

# PILLS: A Multilingual Authoring System for Patient Information

Donia Scott<sup>a</sup>, Nadjat Bouayad-Agha<sup>a</sup>, Richard Power<sup>a</sup>, Stefan Schulz<sup>b</sup>,  
Rainer Beck<sup>b</sup>, Dawn Murphy<sup>c</sup>, Rose Lockwood<sup>c</sup>

<sup>a</sup>Information Technology Research Institute, Brighton, UK

<sup>b</sup>Department of Medical Informatics, Freiburg University Hospital, Germany

<sup>c</sup>Berlitz GlobalNet, Luton, UK

**Background.** The creation and management of content in multiple languages is a significant challenge for the pharmaceutical industry. The system we demonstrate (PILLS = Patient Information Language Localization System) is designed to allow (monolingual) technical authors to generate patient information leaflets in multiple languages [1].

**Architecture.** Domain knowledge is stored in a knowledge base, using an adaptation of ProFIT, a logic-based declarative knowledge representation language. The knowledge has been semi-automatically imported from the UMLS and manually refined according to the requirements of the system [2]. A graphical interface has been developed to allow the author to “write” a document by selecting the appropriate concepts from the knowledge base. The interface is based on the “WYSIWYM©” technology (What You See Is What You Meant, cf. [3]), which links each concept to its linguistic representation so that the text is generated automatically from the author’s selections. Because of this separation of concept from textual representation, the text can be generated in any language for which a linguistic specification is available.

PILLS facilitates the reuse of product information found in patient information leaflets, e.g. for summaries of product characteristics for authorisation purposes, outer packaging, and short descriptions of drugs for company websites and health portals. As with XML-based content management, the format and presentation of the document can be applied as a separate process from the authoring of the content, in order to re-purpose text for different media and text layouts. Moreover, the wording and style may be varied according to the end-user. Information aimed at the clinician for example may be more technical and formal than information aimed at the patient. This “linguistic register” can be encoded in the PILLS system, so

that different text for different types of end-user is produced.

PILLS aims at the reduction of localisation costs by capturing the expertise of linguists once, and once only, during implementation of the system rather than employing translators later to localise each document after it has been authored. This way, the production of content in multiple languages is speeded up, the standardisation of product information is enhanced and content management of multiple language documents in multiple media is facilitated.

**Perspective.** The system is still under development. This means that there is still scope to adapt the product to comply with standards (e.g., the XDossier data exchange standard) as well as specific user requirements.

We are currently setting up a focus group of representatives from the pharmaceutical industry to help shape the development of this system. We also need to collect recent samples of all types of product information and particularly patient information leaflets to further the development of the pharmaceutical knowledge base on which the system is based.

## References

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