

Article

Are Translators Afraid of Artificial Intelligence?

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Abstract: Artificial intelligence (AI) is a leading technology in the digital transformation. AI is expected to cause job losses in general, initially in professions associated with routine activities, and subsequently in the field of creative professions. The present article analysed the results of the authors' own empirical sociological survey of the attitude of Bulgarian translators towards AI, and the ways in which it will change their profession. Most of them perceive artificial intelligence and automatization as threats to the profession. According to them, digital technologies and AI will modify the profession by relieving human translators of the routine, technical part of the job. Hence, translators will predominantly edit machine-translated texts, and teach artificial intelligence to perform machine translation. The conclusion of the analysis demonstrates that, in the case of Bulgarian translators, such pessimistic scenarios about mass jobs destruction are not justified. In addition, expectations of a deterioration in quality of work as a result of digitalization in the near future are not justified in the case of the translating profession. The present survey results serve as a basis for further research about the impact of artificial intelligence on other creative professions.

Keywords: AI; translators; creativity; jobs



Citation: Kirov, V.; Malamin, B. Are Translators Afraid of Artificial Intelligence?. *Societies* **2022**, *12*, 70. <https://doi.org/10.3390/soc12020070>

Academic Editors: António B. Moniz, Bettina-Johanna Krings, Oriol Homs, Ilona Bučičnienė and Csaba Makó

Received: 14 January 2022

Accepted: 8 April 2022

Published: 12 April 2022

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1. Introduction

Artificial intelligence (AI) is one of the major technologies leading the digital transformation and the fourth industrial revolution ¹, and machine–human–computer symbiosis is a major feature of the phenomena, such as virtual reality, computer games, smartphone apps, smart watches, and information searches through voice recognition, etc. Other examples are the home assistants created by Google and Amazon, and text prediction in writing messages. In the academic literature, the dominating view is that the digital transformation is impacting work and employment radically, with the implementation of AI and other digital technologies resulting in substantial job losses [1].

However, until recently, the major interest in AI's impact was focused on routine professions, and those with activities and tasks that could be improved through automatization and AI applications. Lately, this interest was extended to the spheres of artistry and creativity, given that AI also influences them. Creative jobs are a good example to this effect, and in recent years, the media has spread information about the ability of AI to paint pictures, compose music, brings old photos to life ², reply to messages ³, and create graphic designs ⁴, etc.

But what exactly is AI's impact on creative professions? Creativity is one of the human abilities considered most difficult for AI to emulate. Creative professions rely on creative thinking, and require a non-standard approach to tasks; they usually involve art, culture, fashion, marketing, or communications. Creative professionals are people such as fashion designers, photographers, directors, writers, journalists, and translators.

Technologies have been part of the translating profession for many years now, initially with the use of word-processing software, and later with various digital dictionaries, correcting software, and translation-organising software. Software programmes that can

automatically translate (with a high or semi-high quality) have emerged, e.g., Google Translate, Mem Source, and SDL Trados. This trend allows the futurist Alec Ross to claim in his “Industries of Future” [2] that translation will be an extinct profession in the near future:

“The only professional translators in ten years are going to be the people who work on the translation software. Most machine translation programs (such as Google’s) continue to rely heavily on human translations, but once the data sets of translations are large enough, the translators won’t be needed. The job of professional translator could go the way of the lamplighter and ice delivery man, or it could become like the coal-mining jobs of today; there’s still a need for a smaller number who are supervising a machine rather than extracting the coal from the earth themselves.” [2].

Although not all authors share Alec Ross’s extreme opinion, there is a consensus in the professional literature that the translating profession is one most heavily impacted by digitalization, automatization, and AI [3].

The analysis presented here concentrated on the translation profession in Bulgaria. Specifically, the research question focused on the extent to which Bulgarian translators are aware of AI features, and feel threatened by its development and encroachment into their professional field. The authors’ empirical sociological study was conducted using quantitative methods to analyse translators’ opinions on the future of their profession.

Thus, the article aimed to understand the extent to which translators feel threatened by the application of AI and digitalization in their professional field. For analytical purposes, it must be taken into account the specific context of Bulgaria as one of the most underdeveloped EU members in terms of digitalization— shown in the Digital Economy and Society Index (DESI), annually published by the EC. According to DESI⁵, Bulgaria has one of the lowest overall levels of digital skills in the EU, and is far below the EU average in terms of the integration of digital technologies.

The present article’s assumption is that Bulgarian translators are not currently aware of the future of their profession. According to the prevailing views, it is expected that the job of translators will be seriously impacted by digitalization and AI. There are multiple specific dimensions of these changes: new instruments for automatization, new ways of finding jobs and tasks, and an increased share of freelance jobs compared to full-time employment [4]. That is exactly the objective of the present survey. The research questions addressed are the following: to find out how worried Bulgarian translators are about their future and to analyse their opinions about which profession-specific activities would disappear; which new activities will appear; what the future of the profession may be; and what strategies they have to cope with this situation. For this purpose, the authors have conducted a sociological survey using quantitative methods among translators, both employed and self-employed.

The article is structured as follows: introduction, followed by a literature and key concepts review, and a short section dedicated to the methodology used. The article analyses the results in light of the socio-professional profiles of the respondents, their attitudes towards technologies in general, and those technologies used in their work, in addition to their views on AI’s impact on the profession’s future, AI features, and the automatization of the profession. The conclusions help to better understand the future of labour in creative professions in the context of AI, and digital technologies in general.

