



# CONVERSATIONAL AI FOR THE WORKPLACE

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◆ USING GRAPH RAG TO IMPLEMENT A  
TRUSTWORTHY AND HIGH PERFORMING  
CONVERSATIONAL AI APPLICATION



<b>GRAPH RAG AS THE FOUNDATION FOR CONVERSATIONAL AI</b>	<b>2</b>
<b>EXPLORE OUR CONVERSATIONAL AI APPLICATION: <a href="https://knowledge-hub.eco">knowledge-hub.eco</a></b>	<b>4</b>
ASSISTED PROMPT ENGINEERING	4
ASK QUESTIONS AND FOLLOW-UP	6
GET ADDITIONAL BACKGROUND INFORMATION	8
DIVE INTO CONTENT RECOMMENDATIONS	10
SUMMARIZED TAKEAWAYS	11
<b>HOW YOU BENEFIT FROM A CONVERSATIONAL AI APPLICATION THAT'S BUILT ON GRAPH RAG</b>	<b>12</b>
TRUST IN THE OUTPUT	12
MORE ACCURATE ANSWERS	12
INCREASED FINDABILITY	13
<b>USE CASES FOR INDUSTRIES</b>	<b>14</b>
FINANCE	14
HEALTHCARE	15
MANUFACTURING	16
<b>GARTNER HYPE CYCLE FOR GENERATIVE AI</b>	<b>17</b>
<b>BUILD YOUR CONVERSATIONAL AI APPLICATION WITH POOLPARTY'S GRAPH RAG</b>	<b>18</b>

# GRAPH RAG AS THE FOUNDATION FOR CONVERSATIONAL AI

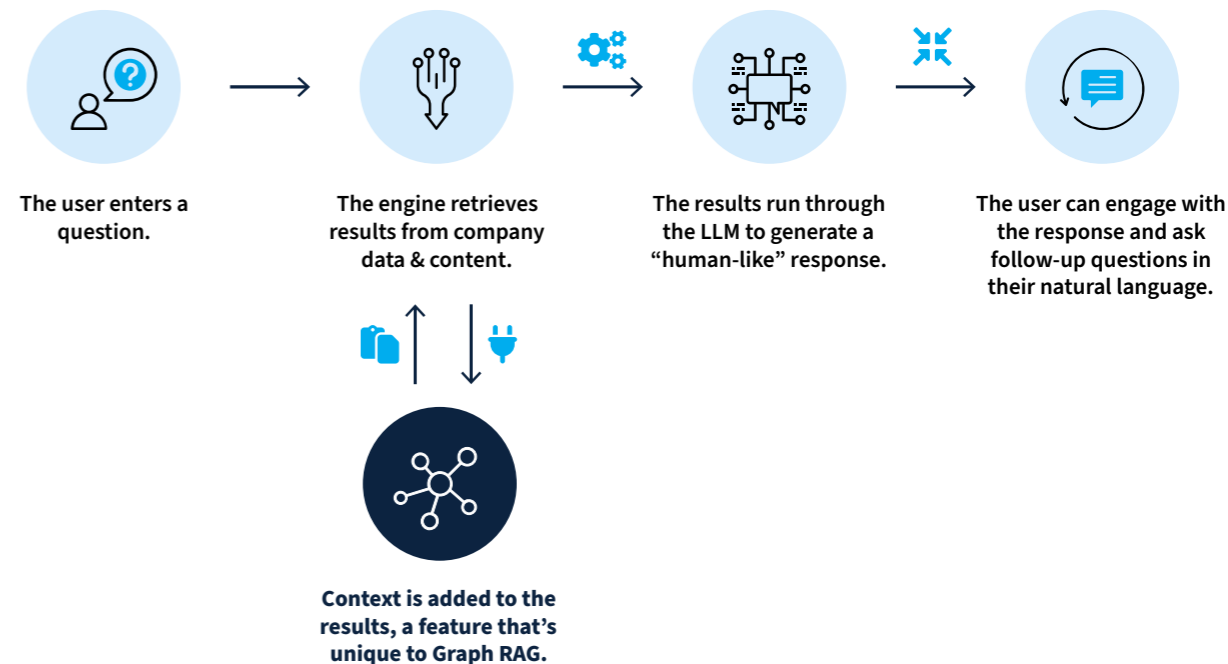
Conversational AI is transforming the way employees access information in the workplace, enabling them to engage with machines in a more “natural,” sophisticated way. The market for these platforms has soared, producing a lot of products that are decent but to be frank, not great – they often provide inadequate answers that you can’t rely on. This is a detriment especially in the workplace, where accurate and comprehensive information is required in order to complete tasks and make business-critical decisions.

