# From Data to Knowledge in Food Systems

How AI and large language models can support a new data economy

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# Why food systems need a new data economy

**Cost of duplication**

A farmer may have to correct the same product or outlet information in several directories.

**Terms of reuse**

Producers and regional services need to agree which records they can reuse, who maintains them and who benefits.

**Access to knowledge**

Large language models (LLMs) offer another way to share knowledge. Users can ask a question in their own words and get an explanation based on relevant records.

# The Czech case study follows food beyond the farm

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| **Case study 8** | WirelessInfo and Úhlava developed the Inter-Sectorial Data as a Service (ISDaaS) pilot. |
| **A practical question** | Where can a customer buy a particular farm's products, other than at the farm gate? |
| **The regional link** | The pilot connects producers and sales outlets with markets, local events and visitor destinations. |

# The pilot mapped a regional sales network

**213**

**producers**

**334**

**points of sale**

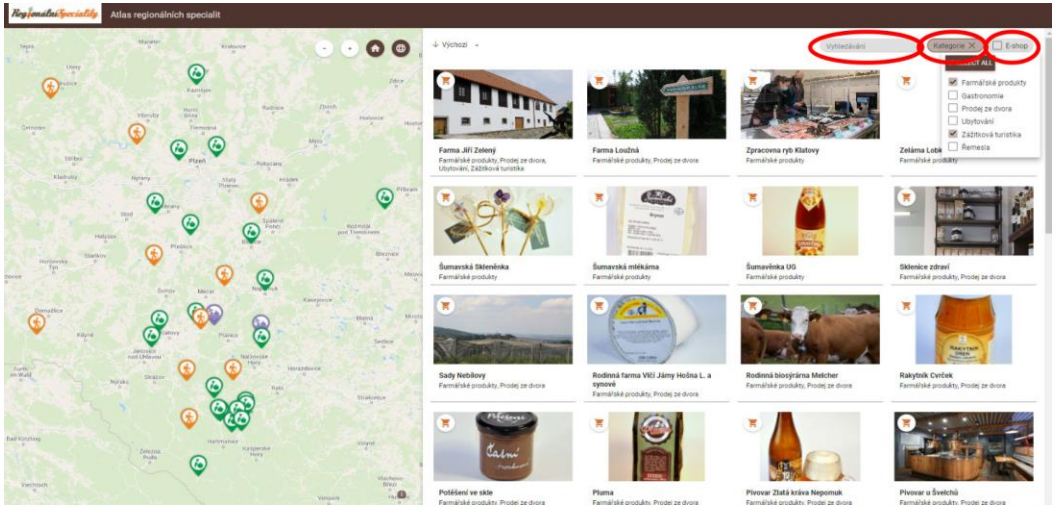
**665**

**recorded links**

The links describe relationships in the pilot network. They can identify where a producer sells, but do not measure sales volumes or current stock.

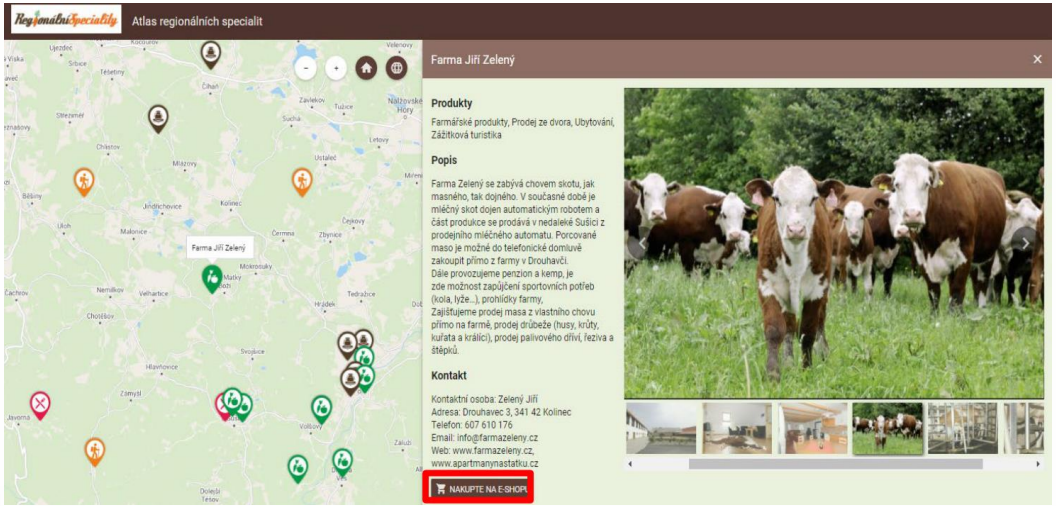
Source: Czech ISDaaS pilot presentation, August 2026.

# The Atlas connects products, producers and places




The map and catalogue let visitors explore farms and outlets alongside regional attractions.

# From a producer listing to a place to buy




A producer profile brings together products, location and sales information. Where available, a link takes the visitor to an online shop.

# How the pilot connects records from different sources

**Producer information**

Farm websites and catalogues describe what producers offer and where customers can find them.

**Regional information**

Market calendars and tourism services add events, venues and destinations.

