Build Your Own AI Copilot

Turning Content into Answers

90-minute interactive seminar

ITAG Skillnet AI Advantage

The Challenge We All Face

Information Overload

- Documents scattered across drives
- Policies buried in PDFs
- Expertise locked in people's heads
- Hours spent searching for answers

The AI Solution

- Your content, instantly searchable
- Answers in natural language
- Available 24/7 to your team
- Gets smarter as you add content

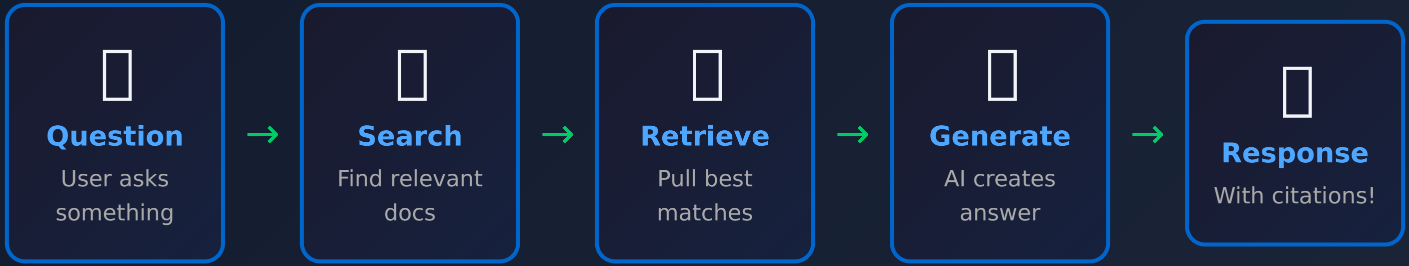
Today's Goal: Understand how to turn YOUR content into an AI-powered assistant that answers questions accurately and cites sources.

What We'll Cover

15 min	How AI "Learns" Your Content (RAG Explained)
20 min	Preparing Your Documents for AI
20 min	Tools & Platforms for Building Copilots
25 min	Live Demo: Building a Knowledge Base
10 min	Your Action Plan & Next Steps

What is RAG?

Retrieval-Augmented Generation: The Secret Behind AI Copilots



Question
User asks something

→

Search
Find relevant docs

→

Retrieve
Pull best matches

→

Generate
AI creates answer

→

Response
With citations!

Key Insight: RAG doesn't "train" the AI on your data—it retrieves relevant content at query time and gives it to the AI as context.

RAG vs Fine-Tuning: Two Approaches

Fine-Tuning

Permanently modifies an AI model's weights by training it on your data. The knowledge becomes "baked in" to the model itself.

RAG (Retrieval)

Keeps the base model unchanged. Instead, it searches your documents at query time and passes relevant content to the AI as context.

Aspect	Fine-Tuning	RAG (Retrieval)
Setup Time	Days to weeks	Hours to days
Cost	$100s - $10,000s	$10s - $100s
Updates	Requires retraining	Just add documents
Citations	Not available	Built-in source tracking
Hallucinations	Can still occur	Grounded in your docs
Data Privacy	Data sent for training	Can run locally

Bottom Line: For most business use cases, RAG is faster, cheaper, and more practical than fine-tuning.

How Semantic Search Works

Converting meaning into numbers that computers can compare

Traditional Keyword Search

```
Query: "vacation policy"

□ Misses: "time off procedures"
□ Misses: "annual leave guidelines"
□ Misses: "PTO requests"
```

Only finds exact word matches

Semantic (Vector) Search

```
Query: "vacation policy"

□ Finds: "time off procedures"
□ Finds: "annual leave guidelines"
□ Finds: "PTO requests"
```

Understands meaning, not just words

How it works: Each document chunk is converted to a "vector" (list of numbers) that represents its meaning. Similar meanings = similar vectors = found together.

Anatomy of an AI Copilot

User Interface

Chat widget, Slack bot, Teams app, or web portal

LLM (Language Model)

GPT-5, Claude, Gemini, or open-source models

Vector Database

Stores embeddings for semantic search (Pinecone, Weaviate, Chroma)

Knowledge Base

Your documents: PDFs, docs, web pages, databases

Preparing Your Documents

The quality of your copilot depends on the quality of your content

Collect

Gather docs from all sources

Clean

Remove duplicates, outdated info

Chunk

Split into searchable pieces

Embed

Convert to vectors

Common Mistake: Garbage in = garbage out. Take time to curate your content—remove outdated policies, fix formatting issues, ensure accuracy.

