

Use of Artificial Intelligence Supported Prompt Tools in Office Applications

Cemal ÇELİK¹ 

ABSTRACT

Artificial Intelligence (AI)-powered chatbots, which provide productive solutions in office software, provide users with a functional assistance service by generating real-time information and suggestions. One of the most widely developed tools for this purpose is the Copilot chatbot. Acting as a virtual mentor, Copilot provides personalized suggestions and guidance for improving personal productivity and skills in office software, enabling users to work more effectively. The importance of writing, designing, and experimenting with prompts to guide the use of assistants like Copilot in office applications constitutes the purpose of this study. This study conducted a comprehensive literature review demonstrating the development processes of Generative AI tools. The core components and functions of Copilot technology were introduced, and an application was used to explain its individual and organizational effectiveness on company processes. The application process employed a case study methodology, a qualitative study type. Data from a national company operating in the e-commerce market for pet food was analyzed and processed using prompts on the Copilot AI assistant in an Excel application, making it ready for company decision-making.

Keywords: Prompt, Prompt Engineer, Data Analysis, Prompt Tools.

JEL Classification Codes: M15, C88, C80, C45,032

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INTRODUCTION

The most important element that highlights artificial intelligence (AI)-supported developments is the transformation in large language models and the emergence of AI-driven chatbots that it reveals. One of the most important developments in this platform is ChatGPT, which was launched by OpenAI in late 2022 (Goktas et al., 2024: 359). Chat GPT models have evolved into customized chatbot applications in line with the requirements of the business world (Finance, Health, Law, Education) (Zhang and Dafeo, 2019: 36). AI tools developed for sectors have begun to radically change and transform the way companies and employees do business. (Berente et al., 2021: 1433). In order to realize the change processes experienced in businesses, it is of strategic importance for employees to adopt AI technologies (Gupta et al., 2023: 2) and approve them (Kytö,2024: 2).Therefore, businesses need to invest in AI-supported technologies for employees to develop AI capabilities. Chat GPT-based request tools offer concrete solutions to users with both visual and text-based analysis solutions for employees to adopt and approve AI opportunities (Goktas et al.,2023:1). Effective solutions produced for office applications allow user experience

and skills to improve (Seikh et al., 2023). In addition, AI tools that enable the discovery of unknown features of office software technologies contribute to faster and more accurate management of business processes (Microsoft, 2024). In this sense, Copilot is one of the most functional Chat GPT-supported chat technologies of today.

Working in an integrated manner with office software and other systems, Copilot (France,2024:2) provides the source for easy production of different documents such as e-mail, documents, spreadsheets and presentations through prompt commands given by users (Bird,2022:44). It offers significant advantages for office application users by supporting the correct realization of communication and document management (Tepe&Emekli,2024:2). Copilot robot (Kyto,2024:8), which enables the combination of data and knowledge in different systems, allows the development of user estimation and forecasting skills (Haghighat, 2023: 2). These developments, which contribute to the emergence of personal productivity in the processing and management of data, make users more effective and innovative (Lim et al., 2023:2). It supports decision-making processes by creating summary tables especially for company managers. Copilot prompt

¹ Bandırma Onyedli Eylül University, Department of Management Organization, Bandırma Onyedli Eylül University, ccelik@bandirma.edu.tr

tools make users more experienced and powerful with sample prompt command suggestions that guide users. Therefore, users have the chance to focus more on temporally and functionally profitable elements, processes and units. Users who gain these experiences and skills can support planning processes by taking a more active role in company decision-making processes (Microsoft, 2024). Office software users who know what they can do with Copilot tools will progress faster and in the right direction (Nahh et al., 2023:280).

The aim of this study is to examine the functional effects of the conveniences provided by AI supported chat tools (Göktas and Grzybowski,,2024:2) on individual users.

This study, which aims to make the conveniences and solutions provided by AI tools easier to understand, has been tried to be demonstrated with the research questions below.

1. What kind of conveniences do ChatGPT-based Copilot chat tools provide to office software and users?
2. What is the importance of effective prompt commands written through the Copilot AI tool used within the framework of office software applications?