A remedy to these problems is Graph RAG, which combines knowledge graphs and large language models (LLMs) to strengthen the output of the AI platform. It uses natural language processing and semantic search to find documents based on the user’s intent of the query, as well as generates new content about this topic while in dialogue with the “bot.”

Graph RAG is becoming increasingly popular for serving as the basis of Conversational AI platforms, where companies can benefit from virtual assistants that outperform other chatbot models.

The PoolParty Team has put together its own Conversational AI application called the knowledge-hub.eco, which is based on this Graph RAG approach. Built on 15+ years of expertise, PoolParty’s Conversational AI solutions allow you to leverage the high conversational performance of an LLM with the reliability and trust of a knowledge graph.

## Adding context and natural language to Conversational AI with Graph RAG.



This added context helps ensure that the platform’s output isn’t filled with hallucinations the way is typical for other chatbots. Traditionally, the LLM may not be able to distinguish between different meanings of a word or be able to fill in data gaps. The knowledge graph of a Graph RAG approach ensures that the bot can arrive at meaningful answers.

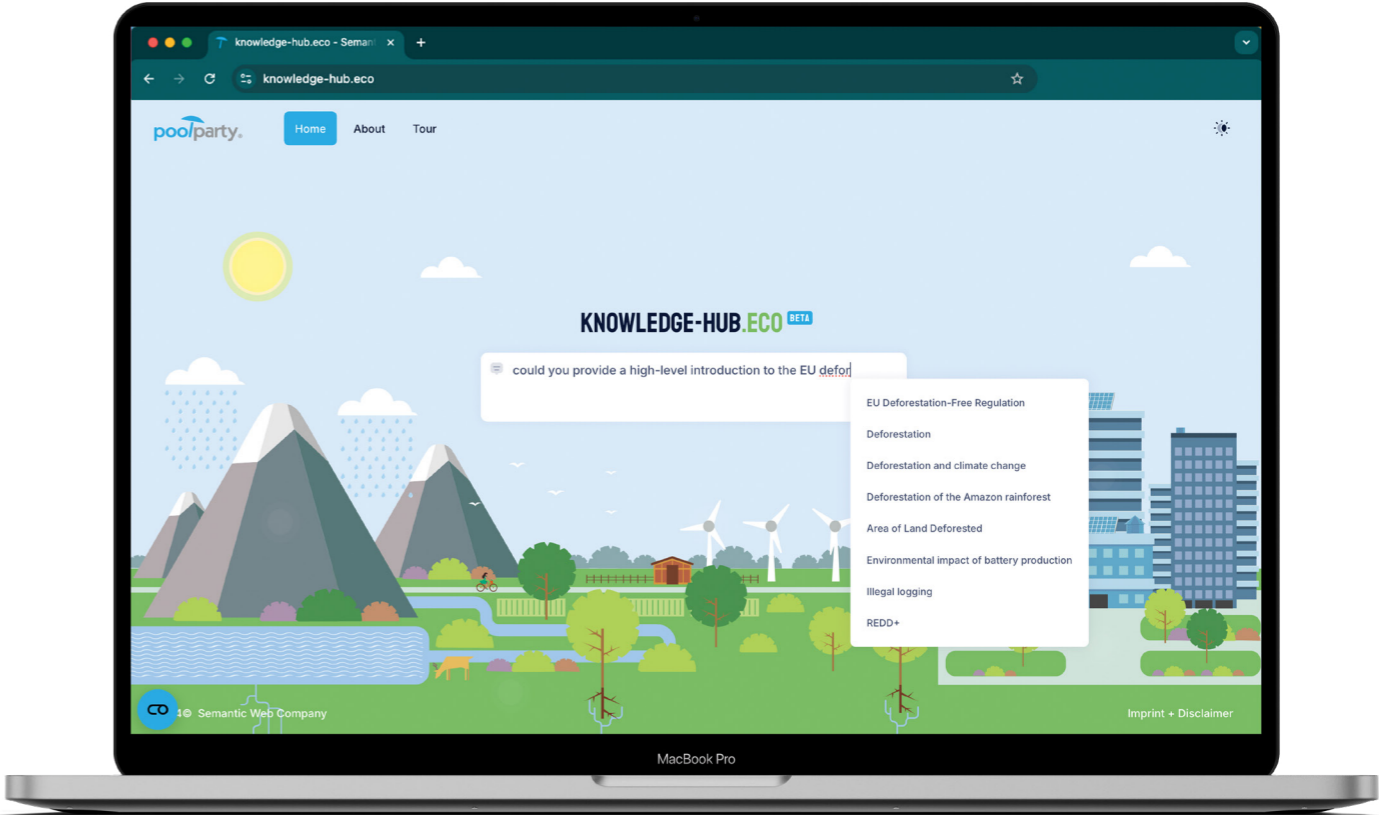
# EXPLORE OUR CONVERSATIONAL AI APPLICATION:

knowledge-hub.eco

Though a relatively new application, knowledge-hub.eco packs a powerful punch. In its current state (only a few months after launching) it has five core features that show how Graph RAG elevates a standard Conversational AI platform.

## ASSISTED PROMPT ENGINEERING

With knowledge-hub.eco, assistance is available already in the first step. In the prompt field, auto complete and term concept suggestions appear to help you formulate your question. These suggestions are based on the concepts in your knowledge graph, meaning that the help is targeted and precise.



# ASK QUESTIONS

Could you provide a high-level introduction to the EU Deforestation-Free Regulation, and what it means for international supply chains of European companies?

The **EU Deforestation-Free Regulation** is a proposed legislation aimed at ensuring that products imported into the **European Union** are not linked to **deforestation**. This **regulation** is part of the **European Green Deal**, which aims to make the **EU's** economy more **sustainable**.

For international **supply chains** of European companies, this **regulation** will have significant implications. **Supply chain managers** will need to ensure that their comply with the **regulation** and provide evidence that products like **coffee beans** and **cocoa beans** are sourced from **deforestation-free** areas.

**Retailers** will need to be transparent about the origins of their products and provide information to **consumers** about their efforts to combat **deforestation**. Logistics companies will need to adapt their transport and storage practices to comply with the **regulation**.

**Regulatory agencies** will be responsible for enforcing the **regulation** and monitoring **compliance**. **Investors** will need to consider the impact of the **regulation** on the companies they invest in and ensure that they are taking steps to address **deforestation-free** in their **supply chains**.

Overall, the **EU Deforestation-Free Regulation** will require **supply chain actors** to prioritize **sustainability**, **reduce supply chain risks**, and ensure the well-being of **workers in the value chain**.

The LLM processes the user query and context from a knowledge graph to produce an answer that is enriched with background information as summarized text. As opposed to other bots on the market such as ChatGPT, our knowledge graph not only provides more comprehensive answers but also enriches the answers with sources from the knowledge graph. The blue hyperlinks within the text allow you to click into those concepts and understand that concept specifically.

# ENGAGE IN FOLLOW-UP

How are European companies currently addressing deforestation within their supply chains, and what challenges do they face in achieving deforestation-free sourcing?

How are European companies currently addressing deforestation within their supply chains, and what challenges do they face in achieving deforestation-free sourcing?

What impact does the EU Deforestation-Free Regulation have on the competitiveness of European companies in the global market, particularly in industries like agriculture, timber, and palm oil?

How can supply chain actors such as retailers, logistics companies, and regulatory agencies collaborate to ensure compliance with the EU Deforestation-Free Regulation and promote sustainable sourcing practices across international supply chains?