2. Literature Review and Key Concepts

Digitalization is not a new process, *per se*, but the speed and scope of digital processes, and their integration in companies and labour, have significantly increased, according to the latest research [5]. The digital transformation is quickly changing the world of work in the developed societies of Europe and North America. Although the view that new technologies are not deterministic currently prevails⁶, their implementation impacts

both labour and employment. The debate on the future of work in recent years has been dominated by pessimistic scenarios of job extinction [1].

Artificial intelligence is defined as a part of “computer science in its aspect of machines imitating human intelligence, i.e., resembling human intelligence and not being human per se” [6]. Artificial intelligence is one of the key digital technologies considered as general-purpose technology (GPT), because of the high potential for technical improvements and high level of comprehensiveness, e.g., high potential to be used in a large number of applications [7]. In light of digital technologies’ potential, the digital transformation is ubiquitous, and has an important impact on labour markets. Artificial intelligence applications are used most widely in routine activities (e.g., automated processing of documents and photos in police stations, email filtering, and word-processing) [8] but are being applied in non-routine activities, as well, e.g., in creative professions.

The translating profession is considered creative⁷ due to the fact that translators solve communication problems in different cultural and communicational environments, which is a highly creative activity [9]. In recent years, this particular profession has changed in a few ways. Firstly, the share of self-employed translators is increasing worldwide at the expense of permanently employed ones [3]. Secondly, a decent share of job and task seeking is taking place through online work-finding platforms. According to a forecast, in 2025 online platforms are expected to be accountable for about one third of all labour relationships⁸. Finally, interest in new technologies has been growing in translation work. This kind of digitalization started in the 1990s, with the implementation of machine translation technologies [10]. This was most marked in agencies, government services, and multinational companies, where translations, primarily of technical documentation, were produced on a large scale. This was the major market for the mainframe systems Systran, Logos, METAL, and ATLAS [11,12].

Currently, the opinion that the translating profession will be heavily impacted by digitalization, automatization, and AI prevails in the literature [13]. However, in practice, the data on technologies’ implementation in translation is not exactly deterministic. For example, a relatively recent survey shows that digital tools are widely used in Denmark, but machine translation tools are still less common [14]. Further, relatively recent research in Spanish-speaking countries shows that 45% of researched companies offering language services in Spanish already use machine translation [15]. There is a predominant view that these technologies will further penetrate translation work. This process opens up a number of debates. For example, some authors point out that it is necessary to re-think the freedom of translation, as translation technology is quickly ousting human translators [16]. According to others, this process has to change the way translators are educated, and the way they work [17]. Some publications even show that translators are leaving the profession because of the technological impact [18], but there no large-scale research results have been published that would shed light on the numbers or reasons behind this process. In this respect, the present study of their motivation, views, and expectations contributes not only to the body of research on a specific creative profession, but to the future development of labour in general.

Most of the research dedicated to changes in translation work is based on examples from western Europe and North America, while in Bulgaria (and, broadly speaking, central and eastern Europe) this problem has not yet been explored. There are some comparative analyses of the status of translators covering countries such as Romania, where developments are similar to Bulgaria [19]. Furthermore, in the context of a sociological analysis of professions, translators have never been the focus in the way medical professionals, architects [20], lawyers, or artists have. Therefore, it is only logical to explore the extent to which new technologies can make the translating profession redundant, or how they might change it in terms of work mode, tasks, tools, and employment.

3. Methodology

In order to investigate the attitudes of translators towards digital technologies and their impact, empirical information was gathered using a quantitative survey via the SurveyMonkey platform. The questionnaire was disseminated through professional groups on Facebook (“Translators Bulgaria group – for translations and languages”, “Translators-editors-correctors”, “Help from Translators to Translators”), sent to translators via LinkedIn, and emailed to various professional translation agencies. Bulgarian translators were the subject of the survey, both freelancers and translators with employment and civil contracts in private agencies, state institutions, or European Union institutions. The survey is not representative, as there is no information available on the total population of translators in Bulgaria. The only available data was the number of certified translators registered by the Ministry of Foreign Affairs—numbering 2596 as of September 2020⁹. However, certified translators are only one part of the overall professional group.

The survey was conducted in the period August—October 2019. A total of 188 questionnaires were completed online, with the focus of research being the attitudes of translators in Bulgaria towards machine translation, process automatization, and artificial intelligence applications. The survey aimed to find out the extent to which digitalization in this field is perceived as a threat to their jobs. The data was processed with SPSS. The results were interpreted with statistical analyses for non-representative samples, including descriptive statistics, grouping methods, and multi-dimensional distributions.

The biggest limitation of the present survey was the fact that it did not reach translators working in a traditional manner, but we presumed their number to be negligible.

4. What Do the Results Say?

Socio-Demographic Profile of Respondents in the Online Survey

Out of 188 respondents, the biggest share is between 40 and 50 years old (37%), with 34% being over 50 years old. The majority (55%) live in Sofia, with 29% living in county centres, 2% in villages, and 12% live abroad; 26% are men, 74% are women; and all have a higher education (above BA).

According to income, the respondents are rather affluent, with incomes in the upper range of medium and high income (1000–2600 BGN). About 20% of respondents define themselves as low-income earners (below 999 BGN). The highest income is among the age group 41–50. Translators in big cities are better paid than their more rural counterparts (Figure 1).