CONCEPTUAL FRAMEWORK

Prompt and Prompt Engineering

Prompt and prompt engineering are textual inputs that cause intense interaction between generative

AI applications and humans (Giray, 2023:1). They are command strings that aim to convey to the generative AI application what to do and how to do it through instructions. Users provide a prompt, AI tools produce a response based on their previous training. Prompts and prompt engineering are a set of instructions or command strings that determine the way a language model works and performs. Prompt strings that affect the production of desired output and information through AI tools provide insight into the learning capabilities of AI models. (Goktas et al.,2024:3).Therefore, prompt engineering is a discipline that allows the establishment of correct interactions with AI tools through appropriate command strings and aims to realize the benefits expected from AI technologies (Gero et al.,2022:1012). This discipline involves designing and optimizing prompt commands to produce relevant and correct outputs. Prompt design learning also prevents dependency on AI outputs (Goktas et al., 2023:2). Inputs for productive AI applications can consist of text, graphics, images or video types. This discipline can also be called AI literacy. In this context, the concept of prompt engineering, also called AI literacy, has gained great importance recently (Yoşumaz,2024:249). Prompt engineering opens new ways to develop AI systems and increase their performance in different applications. Input and output processes are tried to be schematized in Figure 1.

Figure 1 also outlines the prompt engineering flow based on inputs from human interaction. As the level of use of AI-supported chatbots becomes more widespread, it is seen that the performance and outputs

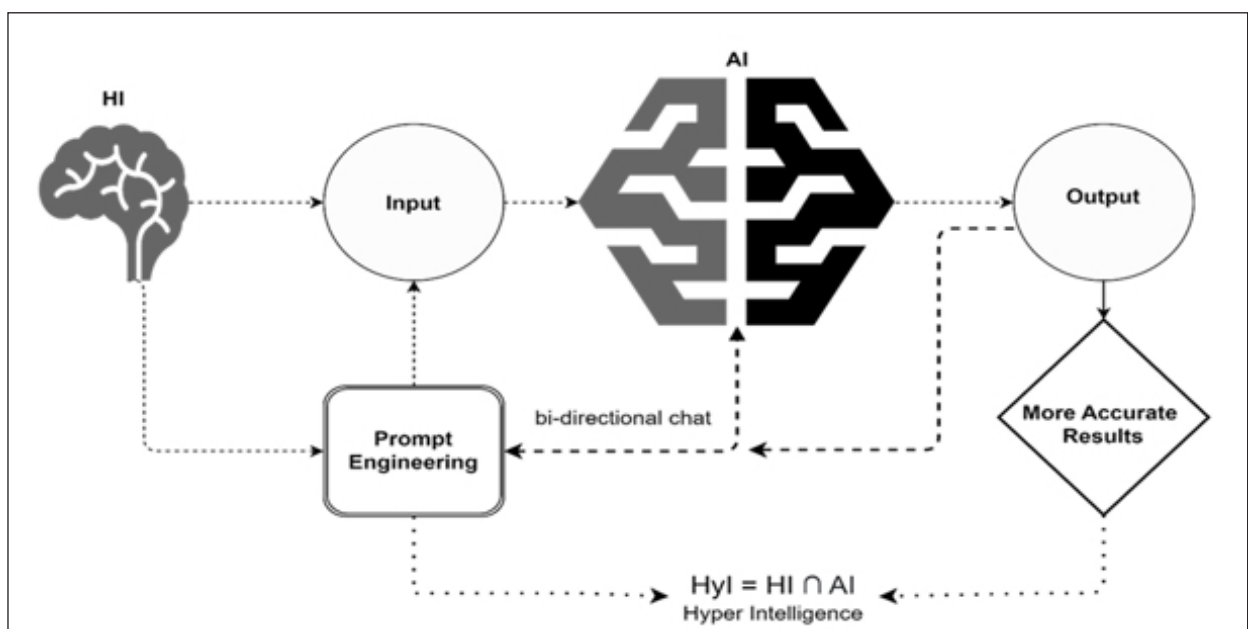


Figure 1: Prompt Flow Loop

Source : Prompt Engineering Cycle Flow (Yoşumaz, 2024:249)

