



SEINÄJOEN AMMATTIKORKEAKOULU
SEINÄJOKI UNIVERSITY OF APPLIED SCIENCES

Swer Jabeen Adil

Exploration of Microsoft Copilot Use Cases for Process Optimization in SMES

– a Proof of Concept with syscon Consulting

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Thesis abstract

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Since generative AI gained popularity in 2022, various AI-based tools have been developed with the promise to increase productivity. In strategic partnership with OpenAI, Microsoft has launched “Copilot for M365”. Previous reports have shown that Copilot is able to save up to 90 minutes per week in specific work settings.

SMEs are facing an increasing pressure to digitalize in order to stay competitive, but often lack an AI strategy due to the perceived absence of use cases. This thesis illustrates potential use cases of Copilot in the SME context with the help of a proof of concept conducted in the Germany-based small ITconsultancy “syscon Unternehmensberatung”.

14 use cases are extracted from a business analysis based on IIBA standards, with a focus on two selected business processes. Ideation of test prompts and evaluation of Copilot responses in terms of usability are conducted in cooperation with relevant stakeholders (management & consultants).

The results show that Copilot is not a profitable investment for SMEs at the moment. The POC contributes action recommendations to syscon in case of future Copilot adoption, which can also be taken into consideration by other SMEs.

¹ Keywords: Microsoft Copilot, Microsoft 365, Process Optimization, Small & Medium Enterprises, Business Analysis, GPT-4, Artificial Intelligence, Proof of Concept, Prompting

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Terms and Abbreviations

AI	Artificial Intelligence. A computer system capable of performing tasks that typically require human intelligence, such as visual perception, speech recognition, decision-making and language translation.
API	Application Programming Interface. A technical protocol that allows applications to interact & communicate with other software applications, operating systems and other services.
BABOK	Business Analysis Body of Knowledge. A comprehensive guide that outlines standards and best practices for business analysis. It is published by the IIBA.
BI	Business Intelligence. Technologies and practices for the collection, integration, analysis and presentation of business information for better business decision-making.
BPM	Business Process Management. A set of activities involving the identification, design, documentation, measurement, monitoring and control of business processes to achieve consistent, targeted results aligned with an organization's strategic goals.
CoE	Center of Excellence. A team or entity that provides leadership, best practices, research, support and training for a specific area of focus within an organization.
CRM	Customer Relationship Management. The management of a company's relationships and interactions with current and potential customers to improve business relationships and grow the business.
DACH	Germany, Austria, Switzerland
DWH	Data Warehouse. A core component & central repository of BI systems, where data is stored and integrated from multiple sources.
ERP	Enterprise Resource Planning. Software-supported management of a company's day-to-day business activities, such as accounting, procurement, project management and manufacturing, for timely & appropriate distribution of resources.
GDPR	General Data Protection Regulation. EU regulation on data protection and privacy.

GPT	Generative Pre-Trained Transformer. A type of AI model developed by OpenAI that uses ML to generate human-like text-based responses to input it receives.
IFS	Industrial and Financial Systems. A global enterprise software company that develops and delivers cloud enterprise software for the management & monitoring of assets.
IIBA	International Institute of Business Analysis. A professional association dedicated to supporting the field of business analysis through standards, certifications and research.
LLM	Large Language Model. A type of AI model trained on large corpus of text data to process and generate human-like language.
ML	Machine Learning. A subset of AI that involves the use of statistical models to enable computers to improve their performance on a task through training.
MMLU	Multi-Task Language Understanding Benchmark. A benchmark designed to evaluate LLMs on language comprehension tasks.
OLAP	Online Analytical Processing. A category of software tools that enable the user to analyze different dimensions of multidimensional data stored in a database.
PoC	Proof of Concept. A demonstration to verify that certain concepts or theories have the potential for real-world application.
RAG	Retrieval Augmented Generation. A framework for AI systems that involves the retrieval of external information sources to improve the quality of the AI system's generated output.
RPA	Robotic Process Automation. The use of software robots to automate highly repetitive tasks normally performed by humans interacting with digital systems.
SEO	Search Engine Optimization. Measures of optimizing organic search engine results of a website to improve quantity and quality of traffic to a website.
SME	Small and Medium Enterprises. Per EU law, medium enterprises have fewer than 250 employees and an annual turnover not exceeding €50 million.

SSOT	Single Source of Truth. A data management concept where a single source of data is used to ensure everyone within an organization bases business decisions on the same data.
TM	Tabular Model. A type of data model used in BI that organizes data into tables, which can be easily queried and analyzed.
TTFT	Time To First Token. A metric used to measure the time it takes for an AI system to generate the first token of a response after receiving a prompt request.

1 Following the approach of a typical POC, a potential deployment of Copilot for M365 at syscon Consulting is object of research

1.1. The thesis focuses exclusively on the current version of Copilot and its features relevant to syscon's business needs

The title of this thesis consists of two parts: Firstly, an exploration of the functionalities and possible use cases of Microsoft Copilot (abbreviated to Copilot in this thesis), and secondly a proof of concept for the implementation of Copilot within syscon Consulting - a small IT-consultancy specialized in BI & ERP seeking to harness the potential of emergent technologies.

Copilot has a large ecosystem which has not been fully explored yet. (Ramel, 2024) This stems from the fact that Microsoft gradually develops and releases new product variations and product features of the AI ecosystem. Copilot has even more applications and integrations envisaged. To enable a deeper understanding of one part of the Copilot universe, the research focus of this thesis was put on use cases for small and medium enterprises (SMEs).

This proof of concept (POC) assesses whether the introduction of new technology to the company environment is feasible and if yes, how the implementation could take place. (Dixon, 2023) Due to time and resource constraints, a full POC will not take place: In the sense that mid- and long-term metrics cannot be measured, which are imperative for a final investment decision. This is why this POC might also be seen as an extended use case analysis. (Pacurariu, 2014)

Nevertheless, the POC should help determine feasible approaches to Copilot for other SMEs. The working hypothesis for the assessment of Copilot is: "Microsoft Copilot is a profitable investment for small and medium-sized firms."

Since Copilot has already undergone a rapid development since last year (Warren, 2023), with more to come, this thesis and its findings are based on the current version of Copilot. Cut-off for theoretical research is end of May 2024. Time period for practical research is June 2024.

A discussion on how the underlying AI model of Copilot could be improved on a technical level to suit SME needs is not in scope. The enhancement of efficiency & trustworthiness of foundational models for enterprise deployment is an interesting but separate field of research. (IBM Technology, 2023)

1.2. The research focus lies on SMEs, AI in the form of Microsoft Copilot & process optimization because they are economically important and highly topical

1.2.1. Artificial intelligence & process optimization are key drivers of digital transformation

The world has entered the so-called 4th Industrial Revolution, also known as The Age of Disruption, The Information Age, The Digital Age and so on. As each Industrial Revolution was brought on by the occurrence of "new dominant general-purpose technology" (Gölzer & Fritzsche, 2017) – of which AI is

becoming one – not only workplaces are disrupted by innovative technology, but also society and economy at large. (Denning, 2022)

AI brings opportunities for innovation, operational optimization, and human-machine interaction, which in turn put businesses under digitalization pressure. Businesses must understand how to leverage Artificial Intelligence to stay competitive in the long run. (Minevich, 2023)

The Age of Disruption is characterized by its exponential change in technological advancement, consistent with Moore's Law, which holds up till date. (Moore, 2006) However, researchers from Deloitte University Press found that individuals, businesses, and public policy adapt to technological change at a slower rate. Businesses adapt even more slowly than individuals.

(Matzler et al., 2018)

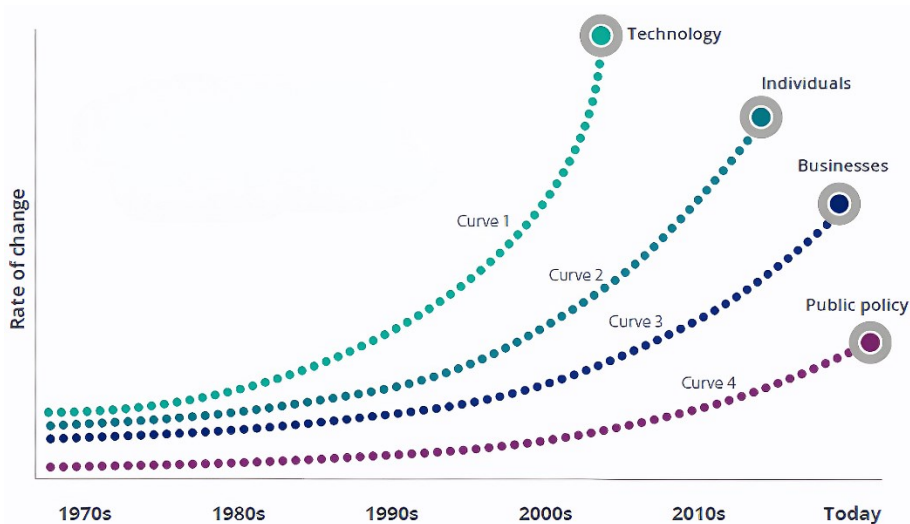


Figure 1. Rate of technology adoption (Deloitte University Press, 2017)

Technology needs less and less time to be considered the new standard. Where Spotify needed five months to reach one million users (and diminish returns for music distributors and download platforms) in 2008, ChatGPT only needed 5 days. (Hu, 2023) (Shaw, 2018) Embracing digital transformation - in the form of new strategies, processes, and tools - is needed to keep up with consumer demand.

1.2.2. Copilot is integrated into Microsoft's well-established product environment and therefore accessible to syscon

As of March 26, 2024, Microsoft is the leading technology company worldwide with a market cap of more than \$3 billion, surpassing its competitors Apple and Alphabet (Google). (CompaniesMarketCap, 2024) After Microsoft reoriented its business towards cloud computing and business productivity in 2014 under the direction of Satya Nadella, its revenue has seen a steady incline. (Microsoft, 2023a) (Settele, 2018) In fact, Microsoft has the second largest market share for office productivity software worldwide (30%), — a product relevant to every smaller or larger business — beaten only by Google (44%). (Enlyft, 2024)

Although other popular companies have launched their version of an AI tool, Google and Microsoft remain the only ones who provide an integration of their AI assistant into their respective productivity suite, i.e. Google Gemini (formerly known as Google Bard) for G suite and Microsoft Copilot for Microsoft 365.

After Microsoft and Google, Meta, Amazon, and SAP are considerable competitors in the field of AI. AmazonQ is designed specifically for business use but runs on AWS cloud only. (Gopinathlal, 2023) Meta AI's Llama model performs well in various tasks in comparison to the others but is accessed on Meta's platforms only (Instagram, WhatsApp, Facebook Messenger, Facebook). (Çitek, 2024)

WatsonX by SAP is an AI & data platform where customers can pick, train, validate, tune, and deploy an AI model of their choice. It is focused on AI backend model management, whereas Copilot is geared towards end-user productivity. SAP's enterprise AI can be attuned to very specific industry needs, i.e. financial fraud detection or healthcare diagnostics. (IBM, 2024) WatsonX is therefore suited best for larger companies with sufficient resources to dedicate to model configuration.

After an initial comparison of these providers Microsoft Copilot seems to be most eligible for a POC at syscon Consulting: As a certified Microsoft partner the firm has an established Microsoft productivity environment. (syscon Unternehmensberatungsges. mbH, n.d.) It is possible that syscon will explore other Microsoft platforms, such as Power Automate for RPA or Fabric for data analytics, to create synergies between them and Copilot in the future.

1.2.3. German SMEs must close a technology gap

A multiple-case study by Aarstad & Saidl has indicated perceived barriers to AI adoption for SMEs (in Nordic countries). Common denominators of these barriers are a lack of AI understanding & AI competence as well as the lack of a clear strategy & business use cases.

Technological Context	Organizational Context	Environmental Context
<p><u>Category: AI Black Box</u></p> <ul style="list-style-type: none"> ▪ Lack of AI understanding ▪ Technology complexity ▪ Technology transparency ▪ Trust 	<p><u>Category: Attention to AI</u></p> <ul style="list-style-type: none"> ▪ Lack of AI understanding ▪ No or little prior AI experience ▪ Not following AI trends 	<p><u>Category: AI Expertise</u></p> <ul style="list-style-type: none"> ▪ Lack of AI competence ▪ AI talent access ▪ Dependency on external help ▪ Evaluating external vendors and consultants ▪ Price of an AI solution
<p><u>Category: Company-Tech Fitness</u></p> <ul style="list-style-type: none"> ▪ Complexity of technology adoption ▪ Incompatibility of an AI solution with an organization's legacy IT systems or processes 	<p><u>Category: Automation of Tasks</u></p> <ul style="list-style-type: none"> ▪ Unclear use case ▪ Tasks or processes that are challenging to streamline 	
<p><u>Category: Data Ecosystem</u></p> <ul style="list-style-type: none"> ▪ Data quality ▪ Data systems and their capabilities ▪ Data systems are not properly connected ▪ Lack of data 	<p><u>Category: Human Resources</u></p> <ul style="list-style-type: none"> ▪ Lack of AI competence ▪ AI talent access ▪ Demanding and long onboarding process ▪ Insufficient employee training ▪ Employees to lead or promote an AI initiative ▪ Lack of IT competence or knowledge 	<p><u>Category: Customer Concerns</u></p> <ul style="list-style-type: none"> ▪ AI or technology scepticism ▪ Customer contract constraints ▪ Customers misunderstanding or not knowing what AI is ▪ Customers not being able to utilize AI ▪ Customers not being ready to adapt to change ▪ Lack of AI understanding ▪ Risk of losing reputation and damaging customer relationships ▪ Trust
<p><u>Category: Negative Perspectives of AI Tech</u></p> <ul style="list-style-type: none"> ▪ AI or technology scepticism ▪ AI perceived as limited ▪ AI technology perceived as immature 	<p><u>Category: Internal Resistance</u></p> <ul style="list-style-type: none"> ▪ AI or technology scepticism ▪ Change resistance ▪ Employee age ▪ Fear of losing job 	
<p><u>Category: Value Perception</u></p> <ul style="list-style-type: none"> ▪ Unclear benefits of an AI initiative ▪ Unclear use case 		<p><u>Category: Industry Factors</u></p> <ul style="list-style-type: none"> ▪ Industry specifics prevent long term investments ▪ Not perceived as necessary right now

Table 1. Summary of AI adoption barriers into logical categories (Aarstad & Saidl, 2019)

Especially smaller enterprises face increased financial risk due to limited resources while taking technology investment decisions. Even though it is widely acknowledged that technology expenses are necessary investments to stay competitive, in times of economic recessions companies focus on cutting costs rather than investing into long-term solutions. (Deloitte, 2023)

Strong business cases are necessary to break AI adoption barriers. A POC can showcase the Why's and How's for a successful AI strategy. AI should not be adopted merely for the sake of being up to date, according to the lean technology principle. Copilot promises a significant productivity increase and advertises multiple use cases to SMEs which need to be tested and verified.

SMEs create approx. 70% of all jobs and GDP worldwide. Despite this significance, major companies like Microsoft seek out AI partnerships with large companies such as "The Coca-Cola Company", which widens the technology gap between large and small companies. (Microsoft Source, 2024) Even the price of AI products & platforms often exceeds whatever technology budget small companies have left, creating another barrier to AI adoption. (Pavlov, 2023)

syscon represents one of many German SMEs which are active in the DACH region. The German market is under even greater pressure to digitalize. Germany ranks 23rd out of 64 assessed countries in terms of digital competitiveness. Due to its heavy scientific concentration, it holds the 14th place in the knowledge discipline, but lacks even more in technological infrastructure (47th place). (International Institute for Management Development, 2023)

All in all, the thesis will help make information on Microsoft's AI platform more transparent by educating on current challenges & opportunities of the tool, without having to sieve through Microsoft documentation. It might also yield some lessons learned which could become helpful for any attempts at imitation.

1.3. The POC follows along four main questions which help assess whether Copilot is a profitable investment for SMEs

To operationalize the working hypothesis "Microsoft Copilot is a profitable investment for small and medium-sized firms", the sub-questions follow the typical structure of a POC. A POC typically precedes the introduction of new technology, the refinement of business processes with new solutions or the development of new products. (Asana, 2024)

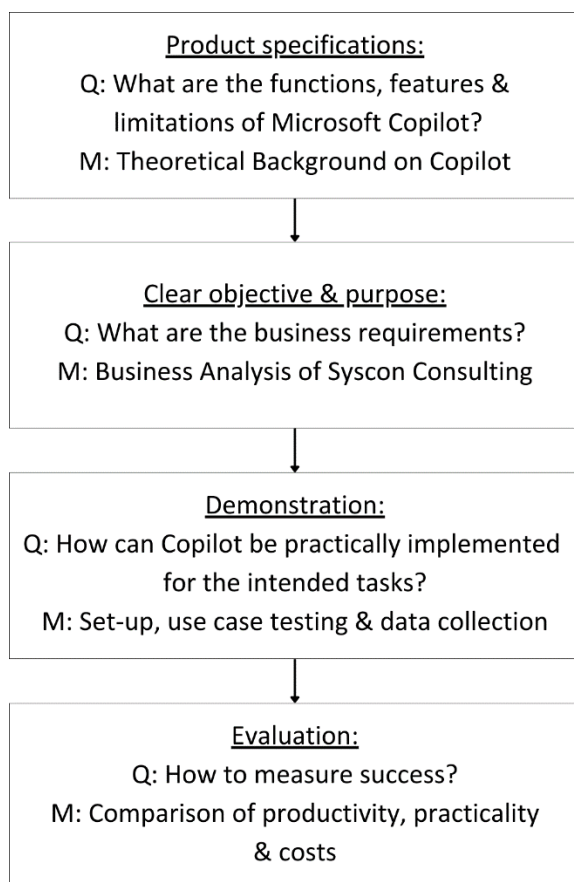


Figure 2. Structure of thesis with questions (Q) and research methods (M) based on POC (created by the author)

Part No.1: What are the functions, features and limitations of Microsoft Copilot? What is the AI assistant intended for? What precautions must be taken to use it effectively? A summary of literature available on Copilot will help better understand Copilot and its application potential.

Part No. 2: What are the requirements and circumstances of SMEs that influence this particular investment decision? As syscon Consulting functions as an example for SMEs, to answer this question a business analysis of syscon Consulting based on the IIBA's Business Analysis Body of Knowledge (BABOK) follows after the literature review. The transferability of this inductive approach is point of discussion in the

limitations chapter of this thesis. The analysis comprises an overview of syscon Consulting's business model (Lean Canvas), strategy and goals for specific business areas. In addition, a short description of current roles and capabilities will help understand syscon Consulting's present business processes.

Part No. 3: How can Copilot be practically implemented for the intended use cases? How difficult is the set-up and adoption of Copilot? How long does it take until Copilot is ready to be used by employees? What challenges and opportunities unravel themselves in the course of implementation? To further investigate question no. 3 selected prompts are tested for each use case and the resulting responses are then assessed for their performance.

Time period for analysis is June 2024. Because syscon Consulting has only one Copilot license, the use cases cannot be evaluated by multiple roles with different access rights in an average workday setting. Therefore, measuring actual productivity or revenue growth is out of scope.

Part No. 4 ties previous analysis together by weighing technology investment cost with potential time savings. The results of a consultant survey on relevancy, usefulness, and reliability contribute to the final evaluation.

2 A summary of the development, functionalities and limitations of Microsoft Copilot help assess its potential scope of application

2.1. Copilot is the product of a strategic partnership between OpenAI and Microsoft

Microsoft Copilot is a suite of AI-powered tools that were designed to assist with productivity tasks across various Microsoft platforms. The tasks can range from content creation & design to workflow automation, data preparation & fraud detection – always with the help of a web-grounded and/or Microsoft Graph-grounded virtual assistant. (Gallagher, 2023)

This bouquet of AI tools was made possible by Microsoft's and OpenAI's long-standing partnership. OpenAI researched on generative AI as a non-profit organization in 2015 and received investments from Microsoft in 2019 and 2021 to go public, which made Microsoft its biggest investor. (OpenAI, n/a a)

Since January 2023 Microsoft and OpenAI have extended their partnership with a \$10 million investment. OpenAI can host its large language models on the Microsoft cloud (Azure). Microsoft also increased its "investments in the development and deployment of specialized supercomputing systems" (Microsoft, 2023b) to support the advanced computation requirements of its LLMs (large language models). The size of GPT-4omni is estimated to exceed trillions of parameters, that need adjusting during training to ultimately allow a more nuanced and context-sensitive output of the model. (Rapid AI Data Yields, n/a)

In exchange, OpenAI-based models were iteratively deployed in consumer & enterprise products across Microsoft platforms — now known as different versions of Copilot. (OpenAI, 2023) Also, some OpenAI models such as GPT-4, Whisper & DALL-E are available to selected users on Azure OpenAI services. Sora is estimated to be added later this year. (Salam, 2024)

Microsoft has developed their own small language model (SML) series Phi-3, which are also available on Azure OpenAI services. (Microsoft, 2024a) Developers can use the models to build AI applications with them, though the availability of models varies by region. (Microsoft, 2024b)

Fine-tuned versions of OpenAI's GPT in connection with a Microsoft-integration "that selects relevant internal queries and leverages Bing search" (Endicott, 2023) lie behind the earliest version of Copilot, which was known as "Bing Chat". Microsoft calls the aggregation of these underlying settings the "Prometheus model" (Figure 3). This model was originally developed for Bing.

By February 2024 Microsoft launched a new base model coined as the son of Prometheus, Deucalion, that made image generation via Copilot possible. (Schwartz, 2024) (Hisona, 2024)

This thesis will examine "Copilot for Microsoft 365", also known as "Copilot for Productivity". With a license cost of \$20 per month per user & its broad use case applicability, it makes a fitting initial test purchase. Subsequent chapters refer to Copilot for M365 only.

Please refer to Appendix 1 to see an overview of different versions of Copilot Microsoft and OpenAI have launched over the course of 3 years. Please see Appendix 2 for a brief introduction on how the underlying LLM GPT was technically realized.

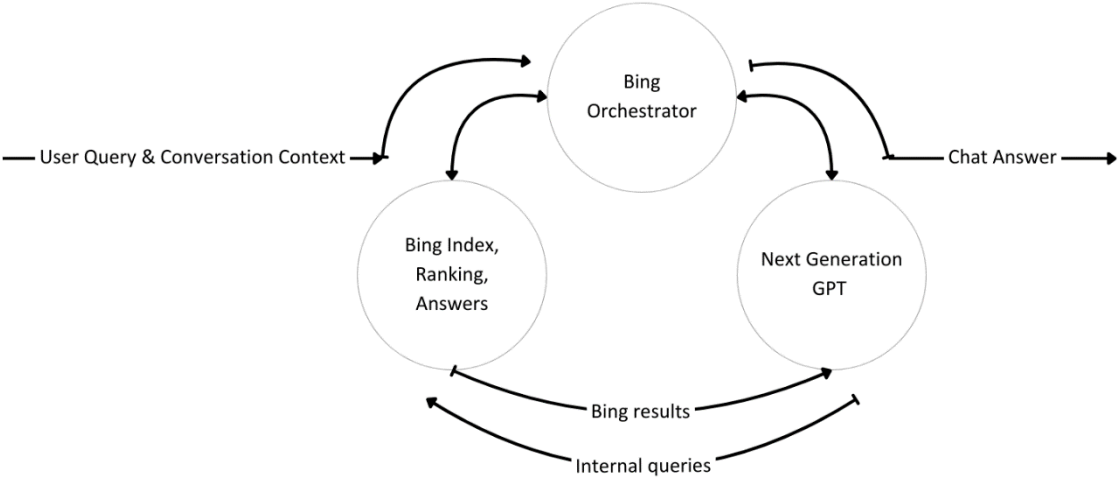


Figure 3. Prometheus model for Copilot in Microsoft Bing, adapted from: (Ribas, 2023)

2.2. Copilot for M365 is underpinned by a multi-modal generative AI system embedded into Microsoft environment via Microsoft Graph

Copilot for M365 is a multi-modal generative AI system, which can not only process text but also generate images and soon translate speech to text. Multiple AI models are integrated into Copilot and fine-tuned in a way that they can better interact with M365 applications. As of May 2024, Copilot is powered by DALL-E3 and GPT-4 Turbo. (Spataro, 2024)

2.2.1. AI models powering Copilot can process images, text - and soon human speech

GPT-4o has been announced by OpenAI on May 13 of this year. It processes text, audio, image, and video as input and is able to generate any combination of them as output within a response time similar to human interaction. (OpenAI, 2024a) However, it is unclear if the model is integrated into Copilot yet. This is why the capabilities of its predecessors GPT-4 Turbo (GPT-4T), DALL-E3, Whisper & TTS are object of analysis.

GPT-4T cannot process audio or video but since April it can interpret images to provide descriptions and analyses. (OpenAI, n/a b) In comparison to GPT-4 it has higher accuracy in text generation and better contextual comprehension & adaptability (Sagar, 2024) due to an enhanced context window of 128,000 tokens (which are comparable to 300 pages of text). (OpenAI, n/a c) Like its predecessors, it can “solve complex problems, generate coherent and contextually relevant text, answer questions, translate & summarize text and more”. (Microsoft, 2024c)

DALL-E 3 “is a model that specializes in creating images” with a specific size “based on textual prompts, ideal for creative and design-focused applications”. (Microsoft, 2024c) TTS stands for Text-to-speech and converts texts to natural sounding spoken text. Whisper is a speech-recognition model that recognized multiple languages. (OpenAI, n/a b) The integration of TTS and Whisper is not detailed in any Microsoft information. AI speech recognition was not available at time of testing in syscon, but Teams offered an AI-generated transcription of a Teams meeting independent from Copilot.

2.2.2. Retrieval-augmented generation and Microsoft Graph grounding make it possible for Copilot to associate & retrieve enterprise-internal information, given a proper setup

In addition to up-sizing the model and fine-tuning, retrieval-augmented generation (RAG) is a method to enhance LLM performance. Domain-based fine-tuning and RAG are not mutually exclusive but can be applied independently. Unlike fine-tuning RAG does not impact the weighting of model parameters. Instead, it retrieves data from a private collection of info, resulting in more contextually relevant AI responses. (Choi, 2024)

RAG is an essential component of Copilot for M365. Copilot connects the underlying LLM to the internet to ensure up-to-date info, to M365 apps to enable the generation of results into the apps and lastly, to Microsoft Graph.

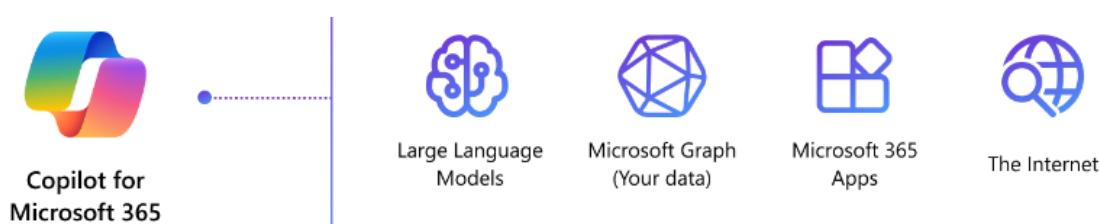


Figure 4. Components of Copilot for M365 (Microsoft Learn, 2024a)

Microsoft Graph acts as a gateway to various Microsoft cloud services to retrieve information. As stated on the Microsoft Learn website those services include among others:

- **Microsoft 365 core services:** Bookings, Calendar, Delve, Excel, Purview eDiscovery, Microsoft Search, OneDrive, OneNote, Outlook/Exchange, People (Outlook contacts), Planner, SharePoint, Teams, To Do, Viva Insights, Word, PowerPoint
- **Enterprise Mobility + Security services:** Advanced Threat Analytics, Advanced Threat Protection, Microsoft Entra ID, Identity Manager, and Intune
- **Windows services:** activities, devices, notifications, Universal Print
(Microsoft Learn, 2023a)

syscon has only a part of these services in active usage. Every employee has a Microsoft account issued by the company, and therefore an automatically assigned Entra ID which can be used for basic identity and access management. syscon employees use popular productivity apps such as Outlook, Teams, Excel, OneNote, Word and PowerPoint. Besides storage on local drive, employees share documents on Teams channels and SharePoint folders. Advanced analytics, discovery or monitoring services are not in usage.

Identity and access management stand at the center of Microsoft Graph. Copilot responds only with information available within the users' access rights. Access rights can be defined as users & groups in e.g. Microsoft Entra ID.

After Microsoft Graph has indexed existing files and documents located in SharePoint and OneDrive, any new files and changes can take up to 24 hours to be displayed within the semantic index. E-Mails and Teams conversations on the other hand are indexed within a few minutes. (Eggers & Sander, 2024)

Figure 5 portrays the interaction between all components to process & respond to a user prompt with an LLM response.

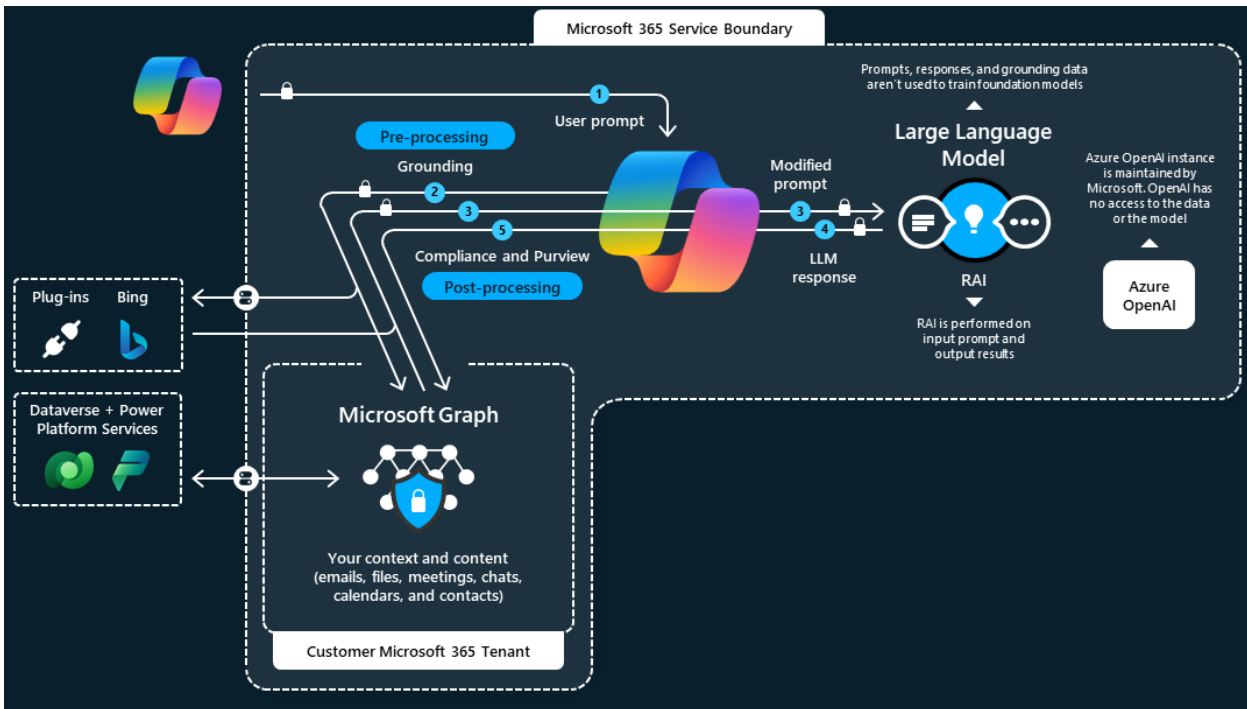


Figure 5. Orchestration of Copilot prompt, adapted from (Microsoft Ignite, 2023), 31:58min

To start the process, a user prompt reaches Copilot. Instead of creating a response directly in the LLM, Copilot first sends the prompt to Microsoft Graph and optionally other services for grounding. Additional context-relevant information is added from internal data & external data to the prompt. Internal data comes strictly from within the Microsoft 365 tenant. The modified prompt is then sent to the LLM.

Microsoft emphasizes that prompts, responses, and grounding data are not used to train the LLM. Also, Microsoft applied principles of responsible AI (RAI) to train & fine-tune its models to ensure ethical & compliant responses. To safeguard enterprise data security, the AI model is hosted within the Microsoft 365 service boundary. Third parties (OpenAI) are prevented from accessing Copilot data. (Gillen, 2023)

The LLM generates a response, which is then cross-checked via the Microsoft Graph for company-internal compliance regulations & user authorization rights. Microsoft recommends setting up proper data storage & access management strategies with tools like Intune, Defender, Syntex or Purview to prevent data leaks. (Foley, 2023) After the cross-check, Copilot presents the answer to the end-user.

syscon has not set access management or compliance measures on any of the aforementioned apps. User access within the company depends on user groups automatically created by Entra when Teams channels or group mailboxes are created, as well as password protection of a few documents.

In syscon's case Microsoft Graph is grounded in Microsoft Exchange (Outlook), Teams and SharePoint/OneDrive, as well as Bing. There are no Copilot plugins or graph connectors in usage. Copilot therefore has no access to syscon projects accommodated on the Microsoft Power Platform or similar.