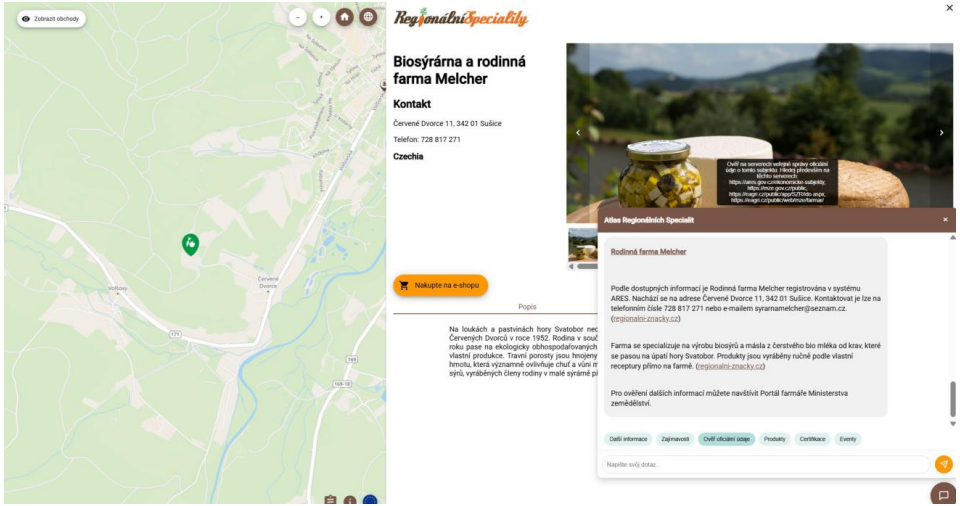
**Official checks**

The Czech ARES business register helps verify the identity of a business. Agricultural registers provide evidence for certification checks.

# How AI helps maintain the Atlas

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| **Find relevant material** | AI helps locate public information about a producer and flags entries that may be out of date. |
| **Propose a change** | Semantic processing matches information from different sources and proposes updates to structured fields. |
| **Review before publishing** | A regional editor or producer checks the proposed change against the source and confirms it. |

# AI-assisted descriptions on producer profiles




The pilot demonstrated dynamically generated information in the producer detail view. The underlying record identifies the business and its location.

# How an LLM could answer a visitor’s question

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| **Example question** | “Where can I buy products from this farm?” |
| **Retrieval-augmented generation** | Retrieval selects records for the farm and its outlets. The LLM uses these records to explain where the visitor can buy the product. |
| **Limits of the answer** | The answer should name the source and distinguish a known outlet from stock available today. Only the seller can confirm current availability. |

# An example of an update that needs human review

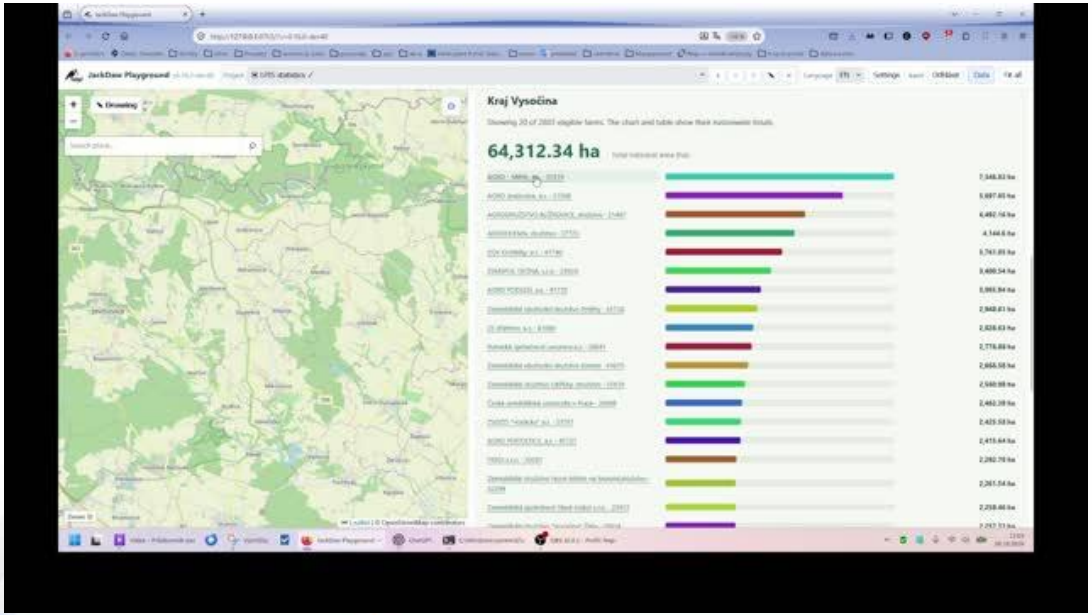
| | |
|---|---|
| **New information** | A producer’s website announces a new Saturday market. The Atlas still lists only the farm shop. |
| **AI-assisted comparison** | The system can flag the difference and suggest adding a sales location to the existing producer record. |
| **Editorial decision** | The editor checks the venue and dates with the producer before publishing the link. This is an illustrative workflow. |

# One verified record can answer different questions

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| **The producer** | “Which outlets list my products?” The producer can check those listings and correct an outdated link. |
| **The visitor** | “Where can I buy local cheese near the place I am visiting?” The answer needs both an outlet record and its location. |
| **The regional organisation** | “Which producers have no recorded outlet?” Staff can use the result to identify gaps in the directory and contact producers. |

# Video demonstration: JackDaw and Czech LPIS data

A second example of access to knowledge: exploring regional land-use statistics with JackDaw.



# HSRS will participate in CEADS

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| **Partner contribution** | Our partner HSRS will participate in the Common European Agricultural Data Space (CEADS) project. |
| **Technical basis** | The HSRS and YMS pitch brings together Czech and Slovak LPIS data, Earth observation products and the JackDaw geospatial AI assistant. |
| **Planned development** | The partners propose multilingual queries and connectors for data discovery, consent and audit. These are development objectives. |

# How verified data becomes usable knowledge

**In a regional food data economy, one verified sales link can serve a farm, a visitor and a tourism office.**

An LLM can explain that link in the user’s language and point to the source. Producers and regional editors keep the underlying knowledge current.

**Explore the Atlas: regionalnizajimavosti.cz**

Case study: data4food2030.eu/project/isdaas/