Ask the follow-up

Start with a new question

Depending on what the user is looking for, the dialog can be deepened or generalized by means of prompting the machine with additional questions – in other words, by having a conversation with the LLM. The user can either choose to ask follow-ups with the prompt-assisted suggestions picture in the screenshot or input their own free text in the prompt field.


# GET ADDITIONAL BACKGROUND INFORMATION

### Could you provide a high-level introduction to the EU Deforestation-Free Regulation, and what it means for international supply chains of European companies?

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**Regulations and Directives**

A "regulation" is a binding legislative ...



**European Union**

The European Union (EU) is a supranation...



**Deforestation**

Deforestation, clearance or clearing is ...

At the end of every answer (both the original question and all follow-up questions) you are provided with three reference concepts that you can click for more information. In the pop-up, you'll see a definition of that concept, related articles, and synonyms.

Within each paragraph, you can click to see which associated content that particular paragraph is pulling from. The benefit to these features is that you can dig deeper into the topic while also seeing exactly which sources the answers pull from.

This is particularly important in a business context because employees can have better faith in the information that helps them make decisions and complete tasks.

### Deforestation

Deforestation, clearance or clearing is the removal of a forest or stand of trees where the land is thereafter converted to a non-forest use. Examples of deforestation include conversion of forestland to farms, ranches, or urban use. Tropical rainforests are where the most concentrated deforestation occurs. Almost 30% of the world is covered by forests, excluding water mass. (Source: <http://dbpedia.org/resource/Deforestation>)

Net-zero targets cannot be achieved without eliminating tropical deforestation. In recent years, the target has entered mainstream public consciousness as well as the regulatory arena. Accounting for 11% of global carbon emissions each year, companies and financial institutions must recognise that deforestation is central to the climate agenda. Despite this, 94% of Forest 500 companies with net-zero commitments are likely off-track to achieve those commitments, based on their inaction on deforestation and conversion. (Source: [https://forest500.org/wp-content/uploads/2024/02/Forest500\\_Annual-Report-2024\\_Final.pdf](https://forest500.org/wp-content/uploads/2024/02/Forest500_Annual-Report-2024_Final.pdf))

**Article**

- <https://education.nationalgeographic.org/resource/deforestation>
- <https://environmentalpaper.org/2022/08/after-winning-new-markets-with-promises-asia-pulp-and-paper-picks-up-its-old-deforestation-habit-again>
- <https://forest500.org/analysis/insights/major-companies-and-financial-institutions-are-persistently-ignoring-their-role-in-driving-deforestation>

**Authoritative content**

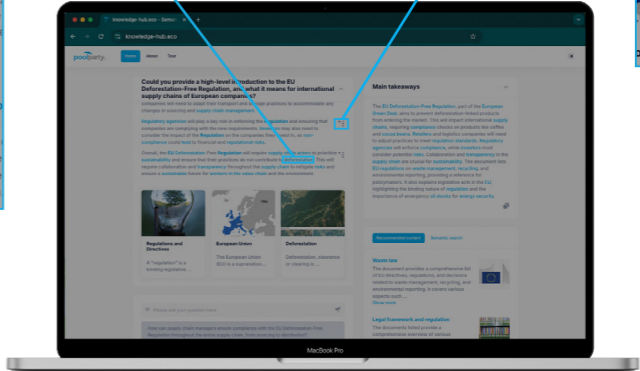
- [https://environment.ec.europa.eu/topics/forests/deforestation\\_en](https://environment.ec.europa.eu/topics/forests/deforestation_en)
- [https://forest500.org/wp-content/uploads/2024/02/Forest500\\_Annual-Report-2024\\_Final.pdf](https://forest500.org/wp-content/uploads/2024/02/Forest500_Annual-Report-2024_Final.pdf)

**See more**

- <http://dbpedia.org/resource/Deforestation>
- <http://www.wikidata.org/entity/Q169940>

**Synonyms**

Deforestation and the economy, Clearing forested land, Land clearing, Deforestation, Forest clearing, Causes of deforestation, Deforested, Deforestation, Forest removal, Economic impact of deforestation, Environmental impact of deforestation, Forest clearance, Tropical deforestation, Economic effects of deforestation