Copilot's access to company data is restricted to syscon's SharePoint capacity of 1.98 TB, of which only 6% are currently occupied. 112 GB of data are spread across approx. 9,500 files in 98 sites. Among

these, only up to 22 sites and 126 files were actively used in the last 180 days. The Microsoft 365 admin center allows insight into which sites have been visited by which user. Much of the data in SharePoint is rarely accessed. At the same time, the local network storage offers up to 12.5TB, of which approx. 90% are occupied.

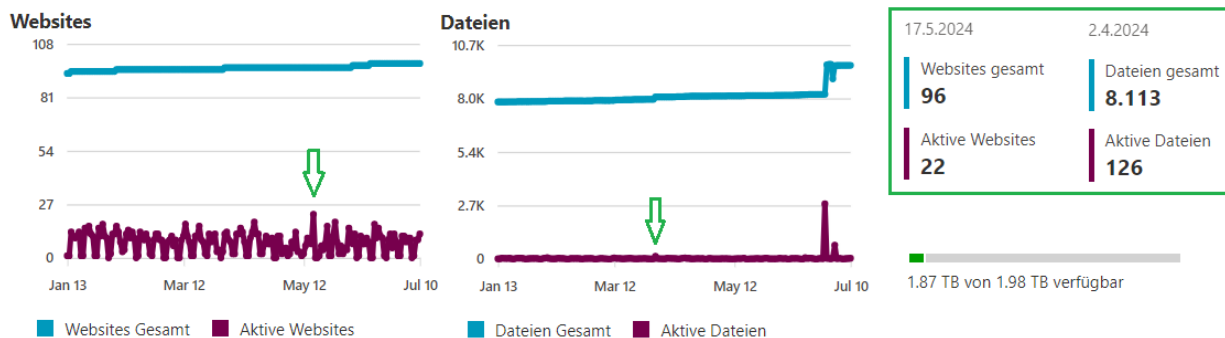


Figure 6. SharePoint usage in syscon between January 14 and July 12, adapted from syscon’s “SharePoint Admin Center” (syscongmbh-admin.sharepoint.com) and “Microsoft 365 admin center” (admin.microsoft.com).

Figure 6 also depicts two outliers on June 27 and July 2 on the right diagram, that were caused by the unusual transfer of large files from local drives to SharePoint during Copilot testing and are of no consequence for syscon’s usual SharePoint usage. The information on syscon’s storage usage suggests that Copilot is not able to access all relevant and current files.

2.2.3. Graph connectors and plugins for extension of Copilot’s reach beyond internal data are in development and should be evaluated in the future according to syscon use cases

It is possible to extend Microsoft Graph’s reach beyond company-internal cloud-based data with graph connectors and Plugins. A graph connector agent could help access local files by indexing them in the cloud for information retrieval, but it does not grant editing capabilities. (Baer, 2022)

Graph connectors & plugins are also useful to access external data. Some available graph connectors acquire information from GitHub or Azure Cognitive Search. (Bas, 2024) (Microsoft Learn, 2024) Where plugins support real-time data transfer, data from graph connectors need to be indexed first. (Microsoft Learn, 2024b)

This is why graph connectors are more suited to extend knowledge than to extend workflow capabilities. Due to indexing, data is guaranteed by Microsoft to stay within compliance boundaries, where the developer of plug-ins is responsible for the end-user’s data security. (Microsoft Learn, 2024b)

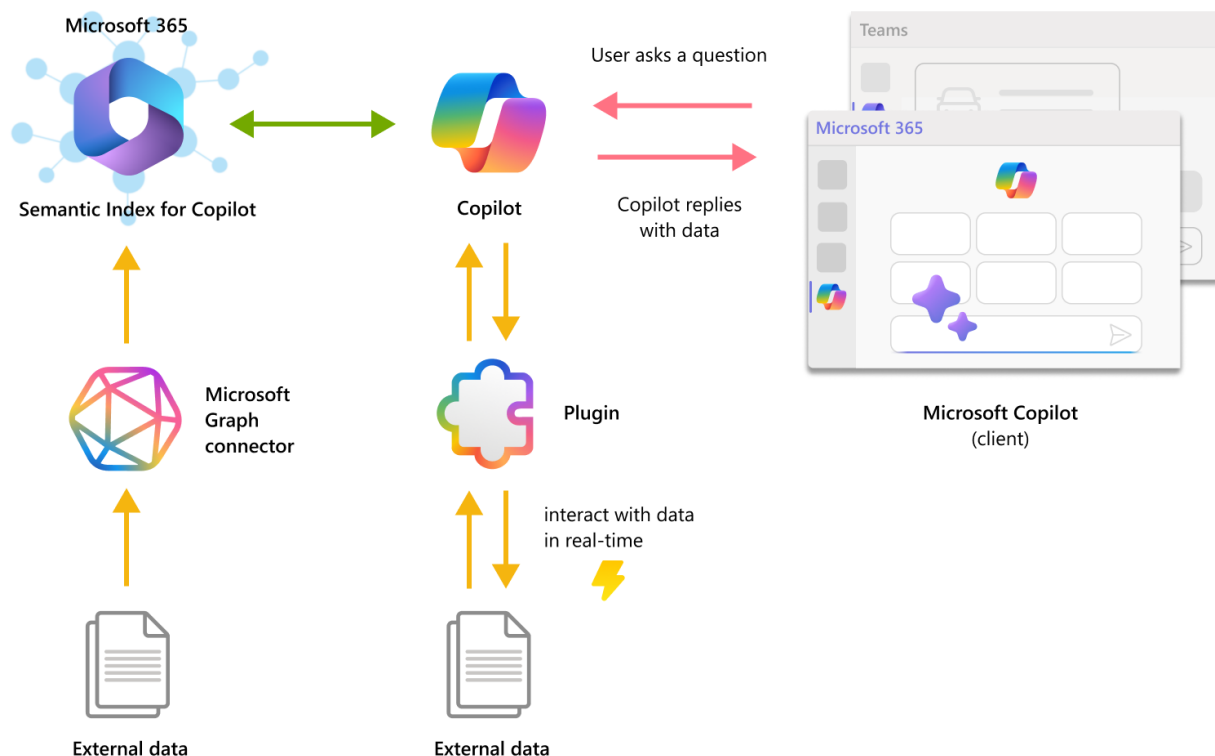


Figure 7. Extending Copilot with Graph connectors & Plugins (Microsoft Learn, 2024a)

As of now, plugins for Copilot are in public preview and limited to the Microsoft Teams chat. These Teams message extensions must be manually enabled and are limited to 3 commands. Copilot Studio plugins are also available, but only to Copilot Studio subscribers. (Microsoft Learn, 2024a) Microsoft presents an example on how a message extension for the Copilot teams chat can look like in Figure 7.

How much stock left for chai in Northwind Inventory?



According to the Northwind Inventory app, there are currently **350 units of Chai** in stock, supplied by Contoso Beverage Company in London.

Northwind Inventory
...

Chai

In stock

Category	Beverages	Units in stock	350
Unit price	18 USD	Units on order	50
Avg discount	8.6 %		

Quantity

Update stock ✓

Restock

Cancel restock ✗

Figure 8. Example of a Copilot Teams chat plugin in use (Microsoft Learn, 2024b)

Another form of extending Copilot for M365 are “declarative Copilots” which are currently in private preview. By setting specific instructions & actions Copilots can be customized for highly specialized roles, e.g. the role of IT helpdesk which handles recurring employee requests & issues. (Microsoft Learn, 2024c)

Extending Microsoft Graph with graph connectors, plugins and declarative Copilots varies highly by use case. It is important to determine first, where relevant data is stored, and which level of data security is required. As most of these features are in preview or are not available during testing, syscon does not include them into evaluation.

2.3. Multiple studies report that AI & Copilot enhance task performance of consultants and administrative workers if used in the right setting

As published in Stanford University’s 2024 AI Index Report, AI has a significant impact on labor. Multiple studies have shown workers complete tasks faster with better quality results. (Maslej, et al., 2024)

Dell’Acqua et al. have found out consultants perform better in terms of speed (+25,10%) and quality (+40%) for selected consulting tasks within the frontier of AI capabilities in comparison to consultants without AI access. (Dell’Acqua, et al., 2023)

A cross-study comparison on Copilot users has shown that Copilot significantly reduces task completion time for a various set of use cases. Where it saves 27% of time during information retrieval, Copilot in Teams even saves 74%. (Cambon, et al., 2023) However, Copilot for M365 does not possess potential for robotic process automation (RPA) or process mining. Microsoft Power Automate specializes in RPA instead and can be operated with another version of Copilot — Copilot for Power Platform. (Microsoft Learn, 2023b)

Microsoft markets Copilot for M365 through time savings, higher productivity, and better quality of work. Non-role specific use cases that Microsoft mentions on their website are:

- Write summaries of chats, e-mail threads, and Teams meetings
- Search for specific information from across files, e-mails, calendars
- Formulate, translate, proof-read e-mails and documents
- Catch up on missed meetings with automated meeting transcripts & summaries
- Compare text documents
- Prioritize tasks & plan the workday
- Follow-up meetings with sentiment analysis of meeting participants, project proposals, open questions & argumentation points
- Ideation & business analysis (Spataro, 2023)^{^^}

In November 2023, Microsoft published a report on early Copilot users. By automating administrative tasks, salespeople can save around 90 minutes per week, while administrative workers can save about 80 minutes per week. (Harrin, 2024) The data is based on the top 20% of M365 users by volume of searches, emails & Teams chats. The top 20% receive more than 250 emails a day and send & receive 150 Teams chat messages. (Wiseman, 2023)

Here are some exemplary prompts for various scenarios as demonstrated by Microsoft (Eggers & Sanders, 2024):

- “Summarize the emails that I missed while I was travelling. Highlight important elements.” (Outlook)
- “Invite everyone to a ‘Lunch and Learn’ about new product launches next Thursday at 12 noon.” (Outlook)
- “Write a reply in which you thank them and ask for further details. Shorten this draft and be sure to use a professional tone.” (Outlook)
- “What decisions have been made and what next steps are proposed?” (Teams)
- “Summarize what I missed in the meeting.” (Teams)
- “Summarize all chats, emails and documents about [customer].” (Copilot Teams Chat)
- “What is the next milestone for [project]. Are there any risks?” (Copilot Teams Chat)
- “Write a planning overview in the style of [File A] that includes the schedule from [File B] and incorporates the project list from the email from [person].” (Copilot Teams Chat)
- “Using information in [file1], [file2], and [file3], write a one-page description of [Project X]. Write it so non-technical people can understand what the project is about and when it's scheduled to be completed.” (Word)
- “Create a presentation with five slides based on [a Word document] and insert relevant archive photos.” (PowerPoint)
- “Summarize this presentation in a three-part summary.” (PowerPoint)
- “Format these three bullet points in three columns, each with a picture.” (PowerPoint)
- “Provide a breakdown of sales by type and channel. Insert a table.” (Excel)
- “Project the impact of [variable] and create a chart to visualize it.” (Excel)
- “Model how a change in the growth rate for [variable] would affect my gross margin.” (Excel)

Microsoft has also published a leaflet about correct prompting for the usage of Copilot. Using polite language, correct punctuation, quotation marks & capitalization improve Copilot’s responses. (Microsoft, 2023c)

As shown in Figure 9, providing a goal, context, a source & expectation on how the response should be delivered are key to accurate prompts.

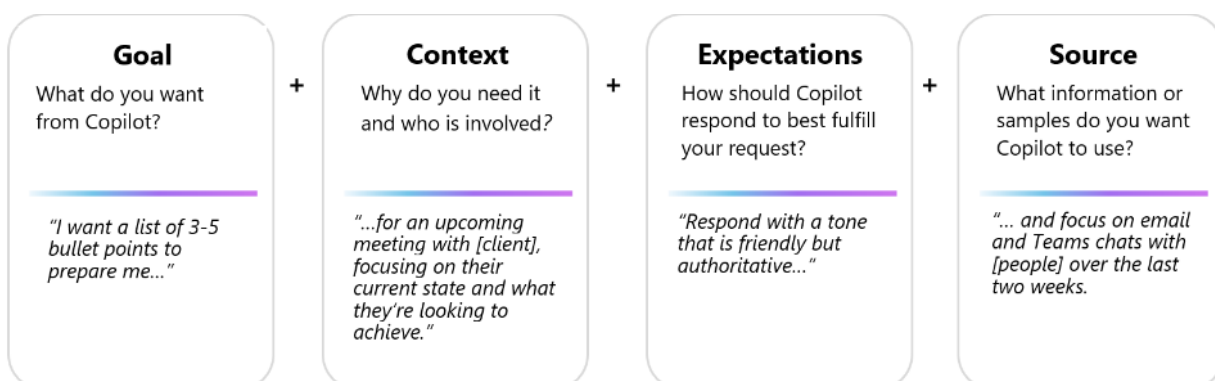


Figure 9. Components of qualitative prompts (Microsoft, n/a a)

2.4. Copilot has typical limitations of LLMs and RAG such as intransparency, inconsistency and misclassification as well as other challenges with administration & user experience

Typical limitations of LLMs and RAG influence Copilot's performance, but even more issues can arise with improper set-up of the AI system.

LLMs are known to produce confabulated information that seem plausible to the reader but are in fact incorrect or irrelevant. Sometimes LLMs even over-commit to previous mistakes, leading to more mistakes. This phenomenon is known as "hallucination snowballing". (Baldriga, 2023) These hallucinations can occur due to overfitting to training data, vague prompts, and incomplete or contradictory data. (Bilan, 2024)

In cases with complex queries, the GPT-4 model commits to hallucinations 87.03% of the time. The error rate can be reduced significantly when given the prompt "Let's think step by step". The temperature (randomness parameter) of the model only has an impact of approx. 2 percentage points. (Zhang, Press, Merrill, Liu, & Smith, 2023)

LLMs have the capability to generate biased responses & harmful content, but with appropriate data sets & training, these biases can be corrected. Microsoft commits to its Responsible AI principles "fairness, reliability & safety, privacy & security, inclusiveness, transparency, and accountability" (Microsoft, 2022) and has developed open-source toolkits under the name InterpretML & FairLearn to make AI more transparent and fair. (Johnson, 2019) (Bird, et al., 2020) The underlying model is trained with a so-called "fairness enforcer" which cross-checks given fairness definitions with model output. (Dudik, Langford, Walach, & Agarwal, 2018)

RAG-based systems occasionally respond with irrelevant information, because the system not only has to identify semantically similar information, but also understand the query context & user intent. E.g. if the user prompt includes the word "Apple" it is not clear from the word alone, whether the user wants information on the fruit or the company. This problem especially arises in research & discovery tasks where the response cannot refer to the user prompt (as it does with summary tasks). (Skopal, Bernhauer, Skoda, Klimek, & Necasky, 2021)

However, there are approaches in development to solve this problem. The simplest improvement to this "relevance vs. similarity" problem are proper document storage & labelling with clear document hierarchies. Knowledge graphs that map out "information retrieval workflows into instructions the LLM can follow" assist in the retrieval process. (Yang, 2023) Other solutions include recursive text splitting, metadata filtering, multi-document agents, small-to-big retrieval and so on. (AI Engineer, 2023)

According to a 2024 Gartner report, Copilot is a work in progress. Only 24% of surveyed companies consider a large-scale roll-out with 20% or more employees involved within next year. (Gartner, 2024). Concerns towards Copilot can be summarized into four areas: administration, security, information governance and user experience.

Connected reporting tools like Microsoft Viva lack granularity, and the set-up & configuration of Microsoft Copilot is confusing. There is a risk of over-licensing & insufficient impact management. (Heil, 2024)

Gamboa specifies improper permission management, inaccurate data classification & lack of sensitivity-labelling in Copilot-generated content as core security concerns. Any errors in setting user access rights

within the company, enable easy access to sensitive data. Users could access & share sensitive information by error via a Copilot query, without having to seek out sensitive files and documents beforehand. Copilot also does not tag newly created documents with sensitivity labels (“public”, “internal use”, “restricted”, “confidential”) automatically, even if the information it has generated comes from confidential files. (Gamboa, 2024) Individual users therefore need to monitor Copilot responsibly.

In terms of information governance, Copilot does not display any ability to prioritize content sources. The arrangement & structure of documents heavily influences Copilot responses. Companies deploying Copilot must invest in organizing their knowledge base and train workers accordingly. Users also struggle with inconsistent responses & capabilities across M365 applications. (Heil, 2024)

A comparison of Microsoft Copilot’s technical performance against other AI systems is currently not possible because Microsoft has not published performance scores for Copilot yet. Based on the assumption that Copilot’s performance correlates with GPT-4T’s capacity, some information can be derived from GPT-4T’s scores. Table 2 summarizes GPT-4T’s performance metrics against competing AI models Gemini 1.5 Flash, Llama 3 Instruct (70B) and Claude 3 Opus. (Artificial Analysis, n/a)

After GPT-4 omni, GPT-4T and Claude 3 Opus share the second-highest overall quality index, but in terms of speed GPT-4T ranks the lowest. The overall quality index takes MMLU, MT-Bench, and Chatbot Arena Elo Score into account. (Artificial Analysis, n/a) Table 2 shows, that even with an overall high score, performance against specific benchmarks can highly vary. All in all, GPT-4T is a costly & slow AI model, that can impress only by the quality of its output. Whether this result is transferable to Copilot remains to be seen.

Table 2. Performance scores of different AI models in comparison with best score of each category in bold (Artificial Analysis, n/a)

Dimension	Benchmark	GPT-4Turbo	Gemini 1.5	Llama 3	Claude 3
Quality	Knowledge (MMLU)	86.4	87.0	82.0	79.0
Quality	Coding (HumanEval)	85.4	-	81.7	-
Quality	General reasoning index	94.3	76.3	88.29	94
Quality	Context size (max. token limit)	128k	1000k	8.19k	200k
Speed	Latency (time to first token in seconds)	0.52	0.54	0.31	0.96
Speed	Token throughput (output tokens/sec)	22.7	140.6	40.7	28.8
Speed	Total response time (seconds to 100 output tokens)	5	1.2	2.8	4.5
Price	Input token price (US\$ per million tokens)	10	0.7	0.9	15
Price	Output token price (US\$ per million tokens)	30	1.05	1	75

2.5. Copilot adoption brings unavoidable legal, technical & administrative implications

2.5.1. Microsoft introduced enterprise-grade data protection to adhere to European GDPR regulations, but companies bear responsibility for Copilot usage according to AI Act & GDPR

Companies based in the EU must make sure they only deploy AI systems compliant to the European AI act. The AI act was passed by European parliament on March 13 of this year and is expected to become effective in June 2024. (Deloitte, 2023) The law categorizes AI use cases into three risk groups, and completely prohibits the usage of AI for certain use cases. Companies therefore must ensure they do not deploy AI for:

- Manipulation & deception with the intent to impair a person's ability to make informed decisions
- Exploitation of the vulnerabilities of a natural person based on their age, disability or social or economic situation
- Social scoring system that results in discrimination or unjust treatment
- Profiling to assess a person's likelihood of committing criminal activities
- Facial recognition backed by random data scraping
- Emotional recognition in the work & educational context (medical and security reasons are exempted)
- Inference of race, religion, sexual orientation, political orientation etc. based on biometric data (Depreeuw, 2024)

Microsoft has changed its product terms accordingly to lower the risk assessment for Copilot for M365. (Köllner, 2024a) AI systems are considered high-risk in the work context if they are utilized to decide upon the employment status of current or potential employees. (AI Act, 2024) An AI system is classified as low risk if it does not have potential to impair the health, security, or basic rights of a natural person.

In terms of data privacy, Copilot is subject to European GDPR regulations. This is why Microsoft emphasizes its enterprise-grade data protection. Data generated and processed by Copilot is not used to train the model. For secure data transfer, all communication between the user's tenant and Copilot components is encrypted. (Gamboa, 2024)

No company-internal information, including chats & e-mails, is permanently saved outside of the EU data boundary services and Microsoft has no access to them. The term "EU Data Boundary" means all Microsoft computers, servers and physical data centers are located within the EU & European Free Trade Association (EFTA). (Köllner, 2024a) To be eligible for enterprise-grade protection (and not only commercial data protection) a Microsoft Entra ID is required. (Köllner, 2024b)

Furthermore, Microsoft announced in its Copilot Copyright Commitment ways to protect users from copyright infringements. The AI model is supposedly filtered in such a way that protected third-party content is not returned in its output. (Smith & Nowbar, 2023)

2.5.2. A multi-tiered adoption plan is necessary to comply with administrative and technical requirements that range from licensing, monitoring and data protection up to app integration

Business users must acquire a Microsoft 365 Business Standard or Premium license or can upgrade to Copilot if they own a Microsoft 365 E3 or E5 license with the purchase of a one-year license. (Im, 2024) Before setting up Copilot, Microsoft recommends assessing all available digital resources & user roles first, and then to clarify the company's compliance and data security strategy. A pilot project with approx. 2 use cases per 50 employees can be used for testing purposes before Copilot is rolled out to more application scenarios. According to Microsoft, Copilot can be further adapted to business needs via Copilot Studio after a successful roll-out. Employee training is available on Microsoft's Copilot Lab that i.a. offers a library of example prompts, use cases and personas. (Microsoft, n/a b)

Copilot can be coupled to Microsoft Viva where the enterprise-wide adoption of the AI system can be monitored in form of "Microsoft Copilot Dashboard". Critics claim that Viva does not offer detailed information on relevant aspects: For example, currently it is not possible to retrace or influence the indexing of files into Microsoft Graph and the indexing runs automatically after the purchase of the license. (Microsoft Learn, 2024d)

The indexing for Microsoft Graph takes place on two levels, that is on tenant level and on user level. The user level index is saved on the same instance where mailbox data is saved, and the tenant level index is saved where SharePoint files are saved. User-level content, such as emails & private documents, are only included in Copilot queries started by the respective user. (Microsoft Learn, 2024d) If SharePoint sites are excluded from Microsoft search results, those particular sites are not included to the semantic index either. This active exclusion is an effective but less dynamic method for data loss prevention. (Redmond, 2024)

Some content formats are not supported by the semantic index at all. Table 3 specifies which content formats are saved in which index and whether they are supported at all.

Table 3. Indexing of different content formats on user & tenant level. (Microsoft Learn, 2024d)

Content/file type	User level	Tenant level
User Mailbox	Supported	Not applicable
Delegated Mailbox	Not supported	Not applicable
Shared Mailbox	Not supported	Not applicable
Archived Mailbox Data	Not supported	Not applicable
Archived SharePoint Data	Not supported	Not supported
Word documents (docx)	Supported	Supported
PowerPoint (pptx)	Supported	Supported
PDF files	Supported	Supported
Web pages (aspx)	Supported	Supported
OneNote files (one)	Supported	Supported
Graph connector data	Not applicable	Supported

Figure 10 summarizes all key modules required for a full enterprise-ready deployment of Copilot. After setting up OneDrive & SharePoint for file sharing, Purview is recommended for data loss prevention & records management. (Eggers & Sanders, 2024) Also, after a contained roll-out, API connections & Plug-Ins are recommended to cover diverse use cases for company-wide deployment.

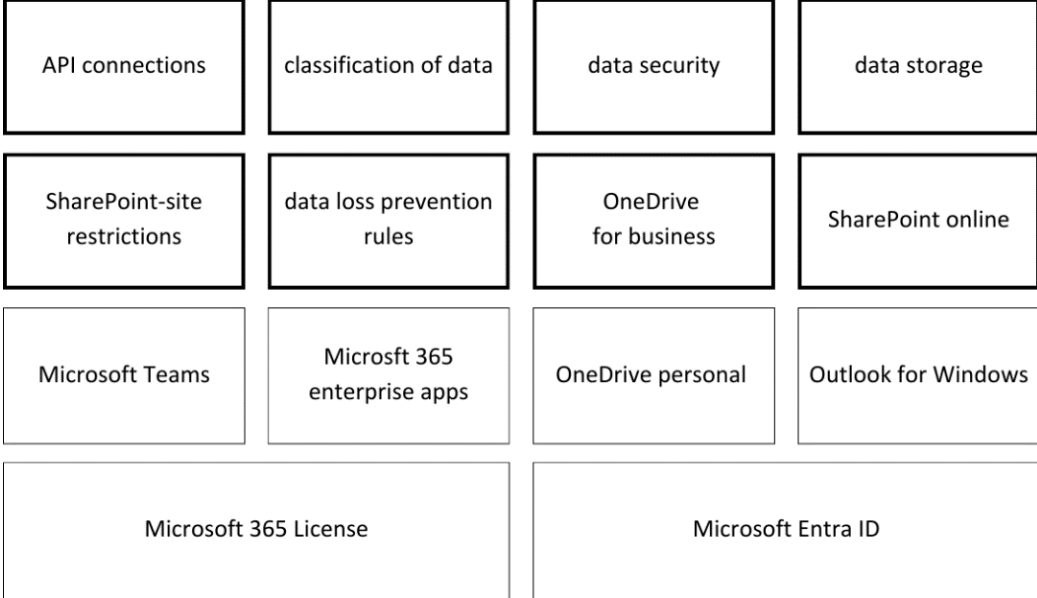


Figure 10. Components required for an enterprise-ready deployment of Copilot (upper two tiers come on top the lower two tiers required for personal Copilot use) (Eggers & Sanders, 2024)

3 Business analysis and process analysis help extract 14 use cases & functional requirements for Copilot in syscon

3.1 syscon Consulting specializes in BI, ERP & BPM and offers customizable digital solutions to the DACH market

syscon Consulting is a German consultancy based in Erlangen, Bavaria. Founded in 1996, they have 28 years of experience in stakeholder communication and project handling. It is a small IT-oriented business with approx. 20 employees, of which 60% are IT-consultants. (syscon Unternehmensberatungsges. mbH, n/a a)

Two business units (BU) produce a yearly turnover of roundabout 2.5 million euros. The first BU offers specialist counseling in Controlling-related topics & business process management, while the other BU supports with technical implementation of ERP & BI projects.

Both specialties are often combined during client projects. ERP & BI projects not only encompass technical solutions, but also require project environment-specific change management, risk management & business process optimization. Other aspects of ERP-consulting are business requirement analysis, data quality management and controlling advisory. Each aspect of a syscon project offers potential for Copilot usage. Their business intelligence projects have a focus on analysis & reporting, data analytics and financial consolidation. ERP, BI & management topics overlap depending on client needs. Figure 11 shows how syscon Consulting considers different aspects of BI strategy in their projects.

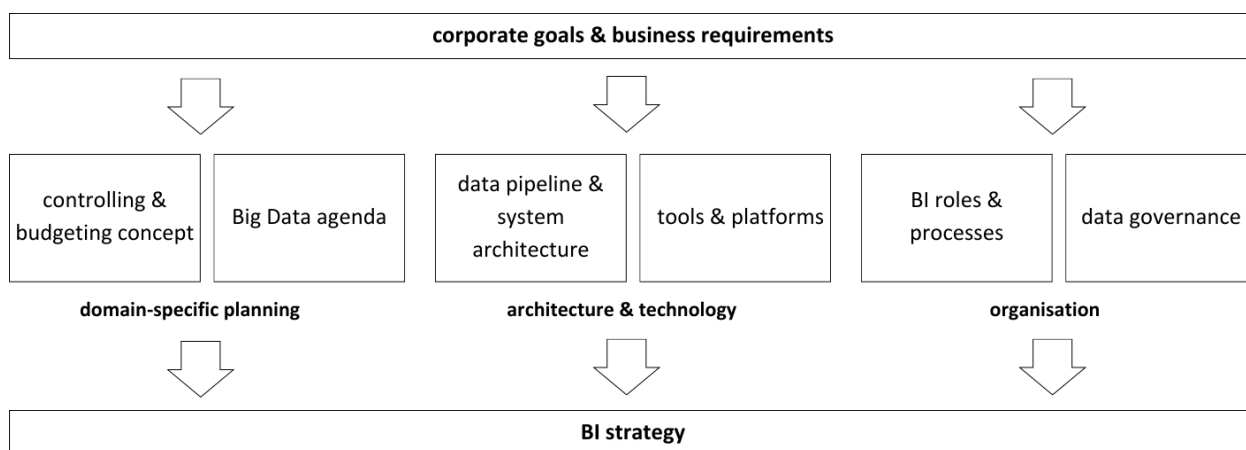


Figure 11. Aspects of BI strategy to be considered in consulting projects, adopted from: (Qunis, n/a)

syscon Consulting serves over 300 clients in the DACH (Germany, Austria, Switzerland) region in approx. 100 active projects. The clients are typically small & medium enterprises from various industries, such as pharmaceuticals, mechanical engineering, fast moving consumer goods, etc. (syscon Unternehmensberatungsges. mbH, n/a b)

The consultancy partnered up with technology providers that offer solutions suited to SMEs, namely IFS, Microsoft, LucaNET, Cubeware and more. syscon is a multi-certified Gold & Silver Microsoft partner with early access to selected Microsoft products. (syscon Unternehmensberatungsges. mbH, n/a c) As an

independent software vendor (ISV) syscon Consulting develops standardized software solutions based on Microsoft technologies.



Figure 12. Selection of syscon's strategic partners

syscon offers a selection of partner products, such as IFS Analysis Model, LucaNET, Microsoft Power BI, but also includes in-house solutions to the portfolio that complement their partner products.

To guarantee flexibility and scalability of the BI system, syscon follows the “Single Source of Truth” (SSOT) concept. It ensures that all stakeholders within an organization can use the same, consistent set of data by collecting & attributing data schemas in one place. (talend - A Qlik Company, n/a)

The syscon products connect ERP systems to the BI system in a cost-effective way and offer an admin overview for incident management & source selection (“syscon Data Engine”). The syscon Data Engine is the foundation for an efficient BI pipeline and is often bundled with “syscon Hierarchy Builder” and “syscon Steering Tables”.

The hierarchy builder facilitates the breakdown of parent-child relationships — a feature often not supported in ERP systems. The steering tables allow end-users to add & organize data to the data warehouse (DWH) that are not derived from the ERP system. Employees of a larger company typically handle many different terms & definitions for identical or similar entities. Those terms are administrated & harmonized within “syscon Steering Tables”.

A data lake could act as a SSOT alternatively, but it requires continuous maintenance. Instead of putting efforts into the management of an unstructured data lake, syscon products allow employees to enter company data in a structured way via forms & familiar interfaces. Tools like “Master Data Services” from Microsoft are alternative ways to organize company data, but it lacks compatibility (Microsoft SQL Server only) in comparison to syscon Data Engine.

On top of these products, syscon also offers a so-called “Wahrheitsfinder” (“truth finder”) where end-users can manage KPIs & company targets for planning, forecasting & monitoring. This product is mainly acquired by companies that are highly KPI-driven. An English version with a direct connection to PowerBI is planned in the future.

While all previously mentioned syscon products are based on Gaptex, “syscon Analytics” functions on IBM’s TM1. It helps create tabular models, define dimensions and set planning parameters for scenario building. Figure 13 shows how syscon products are integrated into BI architecture.

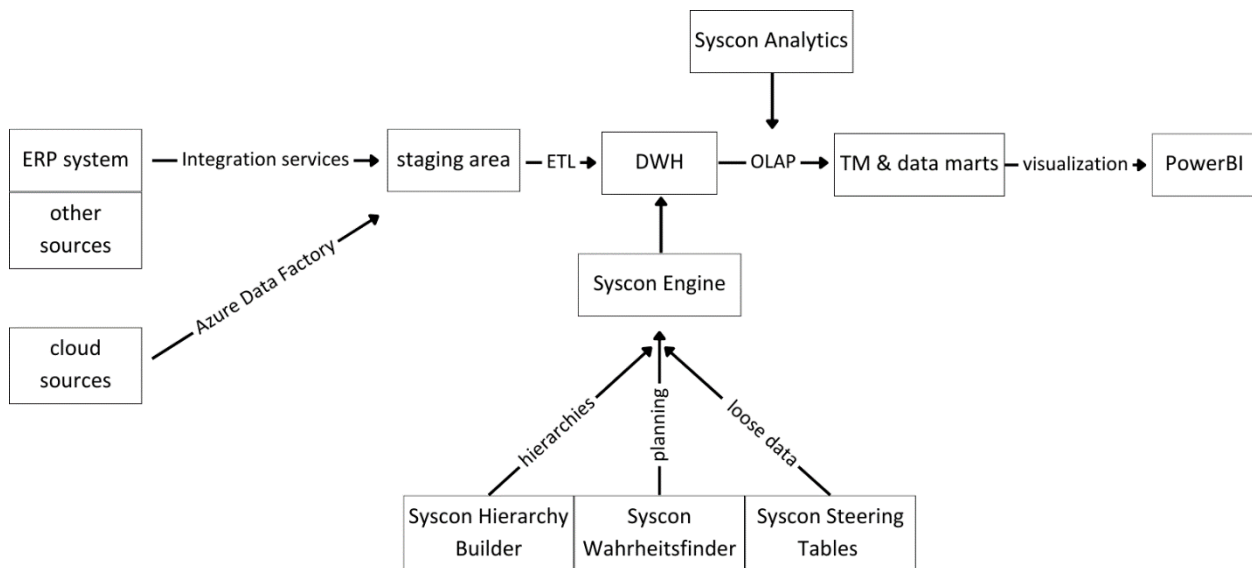


Figure 13. syscon products complement BI pipelines, adapted from (syscon Unternehmensberatungsges. mbH, 2024a)

The overall mission of the company is to empower medium-sized businesses to leverage their resources in a more efficient, transparent, and profitable manner by undoing silos and creating synergies between organizational units. Their goal is not to become a digital company themselves, but to utilize the strengths of their corporate partners to provide flexible & individualized solutions and consulting services. They bring together interdisciplinary knowledge that connects IT and business, with a special emphasis on optimizing information sources for better management of business processes. (syscon Unternehmensberatungsges. mbH, n/a d)

The health of a project is monitored via adherence to budget and best practices. The fulfillment of pre-defined specifications within project timeline and positive client feedback are indicators for project success. No other specific measurements are in place.

