MOVING THE INDUSTRY 4.0

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1. Introduction

Information literacy should concern everyone, especially the industry of a knowledge society with regard to an ongoing digitization of information. When looking for information on the internet, one is confronted with an overload of information. The availability of information and its retrieval do not necessarily mean that these are understood or rather are leading to progress and success (Kleindienst et al., 2016). In contrast, many (knowledge) workers feel overstrained by this flood of information and the available information retrieval tools and methods, but they still need the right information on a daily basis to increase the effectiveness of their working processes and to generate innovations. However, analyzing big amounts of data with qualitative tools and methods as data and text-mining to get a deep understanding of a phenomenon seems unavoidable for an efficient and effective access to today's information repositories (Federal Ministry of Labour and Social Affairs, 2015). Moreover, there is an urgent need for training opportunities and environments, where data and text-mining methods can be practiced to improve information literacy competencies within their working environment. This concerns especially the field of Industry 4.0, which on the one hand is characterized by high mechanizations and technological changes and on the other hand, lead to a significant increase of demands on lifelong learners, to avoid, for example, the unintended outflow of knowledge. The vision of the international project MOVING (TraininG towards a society of data-saVvy InforMation prOfessionals to enable open leadership INnovation)[1][2] is to fundamentally improve information literacy by connecting innovative technologies and different learning opportunities through implementing a culture of working and training on one platform. This extended abstract shows the overall aims of the project and the platform (2), explains the used methodology for building the platform (3) and describes in the end the framework of the learning environment on the platform (4).

2. Aim

The aim of the project is to build a training platform that will enable users from all societal sectors (especially companies, universities and public administration) to fundamentally improve their information literacy to become data-savvy information professionals and at the same time to increase the innovation impact and the capacity for innovation in the European Union by knowing how to deal with data and text-mining methods. The interdisciplinary MOVING-platform will provide users with technical support, social collaboration options and learning functionalities in order to help them organize, filter and exploit information in a more efficient and sustainable way with the aim of creating a culture of deep thinking and generating an open innovation process for the Industry 4.0.

3. Methodology

We conducted interviews, analyzed literature and ISA (International Standards on Auditing) norms to investigate the requirements for the use case "Research on business information by public administrators". Results of these analyses lead to different functions, which should be integrated on the MOVING platform: knowledge should be generated from data at a desired level of detail, when e.g. conducting research on compliance to European laws and regulations. The user should be able to access the content he or she was looking for in a more general or deeper manner. Furthermore, it should be possible to assess the most important aspects of a topic. Through that, the flexibility of the analysis together with the different views and data analysis instruments enables making decisions on a reasonable basis. Next to this, it should be possible to identify trends and innovations in advisory services by, e.g. focusing on certain areas with a tag cloud and a network view on the data. Further results of the requirement analysis show that also clustering, date mentions, different forms of document level analysis, an integrated search list as well as concept and entity identification are important functions of data and text-mining methods to be implemented on the MOVING platform.

4. Framework of the learning environment

To overcome the separation of practice and training, a framework, which connects (collaborated) working in a secured space and different training options will be set up (see Fig. 1).
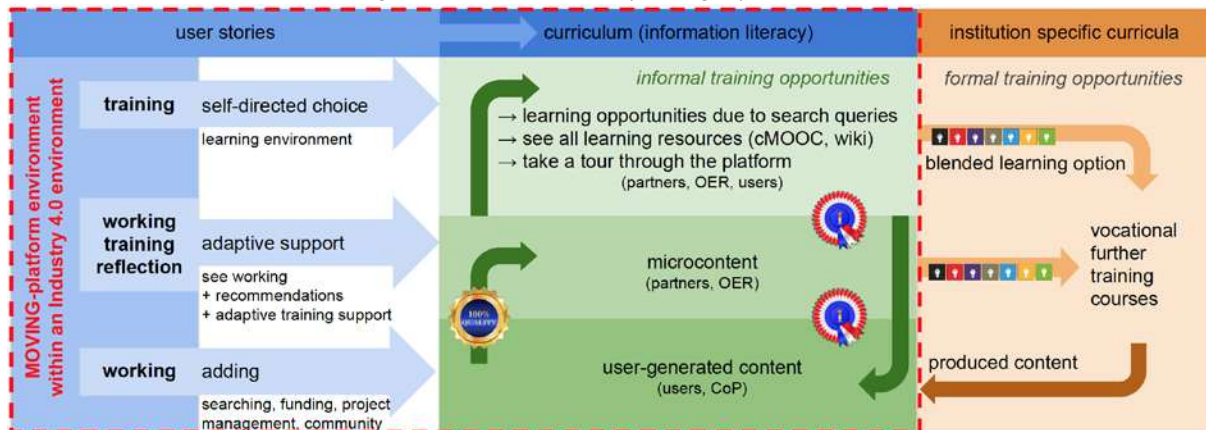

Fig. 1: MOVING-framework within the Industry 4.0 in a beta version (own illustration)

The initial conceptual framework involves the MOVING-platform environment (working and training) and its social components (e.g. collaboration, sharing, creation). Informal training options consist of a cMOOC, an adaptive training support widget with micro-content, and the use of different motivational elements (e. g. gamification). Micro-content (content of the partners, OER, self-produced content) will be also part of the different cMOOC-topics. In a cMOOC users mix and/or generate new content which can be extracted to the user-generated content and thus enrich the content-pool of the Community of Practice (CoP) (Pscheida et al., 2014, Saadatmand & Kumpulainen, 2014). User-generated content with high quality can also be used for micro-learning. A quality assessment will be necessary and just reviewed user-generated content will be provided as micro-content. Formal training options in form of blended learning formats are an example of vocational further training courses for (knowledge) workers in companies. The digital content from the informal training options can be used in face-to-face events (e.g. seminars) to offer (knowledge) workers blended learning options. Such a blended learning approach can by flexible for each individual with regard to pace, place, learning speed and type. With the use of badges, users might stay motivated and can finally be rewarded with a certification (Gibson et al., 2015). Creating or producing content as well as participating in some parts of the cMOOC can be a task within vocational further training courses and a start of an open innovation process for as example a new product or improved service. Through giving (part)marks for well-produced content, a high quality can be guaranteed while the CoP is growing respectively students or employees make a first step into it.

5. Acknowledgements

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