The Art of Chunking

How you split documents affects retrieval quality

Chunking Strategies

Fixed Size

Split every 500-1000 tokens. Simple but may break mid-sentence.

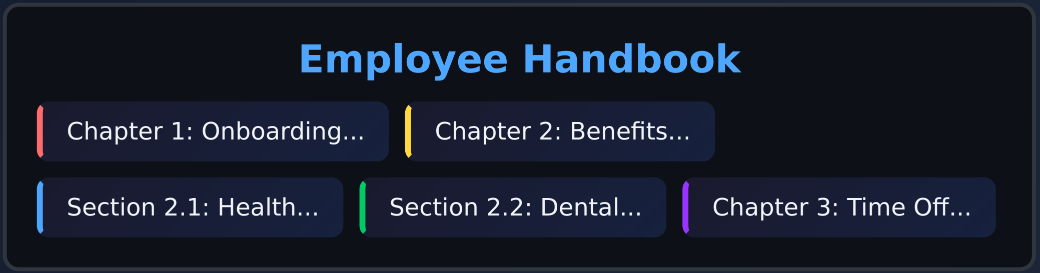
By Structure

Split by headers, paragraphs, or sections. Preserves context.

Overlapping

Chunks overlap by 10-20%. Helps with context at boundaries.

Example: Policy Document



Employee Handbook

Chapter 1: Onboarding...

Chapter 2: Benefits...

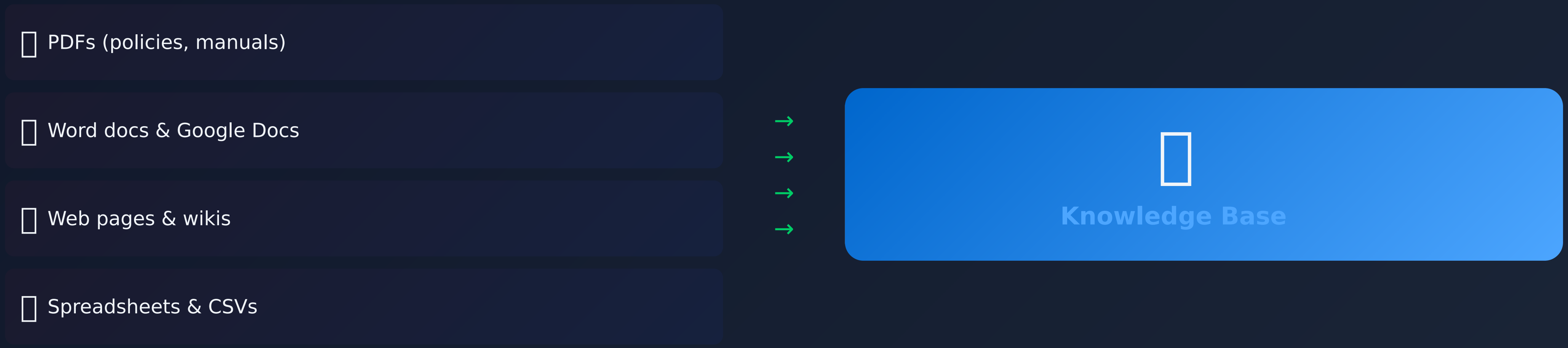
Section 2.1: Health...

Section 2.2: Dental...

Chapter 3: Time Off...

Rule of Thumb: Chunks should be small enough to be specific, but large enough to contain complete thoughts (typically 200-500 words).

What Content Can You Use?


PDFs (policies, manuals)

Word docs & Google Docs

Web pages & wikis

Spreadsheets & CSVs

Knowledge Base

Great Sources

- Policy documents
- Training materials
- FAQs & help articles
- Process documentation

⚠ Needs Cleaning

- Scanned documents
- Complex tables
- Image-heavy content
- Legacy formats

Avoid

- Sensitive personal data
- Outdated information
- Duplicated content
- Raw data dumps

