National Piloting Experience Report

Italy

Authoring partner: CNR-ITD

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Introduction

- **Background:** *A brief summary of the context for your pilots (in relation to Digital Data and Artificial Intelligence competences in the context of SMEs/VET providers in your country)*

The pilot took place in the form of a workshop lead at the CNR-ITD in Palermo and focused on enhancing understanding of the connections between open data and Artificial Intelligence, with a specific attention to practical applications of LLMs (Large Language Models). The participants came from a mix of public institutions, SMEs, VET providers, and civil society organizations. In the Italian context, while there is growing awareness about AI and open data, there is still a lack of structured training opportunities that connect these topics to real-world needs of SMEs and VET providers. Most of the available training initiatives are either too generic or too technical, and often fail to provide concrete examples that are relevant to the local or sectoral context. The workshop addressed this gap by offering both a policy-level perspective (e.g., Data Governance Act, Italian Agency for Digitalization – AgID's role in data standardization) and hands-on sessions on how to use LLMs to extract, manipulate, and valorize open data, even without advanced technical skills. The experience showed a strong demand for more practical approaches to digital and AI upskilling in the professional environments of SMEs and VET.

- **The Purpose and Objectives of the Pilots:** *why you did it – the reasons for piloting and what you set out to test*

The purpose of the pilot was to raise awareness and build capacity around the use of open data and Artificial Intelligence, with a specific focus on Large Language Models (LLMs), in contexts relevant to SMEs and VET providers. The workshop was designed to explore how recent advances in AI can make working with data more accessible, even for non-technical users. We wanted to test whether professionals, even with limited technical background, could meaningfully engage in data-related tasks using AI-powered tools. Another key objective was to foster dialogue between different stakeholders (e.g. SMEs, public authorities, educators, civic tech activists) and to co-create concrete ideas to be devrlop during a collaborative Datathon. Ultimately, the pilot aimed to test a blended approach that combines policy orientation, technical demonstration, and hands-on collaboration as a model to replicate in future initiatives.

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- **The Target Groups: Pilot Participants and Beneficiaries**: *who was involved in the piloting - information about them: how many, their occupation, gender, age range, SMEs managers/employees or VET professionals etc)*

The pilot involved 25 participants, with a diverse range of professional backgrounds. The group included SME managers and employees (mainly from the tech and consulting sectors), VET professionals (trainers and coordinators), representatives from public administrations (local and national level), civic tech experts, and members of the open data community. The participants' age ranged from early 20s to mid-50s, concerning the gender male were represented the most. Most of the participants had no formal training in artificial intelligence or programming, but shared an interest in exploring the opportunities offered by open data and AI for innovation and problem-solving in their respective fields. The hands-on sessions were particularly appreciated by SME staff and VET trainers, who expressed interest in replicating similar formats in their organizations.

Section 1: Methodology of the pilot(s)

Describe how the piloting was carried out, what the format was and what activities it involved. How many pilots did you organise and why did you do it this way?

Pilot 1

- *Description of the pilot ie.* ***why****,* ***where, when*** *(the timeline),* ***by whom*** *(the facilitator/s)****, to whom*** *(the beneficiaries) and numbers involved*
- *Process/ methods used ie* ***how*** *it was conducted and* ***what*** *did you do? (eg learning projects (no.), face-to-face sessions, cascading the learning through the full blended learning course etc?)*

The pilot consisted of a workshop held in Palermo on June 13, 2025. The event was designed and facilitated by experts in open data, digital policy, and AI-driven technologies, with contributions from representatives of AgID (the Italian Agency for Digitalization), open data activists, and professionals with expertise in using Large Language Models (LLMs) for data extraction and manipulation.

The workshop format combined keynote-style presentations, interactive technical demonstrations, and a hands-on collaborative Datathon. The activities were structured to gradually build understanding — starting from policy frameworks (e.g. Data Governance Act, standardization efforts by AgID), moving toward practical applications of AI and open data, and culminating in group work where participants developed prototypes or ideas using AI tools and open datasets.

