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# OVERCOMING SMES' BARRIERS IN ADOPTING CROWDWORKING WITH QUALITY MANAGEMENT APPROACHES

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## Abstract

This paper describes a concept to adapt the design of quality management in small and medium sized enterprises (SMEs) to better exploit the potential of crowdworking. It shows how quality management, especially for SMEs, can be organized to make efficient and targeted use of crowdworking and continue to ensure that customer requirements are met. The different forms of crowdworking will be shown. Barriers of SMEs in adopting crowdworking will be identified. A modular reference process model for the quality-oriented use of crowdworking in SMEs will be developed. In addition, concrete recommendations for action to adapt or supplement the design of quality management in SMEs for the efficient and effective use of crowd-based mechanisms are iteratively developed.

## Keywords:

crowdworking, quality management, SME, reference model

## 1 INTRODUCTION

The importance of crowdworking has increased significantly in the last years [1]. Originally, crowd working was a niche area with a focus on software development. However, this area has grown, now including writing texts, for instance product descriptions, planning and designing tasks for most diverse aspects, and even product development. Within this context, platforms offering jobs for crowdworking have become well-established and jobs are offered from all kinds of companies, multinationals as well as start-ups. Nevertheless, it is essential for the companies offering crowdwork to assure the quality of the outsourced work tasks. Since the crowdworkers are not employees of the companies they are not involved in the established (quality) management processes and their performance is unknown to the company. The motivation of this work is to answer the question how quality management and corresponding methods can contribute to ensure the "quality" of crowdworking.

The research question that the paper is based on is "How does a process for introducing crowdwork in SMEs look like when ensuring quality standards of completed tasks?"

## 2 STATE OF THE ART

### 2.1 Definition and actors of the crowdworking process

Crowdworking is defined here as a form of digital labor where individuals receive financial compensation for their contributions and achievements, contribute significantly to their income, and act as self-employed agents with flexibility in their working arrangements and time [2].

The roles in crowdworking are the crowdsourcer, the crowdworking platform and the crowdsourcee. The crowdsourcer, who initiates the process, can be a company, an individual, an organization or a group [2]. The crowd to which the task is outsourced consists of a large number of crowdsourcees who process it. The processing of the task can be done by a group of Internet users or by an individual, the so-called crowd [3]. The task is processed via online platforms, which are usually provided by an intermediary, but can also be established by the crowdsourcer itself [4].

### 2.2 Crowdworking types

Crowdworking can be categorized into internal, external, and hybrid types, all utilizing a flexible pool of workers to achieve fast, cost-effective, and optimal solutions [5] [6].

Internal crowdworking utilizes a company's internal workforce (crowd), who already have an employment contract [7]. Tasks for crowdworking are advertised through internal platforms or email, with the company having the choice to restrict access to specific groups or open it up to the entire workforce, including employees from other locations [3]. The main advantages of internal crowdworking include knowledge retention, expanded work horizons, potential discovery and development, improved communication, motivation, and identification with the company. However, there can be drawbacks such as competition and dissatisfaction among the employees due to selective pre-selection [8].

External crowdworking involves outsourcing tasks to individuals outside the company, providing access to a diverse pool of skilled labor [4]. Tasks are advertised through either the company's own platform or an external platform provider [5]. The impact of crowdworking on internal service provision varies depending on the type of task outsourced. Routine tasks can free up employees to focus on core competencies, while complex projects or innovation tasks benefit from external knowledge and creative input, reducing operational blindness [8] [9]. However, external crowdworking can negatively affect internal employee motivation and contribute to the "not invented here syndrome." It also presents challenges in communication, coordination, quality control, and data protection [6][10].

Hybrid crowdworking combines internal and external crowds, combining the benefits of both approaches. This approach reduces the "not invented here syndrome" and employee dissatisfaction, as internal solutions are supplemented rather than replaced by external crowdworkers. Moreover, the likelihood of achieving a higher-quality solution increases with a larger and more diverse pool of crowdworkers [3] [11].

### **3 BARRIERS OF SMES IN ADOPTING CROWDWORKING**

In order to theoretically develop a reference process for how small and medium-sized enterprises (SMEs) can successfully include crowdwork in their business model, existing barriers were identified. Identifying those helps to precisely develop the process and to identify possible strategies and solutions to overcome existing barriers.