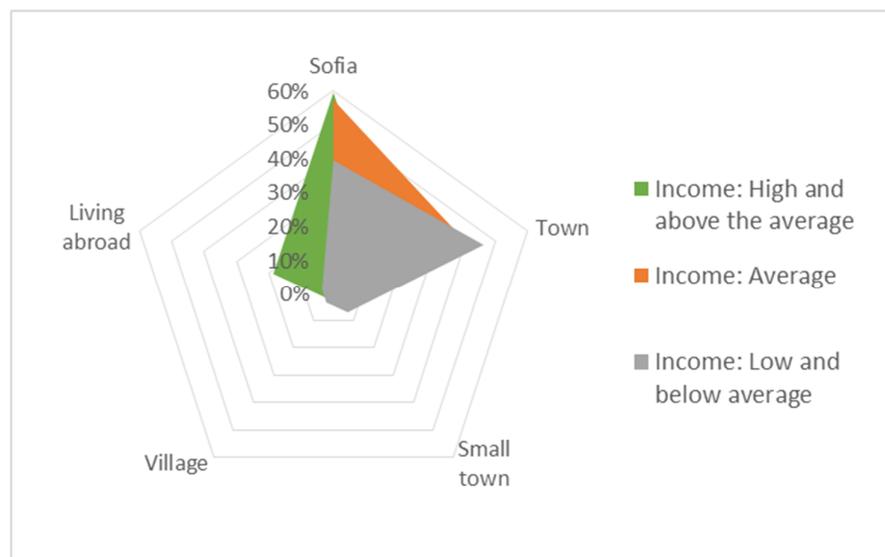


Figure 1. Respondent distribution per income and location. N = 142.

According to our survey results, Bulgarian translators are most often not specialised. A possible interpretation of this fact is that the market is relatively limited and, in order to survive, they do not decline job offers and undertake various types of translation. The most common type of translation is that of documents, followed by technical literature, and legal literature (Figure 2).

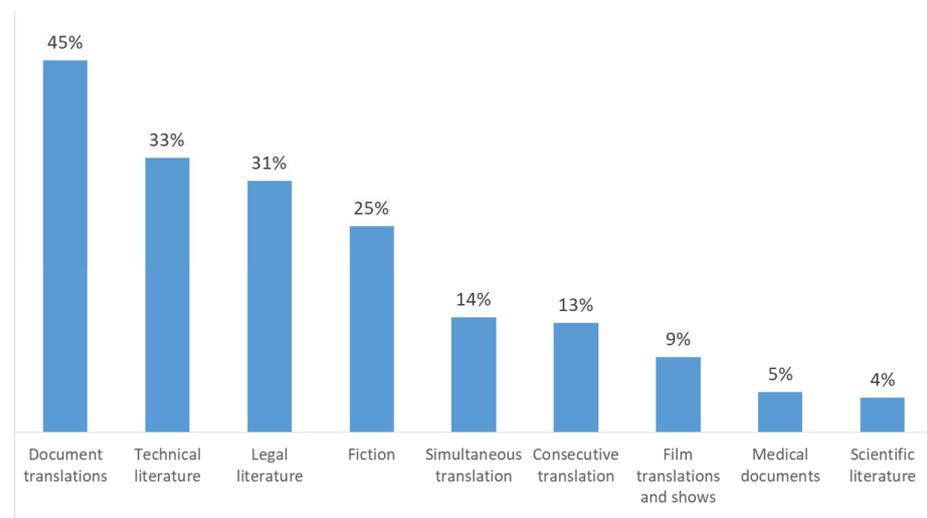


Figure 2. What kind of translations do you specialise in? N = 144.

The most common languages that respondents translate to/from are: English, Russian, French, and German. The share of “exotic” language translators is 4%—Hindi, Latin, Mandarin, Japanese, Esperanto, Hebrew, and Korean (Figure 3).

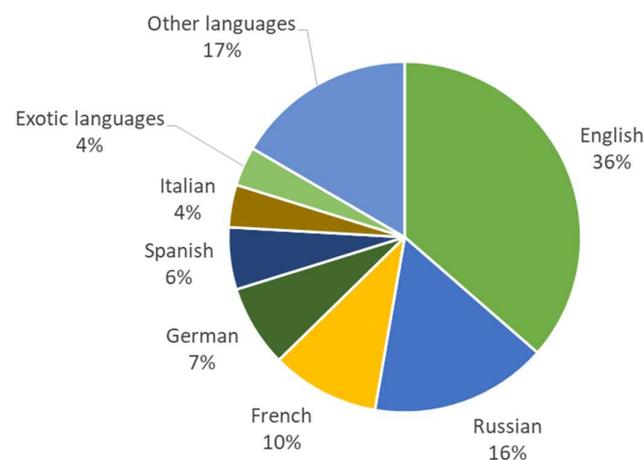


Figure 3. What languages (apart from Bulgarian) do you use in your work? N = 186.

5. Translators’ Attitudes towards Technologies

The participating translators have positive attitudes towards technologies. Typing machines of the past were long ago replaced by computers that are used by all respondents; the computer is definitely not a novelty and is generally accepted as a mandatory technology (Figure 4). However, the reader should be aware of the fact that these respondents were only reached via digital media, i.e., social media and email.

