Cherrydeck	1	.5	.5	100.0
	Total	212	100.0	100.0	

4. Could you please tell me what is your approximate <u>monthly</u> income earned as a freelance commercial photographer?

Could you please tell me what is your approximate monthly income earned as a freelance commercial photographer?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below €500	74	34.9	37.0	37.0
	€500 - €1500	61	28.8	30.5	67.5
	€1500 - €2500	27	12.7	13.5	81.0
	€2500 - €3500	16	7.5	8.0	89.0
	More than €3500	22	10.4	11.0	100.0
	Total	200	94.3	100.0	
Missing	Prefer not to say	11	5.2		
	System	1	.5		
	Total	12	5.7		
Total		212	100.0		

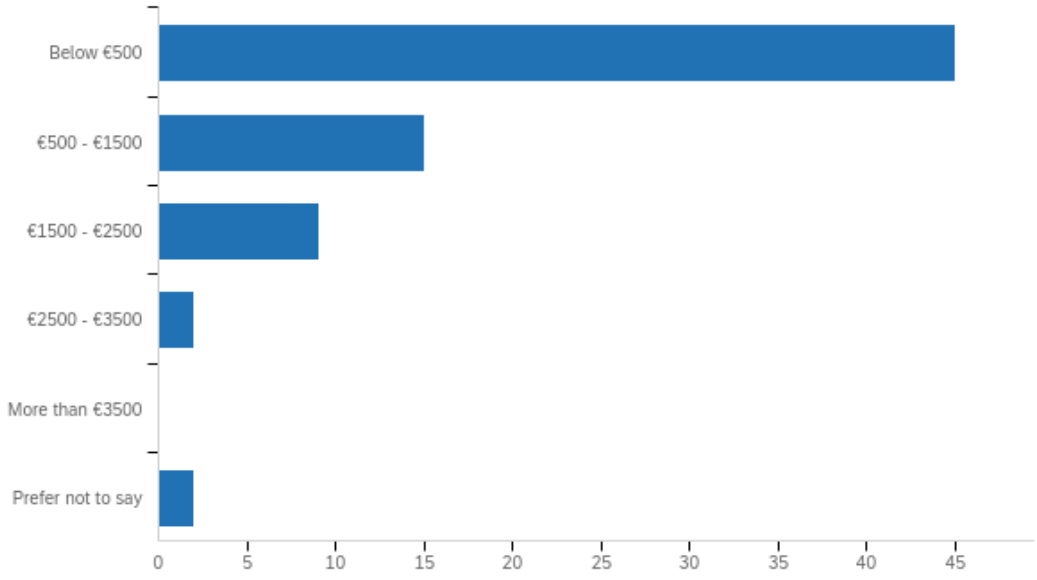


5. Could you tell me what is your approximate monthly income earned through AI-driven platforms?

Question includes display logic: only for group 1 photographers

Could you tell me what is your approximate monthly income earned through AI-driven platforms?

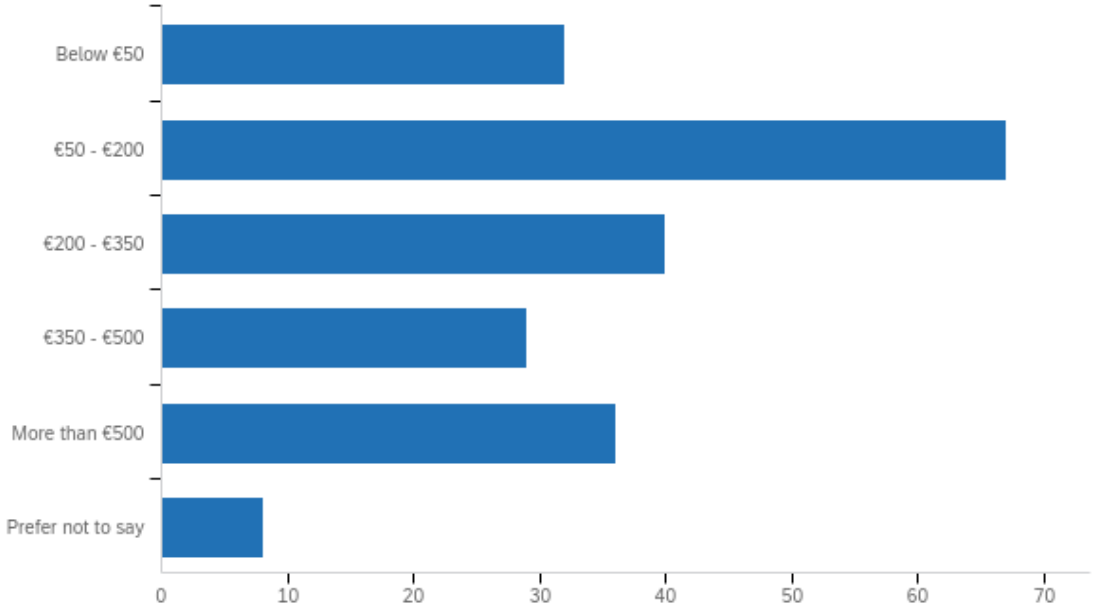
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below €500	45	21.2	63.4	63.4
	€500 - €1500	15	7.1	21.1	84.5
	€1500 - €2500	9	4.2	12.7	97.2
	€2500 - €3500	2	.9	2.8	100.0
	Total	71	33.5	100.0	
Missing	Prefer not to say	2	.9		
	System	139	65.6		
	Total	141	66.5		
Total		212	100.0		



6. Could you tell me what is your approximate income earned per photography job/project?

Could you tell me what is your approximate income earned per photography job?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below €50	32	15.1	15.7	15.7
	€50 - €200	67	31.6	32.8	48.5
	€200 - €350	40	18.9	19.6	68.1
	€350 - €500	29	13.7	14.2	82.4
	More than €500	36	17.0	17.6	100.0
	Total	204	96.2	100.0	
Missing	Prefer not to say	8	3.8		
Total		212	100.0		