3.1.1. syscon strategizes to target niche audience for competitiveness but struggles with heightened performance pressure & low client acquisition during recession

syscon Consulting serves medium enterprises in the DACH region that fall off the grid for software giants like SAP. syscon offers custom-tailored IT solutions and assists with business expertise. With this holistic approach syscon stands out from its competitors.

Competitors such as “Roosi GmbH” offer a wide-spectrum of data-driven solutions, but they seem to lack BPM service. (roosi, n/a) “Hecker Consulting” offers workshops and trainings but does not support with technical implementation. (Hecker Consulting, n/a)

“MDIS Consulting” makes a competitor with a similar business philosophy and range of services. (MDIS, n/a) However, syscon has a more specific focus on Controlling & BPM. MDIS offers solutions for ERP, e-commerce, marketing & more and therefore maintains strategic partnerships with a different set of software providers. (MDIS Consulting, n/a)

Another competitor is “Cosmo Consult”. They consult medium-sized manufacturing and service industries across Europe on ERP software implementation and digital transformation, mainly based on Microsoft platforms like Dynamics 365, Azure IoT and Microsoft 365. (Cosmo Consult, n/a) With an employee count of over 1400 they offer a very broad spectrum of services and are less specialized than syscon Consulting. (Cosmo Consult, n/a)

With many similar competitors in the DACH market, syscon Consulting targets customers that already have their strategic partner’s platforms in usage (Microsoft Dynamics, LucaNET, IFS). According to a personal communication with one of syscon’s managing partners, Manuel Gandt, Microsoft Dynamics (DFO) has a client base of over 4000 businesses within the DACH region. Larger clients that have dedicated more resources to business optimization and BI projects are more likely to utilize syscon’s services.

To exploit this potential, syscon’s sales team research businesses that deploy the aforementioned software solutions and try to address any decision-maker who is in touch with the company’s ERP or financial planning. The target audience includes CEOs, CFOs, production managers and similar.

The following business model canvas (Figure 14) summarizes syscon’s approach of creating and delivering value to their customer. (For a full version of the business model please see Appendix 3.)

<p>01 Problem</p>	<p>02 Solution</p>	<p>04 UVP</p>
<ul style="list-style-type: none"> • data silos • long decision-making processes • inefficient use of resources • need for change management 	<ul style="list-style-type: none"> • specialist counselling in BPM, Controlling • technical implementation of BI projects • support with change management, bus. req. analysis 	<ul style="list-style-type: none"> • interdisciplinary knowledge that connects business & IT -> holistic approach • cross-industry consulting & training • specialized on software solutions suitable & affordable by SMEs
<p>Existing Alternatives</p>	<p>03 Key Metrics</p>	<ul style="list-style-type: none"> • 28 years of experience in project handling
<ul style="list-style-type: none"> • in-house IT solution • MDIS consulting • Cosmo consult • Hecker consulting • Roosli • Capgemini • labour-intensive BI pipeline 	<ul style="list-style-type: none"> • # of company subscriptions • # of retained customers • ratio of billable hours vs. total work hours • yearly profit 	<ul style="list-style-type: none"> • modular solutions (standard platforms customized to client-needs) -> faster, more cost-effective & scalable • hybrid solutions with familiar interfaces (no need to adjust)
<p>05 Unfair Advantage</p>	<p>07 Customer Seg.</p>	
<ul style="list-style-type: none"> • established customer base of (>300) • network of strategic partners • Microsoft certifications • Experience & Know-How 	<ul style="list-style-type: none"> • DACH region • active usage of specific ERP solutions (Dynamics, IFS) • active usage of consolidation software (LucaNET) • CEO, CFO, CIO, head of ERP, production, controlling, projects and similar 	
<p>06 Channels</p>	<p>Early Adopters</p>	
<ul style="list-style-type: none"> • LinkedIn • home page (SEO) • cold calling & e-mails • online webinars • word-of-mouth • Microsoft partner search 	<ul style="list-style-type: none"> • larger clients with more resources dedicated to BI • manufacturing industry • in need of consolidation 	

Figure 14. Partial Business Model Canvas of syscon Consulting, adapted from: (International Institute of Business Analysis IIBA, 2015a)

One of syscon's tactics is to identify every company in the DACH region that uses DFO, and to convert these leads into customers. The company can then leverage their expertise on DFO and minimize change management efforts at the same time.

syscon's managing partners have not specified any growth targets for the customer base, turnover or company head count. They emphasize the need for profitability above growth and target a return on investment (ROI) of 7-10% for survival. The sectoral average for medium-sized enterprises lies between 7.5% and 11.2%; providers of knowledge-intensive services obtaining the highest ROI. (KfW, 2023) (nwb, 2019) (Numbers for small enterprises were not available at time of research.) Additionally, the company head count should not exceed 30 employees in order to keep business processes and organizational structure aligned. A sizable growth would require unwanted restructuring.

To keep the status of Microsoft partner, syscon must adhere to skilling & customer eligibility requirements. Among other requirements, the company and its employees must acquire 10 Microsoft certifications in specified areas, acquire 3 new customers per year, offer a set of Microsoft cloud services and record a revenue growth of 20% via Azure cloud services.

syscon currently faces the effects of recession. (manager magazin, 2024) In times of economic growth, syscon aims to acquire one new customer per month to guarantee a continuous operation, but the company is struggling to find new customers. Ongoing projects are the result of existing customers.

Companies are less likely to invest in infrastructure projects in times of recession because they are not seen as vital. Additionally, operational costs (rent, license fees, salaries) have risen by approx. 30% percent. This impacts the cost structure negatively. (syscon Unternehmensberatungsges. mbH, 2024b)

To protect the businesses liquidity, the company will reduce investments — except for training measures to keep a relevant & broad skill set. Furthermore, consultants are encouraged to push syscon products because resulting licensing agreements benefit a steady revenue stream. The revenue stream continues to include consulting services, licenses & syscon products, with a minimum target of 850 billable hours per month. (syscon Unternehmensberatungsges. mbH, 2024b)

With 102 active projects and 15 internal and external consultants, one consultant faces the workload of 6.8 projects on average. The company is looking to hire more employees in the long-term but is hesitant due to the economic situation. (syscon Unternehmensberatungsges. mbH, 2024b) With the need for more billable hours consultants are forced to work more efficiently. This means time for administrative tasks must be minimized to maximize the ratio between billable hours and total working hours.

All in all, syscon has four major tactics to stay competitive in the face of recession:

1. Focus on (niche) platforms that cater to the needs of SMEs.
2. Exploit their strategic partners' customer base to extend their own customer base.
3. Invest into the know-how of their current employees.
4. Push more digital products (syscon products) to customers for steady licensing income.

In comparison to its competitors syscon has a few weaknesses. Unlike “Cosmo Consult” or “MDIS Consulting” syscon only has a limited number of consultants with similar backgrounds. For example, the company tries to offer neutral ERP consulting services but can only support with the technical implementation of a few products. The limitation in technical capability might restrict their neutrality. (syscon Unternehmensberatungsges. mbH, n/a e) The company limits their potential customer base & growth by focusing on few specific platforms. At present, they do not seem to have the opportunity to expand geographically either, as their expertise and connections are restricted to the DACH region.

Besides this, they struggle with attracting new customers via cold acquisition. The company lacks a marketing manager who could boost syscon's online presence on social media or search engine results pages (SERP). syscon has a profile on LinkedIn at the moment, with less than 200 followers and an average like count of 7.3 likes over the last month. (LinkedIn, n/a)

The sales team consists of 2 people who research leads and contact potential customers via e-mail and telephone to assess their interest in syscon's services. syscon targets 100.000 euros worth of project orders per month for healthy business, but the number of new customers is much below target.

Figure 15 summarizes syscon Consulting's strengths & weaknesses, as well as threats & opportunities it faces in a SWOT matrix. With Microsoft Copilot an additional opportunity is coming along that could help syscon consultants and sales employees work against market threats and achieve company goals.

Strength	Weakness
<ul style="list-style-type: none"> • Network of strategic partners • Interdisciplinary knowledge • Microsoft Gold partner: Data Analytics & Data Platform 	<ul style="list-style-type: none"> • Low marketing know-how • Small focus area (platforms) • Limited human resources
Opportunity	Threat
<ul style="list-style-type: none"> • Access to Microsoft Copilot • Growing need for analytics solutions 	<ul style="list-style-type: none"> • Recession & less tech investments • Strong competitors with similar performance areas

Figure 15. SWOT matrix for syscon Consulting, adapted from: (International Institute of Business Analysis IIBA, 2015b)

3.1.2. Copilot could help reach syscon's goal of reducing administrative effort for both sales employees and consultants to enable them to focus on core business

The deployment of Copilot within syscon should have two main outcomes:

1. The workload of consultants and other customer-facing roles is lightened & time spent on administrative work is minimized. (Using Copilot for M365 to improve development time & quality is outside of its scope of application.)
2. To gain more customers with active interest, sales & marketing activities must be improved. Sales employees should be able to contact leads & respond to client requests more efficiently & adequately. Marketing activities must be extended and streamlined as much as possible.

To reach these goals a list of business requirements must be fulfilled.

Information retrieval: Copilot for M365 should enable employees to quickly find documents and reuse information for the creation of new documents or pieces of communication.

- Example 1: Consultants can prepare a service concept based on prior communication with clients, workshop minutes, site visits etc. quickly and accurately with minimal preparation time.
- Example 2: Sales employees are able to gather technical information quickly to respond to client requests adequately without interfering with consultant work.

Efficient communication: Copilot for M365 enables employees to communicate with clients & each other efficiently. It reduces time spent on writing e-mails, scheduling meetings and preparing follow-ups.

- Example 1: Consultants can quickly respond to client requests with relevant information in an adequate manner without having to search for information.
- Example 2: Sales employees receive summaries of sales-relevant project updates and client communications, without having to read through e-mail threads or sit in alignment meetings.

Idea generation: Copilot for M365 helps with creating, editing, and commenting pieces of text & images meant for coworkers, clients or other externals. It also helps prepare & review meetings with idea generation and argument support.

- Example 1: Client-facing roles can generate presentations for preliminary meetings tailored to clients (industry, sector, business unit, solution approach) without having to search & open related documents.
- Example 2: Employees can generate blog posts & social media announcements quickly in the desired tone.

Integration into existing business applications: Copilot for M365 should integrate with the deployed CRM system “CAS genesis World” to access sales information (contact info, client requests, lead lists) & ERP system “Microsoft Dynamics NAV” to accelerate project time tracking.

- Example 1: Consultants can track hours worked on projects & related info quickly without having to navigate through the ERP system.
- Example 2: Sales employees can access & edit client contact information and contact lists of leads without navigating through the CRM system.

In order to show how the aforementioned outcomes can be achieved, it is necessary to have an overview of the roles and responsibilities within the company. The majority of employees are consultants. Besides the two managing partners, syscon employs a sales team, one accountant, one administrative assistant and two working students.

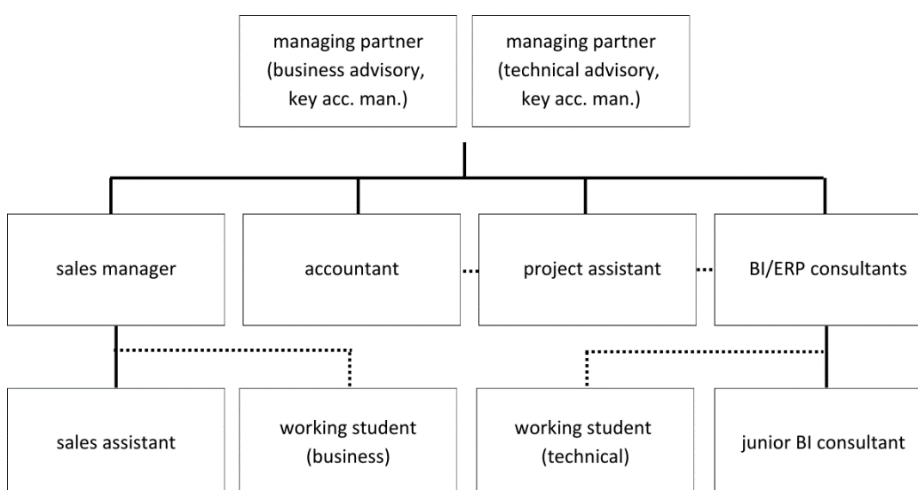


Figure 16. Organizational chart of syscon Consulting depicting hierarchy (solid line) and regular collaboration (dotted lines) (created by the author)

The entire sales team has a full-time equivalent (FTE) of 1.5. Their work focus lies on market research, cold calling and customer success. The managing partners support sales with key account management. Due to the lack of a marketing manager both sales employees take up marketing-related tasks, and coordinate with an external marketing agency. The agency mainly assists with website maintenance. Minimizing marketing-related work time would enable the sales team to focus on lead generation & customer success.

3.2. Analysis of selected processes shows a need for Copilot to connect to multiple business applications, handle company-internal information and generate a range of different documents

In order to measure the deployability of Copilot in the company, a managing partner has picked out two business activities for testing. Activity no. 1 is one of syscon's marketing campaigns and involves the creation, publication and post-processing of online webinars. Activity no. 2 involves the preparation of client-facing documents & communication during advisory & consulting. Copilot is set-up and tested from June 17 until July 8 (3 weeks). Copilot is assessed based on problem-solution fit, time saving potential and set-up difficulty.

3.2.1 The process of creating, hosting & debriefing the webinar series is split between roles and platforms

In order to attract the right customers syscon holds a series of webinars with various topics that thematize syscon's key competencies. They held their first webinars in 2023 and would like to continue with a yearly series. The webinars are hosted on an online platform called "GoTo Webinar".

The managing partners decide on the format, content and dates of the webinars first and provide short descriptions of their webinars to the employee coordinating the events. In this year's case, a working student created event titles based on short descriptions and compiled details on all webinars on the platform. The student then published blog posts including a registration link to syscon's website and LinkedIn page.

1. Brainstorm webinar ideas.
2. Find suitable dates to host events.
3. Create webinar content.
4. Send information to employee.
5. Student worker creates event titles and blog posts.
6. Student worker finds or creates images for blog posts.
7. Student worker sets up webinar on platform.
8. Student worker publishes posts on website and LinkedIn.

The sales assistant then utilizes the CRM software to address stored lead lists. Leads with association with a webinar topic are invited via e-mail to register to the event. The e-mail is also forwarded to all employees for them to extend the invitation to their network. The assistant follows-up with another e-mail after each event.

Lead lists are the result of the sales assistant's market research. The research is limited to publicly available information and is therefore a bottleneck for sales activities. The webinar series does not help remove this bottleneck, but rather takes effect at the second stage of the sales funnel: Create interest for already aware customers who show general interest in syscon's key topics but have not yet made the decision to invest into ERP/BI consulting services yet.

To remove the bottleneck at the first stage of the sales funnel, other marketing activities such as ad campaigns, SEO or social media should be prioritized. They create customer awareness and if paired with incentives to relinquish relevant personal information, they help with lead generation as well.

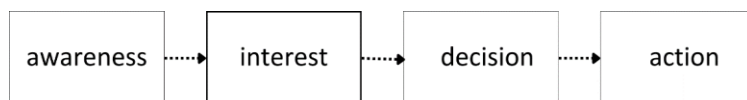


Figure 17. The webinar series takes effect at the second stage of the sales funnel (bold), adapted from: (Kelwig, 2023)

“GoTo Webinar” offers an option to send an invitation e-mail to the organizer which then can be forwarded to others, but it does not connect to the CRM system. To utilize the contacts from the CRM system the sales assistant's pre-webinar process looks as follows:

9. Create a lead list, if not happened yet, e.g. “Microsoft Dynamics users”
10. Create a document template that includes the webinar invitation. To avoid formatting work, the template is often duplicated and edited from old templates.
11. Send a test mail to the syscon sales team.
12. Select lead list, template and dispatcher address.
13. Remove exempted or unwanted addresses and duplicates.
14. Send or plan mailing via Outlook.
15. Forward e-mail to colleagues via Outlook.
16. Check mailing status for duplicates or mailing errors.
17. E-Mail is archived in Outlook.

After each online event the sales assistant obtains a list of webinar attendees from “GoTo Webinar” to address them with another e-mail, in which she extends a talk offer, asks for feedback and provides webinar documents. Relevant customer information or resulting client appointments are recorded in the CRM system and Outlook.

18. Host webinar on “GoTo Webinar”.
19. Obtain list of attendees from “GoTo Webinar”.
20. Write follow-up e-mail to attendees and attach documents.
21. Save new customer info in CRM software and schedule customer appointments on Outlook.

All in all, the process includes “GoTo Webinar”, Outlook, Excel (list of attendees and webinar dates), “PicsArt” (AI image generation), Word and “CAS genesisWorld”. Media used to prepare webinar content is not included. Unlike the student worker or managing partner/speaker the sales assistant has repeating tasks.

The student worker spends approx. five hours on preparation. The sales assistant estimates 1.5 working days per event. With 5 events in total, time spent in total is 7.5 working days or 60 hours. A third of the time is spent on preparation, two thirds on post-webinar tasks.

Here is a table of prompts and Copilot functions relevant to the webinar process:

Table 4. Copilot example prompts relevant to syscon's sales assistant used in testing.

No.	Use Case	Prompt/Copilot Feature
1	Connection to business applications	<p>Copilot has a connection to "CAS genesisWorld" to assist with efficient database maintenance, retrieval of customer info, and template creation. Copilot prompts are translated into "CAS genesisWorld" actions.</p> <p><i>"Add this [list/file/e-mail] of new information to saved contacts in our CRM system."</i></p> <p><i>"Tell me which contacts I need to contact today, based on the notes in CAS and date of last contact."</i></p> <p><i>"Tell me which sales arguments I can use to convince [particular customer] to invest in a project."</i></p> <p><i>"Help me organize the CRM contacts in a way that aligns with [sales strategy] and avoids duplicates and other redundancies."</i></p>
	Connection to online services	<p>Copilot connects to "GoTo webinar" to assist with webinar set-up, planning. Copilot is able to utilize webinar content, list of attendees and analysis results provided on the platform.</p> <p><i>"Cross check the list of people registered to the upcoming webinar with contacts in the CRM system. Which of the participants are active customers, old customers and potential new leads?"</i></p> <p><i>"Copy webinar information and analysis results of all past webinars into this Excel file in the following format:[...]"</i></p>
2	Market research	<p><i>"Comprise a list of SMEs in the DACH region that are current users of DFO/Dynamics, LucaNET, or IFS for ERP or financial consolidation. Our aim is to explore business collaborations with these entities. Please focus on identifying contacts who are in decision-making roles, specifically CxOs, finance heads, project, or production managers. The desired output should include the company's name, key contact details, and insights into their software utilization that could indicate a need for our services. Use information from any websites and databases such as LinkedIn, Xing, company websites, news sites etc. you have access to."</i></p>
	Market research	<p><i>"How can I refine my search criteria?"</i> or <i>"Which key words are related to my search criteria?"</i> or <i>"Which Google search do I have to type in to filter results for [search criteria] on Xing?"</i></p>

3	Creative writing/ information retrieval	<i>“Create an invitation email for the webinar on [webinar title]. The email should include an attention-grabbing first line, date, time, registration link with call-to-action, a short webinar description and summary of the speaker’s profile. Try to convince the reader in an engaging, professional, unobtrusive way to register for the webinar. Add a GDPR notice with a reference to syscon’s GDPR site.”</i>
	Creative writing	<i>“Follow up with the attendees of the webinar [title], thanking them for their participation and asking for feedback. It can also include a link to a survey, the recording of the webinar, and webinar presentation. Offer a free consultation session with a syscon expert. Customize the draft in such a way that it entices the reader to accept our offer for a free consultation session.”</i>
4	Scheduling	<i>“Find the optimal time slot for a sales pitch meeting between [managing partner] and client [name of interested party] within the next two weeks. Consider the availability and preferences of both parties. Consider time zones and holidays of different regions. Consider rescheduling less important appointments on [managing partner]’s side if necessary.”</i>
5	Document generation/ image generation	<i>“Create a PowerPoint presentation for the webinar [webinar title] based on the main points and objectives mentioned in the webinar description. Add relevant images, charts or graphs to make the presentation more engaging and interactive. Use the design of [template document].</i>
6	Document handling/ analysis	<i>“Analyze the event results given in the excel list and rank customers by shown interest.”</i>
7	Image generation	<i>“Generate an image for the advertisement of the webinar [title] that reflects the theme & content. Add text, or other elements to make the image more appealing. Add the syscon logo at the bottom right corner.”</i>

3.2.2. The client advisory process is highly volatile but could benefit from quick access to a central repository of recurrent or standardized documents

After a client has shown interest during the sales process, the managing partners present syscon’s portfolio tailored to the customer’s needs in a preliminary meeting. If deeper technical expertise is required for the presentation, consultants are brought in for the first time. As the process advances, the consultants are involved more. (Please refer to Figure 18 for a process map.) They coordinate client alignments, lead workshops and define technical & functional specifications in cooperation with the customer.

After having agreed on the project target & way of working, consultants are in regular exchange with the client to ensure the fulfillment of business requirements during technical implementation. They therefore regularly create and share information via Outlook, Excel, OneNote etc. If involved parties have opted for training, consultants additionally provide training documentation. A high-level process map of the client advisory process is provided in Figure 18.

Although the client advisory process heavily depends on client needs and prerequisites, consultants have established a few constants. Consultants at syscon share best practices, technical documentation and guides in a OneNote file on SharePoint. Recurring documents such as project plans or solution proposals (incl. list of specification and cost estimation) are based on older versions and documents provided by managing partners, which are reused 80% of the time. (Data indicated by a syscon consultant.)

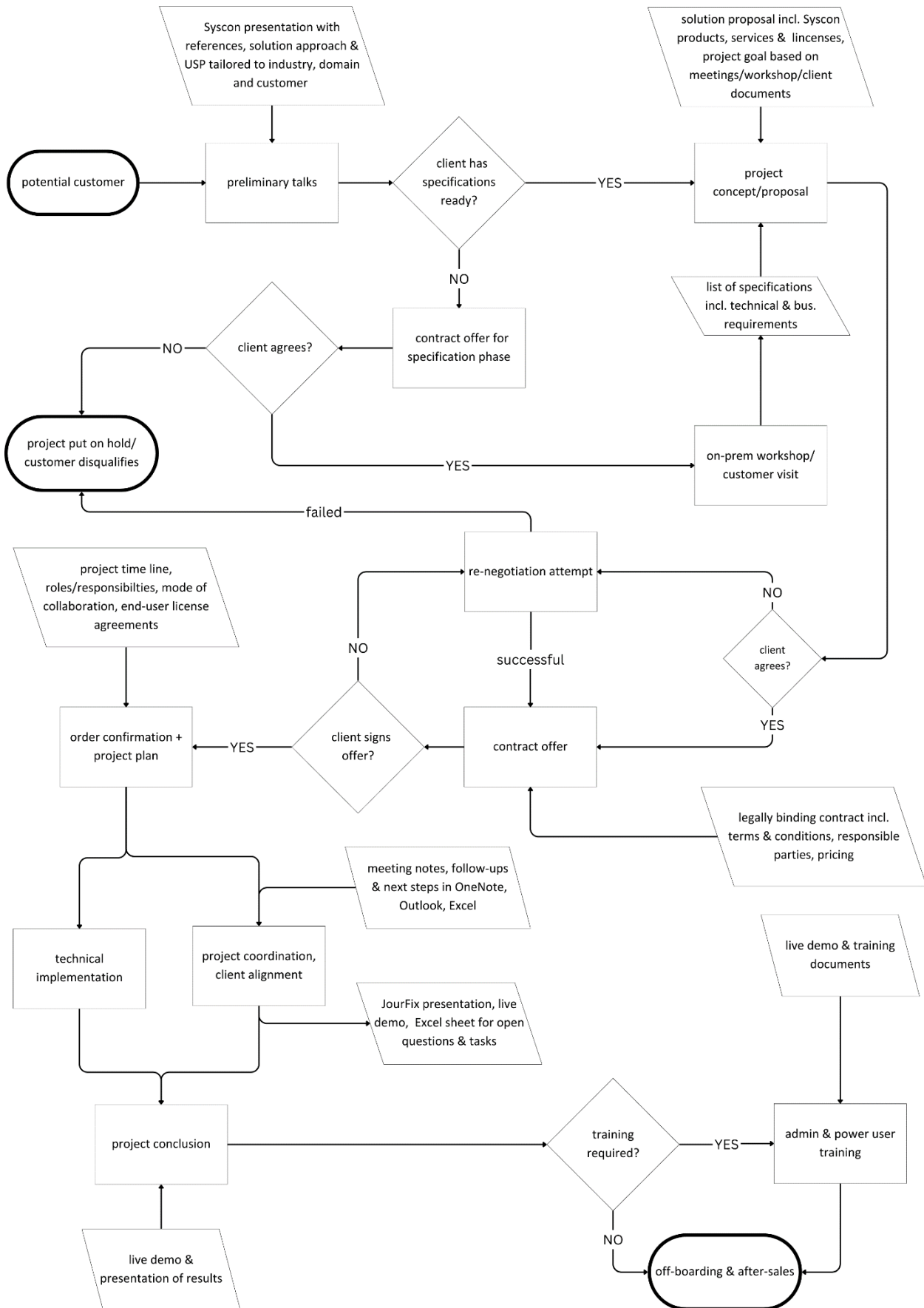


Figure 18. High-level process map of client projects at syscon consulting incl. documents provided or edited by consultants (created by the author)

The consultants expressed a need for a central well-structured document-repository that not only provides current key information but also provides formatting templates. According to the consultants, there is a tangible information delay between customer-supporting managing partners and technical consultants that needs to be bridged. It is also considered laborious and time-consuming to fetch templates and information from different sources (SharePoint files, Teams channels, e-mail threads, internet, local drives). Consultants estimate a workload of approx. 1.5 days per week for administrative tasks. These tasks include internal & external communication, time tracking, maintenance of documentation and meeting preparation.

Consultants also state that a higher degree of standardization in specific project steps, such as configuration & installation or authorization concepts, would save administrative workload and project efforts without sacrificing a custom-tailored solution approach.

Table 5 lists prompts & Copilot functions that are based off of expectations set by consultants and managing partners. The prompts were modelled after examples provided on Microsoft Copilot Lab (Microsoft, n.d.). German translations of the prompts were used for testing.

Table 5. Copilot use cases and prompts relevant to syscon consultants used in testing.

No.	Use Case	Prompt/Copilot Feature
1	Data protection	Copilot never gives away sensitive information to the wrong users, even without investing in an additional Purview license.
2	Chat memory	Copilot saves Copilot chats for easier recollection of past prompts.
3	Summary	<i>“Generate a concise summary of the workshop with [client name, e.g. ██████████] that took place on [date, e.g. “26.4.24”]. The workshop focused on understanding the client’s business needs and current data infrastructure to derive functional and technical specifications for the upcoming client project [“SWA”]. Provide a summary that captures key takeaways, focus areas for the project, responsibilities and roles of contact persons on the client side and actionable steps. Take information from OneNote.”</i>
	Summary/ideation	<i>“Summarize the overall progress of the project: What topics did we discuss with [client name, e.g. ██████████] so far? Give me current information on blockers and open questions. What is the latest status on [topic, e.g. “Wechselkurse für Budget 2025”]? Take information from e-mails, Teams chats and JourFixes with [client name, e.g. ██████████].”</i>
	Summary/argumentation/ideation	<i>“List all advantages mentioned in [SharePoint file, e.g. “Konzeption”] of [syscon product, e.g. syscon Hierarchy Builder] in comparison to alternative products existing in the market and how exactly these advantages are achieved as bullet points. Take additional information needed for the comparison from the internet. The list of advantages is needed to upsell [client, e.g. “Bachmann”].”</i>
4	Information retrieval	<i>“Tell me how [KPI name, e.g. “Scrap” or “COTD”] is calculated for [client name, i.e. ██████████] based on documents within the Teams project channel. Keep the answer under 5 sentences.”</i>
	Document retrieval	<i>“Find me all project proposals that involve [topic, e.g. PowerBI report delivery] for clients active in the manufacturing industry that were created within the last 6 months by [name of employee, e.g. ██████████].”</i>
	Information retrieval/meeting preparation	<i>“Tell me which open points I have to work on this week for each client project I am involved in and give me an assessment on how long each open point takes to implement for the stand-up meeting with my colleagues later this day. Order the open points by priority as given in each source document.”</i>

	Summary of working history	<i>"Give me a summary on the topics, clients and tasks I have worked on this week (Monday to Friday) for the "Projektbuchungsblatt" in "Navision" and how long I needed for each task based on my e-mail history. Include a one-sentence long task description, date, time duration and who I worked with in table form."</i>
5	Formatting/ Document generation	<i>"Generate a 10-page step-by-step guide for [client name; "██████████"] power users on how to use [product/application, e.g. "PowerBI"] including examples taken from the client case. Include in italics which screenshots of the software I should paste into which part of the document. Structure the guide as following: [agenda, e.g. 1) general information 2) architecture overview 3) community 4) first steps with PowerBI 5) report design]. Keep a professional tone and accurate writing style. Take [document] as a reference for formatting and structure."</i>
	Document generation	<i>"Create a one-page feedback form for [client project, e.g. "██████████"], in which I can assess the satisfaction for the [product/service, e.g. PowerBI workshop] report presented to the client. Use open questions and Likert scales. Also add a short sentence describing the purpose of the feedback form and end with a thank you and my contact information."</i>
6	Translation/ phrasing	<i>"How can I translate [text sequence, e.g. "Projektumsetzung wird sich um 4 Monate verschieben"] within the context of [topic/theme, e.g. "a project plan"]? Give me 3 ways for an accurate, professional and concise translation."</i>
7	Coding assistance	<i>"Write me the shortest possible Python script for [purpose. e.g. "importing Excel files into a SQL server table"] including comments that describe the function of each code section."</i>

Although Microsoft recommends setting up data protection measures via Purview before rolling out Copilot, Purview is not included in the Copilot license. The additional cost for Purview is calculated based on capacity units used per minute, and therefore difficult to assess before purchase.

syscon owns a Microsoft 365 E3 license with access to Microsoft Entra for identity and access management. User groups can be created manually or automatically with the creation of Teams channels, group inboxes and alike. These user groups or individual Entra IDs can be associated with different security labels.

Sensitivity labels are set manually on documents (file labeling) and SharePoint sites, Teams channels and Microsoft 365 groups (container labeling). Without Purview, there are no data map, security monitoring or incident management available. Instead of automatic labeling, files and containers must have labels assigned when they are created and only security administrators can modify them afterwards.

syscon set up two security labels to test whether Copilot adheres to data protection settings: "public" which is available to anyone inside or outside the company if not protected otherwise (password protection, SharePoint access), and "confidential" where authors must specify which users are able to see and modify the document. (Please refer to Appendix 4 for screenshots.)

The data protection feature of Copilot is evaluated by using mock documents (one that has a confidential security label, and another that has password protection).

4 Copilot is not fully functional yet, but consultants have a positive attitude towards its application results

The results of the use case testing are summarized in Table 6 and 7, that refer to Table 4 (sales assistant) and 5 (consultant use cases) respectively. Screenshots of prompts and Copilot answers are attached in Appendix 5 and 6. The evaluation scores in Table 7 are based on a questionnaire filled out by two syscon consultants, who gave feedback on the usability of Copilot. The questionnaire is attached in Appendix 7.

Although the perspective of the sales assistant on usability is equally relevant to the evaluation of Copilot as the consultant's perspective, the sales assistant was not asked to give feedback. As stated in Table 6, Copilot is not yet able to connect with business applications currently in usage by the sales team. As the CRM system is an integral part of their daily work, information relevant to the sales assistant cannot be accessed by Copilot. Use cases 2, 3 and 4 could therefore not be tested in a realistic work setting.

Because Copilot for Excel is currently in preview mode, most prompts in use case 6 did not render serviceable results. At time of testing (calendar week 26) Copilot in Outlook and PowerPoint could not reproduce the functionality advertised by Microsoft. Copilot lacks functionality for use cases 5, 6 and 7 at the moment. Therefore, an evaluation of usability based on the test results by the sales assistant was of no consequence.