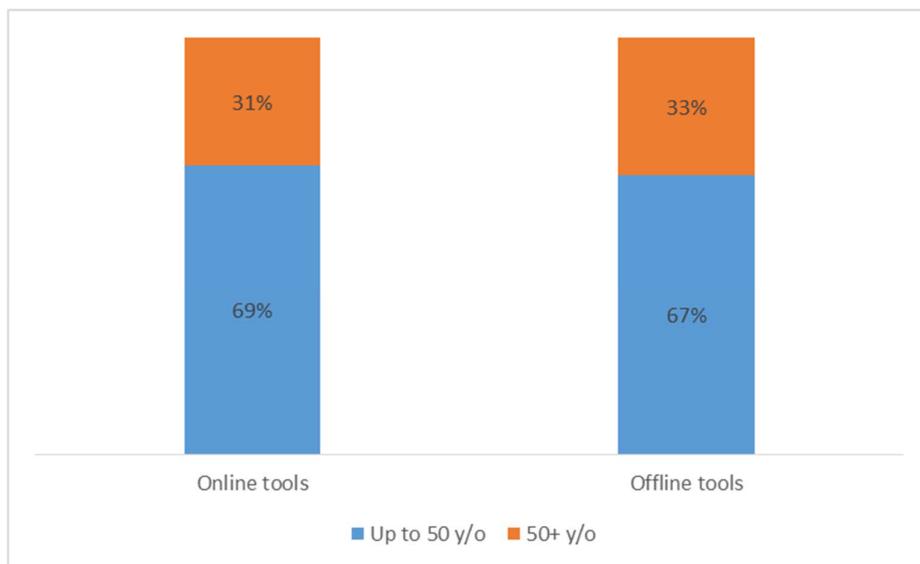


Figure 4. What kind of tools do you use in your work? N = 147.

The older the respondents are, the less they rely on digital technology; but overall trust in technologies is high (Figure 5). The reason for this is that they were trained and socialised in the profession before the introduction of digital technologies. On the other hand, attitudes towards technology among the younger group (18–30) are totally or mostly positive.

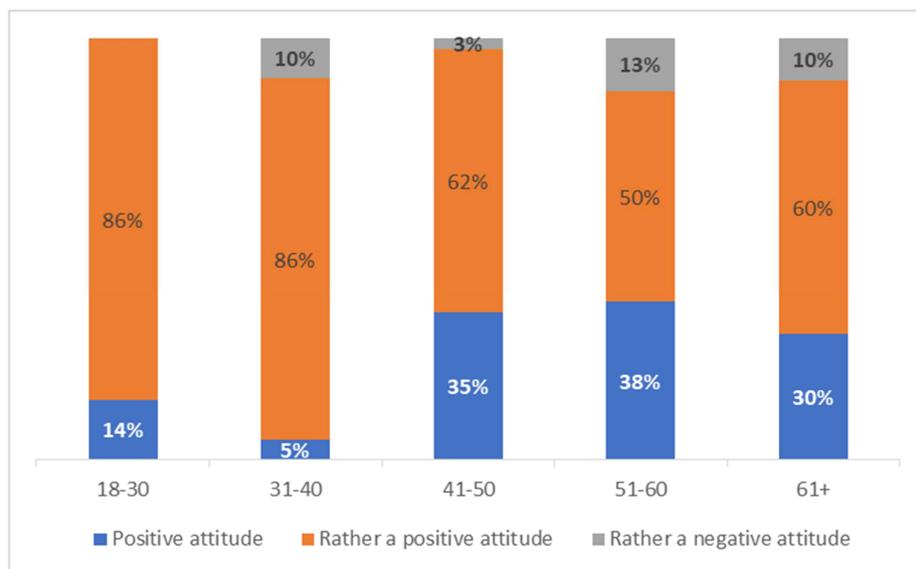


Figure 5. What is your attitude towards technologies? (Age distribution). N = 99.

The highest number of computer-assisted tools (CAT), both online and offline, are used by freelancers, while the lowest rate of usage of translating tools (online or offline) is registered among those working in the state administration (Figure 6). Freelancers are expected to be flexible and motivated to optimise their work, supported by digital technologies. The same findings are present in the European Language Industry Surveys (2020, 2021) ¹⁰; the independent professionals are the primary users of CAT products. Also, according to the next wave (2021) ¹¹ of the study, the independent professionals are those who consider AI and machine translation as a technology trend that allows non-translators to enter the sphere and to provide cheaper services.

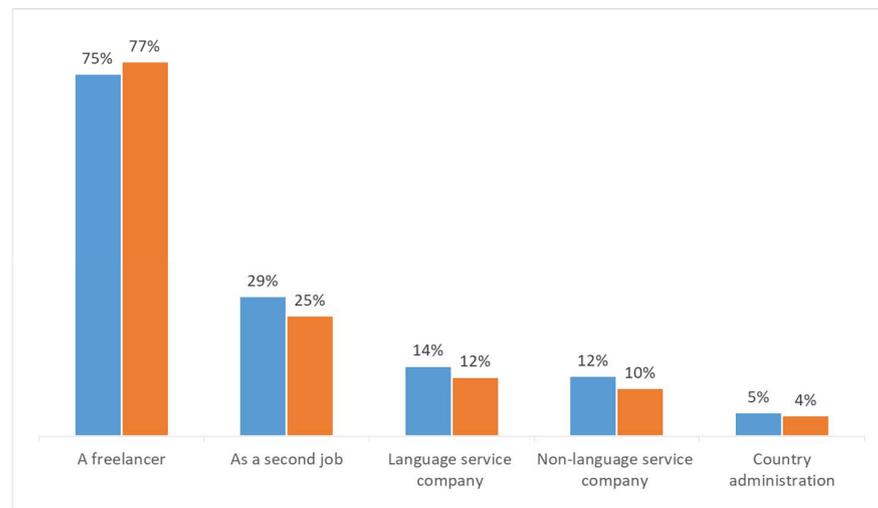


Figure 6. Usage of offline/online tools for translation according to employment type. N = 98.

The respondents mostly use the following translation tools/programmes: SDL Trados, Google Translate, Wordfast, MemoQ, MemSource, Google Translator Toolkit (support cancelled in December 2019), and Abby Finereader ¹². We asked about their opinion on these tools—if they are considered as AI or just automatization tools.

