

The Aitem role for the Additive Manufacturing development in Industry 4.0

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Aitem

Funded in 1992 as THE Italian Academia of Production Engineering in the form of nonprofit association, is evolving as professional Society of Manufacturing Technology and Systems outlined in Fig. 1 fostering an articulation in sections, groups and observatories on strategic topics, like Additive Manufacturing.

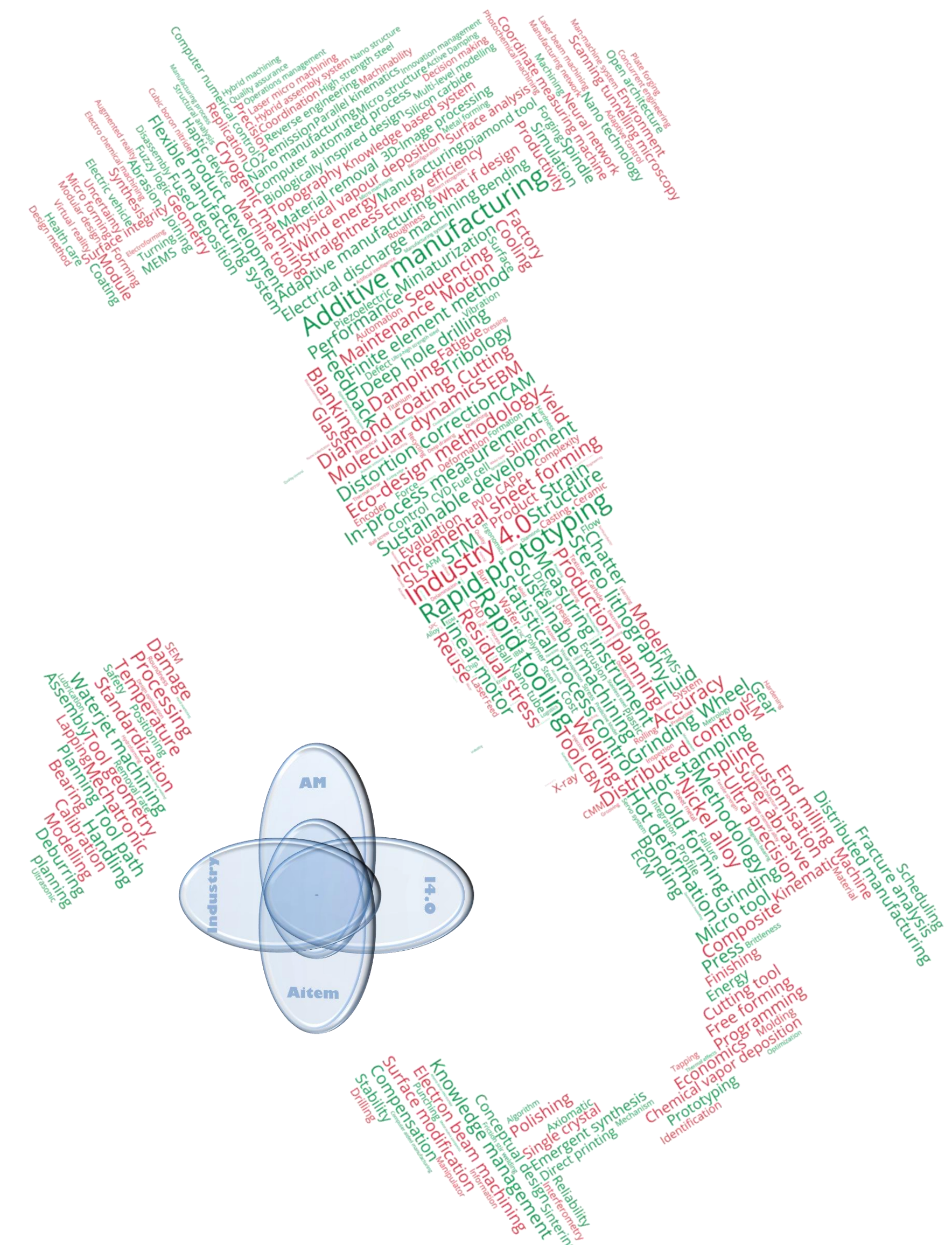


Figure 1. Aitem research keywords

Additive Manufacturing

Since the introduction in the late 80s and revamping in the current decade as AM, synonyms and technologies (outlined in Fig. 2) keep adding to the family. Unprecedented choice of 3D shape, structure and texture is directly available by a connected AM machine from a digital product model.