### Recommended content

**PEFC - Programme for the Endorsement of Forest Certification**

PEFC, the Programme for the Endorsement of Forest Certification, is a global alliance that promotes sustainable forest management through certification. They work to protect forests ... [Show more](#)

**The EU Deforestation-Free Regulation (EUDR) - KPMG Belgium**

Experts are raising concerns about the Environmental, Social, and Governance (ESG) implications of the EU deforestation-free regulation. They argue that the due diligence requirements may ... [Show more](#)

**Standards and Guides - PEFC - Programme for the Endorsement of Forest ...**

This document provides an overview of the key standards and guides of the Programme for the Endorsement of Forest Certification (PEFC). It highlights the importance ... [Show more](#)

# DIVE INTO CONTENT RECOMMENDATIONS

A recommendation algorithm identifies the documents of the company library that best match the result of the human-machine dialog and returns them as a list of links and summaries. This does not require sharing the company libraries with the LLM provider, ensuring that company data remains secure.

A semantic recommender system is a powerful alternative to the recommender systems that consumers are used to on their favorite streaming platforms or social media networks. A semantic recommender does not focus merely on similarities between products or business items, but on domain knowledge and context as well. This behavior widens the scope of what the system can recommend so that if you search for financial budgets, for example, you could be recommended last year's tax assessments as well to get the full picture. The recommendations compliment each other instead of giving you more of the same reading suggestions.

Users can click on the titles of the documents to access the article directly.


Recommended content

Semantic search

The EU Deforestation-Free Regulation (EUDR) - KPMG Belgium

Experts are raising concerns about the Environmental, Social, and Governance (ESG) implications of the EU deforestation-free regulation. They argue that the due diligence requirements may ...


Show more



#Together4Forests | WWF


The European Parliament has approved a groundbreaking law to combat deforestation, making it the first in the world to address global deforestation. The law aims to reduce the EU's impact on nature and requires large and medium-sized companies to make their supply chains deforestation-free within 18 months. The law is a result of the #Together4Forests campaign led by WWF, which has garnered support from over 1.2 million citizens, scientists, and companies.

Show less



Waste law

The document provides a comprehensive list of EU directives, regulations, and decisions



# SUMMARIZED TAKEAWAYS

Main takeaways

The **EU Deforestation-Free Regulation**, part of the **European Green Deal**, aims to ensure products entering the **European Union** are not linked to **deforestation**. This legislation will impact **supply chain managers**, **retailers**, and logistics companies. **Regulatory agencies** will enforce **compliance**, while **investors** must consider companies' efforts to combat **deforestation**. Concerns about **ESG** implications highlight the need for support for **smallholders** The groundbreaking law by the European Parliament requires companies to make their **supply chains deforestation-free**. **KPMG** can assist in addressing challenges, increasing **transparency**, and **traceability** in **supply chains**. This **regulation** is part of the **EU's** broader plan to **reduce** global **deforestation**-and promote **sustainability**.

As a final step, we process all the results of the knowledge-hub.eco to produce an easily understood conclusion. [According to the IDC](#), a knowledge worker spends around 30% of their working day searching for information – primarily reviewing search results and processing them. The **Main Takeaways** section of knowledge-hub.eco ensures that you don't have to browse through all the results to understand your query because all relevant points are concluded for you. This summary can also be easily copy/pasted to be shared and used elsewhere.

# BENEFIT FROM A CONVERSATIONAL AI APPLICATION THAT'S BUILT ON GRAPH RAG



## TRUST IN THE OUTPUT

Graph RAG, which combines LLMs with a knowledge graph, operates on the “human-in-the-loop” principle.

Under this principle, the data used in a knowledge graph is curated by internal experts so that the Conversational AI platform is not only “fed” by the right people and sources, it is also made to benefit them. The knowledge graph is based on a trusted dataset and not pulled from the internet – which is a contrast to the more mainstream approaches that are taking over the AI space.

Employees also feel insecure about feeding internal or customer data into an LLM for fear of sensitive data being misused or distributed elsewhere. Graph RAG fully integrates with a company’s existing systems and sits on company architecture, thus removing these security worries.