#### **3.1 Method**

A series of 20 qualitative Interviews was conducted to identify barriers in the context of online labor platforms.

The methodology for conducting the interviews was based on the guided interview approach. The guided interview is a semi-structured form of data collection in which a pre-formulated guide serves as orientation and structuring aid. [12]

The qualitative interviews were conducted in four phases, which determine the structure of the guide [12]:

In the information phase, the interviewees were informed about the study and its objectives as well as about the treatment of the data, and the interviewee's consent to use the data was obtained.

The warm-up or introductory phase (warm-up) aimed to facilitate the respondents' entry into the interview situation and the research topic. Here, the interviewer asked as open and broad a question as possible at the beginning, so that the interviewee got into telling the story and thus overcame the often observed initial shyness about the interview, the unfamiliar communication situation (and its recording).

In the main phase of the interview, the barriers of adopting crowdworking were discussed in communicative exchange with the interviewee. The questions could be either deductive, i.e., developed from prior knowledge, or inductive, so that they were derived from new information from the interview.

The interviews were concluded with a fade-out and closing phase in which the interviews were reflected upon and the participants were given the opportunity to cite additional information or relevant aspects that had not been addressed so far.

For this research paper, the goal is to understand the strategies employed by SMEs to overcome barriers in crowdworking. The authors chose conducted interviews as a form of expert consultation to gather insights. The study included eight experts who were managing directors, crowdworking experts, held higher management positions in SMEs, or were decision makers. Following, the data were evaluated and analyzed to present the results of the analysis.

#### **3.2 Barriers of adopting crowdworking**

Three main barriers for SMEs in adopting crowdworking could be derived.

The first barrier is related to quality issues, stemming from the risk of poor performance and errors by the crowd. This poses a significant challenge for SMEs, particularly those operating in niche markets with a limited customer base. Unlike larger companies, SMEs may struggle to recover from the loss of clients resulting from quality flaws. Conflicting interests between SMEs and crowdsourcers contribute to this risk, as SMEs seek high-quality solutions at low prices, while crowdsourcers prioritize quick completion with minimal effort. This misalignment often leads to lower-than-expected quality. The credibility of qualifications and experiences presented by crowdworkers on online platforms is also lower compared to traditional job applications, creating uncertainty that requires intensive

internal evaluation. However, the crowd's involvement in multiple projects and organizations makes it difficult for them to familiarize themselves with different internal processes and quality expectations. Moreover, important quality and project management sessions, like kick-off meetings, cannot be effectively implemented when tasks are outsourced to the crowd.

The second barrier identified to implementing crowdworking in SMEs includes the reluctance of both management and employees. Management's traditional and conservative mindsets, coupled with a distrust of digital technologies, hinder their interest in innovation and their engagement with digital initiatives. This reluctance results in a resistance to adopting crowdworking, as managers prefer hiring permanent employees and face challenges in coordinating and assigning tasks to crowdworkers. Other contributing factors include a lack of awareness, fear of changing business models, trust and confidentiality concerns, and the absence of suitable platforms. Negative incidents and aversion to external ideas further impede the adoption of crowdworking. To address these barriers, strategies are needed to make on-demand workforces more attractive while addressing managers' concerns about losing SME identity.

Employees also exhibit reluctance toward crowdworking due to their contradiction with the close personal relationships and intra-organizational bonds that are integral to SMEs' company culture. The introduction of flexible working arrangements raises fears of job loss and a negative impact on the working atmosphere among permanent staff. Increased competition and pressure between permanent employees and crowdworkers can lead to conflicts and a sense of devaluation. In family-owned SMEs, where social relationships between owners and employees are crucial, there is an additional reluctance stemming from concerns about compromising core values and social ties when tasks are delegated to the crowd.