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The pilot involved 25 participants, including staff from SMEs, VET providers, public institutions, and civic tech organizations. The decision to organize a single, intensive pilot in this format was strategic: it allowed for cross-sectoral exchange, encouraged peer learning, and maximized engagement by combining theory and practice in a compact and accessible way. This blended approach proved effective in fostering both awareness and experimentation, especially among non-technical participants.

The pilot was conducted as a face-to-face workshop. The methodology combined short learning modules, expert-led talks, live demonstrations, and a final collaborative project phase. The process followed a progressive structure:

- Contextualization and policy framing: Participants were introduced to current European and national data policies (e.g. the Data Governance Act, open data strategies, and technical standards from AgID), to establish a shared understanding of the regulatory and institutional context.
- Exploration of tools and technologies: some sessions demonstrated how Artificial Intelligence tools can be used to analyze data from the experience of previous projects at national and European level.
- Hands-on collaborative work: A sessions demonstrated how to use Large Language Models (LLMs) in practice to extract and analyze open data, even from unstructured sources. Examples included command-line tools, scraping automation, and the use of AI for creating simple data workflows without coding experience.

Although this pilot was not part of a broader blended course, it was designed to be modular and replicable in other contexts (e.g. as part of VET programs or SME training sessions). The emphasis was on experiential learning, peer collaboration, and low-barrier access to complex technologies.

Micro-Credentials in the Pilot

How were participants evaluated and guided through Micro-Credentials? Explain how learners were evaluated with technologies such as Competence Spider and LEVEL5. What strategies were implemented to monitor progress and validate competencies? How does tailoring the learning experience and dividing the course into micro-modules affect learners' progress and engagement?

How did breaking down the entire course into micro-modules and tailoring teaching to individual requirements affect the overall learning experience?

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Although the pilot was delivered as a compact workshop it implemented structured micro-credentialing systems by incorporating several principles of modular and competence-oriented learning.

The content was organized in self-contained thematic sessions (policy, tools, practical applications), each corresponding to a specific competence area such as: data governance awareness, basic AI literacy, and the ability to use open data tools. This modular design allowed participants to follow the learning path according to their own interests and levels of experience, with many choosing to engage more actively in the hands-on technical sessions.

Participant progress was monitored informally through observation, group discussions, and reflection activities. Peer interaction and group work also served as a form of formative assessment, making learners' competencies visible in action.

Tailoring the experience to different entry levels (e.g., offering command-line tools for advanced users and LLM-guided scraping for non-programmers) enhanced engagement and allowed each participant to experience success and relevance, regardless of their background. This flexible, modular structure proved effective in fostering motivation, especially among participants from SMEs and VET contexts who appreciated the practical, time-efficient format.

Future iterations of the pilot could integrate formal micro-credentialing frameworks to make competencies more visible and portable across learning and work contexts.

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Section 2: Results of the pilot(s)

Describe the outcomes/results achieved (quantitative and qualitatitve)

2.1 Pilot 1 – Workshop on AI and Data Literacy

- *Achievements and successes*
- *Challenges*
- *Identification of any refinements/improvements needed in the SMERALD methodology*

Achievements and successes

- The workshop successfully raised awareness about the opportunities and challenges at the intersection of open data and Artificial Intelligence, particularly Large Language Models.
- Participants gained a clearer understanding of national and European policy frameworks (e.g. Data Governance Act, AgID's role) and how these relate to their own professional contexts.
- The practical sessions enabled non-technical participants (e.g. from SMEs and VET providers) to experiment directly with AI tools for tasks such as data scraping and text extraction, often for the first time.
- The event helped build a small but active community of practice, with several participants expressing interest in follow-up sessions and further learning opportunities.

Challenges

- Participants entered the workshop with very different levels of prior knowledge, which made it difficult to ensure a uniformly paced learning experience.
- The intensive format limited the time available for deeper exploration or personalized guidance.
- While the event adopted a modular structure, it did not include formal evaluation tools (e.g., Competence Spider, LEVEL5) to document or validate learning outcomes.
- Some participants expressed a need for continued support or materials after the workshop to consolidate learning.