expected from these systems are achieved. Therefore, the development of AI systems appears to be a fundamental element based on user interactions. (Goktas and Grzybowski; 2025:5). These terms, referred to as prompts or prompt engineering in this field, aim to fulfill the goals expected from AI-supported chat tools by revolving around command or query strings (Giray, 2023:2668). The capabilities of AI prompting tools are related to the correct prompts written by users and the contexts of these prompts (Shin, et al. 2020:4222). Correct prompts entered into AI result in correct outputs, thus increasing the efficiency of AI (Knoth et al., 2024:2).

Prompts consist of two main components: instructions and context (Knoth et al., 2024:2). A well-structured prompt in terms of instructions and context can help produce a quality and usable output on the relevant language model. The level of output expected from the model depends significantly on the functionality of the request query entered into the system (Shin, et al. 2020:4222). Prompts aim to communicate to a generative AI model what to do and how to do it through instructions (Peres et al., 2023:272). Instead of asking a productive AI application "What are the quantitative analysis techniques?", asking a more specific question such as "What are the quantitative analysis techniques that can be used in the human resources units of businesses?" narrows the scope of the answer and increases its accuracy (Yoşumaz, 2024: 250).

These explicit instructions convey to the model what is expected based on the information presented in the context. The context can include details such as the level of expertise of the target audience, learning goals, preferred teaching methods, and specific topics to be covered. In a sense, context is the main theme of prompt commands.

Natural Language Processing (NLP)

The focus of current technologies developed on AI has begun to be on language studies and Natural Language Processing (NLP). NLP technologies (Liu et al., 2021:4) have made significant contributions to the development of large language models (LLM) in analyzing and understanding human language (Luitse, 2021:1). Chat GPT and similar chatbots are technologies developed on large language models (LLM) (Li et al., 2023:2; Mahdi and Yekta, 2024:1). Training and development of models and evaluation of the success of model output results depend on the performance of user prompts (Devil et al. 2019:1). Therefore, the capabilities of AI language models are directly related to creative prompt commands. Users

who benefit from the power of LLMs have the chance to open up new avenues for intercultural communication and understanding. It has generated new opportunities for everyone by accessing the source of rich big textual data of different types (Devlin et al. 2019:4172; Ahuja, 2023:52; Giray, 2023:2631). Productive developments in NLP have contributed to the spread of GAI applications in health, finance, education, production and different sectors (Göktaş and Grzybowski, 2022:2). GAI (Zamfirescu et al., 2023:2; Ilagan et al., 2024:2; White et al., 2023:1) tools are technologies that have a specific language model.

Prompt Tools

Prompt tools are auxiliary applications that enable users to generate easy and differentiated prompts. A creative prompt command depends on user experiences and repetitions (Nazari & Saadi, 2023:2). Prompt tools, which aim to improve user experiences, are assistive tools that provide users with more prompt ideas and facilitate access to the right knowledge in less time (Darvishi et al., 2024:4; Moorhouse & Kohnke, 2024:2). AI technologies, which provide an assistant service, provide users with the opportunity to benefit more from AI language models and affect them to perform more creative, productive and superior performances (Kuhail, 2024:3). Prompt tools have a flexible structure that can be integrated into Office 365 and similar applications. Flexibility provides ease of access to different office applications and makes it possible to work with data, visuals and other types of documents in these applications (Microsoft, 2024). Processing data from different areas with auxiliary prompt tools and making them meaningful provides functional contributions to company production and planning processes (Agrawal et al., 2019:32; Morgan, 2023:2). Auxiliary prompt tools try to finalise the operations to be performed by the formula functions within the Excel application correctly in a short time with prompt command suggestions. AI prompt tools integrated into Office 365 applications empower users by producing alternative solutions to existing office applications. Prompt tools have functionality that teaches function formulas. These help examples add value to both the company and users as production, change and acquisition in business processes (Jeff & Stephen, 2023:209). Helpful prompt tools have features that enable users to generate documents, prepare data or write mail outputs in a shorter time with voice prompt creation methods (Fienneca et al., 2023:1). The command lines of the previously generated useful prompts can be recorded and can be recalled in the next operations. These categorically stored prompts provide users with the practice of repeating experiences that they have