Figure 7 shows that the respondents perceived only Google Translator Kit as an artificial intelligence, and all the other tools are perceived mainly as a means to automate their activities.

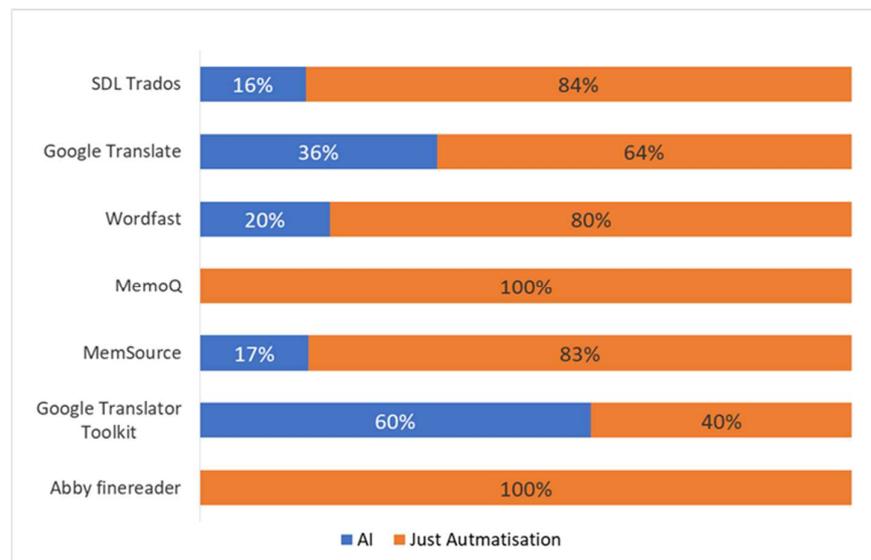


Figure 7. Do you think the following programmes are AI or just automatization tools? N = 115.

The tools that facilitate translation and use elements of artificial intelligence, according to their descriptions, are Google Translate and MemSource, while the other computer products mentioned in Figure 7 support the organisation of translation, and facilitate routine translation operations.

Figure 7 clearly shows that the respondents perceive only Google Translator Kit as AI, and all other programmes as translation automatization tools.

The tools that both facilitate translations and use AI are Google Translate and MemSource; the other computer products shown in Figure 7 help organise translations and routine operations in translation.

The translators who completed the questionnaire are at a loss (58% of respondents) when asked for an exact definition of artificial intelligence, although some have a degree of accuracy:

“A self-teaching programme/environment/system that adapts to changes and uses each change for its self-improvement.”

“A copying of human intelligence which, in my opinion, is a dangerous concept comparable to nuclear reactions’ discovery.”

“A robot that is taught to make decisions.”

“An evil!”

“A system for information processing through which logical conclusions are reached.”

“A supercomputer.”

“Technologies’ ability to ‘learn’ by watching and analysing us.”

The majority of respondents perceive AI as a machine performing mental activity. This definition is close to the standard definition that AI is the ability of a computer or computer-controlled robot to perform activities that are usually performed by intelligent creatures, i.e., people (Encyclopaedia Britannica).

Although this is a similar definition, the respondents assign features to AI that are typical of automatization in general. Thus, they share the benefits of automatization for their profession, and not those brought about by AI – the replacement of a translator when interpreting content. This means that the respondents do not quite understand artificial intelligence. They grasp some of the idea but not the whole concept.

Based on the translators’ answers to questions on attitudes towards AI, it is clear that they do not differentiate between narrow AI, which executes clearly defined tasks (word selection from a database, recognition of signs in a picture, etc.), and general AI, which includes cognitive abilities, i.e., reflecting and learning from experience [6]. Their answers show that, for them, AI is one and the same—able to work autonomously, to perform translations according to the situation, to reflect and justify—while, in fact, all of these are just features of general AI [6]. According to 64% of respondents (Table 1), AI has its advantages in their profession and brings with it certain benefits, such as working fast and saving time (53%), and it makes translation easier (35%); however, only a small share (9%) believe that it improves translation quality. In general, these are the benefits of automatization, hence, it becomes clear that the respondents cannot truly distinguish between automatization and AI.

Table 1. Are there any advantages in using AI in your work?

Answers N = 104	%
Yes	64
No	36

6. Views on the Impact of AI on the Profession’s Future

The predominant opinion among respondents is that AI will be mostly used in routine translations of the same type (Figure 8). Routine translations are considered to be translations of technical texts, manuals, templates, legal texts, etc. When comparing various types of translation, they say that technical translation is the most heavily affected, and AI’s role is only minimal in the translation of fiction.

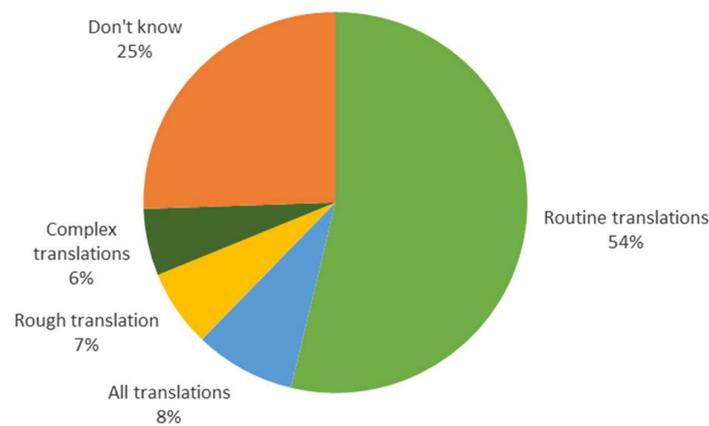


Figure 8. Which type of translation activity will use AI? N = 106.