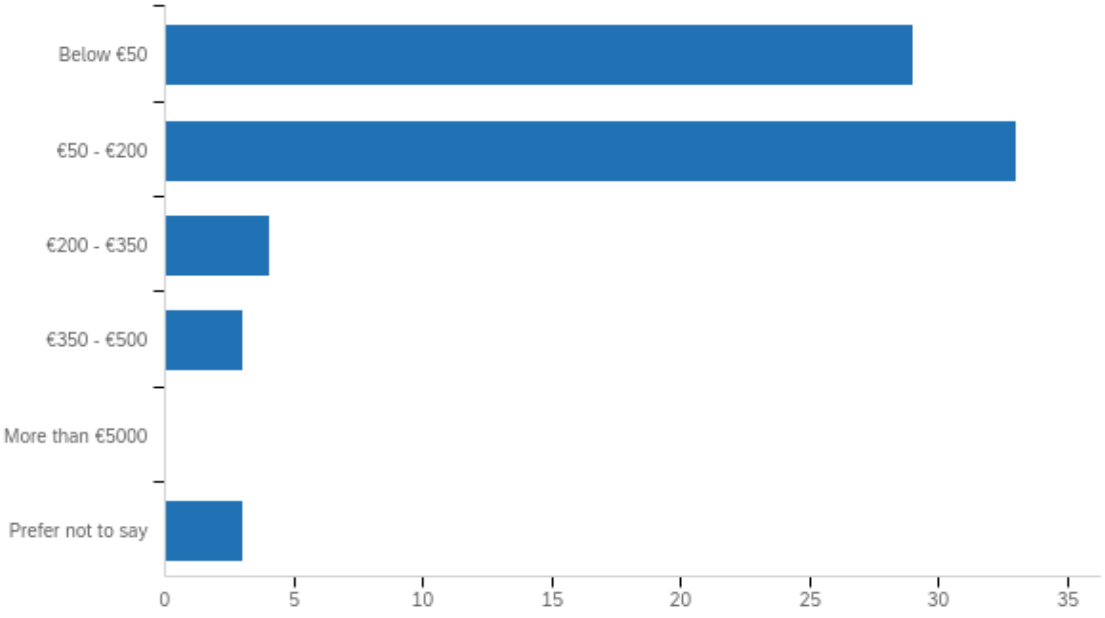


7. Could you tell me what is your approximate income earned per photography job/project through AI-driven platforms?

Question includes display logic: only for group 1 photographers

Could you tell me what is your approximate income earned per photography job through AI-driven platforms?

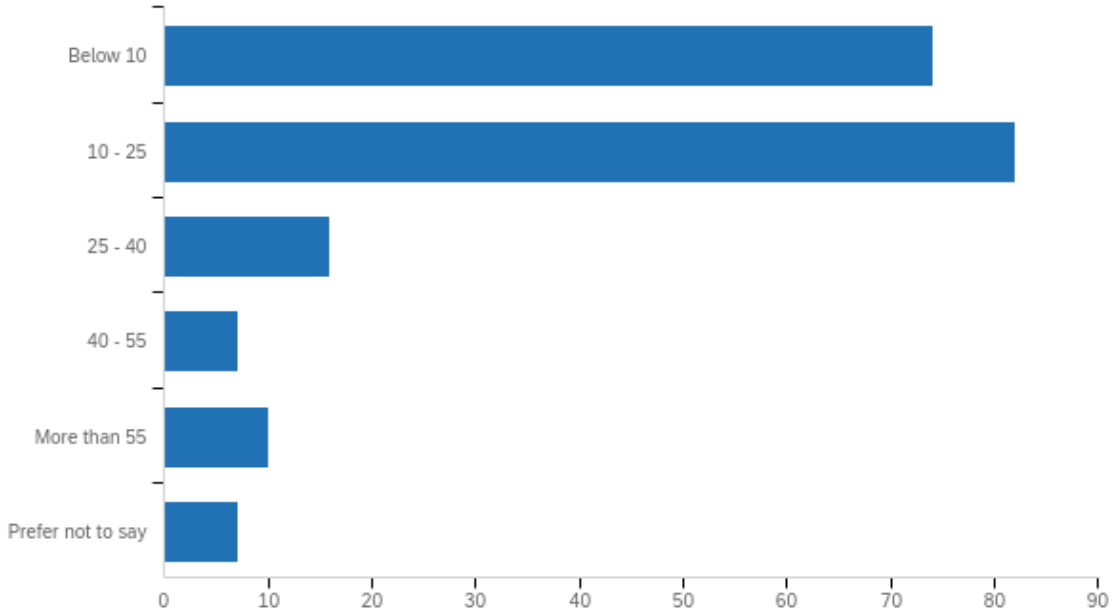
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below €50	29	13.7	42.0	42.0
	€50 - €200	33	15.6	47.8	89.9
	€200 - €350	4	1.9	5.8	95.7
	€350 - €500	3	1.4	4.3	100.0
	Total	69	32.5	100.0	
Missing	Prefer not to say	3	1.4		
	System	140	66.0		
	Total	143	67.5		
Total		212	100.0		



8. Could you please tell me what is the approximate number of photography job offers/proposals you receive per quarter (3 months)?

