# Analysis of Effectiveness and Quality of AI Tools: Comparison Between a Manually Created Business Plan and the one Created by Using ChatGPT

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**Abstract**

The use of artificial intelligence tools to create business plans that lay the foundation for business entities to grow, develop and manage is becoming more and more relevant in the era of digital transformation. This study investigated the quality of a man-made business plan and the quality of a business plan created using the AI-powered language model ChatGPT. The research was conducted on the example of a business entity entering the tourism market for the first time. The methods of value analysis and Likert scale were used for the comparative analysis. The study helps business entities to better understand the advantages and limitations of using AI in the creation of business plans and to choose the right approach according to their needs and goals.

**Key words**: Artificial intelligence, business plan, digital transformation, value analysis,Likert scale.

## 1. INTRODUCTION

The dynamic development of artificial intelligence (AI) technologies has integrated solutions into various aspects of our lives, from the automation of routine tasks to assistance in complex decision-making processes [1,2,3]. An easy way of using AI that is getting more and more attention in the business world is to use the ChatGPT tool to create business plans. These help companies strategically plan their business path and act as a means of attracting investment funds [4]. Selecting the best project in any field is a decision-making problem of foreign investors. The selection among companies or projects applying for financial support from a restricted budget constitutes a typical ranking problem where the decision maker is called to single out the most attractive alternatives [5]. For this reason, a high-quality, realistic, and attractive business plan is necessary for the entry and existence of a business entity in a competitive market.

A business plan is a document needed by every business entity. It describes its goals, business plan, industry position, marketing strategies and financial forecasts. The information it contains is a useful guide in managing the company [4]. A good business plan guides the responsible staff of a business entity through all phases of its existence - from founding of a pioneering company to the representation of a mature company on a competitive market [6]. The structure of the business plan is divided into a substantive and a financial part. It consists of the following chapters [7,8,9]:

- introduction,
- contents,
- presentation of the business entity,
- industry and market analysis,
- target groups,
- target products/services,
- financial projections,
- conclusion.

A study by the Journal of Management Studies [10] showed that companies that take time to plan and have a high-quality business plan in place grow 30% faster than those that do not. The business plan is also a critically important means of obtaining financing (private or national funding). Through the document, the business idea is presented to investors, which increases the possibility of obtaining funds for the implementation of development (R&D) and investment projects. It has been proven that investing in investments and development activities have a positive effect on the economic environment and increase the value of the GDP per capita indicator [11]. Due to these facts, the structure and quality of the business plan is all the more important when looking for alternative forms of financing through public tenders, since financing is awarded to the best evaluated projects according to defined quantitative and qualitative criteria [12]. Quantitative criteria are based on clearly specified absolute, relative, or descriptive values. Qualitative criteria are used by assessors to make subjective assessments based on verbal descriptors. The criteria for assessing projects proposed by enterprises are divided into the following groups: economic vulnerability (the geographical aspect), the economic aspect, the technological aspect, the social aspect, and the environmental aspect.

In the era of digital transformation, companies strive for effective ways of developing comprehensive and well-structured business plans that lay the foundations for the growth and implementation of investment projects. Entities are constantly trying to innovate and adapt to changing markets, so the importance of effective business planning is invaluable. Traditionally, business plans have been thoroughly developed using manual research, data collection and expert analysis. Widespread use of UI has introduced new possibilities to simplify parts of this process. ChatGPT, developed by OpenAI, is one such AI model that uses advanced natural language processing techniques to generate human-like responses based on given stimuli ("prompts") [13,14,15]. It works based on the Generative Pre-trained Transformer (GPT) framework, using specialized algorithms to detect patterns within data sequences. The free version of the UI tool uses the GPT-3 language model. Insight into the data network transforms the tool into a meaningful and contextually relevant text [16,17,18].

The purpose of the study was to investigate the effectiveness and quality of the ChatGPT tool in the field of business plan creation. The aim was to determine to what extent can UI contribute to the process of complex business planning. In order to put the research into a practical framework, a case study of a business entity entering the tourism market for the first time is chosen as the basis for this comparative analysis.