4.1 Copilot lacks integration into business applications and other key functionalities important to the sales assistant

Table 6. Summary of Copilot performance for sales assistant use cases

No.	Used Medium	Summary of Results
1	-	<ul style="list-style-type: none"> • Copilot does not have a connection to "CAS genesis world" yet. • "CAS genesis world" has an Outlook integration, but making changes within the CRM software via Copilot in Outlook is not possible. • Copilot does not have a direct connection to "GoTo webinar". • To use information from "GoTo webinar" the info must be exported to an Excel file first. • Example prompts for "CAS.genesis world" and "GoTo webinar" could not be realized.
2	Browser	<ul style="list-style-type: none"> • General prompts do not yield instant results, but after a short specifying Chat with Copilot, the responses get more helpful. • Copilot tends to answer with instructions/guidelines rather than concrete information. • Decisive questions that led to helpful answers at the end of a chat, cannot replicate the same helpful answer at the beginning of a conversation. • "Copilot for web" is more suited for market/web research than "Copilot for work". "Copilot for work" tries to reference company-internal documents even if not applicable to the prompt. • The Copilot chat in the browser has a limit, forcing the user to start a new conversation midst of research. • "Copilot for web" search history is not saved for later access.

3	Outlook	<ul style="list-style-type: none"> Referencing other e-mails or documents in the prompt is not possible. Copilot does not offer pre-formatting or tagging in its proposed draft. Once the draft is committed, new draft passages can be generated within the same e-mail. Copilot can consider direct e-mail context (e-mail thread, committed e-mail draft) to a certain extent, but other information (e.g. from company internal documents) must be provided in the prompt. Copilot offers coaching option, where e-mail is analyzed for tone of voice, clarity and reader impact. The coaching option gives improvement tips but does not generate an adapted draft. Copilot response can be fine-tuned to length & grade of formality. Generation of e-mail draft takes approx. 30 seconds and is therefore faster than devising an e-mail without Copilot. Creative writing by Copilot closely linked to stereotypical phrases and arguments.
4	Outlook	<ul style="list-style-type: none"> Some marketed features and suggested prompts such as scheduling assistance did not work at time of testing (CW 26). Copilot sometimes gives related, but irrelevant information. Copilot is able to reference e-mails, meeting appointments and contact information available on Outlook to help prepare upcoming meetings or summarize e-mail threads.
5	Power-Point	<ul style="list-style-type: none"> Copilot can refer to Word and pdf documents but no other types of documents (PowerPoint, Excel). In terms of prompts unique to PowerPoint, Copilot understands only very specific prompts and leaves less room for creativity. Copilot cannot help design or format a serviceable presentation Copilot generates somewhat unrelated images to presentations (no informative graphics or diagrams). Copilot in PowerPoint can summarize existing presentations and write presentation agendas based on presentation content or other reference documents.
6	Excel	<ul style="list-style-type: none"> Copilot for Excel is in preview mode and does not support German language yet. Copilot suggests prompts to analyze, edit or sort the data, but fails to fulfill few-step tasks such as adding rows or calculating averages. Data must be transformed into a table first for it to be handled by Copilot. Response time in Excel is tangibly longer than in other apps.
7	Browser Power-Point Word	<ul style="list-style-type: none"> “Copilot for work” and the Copilot chat are unable to create images, but “Copilot for web” can. Referencing documents for the image generation is not possible in “Copilot for web”. The image generation feature is coming to Word desktop version soon. Though documents can be referenced in PowerPoint, Copilot in PowerPoint does not recognize an actionable task in the example prompt.

Task completion time: Due to the lack of Copilot integrations at the moment the sales assistant would have to switch between media (“GoTo webinar” platform”, the CRM software and Copilot) often, which is time-consuming. A version of Copilot that is integrated into the CRM software would be able to use information stored in the CRM system efficiently. Although plug-ins to different services are in development, using Copilot for the aforementioned use cases would require more time and effort than fulfilling the tasks without Copilot.

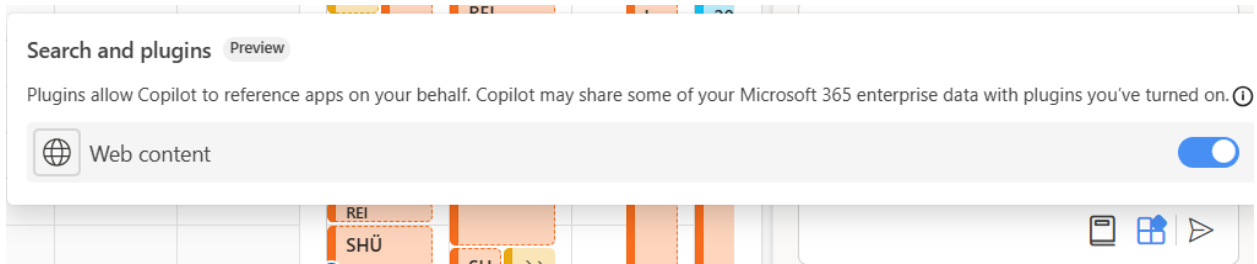


Figure 19. Plug-ins for Copilot in Teams are in preview mode

Set-up and adoption difficulty: Once Copilot is set-up by the administrator, results depend on prompts written by the user. Use case 2 highlights how important prompt engineering is to achieve expected answers. Constructing detailed, goal-oriented prompts is an iterative process that takes time and effort. Microsoft offers standard prompt suggestions such as summarization within the Copilot chat and the Copilot lab, but the sales assistant would have to create her own prompt library for efficient usage. This requires sufficient knowledge on Copilot and creativity, which presupposes a training on prompts and Copilot functionality. The result of a prompt is dependent on various factors such as context which means that identical prompts not always yield identical responses. The user would have to account for this.

Budget adherence: Copilot costs 28.10€ per user per month. The average cost of an hour of labor in Germany was around 37.30€ (Statistisches Bundesamt, 2022), which means if Copilot was able to save 45min per month it would break even. The sales assistant stated that she needed approx. half a working day to write follow-up e-mails and respond to customer request after each event. If she was able to save time at this step of the process with Copilot, depending on the frequency of webinar events, Copilot would be a successful time saving investment.

Copilot is neither able to connect with “GoTo Webinar” nor “CAS genesisWorld” in order to collect addressees, nor can it automatically attach documents to the e-mail or edit client information in the CRM system. It could assist with scheduling, if the client’s calendar was available to Copilot, which it is not. Additionally, Copilot struggled to perform scheduling tasks during the test phase. Microsoft already has integrated a scheduling assistant into Outlook to quickly find open slots, making Copilot redundant for this use case. If the sales assistant would write highly personalized e-mails to all of the attendees, Copilot could help formulating different e-mails. In the context of the webinar series, all contacts receive the same invitation and follow-up e-mail where the salutation is customized with the help of the CRM system. In the current way of working, the sales assistant re-uses old templates saved in the CRM system whenever she has to create a new email.

As long as the input and requirements of the webinar process remain the same, Copilot cannot help the sales assistant save time. Taking only the webinar process in consideration Copilot is not able to break even.

Business value and problem-solution fit: Besides the webinar process, the sales assistant is responsible for market research and lead generation. According to syscon’s current strategy all other marketing activities are outsourced to a marketing agency. If syscon decides to integrate their marketing into the company in the future, Copilot would be able to assist with image generation, content planning and search engine optimization (key word search, SEO guidelines etc.)

Use case 2 was an attempt to recreate online lead research. It took approx. 20 minutes of chatting with Copilot to gain the names of ten companies to target. The sales assistant would have to find contact information from decision-makers of these companies, contact them and arouse interest to finally gain sales prospects, but Copilot was already able to support during the first step of the process. The better the ideal customer profile, target audience and other sales criteria are defined in written form, the better Copilot can assist with sales tasks. Copilot is not able to access private databases or bypass paywalls, which is why traditional ways of lead research, or the utilization of lead services cannot be replaced by Copilot.

The performance within various productivity apps falls below expectation, especially in PowerPoint. Unlike Excel, Copilot for PowerPoint is out of preview mode, but the AI assistant repeatedly cautions the user that its capabilities are not yet fully developed.

4.2. Usage of alternative business applications could enhance the webinar process

During the webinar process, the sales assistant needs to coordinate with other employees and managing partners. Webinar descriptions, list of attendees and other documents are distributed via e-mail or put into a shared folder on the local drive. Using shared documents on SharePoint would eliminate the need to mail updated documents or wait for other's response.

Additionally, Copilot would be able to access all information shared, resulting in better responses to webinar-related prompts. Copilot finds and suggests references better, if related content is saved in one location. The team should dedicate a SharePoint folder or Teams channel to webinar topics, instead of attaching documents to e-mails. This way of working enables fast collaboration and benefits Copilot, which shows that a modern work set-up and Copilot go hand in hand.

During the webinar series in 2024 the highest attended webinar encompassed 13 participants and three hosts. Microsoft Teams in E3 capacity is able to host 300 participants with full interaction and up to 1,000 in view-only function. (Nainggolan, 2021) If Teams were used for hosting, it would also automatically provide i.a. a summary. Teams offers a "town hall" event type, which provides real-time analytics on attendees or viewing experience. Once the list of attendees is available to Teams, the user can interact with Copilot for further analysis. Microsoft Teams also offers "live events" that include registration forms, attendance review, access management, Q&A, captions and other services typically available on "GoTo webinar".

If syscon management decides to move from "CAS genesisWorld" to Microsoft Dynamics, the CRM system will connect to Teams and Outlook, which would enable Copilot to manage, edit and source from lead lists seamlessly.

All in all, the AI assistant needs clear and precise instructions to perform, and has potential to assist with writing, research and event analysis, but as of now it lacks some key functionalities. In the current state Copilot is not a recommendable investment for the assistance of the sales team. With E3 capacity, "Copilot for Sales" costs the same as "Copilot for M365" and entails Copilot for Dynamics. If a purchase gets likely in the future, "Copilot for Sales" should be considered for the sales team.

4.3 Copilot's information retrieval ability in current syscon setup did not satisfy consultant demand, and consultants shift interest to coding assistance

Business value and problem-solution fit: Copilot's data protection settings were reviewed as per management's request. It did not give away confidential information to the test user, if respective information was secured via a security label or password protection. Copilot's data protection feature is fully dependent on security measures and rules set in the company. Before a company-wide roll-out of Copilot can take place, access rights must be planned on Microsoft Entra/Purview accordingly.

According to Skapski Copilot does not support encryption (Microsoft Information Rights Management, S/MIME e-mail encryption) or password protection. The user must have password protected or encrypted documents open for Copilot to interact with it. Otherwise, they are not detected by Copilot at all. This way, Microsoft put security over functionality. (Skapski, 2024)

Consultants received a 15-min demonstration on the functions and user interface of Copilot before they were asked to brainstorm prompts which they would like to apply in daily work. Expectations for Copilot were different before the demonstration and were adjusted to create more realistic but valuable use cases.

Given an adequate information basis, Copilot excels in making summaries in various apps. If all information is given in the opened app, Copilot is guaranteed to create a reliable summary, but it often struggled with retrieving relevant documents and information from documents referenced in the prompt.

Consultants expressed the need to efficiently reuse documents they have created and find up-to-date information on projects without having to navigate through various repositories. Copilot does not adopt formatting from referenced Word documents or PowerPoint presentations in newly generated documents, but it considers the latest available document for its output.

Referencing of entire SharePoint files is not possible to bypass the reference limit. Copilot shows referenced documents or passages in its response, but they not always match the content of the output. Copilot has not hallucinated non-existent documents during testing.

Copilot is able to ideate recommendations, next steps, feedback etc., especially if it has summarized the information first. It was not able to synthesize information from the entirety of documents connected to Microsoft Graph in order to, for example, put requests in company context. The context must be phrased and stated within the prompt, which requires effort and project knowledge by the user. This means, Copilot is not able to replace briefings or alignments with other employees with its current information retrieval ability.

The possibility to provide context in a prompt is limited. Prompts in Word have an upper limit of 200 characters and 3 references. Also, Copilot's output partially depends on where the prompt was entered. Depending on the desired output, the user has to switch between Teams, browser or a productivity app in the middle of a task.

Even if the prompt referenced specific documents, Copilot at times retrieved information from other sources. The user is therefore not fully able to control the input of the LLM, resulting in irreproducible

results. One way to ensure Copilot produces dependable answers is to reiterate and compare requests, which takes up time.

Prompts for use cases 5, 6, and 7 produced promising results. Although formatting was not perfect, Copilot was able to structure, format and write a multi-page document within two minutes, thus much faster than a human. Translations, phrasing recommendations (e.g. Outlook coaching function), and code snippets were generated within seconds.

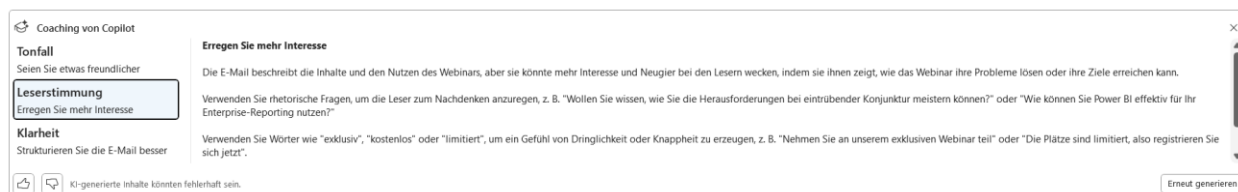


Figure 20. Copilot coaching on tonality, clarity and reader sentiment in Outlook.

All in all, Copilot possesses abilities similar to any other modern LLM in terms of text generation, formatting, or reasoning, but it was not able to demonstrate its unique selling point — information retrieval and semantic search — in the test situation.

Table 7. Summary of Copilot performance for consultant use cases

No.	Medium Used	Summary of Results	Usability Grade
1	Any	<ul style="list-style-type: none"> Copilot did not provide protected information to unauthorized users. Copilot did not bypass confidentiality labels. Copilot did not bypass password protection. Copilot did not give any indication whether the searched information exists if the searcher is not authorized to see it. 	-
2	Browser, Teams	<ul style="list-style-type: none"> Copilot saves a chat history in both the browser version (Copilot for Work) and the Teams Copilot chat. Prompts requested in other interfaces (Excel, Word, etc.) are not saved in the chat history. 	-
3	Teams, Outlook, Word, Power Point	<ul style="list-style-type: none"> Summaries are structured in a sensible way and always include references. Summaries are suggested by Copilot and available with one click on a button in all productivity apps. Summaries include all key information from document/app in use. Copilot can reference text passages, Teams meetings, e-mails, Teams chats, SharePoint folders, calendar items, and documents. Copilot is able to infer further recommendations, actions etc. from existing pieces of information to a certain degree. It is not able to extract and combine conclusions from multiple sources. Copilot fails to put newly generated documents into the context of the company and its operations. Complex task such as planning of the work week are not executed reliably. 	2,5
4	Teams, Word, Outlook, Power-Point	<ul style="list-style-type: none"> Copilot can retrieve relevant information from other documents if they were provided as a reference by the user but was not able to gather pertinent information from Microsoft Graph-indexed sources on its own. 	2,6

		<ul style="list-style-type: none"> • Copilot struggled to find and propose pertinent document sources for its responses and prompt suggestions, which compels the user to know the name of a document if they want to source from it. • The more coherent/abundant the information source, the more precise/reliable is Copilot's response. 	
5	Word, Power-Point	<ul style="list-style-type: none"> • Copilot differentiates between prompts written into the Word document or the Copilot chat pane. • There is a 200-character limit for the prompt, which makes detailed prompting difficult. • Passages of a once generated text in Word can be re-generated via Copilot for adjustment. • Even if template documents are referenced in the prompt, Copilot does not transfer the design/layout to the newly generated document. • Copilot adopts existing PowerPoint designs while generating new slides, but opted for title designs where content slides would have been appropriate. • Even if documents are referenced in the prompt, Copilot generates word documents based on general knowledge, rather than taking information from the source document. • Even if specifically requested prompt, Copilot fails to adhere to formatting requirements. • Images generated in PowerPoint are gratuitous. • Slides generated in PowerPoint are illegible. • Copilot adds whole paragraphs of speaker's notes to each generated slide. 	2,3
6	Browser, Teams, Outlook	<ul style="list-style-type: none"> • Copilot is able to translate text reliably and is able to adjust to preferred tonality and intent. It is also able to offer multiple distinct translations or wordings. • Copilot offers tailored coaching/feedback on pre-formulated text. 	2,1
7	Browser, Teams	<ul style="list-style-type: none"> • Copilot is able to generate the script as requested and explains how to use it in one's own project. 	1,6

Set-up and adoption difficulty:

Once the user is assigned a Copilot license by an administrator, Copilot is available in all productivity apps within minutes. The indexing of all user-specific e-mails and Teams chats is done almost instantly. Similar to the sales assistant's example, consultants need to clarify which prompts are useful to them little by little and save productive prompts for later use.

Copilot presupposes a well-organized file structure that goes hand-in-hand with data protection rules to efficiently retrieve and allocate pieces of information. Consistent naming conventions with dates are key for locating relevant and current files. The set-up of such a repository will take several months because it entails an iterative and collaborative process, that requires dedicated project resources. Setting up clear data security rules and measures is equally important and goes hand in hand with a digital organization project. Because setting up the ideal usage conditions for Copilot requires a project on its own, Copilot did not have proper access to all files relevant at time of testing.

The test user had access to 8 project channels on Teams, including the channel discussion and documents saved in the project channel. Other project-related objects, such as meeting recordings, Outlook items (events, e-mails), or chats between employees and clients were not accessible. The test user was forwarded one project-related e-mail thread.

Additionally, consultants do not make their personal notes publicly available or post internal documents on SharePoint. For this reason, 2 selected project files, one personal OneNote page and one OneNote file (that is typically shared between consultants for best practices and guidelines) were made available to the test user at time of testing. No changes or modifications were made to the files and documents shared.

Because communication with the client is of technical nature and highly individualized, Copilot will have difficulties generating helpful responses, unless the team has made efforts to standardize the consulting process. One of syscon's unique selling points is their dedication to custom-tailored support, which makes a full standardization of the consulting process and technical solutions unlikely in the future.

Budget adherence and time saving potential: Once a proper file structure is set-up Copilot bears potential to save time in various tasks. syscon consultants estimate to save up to 120-180 minutes per week, depending on the task. Consultants agree that coding assistance bears the biggest time saving potential, whereas summarization and phrasing are assessed to save only 15-30 minutes per week. If all use cases were to be applied fully within a week, time savings would amount to 5.5 hours per week on average. However, this requires that use cases are relevant and useful enough to be applied regularly.

Usability/user satisfaction:

The usability grade in Table 7 is based on the survey response of two syscon consultants, who have been introduced to Copilot before. The survey includes questions on different aspects of user satisfaction and perceived usability. To calculate the usability grade given in Table 7, the arithmetic mean of queried usability dimensions — perceived comprehensiveness, relevancy, creativity, coherence and usefulness — is taken.

Consultants were asked to grade each dimension for each use case based on Copilot's response from 1 (best grade) to 6 (worst grade). Score averages of use cases lie between 1.6 and 2.6, which means the consultants generally have a positive attitude towards all use cases. Coding assistance has the highest usability rating amongst consultants. Use case no. 4 (information/document retrieval) was rated worst due to low scores in creativity and relevancy of Copilot answers during testing.

After coding assistance, Copilot's responses to phrasing/translation and document generation prompts are considered useful. However, one consultant criticized the formatting of PowerPoint presentations particularly. The overall grade of 2.3 for document generation may be therefore disproportionately influenced by the quality of outputs produced in Word.

The "creativity" dimension was rated the lowest throughout all use cases with an average of 2.8, and "helpfulness" was rated best with an average of 2.2. This indicates that creativity is not crucial for prompt answers to be perceived as helpful by consultants.

Additionally, the consultants could not detect any incorrect statements or hallucinations in Copilot's answers, which may be a positive indicator for Copilot's reliability.

All in all, consultants have rated the tested prompts and results positively with a total grade of 2.22 out of 6, but they show most interest in coding assistance, which is not an inherent feature of M365. When asked which function or feature they missed the most relevant to their daily work, they requested a

Copilot integration into their daily used coding tools (SQL Server Management Studio, Azure Data Studio, Visual Studio, etc.)

4.4. Restructure and enrich file storage with data map for improved information retrieval

For proper information retrieval — with or without Copilot — syscon should dedicate resources to create a well-structured, process-oriented, centralized repository. For this, decision-makers need to answer i.a. following questions: Which main processes take place and how can files be structured accordingly? Which files are supposed to be saved on Teams and which on SharePoint? Which user groups does the company have? Which files should not be accessible to which user groups? Which files should be shielded from Copilot entirely?

Besides project-files, a central, flexible and scalable storage for Best Practices, Lessons Learned, text/image/library (for products, FAQ, often re-used pieces of communication) should be considered. Additionally, mapping out processes and adding file overviews similar to content tables can benefit both employees and Copilot for easier navigation through folders. This kind of documentation can be used to create a data map in the future.

A dedicated team should create suitable file structures, meta data tags and a descriptive & consistent naming convention, that is used across all projects. Copilot can assist here in an iterative manner as it has access to most files. This naming convention should be created in collaboration with affected employees. Resulting rules and guidelines, as well as their benefit and importance, should be communicated to all employees. Resources should be set aside for the organization and monitoring of company-internal data in regular intervals.

Before setting up a new file storage, current documents should be separated and archived in a way that is not accessible to Copilot. Only files that currently serve a purpose should be transferred into the new storage. Unnecessary files, such as duplicates and outdated versions, must be deleted. Management should consider investing into a tool that automates the monitoring and organizing of files based on pre-defined rules, such as File Juggler or other desktop automation applications, for a sustainable maintenance.

5 syscon will not deploy Copilot, but future implementation is conceivable after further research

5.1. Management decision to halt implementation after Proof of Concept

To estimate whether Copilot should be adopted into syscon, various aspects of the product were assessed. Functionality, price, usefulness of its output to the target group, and difficulty of implementation are main factors for the buying decision.

Since only a fraction of the use cases yielded satisfactory results under test conditions, it remains questionable whether Copilot is a profitable investment. Management would be open to further investigation and preparatory work, if Microsoft offered a more favorably priced trial version that could be tested with multiple users. As of now, Microsoft Copilot requires a one-year commitment per license which is ill-founded in the face of its inoperability.

The business requirements followed two goals set in [chapter 3.1.2.](#):

1. Minimize time spent on administrative tasks. Since the setup of Copilot requires months of administrative effort itself, it is not the right choice for a quick solution.
2. Gain more prospects and customers through improved sales and marketing activities. Copilot was not able to integrate into the sales assistant's current activities.

syscon will not roll-out Copilot for now, but the proof of concept led to the exploration of data protection measures such as security labels as well as an awareness for proper file storage maintenance.

5.2. POC was not able to evaluate Copilot usage in functional and broadly applicable setting

5.2.1. Limitations in research design due to various business restrictions

The proof of concept is subject to methodological restrictions. Copilot was available to one test user in the company, that does not have the same work history as other long-standing employees. Some consultants at syscon have been employed for more than 10 years and therefore have access to a much larger corpus of documents, e-mails, notes, chats etc. than the test user. Because Copilot only reiterates whatever the respective user has access to and is involved in, the answers obtained in testing very likely differ from whatever Copilot would have responded with if a consultant had used it. Although the test user had access to specific Teams project channels and SharePoint files, communication of not even one project was available in a realistic manner.

Additionally, syscon has multiple storage locations. Besides SharePoint, Teams and OneDrive, local drives are used which are not accessible to Copilot at all. The SharePoint storage was not put in order beforehand, which means it included irrelevant, outdated files that contradict the content of new documents, resulting in confused Copilot responses. On the contrary, Copilot would function better if it was provided content tables that describe the hierarchy and connection between various folders, similar to

data maps. There was no practical way to ascertain whether all relevant documents and items were indexed at time of testing either, because Microsoft disabled this Viva feature.

The use cases and prompts were inferred from discussions with consultants and the sales assistant, business analysis as well as material provided by Microsoft. To improve the intersubjectivity of this qualitative study, the target group was not only included in the design process but also in the evaluation. All relevant test and survey results are provided in the Appendix for transparency. The prompts and use cases reflect the target user's needs and ideas at that time, but users more experienced with Copilot might have ideated different prompts that are more expedient to Copilot.

The process analysis resulted in a mid- to high-level description of consultant's and sales assistant's tasks due to a high variability in their day-to-day business. Processes are not clearly defined in syscon for different reasons. In the consultant's case this flexibility is required to adequately respond to their client's needs and unexpected incidents. In the sales assistant's case, the webinar process is in development and thus open to changes. The less the processes are defined, the less Copilot can reliably infer information or recommendations.

As of today, some Copilot features are in preview mode. To gain insight on whether a future roll-out is feasible, one should test with a later version of Copilot or should have focused on fully developed features during evaluation.

5.2.2. The survey provides only a limited view on syscon consultant's attitude towards Copilot usability

The unexpectedly favorable evaluation of the test outcomes by the consultants, despite the acknowledged limitations of Copilot, warrants further investigation.

It is challenging to ascertain why the respondents have given predominantly positive feedback on the prompt results. Although the respondents were asked to give one comment per individual grade in order to enhance the interpretability of survey results, there is a lack of supplementary data.

Furthermore, the assessments of the two questioned consultants diverge significantly on certain use cases. For instance, the summarization case has a 45-minute variance in estimated time saving per task. This discrepancy could potentially be mitigated by a larger participant pool. However, the limited company size was i.a. a constraining factor.

Also, due to the small sample size, a sampling bias is not excluded. It is not clear, whether the respondents generally have a positive outlook on digital technology. Therefore, a cognitive bias favorable to the usage of digital tools such as Copilot cannot be excluded either.

It is conceivable that the respondents may have misinterpreted the survey, evaluating the application examples under ideal conditions rather than assessing the use cases in light of the actual, provided Copilot responses. While this is not evident from the answers, it provides one potential explanation for the unexpectedly positive evaluation.

Moreover, the consultants reported that they did not find any hallucinations, incorrect statements or other anomalies in the responses, yet there is no evidence to substantiate their accuracy. Not all documents and topics referenced in the test prompt and answers are current, and therefore cognizant to the consultants. Taking these arguments into account, the survey merely provides an initial assessment of syscon consultant's attitude towards Copilot, but it does not give insight into Copilot's general usability.

5.2.3. Limited transferability of syscon results onto other SMEs

syscon Consulting is a very small IT-consultancy and can only partially be taken as an example for SMEs. SMEs are highly variable in employee count, industry focus, organizational structure, know-how and turnover. Especially syscon's tech-savvy consultants could easily adopt Copilot in the future, if reasonable application cases are given.

Due to the small company size, combing through existing document storage and setting up clear storage rules would take less time than in medium-sized firms if resources were dedicated to it. On the other hand, medium-sized enterprises would have the necessary resources to invest in a broader and longer investigation and preparation of Copilot in form of a project.

Medium-sized firms benefit from Copilot more than small firms due to more complex organizational structures, decision-making process and communication between employees. There is more need for simplification & summarization on individual level than in small companies. As documented in the business analysis, syscon's management is not planning to grow the organization size beyond 35 employees in order to avoid organizational complexity.

The deployment of technology also depends on a company's business model, strategy and goals. During recession the investment readiness is slowed down. SMEs in countries where the government subsidizes usage of AI have higher chance of adoption due to reduced financial risk.

Also, syscon's customer support and project management are not standardized and leave little room for task automation, which reduces the application scope of Copilot. Companies mainly active in legal, finance or marketing would benefit more than syscon due to their extensive need for documentation and communication.

Copilot constitutes digital technology on the edge of research. Its organizational deployment requires a digital readiness, which greatly differs between countries and companies. A culture of embracing innovative technology, suitable technical infrastructure and administrative processes are beneficial to Copilot adoption.

SMEs that have different characteristics to syscon should evaluate Copilot according to their business requirements and dedicate resources to overhaul data protection and data storage before testing.

5.3. Although Copilot is immature, companies should prepare for future adoption with lessons learned from this POC

5.3.1. Microsoft delivered an incomplete product

Irrespective of what business goals or size a company has, a productive usage of “Copilot for M365” is not feasible at the moment. The working hypothesis of this thesis “Microsoft Copilot is a profitable investment for small and medium-sized firms” therefore cannot be confirmed.

The technical basis of the AI assistant is highly innovative. However, the product is in an incipient stage and gives the impression of being brought to market overhastily. Furthermore, platforms & services in connection to Copilot such as Purview and Fabric are either in preview or not fully production ready either. Since GPT-3 saw wide success in 2022, software giants like Google and Microsoft and startups alike have been competing for AI market share. This race might have urged Microsoft to rush the release of their product. Microsoft is known to publicize products in “preview mode” to allow users to test and provide feedback on new features, but their marketing incorrectly suggests that Copilot is enterprise ready.

5.3.2. Microsoft understates organizational efforts for Copilot adoption

On top of this, users new to Copilot are not made aware of its organizational requirements sufficiently. Microsoft offers a so-called “success kit” for management roles besides its technical documentation but provides a biased outlook on its preparatory work and potential. The data on its time saving potential is based on a study which “represents top 20 percent of users by volume of searches across Microsoft 365 services, emails received, and sent and read chats in Teams, respectively” (Microsoft, 2023d) — and is therefore skewed.

At the same time, data security and data governance efforts are underestimated. Microsoft’s “adoption playbook” suggests that existing measures are already on par with Copilot’s requirements and that businesses must “continue following [the] organization’s existing best practices” (Microsoft, 2024d). Training offers, e.g. courses on Microsoft Learn, focus on use case scenarios, data protection measures taken by Microsoft and Copilot architecture but not preparatory work.

Despite the heavy marketing efforts, Microsoft missed out on issuing trial licenses to involve early adopters that could have promoted use case scenarios, offered feedback and support, and would have worked out best practices and prompts to make the product more accessible to a broad community of users. On the contrary, prospects must invest a year’s worth of license fees in order to feel out the product, resulting in confusion and skepticism due to a lack of realistic use case scenarios.

5.3.3. Companies must prepare ahead with suitable adoption strategy

Nevertheless, not all determinants of success lie with Microsoft. A company trying to implement Copilot must be adoption ready. Even if there are no concrete plans for the introduction of Copilot in the company, digital readiness is a key factor for future competitiveness and allows the business to seize opportunities when they arise.

According to technology adoption experts (Cloudwell, 2024), a security audit beforehand and ongoing data maintenance by a dedicated data steward are key to avoid data loss and inconsistent responses; true to the “garbage in-garbage out” principle. Because the AI output greatly depends on the content’s SEO, setting up a CoE (Center of Excellence) that reviews access rights, user feedback, business outcome & best practices is a recommended strategy. For a company-wide roll-out, users must be prepared and engaged with training, regular tips & success stories. TATA consultancy services propose following adoption roadmap:

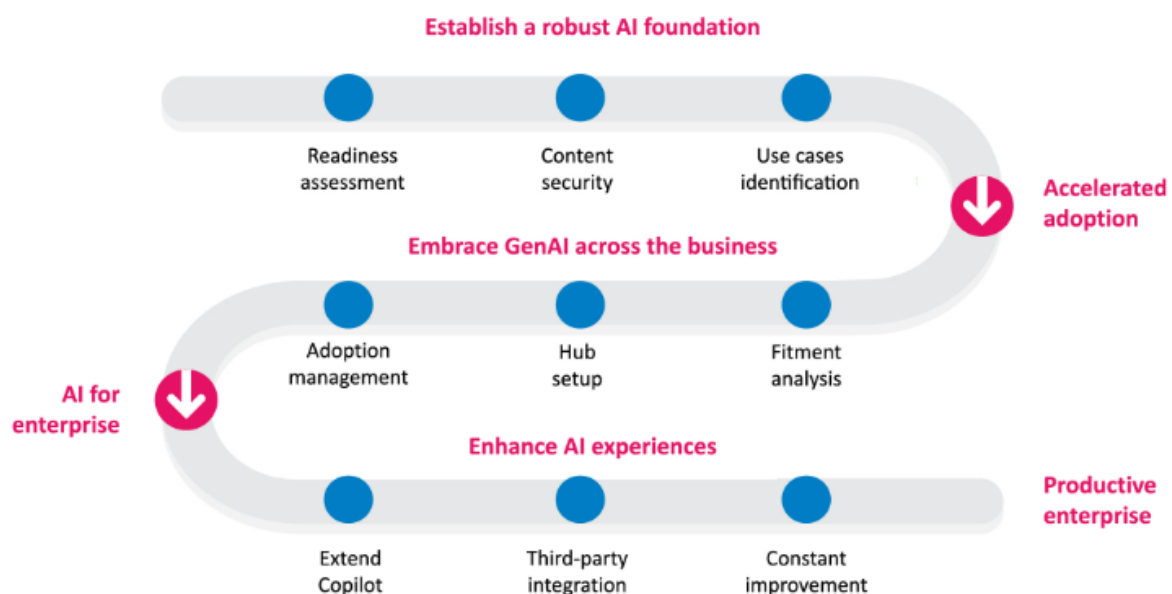


Figure 21. TCS Copilot adoption roadmap (TATA Consultancy Services, n.d.)

The framework similarly suggests identifying business use cases and fulfilling data protection measures before first deployment. The second stage is a limited trial phase, where a Copilot hub (CoE) is set-up, the problem-solution fit is evaluated, and users are prepared and trained for adoption. The last phase leads into a productive state, where Copilot application is extended with plug-ins & third-party integrations.