Could you please tell me what is the approximate number of photography job offers you receive per quarter?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 10	74	34.9	39.2	39.2
	10 - 25	82	38.7	43.4	82.5
	25 - 40	16	7.5	8.5	91.0
	40 - 55	7	3.3	3.7	94.7
	More than 55	10	4.7	5.3	100.0
	Total	189	89.2	100.0	
Missing	Prefer not to say	7	3.3		
	System	16	7.5		
	Total	23	10.8		
Total		212	100.0		

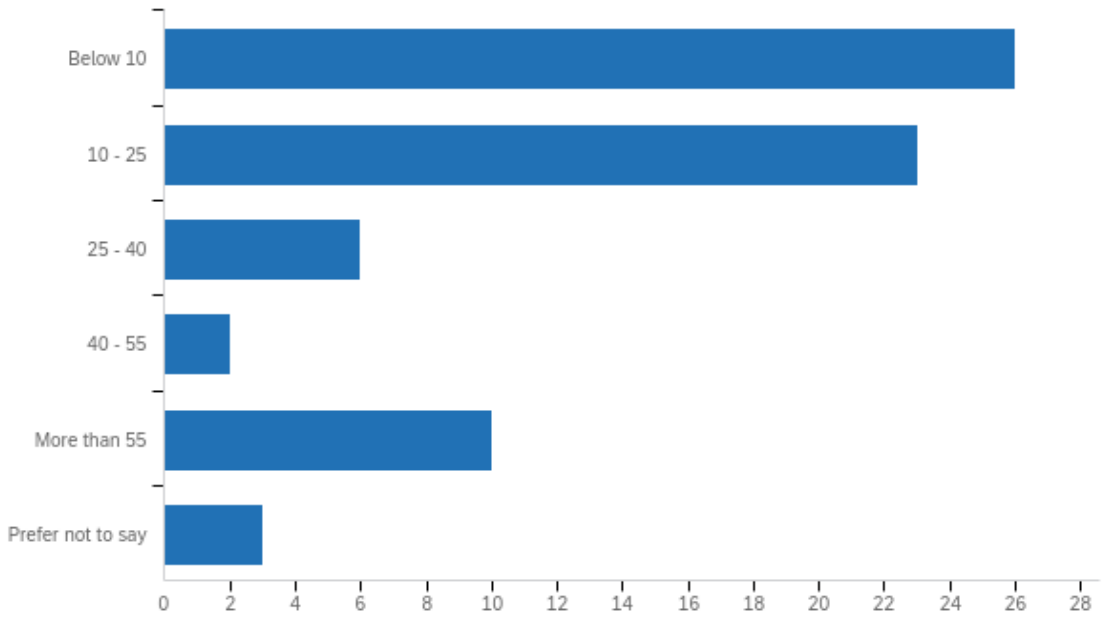


9. Could you tell me what is the approximate number of photography job offers/proposals you receive per quarter (3 months) <u>through AI-driven platforms</u>?

Question includes display logic: only for group 1 photographers

Could you tell me what is the approximate number of photography job offers you receive per quarter through AI-driven platforms?

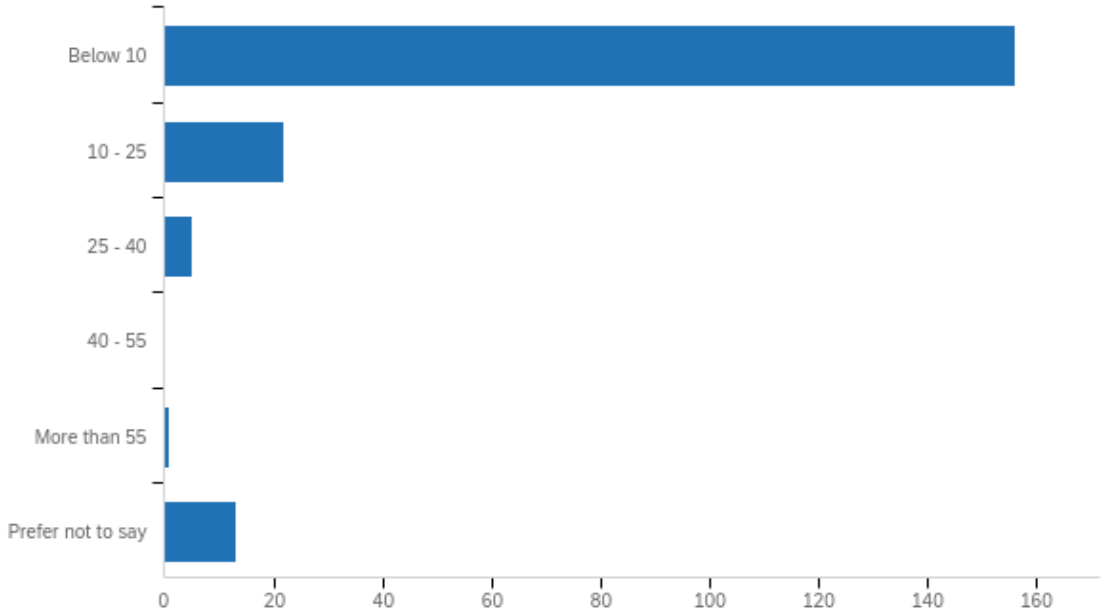
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 10	26	12.3	38.8	38.8
	10 - 25	23	10.8	34.3	73.1
	25 - 40	6	2.8	9.0	82.1
	40 - 55	2	.9	3.0	85.1
	More than 55	10	4.7	14.9	100.0
	Total	67	31.6	100.0	
Missing	Prefer not to say	3	1.4		
	System	142	67.0		
	Total	145	68.4		
Total		212	100.0		



10. Could you please tell me what is the approximate number of photography job offers/proposals you reject per quarter (3 months)?

Could you please tell me what is the approximate number of photography job offers you reject per quarter?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 10	156	73.6	84.8	84.8
	10 - 25	22	10.4	12.0	96.7
	25 - 40	5	2.4	2.7	99.5
	More than 55	1	.5	.5	100.0
	Total	184	86.8	100.0	
Missing	Prefer not to say	13	6.1		
	System	15	7.1		
	Total	28	13.2		
Total		212	100.0		

