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# Governing the Crowd: Developing Reference Process Modules for the Governance of the Crowd on Online Labour Platforms

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## Abstract

**Crowdwork is becoming more and more popular. Crowdwork refers to outsourcing paid tasks by a company or an individual to a mass of unknown individuals (crowdworker) via crowdworking platforms, which are also known as Online Labour Platforms. Because of an inherent anonymity in crowdworking, each crowdworking platform makes use of individual governance mechanisms to ensure that crowdworkers and companies act in a desirable way. However, the problem with these mechanisms is that they are especially designed for certain platforms. Therefore, these mechanisms cannot be adapted and used by other platforms. In this paper we empirically identify the specific mechanisms that are used by different platform provider. We then cluster these insights into general reference process modules. The resulting reference process modules serve crowdworking platform providers as a blueprint for effectively govern and control the crowd along the whole crowdworking process.**

*Keywords: Crowdwork, Governance mechanisms, Online labor platform, Reference process modul.*

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## 1. Introduction

During the last few years, crowdwork has emerged as a new form of digital work. The concept of crowdwork includes three stakeholders: crowdsourcers, crowdworkers, and crowdworking platform providers. Crowdsourcers define tasks and make an open call via a crowdworking platform. Crowdworkers accept these tasks in return for payment (Durward et al. 2016a). The platform provider matches crowdsourcer(s) and crowdworker(s); they also undertake the payment process (Blohm et al. 2018). To ensure long-term success in their

business model, these online labor platforms have to effectively govern all stakeholders so that they act in a desirable way (Möhlmann et al. 2021). For doing so, the platform provider use different governance mechanisms (Möhlmann et al. 2021).

Governance mechanisms for different scenarios and platforms have been widely studied in information systems (IS) research (Saunders et al., 2020). However, mechanisms applied by crowdworking platform providers are not covered yet. In practice, each crowdworking platform uses its own, specific governance mechanisms. Until now, there is no general approach that would allow platform providers to govern the crowd according to a standardized procedure. However, the problem with these individual solutions is that they are especially designed for certain platforms and specific purposes. Therefore, the mechanisms in use cannot be easily adapted and used by platforms that seek to start governance strategies.

Against this background, in this paper we empirically identify the specific mechanisms that are used by different platform provider. We then cluster these insights into general reference process modules. The resulting reference process modules serve crowdworking platform providers as a blueprint for effectively govern and control their crowd along the whole crowdworking process.

## 2. Theoretical Foundation

### 2.1 Crowdwork

Crowdsourcing is a form of digital employment and is composed of combining “*crowd*” and “*outsourcing*” (Jeff Howe, 2006). One subcategory of crowdsourcing is crowdwork. Whereas individuals joining *crowdsourcing* campaigns are motivated intrinsically, *crowdworkers* are only incentivized extrinsically by monetary inducements (Durward et al. 2016a). Crowdwork is divided into simple, repetitive *micro tasks* that do not require certain skills and *macro tasks* that are complex and necessitate knowledge (Durward et al. 2016b). Based on an open call on online labor platforms, organizations, or individuals announce tasks that they want to hand out to an anonymous crowd (Blohm et al. 2013). Even though crowdwork involves performing tasks against payment, the relationship between crowdsourcers and crowdworkers differs from a traditional worker employee setting. The relationship can be described as an ad hoc work constellation (Durward et al. 2016a). This insecure composition bears the risk of information asymmetry between crowdsourcer(s) and crowdworker(s).

### 2.2 The Process Model of a Crowdwork Campaign

We take a five-phase crowdworking campaign identified by literature (Durward et al. 2016a) as a basis for our analysis. We go through the different steps and categorize our results accordingly to develop governance mechanisms that crowdworking platforms currently apply. In the first phase, the *initiation phase*, the crowdsourcer defines a task, precisely describes it, decides on a crowdworking platform, and prepares an open call. In the second phase (*bidding phase*), platforms either ask crowdworkers to create proposals for completing the uploaded task (macrotasks), or crowdworkers pick a task and complete it (microtasking) (Durward et al. 2016a). In case of macrotasks, crowdsourcers decide for one applicant based on his/her profile and the created proposal (*decision phase*). In the fourth phase, the *execution phase*, tasks are

allocated and completed by a crowdworker. After results are submitted satisfactorily, the *evaluation and payment processing phase* commence. Crowdsourcers evaluate the crowdworker's performance and crowdworkers receive their payment.