The third barrier identified to applying crowdworking in SMEs is the increased risk of losing sensitive information. SMEs often protect their secrets and sensitive information through patents, trade secrets, and copyrights. These intellectual property rights are crucial for the value creation of SMEs, especially when they rely on a single patented product that drives their success. SMEs fear that crowdworking may result in the theft or takeover of important information. Unlike larger organizations that have more diversification, SMEs face the risk of bankruptcy if a patent or product idea leaves their organization. Additionally, the weak data protection practices in the platform's country of origin raise concerns among interviewees regarding the transfer of data and the location of servers.

### **4 DEVELOPING A REFERENCE PROCESS MODEL**

To enhance the appeal of crowdworking for SMEs, a theoretical model was established, which was further developed iteratively to a reference process model.

The validity of the model was ensured by conducting tests with three SMEs and making necessary adaptations. Following the completion of organizational testing, minor adjustments were made to strike a balance between generality and specificity.

#### **4.1 Iterative development of the process model**

The purpose of the conducted interviews was to examine the relevant measures and framework conditions for crowdworking in companies/SMEs, ensuring the fulfillment of customer requirements.

The results from this formed the foundation for a basic theoretical Business Process Model (BPM). The objective was to identify the framework conditions in companies/SMEs that hold significance for crowdworking, the quality management measures, methods, and techniques presently employed for quality planning, assurance, and error management, as well as the existing shortcomings and areas of improvement concerning crowdworking from the perspective of companies/SMEs.

In another step, the basic BPM again was used to include three crowdworking tasks in industrial companies, two of which were in SMEs. Two tasks were processed as external crowdworking and one task as internal crowdworking. The extent to which communication between crowdworkers and SMEs took place or was required when processing the task, how the actual processing takes place, and what measures and processes (should) take place to assess the work performed were investigated. It was also examined how the adoption of the results or their use in the SMEs could be ensured. Patterns and typical procedures in the process flow of the various crowdworking tasks were identified and the reference processes adapted accordingly.

Finally the BPM was validated with the participating SMEs and developed into a modular reference process model. The changes identified in this way were adapted into the reference process model

#### 4.2 Modular reference process model

In the following, the most important process steps of a crowdworking process are explained and excerpts from the process model are shown.

##### Change Management

As crowdworking is a new form of work, the introduction of crowdworking requires extensive training at staff and management level. In these trainings, the opportunities and risks as well as the implementation for each application (internal/external/hybrid) should be transparently presented and illustrated. If staff or management express fears, coaching or counselling can be provided. Another important aspect for the successful implementation of a project is the appointment of a crowdworking manager who coordinates, monitors, documents and optimizes the process. The requirements and areas of responsibility should be set out in a profile and communicated. [Fig. 1]

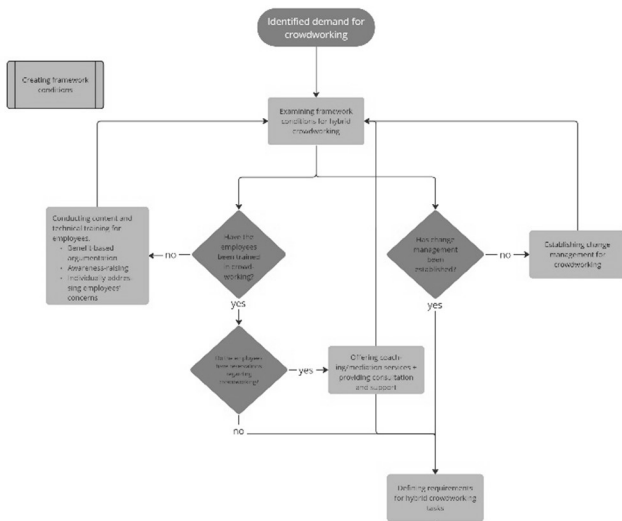


Figure 1: Creating framework mechanisms

##### Defining process modalities

Defining process modalities should be coordinated by a task manager and constitutes quality planning within the framework of quality management. For external crowdworkers, it is first necessary to conclude a crowdworking contract. For all types of crowdworking, further details of the task should then be communicated to the crowdworker and the crowdworker's understanding should be checked. This step should be carefully repeated until the respective crowdworker signals their understanding. After that, interim results should be agreed with the respective crowdworker and regular appointments for consultation should be set. [Fig. 2]