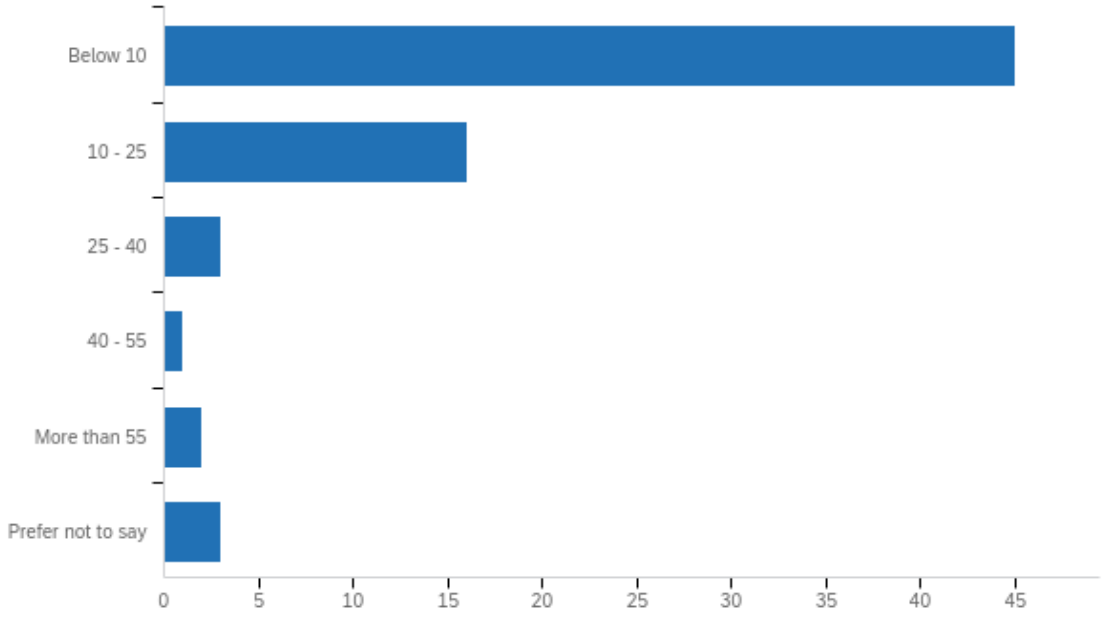


11. Could you please tell me what is the approximate number of photography job offers/proposals you receive from AI-driven platforms and reject per quarter (3 months)?

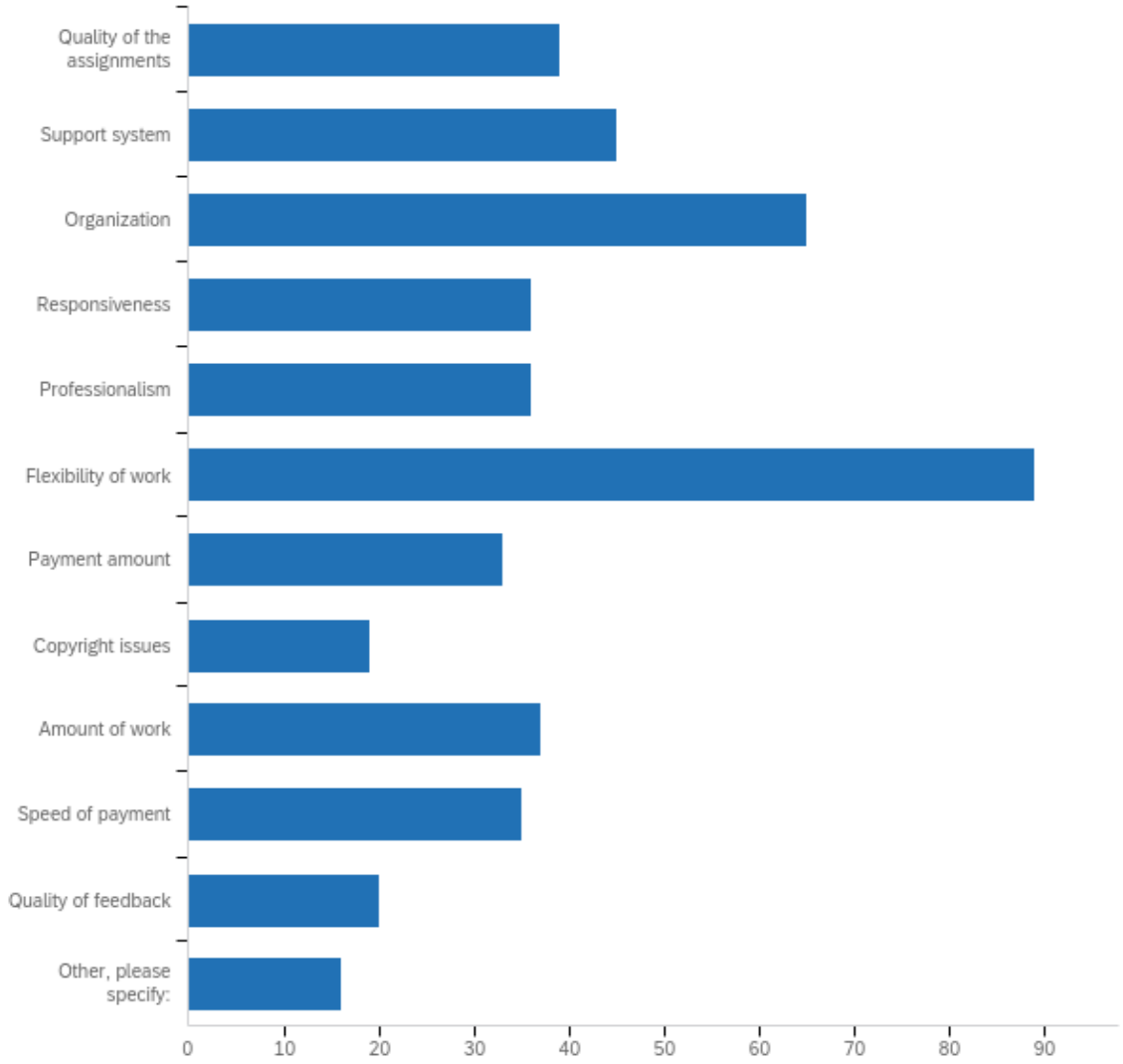
Question includes display logic: only for group 1 photographers

