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AN AI VIRTUAL ASSISTANT FOR CUSTOMER COMMUNICATION IN ROMANIAN AGRI-FOOD SMEs: DESIGN, ANSWER LOGIC AND A MULTIPLE CASE STUDY

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1 INTRODUCTION

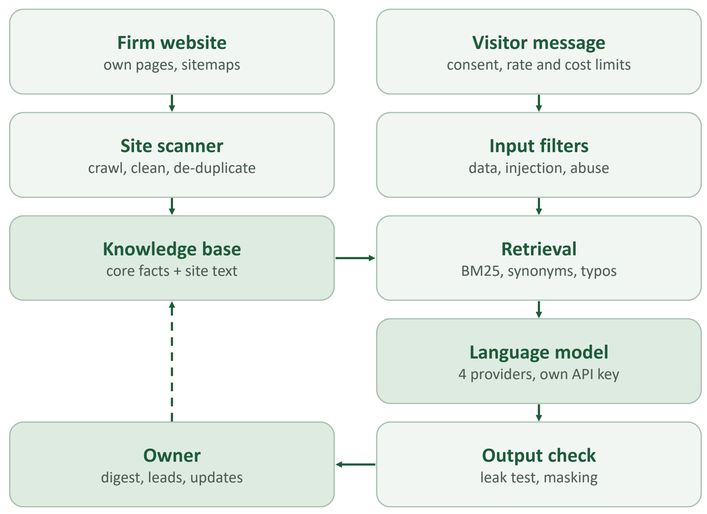
- Farm shops, wineries and guesthouses answer the same questions every day: **prices, delivery, bookings**.
- In 2025, **20.0%** of EU enterprises used AI; in Romania only **5.2%** (Eurostat, 2025).
- Retrieval-augmented generation grounds every answer in the firm's own website (Lewis et al., 2020).

Aim: present Leono AI Chat Bot, an AI virtual assistant built by the second and third authors and live in commercial operation: the need it covers, how it was built, how it answers, which models it uses, and its application in five agri-food firms.

2 MATERIALS AND METHODS

- **Leono AI Chat Bot (leono.app):** created by Vlad Panait-Mihai and Horațiu Cotizo Topologeanu, operated by Succes SEO SRL; launched October 2026, live on client websites (v1.18.0, WordPress plugin).
- **Design science + multiple case study:** five anonymised agri-food SMEs A–E (farm shop, organic vegetables, winery, goat dairy, guesthouse); 233 web pages.
- **Case data:** 60 customer questions in Romanian (15 misspelled variants) and 160 labelled messages.
- **The product's own code** was run on every question and message.

3 HOW IT WAS BUILT



4 RESULTS AND DISCUSSIONS

ANSWER LOGIC AND MODELS

Answers come from the firm's own content

- **Grounded:** only retrieved passages, core facts and contact data.
- **Not found:** polite referral + question added to the owner's list.
- **Leads:** name + phone or e-mail, verified, sent to the owner.
- **Safe:** visitor text is data; abuse gets a neutral image.

Provider	Default model
Anthropic	**Claude Haiku 5.5**
OpenAI	GPT-6 Luna
Google	Gemini 3.5 Flash-Lite
xAI	Grok 4.20

RETRIEVAL IN THE FIVE FIRMS

The answer reaches the model

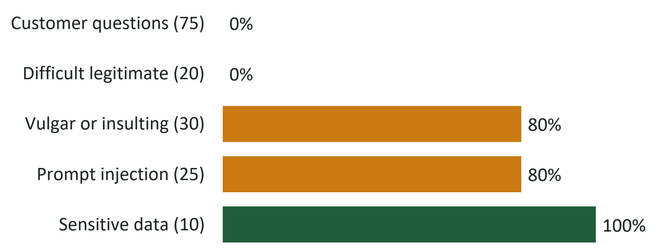
93.3%
of factual questions: the passage with the answer reached the model (42/45)

10.4%
of the knowledge base sent per question, so each request stays small

15/15
questions typed without diacritics and with typos still matched

PROTECTION

No customer blocked



Blocked before any model call: no model cost, nothing sent to the provider. Encoded and disguised attacks are decoded first; the model rules form a second layer.

CASE FIRMS (ANONYMISED) · SIMULATED ANSWERS

How the assistant answers

Firm	Customer asks	Assistant answers (simulation, from the firm's own page)
A · farm shop	Minimum order for delivery?	[x] lei, free delivery on the weekly delivery day; smaller orders collected from the farm, with a reservation.
B · organic farm	Which certification?	Labelled RO-ECO certified organic; Romanian varieties, hand-picked, unsprayed.
C · winery	Minimum group for a tasting?	[n] people, by appointment: 3 or 5 wines, [x]–[y] lei per person, cheese platter included.
D · goat dairy	Courier days?	[Three weekdays]; orders by [hour] leave the same day, in thermal boxes with ice packs.
E · guesthouse	Price for two nights?	[x] lei per person per night with breakfast; dinner [y] lei.
C · winery	Dogs in the rooms?	Not on the site: polite referral to the winery by phone; question added to the owner's list.

ADVANTAGES

Why agri-food SMEs use it

- Answers at any hour, also evenings and weekends
- Consistent prices and rules, from the firm's own content
- No technical staff: the site is scanned automatically
- Predictable cost: about one tenth of the site sent per question
- Enquiries become verified leads
- Unanswered questions show what customers want
- GDPR and AI disclosure built in; four model providers

5 CONCLUSIONS

- **A live product, not a prototype:** the assistant answers customers of Romanian firms from their own websites.
- **Explicit answer logic:** retrieval of the relevant passages, grounded answers, recorded unanswered questions and verified leads.
- **In five agri-food firms:** 93.3% of factual questions reached the model with their answer; no legitimate message blocked.

leono.app

6 ACKNOWLEDGEMENTS

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REFERENCES

Eurostat. (2025). Use of artificial intelligence in enterprises.
Lewis, P., et al. (2020). Retrieval-augmented generation for knowledge-intensive NLP tasks. NeurIPS, 33, 9459–9474.
Robertson, S., & Zaragoza, H. (2009). The probabilistic relevance framework: BM25 and beyond. FnTIR, 3(4), 333–389.
Succes SEO SRL. (2026). Leono AI Chat Bot: technical sheet and licences. Leono.app.
Yin, R. K. (2018). Case study research and applications (6th ed.). SAGE.