The hypothesis of the study was that ChatGPT is a useful tool in the process of creating business plans. Starting parameters, used methodologies, and obtained results are presented in the following chapters. By examining the interplay between human expertise and AI assistance in building business plans, we aim to provide insights that will help organizations leverage AI tools effectively, while also identifying the limitations and potential challenges associated with integrating such tools into the business world.

## 2. METHOD

The aim of this research was to compare a business plan created manually by a human with a business plan created by the open-access version of the AI tool ChatGPT 3.5. This comparative study provides insight into the strengths and limitations of both approaches.

The following analyses were used to test the hypothesis:
- Value analysis
- Likert scale

### 2.1 Value analysis

The value analysis assessed 13 key categories/criteria for creating a business plan. Each of the 13 criteria was scored from 1 to 10, with 1 being the worst possible score (criterion not achieved) and 10 being the highest possible score (criterion fully achieved). For each criterion, a weighting is also determined, which determines what is more important and what is less important to the business entity when creating a business plan.

The final assessment of the quality of an individual business plan is obtained after the following calculation:

$$\sum P_n * W_n$$

whereby the following applies:

$P_n$ … Number of points according to the criterion
$W_n$ … weight value according to the criterion

### 2.2 Likert scale

Likert scale was used as another method of comparative analysis. The goal of using the Likert scale is to get a detailed look at in which parts of the business plan development ChatGPT is useful for, and in which it is not. 24 different ChatGPT capability hypotheses are used and answered with a value from 1 to 5 by the responsible personnel of the business entity.

The score 1 means that they do not agree with the hypothesis at all, and the score 5 means that they completely agree with the hypothesis.

## 3. CASE STUDY

### 3.1 Objective of Study

The business plan was prepared for a business entity entering the tourism market for the first time. For the man-made business plan, a thorough 2-day fieldwork was first carried out, which included visiting the tourist farm site and the surrounding area within a radius of 15 kilometres. This made it possible for the business entity to get to know the surroundings, its characteristics, and the potential for tourist activity directly. During the field work, information was collected, notes of observations were made, and important points were photographed, which helped to collect primary sources and primary insight into the location.

After returning to the office, the work related to the detailed survey of the surroundings and analysis of the industry as well as the market continued online. In the process, the structure of the business plan was determined, which included a table of contents, introduction, presentation of the business entity, industry and market analysis, determination of target groups, determination of tourism products, preparation of financial projections and conclusion, after which the creation of content for each of the mentioned chapters began. This

approach ensured a thorough and customized preparation of a business plan that reflected the specific needs and circumstances of the target for entering the tourism market.

There was no fieldwork involved in the creation of the business plan content, created by using ChatGPT. Based on the case study, the goal was to determine whether ChatGPT can independently, without extensive human input in the field work, create a quality business plan with real and credible data.

The process of creating a business plan was based on comparable chapters determined at the beginning of the research (the same chapters in the man-made business plan). Headings and basic guidelines were entered into ChatGPT. The AI tool generated relevant content for each of the chapters. The latter were copied into a comprehensive business plan document. Generating content through the ChatGPT tool saved time that would otherwise have been spent on fieldwork and manual content writing. However, it is important to note that the content, generated by ChatGPT, had to be adapted and checked for authenticity. This ensured that the content complies with the specific requirements of the tourism market entry project, is accurate and suitable for the target groups.

## 3.2 Limitations

During the implementation of the research work, the following was taken into account when interpreting the results and evaluating the findings:

- ChatGPT is based on pattern recognition in large amounts of data on which it was trained. As such, its ability to generate text is based on information that was available in the databases before September 2021. The limitation is taken into account when evaluating the quality of the generated business plan, especially the current and specific information.
- Despite its ability to generate meaningful text, ChatGPT has no ability to fact-check or access up-to-date information. This leads to errors and incorrect data that affect the quality of the business plan. Users should therefore exercise caution and verify information with primary sources.
- The study is based on a comparison between a man-made business plan and a business plan, generated by ChatGPT. This means that the results are specific to this AI model and may not apply to other similar models. It would also make sense to confirm the results by comparing them with other AI models and tools.
- Assessing the quality of business plans is tied to the specificity of individual companies/industries for which the business plan is created. Although value analysis and Likert scale are used for quantitative evaluation, subjective preferences and individual differences may be reflected in the results. For a more complete picture, it would be useful to include more evaluators and perform reproducible measurements.
- ChatGPT does not have the ability to generate images or infographics, which can be crucial in visualizing business plans. This drawback limits its use in visually demanding tasks.