Could you please tell me what is the approximate number of photography job offers you receive from AI-driven platforms and reject per quarter?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 10	45	21.2	67.2	67.2
	10 - 25	16	7.5	23.9	91.0
	25 - 40	3	1.4	4.5	95.5
	40 - 55	1	.5	1.5	97.0
	More than 55	2	.9	3.0	100.0
	Total	67	31.6	100.0	
Missing	Prefer not to say	3	1.4		
	System	142	67.0		
	Total	145	68.4		
Total		212	100.0		

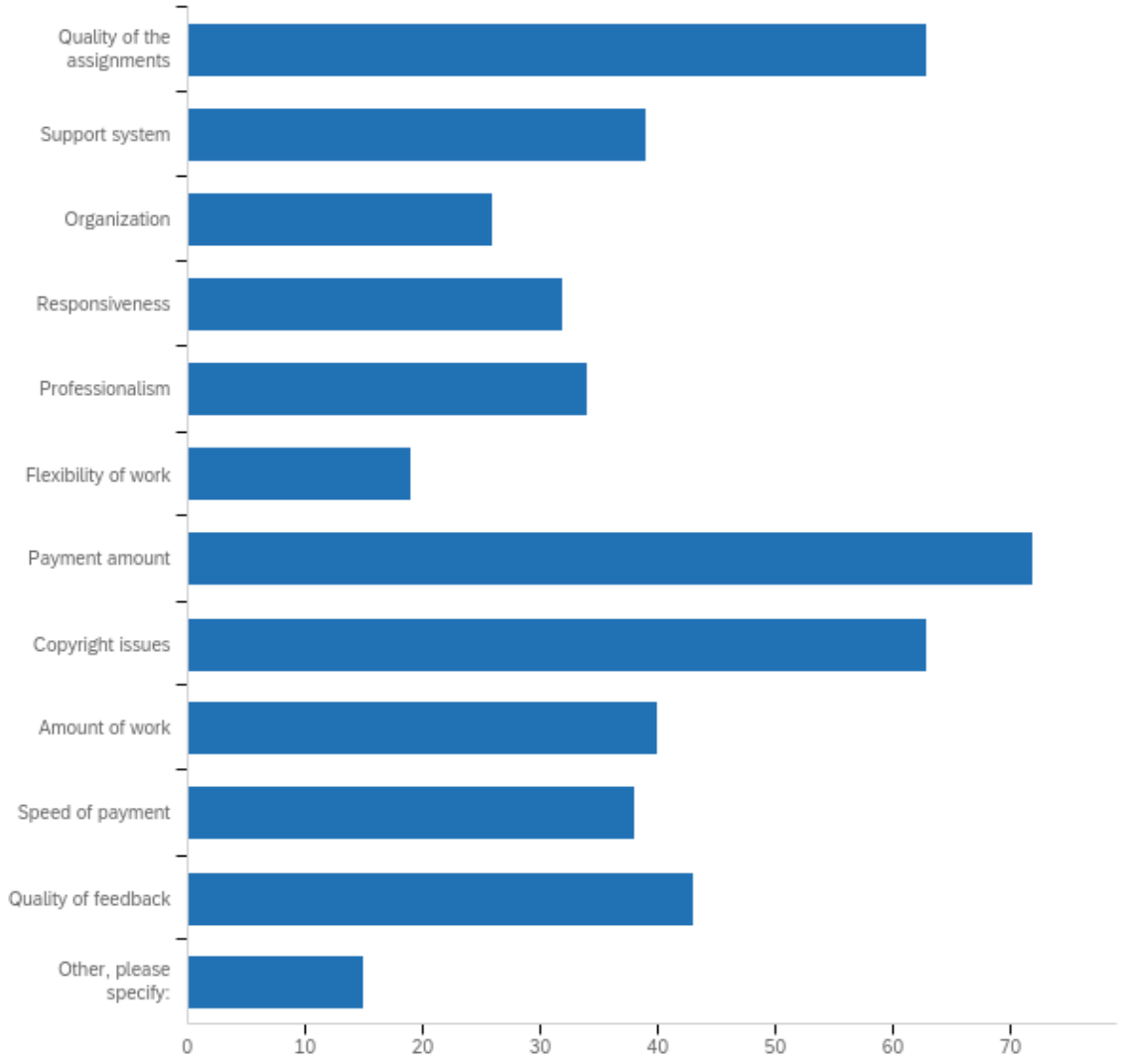


12. Which of the following factors do you consider to be the strengths of AI-driven photography platforms?



Answer	%	Count
Quality of the assignments	8.30%	39
Support system	9.57%	45
Organization	13.83%	65
Responsiveness	7.66%	36
Professionalism	7.66%	36
Flexibility of work	18.94%	89
Payment amount	7.02%	33
Copyright issues	4.04%	19
Amount of work	7.87%	37
Speed of payment	7.45%	35
Quality of feedback	4.26%	20
Other, please specify:	3.40%	16
Total	100%	470