already affirmed, giving them speed and, consequently, the option of producing more work in less time. These requests generated by the system or users can be used for many purposes and scenarios such as image visual design, content summarization, sentiment understanding, data analysis, language translation or coding (Goloujeh et al,2024:2). Since prompt generation and authoring experiences are based on a certain process, prompt tools are auxiliary tools that aim to bridge this gap. These tools can generate productive artificial intelligence capabilities in AI language models (Cusumano,2023:18). Prompt tools allow producers to design custom prompts that meet specific business needs using natural language.

Research Methodology

The contributions and conveniences provided by artificial intelligence technologies on office software and users are discussed through a case study. This study is an application that includes a case (situation) design, which is one of the qualitative research methods. (Yoşumaz,2024:249). This design is suitable for both descriptive/explanatory and situations where the following problems need to be explained and evaluated.

RQ1. What opportunities does the ChatGPT-based Copilot AI tool provide to office software and its users?

RQ2. What is the importance of effective commands and instructions written in the Copilot AI tool within the framework of office software applications?

Case studies can be conducted in many different disciplines and subjects. Case studies are a flexible design that can be used for everything from program evaluation to understanding the factors affecting individuals' behavior (Çapar & Ceylan,2022:296).

Target of the Application

To demonstrate the positive effects of AI-supported prompting and prompting tools for personal users on Excel software with a real application example.

DATA ANALYSIS PROCESS AND FINDINGS

In this study, the e-commerce sales data of a national company operating on pet foods were analysed with the guidance commands of an AI-supported prompt tool. The user analysis process is started by activating the following prompt tool menu with the Copilot prompt tool in the Excel application.

In the prompt tool menu in Figure2, when the prompt command indicated by the arrow is typed and executed,

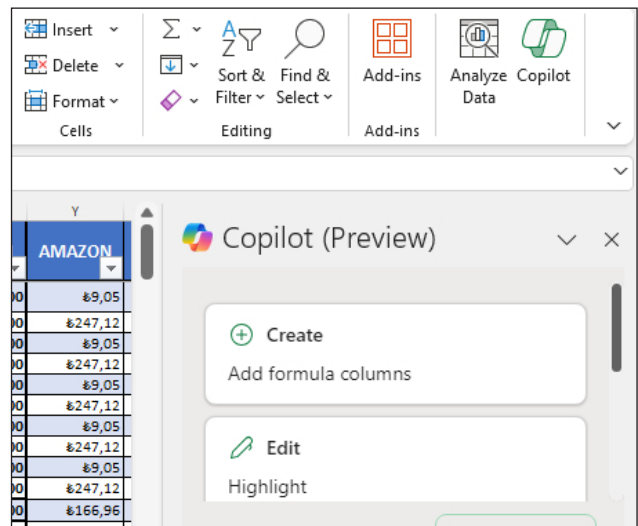


Figure 2: Prompt Tool Menu

the prompt assistant produces an analysis result of the data in the work table as shown in Figure3.

