

# e-Conviviality in Web Systems by the Wisdom of Crowds

## EXTENDED ABSTRACT

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### Abstract

*We motivate the idea of e-conviviality in web-based systems and argue that a convivial social being deeply depends on the implicit and explicit co-operation and collaboration of natural users inside a community. We believe that a (individual) conviviality benefits from the wisdom of crowds, meaning that a continuously and dynamic understanding of the user's behaviour can heavily influence the individual well being. In this respect, we are currently implementing the system CUBA (conviviality and user behaviour analysis), which aims to find novel ways to support users during their web site visits while discovering their interests. CUBA comes up with certain recommendations and suggestions, which base on a common behaviour of the "Wisdom of Crowds". For example, concepts with respect to time, space, and user-based actions are considered.*

### 1. Introduction

**SectionIntroduction** In general, a concrete definition of conviviality does not exist and there is neither a clear model nor a singular vision of it. A usage of the word in a communication environment like the World-Wide Web is not yet realized and the relationship of e-conviviality to terms like amicability or a comfortable visiting remains fluent: does therefore e-conviviality refer to a place or a situation where someone is welcome and/or feels well? Can e-conviviality be computed by introducing algorithmic parameters, being adjusted and adapted? Could external signal be considered and internal rules be activated such that we may obtain e-conviviality? We believe that e-conviviality is a concept of greater depth that plays an important role not only in social interactions but also in the internal regulation of social systems. Convivial relations between individuals are the ones that allow individuals to behave and interact with

each other following a set of conventions shared, commonly agreed upon or at least understood. This presupposes implicit or explicit mechanisms that are based on consensus or social contracts and applies to the behaviour and interactions of participating individuals [5]. We think that individuals inside the community may benefit from the "Wisdom of Crowds", which means that a dynamic understanding of the users' behaviour may heavily influences the well being of individuals.

Generally, there exist several definitions of the word *conviviality*, which differ in both – the explanation of the word and the context in which it is used. The most time, *conviviality* is widely used as a synonym for a user-friendly event or being used in conjunction with digital cities and normative agents [1]. Nowadays, *conviviality* is mostly understood in context of sharing and enjoying time with people. Unfortunately, there is no definition of "good time", because it is strictly subjective and almost every user has a different understanding of it. Furthermore, computer-related sources that may influence a user's feeling of a "good time" in many ways; which makes it nearly impossible to introduce a single definition of the term *conviviality*.

We will now look at *conviviality* from another, not computer-science related, point of view. In [3], the word *conviviality* is associated to (software) tools as the result of a conscious decision. In fact, a technology is addressed to the level of "normal" users to make conviviality accessible and hence usable to everybody. Illich's idea is to enable (potentially all) users to use technique in a better/smooth way. Instead of certain specifications on how convivial software tools should look like or should be used, he proposes a couple of characteristics of convivial software tools: for example, no users must be excluded, no education should be necessary to use such a software tool, or no too complex features, even if they are implementable, must exist. Although these guidelines were not intended to the World Wide Web, Illich's definition of conviviality is interesting

for the purpose of our research: by simplifying the usage of software tools or letting software tools become usable in different ways, we hope that more people will be able to use them. This is a conscious decision and independent - for example - of the concept of web accessibility; we assume that if web sites are designed with aforementioned rules in mind, more people will be able to use them.

## 2. CUBA: e-Conviviality and the Wisdom of Crowds

The principle of “The wisdom of Crowds” is not new and there had been a lot of experiments and research work in the past. The term has been popularized by [6], who argues that there can be situations where a group of people (crowd) would come up with a better solution for a problem than the smartest person of the group. It is pointed out that several conditions must be fulfilled to gain from the wisdom of crowd, for example the *diversity of the existing points of view*, a *decentralisation / independence* of the participants, and a form of *aggregation*.

In this respect, the aim of CUBA is to simulate e-conviviality during the user’s stay at a web system and to examine the presence of conviviality during the interaction with a web system. Our assumption is to make CUBA easy to use, configurable, and continuously filled with the right information, such that the user’s conviviality can be influenced positively. We carry out the position of the instance that combines the local knowledge of the different members and provide a solution to the member’s current problem. Individual knowledge is received by collecting information about the users following their interest profiles. For example, assume that the user is experienced in the World Wide Web and knows electronic newspapers, our approach bases on the following points. We

- *involve the subscribed channels*: a subscription indicates a strong interest in the topics covered by the channel.
- *deal with the duration of a session (session time)*: this can indicate how strong a user is interested in the content of the web site. There exists also the possibility to self-configure the content of the web site.
- *trace the actions of the user*: the actions can also give a hint of the user’s current interests. For example, clicking on the link or printing an article are strong indications of the user’s interest in the topic in question.
- *consider the locations of the different channels at the page*: if a user is able to position the channels at the page, then he would do it in a way that reflects his current interests. This means that if a user is interested

in the contents of a channel, then he properly puts this channel at a higher position at the page as a less interesting one.

- *consider the current status of the channel*: a closed channel means that an interest in this channel exists, but maybe not at the moment.

By collecting and clustering this kind of data and applying a clustering to it, CUBA comes up with a bunch of user profiles (collaborative filtering). These profiles are used to recommend an arbitrary user exactly those users, who behave in a similar way or who have behaved in analogous situations. With respect to this, the important part getting the profiles follows our previous work on detecting non-obvious profiles [2], [4].

## 3. Conclusions

The system CUBA stands for *conviviality and user behaviour analysis* and aims at finding novel ways to support the user’s visit at a web system through recommendations that base on behaviour of the wisdom of crowds. By now, we recently finished a first prototypical implementation that is available at [www.cuba.lu](http://www.cuba.lu).

## References

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