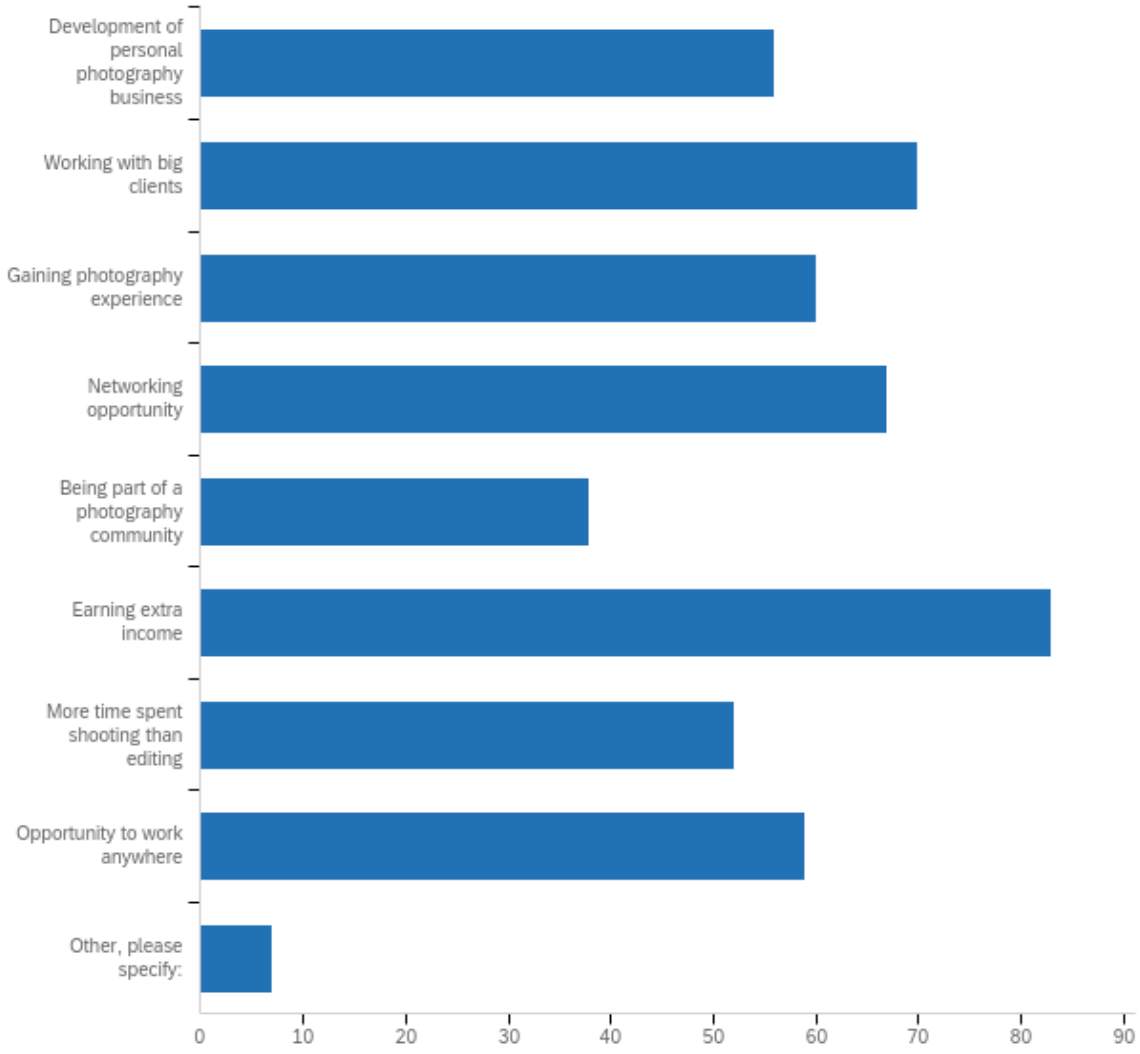
13. Which of the following factors do you consider to be the weaknesses of AI-driven photography platforms?



Answer	%	Count
Quality of the assignments	13.02%	63
Support system	8.06%	39
Organization	5.37%	26
Responsiveness	6.61%	32
Professionalism	7.02%	34
Flexibility of work	3.93%	19
Payment amount	14.88%	72
Copyright issues	13.02%	63
Amount of work	8.26%	40
Speed of payment	7.85%	38
Quality of feedback	8.88%	43
Other, please specify:	3.10%	15
Total	100%	484

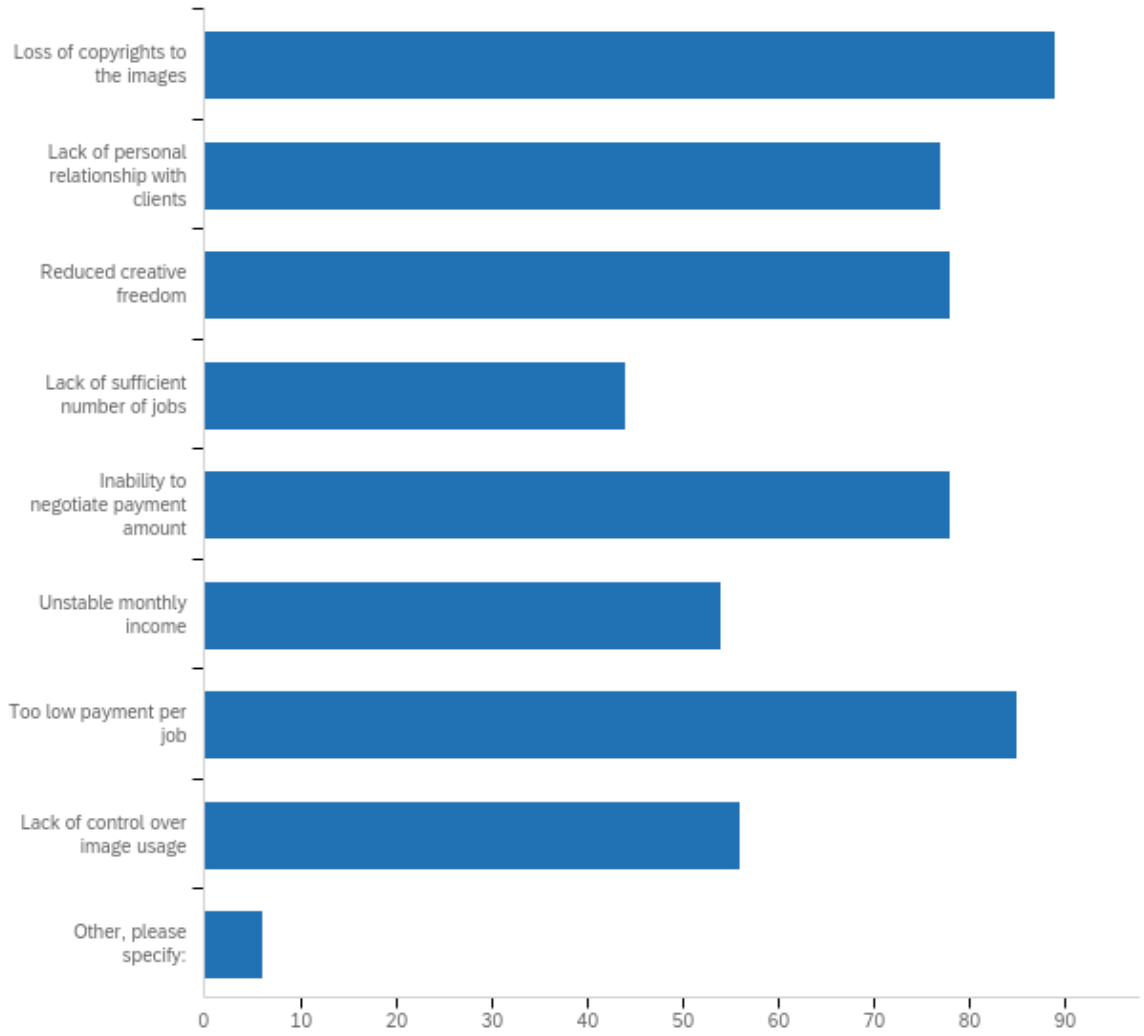
Other, please specify: - Text
Same as above.
Art of photo editing
You do not work for your personal brand
no idea, dont use them
None
Decreased art quality
Lack of personal human interaction
Basing myself with a Meero on the company I work for. They have no apparent weaknesses. They are flexible, have workflow, up-to-date payments and good partner support
I don't know, because I didn't work with it
I do not like work for hire, or giving up copyright. I sell my creatuivity, I do not want to give that up.
Given my location specifically the only thing I found lacking when considering such platforms are the number of potential clients using them in the way they were intended. Though I'm thinking that's only specific to where I am for the most part. I find it quicker and easier responding to people who reach out to me, or even reach out to brands myself - than relying solely on potential clients finding me on an AI website. But I also believe that's something that can easily be overcome for the most part with a little more brand penetration in the region.
Na
they pretty much suck