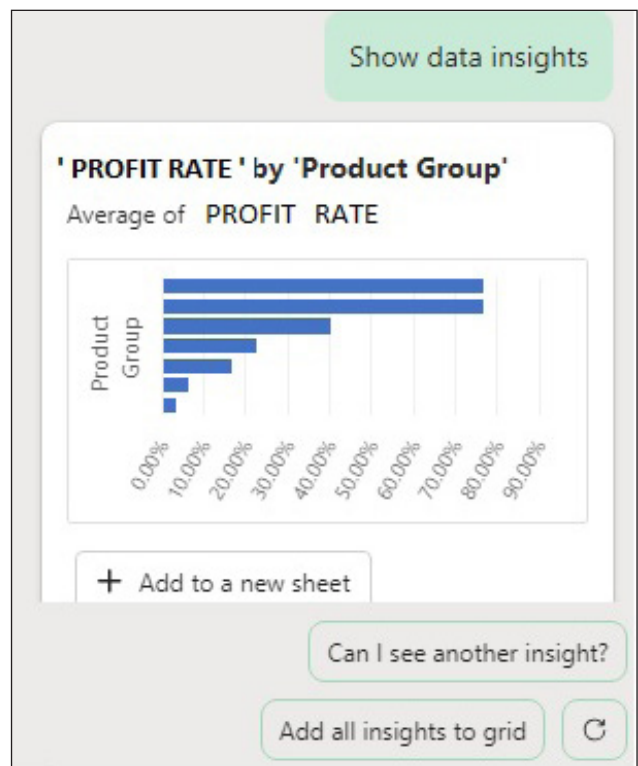


Figure 3: Prompt Command and Generated Result

The analysis results in Figure 3, when accepted by the user as a new worksheet, provide a broader framework for data analysis results as in Figure 4.

According to the summary table and graph in Figure 4, it is seen that enveloped and protective cat foods have an important place in the sales of the company with a sales rate of 76%. Kitten food sales are the lowest category of the company with a rate of 3,63%. When we run a similar

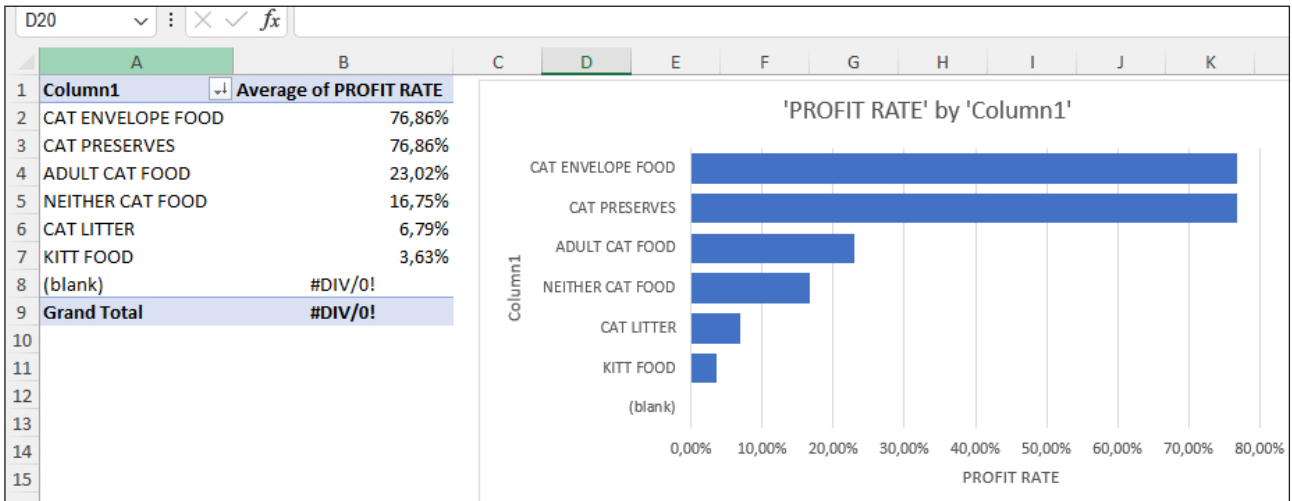


Figure 4: Prompt Suggestion Table

request command in the bottom line, the sales list is listed as a table from largest to smallest according to the data in the working table.

