

The Dobrometr Application as a Tool for Quantifying the Economic Value of Volunteering

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Abstract: Individuals and companies alike make considerable efforts in various charitable activities such as volunteering. This sector is also supported to some extent by the state. Organised volunteering is costly and companies struggle with reporting its value. Nevertheless, reporting and quantifying volunteer activities can help organisations to differentiate. The most telling value in this context is the evaluation of the impact of volunteering, but this is usually very analytical, time-consuming and costly. Quantifying volunteering is made feasible by a concept known as the value of volunteering. It does not capture the benefits of volunteering, but quantifies one dimension of the overall value of volunteering, volunteering time. To quantify the economic value of volunteering, the Dobrometr application was developed in cooperation between the Hestia centre for volunteering and the College of Polytechnics Jihlava, Czech Republic. The aim of this paper is to present the application and explain its use in determining the economic value of volunteering through the proposed method, thus facilitating its calculation. From the given date, number of hours, and type of activity related to the category, the value of volunteering is calculated. The collected data on the value of volunteering is further used to support the management of individual volunteer organisations. Information and communication technologies are used in the implementation of the application, which includes both a web application and a mobile application. By describing some of the features of the application, the paper further discusses its deployment. The application was developed within the project "Czechia Counts on Volunteering" (a TA CR project). The creation of the application was supported by in-depth research of both theoretical sources and organisations working with volunteers across the society. The aim was to create not only the conditions for organisations in practice to calculate the value of volunteering, but also a solid framework for interpreting these results.

Keywords: Volunteering, the Value of Volunteering, Non-profit Sector, Mobile Application, Android

1. Introduction

The issue of quantifying the economic value of volunteering has been widely discussed. Dingle et al. (2001, p. 4) say that "the history of volunteering is written in invisible ink", hoping that a tool for quantifying the economic value of volunteering can "be of considerable help in giving shape and form to the contributions that citizens make to their societies through voluntary action".

Individuals and companies alike make considerable efforts in various charitable volunteering activities. This sector is also supported to some extent by the state, which is also related to an increasing need to report work hours in non-profit organisations. Organised volunteering is costly and companies struggle with reporting its value. Nevertheless, reporting and quantifying volunteer activities can help organisations to differentiate. The most telling value in this context is the evaluation of the impact of volunteering, but this is usually very analytical, time-consuming and costly. Quantifying volunteering is made feasible by a concept known as the value of volunteering. It does not capture the benefits of volunteering, but quantifies one dimension of the overall value of volunteering, volunteering time.

To quantify the economic value of volunteering and react to the actual needs of non-profit organisations, the Dobrometr application was developed in cooperation between the Hestia centre for volunteering and the College of Polytechnics Jihlava, Czech Republic. The goal of the application is to serve as a user-friendly tool supporting the development of volunteering. The Czech name of the application, Dobrometr, generally refers to measuring the amount of volunteering. The aim of this paper is to present the application and explain its use in determining the economic value of volunteering through the proposed method, thus facilitating its calculation.

2. Materials

The value of volunteering plays a key role in the reporting of volunteering. As early as 1975, Wollozin (1975) presented a research study in which he addresses the question of the economic role and value of volunteer work in the United States. The problem of quantifying the economic value of volunteering has been studied for many years. It has been summarized, among others, in Smrčka et al. (2022a). It is also presented in the final report of

the Czechia Counts on Volunteering TA CR project (Dostál et al., 2020). Several other studies have dealt with the topic of economic value of volunteering and its quantification, some of them being (Brown, 1999), (Bowman, 2009), (Dingle, 2001), (Dostál & Vyskočil, 2014), (Gallarza et al., 2013), (Sajardo, & Serra, 2010), and (Salamon et al., 2011). Mayer & Costa (2017) is another interesting study. In this study, the authors explore the full value of corporate volunteering.