According to respondents, AI will mostly affect technical, document, and legal translations (translations with the highest degree of routine work), while it will have the least effect on screenplays and works of fiction in translation, as well as simultaneous and consecutive interpretation, where creativity is at its highest (Figure 9).

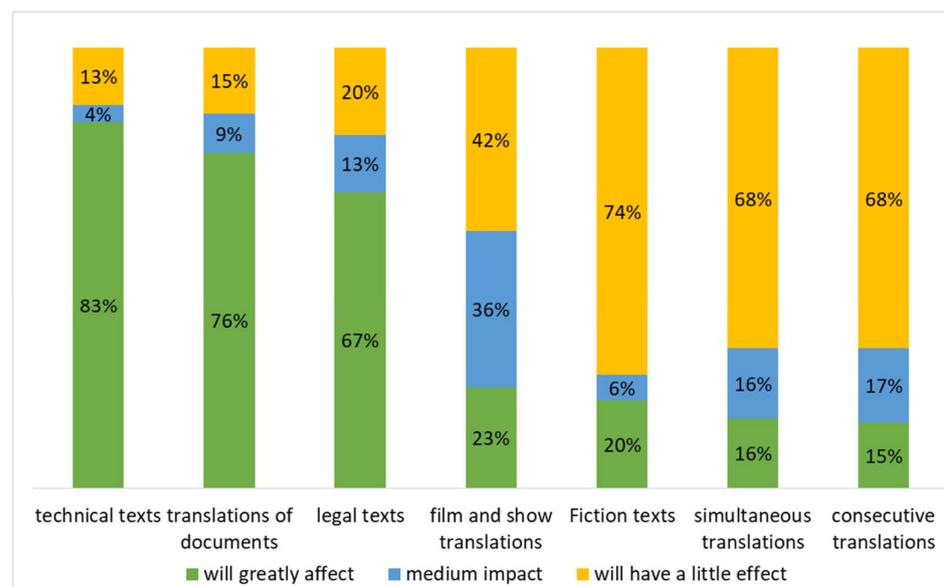


Figure 9. Which type of translation will be most affected by AI? N = 101.

According to 61% of respondents, AI will change the translator’s profession. Some translating activities will disappear, and new activities will emerge. Among the activities said to disappear: routine translation—9%, non-fiction translation—19%, document translation—14%, all activities—10%, written translation—10%, text typing—5%, searching for terms in databases—5%, and translations without initial word-processing with CAT—5%. A total of 5% say that the number of translators will decrease.

According to most respondents, any change in translating work is largely related to the advantages of AI—translators will become teachers of AI and editors of machine-translated routine texts, translators will work much quicker, and no human translator is needed for simple text and template translations (Figure 10). Only 10% of respondents believe AI’s impact could result in their profession’s extinction.

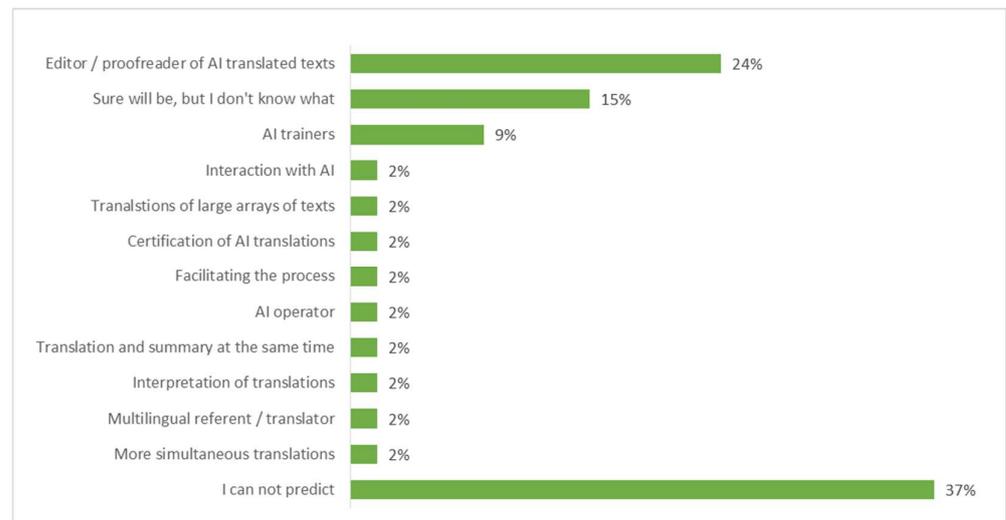


Figure 10. New activities unknown so far that might emerge. N = 59.

Newly emerging activities that will keep the profession alive, and keep translators employed, make them feel little or no threat from AI (Figure 11). Translators up to 50 years old (52%), with experience of up to 20 years (23%), and mostly women feel threatened to a certain extent.

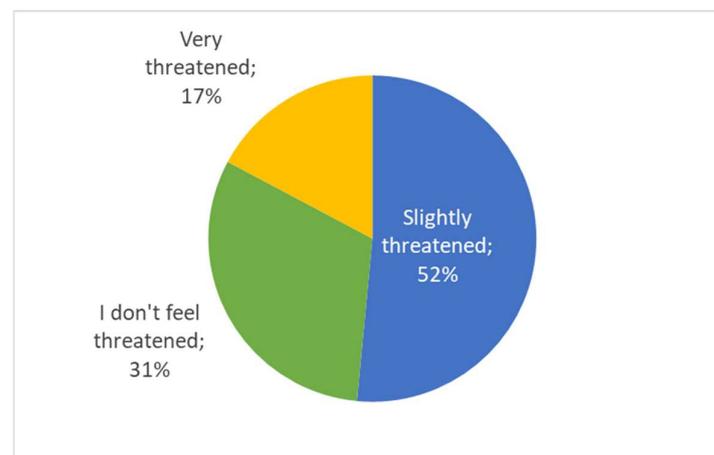


Figure 11. Do you feel threatened by AI? N = 99.