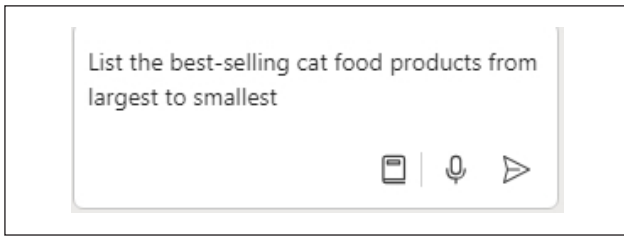
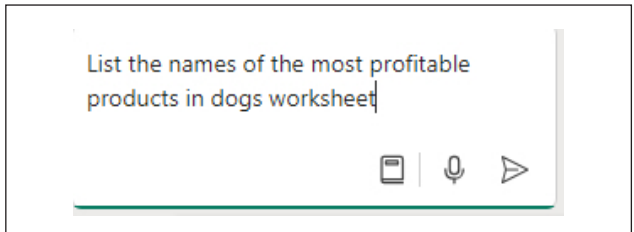


Table 1: Best-selling Cat Food Products

Category	(Multiple Items)
PRODUCT NAME	Sum of SALE PRICE
Pro Plan LiveClear Turkey Allergen Reducing Kitten Food 1,4kg	₺227,27
Pro Plan LiveClear Salmon Allergen Reducing Neutered Cat Food 1,4kg	₺165,93
Spectrum Low Grain Somonlu, Hamsili&Kızılıklı Adult Cat Food 2.5kg	₺125,01
Pro Plan Pouch Hindi Etli Adult Cat Canned 85gr x 26 Pieces	₺8,14
Grand Total	₺526,35

The best-selling cat food products from largest to smallest are: Pro Plan LiveClear Allergen Reducing Kitten Food with Turkey 1,4kg with a total sale price of ₺227,27, followed by Pro Plan LiveClear Salmon Allergen Reducing Neutered Cat Food 1,4kg with a total sale price of ₺165,93. See the PivotChart that's above this message for more details.

When the request command for dog food is executed, the command output results are listed as shown in Figure 5.



Product Group	Average of Trendyol SALE PRICE
N&D	₺1.800,00
PROFINE	₺890,00
PRO PLAN	₺785,00
BOSCH	₺660,00
(blank)	₺469,93
WISE DOG	₺365,00
ECONATURE	₺365,00
FORMIX	₺334,00
PAW PAW	₺285,00
FOXY	₺280,00
SPECTRUM	₺250,00
REFLEX	
ROYAL CANIN	
DOG CHOW	
Grand Total	₺515,26

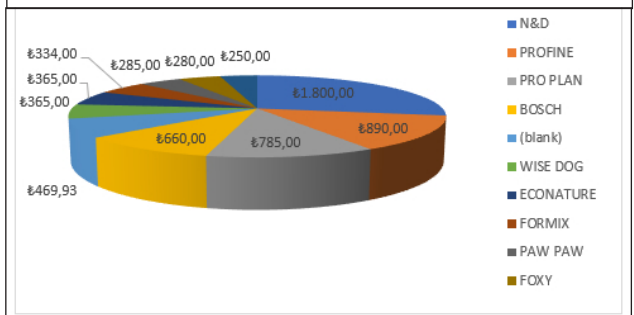


Figure 5: Profitability in Dog Food Products

In the result visual in Figure 5, it is seen that N&D and Profine product groups that provide profitability in dog food products are highly preferred. It seems important for the company authorities to determine the reflection of the features in this product group on the sales volume

Show a suggestion for a formula column

fx

=[@[SALE PRICE]] - [@[PURCHASE PRICE EXCL. VAT]]

Show explanation

	AB
1	Profit
2	₺0,00
3	₺0,00
4	₺0,00
5	₺9,10

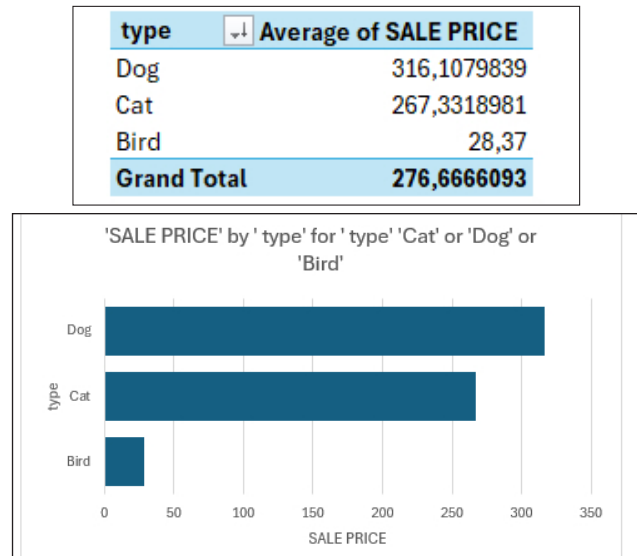


Figure 6: Average of Sale Price

and to increase the performance in other products in terms of company profitability.