## MORE ACCURATE ANSWERS

In a Conversational AI platform like knowledge-hub.eco, information is collected by internal experts and organized in the knowledge graph based on the way these experts understand them. The specific language that the company uses and the unique relations between business objects are factored in to increase the specificity of the answers.

Graph RAG helps determine the meaning of a user’s query and drives the response in the correct direction; the additional context leads the LLM to precise, meaningful answers. This is exactly the kind of output employees are looking for when they want to complete a certain task or get specialized information.



## INCREASED FINDABILITY

A Conversational AI platform that also incorporates a knowledge-based recommender system and options for exploring the topic further, provides an even greater advantage.

With a knowledge graph at its core, content that is not explicitly related to the search query can still be surfaced; though the user is not specifically looking for this content, it can provide additional input that is relevant to the query. In other words, the employee searching for information should get exactly what they are looking for plus additional documents that can help their search.

The document recommendations, follow-up questions, and clickable concepts provide an enriched full-circle experience where users can deep dive on a topic and have all the necessary files at hand. A knowledge graph-infused Conversational AI platform delivers an assisted experience, and not just a search engine.

## USE CASES FOR INDUSTRIES

While any company can benefit from a Conversational AI platform, there are some industries who should take advantage of the Graph RAG approach simply because they need a more advanced system to meet the demanding needs of their use case. In industries like healthcare, finance, and machinery, a system that is more prone to spitting out inaccuracies would have serious consequences.

### IN THE HIGHLY REGULATED BANKING SECTOR, WHERE PRECISE AND CLEAR CONCLUSIONS ARE REQUIRED.

Conversational AI is one of the better solutions for onboarding customers to a new account because it reduces many of the common issues of FAQ sections on the financial institution's website. Users may struggle to identify the most appropriate response to their query using the website search tool, for example, since they aren't using the same vocabulary as the FAQ. Alternatively, they may have a number of queries that need them to navigate to different pages of the site or different sections of the user self-service portal.

Since Graph RAG uses advanced natural language processing techniques, it offers helpful replies to all questions without requiring the customer to look elsewhere. It streamlines the customer onboarding process by automating form filling, document verification, and answering FAQs. This reduces the time and effort required for new customers to set up accounts, leading to a smoother onboarding experience.

### FOR POTENTIALLY LIFE-CHANGING DECISIONS IN HEALTHCARE, WHERE FULL TRANSPARENCY IS REQUIRED.

Patients often have pressing questions that often can be answered via a self service portal and symptom checker before needing to be escalated to healthcare staff. Conversational AI platforms can be used as diagnosis tools, guiding users through a series of questions and based on the symptoms they indicate. The bot converses with the patient while evaluating their data and can help indicate when medical attention is needed.

Healthcare professionals can also benefit from Conversational AI using the platform's holistic analytic capabilities. As we saw with knowledge-hub.eco, all the relevant information about a topic can be gathered in one screen. If we consider this same approach with healthcare, a doctor could have access to a patient's full medical history and get recommendations for medications or treatments that could be used based on this holistic knowledge.

**WATCH A SUCCESS STORY ABOUT OUR CUSTOMER,  
HEALTHDIRECT AUSTRALIA**



# IN MANUFACTURING, WHERE DEEP INDUSTRY KNOWLEDGE IS REQUIRED TO COMPLETE A HEAVY LOAD OF TASKS.

On a daily shift at a manufacturing or engineering shift, an employee often works through various administrative tasks in order to get their work done. They have to record incidents that may happen, check the status of supplies and tools, update maintenance logs, run through historical work orders, and make sense of product manuals.

A Conversational AI platform can simplify this process by allowing employees to submit requests, communicate updates, and track statuses, all within the same system. In the case of fixing a tool on site for example, product documentation could help the engineer get oriented to the situation, but they find that more information could be added to the documentation based on their experience so they fill out a service report with all these details. Should this similar issue occur in the future, the AI will suggest both pieces of text to the next employee who encounters this problem, enabling better action on the issue.

CHECK OUT A SUCCESS STORY WITH OUR CUSTOMER,  
YOKOGAWA



Gartner recently published the “Hype Cycle for Generative AI, 2024” which assesses different technological innovations in the Generative AI space. The report summarizes tools and approaches that can be used as well as their impact and position on the Hype Cycle.