## 3.3     Value analysis

Results of the value analysis are shown in the table below.

| | Score | | Weight | Score (Weight considered) | | Difference | |
|---|---|---|---|---|---|---|---|
| Criterion | Man-made | ChatGPT | | Man-made | ChatGPT | Score | Score (Weight considered) |
| Preparation of a business plan | 8 | 6 | 100% | 8.00 | 6.00 | 2.00 | 2.00 |
| Creation of virtual elements | 9 | 2 | 80% | 7.20 | 1.60 | 7.00 | 5.60 |
| Creating an index | 9 | 7 | 70% | 6.30 | 4.90 | 2.00 | 1.40 |
| Introduction and conclusion | 8 | 9 | 60% | 4.80 | 5.40 | -1.00 | -0.60 |
| Ability to explore surroundings | 10 | 1 | 80% | 8.00 | 0.80 | 9.00 | 7.20 |
| Generating vision and mission | 8 | 7 | 50% | 4.00 | 3.50 | 1.00 | 0.50 |
| Identifying target groups | 10 | 9 | 70% | 7.00 | 6.30 | 1.00 | 0.70 |
| Creation of tourist products | 8 | 8 | 80% | 6.40 | 6.40 | - | - |
| Creation of product implementation timeline | 8 | 6 | 40% | 3.20 | 2.40 | 2.00 | 0.80 |
| Implementation of pricing strategy | 9 | 6 | 70% | 6.30 | 4.20 | 3.00 | 2.10 |
| Logical sequence of information | 10 | 1 | 60% | 6.00 | 0.60 | 9.00 | 5.40 |
| Possibility of using the Web | 10 | 1 | 50% | 5.00 | 0.50 | 9.00 | 4.50 |
| Access to most recent information | 10 | 1 | 70% | 7.00 | 0.70 | 9.00 | 6.30 |
| **Overall score (average)** | **9.00** | **4.92** | | **6.09** | **3.33** | **4.08** | **2.76** |

The maximum number of points of 13 categories/value analysis indicators is 88. The value is obtained according to the following calculation:

$$\sum P_{n(max)} * W_n = 10 * 100\% + 10 * 80\% + 10 * 70\% + 10 * 60\% + 10 * 80\% + 10 * 50\% + 10 * 70\% + 10 * 80\% + 10 \\ * 40\% + 10 * 70\% + 10 * 60\% + 10 * 50\% + 10 * 70\% = 88 \; points$$

The following is the calculation for a manually created business plan and a business plan created with Chat GPT 3.5.

$$\sum P_{n(man-made)} * W_n \\ = 8 * 100\% + 9 * 80\% + 9 * 70\% + 8 * 60\% + 10 * 80\% + 8 * 50\% + 10 * 70\% \; + 8 * 80\% + 8 * 40\% \\ + 9 * 70\% + 10 * 60\% + 10 * 50\% + 10 * 70\% = 79,2$$

$$\sum P_{n(ChatGPT)} * W_n \\ = 6 * 100\% + 2 * 80\% + 7 * 70\% + 9 * 60\% + 1 * 80\% + 7 * 50\% + 9 * 70\% \; + 8 * 80\% + 6 * 40\% + 6 \\ * 70\% + 1 * 60\% + 1 * 50\% + 1 * 70\% = 43,3$$

The calculated results were divided by the value of the maximum possible points. In this way, we obtained the share of quality matching of the prepared business plan with the requirements of the business entity.

$$\frac{\sum P_{n(man-made)} * W_n}{\sum P_{n(max)} * W_n} = \frac{43,3}{88} = 0,49 = 49\%$$

$$\frac{\sum P_{n(ChatGPT)} * W_n}{\sum P_{n(max)} * W_n} = \frac{79,2}{88} = 0,9 = 90\%$$