No-Code Solutions

Build your copilot without writing code

Custom GPTs

Upload docs to ChatGPT, create specialized assistant

Free - $20/mo

NotebookLM

Google's research assistant with source grounding

Free

Microsoft Copilot

Integrates with M365, SharePoint, Teams

$30/user/mo

Claude Projects

Upload files, maintain context across chats

$20/mo

Notion AI

Q&A over your Notion workspace

$10/user/mo

⚡

Glean / Guru

Enterprise knowledge search

Enterprise

Low-Code Platforms

More control, minimal coding required

LangFlow

Visual builder for LangChain pipelines

Open Source

Flowise

Drag-and-drop LLM workflow builder

Open Source

Dify

Full RAG platform with API access

Free tier

Relevance AI

Build AI tools and agents visually

Free tier

Stack AI

Enterprise-ready workflow automation

From $199/mo

Voiceflow

Conversational AI with knowledge base

Free tier

Best for: Teams that want customization without hiring developers. Good middle ground between no-code simplicity and full flexibility.

For Developers

Full control, maximum flexibility

Frameworks

LangChain

Most popular RAG framework. Python & JS. Extensive integrations.

LlamaIndex

Data framework optimized for RAG. Great for complex document structures.

Haystack

Production-ready NLP pipelines. Strong enterprise features.

Vector Databases

Pinecone

Managed, serverless. Easiest to start. Free tier available.

Chroma

Open source, runs locally. Great for development & prototyping.

Weaviate

Full-featured, hybrid search. Cloud or self-hosted.

Real-World Use Cases

HR Policy Bot

Answer employee questions about benefits, time off, policies

- "How many vacation days do I have?"
- "What's the parental leave policy?"
- "How do I submit expenses?"

Customer Support

Help customers find answers without waiting for agents

- "How do I reset my password?"
- "What's your return policy?"
- "Track my order #12345"

Training Assistant

Help new employees learn processes and systems

- "How do I submit a PO?"
- "What's the code review process?"
- "Where do I find templates?"

⚖

Compliance Helper

Navigate regulations and internal policies

- "What are GDPR requirements for X?"
- "Do we need approval for this?"
- "What's the audit trail process?"

Live Demo Time!

Building a Knowledge Base in Real-Time

Step 1

Upload sample documents

Step 2

Configure the copilot

Step 3

Ask questions & see sources

Follow along: We'll use a free tool so you can try this yourself!

Demo Option 1: Custom GPT

Steps to Create

1. Go to ChatGPT → Explore GPTs → Create
2. Name your GPT and write instructions
3. Upload your documents (up to 20 files)
4. Enable "Knowledge" capability
5. Test and refine your prompts

Sample Instructions

```
You are an HR Policy Assistant for [Company Name]. Your role is to:
- Answer questions about company policies - Always cite the
specific document and section - If unsure, say "I couldn't find
that in the documents" - Be friendly and professional When
answering: 1. Quote relevant policy sections 2. Provide the source
document name 3. Offer to clarify if needed Never make up policies
that aren't in the documents.
```

Demo Option 2: NotebookLM

Why NotebookLM?

- ▯ **Free** (Google account required)
- ▯ Always cites sources with highlights
- ▯ Generates audio summaries (podcasts!)
- ▯ Create study guides & FAQs
- ▯ No data used for training

Best for: Research, document analysis, creating summaries from multiple sources

Getting Started

1. Go to notebooklm.google.com
2. Create a new notebook
3. Upload sources (PDFs, docs, URLs)
4. Start asking questions!
5. Click citations to see original text

Writing Effective System Prompts

The instructions that define your copilot's behavior

❌ Weak Prompt

```
You are a helpful assistant. Answer questions about our
company.
```

Too vague - AI will make things up

✅ Strong Prompt

```
You are a Customer Service Assistant for TechCorp. RULES: 1. ONLY answer
from the provided documents 2. ALWAYS cite the source document 3. If
info isn't in the docs, say: "I don't have that information. Please
contact support@techcorp.com" 4. Never speculate or make up information
FORMAT your answers: - Start with a direct answer - Quote relevant
sections - End with "Source: [document name]" TONE: Professional,
friendly, concise
```

Key Principle: Be explicit about what the AI should NOT do. Prevent hallucinations by requiring citations.

Handling Edge Cases

Prepare your copilot for tricky situations

"I Don't Know"

Train it to admit gaps:

```
"If you cannot find the answer in
the provided documents, respond: 'I
couldn't find that information in
our knowledge base. Please contact
[team] for help.'"
```

Ambiguous Questions

Ask for clarification:

```
"If a question is ambiguous, ask a
clarifying question before
answering. Example: 'Are you asking
about the US or UK policy?'"
```

⚠ Sensitive Topics

Redirect appropriately:

```
"For questions about salaries,
performance reviews, or personal
matters, direct users to HR: 'Please
contact HR directly at
hr@company.com for this sensitive
matter.'"
```

Pro Tip: Test your copilot with edge cases before launch. Try to break it—then fix the prompts.