About Graph RAG, Analyst Afraz Jaffri writes, “Currently [without GraphRAG], moving applications from 70% to 80% accuracy onwards requires multiple iterations and tuning of parameters. KGs [knowledge graphs] can decrease the number of iteration cycles. KGs are key to supporting AI-ready data.”

The analysis points to a decreased time to value, so that companies can begin experiencing the benefits of advanced AI even sooner.

*PoolParty is proud to be named a  
Sample Vendor for Graph RAG  
in this report.*



Source: Gartner® Hype Cycle™ for Generative AI, 2024, Arun Chandrasekaran, Leinar Ramos, et. al

OUR APPROACH  
IS CHAMPIONED  
IN THE GARTNER  
HYPE CYCLE

# BUILD YOUR CONVERSATIONAL AI APPLICATION WITH POOLPARTY'S GRAPH RAG

Our AI product bundle lets you build your own Conversational AI application using software based in Graph RAG. This bundle includes:



## Thesaurus Manager:

Build the foundation for your knowledge management strategy with an award-winning taxonomy tool. Extend your taxonomies into ontologies.



## PoolParty Extractor:

A text mining tool that combines machine learning, natural language processing, and knowledge graphs to extract meaningful concepts from documents.



## Search and Recommender

Get relevant results in less time with a scalable semantic search application. Easily configure your search and recommender space to fit your needs and find documents in a user-friendly platform.



## Application Development Framework:

A low-code development platform that provides an architectural basis for fully programmed and customizable frontends, workbenches, and dashboards. The key to semantic applications.



## UnifiedViews:

Harmonize enterprise data with an ETL tool that lets you create and monitor an ETL pipeline in a simplified interface. Easily make your data ready for knowledge graphs.



## LLM

PoolParty's middleware infrastructure allows for easy integration of an LLM. The LLM is used as a basis and the connected knowledge graph helps refine the output.

These same modules were used to create the knowledge-hub.eco so that a similar application (of course adjusted to your use case) can be easily replicated in your own company. The LLM can be chosen by your company depending on your requirements.

To make the process even more seamless, companies can opt for the Starter Kit which allows you to experiment with building your Conversational AI platform without committing to a full software license. Our Professional Services will work on your use case with you to decide how best to implement Graph RAG into your systems.