The results show that according to the defined categories/indicators, humans still have a big advantage over AI tools. AI lags behind in areas such as:
- Logical sequence of information: Understanding the logical sequence of information is key when creating a business plan. The human mind is more flexible and able to better understand how different pieces of information are related to each other. Despite the extraordinary performance of AI tools, it is noticeable that they lack intuitiveness.
- The possibility of using the Internet: A person has unlimited access to information on the Internet, which allows him to better research and obtain relevant information. AI has limited access to the internet, which limits its ability to get the latest information.
- The ability to explore the surroundings: A person can explore the surroundings better, since they understand local markets and other specific factors that influence business planning. The AI tool does not have this ability as it focuses on analysing the data it was trained on.
- Creation of virtual elements: Humans are better at creating virtual elements (such as sketches, drawings, 3D models of products), as they better grasp the aesthetic and design aspects. The selected AI tool does not have this functionality.

Comparability between human and AI can be seen in the areas of:
- Table of Contents Creation: AI is effective in creating a table of contents for a business plan as it can automatically identify key elements.
- Generating vision and mission: AI helps in creating the vision and mission of the company based on data analysis.
- Identification of target groups: Based on data analysis, AI helps in better understanding of target groups.
- Creation of product implementation timeline: AI helps in generating project implementation timeline based on available data.
- Implementation of a pricing strategy: AI helps in the analysis of competition and market prices and advises on the implementation of an effective pricing strategy.

It has been concluded that AI can analyse large amounts of data extremely quickly and generate a basic business plan, which saves a lot of time. This is especially useful in a rapidly changing business environment where plans need to be made in the shortest possible time. In creating the introduction and conclusion of a business plan, AI goes beyond human capabilities. These parts are considered crucial and make the first impression on the reader. AI tools can create a more consistent, objective, and accurate introduction and conclusion based on a comprehensive "prompt".

### 3.4     Likert scale

The average quality ratings of the business plan created using the Chat GPT tool are given in the table below.

| No. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|---|---|---|---|---|---|---|---|---|
| Question | Able to prepare a complete business plan. | Able to create a draft of a quality business plan. | Able to create the title page. | Able to determine topics. | Able to create contents page. | Creates a meaningfully structures introduction. | Able to create a description based on location. | Able to define vision and mission. |
| Average value | 1.17 | 4.00 | 1.83 | 4.17 | 4.00 | 4.83 | 1.00 | 4.33 |
| No. | 9. | 10. | 11. | 12. | 13. | 14. | 15. | 16. |
| Question | Identify people by name. | Analyse the surroundings according to the given location. | Identify target groups. | Generating and describing tourist products. | Creating a product implementation timeline. | Help in determining the pricing strategy for the product or service. | Quickly generate useful information. | Able to structure information into a meaningful and logical sequence. |
| Average value | 1.00 | 1.33 | 4.17 | 4.00 | 3.17 | 2.17 | 4.00 | 4.00 |
| No. | 17. | 18 | 19. | 20. | 21. | 22. | 23. | 24. |
| Question | It eases the initial process of creating a business plan but requires manual tweaking for perfection. | Facilitates the process of thinking and organising ideas for a business plan. | Ability to search for information online. | Acts solely on information it has been taught. | Access to the latest information. | Able to create tables. | Never wrong in calculations. | Information provided needs to be verified. |
| Average value | 4.83 | 4.17 | 1.17 | 4.83 | 1.17 | 2.83 | 2.00 | 4.83 |

The Likert scale revealed that ChatGPT is most useful for general parts of the business plan, such as introduction, vision and mission, target groups, while it proved to be less useful for specific information about the surroundings and people.

The usefulness of AI in creating a business plan is in the areas:
− the ability to generate draft business plans,
− determining the appropriate topic and including it in the business plan,
− generating an index that helps organize and classify the different parts of the business plan,
− composition of a sensibly structured introduction, attractive to the reader,
− automatic determination of the company's vision and mission,
− identification of target groups based on the entered information,
− generating information about tourist products, including short descriptions,
− determining the time frame for the implementation of products or services.

The Chat GPT tool makes the initial process of building a business plan quite easy but requires manual tweaking to achieve perfection. It serves as an aid in thinking and organizing ideas, as a starting point for further improvements. Disadvantages of ChatGPT are:
− limitation to information entered into its database,
− inability to provide specific information about persons and places,
− inability to analyse the surroundings based on a specific location,
− inability to prepare the entire plan without additional human input and adjustments.
− inability to create covers that include graphics,
− inability to surf the web,
− inaccuracy in mathematical calculations,
− questionable credibility.