Measuring Success

How do you know if your copilot is working?

Key Metrics

Usage Rate

How many people are using it? Increasing over time?

Resolution Rate

% of questions answered without human escalation

Satisfaction Score

Thumbs up/down feedback on responses

Time Saved

Compare to previous support ticket volume

Warning Signs

- ⚠ High escalation rate → improve content
- ⚠ Low usage → promote better, simplify UI
- ⚠ Complaints about wrong answers → review sources
- ⚠ Same questions repeatedly → content gap

Quick Win: Add a feedback button. Review negative feedback weekly to improve.

Security & Privacy Considerations

Questions to Ask

- Where is my data stored?
- Is it used to train AI models?
- Who has access to conversations?
- Can we delete data on request?
- Is the service GDPR compliant?
- What about SOC 2 / ISO 27001?

Best Practices

□ Do:

- Use enterprise tiers with data protection
- Review vendor security documentation
- Involve your security/legal team
- Classify content before uploading

□ Don't:

- Upload PII or sensitive data
- Use free tiers for confidential docs
- Skip the vendor security review

Common Pitfalls to Avoid

Bad Data

- Outdated documents
- Duplicate content
- Poor formatting
- Inconsistent info

Fix: Audit and clean before uploading

Wrong Chunks

- Too small = missing context
- Too large = irrelevant noise
- Breaking mid-sentence
- Losing document structure

Fix: Test different chunk sizes

Scope Creep

- Trying to do everything
- Too many document types
- Unclear purpose
- No success metrics

Fix: Start small, expand gradually

Golden Rule: Start with ONE use case, ONE document set, measure success, then expand.

Your Getting Started Checklist

Week 1: Plan

☐ Identify your use case (start with ONE)

☐ List the questions people ask most

☐ Inventory your existing documents

☐ Choose a tool (start simple!)

☐ Get stakeholder buy-in

Week 2: Build

☐ Clean and organize documents

☐ Upload to your chosen platform

☐ Write system prompts

☐ Test with sample questions

☐ Refine based on results

Week 3: Pilot

☐ Launch with small test group

☐ Gather feedback actively

☐ Track usage metrics

☐ Fix issues quickly

☐ Document what works

Week 4: Scale

☐ Expand to broader audience

☐ Add more content (carefully)

☐ Set up ongoing maintenance

☐ Plan next use case

☐ Celebrate wins! ▯

Hands-On Exercise

✍

Design Your Copilot (5 minutes)

Answer these questions for YOUR organization:

1. Use Case:
What questions do people ask repeatedly?
Example: "How do I submit an expense report?"

2. Documents:
What content would answer these questions?
Example: Expense policy PDF, process guide

3. Users:
Who would benefit from this copilot?
Example: All employees, new hires

4. Tool:
What tool makes sense for your situation?
Consider: budget, technical skills, security

Share with your neighbor: What did you come up with? Any common themes?

Resources & Next Steps

Free Tools to Try Today

NotebookLM

notebooklm.google.com

Custom GPTs

chat.openai.com/create

Claude Projects

claude.ai (Pro plan)

Flowise

flowiseai.com (open source)

Learn More

Documentation

LangChain docs, LlamaIndex guides

Video Tutorials

YouTube: "RAG tutorial", "Custom GPT"

Communities

r/LocalLLaMA, LangChain Discord

ITAG Skillnet

More AI workshops coming soon!

Key Takeaways

1 **RAG is your friend** — It's faster, cheaper, and more practical than fine-tuning for most use cases

2 **Quality content matters** — Clean, organized documents = better answers

3 **Start simple** — Custom GPTs or NotebookLM today, more complex tools later

4 **Iterate constantly** — Test, gather feedback, improve, repeat

5 **Security first** — Know where your data goes and who can access it

Questions & Discussion

What would YOU build?

Think About...

What's your biggest information bottleneck?

Share...

What use case excites you most?

Thank You!

Now go build something amazing!

ITAG Skillnet AI Advantage

Empowering Irish businesses with AI skills

Remember: Start small, learn fast, scale what works!