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Wiki Scaffolding: Aligning wikis with the corporate strategy

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ABSTRACT

Wikis are main exponents of collaborative development by user communities. This community may be created around the wiki itself (e.g., community of contributors in *Wikipedia*) or already exist (e.g., company employees in corporate wikis). In the latter case, the wiki is not created in a vacuum but as part of the information ecosystem of the hosting organization. As any other Information System resource, wiki success highly depends on the interplay of technology, work practice and the organization. Thus, wiki contributions should be framed along the concerns already in use in the hosting organization in terms of glossaries, schedules, policies, organigrams and the like. The question is then, *how can corporate strategies permeate wiki construction while preserving wiki openness and accessibility*? We advocate for the use of "Wiki Scaffoldings", i.e., a wiki installation that is provided at the onset to mimic these corporate concerns: categories, users, templates, articles initialized with boilerplate text, are all introduced in the wiki before any contribution is made. To retain wikis' friendliness and engage layman participation, we propose *scaffoldings* to be described as mind maps. Mind maps are next "exported" as wiki installations. We show the feasibility of the approach introducing a *Wiki Scaffolding Language (WSL)*. WSL is realized as a plugin for *FreeMind*, a popular tool for mind mapping. Finally, we validate the expressiveness of *WSL* in four case studies. *WSL* is available for download.

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1. Introduction

Companies are increasingly realizing the benefits of wikis [1]. Indeed, the Intranet 2.0 Global Survey reports that around 61% of the respondent companies (1,401 participants) were somehow using wikis [2]. As any other Information System, the interplay of technology, work practice, and organization is paramount to achieve successful wiki deployments. Therefore, we can expect differences in wikis depending on the hosting organization, let this be an open community (e.g., *Wikipedia*), a learning organization [3] or a company [4]. The peculiarities of each organization will certainly percolate the wiki. Documentation, organigrams, project milestones are all there by the time the wiki is created. This contrasts with open wikis (e.g., *Wikipedia*) where the community did not exist prior to the wiki. As a result, corporate wikis (i.e., wikis host by an existing organization) might be tuned at the onset to the already existing information ecosystem. This is the assumption behind "Wiki Scaffolding". Next paragraphs introduce the "what", the "why" and the "how" of this term.

What: "Wiki Scaffolding" stands for a wiki installation (a.k.a. a wiki project) that is available from the wiki's onset, before any contribution is made. Such installation mirrors the practices of the hosting organization. Some examples follow: (1) company schedulings might impact the pace at which wiki articles are provided (e.g., deadlines, project milestones); (2) products, services, customers or established terminology within an organization might become categories to classify wiki articles; (3)

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employees eligible to contribute, and their access control permissions, might be based on the company's organigram. A "Wiki Scaffolding" captures this setting as a wiki installation where the basic wiki configuration might be extended (through plugins) based on the selected scaffolding features (e.g., a plugin for events and calendars).

Why: The fact that wikis facilitate knowledge creation does not imply that such knowledge comes out of the blue. Both, the paralysis of facing an empty article and the lack of a holistic view of the wiki content, might prevent grassroot initiatives from "getting off" the ground. At this respect, scaffolding brings three main benefits:

1. Scaffolding facilitates wikis to be better aligned with the organization strategy. Wikis are frequently a bottom-up phenomenon whereby the wiki is introduced by an individual employee or a small group within the organization without the support of management. This approach may be useful to uncover hidden knowledge or hidden ways-of-working in a dynamic and unplanned way. However, it might fail in having a strategic intent. A lack of strategy might result in no clear guidelines about what, how and who should contribute. If so, "Wiki Scaffolding" forces to think about these concerns right from the beginning.
2. Scaffolding promotes user engagement. In a corporate setting, a wiki article might require some permissions, be subject to a deadline, belong to some wiki categories, or follow a given template. All these aspects might not be directly related with the article's content as such, yet they frame the contribution. Setting this frame is cumbersome and delays users in putting their wheels in motion (e.g., start to edit the article). "Wiki Scaffolding" permits this frame to be available by the time contributors start their articles.
3. Scaffolding as a wiki map. The "rules of practice" that govern a site (i.e., roles, access rights, templates, etc.) should be easily accessible to newcomers. So far, this information is scattered around the wiki, and frequently hidden in administrative pages. At best, a *README* page can provide some textual description of these practices. "Wiki Scaffolding" can play the role of an initial "practice sitemap". Newcomers can consult the scaffolding to have an eye-bird view of the rules that govern the wiki's operation.

How: "Wiki Scaffolding" faces two main obstacles. First, it implies an upfront investment before any content is provided. Second, it requires knowledge about the wiki engine (e.g., *MediaWiki*) and third-party extensions, both outside the competences of the layman. This will make "Wiki Scaffolding" yet another burden for the organization's IT department since most users will lack the required skills. Akin to the wiki spirit, the scaffolding should be managed by the users on their own. Therefore, both cost-effectiveness and end-user affordability are main prerequisites for scaffolding to be adopted. This advocates for the use of Domain-Specific Languages (DSLs) [5]. Furthermore, collaboration and easy sharing can be promoted by using graphical DSLs (as opposed to textual DSLs). Mind maps are popular diagrams that capture ideas around a central topic [6]. We capitalize from this popularity, and introduce a DSL described as a mind map to both capture and enact "Wiki Scaffoldings".

In short, this paper addresses the following research question: *how can corporate strategies permeate wiki construction while preserving wiki openness and accessibility?* To this end, we introduce the notion of "Wiki Scaffolding", and advocate for the use of DSLs as the engineer means. Specifically, we introduce the *Wiki Scaffolding Language (WSL)* (pronounced "whistle"). *WSL* is built on top of *FreeMind* [7], a popular, open source tool to create mind maps. You create your scaffolding by drawing mind maps. Next, you can "export" your mindmap as a "Wiki Scaffolding": a new wiki is created along the lines of the directives of the scaffolding (see a video of WSL at work at http://vimeo.com/31548363). The source code, examples and installation instructions can be found at http://www.onekin.org/wsl. Alternatively, WSL source code is also available in the official *FreeMind* repository http://bit.ly/xsA040.

This paper is organized along the design and use of *WSL*: *WSL* analysis (Section 2), *WSL* design (Section 3), *WSL* usage (Section 4) and *WSL* at work (Section 5). Conclusions end the paper.

2. WSL analysis

It is important to note that a scaffolding is "piece of code", i.e., a wiki installation. "Pieces of code" that support scaffolding for different companies would be different, yet they share a family likeness. That is, they belong to the same domain: "Wiki Scaffolding". This section identifies the scope and main abstractions behind this domain. The aim is to capture the company's work practice and settings, as long as they impact wiki operations. A main outcome of this analysis is a *feature diagram* that describes the domain concepts and their interdependencies [8]. A feature is a prominent and distinctive user visible characteristic of a system. In classical conceptual modelling, concepts are described by listing their features (attributes), which differentiate instances of a concept. In software engineering, software features differentiate software systems. Hence, the first question is what makes a scaffolding different from other scaffolding. This entails to assess the extent to which the wiki community suffers the traditional approach, and determine which would be the corporate aspects that, if available at the wiki onset, would have made a change. This is the topic of the next subsection.

2.1. The need for Wiki Scaffolding

To the best of our knowledge, the notion of scaffolding for wikis is rather new. We firstly need to collect evidences that suggest the necessity of scaffolding, even if they do not term it that way. To this end, we conducted a literature review on wiki usage in organizations. Next, we provide those seven cases that more clearly seems to suggest the need for scaffolding in wikis. The aim is to

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