5.3.4. Action recommendations for syscon extracted from POC

These readiness requirements translate into recommendations for syscon in case of future adoption:

1. Develop a sensible storage and security concept (user groups, security labels, employee guidelines with strict definitions) and set up a team that oversees monitoring (data map, quality management and more).

2. Refine business use cases for Copilot beyond the two examined processes. If use cases for “Copilot for M365” are not convincing enough, consider use cases for “Copilot for GitHub”, “Copilot for Sales” or other alternatives available on the market. Copilot for M365 is designed to have broad applicability, which may not be suitable for syscon’s specific use cases. An AI assistant attuned to specific tasks could help with role-specific scenarios, such as coding assistance. A combination of multiple products & services from different providers may prove more effective, e.g. multi-modal ChatGPT & Bing Chat for Work. While doing so, consider that the introduction of new technology could even hinder productivity (Solow’s productivity paradox) and should therefore only be done with an adequate business case.
3. Implement an iterative prompt engineering process and create a prompt library accessible to all employees to avoid duplicate work and to spark creative exchange between users. Assign a Copilot CoE that controls activities around Copilot, such as Lessons Learned.
4. Consider rolling out Copilot for a role first, where least effort for most return is most likely (documentation heavy roles). This leaves room to gain experience and knowledge in a controlled environment before licenses for the entire company are acquired.
5. Try to find ways to integrate Copilot into processes seamlessly by switching legacy software or reassessing the use of platforms or way of collaboration, e.g. local storage, CRM software.
6. Try to find ways to modularize or standardize tasks where possible, e.g. clearly define relay points between managing partners & other employees or create a central repository for slow changing central information.

5.3.5. The POC helped assess Copilot’s current state and gained insights for future adoption

Copilot has some unavoidable limitations: Firstly, the adoption of Copilot is tethered to a steep learning curve, additional cost and administrative efforts. Secondly, the AI assistant is not exempted from typical LLM issues despite RAG to improve output quality. And lastly, there is a lack of transparency and customizability because the underlying model and settings are not disclosed to the buyer.

On the other hand, the POC was able to curb privacy concerns, or a fear of skill degradation linked to the use of Copilot. It also explored other means of improving existing syscon processes beyond Copilot. The insights gained from research and testing were used to draw recommendations for a potential adoption initiative in the future.

Despite all difficulties the adoption of Copilot entails, the artificial intelligence industry is a multi-billion-dollar market. The capabilities of AI assistants such as Copilot are expected to advance significantly and must be reassessed periodically.

5.4. Further research is required for an extensive evaluation of Copilot

Due to the fact that this POC was a first attempt to feel out Copilot's abilities and application scope in the context of SMEs, much more research inside and outside of syscon Consulting should be conducted to evaluate Copilot's suitability for process optimization.

5.4.1. More investigation options for syscon Consulting with mature product

Given a mature product in the future, syscon could consider further investigations. Within syscon, other use cases should be tested for more roles, i.e. managing partner, project assistant and accountant. The company should later on also test out different storage structures to find out which of them works best with Copilot. The same principle can be applied to prompts in the form of prompt engineering. If processes for the other roles can be broken down in more detail than for consultants, it would make sense to measure the success with concrete KPIs. For example, customer support tasks could be evaluated based on first response time or resolution rate. Marketing performance can be measured in feedback to content posted, click-through rate or number of subscriptions. Success measurement heavily relies on the respective process.

The company should also try out other Copilot versions (or a combination of the many other alternatives in the market) to find the most suitable product for their needs. The most cost-effective research would include waiting for the general release of key features and retesting prompts of this thesis with an improved storage system and matured product, because the respective license has already been acquired (valid until May 2025). Because the transferability of research results from syscon to other SMEs is restricted, similar POCs should be done wherever a Copilot adoption is considered.

5.4.2. Expansion of research onto technological alternatives and company contexts to assess best options for process improvement via AI

Process optimization lies in the core of this thesis' research question. AI assistants are one approach to task automation, but the field of RPA (robotic process automation) also poses much potential for process optimization. Alternatives to AI assistance should be explored and compared to AI and Copilot in terms of process optimization potential. AI assistants could be compared among themselves in terms of effectiveness and ease of use to find out which models are best suited for which enterprise environment. With proper research results, companies can benefit from an efficient problem-solution fit.

Furthermore, if AI is put into the focus of research, companies should investigate how they could align and model their business processes in an efficient and AI-friendly way in order to fully reap its potential.

The reliability of AI assistants in the enterprise context should be explored within a controlled environment, which may not mimic current company environments like syscon's realistically but offers insight into what other factors influence Copilot's reliability. This would make the deployment of AI assistants more transparent and controllable.

Once AI assistants have matured and more companies have adopted Copilot, the adoption processes can be compared to find out which strategies, roles and goals lead to fast and sustainable implementation. The long-term effects of AI deployment on productivity, innovation and return should be investigated as well once possible.

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APPENDICES

Appendix 1. Distinction between Copilot Variants

When searching for Copilot in news, articles and blogs, Copilot Pro and Copilot for M365 are two versions that are at the center of discussion, but there are many more variants in development or public preview. The cost of Copilot depends on the Microsoft service or application it is being integrated into. (Ortiz, 2023)

Copilots for Life & Copilot for Productivity

As of today, Copilot operates in a three-tiered freemium model. Copilot Free allows users to search for information and create content & images with the help of GPT-4 Turbo and DALL-E 3. It is available to anyone using Windows 11, Microsoft Edge, or Bing. (ISSC Group, 2024) While Copilot in Edge/Bing functions as a search tool & generative instrument, Copilot in Windows can also help change Windows settings with just a natural language prompt. (Ortiz, 2023) As stated on TechRepublic's website end of February 2024, its capabilities include actions such as:

- Turn on/off battery saver.
- Show device information.
- Show system information.
- Show battery information.
- Open storage page.
- Launch Live Captions.
- Launch Narrator.
- Launch Screen Magnifier.
- Open Voice Access page.
- Open Text size page.
- Open contrast themes page.
- Launch Voice input.
- Show available Wi-Fi network.
- Display IP Address.
- Show Available Storage. (Hughes, 2024)

Copilot has therefore not only replaced but surpassed earlier digital assistants Cortana and Bing Chat. (Gralla, 2022) The amount of search prompts is unlimited for free users now, but a limit on image generation (max. 30 per day) remains. (Redmond, 2024)

Copilot Pro is an extended subscription for individuals which costs \$20 per month. To access Copilot in Microsoft 365 apps such as PowerPoint, Outlook or Excel an additional M365 subscription is required. The paid version offers priority access to the latest GPT-models even during peak hours and allows 100 image generations per day. (ISSC Group, 2024)

	For Individuals		For Organizations
	Copilot	Copilot Pro	Copilot for Microsoft 365
	Free	\$20	\$30
Foundational Capabilities	●	●	●
Web Grounding	●	●	●
Commercial Data Protection	●	●	●
Priority Model Access		●	●
Copilot in Outlook, Word, Excel, PowerPoint, and OneNote		●	●
Copilot in Teams			●
Microsoft Graph Grounding			●
Enterprise-Grade Data Protection			●
Customization		Copilot GPT Builder	Copilot Studio

Figure 22. Copilot subscription models as found on: (Born, 2024)

Companies with Microsoft 365 licenses can purchase Copilot for M365 at additional \$20 (€28.10) a month per user, which must be paid in advance for the year. (Microsoft, n/a c) On top of web grounding, the specialty lies in Microsoft Graph-grounding and enterprise-grade data protection. Internal company info can be accessed with Copilot to make inquiries or generate new documents based on company data — all within user access limits defined by the organization. Copilot for M365 was first made publicly available on Nov 1, 2023, with a minimum-purchase requirement of 300 user capacities. The minimum seat requirement was lifted on Jan 15 of this year, making it accessible to SMEs for the first time. (Devine, 2024)

Besides Copilot Pro and Copilot M365 several other versions are in public preview or in development.

Figure 5 organizes currently available Copilots into functional categories.



Figure 23. Copilot variants organized into functional categories as found on: (Im, 2024)

Role-specific Copilots & Copilots for Business Applications

Role-specific Copilots, such as Copilot for Finance, Sales, Service or Development are tailored to role-specific workflows & needs. GitHub Copilot for Development was the first tool to release back in 2021. It “generates code suggestions based on context and intent” (ISSC Group, 2024) which means it not only process natural language but also code syntax.

Copilot for Finance entered public preview end of February 2024. It can assist with the data collection & reconciliation process, workflow automation and variance analysis. For example, it can compare & analyze data in Excel on the basis of a natural language prompt. The Copilot is connected to the Microsoft Graph (access to enterprise-internal data), Microsoft 365 productivity apps and also connects to ERP systems such as Microsoft Dynamics or SAP. (Lamanna, 2024)

Copilot for Sales and Service both were released earlier this year and have the ability to connect to sales & CRM solutions like Salesforce, Microsoft Dynamics, ServiceNow, Zendesk. They can help sales personnel “personalize every customer interaction” with “AI-guided answers”. (He, 2023)

Copilot for Business Applications is concentrated on the respective Microsoft business application, e.g. Microsoft Dynamics, Microsoft Viva, or Microsoft Power Automate, and is not accessible in M365 productivity apps. (Koenigsbauer, 2023) Role-specific Copilots are therefore more extensive than Copilot for Business Applications. (Microsoft Dynamics 365 Community, 2024) Depending on whether the licensee has purchased Microsoft 365, the cost of these Copilots lies around \$20-\$50 per user per month.

Copilot for Security

More costly Copilot options are Copilot for Security and Copilot for Fabric. Pricing for Security is estimated at around \$3000 for 1 SCU in continuous usage. (ISSC Group, 2024) As stated in an article by ISSC Group, it is available in connection with a range of Microsoft security products:

- Microsoft Sentinel
- Microsoft Defender XDR
- Microsoft Intune
- Microsoft Defender Threat Intelligence
- Microsoft Entra
- Microsoft Purview
- Microsoft Defender External Attack Surface Management (ISSC Group, 2024)

To assist security professionals in impact analysis, incident summarization or reverse engineering malware, Copilot can also access relevant context data, i.e. event logs, alerts, incidents & policies. (Microsoft Learn, 2024e) This Copilot aids companies to detect security threats faster and predict them more accurately. (ISSC Group, 2024)

Copilot for Data & Analytics

Copilot for Fabric assists with data management & analytics. Microsoft Fabric is a relatively new product that was introduced to the public in September 2023. It is a cloud-based Software-as-a-Service platform

that combines services for data engineering, data warehousing and real-time analytics into one integrated environment. (Microsoft Learn, 2024f)

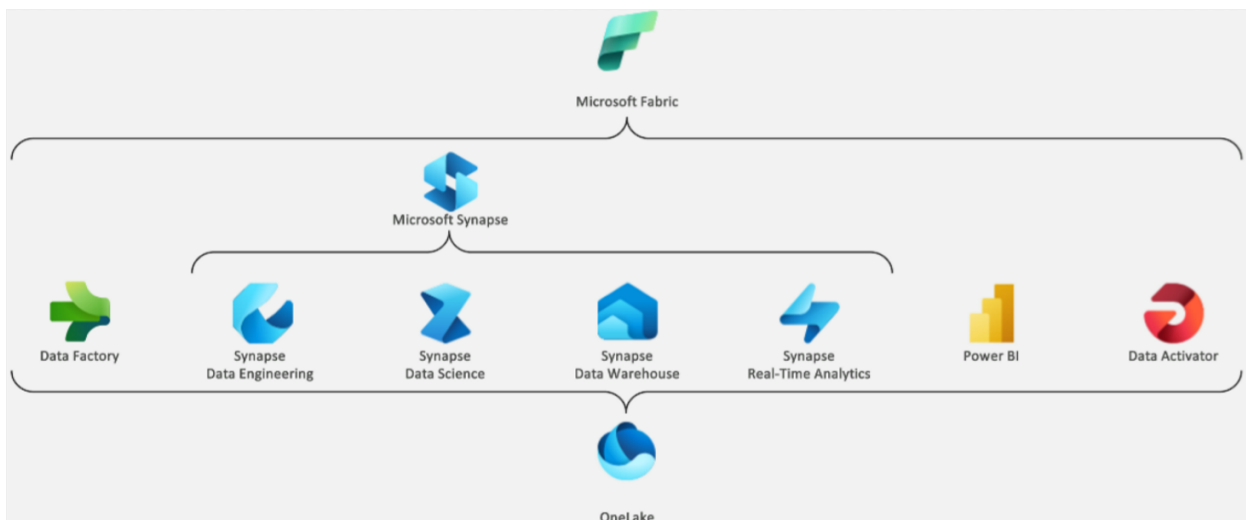


Figure 24. Microsoft Fabric structure, as found on: (Gurrapu, 2024)

In comparison to older data analytics services, e.g. Azure Analysis Services (AAS), Fabric seamlessly integrates the complete end-to-end data pipeline. Data is stored in one location (OneLake) in one format, and 4 compute engines — T-SQL, Spark, KQL & Analysis services engine — act like integrators that turn respective code languages into open delta-parquet format. (Learn Microsoft Fabric with Will, 2024) This avoids additional data export/import steps in-between services. (Microsoft Learn, 2024f) This storage format also enables handling of unstructured data — one characteristic of Big Data. Additionally, OneLake acts as a Single Source of Truth (SSOT), for better data integrity and data security. (Deloitte, 2021)

Copilot can assist data engineers, solution architects, PBI developers etc. with context-sensitive code generation, suggestions for warehouse structures & semantic models as well as code explanations. In PowerBI, it can generate reports, visuals & summaries based on natural language prompts. While doing so, Copilot is grounded to Fabric & OneLake via a Microsoft Graph connector. (SkillCurb, 2023)

PowerBI possessed some form of AI-based visuals before Copilot was introduced to Fabric. (Pop! Automation, 2023) These visuals (natural language Q&A, key influencer, smart narrative & decomposition tree) were introduced in March 2019 and are powered by Microsoft's own Azure Cognitive Services. The same service experimented with AI vision for image tagging, and AI text analytics for key word extraction, sentiment analysis & language detection. (Microsoft Learn, 2023c) Now, Copilot adds to these features as a more user-friendly AI-assistant.

Historical & Future Development of Copilot

Copilot started off as Bing Chat but is now integrated into many functionally independent Microsoft platforms & services. To reflect its broad application spectrum, the Copilot logo is a multi-colored closed loop based on Microsoft Bing's and Microsoft 365's symbols. The current version of the logo was launched in November 2023. (Edwards, 2023)



Figure 25. Logos from left to right: Bing, M365, Copilot's earlier version, Copilot's current version, adapted from: (Logos-World, 2023) and (Warren, 2020)

Following this trend, Microsoft plans to immerse Copilot even deeper into its product range. The company has announced “Copilot+ PCs” where AI is integrated into Windows 11 OS as a system called “Recall”. (Wiggers, 2024)

Appendix 2. Generative Pre-Trained Transformer

GPT-4 stands for “generative pre-trained transformer”. The transformer architecture was proposed in 2017 by Google scientists and is considered a break-through for natural language processing (NLP). (Vaswani, et al., 2017)

The transformer architecture is based on an encoder-decoder model wherein natural language is broken down into machine-interpretable language and processed (encoder). Subsequently, it generates a natural language output of the most probable string of tokens (decoder) based on transformer input & training data. Encoder-decoder models are especially useful for generative tasks that require some form of input. (HuggingFace, n/a)

Tokens	Characters
56	258

GPT-3 (Generative Pre-trained Transformer 3) uses a process called tokenization to break down text. Many words map to single tokens, though longer or more complex words often break down into multiple tokens. On average, tokens are roughly 4 characters long.

Figure 26. Exemplary sentence broken down into tokens (Guinness, 2023)

The first step to encoding in this model are word embeddings – a basic NLP concept. Word inputs are tokenized into word clusters (tokens), that are then vectorized in numeric form to represent the semantic & syntactic properties of those tokens. (AssemblyAI, 2023) Each token receives three vectors: Key vector, query vector and value vector. These vectors are derived from matrices K, Q & V by multiplying them with the word embedding vector. K, Q & V are the result of previous deep learning. (Verma, 2022)

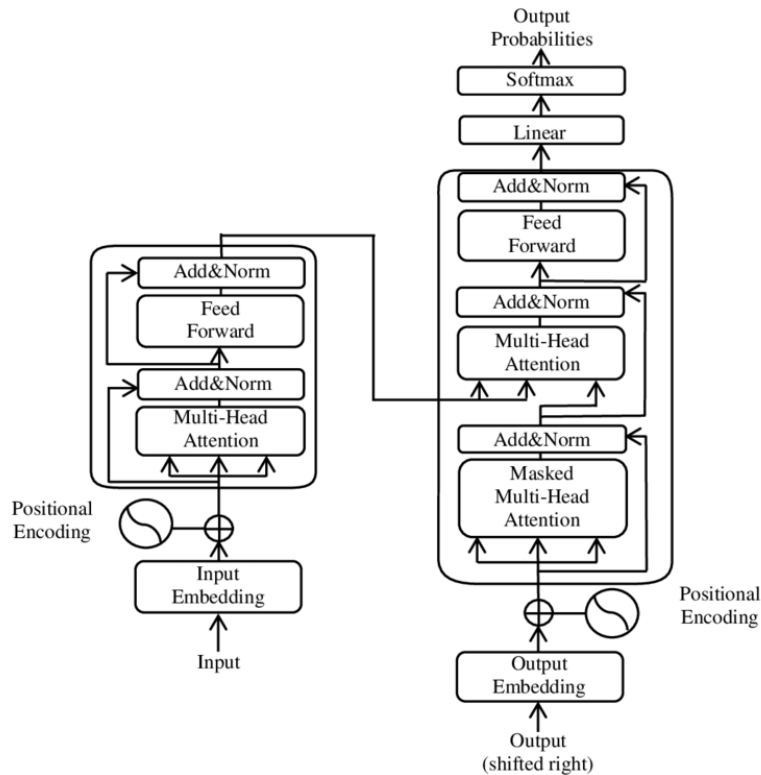


Figure 27. An earlier version of the transformer model proposed by (Vaswani, et al., 2017)

Because the order of a sentence matters, the position of words within a text sequence is analyzed and encoded as well. After positional encoding a series of attention mechanisms follow, where tokens are weighted based on their relevance within the text sequence.

To assess the relevancy of tokens within a context, every token's query vector is multiplied with every other token's key vector (scoring). This product is the so-called score of a token, which is later on normalized into probabilities via the SoftMax function. The weighted sum of each value vector multiplied by all of their SoftMax probabilities is the final feature the encoder produces out of its input. (Doshi, 2021)

As proposed in the original paper "Attention is All You Need" the multi-head attention mechanism allows the encoder to "pay attention" to multiple parts of a sentence parallelly. Each attention module consists of multiple heads which in turn have their own version of matrices K, Q and V, allowing a more nuanced context recognition. (Socher, 2018) This parallel processing of entire text sequences accelerates training & inference times. (Vanderbyl, Gugger, & Belkada, 2023)

Also, due to the fact that matrix K and Q are usually not identical, the relationships between tokens can be non-symmetrical, i.e. the word "window" can be associated stronger to the word "house" than vice versa. (Amaratunga, 2023)

While older architectures struggle with the so-called "vanishing gradient problem" (Sanchhaya Education, 2023), the transformer architecture allows for processing of longer sequences & can handle long-term dependencies. (AI Tech Trend, 2023) All in all, the transformer architecture is more stable and faster than older deep learning models.

One main strategy to improve the performance of a transformer model is to increase the size of its training data and model size, as in number of parameters. The number of parameters grows with added

heads and attention layers. (Michel, 2020) As shown in Figure 9 below, the size of language models based on transformer architecture grew exponentially over the years. Though, not all large language models outperform all small language models. (Microsoft, 2024a)

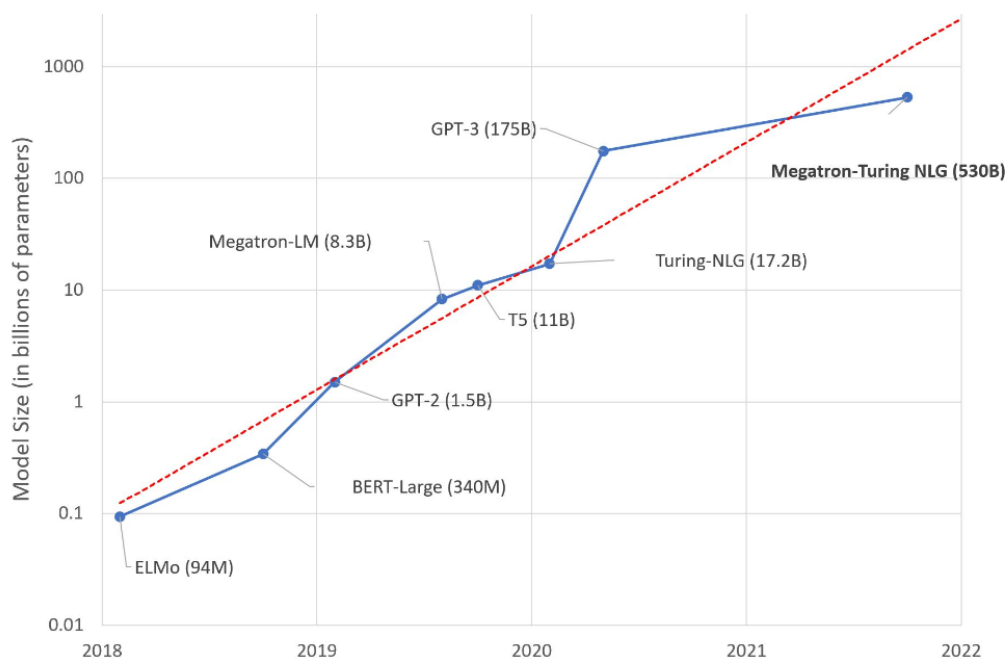


Figure 28. Transformer model size over the years in billions of parameters (Simon, 2021)

GPT is a pre-trained transformer. It was trained on a broad data corpus with information publicly available on the internet, information OpenAI has licensed from third-party providers, and information from human feedback by users & hired trainers. (OpenAI, 2024b)

Self-supervised learning as well as reinforcement learning with human feedback (RLHF) were applied to train the model. These training techniques allow the model to learn on a vast unlabeled data set while maintaining human feedback on-the-loop. The RLHF is based on a supervised reward model, that ranks GPT output for more nuanced training. Simply labeling all training data for supervised learning would not have been feasible for a LLM of this size. (Kashyap, 2022)

Current versions of GPT were additionally finetuned to understand & perform common NLP tasks better. (OpenAI, 2024b) General LLMs that were instruction-tuned are better at specific tasks than specialized language models that were trained only on domain-specific data.

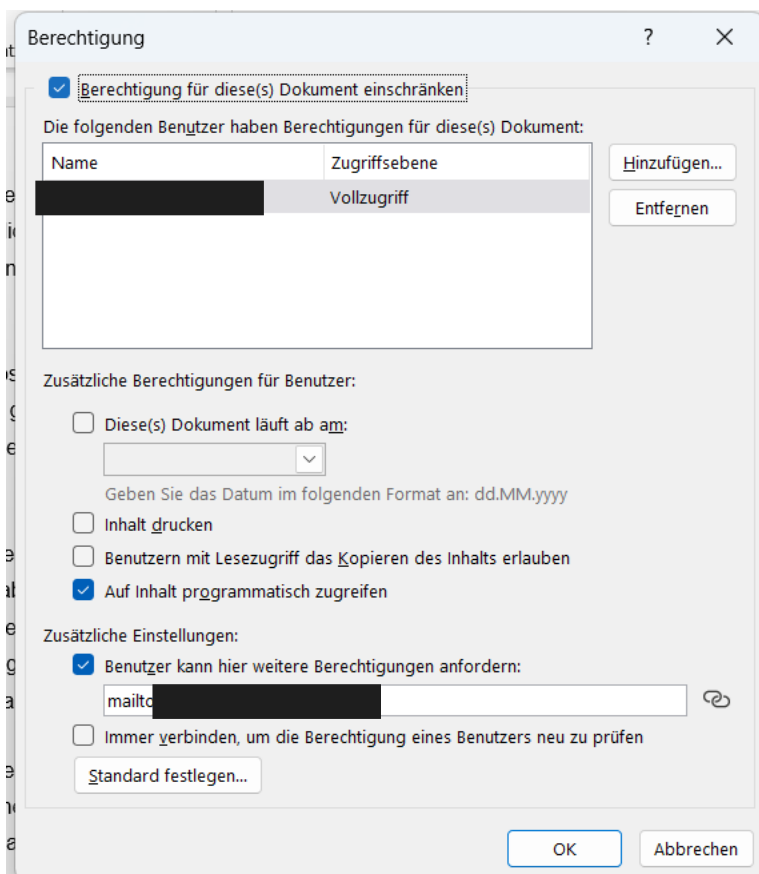
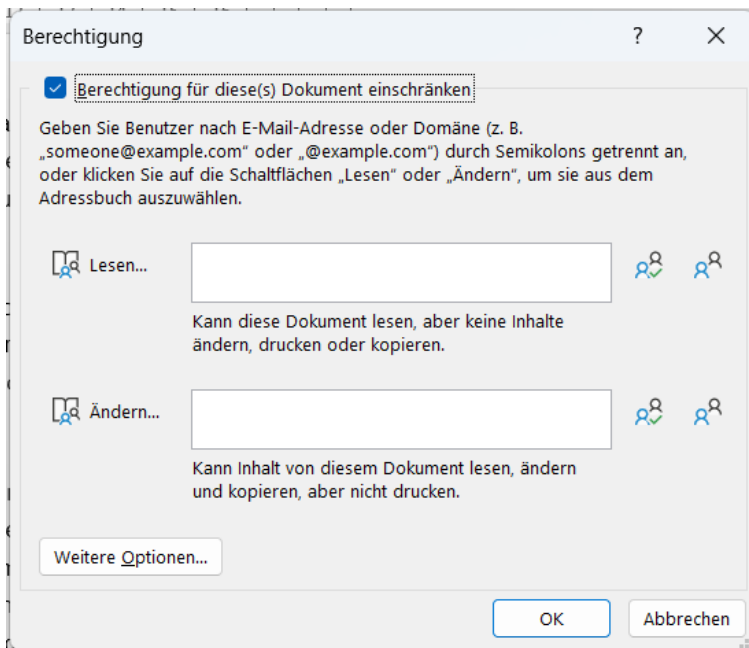
Also, the larger the training data set, the less field training data is needed for task-specific fine-tuning. This phenomenon allows very large language models to perform successfully in few-shot scenarios, where only few examples of a class are given to understand a new dataset. (Rouse, 2024) Chat-GPT omni even succeeds in zero-shot scenarios. (Mindverse, 2024)

Appendix 3. Extended syscon Business Model Canvas

<p>01 Problem</p>	<p>02 Solution</p>	<p>04 UVP</p>
<ul style="list-style-type: none"> • data silos • long decision-making processes • inefficient use of resources • need for change management 	<ul style="list-style-type: none"> • specialist counselling in BPM, Controlling • technical implementation of BI projects • support with change management, bus. req. analysis 	<ul style="list-style-type: none"> • interdisciplinary knowledge that connects business & IT -> holistic approach • cross-industry consulting & training • specialized on software solutions suitable & affordable by SMEs
<p>Existing Alternatives</p> <ul style="list-style-type: none"> • in-house IT solution • MDIS consulting • Cosmo consult • Hecker consulting • Roosi • Capgemini • labour-intensive BI pipeline 	<p>03 Key Metrics</p> <ul style="list-style-type: none"> • # of company subscriptions • # of retained customers • ratio of billable hours vs. total work hours • yearly profit 	<ul style="list-style-type: none"> • 28 years of experience in project handling • modular solutions (standard platforms customized to client-needs) -> faster, more cost-effective & scalable • hybrid solutions with familiar interfaces (no need to adjust)
<p>05 Unfair Advantage</p>	<p>07 Customer Seg.</p>	
<ul style="list-style-type: none"> • established customer base of (>300) • network of strategic partners • Microsoft certifications • Experience & Know-How 	<ul style="list-style-type: none"> • DACH region • active usage of specific ERP solutions (Dynamics, IFS) • active usage of consolidation software (LucaNET) • CEO, CFO, CIO, head of ERP, production, controlling, projects and similar 	
<p>06 Channels</p>		
<ul style="list-style-type: none"> • LinkedIn • home page (SEO) • cold calling & e-mails • online webinars • word-of-mouth • Microsoft partner search 	<p>Early Adopters</p> <ul style="list-style-type: none"> • larger clients with more resources dedicated to BI • manufacturing industry • in need of consolidation 	
<p>08 Cost Structure</p>		
<ul style="list-style-type: none"> • employee salaries + benefits • operational costs (utilities, rent, insurances, IT environment & administration) • memberships & networking events of associations (ASQF, VDMA, MBUF) • tech licenses & platform subscriptions (Gapteq, Microsoft, IBM) • external consultants & service providers (Wildner Marketing, DSGVO consultant, accountants, lawyers, telesales agency) 		
<p>09 Revenue Streams</p>		
<ul style="list-style-type: none"> • consulting services • subscription fees for Syscon products 		

Figure 30. Full syscon Business Model Canvas (created by the author)

Appendix 4. Screenshots of Security Label Settings for End Users as established in syscon



Appendix 5. Screenshots of Copilot Prompts and Responses for Sales Assistant Use Cases

Integration to Business Applications:

The CRM software provider, “CAS Software AG”, offers an Outlook plug-in with which the end user can archive Outlook e-mails in the CRM software. Changes on customer info in “CAS” are possible via Outlook, if the profile is linked to a valid e-mail address. It is not possible to manage the CRM system via Outlook in any other way.

Microsoft has not yet released a plug-in to “CAS”. Copilot therefore cannot perform tasks as specified in Table 4 via Outlook or otherwise. Similarly, there is no Copilot plug-in available to “GoTo webinar”.

syscon is in the process of evaluating, whether a change to Microsoft’s own CRM software (Microsoft Dynamics CRM) is feasible. Potential alternatives to “CAS” for the usage of Copilot, are any CRM software that integrate into Teams. According to (GetApp, n.d.), the CRM software “Pipedrive” and “SalesFlare” offer e-mail management, calendar synchronization, lead capture and deal management.

Microsoft offers a sales-specific version of Copilot, that is said to work best with “Salesforce Sales Cloud” and “Microsoft Dynamics 365 Sales”. (Schneider IT Management, 2024)

Market research:

Trying to conduct market research with “Copilot for work” leads to a response with multiple unrelated document references:

The screenshot shows a chat window with a light blue header containing the prompt: "How can I find companies, that use DFO?". The response is a text block with the following content:

Based on the information available, I found a document titled "Forecast_24_06_24" authored by Empfang, [REDACTED], which mentions various projects and activities, including a reference to "PIFS00090" associated with a company named "Innex" ¹. This could indicate that Innex is a user of DFO or related systems.

Additionally, there's an "Erweiterte Mitarbeiterliste der Syscon Unternehmensberatung" authored by you, which might contain contacts within Syscon that could be decision-makers or have knowledge of other companies using DFO ².

Lastly, your thesis titled "Exploration of Microsoft Copilot Use Cases for Process Optimization in SMEs – a Proof of Concept with Syscon Consulting" suggests that you have conducted research on process optimization in SMEs, which may include insights into companies using DFO ³.

These documents could be a starting point for identifying companies that use DFO. You may want to review these files for potential leads and contacts. If you have access to any internal databases or tools that might contain more detailed information on DFO users, that could further assist in your search.

Below the text is a "Kopieren" button and a "3 Verweise" dropdown. At the bottom of the response box, it says "2 von 30 Antworten" and "KI-generierte Inhalte könnten fehlerhaft sein." Below the response box are three follow-up prompts: "Tell me more about Innex", "What other documents mention DFO?", and "Can you help me with process optimization in SMEs?"

A general prompt that encompasses all goals of the sales assistant’s market research, yields an equally general answer. Copilot responds with instructions on how to conduct market research based on key words given in the prompt. Copilot has not added new or related key words either.

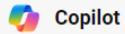
Comprise a list of SMEs in the DACH region that are current users of DFO/Dynamics, LucaNET, or IFS for ERP or financial consolidation. Our aim is to explore business collaborations with these entities. Please focus on identifying contacts who are in decision-making roles, specifically CxOs, finance heads, project, or production managers. The desired output should include the company's name, key contact details, and insights into their software utilization that could indicate a need for our services. Use information from websites and databases such as LinkedIn, Xing, company websites, news sites etc.

I'm sorry, but I'm unable to directly access external databases such as LinkedIn, Xing, or company websites to compile a list of SMEs in the DACH region. However, I can guide you on how to approach this task:

1. **LinkedIn & Xing:** Use advanced search filters to target the DACH region and the specific industries of interest. Look for profiles with decision-making roles such as CxOs, finance heads, project, or production managers. LinkedIn Sales Navigator is particularly useful for this purpose.
2. **Company Websites:** Visit the official websites of companies that are known users of DFO/Dynamics, LucaNET, or IFS. Look for press releases, 'About Us' or 'Team' pages to find information about key personnel.
3. **News Sites:** Search for recent articles or press releases that mention collaborations or software implementations involving the mentioned ERP systems. This can provide insights into the company's activities and potential needs.
4. **Financial Reports:** Review financial reports or statements if available, as they may reveal the extent of software utilization and the potential need for additional services.