14. Which of the following factors do you consider to be the opportunities of AI-driven photography platforms?



Answer	%	Count
Development of personal photography business	11.38%	56
Working with big clients	14.23%	70
Gaining photography experience	12.20%	60
Networking opportunity	13.62%	67
Being part of a photography community	7.72%	38
Earning extra income	16.87%	83
More time spent shooting than editing	10.57%	52
Opportunity to work anywhere	11.99%	59
Other, please specify:	1.42%	7
Total	100%	492

15. Which of the following factors do you consider to be the threats of AI-driven photography platforms?



Answer	%	Count
Loss of copyrights to the images	15.70%	89
Lack of personal relationship with clients	13.58%	77
Reduced creative freedom	13.76%	78
Lack of sufficient number of jobs	7.76%	44
Inability to negotiate payment amount	13.76%	78
Unstable monthly income	9.52%	54
Too low payment per job	14.99%	85
Lack of control over image usage	9.88%	56
Other, please specify:	1.06%	6
Total	100%	567

Other, please specify: - Text
None
Wider range
Marketing automation
I'm honestly skeptical and don't think there are benefits/
I would like to disagree with the term "extra income". The fact that you will be spending time and using your skills for the project, it should not be considered "extra" but actual income perse. Some companies will use the term "extra income" to justify unfair compensation for the work that you do as a photographer. Extra income can sound right if you are not a professional photographer and just want to do it once in a blue moon. Otherwise, if you are a professional photographer, this is your bread and butter and not just something "extra". Just my two cents.
Travelling while doing what I love the most doing

16. I want to find out how much time photographers spend on various tasks. Could you please tell me how much time and resources you spend on the following activities?

Example:

Task	Minimum	Maximum	Mean	Standard Deviation	Variance	Count
Taking photos	0.00	5.00	3.19	1.04	1.08	151
Post-production	0.00	5.00	2.99	1.27	1.62	153
Searching for potential clients	0.00	5.00	2.59	1.48	2.19	154
Gathering information and resources for a job	0.00	5.00	2.32	1.25	1.56	153
Negotiating terms and conditions with clients	0.00	5.00	2.00	1.15	1.32	150
Formatting contracts	0.00	5.00	1.68	1.26	1.59	144
Monitoring clients' respectful execution of the contract	0.00	5.00	1.84	1.33	1.77	148
Enforcing clients' respectful execution of the contracts	0.00	5.00	1.75	1.32	1.74	142

17. How old are you?

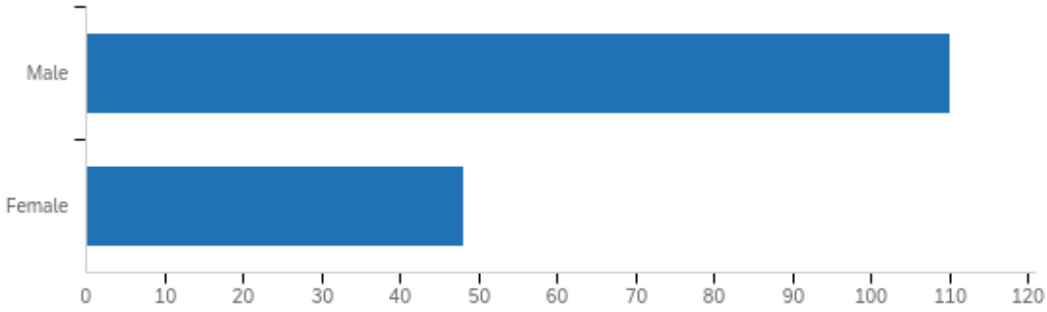
How old are you?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18	4	1.9	2.6	2.6
	19	2	.9	1.3	3.9
	20	3	1.4	1.9	5.8
	21	2	.9	1.3	7.1
	22	4	1.9	2.6	9.7
	23	2	.9	1.3	11.0
	24	5	2.4	3.2	14.2
	25	11	5.2	7.1	21.3
	26	3	1.4	1.9	23.2
	27	4	1.9	2.6	25.8
	28	4	1.9	2.6	28.4
	29	7	3.3	4.5	32.9
	30	5	2.4	3.2	36.1
	31	4	1.9	2.6	38.7
	32	6	2.8	3.9	42.6
	33	4	1.9	2.6	45.2
	34	4	1.9	2.6	47.7
	35	7	3.3	4.5	52.3
	36	4	1.9	2.6	54.8
	37	5	2.4	3.2	58.1
	38	4	1.9	2.6	60.6
	39	6	2.8	3.9	64.5
	40	6	2.8	3.9	68.4
	41	4	1.9	2.6	71.0
	42	1	.5	.6	71.6
	43	3	1.4	1.9	73.5
	44	4	1.9	2.6	76.1
	45	8	3.8	5.2	81.3
	46	5	2.4	3.2	84.5
	48	2	.9	1.3	85.8
	49	2	.9	1.3	87.1
	50	3	1.4	1.9	89.0
	51	1	.5	.6	89.7
	52	1	.5	.6	90.3
	53	1	.5	.6	91.0
	54	2	.9	1.3	92.3
	55	3	1.4	1.9	94.2
	59	1	.5	.6	94.8
	61	1	.5	.6	95.5
	62	2	.9	1.3	96.8
	63	1	.5	.6	97.4
	64	2	.9	1.3	98.7
	65	1	.5	.6	99.4
	68	1	.5	.6	100.0
	Total	155	73.1	100.0	
Missing		57	26.9		
Total		212	100.0		