When the following prompt commands suggested by the prompt tool are executed, sample formulas are generated and executed for the users and the columns of the tables are generated

According to the request command to list the most common product group, there are 41 different product types and PRO PLAN product groups in Table 2.

Which is the most common 'Product Group'?

Table 2 : Most Common Product Group

Product Group	Count of Rows
PRO PLAN	41

When a request command was executed for the average selling prices of cat, dog and bird food, the results in Figure 6 were obtained.

According to the results in Figure 6, the average sales price of dog food seems to be higher than the average sales price of cat and bird food. For this reason, it is necessary to include more variety of different and cheaper products in dog food types.

The profit percentages obtained for each product category in the marketplaces are calculated as a table and graph in Figure 7 according to the demand residence.

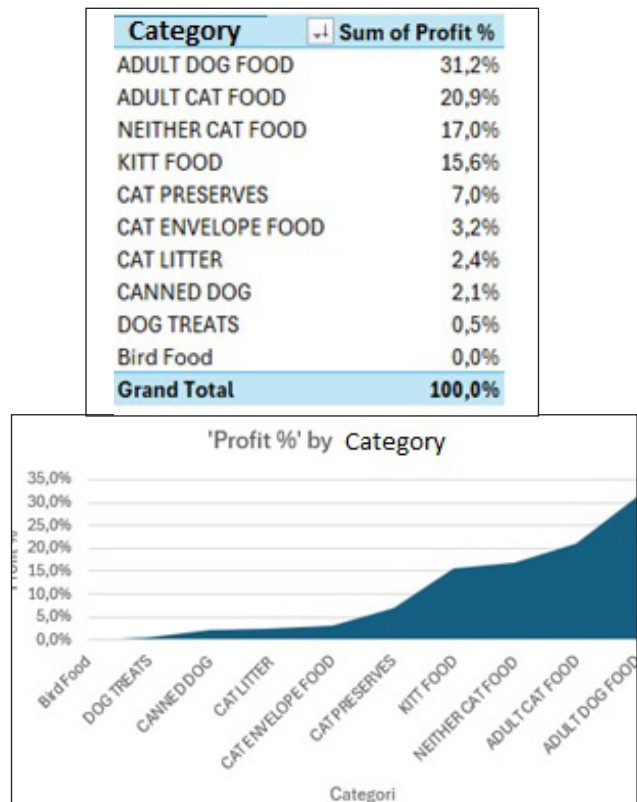


Figure 7: The Percentage Of Total Profit % For Each Category

According to the table and graphic in Figure 7, although cat food is cheaper and rich in variety, it is seen that the adult dog food group provides more profit in percentage (31,2%). Bird products, on the other hand, do not seem to be a profit-generating category with a percentage of (0.02%), although they are available in a variety. The results of the command, in which we asked for a graphical representation of Frima's total monthly sales in the marketplaces, are shown in Figure 8.