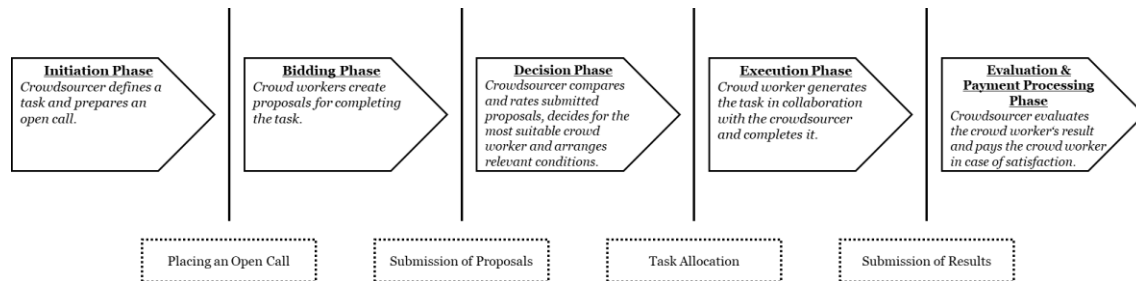


Figure 1. Five-phase Process Model of a Crowdfork Campaign, inspired by Durward et al. 2016a

### 3. Research Design

To develop the reference process modules we applied a two-step research approach. First, by applying an exploratory qualitative study approach we identified the single governance and control mechanism that are applied by crowdworking platforms (Kirsch 2004; Steinfield et al. 2011; Hollweck 2016). For doing so, we conducted expert interviews with managers from four different crowdworking platform providers. Consistent with our research approach, and in accordance with Carroll (2000), we applied a five-stage process to analyse the empirical data. In the first stage, we break down the interview transcripts that we gained from the collected data. We then subsequently assign each unit with specific codes. In the second stage, we analyze the coded units, identify categories of related issues, and subsequently sort and cluster them accordingly (e.g., code aggregation). In the third stage, we test whether these categories are inter-subjectively resistant by creating a coding scheme where categories and exemplary indicators are defined (Carroll 2000). In the fourth stage, we intensively discuss the results from the previous step to either (1) build a consensus, (2) drop them from further analysis, or (3) create a further category. During the axial coding process (fifth stage), we aim at finding plausible relationships between all identified mechanisms, thereby organizing the theoretical components into higher-level (or core) categories (Olsson et al. 2008). The initially identified lower-level categories represent the mechanisms subsumed under higher-level core categories, illustrating a specific group of mechanisms. The results of this analysis are presented in chapter No. 4.

Second, to develop reference process modules, relevant measures and procedures for crowdworking in companies were derived from the interviews to ensure that customer requirements are met. These results formed a foundational theoretical Business Process Model (BPM) aimed to characterize the current landscape of quality management measures, methods, and techniques utilized for crowdworking. Additionally, it sought to identify existing shortcomings and areas for improvement from the perspective of crowdsourcers.

In another step, the basic BPM again was used to identify preparation, matching, quality assurance and regulation mechanisms in the crowdsourcer’s quality management. The preparation before It was examined to what extent the crowdworking tasks were specified, what results were expected and whether quality characteristics and a time breakdown of the task were carried out. The question of responsibilities for specifying the question was also examined. Furthermore, the procedure for selecting the crowdworker by the crowdsourcer was examined. An important aspect was how the crowdsourcer checked the task against the previously defined quality criteria. Finally, the procedure of concluding the contract with the crowdworker was examined in more detail.

The results were validated with the participating crowdworkers and developed into reference process modules. The reference process modules are presented in chapter No. 5.

**4. Single Governance and Controlling Mechanisms: Findings from the Interviews**

In line with Gregory et al. (2018) and Xue et al. (2008), we define governance mechanisms as structural and processual. Whenever mechanisms are implemented before tasks are processed by crowdworkers, we define them as coordination mechanisms; whenever mechanisms are implemented during/ after tasks are completed, we determine them as control mechanisms. In the following, we investigate and list the identified mechanisms:

Type of Mechanism	Governance Mechanism
Preparation Mechanisms	Mentoring and supporting the task definition
Matching Mechanisms	Skill-based allocation mechanism, demographic-based allocation mechanism, experience-based allocation mechanism, the task allocation mechanism
Quality Assurance Mechanisms	Review loop between crowdsourcer and crowdworker, reputation systemsR

Regulation Mechanisms	Non-disclosure-agreements (NDAs), rulebooks including code of conduct, authentication functionalities
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Table 1: Overview of Identified Governance Mechanisms

#### 4.1 Preparation Mechanisms

One identified governance preparation mechanism can be labelled as “task definition mentoring”. The customer support of crowdworking platforms actively contacts new clients and assists them in how to frame an accurate task description (“Crowdworkers want clear and precise descriptions.” (CEO 1); “Our customers [crowdsourcers] have to unambiguously describe the tasks they want solutions for. [...] what they want, how they want it and in what level of detail.” (CEO 2)). The more precise and accurately the crowdsourcer defines a task with the help of task definition mentoring, the more likely it is that the task will be understood and interpreted correctly by crowdworkers. This leads to better results as misunderstandings are reduced (Jeppesen and Lakhani, 2010).