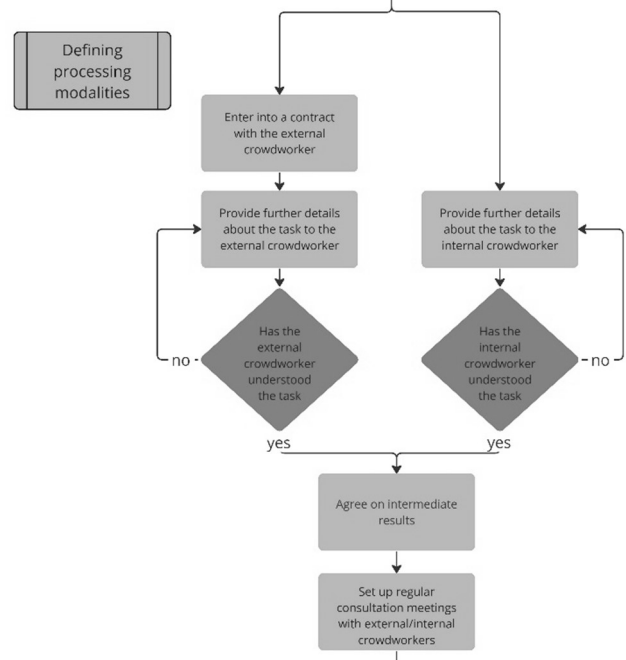


Figure 2: Defining process modalities

#### 5 RECOMMENDATIONS FOR ACTION

Based on the previous chapters, recommendations for action are summed up in the following to enable successful implementation of the crowdworking process. The recommendations are also intended to ensure qualitatively satisfactory project results for external, internal and hybrid crowdworking.

To successfully implement crowdworking, effective change management is crucial. It is important to involve employees in the introduction of crowdworking, particularly through open communication about its implementation and providing training on crowdworking introduction and project execution. Clearly defining responsibilities and conducting pilot projects or trial phases for crowdworking are also essential. Quality management findings from surveys suggest the need to identify requirements for potential crowdworkers, establish acceptance criteria and project milestones, conduct project risk analysis, and ensure a continuous improvement process (CIP). These measures can help overcome any reluctance from management and employees.

Since crowdworking represents a new approach to dividing and managing work, affecting process organization and personal work behavior, training becomes necessary. Training should cover the advantages and disadvantages of crowdworking processes and foster an understanding of the

potential benefits. In cases of ongoing employee reluctance, coaching or counseling sessions can be offered.

When implementing crowdworking, it is important to ensure that the coordination effort is lower compared to in-house implementation [13]. This effort includes clearly defining the task, selecting a suitable crowdworking platform, uploading the task description, and choosing a candidate from the applicants [14].

## 6 CONCLUSIONS

In the context of digitization, SMEs not only face technological challenges but also encounter new forms of work due to changes in work and process structures. One of these new digital forms of work is crowdworking. Crowdworking refers to the paid processing of outsourced tasks via a crowdworking platform and can be utilized in three different use cases. Internal crowdworking involves outsourcing tasks to individual employees, departments, or the entire workforce within the company. This approach offers potential synergy effects, enhancing productivity, effectiveness, and employee satisfaction. External crowdworking, on the other hand, outsources tasks to a crowd outside the company, allowing for agile responses to employee bottlenecks or workloads. It also presents opportunities for reducing time and costs. Hybrid crowdworking involves processing the outsourced task simultaneously by both external and internal crowdworkers. This approach leverages the advantages of both external and internal crowdworking, increasing the likelihood of success. Despite the recognized potentials of crowdworking, companies often proceed with caution due to implementation, execution, and quality control challenges.

Through the dissemination of the developed model, data on the implementation of internal and hybrid projects could be collected and evaluated in the future. The question arises whether similar discrepancies between usage, awareness and suitability occur as with other crowdworking models. In addition, it would be interesting to investigate whether new potential for improvement can be discovered through the use of the hybrid and internal crowd model.

- Strengths of the study: first that provides a process model focusing on SMEs and their challenges, testing of the process after developing it
- Limitations: process tested only with three SMEs, but for future research we are planning to completing more tests in SMEs to further increase the validity of our process

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