Identification of any refinements/improvements needed in the SMERALD methodology

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- Introduce formative assessment tools such as short self-evaluation activities or reflection prompts aligned with specific competence areas, even in short-format workshops.
- Embed micro-credentials more explicitly by breaking content into smaller learning units with associated learning outcomes and badges or certificates.
- Provide follow-up materials (e.g. tutorials, toolkits, recorded demos) to support continued learning beyond the event.
- Consider developing a hybrid version of the pilot (e.g., an initial online preparatory phase) to extend learning time and improve participant readiness.

Section 3: Conclusions

What key findings/conclusions can you draw from the piloting process? Please identify the highlights with regard to the SMERALD approach.

The pilot confirmed the strong relevance of the SMERALD approach, particularly its focus on competence-oriented learning, practical engagement with data and AI tools, and accessibility for non-technical users. The workshop demonstrated that even a short, intensive learning experience can significantly raise awareness, foster collaboration across sectors, and spark interest in further upskilling — especially when the content is clearly structured and directly applicable to real-world challenges.

Key findings from the pilot include:

- High engagement from participants across different professional backgrounds, confirming the demand for approachable and context-sensitive training on AI and open data.
- The modular and flexible structure of the workshop aligned well with the SMERALD methodology, allowing participants to connect with specific content areas based on their interests and expertise.
- The experiential and hands-on learning approach proved especially effective in empowering participants to explore new tools (e.g., LLMs, scraping techniques) without requiring deep technical knowledge.
- The pilot also highlighted the need to integrate more explicit mechanisms for monitoring, validating, and recognizing learning outcomes, especially if

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the SMERALD methodology is to support long-term capacity-building or feed into formal competence frameworks.

In conclusion, the piloting process validated the core principles of the SMERALD approach, while also pointing to specific areas where the methodology could be refined and expanded, particularly in relation to personalization and competence recognition.

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Section 4: Recommendations

Taking into account your conclusions, what needs to be done to improve/adapt the SMERALD methodology and approach.

Based on the experience and conclusions drawn from the pilot, the following recommendations are suggested to improve and adapt the SMERALD methodology:

1. Integrate assessment and validation tools:
   Even in short workshop formats, simple instruments such as reflection prompts, self-assessment checklists, or peer-feedback forms could be used to make learning outcomes more visible and support later recognition through micro-credentials.
2. Structure content into clearly defined micro-modules:
   Breaking down content into small, competence-oriented learning units with specific objectives would help participants navigate the learning process more effectively and enable better alignment with SME and VET needs.
3. Differentiate learning paths based on prior knowledge:
   Introducing basic and advanced tracks, or offering pre-event orientation materials, would make the learning experience more inclusive and engaging for participants with varied backgrounds.
4. Encourage hybrid delivery formats:
   Combining short face-to-face workshops with preparatory or follow-up online activities could extend the learning impact and allow for more sustained engagement with tools and concepts.
5. Embed SMERALD methodology into existing VET or SME training programs:
   Piloting the SMERALD approach within ongoing professional development pathways would increase scalability and ensure stronger alignment with organizational learning needs.

By applying these refinements, the SMERALD methodology can become more flexible, inclusive, and impactful thus supporting a broader range of learners in acquiring meaningful data and AI-related competences.

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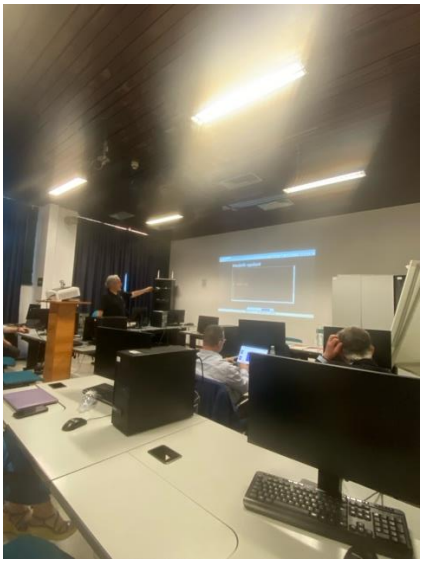
Section 5: Pilot snapshots

What is your biggest highlight from the piloting phase? It can be a good practice, interesting case study, positive success story or a touching quote/feedback you received from your learners. It can be in the form of a text or video or photo collage etc. Be creative, so we can use it for a post in the project social media.



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