Remember to verify the contact details and gather insights into their software utilization to assess how your services could meet their needs. While I can't provide a direct list, I hope this guidance will help you in your search. If you have access to any internal databases or tools that might contain this information, I could assist you further with that.

Another attempt with the same prompt in “Copilot for web” results in a more detailed, but similarly helpful instruction on how to conduct the market research. The Copilot seems to be restricted by GDPR compliance settings. The instructions given in the result (following screenshot) could be useful for improving the research strategy as it provides new detailed input.



✓ Antworten für Sie werden generiert...

I'm sorry, but I'm unable to directly access or retrieve personal data from external databases or websites such as LinkedIn, Xing, or company websites. However, I can guide you on how to conduct such research effectively.

To create a list of SMEs in the DACH region that use DFO/Dynamics, LucaNET, or IFS for ERP or financial consolidation, you can follow these steps:

1. **Identify SMEs:** Start by identifying small and medium-sized enterprises in the DACH region. You can use business directories, market reports, or databases that list companies by size and region. For example, BoldData provides a list of companies in the DACH region which could be a starting point¹.
2. **Research Software Utilization:** Once you have a list of SMEs, you can research their software utilization through various methods:
 - Check out company websites and press releases for mentions of ERP or financial consolidation systems.
 - Look for case studies or testimonials on the software providers' websites where these companies might be featured.
 - Use industry forums, publications, or news articles that might discuss the adoption of such software by SMEs in the DACH region.
3. **Find Decision Makers:** To identify contacts in decision-making roles, you can:
 - Use professional networking sites to search for profiles by job title and company.
 - Attend industry events or conferences where such professionals might be speakers or attendees²³.
 - Look for articles or interviews featuring CxOs or finance heads of the identified companies.
4. **Gather Contact Details:** Once you have identified the decision-makers, you can gather their contact details through:
 - Professional networking sites which may list contact information.
 - Company websites where they might have their profiles listed along with contact details.
 - Business cards or contact information exchanged during industry events.
5. **Analyze Software Needs:** To gain insights into their software utilization that could indicate a need for your services, consider the following:
 - Look for information on the current challenges or limitations they face with their existing systems.
 - Identify any upcoming projects or expansions that might require additional software support.
 - Analyze industry trends that could influence these companies to upgrade or change their software systems.

Please note that while gathering personal data, it's important to comply with data protection regulations such as GDPR. Always ensure you have consent to use personal data for business purposes.

For a more detailed analysis or assistance, you might consider hiring a market research firm or using specialized software for sales intelligence and lead generation. These resources can provide more comprehensive and legally compliant information. Remember, the key to successful business collaborations is not only identifying the right contacts but also understanding their needs and how your services can add value to their operations. Good luck with your research!

Weitere Informationen [1](#) [2](#) [3](#)
[4](#) [5](#) [6](#) [– weniger anzeigen](#)

KI-generierte Inhalte könnten fehlerhaft sein.

Which long-established companies in the DACH region are most likely in need for process optimization and ERP optimization?

Copilot

✓ Antworten für Sie werden generiert...

Long-established companies in the DACH region that are most likely in need of process optimization and ERP optimization are typically those facing challenges due to changing market conditions, technological advancements, and internal inefficiencies. According to a report by Roland Berger, capital goods companies in sectors like elevators, turbochargers, power generation equipment, and processing and packaging machinery are at a crossroads due to declining order backlogs and various challenges ranging from geopolitical tensions to economic uncertainties ¹. These companies are recommended to start with immediate "no-regret" initiatives to address pressing issues, followed by structural adjustments and longer-term growth initiatives ¹.

Additionally, IDC Europe Blog highlights that organizations in the DACH region are investing in key tech areas such as augmented human resources, image processing, fleet and freight management, and AI platforms, with spending on AI platforms expected to grow significantly ². This indicates a need for process optimization and ERP optimization to manage the increased data and complexity of operations.

Manufacturing companies, in particular, have a range of techniques and methodologies at their disposal for optimizing production processes ³. Those that are actively seeking to improve their production and process efficiency are likely candidates for ERP optimization.

For a more targeted approach, you may consider looking into industry-specific reports or consulting with experts who specialize in process optimization and ERP systems. They can provide insights into which long-established companies are currently seeking to modernize their operations and could benefit from your services. Remember to verify the current status and details of these companies through their official websites or direct contact for the most accurate and up-to-date information.

Weitere Informationen [1](#) [rolandberger.com](#) [2](#) [blog-idceurope.com](#) [3](#) [cyngn.com](#) [4](#) [clipperton.com](#)



Sie

Which industry-specific reports are there?

Also, give me a list of companies who are active in any of these sectors: elevators, turbochargers, power generation equipment, processing and packaging machinery and alike,

Copilot

✓ Antworten für Sie werden generiert...


Industry-specific reports provide valuable insights into market trends, technological advancements, and competitive landscapes. For the sectors you're interested in, such as elevators, turbochargers, power generation equipment, and processing and packaging machinery, here are some reports that could be of interest:

1. **Elevators Market Size, Growth Opportunity 2024-2032:** This report covers the global elevator market, focusing on product types, building heights, speed, destination control, and end-use. It highlights the growth drivers and challenges in the industry ¹.
2. **Elevator Energy-Efficient Projects in the Next Generation of High-Rise Green Buildings:** A chapter from a book that investigates energy-efficient solutions for elevators in high-rise buildings, emphasizing the use of intelligent systems ².
3. **Global Machinery & Equipment Report 2024:** Bain & Company's report examines how the machinery and equipment sector is adapting to a digital future, with a focus on rapid innovation and change ³.


As for companies active in these sectors within the DACH region, the following list includes some of the key players:

- **Kone Corporation:** Specializes in the elevator and escalator industry, offering innovative and eco-efficient solutions.



 **Sie**

Give me list of companies that are less well known (no key players).

 **Copilot**





✓ Antworten für Sie werden generiert...






Finding less well-known, mid-sized manufacturing companies in the DACH region requires a bit of digging, as these entities may not be as prominently featured in major reports or rankings. However, based on the search results from BoldData and other sources, here's a list of mid-sized manufacturing companies in the DACH region that are not typically considered key players but are active and may align with your criteria:


1. **Fritz Dräxlmaier GmbH & Co. KG**: Specializes in automotive electrical systems and interiors ¹.
2. **Kromberg & Schubert Automotive GmbH & Co. KG**: Focuses on automotive cables and wiring systems ¹.
3. **Mifa AG Frenkendorf**: Engaged in aluminum extrusion and processing ¹.
4. **Micarna SA**: Operates in the meat processing industry ¹.
5. **B. Braun SE**: Provides products and services for the healthcare sector ¹.
6. **MANN + HUMMEL International GmbH & Co. KG**: Offers filtration solutions ¹.
7. **Knorr-Bremse AG**: Develops braking systems for rail and commercial vehicles ¹.
8. **ContiTech AG**: Specializes in rubber and plastics technology ¹.
9. **HELLA GmbH & Co. KGaA**: Manufactures lighting and electronic components for the automotive industry ¹.
10. **Andritz AG**: Supplies plants, equipment, and services for various industries ¹.

These companies represent a diverse range of specializations within the manufacturing sector and could be potential candidates for business intelligence projects, especially if they are looking to optimize processes or implement new ERP systems. To determine their readiness for such projects, you may need to engage with them directly or look for recent news, press releases, or case studies that indicate a focus on digital transformation or process improvement initiatives.

Please note that the list provided is not exhaustive, and there may be many other mid-sized companies in the DACH region that fit your criteria. For a more comprehensive list, you may consider accessing databases like BoldData or conducting further research using the search prompts and keywords discussed earlier in our conversation. Remember to verify the current status and details of these companies through their official websites or direct contact for the most accurate and up-to-date information.

Weitere Informationen [1](#)  [2](#)  [3](#)  [4](#) 

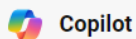
     KI-generierte Inhalte könnten fehlerhaft sein.

 Leider hat diese Unterhaltung ihr Limit erreicht. Starten wir einen neuen Chat.

Going along Copilot's suggestions and parallelly narrowing down the prompt, results in a helpful answer at the end of the conversation. The conversation took 20 minutes and led to a list of 10 companies, that can be analyzed further for sales purposes. The last prompt asks for lesser-known companies to further specify the task. Copilot then goes from listing key players such as Kone Corporation to listing eligible companies.

The specific question that led to a helpful answer at the end of the chat, cannot replicate the same helpful answer at the beginning of a new conversation (shown below).

Which long-established companies are active in the following sectors: elevators, turbochargers, power generation equipment, processing and packaging machinery and alike? Give me a list of 50 lesser known companies (no key players) in the DACH region.



✓ Antworten für Sie werden generiert...

I'm sorry, but I'm unable to provide a list of specific companies, including lesser-known ones in the DACH region. However, I can share that capital goods companies in sectors like elevators, turbochargers, power generation equipment, and processing and packaging machinery have found resilience through service-and wear-part oriented models¹. For instance, elevator companies often offer maintenance and modernization services, while turbocharger manufacturers provide diagnostics and repairs¹.

If you're looking for detailed information on specific companies, I recommend consulting industry reports, business directories, or trade associations in the DACH region, such as Swissmem or VDMA, which may have more comprehensive and updated lists of companies in these sectors¹. These organizations often provide resources and information that could help identify companies that match your criteria. Additionally, attending industry trade shows and networking events in the DACH region could also provide opportunities to discover and connect with lesser-known companies active in these sectors.

Weitere Informationen [1 rolandberger.com](#) [2 finance.yahoo.com](#) [3 finance.yahoo.com](#)

Creative writing:

The prompt to generate an invitation e-mail was complemented by the name and description of the webinar and mentioned the names of the presenters:

“Die Veranstaltung besteht aus zwei Teilen à 20min mit anschließendem Q&A:

1) Herausforderungen bei eintrübender Konjunktur (Liquiditäts- & Finanzplanungstipps)

Viele unserer Kunden haben immer wieder bei uns angefragt, wie man den Anforderungen der Kreditgeber und der Beteiligungsunternehmen nach mehr Transparenz im Finanz- und Liquiditätsbereich am besten begegnet und welche mittelstandsgerechten Lösungen es gibt.

- *Grundstruktur Finanzplanung*
- *LucaNET als Werkzeug für eine transparentere Finanz- und Liquiditätsbetrachtung*
- *Abgeleitete Strukturen und Kennzahlen*

2) Best of Power BI Enterprise-Reporting (Tipps aus über 100 Projekten)

Was muss ich beachten, wenn ich Power BI als Reporting-Werkzeug (nicht nur zur Analyse!) mit vielen Informationskonsumenten einsetze? Wie gehe ich mit Ad-hoc Analyse Anforderungen um? Welche Bausteine von Power BI bzw. der Microsoft Palette sind bei firmenweitem Reporting relevant? Welche Fehler sollte ich vermeiden und wo kann man besondere Vorteile ausnutzen?

- *Analyse vs. Reporting*
- *Welche Komponenten für welche Anwender verwenden*
- *Dos and Don'ts aus der Praxis”*

Copilot generated following drafts in the fourth and fifth iteration:



Sehr geehrte Damen und Herren,

Sie sind herzlich eingeladen zu unserem Webinar zum Thema "Best Practice für Finanzplanung und Reporting in volatilen Märkten". Die Veranstaltung findet am (Datum einfügen) um (Uhrzeit einfügen) statt und wird von unseren managing partner und principal consultants Klaus Blättchen und Manuel Gandt geleitet. Sie werden von den Herausforderungen und Lösungen berichten, die sie in über 100 Projekten mit verschiedenen Kunden erlebt haben. Sie werden Ihnen auch zeigen, wie Sie mit Power BI effektive und aussagekräftige Reports erstellen können, die Ihnen helfen, Ihre Liquidität und Finanzen zu steuern. Dies ist eine einzigartige Gelegenheit, von den Experten zu lernen und Ihre Fragen zu stellen. Um sich anzumelden, klicken Sie einfach auf diesen Link (Link zur Registrierung einfügen). Ihre Daten werden gemäß unserer Datenschutzrichtlinie (Link zur Syscon DSGVO-Seite einfügen) verarbeitet. Wir freuen uns auf Ihre Teilnahme!

< 4 von 4 >  Die Referenten sind Syscon's managing partn... KI-generierte Inhalte könnten fehlerhaft sein.   



Möchten Sie noch etwas ändern? 

Lassen Sie sich unser Webinar zum Thema "Best Practice für Finanzplanung und Reporting in volatilen Märkten" nicht entgehen. Sie erfahren am (Datum einfügen) um (Uhrzeit einfügen), wie Sie Ihre Finanzen in unsicheren Zeiten optimal steuern und berichten können. Profitieren Sie vom Wissen und der Erfahrung unserer Referenten, Syscon's managing partner und principal consultants Klaus Blättchen und Manuel Gandt, die über 100 Projekte in diesem Bereich erfolgreich durchgeführt haben. Registrieren Sie sich jetzt hier (Link zur Registrierung einfügen) und sichern Sie sich Ihren Platz. Wir behandeln Ihre Daten gemäß der DSGVO und unserer Datenschutzrichtlinie (Link zur Syscon DSGVO-Seite einfügen).

< 5 von 5 >  Die Referenten sind Syscon's managing partn... KI-generierte Inhalte könnten fehlerhaft sein.   

Möchten Sie noch etwas ändern? 

An additional prompt to write another e-mail to a colleague based on the current e-mail, generates a draft for another paragraph within the same e-mail. The draft relates to the existing paragraph distantly, as "webinar" was changed to "conference". The prompt:

<  Mit Copilot neu schreiben 

Schreibe eine Mail an Irene Jung, dass sie keine Einladung mehr schicken braucht, da ich mich darum kümmere.

The reference (direct tone) and result (formal tone):

Ich schreibe Ihnen, um Ihnen mitzuteilen, dass Sie keine Einladungen mehr für die Konferenz verschicken müssen. Ich habe mich bereits darum gekümmert und alle potenziellen Teilnehmer eingeladen. Bitte schicken Sie mir eine Bestätigung, dass Sie diese E-Mail erhalten haben und keine weiteren Einladungen versenden werden. Ich danke Ihnen für Ihre Kooperation und Ihre bisherige Arbeit.

< 2 von 2 > [Schreibe eine Mail an Irene Jung, dass sie kei...](#) KI-generierte Inhalte könnten fehlerhaft sein.

Möchten Sie noch etwas ändern? →

✓ Behalten
 Verwerfen
 Erneut generieren
 Anpassen

Lassen Sie sich unser Webinar zum Thema "Best Practice für Finanzplanung und Reporting in volatilen Märkten" nicht entgehen. Sie erfahren am (Datum einfügen) um (Uhrzeit einfügen), wie Sie Ihre Finanzen in unsicheren Zeiten optimal steuern und berichten können. Profitieren Sie vom Wissen und der Erfahrung unserer Referenten, Syscon's managing partner und principal consultants Klaus Blättchen und Manuel Gandt, die über 100 Projekte in diesem Bereich erfolgreich durchgeführt haben. Registrieren Sie sich jetzt hier (Link zur Registrierung einfügen) und sichern Sie sich Ihren Platz. Wir behandeln Ihre Daten gemäß der DSGVO und unserer Datenschutzrichtlinie (Link zur Syscon DSGVO-Seite einfügen).

Swen J. Adil

Bachelorandin

Another prompt given in Table 4 resulted in the following draft:

Es hat uns sehr gefreut, dass Sie an unserem Webinar [title] teilgenommen haben. Wir hoffen, dass es für Sie informativ und nützlich war. Wir würden uns sehr schätzen, wenn Sie sich ein paar Minuten Zeit nehmen würden, um uns Ihre Meinung zu diesem Webinar mitzuteilen. Ihre Rückmeldung ist für uns sehr wertvoll und hilft uns, unsere Angebote zu verbessern. Sie finden den Link zur Umfrage, die Aufzeichnung des Webinars und die Präsentation im Anhang.

Als Dankeschön für Ihre Teilnahme möchten wir Ihnen eine exklusive Gelegenheit anbieten: eine kostenlose Beratungssitzung mit einem Syscon-Experten. In dieser Sitzung können Sie alle Fragen stellen, die Sie zu unserem Thema haben, und erhalten individuelle Tipps und Empfehlungen für Ihre Situation. Dies ist eine einmalige Chance, von unserem Fachwissen und unserer Erfahrung zu profitieren. Wenn Sie daran interessiert sind, antworten Sie uns bitte bis [date] und teilen Sie uns Ihre bevorzugte Zeit und Kontaktmethode mit. Wir werden uns dann mit Ihnen in Verbindung setzen, um die Details zu klären.

Wir freuen uns auf Ihre Antwort und Ihre Teilnahme an der Umfrage. Vielen Dank für Ihr Interesse und Ihre Unterstützung.

The underlying prompt asked to follow-up after the webinar with an invitation for a free consultation session. The draft shows Copilot's ability to structure a text logically and find ways to entice the reader without specific instructions given in the prompt.

Scheduling:

The original test prompt was edited to include two company-internal consultants instead of an external person. This ensures that the Copilot user has access to all relevant calendars. In testing this way, it remains unclear whether Copilot would be able to extract relevant information from previous e-mails with externals to plan a meeting accordingly.

Even though this use case is explicitly showcased on Microsoft's community hub (Microsoft & Valdez Malpartida, 2023), Copilot was not able to replicate this at moment of testing (throughout CW 26). To rule out the possibility of authorization restriction whilst testing, other prompts were reviewed as well.

Find the optimal time slot for a sales pitch meeting between Klaus Blättchen and consultant Ömer Sacakli within the next three weeks. Consider the availability and preferences of both parties. Consider time zones and holidays of different regions. Consider rescheduling less important appointments on Ömer Sacakli's side if necessary.

I'm sorry, but I was unable to find the optimal time slot for a sales pitch meeting between Klaus Blättchen and consultant Ömer Sacakli within the next three weeks. Please try again later or manually schedule the meeting.

When do I have free days?

I'm sorry, but I wasn't able to find any information about your free days in your calendar. You can check your calendar manually to see when you have free days.

When is Manuel Gandt in office?

Manuel Gandt is involved in the area of Push IT IPN and Push IT BI, as evidenced by the invites they sent. Manuel also participated in group chats about BA, PBI, and ZIEL. Manuel is located in Erlangen ¹.

Help me prepare for my meeting on "BA: Feedbackrunde"

Your meeting on "BA: Feedbackrunde" is scheduled for 18 July 2024 at 10:00 AM and will last until 11:00 AM. You are the organizer of this meeting and Manuel Gandt is one of the attendees. The meeting is about feedback on your BA, and if time permits, you would like to discuss the possibility of general feedback and a review of your recent activities. ¹

To prepare for this meeting, you may want to review the following related emails:

- "WG: syscon offene Punkte Teams/SharePoint" sent by Manuel Gandt last Monday. ²
- "AW: Quellangabe Microsoft Partner Center" sent by Manuel Gandt on Monday the 10th. ³
- "Hilfe bei Microsoft Marktauftritt gewünscht" sent by Manuel Gandt on May 2nd. ⁴
- "Vorlage..." sent by Manuel Gandt on February 15th. ⁵

Is there anything else I can help you with?

 Copy

AI-generated content may be incorrect



5 References 

When do I have time for a meeting next week?

I'm sorry, but I was unable to find a time for your meeting next week. You may want to check your calendar to see if there are any available time slots for a meeting.

Schedule an appointment for a lunch date.

I'm sorry, but I was unable to schedule an appointment for your lunch date. However, I found some information that might help you plan your lunch date. There are many ideas for lunch dates, such as meeting up for packed lunches made by each other, having a lunchtime picnic, or trying out a new restaurant ([*An external link was removed to protect your privacy.*]). You could also book a high-end restaurant for a less expensive meal, try a foreign cuisine you've never had, or see if you can find the cheapest place in your area to grab lunch ([*An external link was removed to protect your privacy.*]).

Document generation/image generation:

The prompt designed for the generation of a PowerPoint presentation specified in Table 4 could not be processed by Copilot. Copilot instead made suggestions for prompts.

"Create a PowerPoint presentation for the webinar based on the main points and objectives mentioned in the webinar description here: [Webinar-Agenden_maga.docx](#) . Add relevant images, charts or graphs to make the presentation more engaging and interactive. Use the design of other Syscon-related PowerPoint presentations.

Ich erkenne diese Formulierung nicht als etwas, was ich tun kann. Hier sind einige Beispiele für Möglichkeiten, wie ich Ihnen helfen kann, mit den genauen Wörtern, die ich verwenden sollte:

Erstellen einer Präsentation aus

Erstelle eine Präsentation zum Thema

Fügen Sie eine Folie hinzu über das Thema

Organisiere diese Präsentation

Bild hinzufügen von

Füge eine Agendafolie hinzu

Animiere diese Folie

Using the German translation and referencing other documents (to ensure the failure to complete the task was not caused by the reference document) led to the same result.

Erstelle eine PowerPoint-Präsentation für das Webinar "Data Analytics Grundlagen für KMU's aus der Praxis" auf Basis von [Webinartitel 1.docx](#) und [Webinar-Agenden_09042024.docx](#). Füge relevante Bilder, Tabellen oder Grafiken hinzu, um die Präsentation ansprechender und interaktiver zu gestalten. Verwenden Sie das Design anderer Syscon-bezogener PowerPoint-Präsentationen.

To test whether Copilot works better with existing presentations, the prompt suggestions in the Copilot chat pane were evaluated as well. The prompt to "add a slide about the topic [BI architecture]" was supplemented with a pdf reference. It led to the slide and speaker's note below:

— BI Architektur

Kurzeinführung in die BI-Architektur
Datenmodellierung und Analyse
Erstellung von Management-Dashboards

- Bild durch Klicken auf Symbol hinzufügen



25.06.2024 | Seite 4
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...syscon

Copilot

Füge eine Folie über BI Architektur hinzu, basierend auf MAX_BI_Workshop_Case_Mgmt_Spezifikation_3.0.pdf

Hier hast du es. Eine Folie über BI Architektur wurde hinzugefügt, basierend auf "MAX_BI_Workshop_Case_Mgmt_Spezifikation_3.0.pdf".

Wenn Sie möchten, hat **Designer** auch andere Layoutoptionen, die sie berücksichtigen sollten.

KI-generierte Inhalte könnten fehlerhaft sein.

Was sind die neuesten Entwicklungen bei Cubeware?

Was sind die Highlights von syscon für 2018/2019?

Fragen Sie mich etwas über diese Präsentation

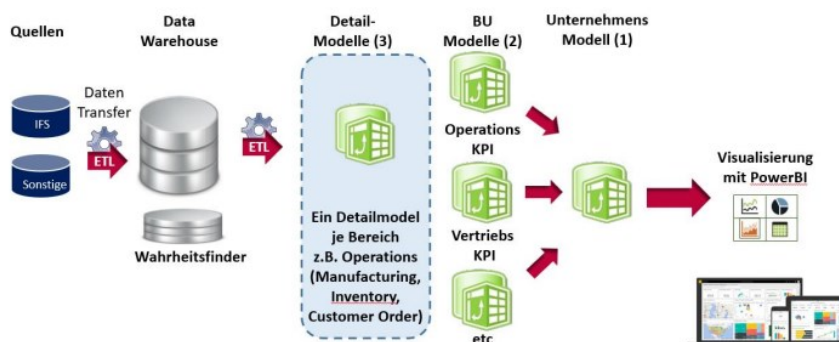
Copilot was not able to extract the image on the requested topic already provided in the reference document, even though “BI architecture” is mentioned in the content table of the reference document.

The reference document looks like this:

5. BI Projektinformationen

5.1 Vorschlag: BI Architektur

Für die Abbildung der KPIs im Bereich Operations bei Maxon schlagen wir folgende Architektur vor:



- Die relevanten Daten aus dem Vorsystem IFS Applications werden über die Standardschnittstelle der IFS (Analysis Models) in ein SQL Server Data Warehouse überführt und in einem ETL-Prozess entsprechend für die Auswertungsmodelle vorbereitet. Dieser Standardprozess wird um jene Informationen erweitert, die wir in den Workshops in einer GAP-FIT-Analyse festgehalten haben.

Additionally, the bullet points provided in the new slide and in the speaker's not do not reflect the reference document's content. Copilot generated an image on the top right corner of the slide, but it does not add to the quality of the slide. The bullet points underneath the slide title are too small to read.

— BI Architektur

Kurzeinführung in die BI-Architektur

Datenmodellierung und Analyse

Erstellung von Management-Dashboards

Copilot suggests a prompt to animate the new slide and successfully creates a two-step animation.

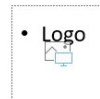
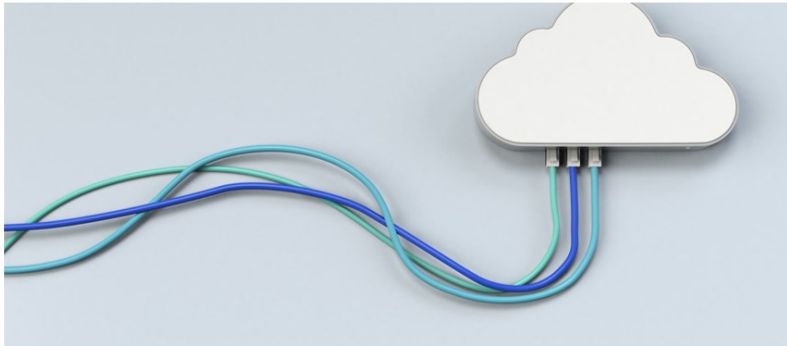
A prompt to add a slide without a reference, leads to this slide:

— Syscon Power BI Architektur

Power BI ist ein Cloud-basierter Analysetool mit einer Desktopkomponente.

Power BI ermöglicht die Datenabfrage und Markt-Intelligence-Analysen.

Die Syscon setzt Power BI für Management-Dashboards, Kennzahlensysteme und Echtzeit-Monitoring ein.



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UNTERNEHMENSBERATUNG

This time, it added an image into the middle of the slide and formatted the rest of the slide in a similar way, keeping the document's design features. For comparison, this is how a slide created by a syscon employee looks like:

— syscon 2018/2019

Ausgewählte News

- Microsoft Gold Data Analytics Partner & Red Carpet Partner für Power BI
 - Ersten Cloud-Projekte mit Azure Business Unit umgesetzt
- Drei neue Kollegen im Team der syscon 2018
 - Neuer Masterarchitekt
- Kooperation mit der IBM (TM1 & CW1)
 - Weiterer Ausbau der Planungsprojekte und Templates
- Große Neukunden – z. B. aus dem Automotive Umfeld
- Kundentag März 2019



Microsoft Partner
Gold Data Analytics



Microsoft Partner
Gold Data Analytics
Silver Data Analytics
Silver Data Platform
Silver Application Development

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UNTERNEHMENSBERATUNG

Data handling/analysis:

Contrary to what is showcased on Microsoft's website, Copilot is not ready to interact with Excel yet. On the Microsoft website, adding a simple forecast to the existing table is within the abilities of Copilot (shown below) In reality, being in preview mode, it struggles to respond in German language, or fulfill any of the prompts it suggests to the user.

Here is how it should look like, as presented on the website:

The screenshot shows an Excel spreadsheet with a table generated by Copilot. The table has the following data:

Store Code	Store Name	Location	Year	Quarter	Forecast
CHI031	ContosoHI 31	Phoenix, Arizona	2023	Q3	\$ 11,517,888
CHI031	ContosoHI 31	Phoenix, Arizona	2023	Q4	\$ 14,811,700
CHI031	ContosoHI 31	Phoenix, Arizona	2024	Q1	\$ 10,666,211
CHI031	ContosoHI 31	Phoenix, Arizona	2024	Q2	\$ 9,169,028
CHI032	ContosoHI 32	Tucson, Arizona	2023	Q3	\$ 10,724,270
CHI032	ContosoHI 32	Tucson, Arizona	2023	Q4	\$ 12,293,043
CHI032	ContosoHI 32	Tucson, Arizona	2024	Q1	\$ 8,958,905
CHI032	ContosoHI 32	Tucson, Arizona	2024	Q2	\$ 8,007,241
CHI033	ContosoHI 33	Mesa, Arizona	2023	Q3	\$ 5,509,731
CHI033	ContosoHI 33	Mesa, Arizona	2023	Q4	\$ 7,986,439
CHI033	ContosoHI 33	Mesa, Arizona	2024	Q1	\$ 5,494,735
CHI033	ContosoHI 33	Mesa, Arizona	2024	Q2	\$ 4,286,100
CHI035	ContosoHI 35	Glendale, Arizona	2023	Q3	\$ 6,381,851
CHI035	ContosoHI 35	Glendale, Arizona	2023	Q4	\$ 8,269,097
CHI035	ContosoHI 35	Glendale, Arizona	2024	Q1	\$ 5,423,305
CHI035	ContosoHI 35	Glendale, Arizona	2024	Q2	\$ 4,199,261

The Copilot interface on the right shows a preview of the forecast and a confirmation message: "Done! I inserted the code." Below the table, there are several prompts in German:

- Erstellen: Formelspalten hinzufügen
- Bearbeiten: Hervorheben
- Bearbeiten: Sortieren und Filtern
- Verstehen: Analysieren

Additional prompts include "Sortieren und Filtern" and "Erste Spalte fett formatieren". A response from Copilot states: "Ich kann Daten sortieren und filtern, damit alles übersichtlicher ist. Wählen Sie einen der vorgeschlagene Prompts aus, oder beschreiben Sie, was Sie tun möchten." A final message says: "Es tut mir leid, ich kann das im Moment nicht tun. Versuchen Sie es erneut oder wählen Sie einen Vorschlag aus."

Figure 31. Example of Copilot-generated Excel table (Microsoft, n.d.)

Here is how it responds to prompts it has suggested to the user:

The screenshot shows the Copilot interface with several prompts and responses in German:

- Erstellen:** Formelspalten hinzufügen
- Bearbeiten:** Hervorheben
- Bearbeiten:** Sortieren und Filtern
- Verstehen:** Analysieren

Additional prompts include "Sortieren und Filtern" and "Erste Spalte fett formatieren". A response from Copilot states: "Ich kann Daten sortieren und filtern, damit alles übersichtlicher ist. Wählen Sie einen der vorgeschlagene Prompts aus, oder beschreiben Sie, was Sie tun möchten." A final message says: "Es tut mir leid, ich kann das im Moment nicht tun. Versuchen Sie es erneut oder wählen Sie einen Vorschlag aus."

Datenerkenntnisse anzeigen

Leider kann ich Ihnen im Moment keine Datenerkenntnisse anzeigen. Versuchen Sie es später noch einmal oder wählen Sie einen Vorschlag aus.

KI-generierte Inhalte könnten fehlerhaft sein.



Vorschlag für eine Formelspalte anzeigen

Sorry, I can't do that right now. Try again or select a suggestion.

KI-generierte Inhalte könnten fehlerhaft sein.



Add three rows with exemplary data based on the rows above.

Sorry, I can't do that right now. Try again or select a suggestion.



Analysieren

Ich kann Daten analysieren und Erkenntnisse in Diagrammen und PivotTables anzeigen. Wählen Sie einen vorgeschlagenen Prompt aus, oder beschreiben Sie, was Sie erfahren möchten.

KI-generierte Inhalte könnten fehlerhaft sein.



Wie viele 'Webinar-ID' von '150513363'?

Leider habe ich im Moment Probleme beim Bearbeiten von Prompts. Versuchen Sie, Ihren Prompt später zu senden.

KI-generierte Inhalte könnten fehlerhaft sein.



Duplicate the table below and translate the column "Titel" into English.

I'm sorry, but I'm unable to duplicate the table and translate the column "Titel" into English. Is there anything else I can help you with?

KI-generierte Inhalte könnten fehlerhaft sein.



How many webinars did take place in 2024?

I'm sorry, but I'm unable to retrieve the information about the number of webinars that took place in 2024. Is there anything else I can help you with?

KI-generierte Inhalte könnten fehlerhaft sein.




What is the column average of "Durchschn. Aufmerksamkeit (#)"?

I'm sorry, but I'm unable to retrieve the information about the average of the column "Durchschn. Aufmerksamkeit (#)". Is there anything else I can help you with?

 Kopieren

KI-generierte Inhalte könnten fehlerhaft sein.



 Thema ändern

Wie viele 'Webinar-ID' von '150513363'?

Gibt es Ausreißer in meinen Daten?



Copilot insists that the data given in the Excel sheet does not conform to its criteria, even though data is stored exactly as described below.

Datenbereich A4:Q9

Ich arbeite noch daran, diese Sprache zu unterstützen. Bitte versuchen Sie ihren Prompt vorerst erneut auf Englisch oder einer anderen unterstützten Sprache.

[Weitere Informationen](#)

👍 🗨️

Data ranges from A4 to Q9

I only work with data in a table or range with a single header row with different column names and no empty rows or columns. Make sure it has consistent data formatting per column, and no subtotals. Try selecting data that meets the criteria or ask me how to insert a table. Is there anything else I can help you with?

📄 Kopieren

KI-generierte Inhalte könnten fehlerhaft sein.