#### 4.2 Matching Mechanisms

As in any business relationship, a conflict of interest and the principal agent theorem also exists in the crowdworking construct. Crowdsourcers suffer from an information asymmetry, as they do not know crowdworkers’ competences and their way of working. This puts them in a disadvantaged position (Akerlof 1970). To minimize this information asymmetry, platform providers ask crowdworkers to complete exemplary tasks before their profile is activated. The performance in those “*pre-registration tasks*” is translated into a one-to-five-star assessment indicated on the platform after the crowdworker’s profile registration is completed. Another mechanism, the coordination mechanism “*skill-based allocation*”, allows to distribute tasks to specific crowdworkers that have the pre-defined skills, expertise or backgrounds. The job is displayed only to those that fulfil the requirements (“*If there is a crowdworker that has knowledge in a certain unusual type of sport and a crowdsourcer is looking for somebody who is writing content about this type of sport, the crowdsourcer has a great interest in choosing the expert.*“ (CEO 3)). Micro task crowdworking platforms establish a “*demographic-based allocation*” mechanism, a coordination mechanism that allows crowdsourcers to select crowdworkers based on demographic attributes (e.g., age, income, or gender). For microtasks and macrotasks, crowdsourcers can select an appropriate crowdworker employing the “*experience-based allocation*” mechanism. In that case, crowdsourcers select crowdworkers based on their experience in certain areas. Matching the most suited

crowdworker with the required skills, experiences, demographics, etc., increases the chance of high-quality solutions delivered by crowdworkers (CEOs 3, 4).

#### *4.3 Quality Assurance Mechanisms*

To ensure that crowdworkers deliver the solutions as specified in the task description, crowdsourcers are allowed to review solutions handed in by crowdworkers before a task is considered as completed. In case crowdsourcers ask for small changes that are part of the task description but not depicted in the solution, the task is given back to the crowdworker with detailed change requests (CEOs 3, 4). Only after the crowdsourcer is satisfied with the (re)submitted solution(s), crowdworkers receive their payment via the platform. To ensure that crowdworkers receive their payment, crowdsourcers can only hire crowdworkers if they have enough platform-specific currency on their account. This currency needs to be purchased by crowdsourcers before uploading and publishing a task. As soon as the task is uploaded, the platform subtracts the value of the task from the crowdsourcer's account. In case the task is completed successfully, the platform transfers the related amount to the crowdworker's account. Otherwise, the money is sent back to the crowdsourcer. In case there is a disagreement between the crowdworker and the crowdsourcer concerning tasks and/or payments, crowdworking platforms interact as an arbitrator. Allowing crowdsourcers to review solutions ensures that they only pay for results that they make use of and are satisfied with. At the same time, crowdworkers are incentivized to deliver high-quality solutions to ensure their payment. Good evaluations lead to better-remunerated jobs in the future. This reviewing mechanism decreases the principal-agent theorem and the moral hazard problem.

Creating transparency of remuneration mechanisms (e.g., an exact and clear definition of "*how much money is paid for which contribution*" (CEO 2)) plays a crucial role, since discriminating remuneration systems are discouraging for contributors. A further mechanism to govern a crowd applied by platforms is "*reputation systems*". They serve as an inducement by supporting crowdworkers' wishes to demonstrate and signal their competencies, experiences, activities, or merits. A popular example is a one-to-five-star ranking created by previous clients who evaluate crowdworkers. Evaluation criteria are defined by the platforms. These are, inter alia, language skills, specific know-how and communication during the handling time. The results of the scores for each crowdworker are displayed on the crowdworking platform and indicate the crowdworker's competencies, experiences, activities, or merits to possible contracting authorities.

#### *4.4 Regulation Mechanisms*

The most prevalent governance regulation mechanism applied by crowdworking platforms that we identified is the establishment of "*nondisclosure agreements*" (NDAs). All interviewed crowdworking platforms draft NDAs with involved parties to guarantee confidentiality. To ensure that the platform's code of conduct is complied with, intermediaries publish their guidelines in netiquettes ("*We do not accept crowdsourcers on our platform that*

*are offering or looking for ethically questionable services”* (CEO 4)). Before crowdsourcers or crowdworkers can create a profile on the crowdworking platform, they need to agree to the platform’s terms and conditions. Two of the four interviewed experts highlight this governance mechanism as the most important one for steering crowdsourcers, as it presents “*a guarantee that crowdsourcers do know and follow our rules and expectations.*” (CEO 3). A further identified governance mechanism is “*authentication functionalities*”. This mechanism is for ensuring a crowdworker’s originality. Before a crowdworker’s profile goes online, platforms ask new members to authenticate themselves. One example of member authentication is employed by asking them to provide a photograph of their upper body and a specific item (e.g., a letter on which they write a given message) (CEOs 2, 3, 4).