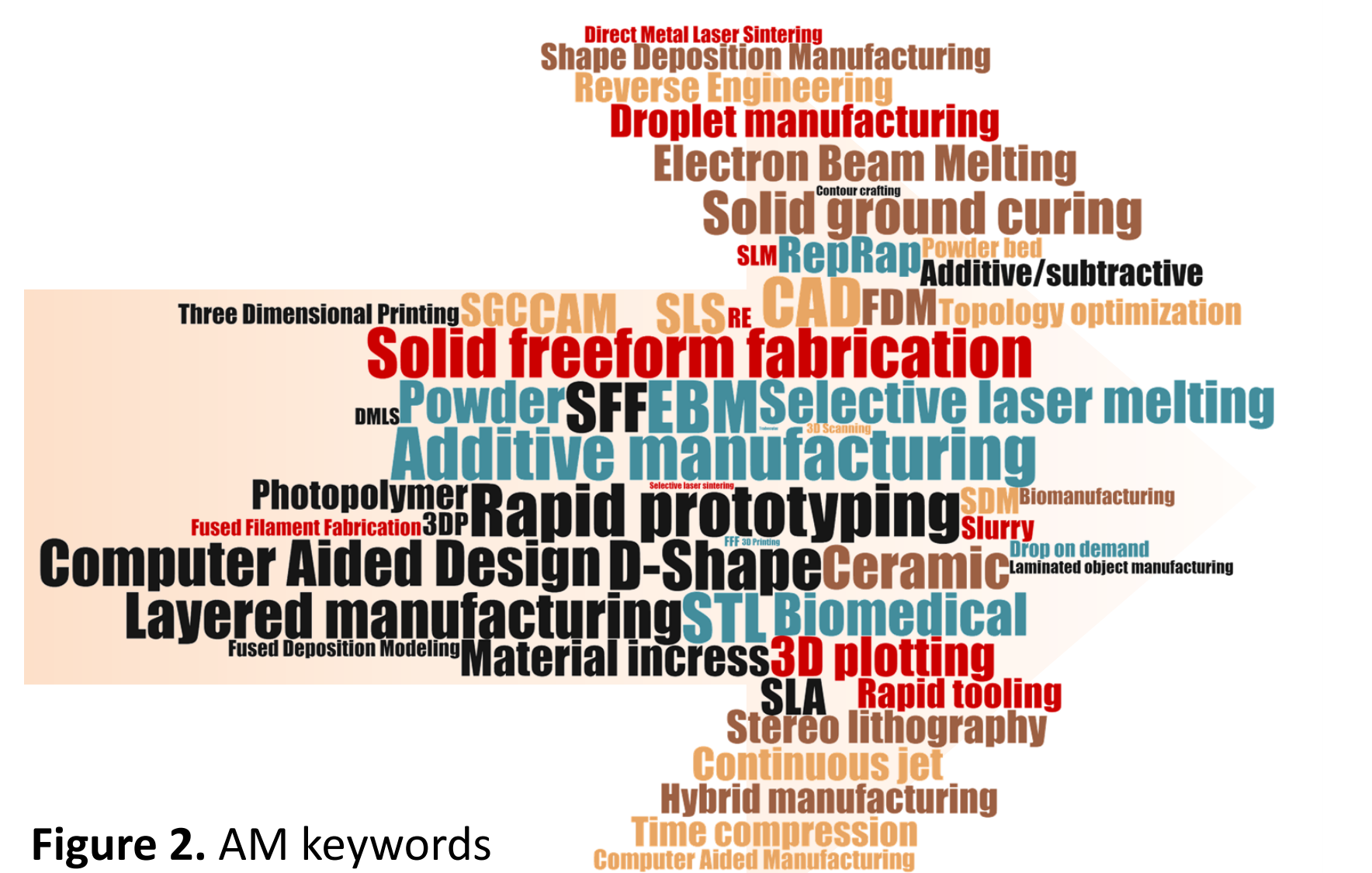


Figure 2. AM keywords

Industry 4.0

The 4th industrial revolution is expected to impact production methods and business models currently used in industrialized countries by involving old and new cyber-physical systems and technologies outlined in Fig. 3. AM methods and machines are key components ferried from 3.0, because of their still unexplored potential.