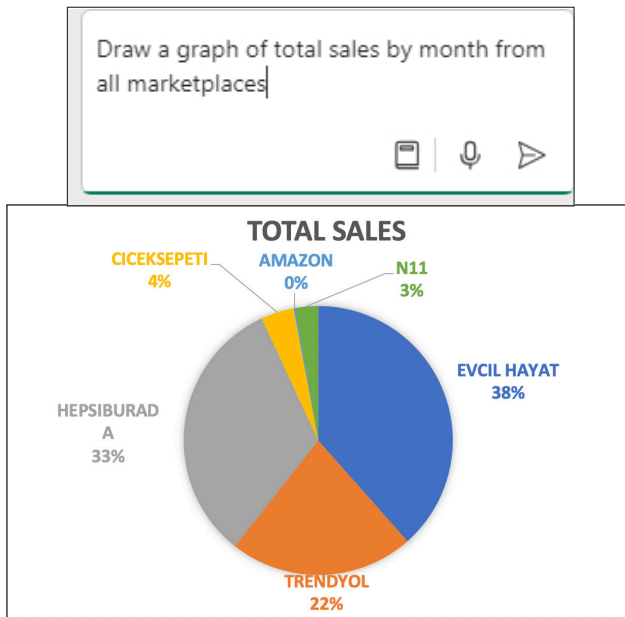


Figure 8: Total Sales Rates in Marketplaces

In Figure 8, the total sales rates of the company in the marketplaces are shown graphically according to the prompt command. It is seen that the company makes more effective sales in Hepsiburada, Evcil Hayat and Trendyol marketplaces. Shipping cost, customers' preference options and the profit rate requested by the marketplaces per product seem to be the parameters affecting the percentage values.

CONCLUSION and RECOMMENDATIONS

AI-supported prompting tools seem to process the existing data quickly within the framework of the commands given and report them in a short period of time. The data presented as reports are working tables consisting of easy-to-understand summary tables and visual graphics. Data that is easy to interpret provides decision support that will guide users and managers. User prompt experiences are one of the factors that will ensure that the report results will be more detailed and effective. A correct prompt seems to improve the performance of AI prompt tools, enabling them to produce more and more effective prompt examples for users. Time-consuming operations such as creating pivot tables, graphics and writing formulae are automatically generated after the prompt command, saving time and speed for the company and users. Users have the opportunity to produce more creative and productive results in the remaining time. Through the prompts, the remarkable data related to product type, category and names are filtered and made open to the comments of managers and users. The filtered data is made more visible for

all stakeholders by providing the filtered data to be bold and colourful in terms of format. Product sales prices, profitability, the most advantageous product group and other numerical parameters related to e-commerce marketplaces are quickly analysed by means of prompt tools, providing significant support to company profitability and decision-making intentions within a short response time. AI supported prompting and prompting tools developed for business processes seem to provide important support for management decisions, company processes and users in office and similar applications. The effective solutions provided by AI prompting tools for company processes seem to determine every decision and name of company managements.

According to the results of the study, the contributions of prompting and prompting tools and recommendations for the future are listed as follows for all elements.

Business Management:

Business management should introduce employees to AI applications by investing more in AI-supported prompting and prompting tools for company current transactions and other operational activities. The recognition and adoption of AI applications by employees depends on the policies to be determined by the company management. Prompt tools, which have features that will shape the business management philosophy, stand as one of the technologies that should be encouraged and supported by managers in order to find more space and contribute to business processes.

Businesses:

Businesses should plan the impact on company gains by investing in the current versions of office applications involved in the continuation of business processes. In-service trainings should be prioritised for learning the new functional features developed for office applications and AI-supported prompt tools and other add-ons. Increased utilisation of AI technologies is one of the issues that should be included in the strategic goals of enterprises in terms of understanding the context and objectives of the company.

Users :

Users can use existing office application functions more effectively by experimenting more prompts on AI supported prompting tools. They can generate more creative and original documents as a result of the prompt prompts generated by the prompt tools themselves.

They can save time for their personal development by making more use of AI applications.

It is aimed to contribute to the existing discussions by demonstrating the impacts that AI tools will have on office applications and business processes with an example application. In the future, it may be critical for users and businesses to adopt AI technologies and maximize the benefits of AI technologies.

LIMITATIONS

The data contents of this application have not been tested on ChatGPT and other AI-supported prompt tools. If better results are obtained, the fees to be paid for the Copilot application may constitute an unnecessary budget expenditure for the company and users. In order to test the analyses and functions in the Excel application in more detail in the Copilot application, it is necessary to have a comprehensive data set.

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