Specific issues in the voluntary sector are then addressed in, for example, the studies by Černý (2015), Lusková, & Lusková (2012), Rybáček et al. (2017), and Waniak-Michalak (2016). Orłowski, & Wicker (2016) present a study named *The Monetary Value of Voluntary Coaching*. On the issue of quantifying the economic value of volunteering, Graeber (2001) explores this issue and presents his study called *The false coin of our own dreams, or the problem of the fetish* (2001). Quantifying the economic value of volunteering is a fundamental problem. Graeber (2001) comments on the meaning of the word economic value of volunteering. According to Greber, value in the economic sense represents the level at which things are desirable (Graeber, 2001) cited in (Smrčka et al., 2022a).

The presented papers confirm that the problem of quantifying the economic value of volunteering has been a debated topic for many years. In a collective of other authors, we presented a proposed methodology for calculating the economic value of volunteering (Smrčka et al., 2022a). In the presented methodology, volunteering activities are entered individually by individual volunteers or by groups, and are categorized into activity fields and then by activity type. The value of volunteering is quantified from the entered number of work hours, the field of volunteering and the price list for a given period and field. The study is the starting point of this paper, which presents the implemented applications (mobile and web).

Use of ICT and mobile applications: Over the past few years, mobile apps have become increasingly popular and have gained more popularity. This is due to mobile platform features such as (real-time) monitoring or real-time notifications, e.g. the frequently used Firebase Cloud Messaging (Moroney, 2017). Mobile applications find practical and meaningful use in health care – e.g. for diabetes monitoring (Villarreal et al., 2009), heart rate and physical activity monitoring – or in weather forecast, education (Soewito et al., 2019), student's alert monitoring (Gore et al., 2017), (Heryandi, 2018), in transportation, various forms of navigations (Musil, & Novotný, 2015), astrophysical transient events (Zhao et al., 2014), webcast application (Jonathat et al., 2019) etc. Even simple applications find their use. To sum up, thanks to the internet connection (Wi-Fi) the mobile application allows access from anywhere as it is possible to work with a mobile application anytime and anywhere. We have already presented several papers dealing with the design and implementation of a mobile application, examples of which are a task administration system (Musil, & Smrčka, 2023) and a management system for integration of the disabled on the labour market (Smrčka et al., 2022b). In these works, we apply real-time notifications using Firebase Cloud Messaging.

3. Design of the Task Management System

The application was developed within the project "Czechia Counts on Volunteering" (a TA CR project). The methodology for calculating the economic value of volunteering is proposed by us in (Smrčka et al., 2022) and presented in the final report of the project (Dostál et al., 2020). The hourly rates used in the calculation are determined by the average values published annually by the Czech Statistical Office. The Czech Statistical Office surveys hours worked and these hours are valued at the median wage from the Average Earnings Information System (ISPV) (Average Earnings Information System (ISPV), 2019). A mobile and web application will be developed to record volunteering activities and calculate the economic value of volunteering according to the proposed methodology. The use case diagram and the data model of the proposed system are shown in figure 1 and figure 2.



Figure 1: Use Case Diagram – shows the functions of implemented applications.