The surveyed translators feel safe about their future: 84% of them believe they will work faster than before, and 88% think that AI will not be able to perform better translations than humans. Only about a quarter of respondents (26%) think that the need for translators will decrease. Of the total respondents, 59% say their services will not become cheaper because of AI, and 84% think that AI will never be equal to people in terms of translations. The vast majority of respondents, 96%, definitely agree that AI will never replace human creativity, and only 7% predict that AI will be able to convey emotions through translations. Thus, only about one tenth of respondents (12%) are of the opinion that translators would become redundant. The respondents believe that translations in the field of tourism will be the most affected by AI; those in education will be the least affected (Figure 12).

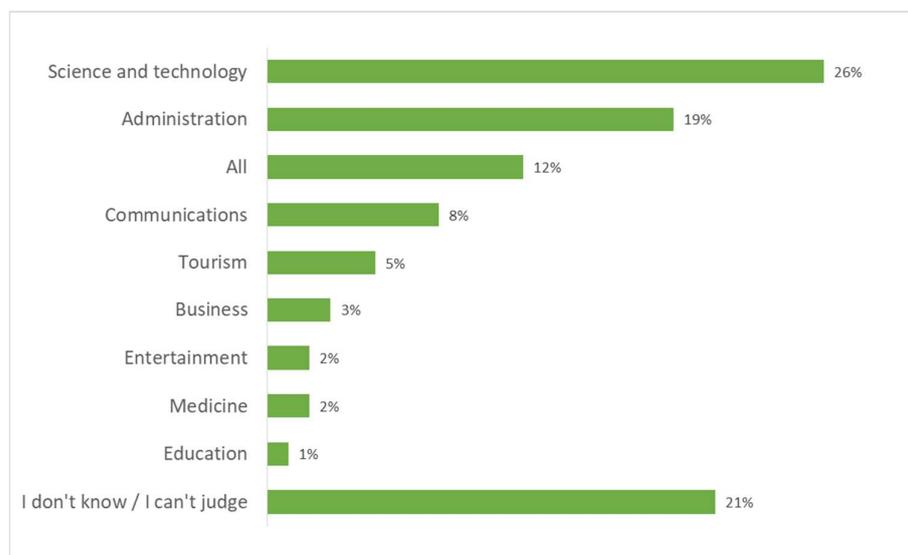


Figure 12. In which areas will AI translations find the most applications? N = 99.

The respondents are not unanimous concerning the speed of the implementation of AI and it being a threat to their jobs. Figure 13 shows that about half of respondents do not expect such a phenomenon to occur at all. To 17%, this could happen within 5 years; one fifth say within 10 years; and over 15% think such a threat is a reality within the next 20 years.

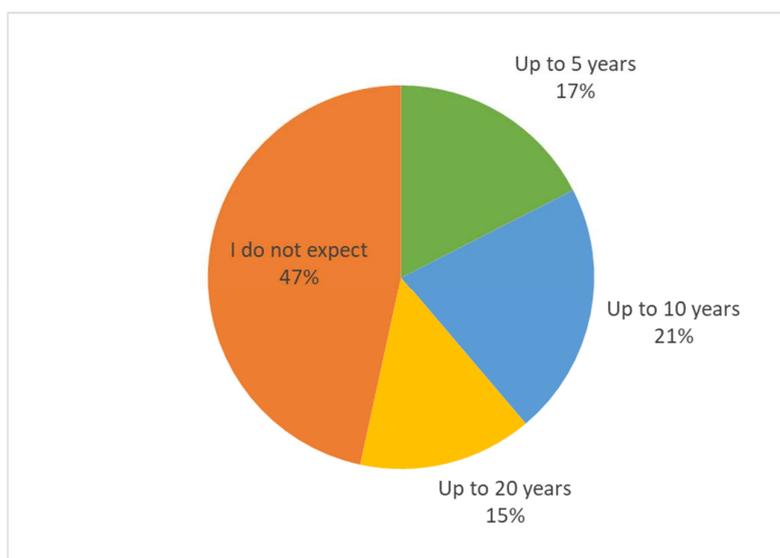


Figure 13. When do you expect the AI threat to become real? N = 103.

7. Discussion and Conclusions

In the context of the digital transformation, certain technologies have the potential to change work and employment. Such is the case with AI. It is being applied to routine activities, but is also gradually entering the creative professions. The article assumed that the professional translators in Bulgaria are unaware of the future of their profession.

The analysis, based on the translators' survey in Bulgaria, clearly demonstrates that, taking into account the results of the paper, the pessimistic scenarios [1] of mass job extinction are not justified in this case, or, the translators, at least, do not believe that their profession will be destroyed by the digitalisation-driven technological change. They are not justified because, instead of a being a threat to existing jobs, AI, together with

other digital technology, becomes an “organiser of new activities within the profession”. Translators are the system’s teachers, and do not leave the profession. Routine activities are “conquered” by AI, and new jobs are simultaneously created in response to the demand for new activities [21], e.g., routine translations are automatized, but there is an increase in the demand for editors of AI translated texts, as well as teachers of AI. Another example of professional transformation following the application of AI is a change in the medical profession. AI helps with diagnostics and recommends treatment, but the final decision is taken by physicians using AI recommendations as a second opinion¹³. Expectations about the deterioration of work quality resulting from digitalization have also yet to be confirmed.