18. What is your gender?

What is your gender?

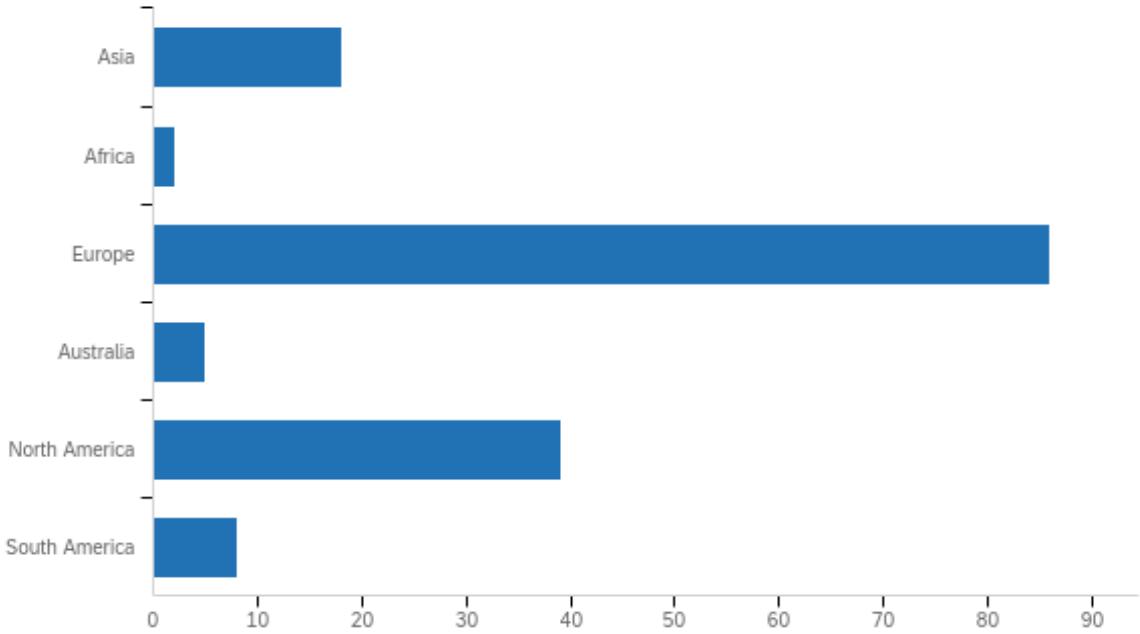
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	110	51.9	69.6	69.6
	Female	48	22.6	30.4	100.0
	Total	158	74.5	100.0	
Missing	System	54	25.5		
Total		212	100.0		



19. Which continent are you from?

Which continent are you from?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Asia	18	8.5	11.4	11.4
	Africa	2	.9	1.3	12.7
	Europe	86	40.6	54.4	67.1
	Australia	5	2.4	3.2	70.3
	North America	39	18.4	24.7	94.9
	South America	8	3.8	5.1	100.0
	Total	158	74.5	100.0	
Missing	System	54	25.5		
Total		212	100.0		



20. How many years of commercial photography experience do you have?

How many years of commercial photography experience do you have?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	11	5.2	7.1	7.1
	10	16	7.5	10.3	17.3
	11	3	1.4	1.9	19.2
	12	5	2.4	3.2	22.4
	13	2	.9	1.3	23.7
	15	3	1.4	1.9	25.6
	16	2	.9	1.3	26.9
	17	1	.5	.6	27.6
	18	2	.9	1.3	28.8
	19	1	.5	.6	29.5
	2	14	6.6	9.0	38.5
	20	8	3.8	5.1	43.6
	21	1	.5	.6	44.2
	23	1	.5	.6	44.9
	25	1	.5	.6	45.5
	28	1	.5	.6	46.2
	3	20	9.4	12.8	59.0
	30	1	.5	.6	59.6
	32	1	.5	.6	60.3
	36	1	.5	.6	60.9
	4	17	8.0	10.9	71.8
	40	3	1.4	1.9	73.7
	42	1	.5	.6	74.4
	43	1	.5	.6	75.0
	5	14	6.6	9.0	84.0
	6	11	5.2	7.1	91.0
	7	4	1.9	2.6	93.6
	8	9	4.2	5.8	99.4
	9	1	.5	.6	100.0
	Total	156	73.6	100.0	
Missing		56	26.4		
Total		212	100.0		

21. Would you like me to share with you the survey results analysis? Leave your email below.

Answer: not disclosed to assure anonymity

22. Want to participate in the draw of two €25 Amazon vouchers? Leave your email below.

Answer: not disclosed to assure anonymity