## 4  RESULTS

After examining the results of the value analysis and the results of the analysis using the Likert scale, it was concluded that ChatGPT still has a significant need for improvement in terms of making business plans before it will be able to reach the human level. The analysis proves that ChatGPT is most useful in parts of the business plan where minimal use of specific information is required, such as information about individual people, location, companies, etc. These chapters include introduction, vision and mission, target groups, products, and conclusion. The texts in these chapters can be written by ChatGPT with minimal human assistance, in some cases even independently.

ChatGPT got significantly worse scores in titles and chapters that contain concrete knowledge of the surroundings and individuals. ChatGPT has access to information until September 2021. It was created using large amounts of text databases in the size of more than 100GB, so it only knows the information that was part of the databases during its "training". Since it does not have access to the Internet and thus access to specific locations around the world, this makes it difficult for it to perceive the location and surroundings. Despite the fact that it does not have the right data, ChatGPT will still give an answer that will often be wrong and thus spread wrong information, which leads to unexpected consequences. Also, the AI tool lacks the ability to generate images and infographics, which is a critical addition to a business plan and its presentation. The usefulness of ChatGPT in the process of creating a business plan is shown in the Figure 1:
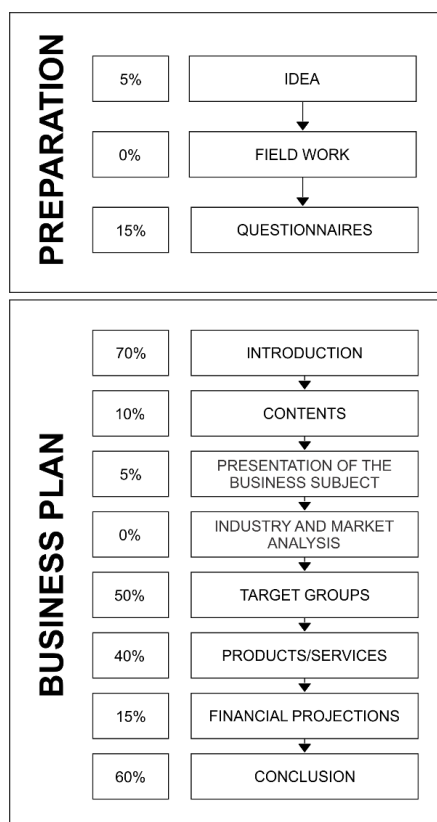


**Figure 1: The usefulness of ChatGPT in the process of creating a business plan.**

## 5. CONCLUSIONS

ChatGPT is a new product in the AI market with a lot of potential. Its ability to generate human-like text may become crucial in producing quality business plans in the near future. Currently, the AI tool faces critical restrictions, such as spreading misinformation, blocking access to the web and data after September 2021, as well as generating its own images. Nevertheless, it can be assumed that the usability of the ChatGPT tool will contribute to the development and progress of the field of creating business plans in the future. The initial hypothesis is confirmed - ChatGPT is a useful tool in creating a business plan. It should be noted, however, that one must be careful when using it and always double-check the information.

Despite its limitations, the study contributes to the understanding of the potential and limitations of the use of artificial intelligence in business planning and offers guidelines for further research and improvement in this direction. In the sense of further development and improvement of the use of tools based on artificial intelligence for the creation of business plans, research, development, and innovation in the field of better integration of UI tools into business processes will be crucial.

It makes sense for future research to focus on developing and optimizing models capable of generating more accurate and reliable business plans. By incorporating fresh data and fact-checking algorithms, limitations on the timeliness and reliability of information would be eased. Based on the results of this study, it makes further sense to explore the possibilities of combining human expertise with the help of artificial intelligence-based tools. This combination leads to the creation of business plans that combine human creativity, analytical skills, and the speed of AI generation. It would be reasonable to transfer the study to other models of AI tools, such as Google Bard, Bing AI, and DALL-E 2 [19,20,21,22,23]. A comparison between different models would reveal their specific strengths and weaknesses and contribute to the development of diverse solutions for creating business plans.

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