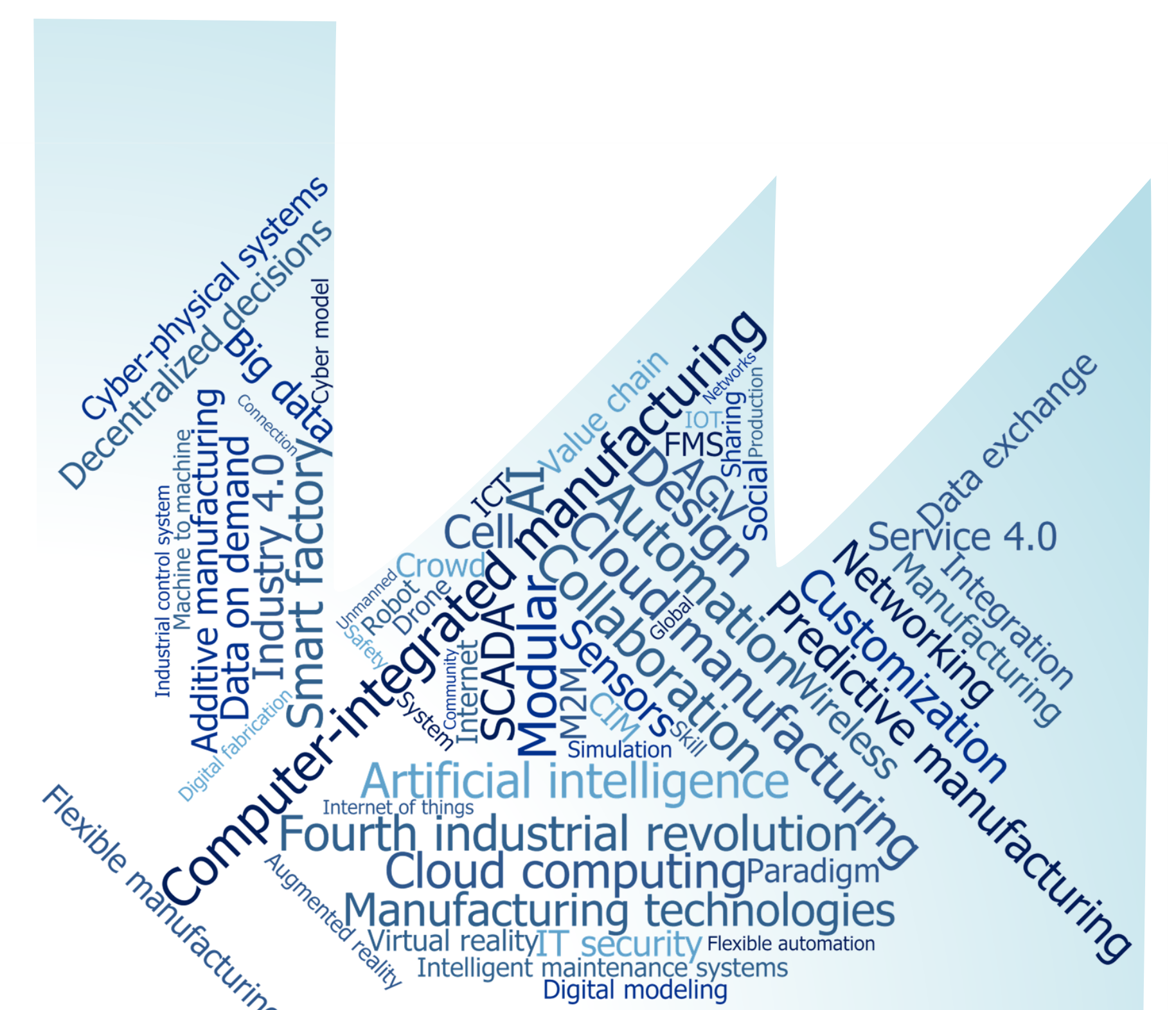


Figure 3. I4.0 keywords and enablers



Figure 4. SWOT analysis of AM for I4.0, the Italian situation



Figure 5. SWOT analysis of AM for I4.0, wait for I5.0?