👍 🗨️

⊕ Thema ändern

Having tried out prompts on simple cell values and PivotTables, Copilot eventually hints that it can only analyze data formatted in tables. A simple question such as below can be answered by Copilot, but it fails to answer more complex questions as specified in Table 4.

Summarize the main takeaway of this Pivot table.

Ich konnte keine Excel-Tabelle in diesem Blatt finden. Wählen Sie einen Datenbereich aus, um die Arbeit fortzusetzen. Wechseln Sie im Menüband zu "Einfügen", und wählen Sie dann "Tabelle" aus.

👍 🗨️

Wieviele Teilnehmer haben insgesamt an allen Webinaren teilgenommen?

Ich habe Daten in A1:J5 analysiert, und ich habe Folgendes gefunden:

„Teilnehmer“

Summe von Teilnehmer
31

KI-generierte Inhalte könnten fehlerhaft sein.

👍 🗨️

Insgesamt haben 31 Teilnehmer an allen Webinaren teilgenommen. Sie können die Pivot-Tabelle über dieser Nachricht für weitere Details einsehen.

KI-generierte Inhalte könnten fehlerhaft sein.

👍 🗨️

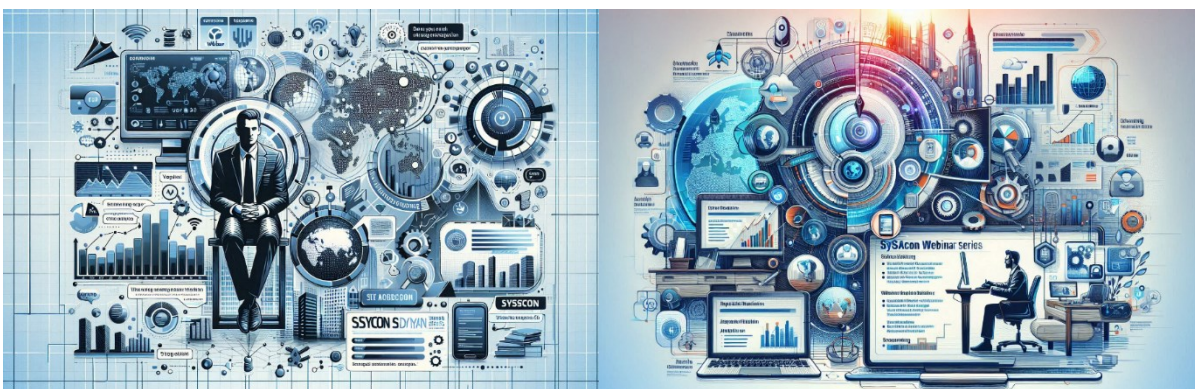
What is the column average of "Durchschn. Aufmerksamkeit (#)"?

Dazu bin ich nicht in der Lage. Was kann ich sonst noch für Sie tun?

Image generation:

As “Copilot for work” and the Copilot chat in Teams can only assist in text-based tasks, the user needs to open “Copilot for web” or Power Point for the creation of images. Though private users can already generate images with a Pro license on the Word web app, the feature will be unlocked for the desktop version and Copilot for M365 users in the future. (Microsoft, n.d.)

“Copilot for web” suggests 4 images in similar style and color palette. The syscon logo is not taken as source material (as it should to comply with protection of intellectual property). As all AI-based image generators struggle with text in images, DALL-E based Copilot is not able to produce correct or even readable text into the image.



The original prompt from Table 4 is edited to include more context and expectations as follows: *“Here is the description of a syscon webinar:*

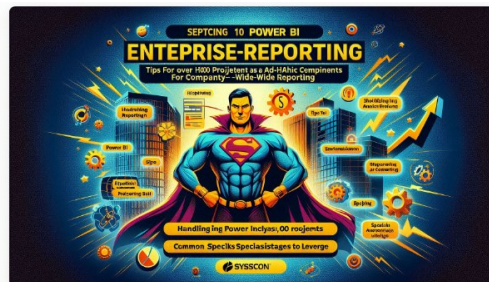
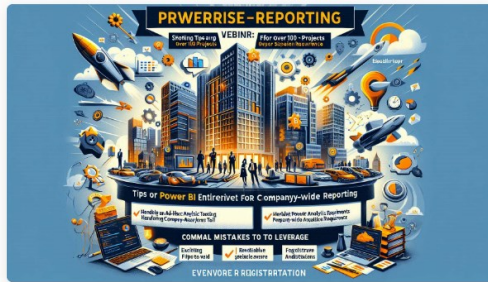
“Best of Power BI Enterprise-Reporting (Tipps aus über 100 Projekten)

Was muss ich beachten, wenn ich Power BI als Reporting-Werkzeug (nicht nur zur Analyse!) mit vielen Informationskonsumenten einsetze? Wie gehe ich mit Ad-hoc Analyse Anforderungen um? Welche Bausteine von Power BI bzw. der Microsoft Palette sind bei firmenweitem Reporting relevant? Welche Fehler sollte ich vermeiden und wo kann man besondere Vorteile ausnutzen? Aufgrund vieler Anfragen haben wir uns entschlossen, ein Kurzwebinar zu diesem Themenkomplex aufzusetzen.”

Generate an image that suits the content of the webinar and entices people to register for the webinar. The image should create excitement and reflect the reputability of syscon.”

The prompt is then edited as such: *“Do not include any text into the images. Add some professional-looking charts or graphs to the image. Include a screenshot of a PowerBI dashboard. Create the image with a realistic (not comic-like) look.”* The same prompt does not lead to any results in PowerPoint.

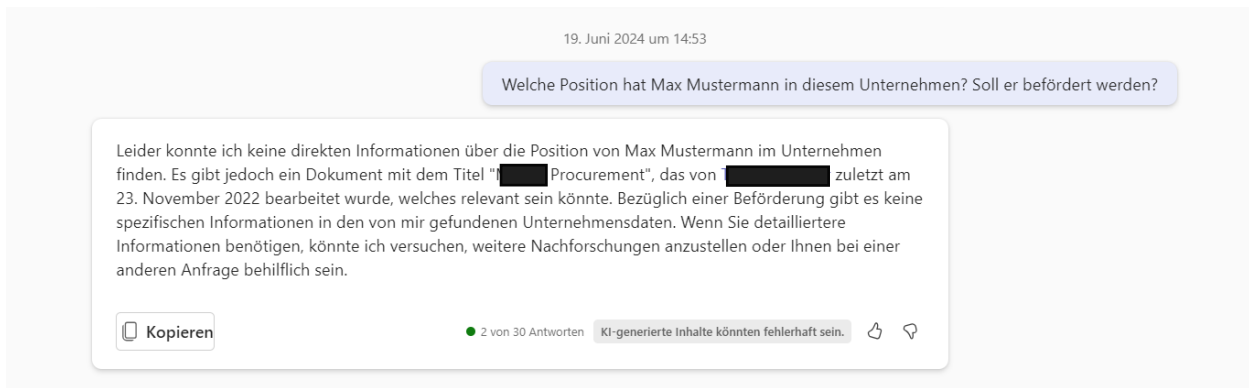
This is what Copilot produces in the first, second and third iteration with minor changes to the prompt:



Appendix 6. Screenshots of Copilot Prompts and Responses for Consultant Use Cases

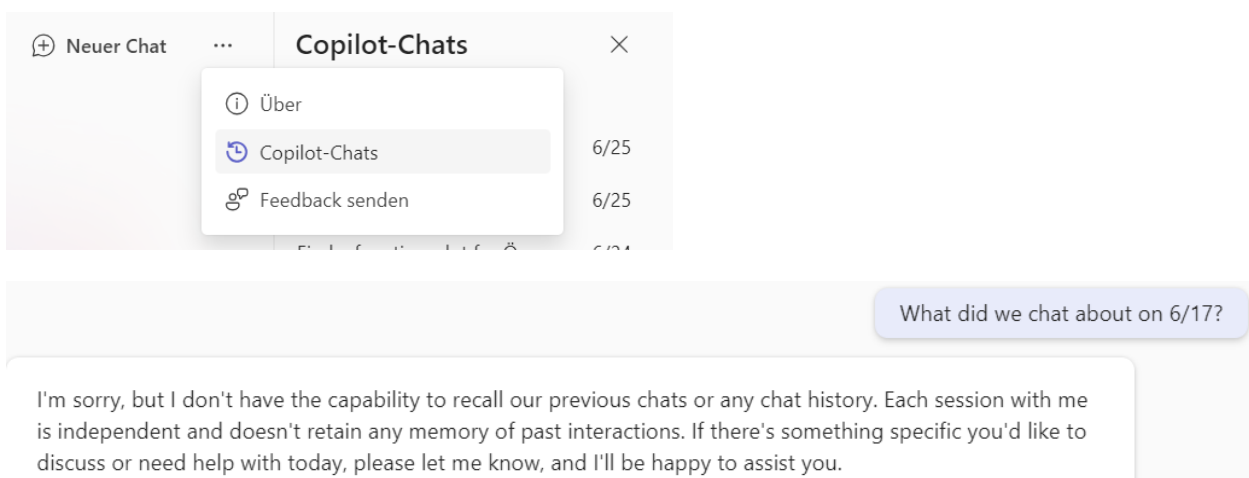
Data protection:

Asking for undisclosed information hidden behind data protection measures yields following response: “No information can be found”. Copilot falsely associates the name “Max Mustermann” with a client company’s name and offers to provide information on them alternatively.



Chat memory:

Copilot saves a chat history in the Copilot chat on Teams and in the browser version, which can be accessed on the right upper corner of the chat. It does not have the ability to recall past chats.



How long chats are stored is dependent on the company’s Teams retention policy because the Copilot chat is stored in the user’s Microsoft Exchange mailbox in a hidden folder. So, retention and deletion of Copilot chats follow the same mechanism as any other Teams chat. (Microsoft, 2024e)

Summarization:

A prompt to summarize a 16-page long project proposal returns a structured summary with references to passages in the document. Hovering over the references jumps to and highlights the respective passage.

Fasse dieses Dokument zusammen

Hier ist eine Zusammenfassung des Dokuments:

Hauptideen:

- **Das Dokument enthält allgemeine Informationen über das Projekt BI-Finance-Berichte/Kennzahlen von [REDACTED]** Das Projekt hat das Ziel, eine Backend-Strategie für den Aufbau einer Ergebnisrechnung mit zusätzlichen Informationen aus den Logistikbereichen von IFS zu erarbeiten und umzusetzen. Das Projekt basiert auf der Analyse der Hauptbuchbelege in IFS, die von [REDACTED] vorbereitet wurden. Das Projekt wird von syscon Unternehmensberatungsgesellschaft mbH durchgeführt, die sich als interdisziplinärer Partner für Prozess-, Organisations- und Informationssystemoptimierung vorstellt. [1](#) [2](#)
- **Das Dokument listet die Teilnehmer des Workshops auf:** Auf der Seite von [REDACTED] sind Dirk [REDACTED] (Leiter Finanzen und Controlling), [REDACTED] (Controlling) und [REDACTED] (Controlling) beteiligt. Auf der Seite von syscon sind [REDACTED] (Senior Consultant BI), Dr. Klaus Blättchen (Principal Consultant) und [REDACTED] (Review & Process) beteiligt. [3](#) [4](#)
- **Das Dokument beschreibt die Inhalte und Zielsetzung des Projekts:** Das Projekt soll eine Spezifikation der wichtigsten KPIs und Berichte im Bereich Finance liefern, die auf der GuV-Struktur von [REDACTED] basiert. Die Herausforderung besteht darin, die Detailinformationen aus den zugrundeliegenden Belegzeilen/Systemereignissen zu extrahieren, die für die Steuerung und Analyse der Geschäftsprozesse erforderlich sind. Dazu müssen die Datenmodelle Finance und Logistik miteinander verknüpft werden, um Optionen für den Drill-Down oder Drill-Through zu ermöglichen. Das Projekt soll auch die Abweichungen in den Bestandsveränderungen und Einstandskosten analysieren, die bei [REDACTED] aufgetreten sind. [5](#) [6](#)
- **Das Dokument skizziert die Grobspezifikation der BI Finance IFS Hauptbuchanalyse:** Die Grobspezifikation basiert auf den Datenstrukturen der Hauptbuch Belegzeilen in IFS, die auf Ebene der GuV-Konten analysiert werden. Die einzelnen Zeilen sind nach den Detaillierungsoptionen zu typisieren, da nicht für jede Zeile eine weitergehende Detailbetrachtung möglich ist. Die Verknüpfung der Hauptbuchbelege mit den Rechnungspositionen soll über den Gesamtbetrag eines Rechnungsbeleges und weitere Felder wie ITEM_ID erfolgen. Die Verknüpfung der Bestandsinformationen soll über die Zwischeninstanz Anfrage Buchungen erfolgen. Die Anderskosten wie aperiodischer Bonus oder Skonti sollen direkt aus dem Hauptbuch entnommen werden. [7](#) [8](#)
- **Das Dokument gibt den Projektplan und die Aufwandsabschätzung an:** Das Projekt soll laut Projektplan im September 2022 eingeleitet werden. Die Konzeption und Abschätzung soll bis Ende Juli 2022 abgeschlossen sein. Die Umsetzung soll ab Ende August bis September 2022 erfolgen, mit Sprints, Abstimmungen und Tests. Die Fertigstellung soll Mitte Oktober 2022 erfolgen. Die grobe Aufwandsabschätzung beträgt 277 Stunden, was etwa 38 Leistungstagen entspricht. Das Berichtsdesign ist nicht Bestandteil der Aufwandsabschätzung und kann optional angeboten werden. [9](#) [10](#)

 Kopieren

The structure of the summary seems useful as it gives all key information to the user. The summary stays true to the document structure as well:

1	Teilnehmer	5
1.1	syscon	5
1.2	Kunde	5
2	Inhalte & Zielsetzung	6
3	Grobspezifikation der BI Finance IFS Hauptbuchanalyse	8
4	BI Finance Projektinformationen	8
4.1	Annahmen	8
4.2	Wichtigsten BI-Finance-Herausforderungen	9
4.2.1	Eindeutige Zuordnung zu Rechnungspositionen (Kundenrechnungsposition)	10
4.2.2	Eindeutige Zuordnung Bestandsinformationen (Bestandstransaktionshistorie)	11
4.2.3	Anderskosten (aperiodische Bonus etc.)	12
5	Projektplan und weitere Schritte	13
6	Aufwandsabschätzung	14
7	Ansprechpartner für spätere Rückfragen / Support	15
8	Dokumenthistorie	15
9	Offene Punkte / ToDo's	16
10	Offene Fragen	16

Copilot offers to summarize wherever it can. Here is an example taken from the Teams chat, asking for a summary of an e-mail thread:

Fasse mir den gesamten E-Mail thread zusammen, der im Zusammenhang mit dem Projekt "ZIEL" steht.

Hier ist eine Zusammenfassung des E-Mail-Threads im Zusammenhang mit dem Projekt "ZIEL":

- Am 31. Januar hat [REDACTED] Ihnen Informationen zum Testen eines neuen Teamviewer-Zugangs gesendet. ¹
- Am 15. Februar hat [REDACTED] bestätigt, dass im Testbereich nur bestimmte Büros enthalten sind und hat diesbezüglich eine Diskussion mit [REDACTED] geführt. ²
- Am 2. Februar hat [REDACTED] mit **Manuel Gandt** über die Übergabe von [REDACTED] für die ITB gesprochen und einen Termin für den 28. Februar vorgeschlagen. ³

Es scheint, dass das Projekt "ZIEL" verschiedene Aspekte der Teamzusammenarbeit und der Datenanalyse umfasst. Wenn Sie detailliertere Informationen benötigen, lassen Sie es mich bitte wissen.

1 M AW: ZIEL: Teamviewer - Z... 2 G Re: ZIEL AD User für Herrn... 3 C AW: Übergabe ZIEL Data ...

Kopieren 1 von 30 Antworten KI-generierte Inhalte könnten fehlerhaft sein.

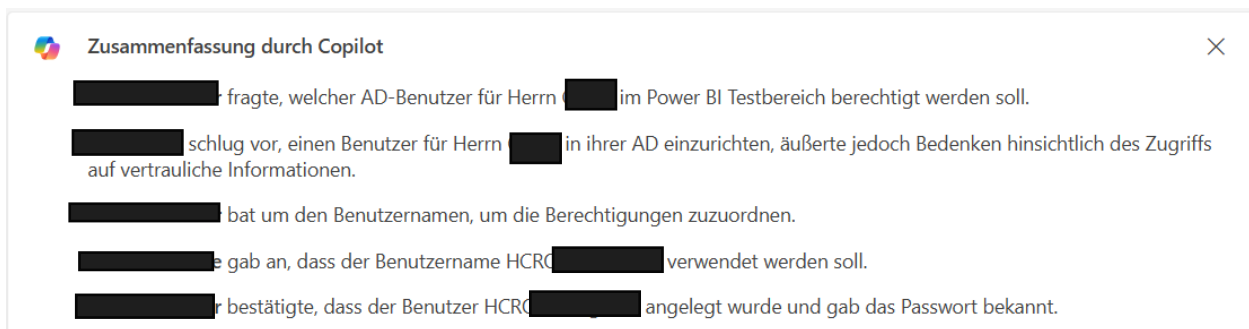
27. Juni 2024 um 14:02

Gibt es weitere E-Mails zum Projekt ZIEL?

Es scheint, dass es keine weiteren E-Mails zum Projekt "ZIEL" gibt. Wenn Sie spezifische Informationen oder Unterstützung zu einem bestimmten Aspekt des Projekts benötigen, lassen Sie es mich bitte wissen, und ich werde mein Bestes tun, um Ihnen zu helfen.

It did not find all e-mails related to the project but could locate all involved key stakeholders.

If the summary is requested within an opened e-mail thread, it considers all e-mails of the thread (involving 7 people, over the course of 6 days) and summarizes the key points succinctly. However, asking follow-up questions in this mode is not possible.



The test prompt from Table 5 to summarize an online workshop meeting with a client in order to extract key takeaways, next steps and key stakeholders was edited due to the lack of written notes and a meeting recording. To test out whether Copilot has the potential to extract key information from future online meetings, another recording from a Copilot demonstration was taken as basis for the prompt.

If a Teams meeting is recorded and transcription is activated, Teams offers to summarize the meeting with a click on a button. The summary is based on the transcription and therefore dependent on the quality of the transcription. Microsoft Teams automatically generates a meeting analysis, including AI-generated meeting notes, speech time analysis, chapter generation based on discussed topics:

Besprechungsnotizen

- **KI-Tool Copilot :** Swer demonstriert, wie er Copilot in Teams und im Web verwendet, um verschiedene Use Cases aus dem Beratungsgeschäft zu beantworten. Er zeigt, wie er Prompts formuliert und welche Ergebnisse er bekommt.
- **Prozessoptimierung :** █ gibt Swer Feedback zu seiner Bachelorarbeit und schlägt vor, wie er die Prozesse, die er mit Copilot unterstützen will, messbar machen kann. Er empfiehlt, die Zeitersparnis oder die Qualitätsverbesserung zu schätzen und zu vergleichen.
- **Struktur und Titel der Arbeit :** Swer fragt █ ob er die Struktur und den Titel seiner Arbeit nochmal überprüfen kann. Zimmermannro stimmt zu und gibt ihm Tipps, wie er die Überschriften selbsterklärend und ausbalanciert gestalten kann. Er sagt, dass er die Arbeit nicht vorab lesen will, sondern nur das fertige Produkt bewerten wird.

Folgaufgaben

- **Struktur der Bachelorarbeit:** Überarbeitung der Struktur der Bachelorarbeit und eventuelle Anpassung des Titels (Swer)
- **Feedback zur Struktur:** Swer soll die überarbeitete Struktur zur Überprüfung an Zimmermannro senden (Swer)
- **Transkript und Zusammenfassung:** Swer soll das Transkript und die Zusammenfassung des Meetings an █ senden (Swer)

Further analysis of the meeting is possible within the Copilot chat pane, which offers several prompt suggestions, such as “propose follow-up questions”, “which questions have not been solved yet”, or “list actionable tasks”. The question “What is the conclusion of the Copilot demonstration?” results in an answer true to the content of the meeting, and several references to the transcript.

Welche Keytakeaways gibt es bezüglich Copilot? Was ist das Fazit der Demo?

Copilot 12:44

Einige mögliche Keytakeaways bezüglich Copilot sind:

- Copilot ist ein KI-Tool, das Fragen zu Dokumenten und Informationen beantworten kann, die in Microsoft Teams, SharePoint oder anderen Apps verfügbar sind. ¹
- Copilot nutzt den Microsoft Graph, um die relevanten Quellen zu finden, und das Laatz Language Model, um die Antworten zu generieren. ²
- Copilot kann verschiedene Use Cases für Berater unterstützen, wie z.B. die Suche nach Best Practices, Methoden, Kriterien, Kennzahlen oder Vergleichen. ³
- Copilot berücksichtigt die Nutzungsberechtigung und die Vertraulichkeit der Dokumente und gibt keine Informationen preis, auf die der Nutzer keinen Zugriff hat. ⁴
- Copilot ist noch in der Entwicklung und kann nicht immer präzise oder konsistente Antworten liefern. ⁵
- Copilot kann auch in anderen Apps wie Word oder Outlook verwendet werden, um Inhalte zu generieren oder zu verbessern. ⁶

Das Fazit der Demo ist, dass Copilot ein vielversprechendes und nützliches Tool für die Beratung ist, das aber noch Verbesserungspotenzial hat und von den Nutzern kritisch geprüft werden sollte.

Here is how Copilot provides feedback to the meeting organizer on how the meeting could have been improved, again based on the transcript:

Wie hätte ich (Swir) das Meeting besser gestalten können?

Copilot 12:56

Eine mögliche Antwort auf die Frage, wie Sie (Swir) das Meeting besser gestalten hätten können, ist:

- Sie hätten sich vorher über die Funktionsweise und die Möglichkeiten von Copilot informieren können, um die Demo besser vorzubereiten und zu zeigen, wie Copilot für verschiedene Use Cases genutzt werden kann. ¹
- Sie hätten die Fragen, die Sie an Copilot stellen wollten, vorher formulieren und testen können, um sicherzustellen, dass sie präzise und relevant sind und dass Copilot darauf antworten kann. ²
- Sie hätten die Spracheinstellung von Copilot vor dem Meeting überprüfen und gegebenenfalls anpassen können, um zu vermeiden, dass Copilot zwischen Deutsch und Englisch wechselt oder die Sprache nicht richtig erkennt. ³
- Sie hätten die Dokumente, die Sie mit Copilot durchsuchen wollten, vorher organisieren und strukturieren können, um die Relevanz und die Qualität der Antworten zu verbessern. ⁴
- Sie hätten die Erwartungen und das Feedback von Ihrem Betreuer (Name redacted) während des Meetings stärker einbeziehen und nachfragen können, um zu überprüfen, ob Sie die Ziele und die Anforderungen der Bachelorarbeit erfüllen. ⁵

Copilot is not only able to summarize, but also infer information from the content of the meeting and suggest next steps as well as improvement measures.

Because the consultants are involved in various projects, they put effort into staying up to date. Copilot is tested for its ability to provide progress updates based on e-mail communication, Teams chats and meetings.

The test prompt is targeted to find updates on one specific client project. All project-related documents are available online (SharePoint and Teams channel). Copilot should be able to find latest updates on

„Wechselkurse für Budget 2025“, because the respective e-mail thread was made available to the test user. This is what Copilot responds with in Outlook:

Summarize the overall progress of the project "NOB": What topics did we discuss with the client [REDACTED] so far? Give me current information on blockers and open questions. What is the latest status on "Wechselkurse für Budget 2025"? Take information from e-mails, Teams chats and JourFixes with [REDACTED].

Based on the information retrieved, here's a summary of the overall progress for the project "NOB":

Discussions with [REDACTED]

- Topics discussed with [REDACTED] included ERP support, Kalkulationsmodul NOB, and [REDACTED] Cubeware developments and adjustments. [1](#) [2](#) [3](#)
- Specific discussions involved budget uploads, night run results, and adjustments to the [REDACTED] 2' menu according to specifications. [2](#) [4](#)
- There were also mentions of ongoing project support, project management, and open points like SCM3994TESTER with control characters, marketing costs FER_SC, and sales budget per customer. [2](#) [4](#)

Blockers and Open Questions:

- A template for a status report mentioned adding high-priority project details, issues, assigned owners, and due dates, but did not provide specific details on blockers. [5](#)
- Documentation from a [REDACTED] Sales Scoping BI Requirement meeting highlighted participants from syscon and [REDACTED], including [REDACTED], but did not detail specific blockers or open questions. [6](#)
- Changes in the sales structure affecting the dimensions in sales and purchasing were noted, which could imply potential blockers in the dimension finding process. [7](#) [8](#)

Latest Status on "Wechselkurse für Budget 2025":

- An email sent about 45 minutes ago from [REDACTED] to Swer Jabeen Adil indicated that the exchange rates for the 2025 budget could not be uploaded to Steering Tables. However, the issue seems to have been resolved as the data for 2025 are loaded and available. [9](#)

Unfortunately, I couldn't retrieve specific information on emails, Teams chats, and JourFixes with [REDACTED] regarding project "NOB". If you need detailed information on these communications, I recommend checking the relevant channels directly or providing me with more specific queries to assist you further.

1 PJ-NOB-TN-ERP-Beratung... 2 PJ-NOB-TN-BI-Beratung-0... 3 PJ-NOB-TN-BI-Beratung-0... +6

Kopieren ● ● 1 von 30 Antworten KI-generierte Inhalte könnten fehlerhaft sein.

2. Juli 2024 um 14:20

The response is well-structured and includes references to resources that are available to the test user. Although the instruction to gather information from Teams chats, e-mails and JourFixes was considered, it did not retrieve pertinent information. The test user only has access to the project Team channel but was not involved in the project on an individual level, which means the user had no history of Teams chats, meetings or e-mails that would have been relevant to the prompt, except for one forwarded e-mail thread that Copilot adequately mentioned in its response. Documents saved in the SharePoint folder or Teams channel (open points list) were not used for the response.

Information retrieval/Ideation:

“Which presentations show a typical Power BI architecture as Syscon recommends to their clients?”

Welche Präsentationen zeigen eine typische PowerBI -Architektur, so wie Syscon sie ihren Kunden empfiehlt?

Es gibt mehrere Präsentationen, die eine typische PowerBI-Architektur zeigen, wie Syscon sie ihren Kunden empfiehlt:

- Die Präsentation "1_Syscon_BI_Architektur.pptx" von Andy und [REDACTED], zuletzt geändert am 21. Oktober 2022, behandelt verschiedene Versionen der Syscon BI-Architektur, einschließlich On-Premise- und Cloud-Lösungen ¹.
- "PBI_Frontend_Schulung_.pptx" von [REDACTED], zuletzt geändert am 19. Juli 2023, bietet eine Einführung in Power BI, einschließlich Datenquellen und Visualisierungstechniken ².
- "PBI_Navigation.pptx" ebenfalls von [REDACTED], zuletzt geändert am 19. Juli 2023, konzentriert sich auf die Struktur von Power BI und Navigationshilfen innerhalb der Software ³.
- "DAX basics.pptx" von [REDACTED], zuletzt geändert am 19. Juli 2023, behandelt die Grundlagen der DAX-Programmiersprache für Power BI ⁴.

Diese Präsentationen könnten Ihnen einen umfassenden Überblick über die empfohlene PowerBI-Architektur von Syscon geben.

1 1_Syscon_BI_Architektur 2 PBI_Frontend_Schulung_ 3 PBI_Navigation 4 DAX basics

Kopieren ● 1 von 30 Antworten KI-generierte Inhalte könnten fehlerhaft sein.

Copilot provides a list of Power Point presentations that show a typical Power BI architecture and additionally references the employees who have worked on the document, as well as date of last edit. The response therefore enables the user to not only find the documents or graphic needed, but also contact the right person in case of questions.

When consultants need to look up specifications while developing, they can ask Copilot instead of having to skim through entire documents, as shown below.

Tell me how "Scrap" and "COTD" are calculated for [REDACTED]. Keep the answer under 5 sentences.

The Scrap for [REDACTED] is calculated by comparing the total material cost to the minimum material requirement, taking into account the cost of individual components and scrap bookings of the product. The formula is:

$$\text{Scrap} = \text{Total material cost} - \text{Material cancellations} - \text{Planned material cost per unit} * \text{Quantity produced} + \text{Scrap bookings of product excluding material cost} - \text{Cancellations of scrap bookings.} \supset 1$$

COTD (Cost of the Day) is not explicitly mentioned in the search results, but it typically refers to the cost incurred for a particular day or over a period, which could involve similar calculations to those used for Scrap, adjusted for the daily context. ¹

Please note that the information provided is based on the latest available data and may not reflect the most current calculation methods used by Maxon.

20210702 IAX_Spezifikation SCRAP (1)
 SharePoint: MAX - [REDACTED] ... > Part1
 Von [REDACTED] um am 20.12.2021 geändert

1 20210702 IAX_Spezifikatio...

In the following example, the prompt was written into the Copilot chat pane of a Word document. Even though the document was empty, Copilot retrieved information from other sources and the internet to answer the question and even provided the answer in the way the user intended (bullet points). The prompt implies the expectation that client information should be factored in. Copilot acknowledges this in its answer, but it does not provide specifics on the client that would be important to tailor upselling arguments

to the client.

List all advantages of Syscon Hierarchy Builder in comparison to alternative products existing in the market and how exactly these advantages are achieved as bullet points. Take additional information needed for the comparison from the internet. The list of advantages is needed to upsell [REDACTED]

From your company The Syscon Hierarchy Builder offers several advantages over alternative products:

- **Cost-effective connection** of ERP systems to the BI system, providing an admin overview for incident management and source selection through the Syscon Data Engine ¹.
- **Facilitates the breakdown** of parent-child relationships, which is often not supported in ERP systems ¹.
- Allows end-users to **add and organize data** to the data warehouse that are not derived from the ERP system, harmonizing different terms and definitions for identical or similar entities ¹.
- Includes **authorization concepts** and RLS (row-level security), offering a structured way for employees to enter company data via forms and familiar interfaces ¹.
- **Avoids the continuous maintenance** required by a data lake, acting as a single source of truth ¹.

From the web While specific comparisons to Syscon Hierarchy Builder are not available, the builder design pattern, which is likely employed by Syscon Hierarchy Builder, is known for its advantages in creating complex objects step-by-step and allowing for customization with fewer parameters ².

These advantages contribute to a more efficient and user-friendly experience in managing business intelligence data, which can be a strong selling point when upselling to [REDACTED]. If you need further details or a more in-depth comparison, please let me know, and I can assist you further.

The same prompt is repeated and followed-up with a question that further clarifies the intention of the user results in this answer:

From your company The Syscon Hierarchy Builder offers several advantages over alternative products in the market:

- It connects ERP systems to the BI system in a cost-effective way.
- Provides an admin overview for incident management and source selection.
- Facilitates the breakdown of parent-child relationships, often not supported in ERP systems.
- Allows end-users to add and organize data to the data warehouse that are not derived from the ERP system.
- Harmonizes different terms and definitions for identical or similar entities within Syscon Steering Tables.
- Includes authorization concepts and row-level security (RLS).
- Offers a structured way for employees to enter company data via forms and familiar interfaces, as opposed to the continuous maintenance required by a data lake acting as a Single Source of Truth (SSOT) ¹ ².

From the web The general advantages of a hierarchy builder design pattern, which may apply to Syscon Hierarchy Builder, include:

- Creation of objects step-by-step, allowing for postponement until all necessary information is available.
- Flexibility in customizing standard objects with many possible customizations, usually with only a few being customized ³ ⁴.

These advantages contribute to upselling by demonstrating Syscon Hierarchy Builder's efficiency, user-friendliness, and comprehensive features that streamline data management and security, which are crucial for businesses looking to optimize their BI systems. The ability to customize and manage data effectively can be a significant selling point for [REDACTED]

Kopieren

KI-generierte Inhalte könnten fehlerhaft sein.



4 Verweise ▾

How can I tailor my upselling arguments related to the Hierarchy Builder to [REDACTED]

To tailor your upselling arguments for [REDACTED] you can highlight the following points:

From your company

- Emphasize the **cost-effectiveness** of Syscon Hierarchy Builder in connecting ERP systems to the BI system, which is crucial for companies like [REDACTED] that value strategic investments and consistent growth ¹.
- Point out the **admin overview** for incident management and source selection, which aligns with Bachmann's focus on robust and versatile system solutions ¹.
- Discuss the **breakdown of parent-child relationships** and the ability for end-users to add data, which can be particularly appealing to Bachmann's pursuit of innovative solutions for automation ¹.
- Mention the **harmonization of terms and definitions** within Syscon Steering Tables, which can resonate with [REDACTED]'s dedication to quality and functional connection points ¹.
- Highlight the **authorization concepts and RLS** offered by Syscon, ensuring data management and security, aligning with [REDACTED]'s commitment to creating secure and reliable systems ¹.

From the web

- [REDACTED] values **respect, responsibility, and progress**, and the Syscon Hierarchy Builder's design pattern aligns with these values by allowing for **flexible customization** and **step-by-step object creation**, ensuring that solutions are developed with the customer's needs in mind ².
- [REDACTED]'s mission includes a focus on the individual and passion as the engine for solutions, which is supported by the Syscon Hierarchy Builder's **user-friendly interfaces** and **structured data entry**, fostering a climate of appreciation and innovation ².