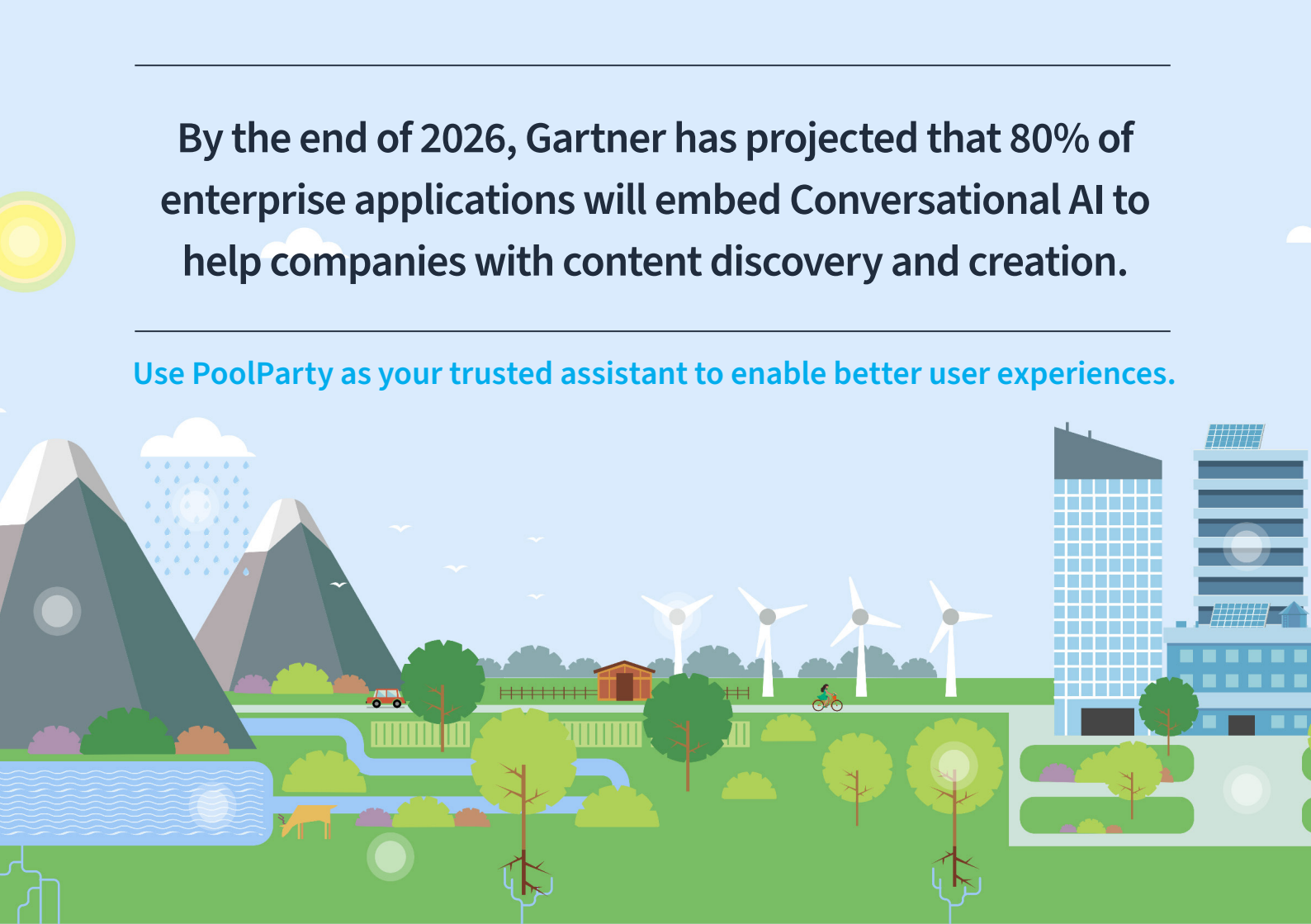
## WITH THE STARTER KIT, YOU'LL BE ABLE TO:

- Use your own data to build a prototypical system
- Work alongside dedicated data and knowledge engineers
- Identify where Graph RAG can be an asset for you
- Hand over a detailed report to stakeholders about the project



SCAN  
THE QR  
TO GET  
STARTED

Our Graph RAG approach ensures that companies can use the best of LLMs with the reliability and precision of knowledge graphs to build the ultimate Conversational AI assistant. With PoolParty, data doesn't have to just sit in a database – users can chat with their data so that it is all the more useful and actionable.



By the end of 2026, Gartner has projected that 80% of enterprise applications will embed Conversational AI to help companies with content discovery and creation.

Use PoolParty as your trusted assistant to enable better user experiences.



#### **POOLPARTY SOFTWARE / SEMANTIC WEB COMPANY**

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Semantic Web Company (SWC) is the leading provider of graph-based knowledge technologies. Its flagship product, the PoolParty Semantic Suite, is the most complete semantic middleware platform on the global market comprising taxonomy, auto classification, language processing, text mining, semantic search, and knowledge graph solutions.

For several years in succession, the company has been featured in Gartner publications as a “Sample Vendor” in the Gartner Hype Cycles and a “Visionary” in the Magic Quadrant for Metadata Solutions. Additionally, SWC is proud to be continuously named a “Company that matters in knowledge management” and a “Trailblazer” for Semantic AI in KMWorld’s annual reports.

With a customer base of Global 2000 companies, SWC is dedicated to helping customers roll out their knowledge management and AI strategies within their organizations.

Semantic Web Company is headquartered in Austria and has branches in the US and the UK.

To learn more, visit [www.semantic-web.com](http://www.semantic-web.com) and [www.poolparty.biz](http://www.poolparty.biz) or follow them on [LinkedIn](#) and [Twitter](#).



[www.poolparty.biz](http://www.poolparty.biz)