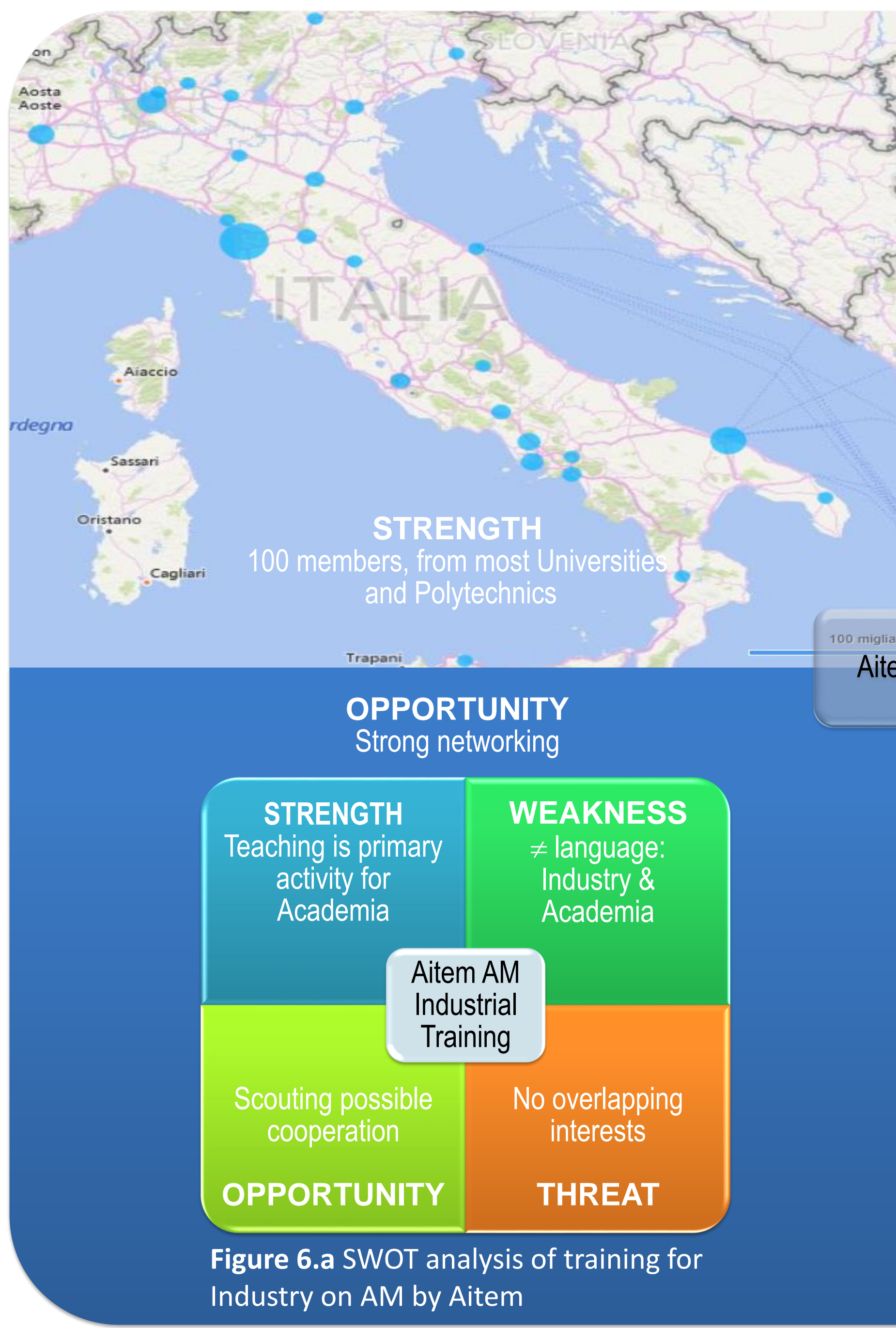
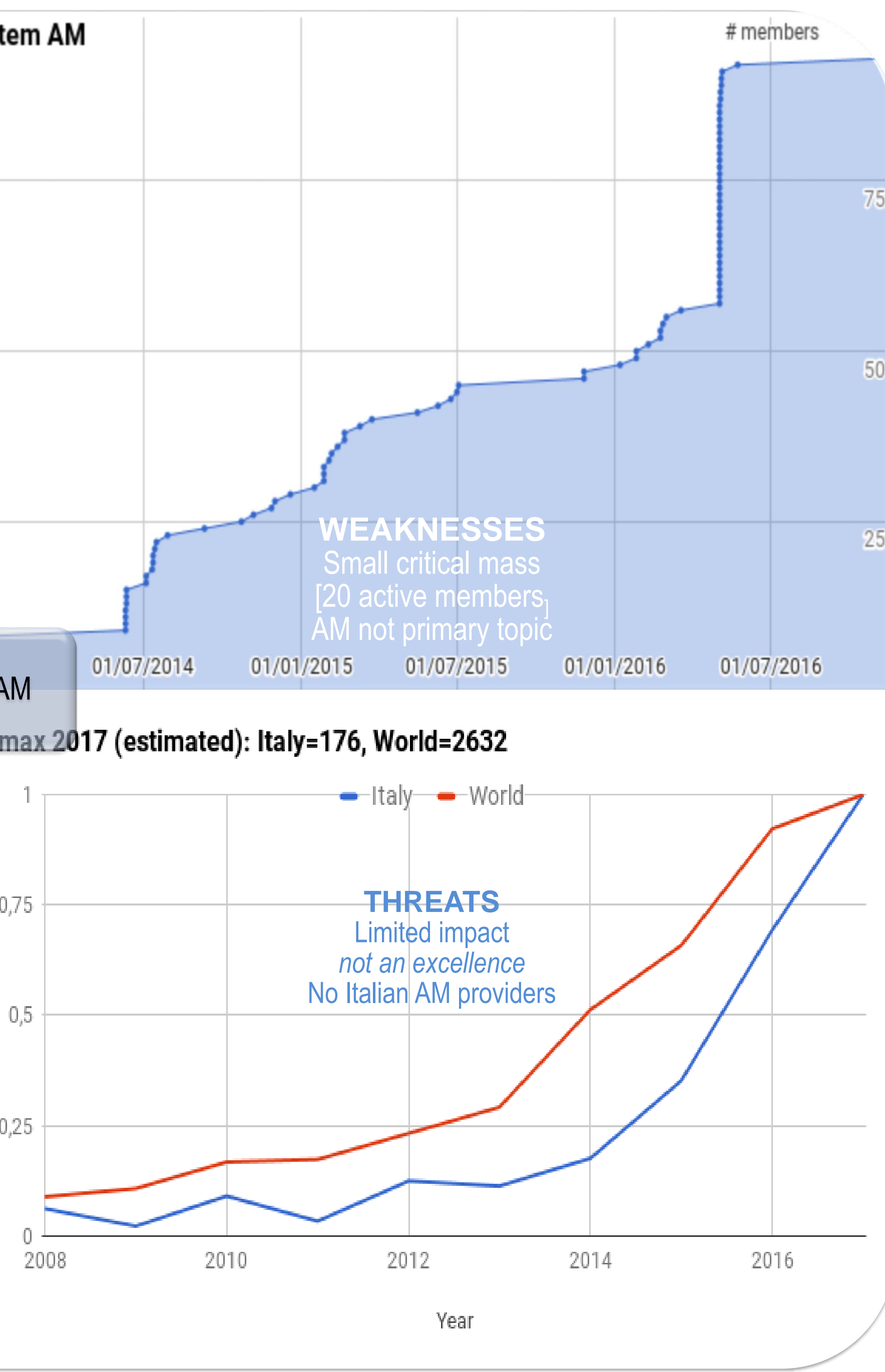


Figure 6. SWOT analysis on the AM potential in Aitem



Aitem AM role for I4.0

Lower profile (current)

- Basic cooperative research (funded projects)
- Applied research, with end users (industrial case studies)
- "Printing" services
- Dissemination (magazines, exhibitions, social etc.)

Higher profile (long term)

- Training (Fig. 6.a)
- Becoming the (Italian) AM authority
- Merging with and incorporating similar organizations (Aita, Ciram etc.)
- Recruiting researchers from contiguous sectors (biomedical, civil, materials science etc.)
- Recruiting technology providers

*huge effort ***

** worthwhile if AM will really be a major technology of the future



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