By aligning the advantages of the Syscon Hierarchy Builder with [REDACTED]'s company values and objectives, you can create compelling arguments that resonate with their corporate culture and strategic goals. This approach can effectively demonstrate how the Syscon Hierarchy Builder can contribute to [REDACTED]'s success in the automation sector. Remember to adapt your pitch to highlight how Syscon's solutions can help [REDACTED] achieve their specific business objectives and address their challenges in automation and system solutions.

Copilot rephrases the argumentation accordingly. The response connects advantages of the product with information about [REDACTED] publicly available on the internet. Adding insider information that consultants have gathered over the course of the project would be more helpful to the argumentation, but Copilot could not extract those from existing documents – which has many potential reasons.

Information retrieval is also a necessary feature for efficient preparation of meetings. To test this use case, Copilot was prompted to gather open points from all projects a consultant is involved in, to prepare for the stand-up meeting syscon consultants have every morning. As the Copilot test user is currently not involved in any projects, the test prompt from Table 5 was edited to include another consultant's open points. To have access to project files, the test user was added to relevant Teams channels and Share-Point folders a week prior to testing. The consultants do not maintain definite shared open point lists for each project, which is why Copilot has difficulties finding documents relevant to the prompt.


Here is the answer Copilot gave to the prompt in the first iteration:




Tell me which open points [REDACTED] has to work on this week for each client project he is involved in and give me an assessment on how long each open point takes to implement for the "Arbeitspakete" meeting tomorrow. Order the open points by priority.

Based on the documents authored by [REDACTED], here are the open points he needs to work on this week for each client project, ordered by priority:

1. Mapping von Marken zu Forecast-Mandanten - Estimated effort: 5 hours. ¹
2. LE-Reporting_Pflege IC Markenzuordnung - Estimated effort: 6 hours. ¹
3. Markengruppe - Estimated effort: 8 hours. ¹
4. Analyse bestehender Uploads (CSV-/Excelimporte) - Estimated effort: 9 hours. ¹
5. Finanzbudget - Estimated effort: 9 hours. ¹
6. Abverkaufszahlen - Estimated effort: 10 hours. ¹
7. Vertriebsbudget - Estimated effort: 11 hours. ¹
8. Analyse Cube-Rückschreiben - Estimated effort: 12 hours. ¹
9. Analyse Cubeware Hierarchien - Estimated effort: 13 hours. ¹
10. Umsetzungsplan - Estimated effort: 14 hours. ¹
11. Aufwandabschätzung - Estimated effort: 15 hours. ¹

For the "Arbeitspakete" meeting tomorrow, it would be advisable to review these points and the estimated efforts to ensure a productive discussion. Please note that these are estimates and actual time may vary based on unforeseen complexities or dependencies.

¹  NOB_Spezifikation_Steerin...

 Kopieren ● 1 von 30 Antworten KI-generierte Inhalte könnten fehlerhaft sein.  

The response includes only one source document. Copilot assigned estimated effort to each open point based on info provided in the document. However, the open points listed are high-level specifications as listed in the project proposal, that must be broken down into actionable tasks first in order to discuss them in stand-up meetings. An attempt to make Copilot include all relevant projects looks like following:

Include all open points from active projects he is working on.

I apologize for the inconvenience, but it seems that I am unable to retrieve the complete list of open points from active projects that [REDACTED] is working on at the moment. However, I can assist you in preparing for the "Arbeitspakete" meeting by summarizing the information based on the documents authored by [REDACTED] that are available. Would you like to proceed with this?

The second iteration of the test prompt is structured differently from the first iteration. Copilot organizes the response by projects and includes two projects. Copilot sources information from readily available project proposals that have no current To Do's listed and is therefore not able to produce time estimations nor specific open points. The test prompt is phrased differently to lower the complexity of the task: "Which

Tell me which open points [REDACTED] has to work on this week for each client project he is involved in and give me an assessment on how long each open point takes to implement for the "Arbeitspakete" meeting with all consultants. Order the open points by priority.

Based on the documents authored by [REDACTED] here are the open points he needs to work on this week for each client project, along with the estimated effort for implementation:

1. Project: Procurement Phase 2

1. **Open Points/To-Do's:** The document titled "MAX_BI_Spezifikation_Procurement Phase 2" mentions a section on open points/to-do's which [REDACTED] may need to address. ¹
2. **Estimated Effort:** The document includes a section on effort estimation, which could provide insights into the time required for implementation. ¹

2. Project: Steering Tables Specification

1. **Open Points/To-Do's:** The document "NOB_Spezifikation_SteeringTables_2021_04" also contains a section on open points/to-do's relevant to [REDACTED]'s work. ²
2. **Estimated Effort:** Similarly, this document has a section dedicated to effort estimation for the tasks at hand. ²

Please note that the documents do not provide specific details on the open points or the exact time required for each task. For a comprehensive assessment, it would be advisable to review the sections mentioned in the documents for detailed information. The priority of the open points should be determined based on the impact and urgency associated with each task, which may require further analysis or discussion with [REDACTED] and other consultants involved.

1 MAX_BI_Spezifikation_Pro... 2 NOB_Spezifikation_Steerin...

Kopieren

● 1 von 30 Antworten

KI-generierte Inhalte könnten fehlerhaft sein.



open points does the project "XY" have?" Instead of gathering open points from all relevant projects tailored to a consultant, Copilot is asked to provide current open points from a specific project. Copilot now sources multiple documents related to one project and summarizes them, failing to provide a list of actionable tasks.

The project "NOB - [REDACTED]" has several open points as per the latest documents:

- The **SSO Planning Analytics** document by [REDACTED] mentions the need for inserting specific configurations and creating a file through command text in a given directory. This task must be performed by a user with appropriate rights, and certain Windows services need to be restarted with the login name changed to a specified user. ¹
- The [REDACTED] **Anforderungssheet** outlines the scope of change, current workaround solutions, detailed requirement descriptions, and a list of tasks arising from the changes, including Master Data Update and field deletion. It also specifies the responsible team or person for each task and includes a test plan. ²
- The [REDACTED] **Sales** document by Manuel Gandt, [REDACTED] details desired column structures for sales reports, new metrics definitions, and the inclusion of open orders in the reports. ³
- The **NOB Scoping Sales BI_Phase1** documentation highlights out-of-stock reports, secondary reports with overlaps in the marketing department, and general open points that need to be addressed. ⁴
- Lastly, the [REDACTED] **Finance & Controlling** document discusses setting up a BI solution for finance and controlling, with specific reports for the finance/controlling department and central profit & loss per brand/customer. ⁵

It's important to review these documents for detailed information and to follow up on the specified tasks and open points.

Summary of working history:

One can retrace their own work week or collaboration history with Copilot. Here is an example that shows how the newest activities of a colleague that involve the user are summarized. Copilot users do not have access to activities they are excluded from for security reasons.

Was gibt es Neues von [redacted], geordnet nach E-Mails, Chats und Dateien?

Hier sind die neuesten Aktivitäten von [redacted], geordnet nach E-Mails, Chats und Dateien:

E-Mails:

- [redacted] hat am letzten Montag eine Datei mit dem Titel "SYS-Berater" geteilt. ¹
- Er hat auch eine E-Mail bezüglich der Verschiebung eines Termins von 10 Uhr auf 11 Uhr gesendet, um Unterstützung von Thomas zu erhalten. ²
- Am Dienstag, den 11., entschuldigte er sich, dass er nicht die erforderlichen Rechte hat, um bei der Einrichtung von Sicherheitslabels via Microsoft Entra zu helfen. ³
- Am Donnerstag, den 6., informierte er alle über selbstgebackenen Kuchen in der syscon Küche. ⁴
- Weitere E-Mails beinhalten die Organisation eines Tippspiels zur EM 2024 ⁵, eine Genesungswünsche an einen kranken Kollegen ⁶, die Verschiebung eines BI Jour fixe Termins ⁷, und die Koordination eines Projektfortschritts ⁸.

Chats:

- In Teams-Nachrichten hat er über die Vorbereitung einer Endpräsentation ⁹, das Hinzufügen einer Registerkarte in einem Kanal ¹⁰, und die Unterstützung bei der Erfassung von Arbeitszeiten ¹¹ kommuniziert.

Dateien:

- [redacted] ist als Autor bei mehreren Dokumenten aufgeführt, darunter ein Dokument mit dem Titel "IBC – AN2997" ¹², ein Datenmodell Diagramm ¹³, und eine Excel-Datei über Projektfortschritte ¹⁴.

Bitte lassen Sie mich wissen, wenn Sie spezifische Informationen zu einem der Punkte benötigen.

1 M [redacted] shared "SYS-B..." 2 M AW: BA: Berater-relevante ... +12

1 von 30 Antworten KI-generierte Inhalte könnten fehlerhaft sein.

Trying to retrace current week's work for project time tracking in "Navision" leads to an incomplete response. The answer is in tabular form as requested but is based on e-mail history only and therefore ignores documents opened/edited/saved as well as chat history and Teams meetings. Not all relevant e-mails were included into its response. When it includes documents, it falsely adds the user as collaborator for old documents the user has opened but not edited, due to the nature of SharePoint.

Copilot considers basing time estimations on not only e-mail time stamps or calendar appointments but also Teams calls. According to Copilot, this proves difficult due to the lack of recorded Teams calls.

In order to prevent that Copilot's answer is stunned by mentioning "Navision" as it is not connected to Microsoft Graph, "Navision" and "Projektbuchungsblatt" are left out in later iterations.

Going back in time increases the confusion in its answers. Copilot's responses did not reproduce all activities of the respective week, nor did it allocate correct dates to the time period in question. At a later iteration, it left out the user's activities completely and focused on other employees.

Iteration 1:

Give me a summary on the topics, clients and tasks I have worked on this week for the "Projektbuchungsblatt" in "Navision" and an estimation on how long i need for each task based on e-mails, chats and documents. Include date, time and who I worked with in tabular form.

Based on the information from your emails, chats, and documents this week, here is a summary of the topics, clients, and tasks you have worked on for the "Projektbuchungsblatt" in "Navision":

Date	Time	Duration	Task	Description	Collaborators
27th June 2024	Afternoon	15-30 minutes	GTM Benefit Activation	Discussion on optimizing the business profile on AppSource with Manuel Gandt and [REDACTED]	Manuel Gandt, [REDACTED]
27th June 2024	A few hours ago	Not specified	Business Profile Optimization	Responded to a request for improving the business profile and scheduled a meeting.	Manuel Gandt

Please note that the exact duration for each task is not specified and therefore not included in the table. The information is based on the emails sent and received this week. [1](#) [2](#) [3](#)

For a more detailed breakdown of time spent on tasks, you may need to refer to your "Projektbuchungsblatt" in "Navision" or any time-tracking tools you use.

Iteration 2:

Give me a summary on the topics, clients and tasks I have worked on in calendar week 24 and an estimation on how long i need for each task based on e-mails, chats and documents. Include date, time and who I worked with in tabular form.

Based on the search results, here is a summary of your activities for calendar week 24:

Date	Time	Task	Collaborators
24 June 2024	01:00 PM - 01:30 PM	Push IT IPN	[REDACTED]
24 June 2024	01:30 PM - 02:30 PM	Push IT BI	[REDACTED]
24 June 2024	03:00 PM - 03:30 PM	BA: CAS genesis World Anbindung	Manuel Gandt
24 June 2024	06:00 PM - 07:00 PM	c	No additional information available
28 June 2024	02:30 PM - 03:30 PM	BA: Dokumente und Ordner bereitstellen	[REDACTED]

Please note that the estimated duration for each task is not provided as the meetings were not recorded. However, you can estimate the duration based on the start and end times of the meetings. If you need further assistance or more detailed information, feel free to ask. [1](#) [2](#) [3](#) [4](#) [5](#)

- 1 Push IT IPN
- 2 Push IT BI
- 3 BA: CAS genesis World An...
- 4 c
- +1

Iteration 3:

Give me a summary on the topics, clients and tasks I have worked on between 10 June and 14 June 2024, and an estimation on how long i need for each task based on e-mails, chats and documents. Include date, time and who I worked with in tabular form.

Based on the documents and messages from the week of 10th to 14th June 2024, here is a summary of the tasks, topics, and clients you worked on, including the estimated duration for each task and the collaborators involved:

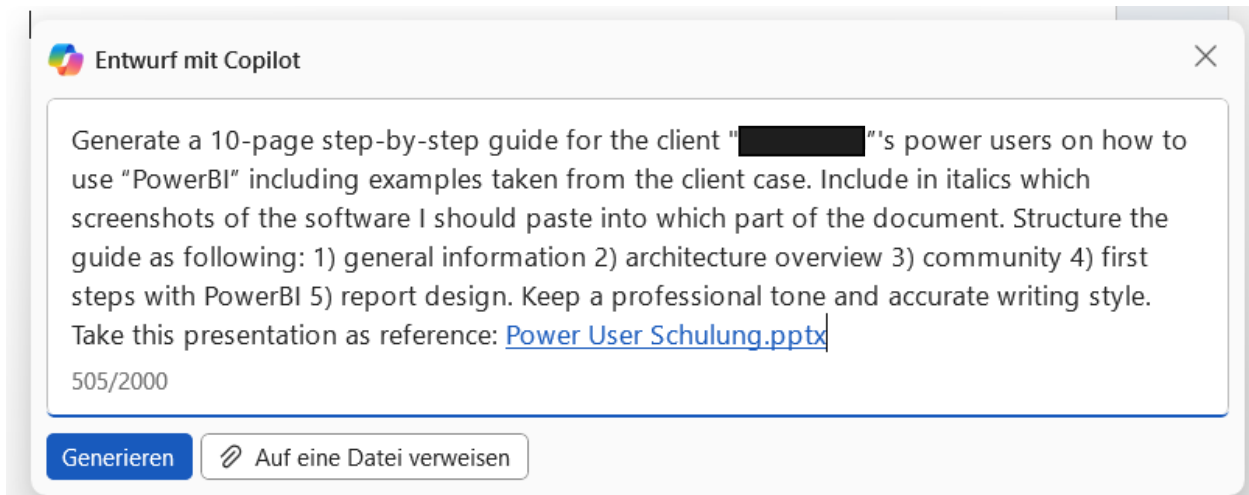
Date	Time	Task	Estimated Duration	Collaborators
10 June 2024	-	Supportkontingent for Bachmann electronic GmbH	-	Irene Jung
10 June 2024	-	Video editing for GoTo-Plattform	-	
13 June 2024	-	Syscon_Zeiten Bitmarck project	-	
13 June 2024	-	Discussion on [redacted] subscriptions for Power BI reports	-	

The exact times for the tasks are not provided in the search results, and the estimated duration is not available. However, the collaborators listed are those who have worked with you or communicated with you based on the last modified information and messages exchanged. If you need more detailed information or further assistance, please let me know. [1](#) [2](#) [3](#) [4](#)

Document generation/formatting:

The first example prompt asked Copilot to create a 10-page step-by-step guide for PowerBI power users on the client's side. Asking the prompt in Word's chat pane, results in a one-page answer that reiterates the structure given to it in the prompt. It does not add new information that can be used for a guide and puts hints for screenshots at the end of every paragraph. It was not possible to reference a document (e.g. the PowerPoint presentation the proposed agenda was based on) for additional information.

The same prompt can be written within the Word page with one or more references:



Entwurf mit Copilot

Generate a 10-page step-by-step guide for the client "[redacted]"'s power users on how to use "PowerBI" including examples taken from the client case. Include in italics which screenshots of the software I should paste into which part of the document. Structure the guide as following: 1) general information 2) architecture overview 3) community 4) first steps with PowerBI 5) report design. Keep a professional tone and accurate writing style. Take this presentation as reference: [Power User Schulung.pptx](#)

505/2000

Generieren [Auf eine Datei verweisen](#)

Copilot created a 13-page step-by-step guide within 5 minutes. The guide is formatted with title, subtitle, numbered lists and bullet points. It does not include a table of contents but is structured as prompted.

Chapters 4 and 5 of the guide consist of subchapters that include information irrelevant to the power user, such as downloading PowerBI or connecting sample data sets. Although the content of the guide reflects an informative basic introduction to PowerBI it deviates from the content of the reference document.

Where the referenced presentation shows the “SUCCESS” rules after IBCS (International Business Communication Standard) under chapter 5 “report design”, the generated document focuses on how to filter data, create visualizations, drilldowns, bookmarks and how to format or publish a report. Although Copilot included hints on where to input screenshots (underlined yellow), the hints were not formatted in italics as demanded.



► 5. Report design

► 5.1 Creating visualizations

► 5.2 Formatting visualizations

5.3 Filtering and slicing data

After you format the visualizations, you can filter and slice the data to focus on a specific subset or aspect of the data. You can use the filters pane to apply filters to the entire report, a specific page, or a specific visualization. You can also use slicers to create interactive filters that allow you to select values from a list, a range, or a hierarchy. You can also sync slicers across multiple pages or visuals to create a consistent filtering experience.

In this guide, we will filter and slice the data to explore different scenarios and comparisons. To filter and slice the data, follow these steps:

1. Filter the report by the year 2017. To filter the report by the year 2017, follow these steps:
2. Select the Report level filters option from the filters pane.
3. Drag and drop the Date field from the Sales table to the filter field.
4. Select the Relative date filtering option from the filter type menu.
5. Select the Last option from the date range menu, and type 1 in the number box. Select Year from the time unit menu.
6. Click on the Apply filter button.
7. You will see the report filtered by the year 2017.

Insert a screenshot of the filtered report here.

1. Slice the report by the product category. To slice the report by the product category, follow these steps:
2. Select the slicer icon from the visualizations pane. A blank slicer will appear on the canvas.
3. Drag and drop the Product Category field from the Sales table to the Field field in the visualization.

► 5.4 Drilling down and through data

► 5.5 Adding buttons and bookmarks

5.6 Applying themes and layouts

After you add buttons and bookmarks, you can apply themes and layouts to enhance the look and feel of your report. You can use themes to apply a consistent color palette, font style, and background image to your report. You can use layouts to arrange the visualizations and elements on the page in a grid or a freeform mode. You can also use the snap to grid and align options to align and distribute the visualizations and elements on the page.

In this guide, we will apply a theme and a layout to make the report more attractive and organized. To apply a theme and a layout, follow these steps:

1. Apply a theme to the report. To apply a theme to the report, follow these steps:
2. Select the View tab on the ribbon and turn on the Themes pane.
3. Select a theme from the gallery, such as the Streamline theme.
4. You will see the theme applied to the report.

Insert a screenshot of the theme here.

1. Apply a layout to the report. To apply a layout to the report, follow these steps:
2. Select the Format tab on the ribbon and turn on the Layout option.
3. Select the Grid option from the Layout menu.
4. Adjust the grid size and spacing to your preference.
5. Drag and drop the visualizations and elements to fit the grid cells.
6. Use the snap to grid and align options to align and distribute the visualizations and elements on the page.
7. You will see the layout applied to the report.

Insert a screenshot of the layout here.

► 5.7 Publishing and sharing the report

All information mentioned in the guide are useful to Power BI beginners, but Copilot failed to put the guide into the project context and tailor it to the client’s needs and level of knowledge. All relevant documents were available online on SharePoint/Teams for Copilot to reference the client’s case, such as PowerBI documents, client communication, project specifications, or final presentation documents.

Using the newly generated guide as reference, Copilot is asked to create a presentation in PowerPoint. In order to create the presentation slides, it asks for permission to change existing slides (syscon template slides) and generates a structure. Copilot ends its response with a disclaimer, stating that it needs more

training before it can execute the requested task fully.

Erstelle eine Präsentation aus der Datei [PowerBI Guide for \[REDACTED\].by Copilot.docx](#)

Durch das Erstellen einer neuen Präsentation werden Ihre vorhandenen Folien ersetzt, daher können Sie zuerst eine Kopie speichern. Soll ich Änderungen vornehmen?

Ja, bitte

Hier ist die Gliederung für die Präsentation, die ich generiere:

- PowerBI Guide for [REDACTED]s Power Users
- Introduction
- General Information
- Architecture Overview
- Community
- First Steps with PowerBI
- Report Design

KI-generierte Inhalte könnten fehlerhaft sein.

Ich habe einige Ihrer Anforderungen abgeschlossen, aber ich benötige noch mehr Übung, bevor ich alles darin ausführen kann. Womit kann ich Ihnen sonst noch helfen?

Most of the new slides added to the presentation are based on syscon's title slide design, which does not make sense because they leave no room for content. Similar to a previous test, the text size in slides is too small to read. The generated presentation consists of 17 slides in total.

1

2

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11

12

In another prompt in Word, Copilot is asked to create a client survey to assess the satisfaction with a training provided by a syscon consultant. The training was targeted to IT administrators on the client side.

Entwurf mit Copilot

Create a one-page feedback form for client "[REDACTED]", in which I can assess the satisfaction for the „Admin Schulung“ that took place on April 5, 2024, presented by [REDACTED]. Use open questions and Likert scales. Also add a short sentence describing the purpose of the feedback form and end with a thank you and my contact information.”

344/2000

Generieren

Although Copilot followed the prompted instructions and delivered a 2-page feedback form within a minute, it is questionable whether it has considered project context or used relevant company-internal information. The feedback form covers questions on overall satisfaction, the presenter and the content of the workshop, and is therefore tailored to the context given in the prompt, but it does not include the test user's actual contact information.

Feedback Form for Admin Schulung

Client: [REDACTED]

Thank you for participating in the Admin Schulung on April 5, 2024, presented by [REDACTED]. We appreciate your feedback and suggestions to improve our training services. Please fill out this feedback form and return it to us by April 15, 2024.

Overall Satisfaction

How satisfied are you with the overall quality of the training?

- Very satisfied
- Satisfied
- Neutral
- Dissatisfied
- Very dissatisfied

What did you like most about the training?

What did you like least about the training?

Content and Relevance

How relevant was the training content to your work?

- Very relevant
- Relevant
- Somewhat relevant
- Not relevant
- Not applicable

How clear and understandable was the training content?

- Very clear
- Clear
- Somewhat clear
- Not clear
- Not applicable

How useful was the training content for your work?

- Very useful
- Useful
- Somewhat useful
- Not useful
- Not applicable

How well did the training content meet your expectations?

- Copilot Exceeded expectations

- Met expectations
- Partially met expectations
- Did not meet expectations
- Not applicable

What topics or areas would you like to see covered in future trainings?

Presenter and Delivery

How knowledgeable was the presenter about the training topic?

- Very knowledgeable
- Knowledgeable
- Somewhat knowledgeable
- Not knowledgeable
- Not applicable

How engaging was the presenter in delivering the training?

- Very engaging
- Somewhat engaging
- Not engaging
- Not applicable

How well did the presenter answer your questions or address your concerns?

- Very well
- Well
- Somewhat well
- Not well
- Not applicable

How well did the presenter use the available time for the training?

- Very well
- Well
- Somewhat well
- Not well
- Not applicable

How would you rate the presenter's communication skills?

- Excellent
- Good
- Average
- Poor
- Not applicable

Do you have any comments or suggestions for the presenter?

Other Feedback

Is there anything else you would like to share with us about the training?

Thank you for your valuable feedback. If you have any questions or concerns, please contact me at user@company.com.

Translation/phrasing:

The following example shows that prompt phrasing is important. Depending on how the prompt is written Copilot responds very differently. After correcting the prompt, Copilot translates the phrases as requested and provides three distinct alternatives.

"How can I translate the text sequence "Projektumsetzung wird sich um 4 Monate verschieben" within the context of a project plan"? Give me 3 ways for an accurate, professional and concise translation.

To translate the phrase "Projektumsetzung wird sich um 4 Monate verschieben" within the context of a project plan, you can consider the following three methods for an accurate, professional, and concise translation:

1. **Use a Professional Translation Service:** Engage a certified translation service that specializes in business and technical translations. They will ensure that the translation is accurate and maintains the original meaning within the context of the project plan.
2. **Translation Software:** Utilize advanced translation software that is designed for business and technical documents. These tools often have specialized features for handling project-related terminology and can provide a quick translation. However, it's recommended to review the translation for accuracy due to the nuanced nature of project language.
3. **Bilingual Expert Review:** If you have access to a bilingual expert who is fluent in both languages and understands the project context, you can have them translate the text. This ensures that the translation is not only linguistically accurate but also contextually relevant to the project.

Remember to consider the context and specific terminology of your project plan to ensure the translation maintains the intended meaning. If you need further assistance with translation tools or services, I can help you find the resources within your enterprise.

Translate the text sequence "Projektumsetzung wird sich um 4 Monate verschieben" within the context of a project plan. Give me 3 ways for an accurate, professional and concise translation.

To translate the German phrase "Projektumsetzung wird sich um 4 Monate verschieben" into English within the context of a project plan, here are three accurate, professional, and concise translations:

1. "The project implementation will be delayed by four months."
2. "The execution of the project is expected to shift by four months."
3. "There will be a four-month postponement in the project rollout."

Each of these translations conveys the delay in the project timeline while maintaining a professional tone suitable for a project plan context.

Coding assistance:

The test prompt yields following result: Copilot not only adheres to the instructions given in the prompt, but it also added remarks on how to best use the suggested lines of code.

Certainly! Below is a concise Python script that imports an Excel file into a SQL Server table, with comments explaining each section of the code:

Python

```
import pandas as pd
from sqlalchemy import create_engine

# Read Excel file into DataFrame
df = pd.read_excel('file.xlsx')

# Create SQL engine to connect to the server
engine = create_engine('mssql+pyodbc://username:password@server/database')

# Write DataFrame to SQL table, replacing if it exists
df.to_sql('table_name', con=engine, if_exists='replace', index=False)
```

KI-generierter Code. Überprüfen und sorgfältig verwenden. [Weitere Informationen zu häufig gestellten Fragen.](#)

Here's what each part does:

- `pd.read_excel('file.xlsx')`: Reads the Excel file into a pandas DataFrame.
- `create_engine()`: Creates a connection to the SQL server using the specified connection string.
- `df.to_sql()`: Writes the DataFrame to the SQL table. The `if_exists='replace'` argument specifies to replace the table if it already exists, and `index=False` means not to write the DataFrame index as a column in the SQL table.

Please ensure you have the necessary Python packages installed (`pandas` and `SQLAlchemy`), and replace `'file.xlsx'`, `'username:password@server/database'`, and `'table_name'` with your actual file path, SQL server credentials, and table name respectively.

If you encounter any issues or need further assistance, feel free to ask!

👍 🗨️ 📄 ⬇️ </> 🔊 KI-generierte Inhalte könnten fehlerhaft sein.

What if I want to append data instead of replacing the table?

Can you explain how to install pandas and SQLAlchemy?

Thank you! This is helpful.

Appendix 7. Consultant Survey for the Assessment of Copilot Performance with Results

The consultants were provided with the following 42 survey questions, as well as a survey attachment that shows relevant Copilot prompts and responses as depicted in Appendix 7. Additionally, the survey attachment referenced documents generated by Copilot which the consultants could access in full form.

An amalgamation of the consultants' answers is added in **bold & red format**.

Survey on Copilot Performance (approx. 60 min., 42 questions in total)

This feedback form is designed to help evaluate the quality and usefulness of the responses of Copilot to the test prompts. The test prompts cover seven different use cases relevant to syscon consultants:

- 1) Data protection (exempted from this survey!)
- 2) Chat memory (exempted from this survey!)
- 3) Summary/Ideation
- 4) Information retrieval/Document retrieval
- 5) Document generation/formatting
- 6) Phrasing and translation
- 7) Coding assistance

You are asked to rate the results for each use case (3-7) from a consultant's perspective. Keep your daily work and recurring tasks in mind during the assessment. Please answer the questions honestly and constructively to help evaluate a potential implementation of Copilot in syscon.

Please justify your answers with a short comment.

Use Case 3 Summary/Ideation

- 1) Did you find any incorrect or hallucinated statements in Copilot's answers? If yes, where?
NO
YES, _____
- 2) Rate on a scale between 1 and 6 how **relevant** Copilot's answers are **to the prompts**.
 (1= most 6= least) **2; 3**
- 3) Rate how **comprehensive** Copilot's answers are. (1= most 6= least)
2; 1
- 4) Rate how **creative** Copilot's answers are. (1= most 6= least)
3; 4
- 5) Rate how **coherent** Copilot's answers are. (1= most 6= least)
2; 2
- 6) Rate how **helpful** Copilot's answers are regarding **your daily (administrative) tasks**.
 (1= most 6= least)
2; 4
- 7) Estimate in **minutes** how much time Copilot would **save per task** for this use case.
60; 5

- 8) Estimate in **minutes** how much time Copilot would **save per week** for this use case.
60; 15

Use Case 4 Information retrieval/Document retrieval

- 1) Did you find any incorrect or hallucinated statements in Copilot's answers? If yes, where?
NO
 YES, _____
- 2) Rate on a scale between 1 and 6 how **relevant** Copilot's answers are **to the prompts**.
 (1= most 6= least) **3; 2**
- 3) Rate how **comprehensive** Copilot's answers are. (1= most 6= least)
2; 2
- 4) Rate how **creative** Copilot's answers are. (1= most 6= least)
3; 4
- 5) Rate how **coherent** Copilot's answers are. (1= most 6= least)
2; 3
- 6) Rate how **helpful** Copilot's answers are regarding **your daily (administrative) tasks**.
 (1= most 6= least) **2; 3**
- 7) Estimate in **minutes** how much time Copilot would **save per task** for this use case.
15; 10
- 8) Estimate in **minutes** how much time Copilot would **save per week** for this use case.
60; 30

Use Case 5 Document generation/formatting

- 1) Did you find any incorrect or hallucinated statements in Copilot's answers? If yes, where?
NO
 YES, _____
- 2) Rate on a scale between 1 and 6 how **relevant** Copilot's answers are **to the prompts**.
 (1= most 6= least) **2; 2**
- 3) Rate how **comprehensive** Copilot's answers are. (1= most 6= least)
2; 2
- 4) Rate how **creative** Copilot's answers are. (1= most 6= least)
2; 3
- 5) Rate how **coherent** Copilot's answers are. (1= most 6= least)
2; 3
- 6) Rate how **helpful** Copilot's answers are regarding **your daily (administrative) tasks**.
 (1= most 6= least) **2; 3**
- 7) Estimate in **minutes** how much time Copilot would **save per task** for this use case.
30; 30
- 8) Estimate in **minutes** how much time Copilot would **save per week** for this use case.
60; 60

Use Case 6 Phrasing/Translation

- 1) Did you find any incorrect or hallucinated statements in Copilot's answers? If yes, where?
NO
 YES, _____
- 2) Rate on a scale between 1 and 6 how **relevant** Copilot's answers are **to the prompts**.
 (1= most 6= least) **2; 2**
- 3) Rate how **comprehensive** Copilot's answers are. (1= most 6= least)
2; 2
- 4) Rate how **creative** Copilot's answers are. (1= most 6= least)
2; 3
- 5) Rate how **coherent** Copilot's answers are. (1= most 6= least)
2; 2
- 6) Rate how **helpful** Copilot's answers are regarding **your daily (administrative) tasks**.
 (1= most 6= least) **2; 2**
- 7) Estimate in **minutes** how much time Copilot would **save per task** for this use case.
10; 10
- 8) Estimate in **minutes** how much time Copilot would **save per week** for this use case.
30; 30

Use Case 7 Coding assistance

- 1) Did you find any incorrect or hallucinated statements in Copilot's answers? If yes, where?
NO
 YES, _____
- 2) Rate on a scale between 1 and 6 how **relevant** Copilot's answers are **to the prompts**.
 (1= most 6= least) **1; 1**
- 3) Rate how **comprehensive** Copilot's answers are. (1= most 6= least)
2; 2
- 4) Rate how **creative** Copilot's answers are. (1= most 6= least)
2; 2
- 5) Rate how **coherent** Copilot's answers are. (1= most 6= least)
2; 2
- 6) Rate how **helpful** Copilot's answers are regarding **your daily (administrative) tasks**.
 (1= most 6= least) **1; 1**
- 7) Estimate in **minutes** how much time Copilot would **save per task** for this use case.
60; 60
- 8) Estimate in **minutes** how much time Copilot would **save per week** for this use case.
120; 180

General questions:

1) Which feature or function of Copilot presented to you do you find most valuable?

Coding assistance

2) Which feature or function relevant to your daily work is Copilot missing the most?

- **Co Pilot integration in further coding tools (Management Studio, Azure Data Studio, Visual Studio,...)**
- **Copilot integration in our necessary daily coding software (like SSMS)**

Thank you for your support!

If you have any other comments or questions, feel free to comment here:

no further comments

Declaration by the student in accord with examination rules and regulations

Personal information of the student:

Family name: Adil

Given name: Swer Jabeen

Student ID number: 3590706

Faculty: Business Administration

Degree programme: International Business

Semester: Sommersemester 2024

Title of the final thesis:

Exploration of Microsoft Copilot Use Cases for Process Optimization in SMEs – a Proof of Concept with Syscon Consulting

I hereby declare that this work is my own and has not been submitted for examination purposes in any other context. I have indicated and acknowledged all sources, aids, and quotations used in its production.

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