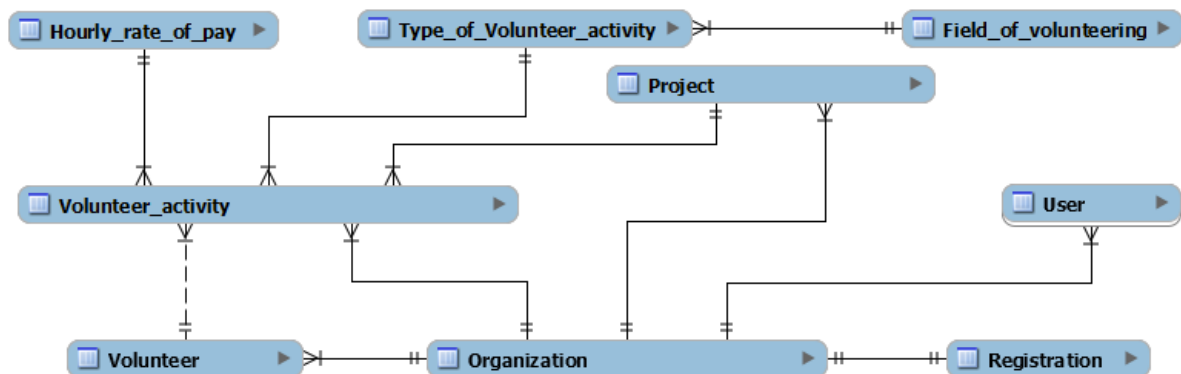


Figure 2: Data model

The Use Case Diagram shows the implemented system functions and the system actors (see Figure X). Multiple organisations can register in the volunteering system. The approval of the registration of the organization is done by the administrator (Admin role of the DOBROMETR system) on the basis of the completed registration data. The person who has registered the organisation becomes the organisation's chief coordinator (the role of the Organisation's Chief Coordinator). The Organisation's Chief Coordinator manages the volunteer staff

(Organization's Coordinator role) and defines the organization's volunteer programs. The Organisation's Chief Coordinator and the Organisation's Coordinator enter volunteering activities to the system. Volunteer activities are entered either for a specific volunteer or for a group of volunteers. The economic value of volunteering is calculated from the number of hours and type of volunteering. The summaries show a quantification of the economic value of volunteering.

3.1 Volunteering Fields and Types of Activities

Volunteering fields and types of activities are shown in figures 3 and 4. Volunteering fields and types of activities are visually illustrated by pictograms. The fields of volunteering are categorized into types of volunteering activities.



Figure 3: Volunteering fields

Figure 4: Types of activities

Application registration: the registration process prevents the inclusion of unwanted and fraudulent companies. It is performed manually based on the entered registration data. A company's registration data (ID number, type of company – legal/natural person) is then used to sum up the economic value of volunteering.

Mobile app login: see figure 5, the authentication process authenticates the user and allows access to the app by role (organisation's viewer, organisation's coordinator – volunteer, organisation's chief coordinator, system admin).

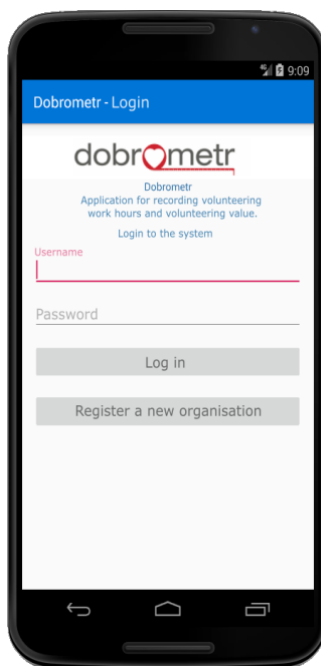


Figure 5: Mobile application login screen

Figure 6: Entering an activity

Figure 6 shows the process of entering a volunteering activity. The field of volunteering and type of activity, the number of hours of volunteering and the volunteer who carried out the activity are selected.

4. Results and Discussion

A mobile app for recording volunteering activities has been created. The deployment of the application increases the efficiency of volunteering. The application is simple and has no special features. The advantage of the mobile application is the ability to enter data from anywhere and at any time. The use of pictograms helps understand the categories of volunteering fields and types of volunteering activities. Within an organisation, reports can be generated summarising volunteering activities and the economic value of volunteering. Volunteering data is stored in a central database, making it possible to assess the economic value of volunteering across the voluntary sector (e.g. the non-profit sector).

5. Conclusion

The application helps the volunteer organization determine the economic value of volunteering. The applications created are illustrative, easy to use and hardware friendly. Registering a company in the volunteering system is easy and the company does not need any database server. The data collected from volunteering can be used for global evaluation and provide interesting data. The system created is an asset in the field of volunteering.

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