The first research question was to find out how worried Bulgarian translators are about their future. The present analysis shows that Bulgarian translators have positive attitudes towards the application of new technologies in their professional work. Many of the respondents are already using specialised translation software and some of these programmes are based on AI. The above statement corresponds to recent international research results demonstrating that machine translation usage is increasing, but is still not widespread, even in technologically advanced countries such as Denmark [22]. Although the technological changes taking place in their profession are dynamic, the surveyed translators cannot distinguish between AI and automatization; hence, they do not have a clear view on the subject. Most of the translators do not feel threatened by AI because they think it is only about automatizing some aspects of the translation process. Furthermore, AI is perceived as a helpful assistant and not as a thinking, self-learning machine that jeopardizes the very existence of their profession.

The second research question was related to the opinions about the transformation of the translation profession in the future, and more precisely what activities would disappear, which new activities will appear, and what strategies help translators cope with this transformation. The respondents expect their work to be facilitated and sped up as a result of routine activities being automatized, e.g., inserting already translated text, and typing and applying technical features in the translation. In that respect, the present analysis’ results show that the digital shift also has a positive connotation, such as the elimination of routine work, which is already evident in the industry [23]. According to the respondents, AI will not impact negatively the quality of work or employment conditions in their professional activities [24]. The aspect expected to change the most is their tasks. In this way, translators become AI teachers and editors of machine-translated routine texts; tasks are sped up significantly, and no translators are needed for simple texts and templates.

The survey results show that current predictions of this profession’s extinction are rather premature, e.g., those made by Ross:

“I imagine a reduced number of professional translators working with the machines to account for the slang and shorthand that always enter into the living system that is language” (Ross, Alec. *The Industries of the Future* (p. 160). Simon & Schuster. Kindle Edition).

At the same time, it is important for future research to explore not only the attitudes of translators, but also the expectations of corporate and individual users regarding AI-generated translations.

Furthermore, the present analysis’ conclusions set the foundation for focusing the attention of professional translating organisations and individuals on the challenges of the profession, including the need for the development of new skills and predicting future trends. In addition, these conclusions have the potential to prompt further exploration of the impact of AI on other creative professions.

8. Limitations and Implications for Future Research

This research included several limitations. First of all, it focused on the representatives of the profession in one country. It is likely that there are differences related to the deployment of the technologies in different European or other societies. Second, there is no data about the general population and in this case it was impossible to elaborate a representative sample for the survey. Third, the survey was focused only on representatives

of the profession of translation. The development of translation technologies is rapid these days, and a future study of the adoption of translating technologies, and particularly AI-based technologies, by translation companies might contribute to a transformation of the profession. In this perspective, future research should also address the contractors of translation work, as well as the specialized companies providing translation services. Finally, the case of Bulgaria should be contextualized in a comparative way to the existing or future research on the translating profession in other European countries.

Author Contributions: Conceptualization, V.K. and B.M.; methodology, V.K. and B.M.; validation, V.K.; formal analysis, B.M.; data curation, V.K. and B.M.; writing—original draft preparation, V.K. and B.M.; writing—review and editing, V.K. and B.M.; visualization, B.M.; supervision, V.K. All authors have read and agreed to the published version of the manuscript.

Funding: The research is part of a doctoral study, and was funded by the Institute of Philosophy and Sociology at Bulgarian Academy of Sciences (IPS-BAS). This research received also support from the BEYOND4.0 project, which has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No. 822296.

Institutional Review Board Statement: The study was conducted in accordance with the ethical code of the Bulgarian Sociological Association (http://bsa-bg.eu/?page_id=314&lang=en, (accessed on 13 January 2022)).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data are available for submission upon request to the authors. Currently, the Institute of Philosophy and Sociology—BAS do not have a data repository.

Acknowledgments: Many thanks to anonymous reviewers. Many thanks to Gabriela Yordanova, Associate at the IPS-BAS, and Ekaterina Markova, research fellow at IPS-BAS for their comments on an earlier version of this paper and advice on the methodological guidance.

Conflicts of Interest: The authors declare no conflict of interest.

Notes

- ¹ Shwaab, K. The Fourth Industrial Revolution: What It Means, How to Respond. 2016. Available online: <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/> (accessed on 13 January 2022).
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- ⁷ Actually there is a debate in professional literature (outside our analysis) to what extent translation in itself is a profession or can be defined as an occupation from professions sociology point of view, see more in Sergey Tyulenev (2015) Towards theorising translation as an occupation, *Asia Pacific Translation and Intercultural Studies*, 2:1, 15–29, and Dam, H.V., & Koskinen, K. (2016). The translation profession: Centres and peripheries. *Special Issue of the Journal of Specialised Translation* 25.
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- ¹⁰ European Language Industry Survey (2020). Available online: https://ec.europa.eu/info/sites/default/files/2020_language_industry_survey_report.pdf (accessed on 13 January 2022).
- ¹¹ European Language Industry Survey (2021). Available online: https://ec.europa.eu/info/sites/default/files/about_the_european_commission/service_standards_and_principles/documents/elis_2021_european_language_industry_survey.pdf (accessed on 13 January 2022).

- ¹² Abby Finereader is and OCR (Optical Character Recognition) Software, which Helps the Users to Convert Images of Typed, Handwritten or Printed Text into Machine-Encoded Characters.
- ¹³ Technological Innovations of AI in Medical Diagnostics. Available online: <https://www.healtheuropa.eu/technological-innovations-of-ai-in-medical-diagnostics/103457/> (accessed on 13 January 2022).

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