## **5. Moderating Crowdwork: Reference Process Modules for Crowdsourcers**

In order to companion the governance mechanisms in the crowdsourcer’s quality management, reference process modules were created.

The validity of the modules was ensured by conducting tests with three SMEs and making the necessary adjustments. After the organizational tests were completed, minor adjustments were made to achieve a balance between generality and specificity. The process modules for the quality management of a crowdworking process that companion the four governance mechanisms are shown and explained below.

### *5.1 Assignment of tasks and responsibilities*

To meet the Crowdworking platform’s “task definition mentoring” the crowdsourcer must first found and define a task suitable for Crowdworking. Responsibilities must also be clarified. As can be seen in Table 2, the task to be solved or the problem at hand is classified as not suitable for external assignment and the process ends at this point. If the check is positive, the next step can be carried out. This consists of a clear assignment of tasks and clear information about responsibilities before, during and after the project. Once this has been done, the result to be achieved must be discussed and defined internally. At the same time, the problem to be solved or the goal to be achieved must also be clearly formulated.



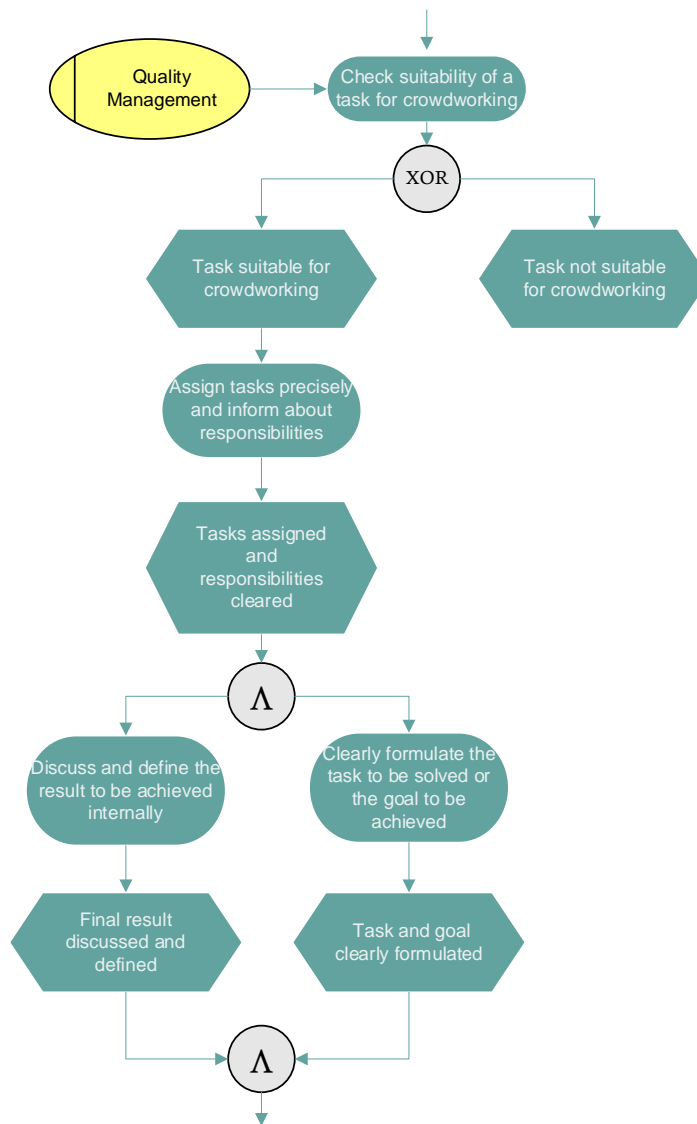


Table 2: Module “Assignment of tasks and responsibilities”

### 5.2 Select Crowdworker

As outlined in Table 3, after task assignment, the initiation of the open call transpires through the crowdworking platform. Incoming requests from crowdworkers commence, triggering the initiation of the crowdworker selection process. Various methods, such as assessing past employer evaluations, certifications, proof of performance, work samples, reports of previous activities, utilizing the platform's pre-filtered suggestions through "matching," or conducting aptitude tests, can be employed for this purpose. Subsequently, the legal requirements of the crowdworker's location must be scrutinized; if compliant, a suitable crowdworker is identified. If not, the selection process iterates. Simultaneously, during the

crowdworker selection, an internal evaluation tool can be instituted to expedite subsequent crowdworking projects. This tool is continually enriched with specifications, empirical values, and relevant data, as depicted in Table 3. Upon identifying a fitting crowdworker, an internal contact person, designated as the "crowd expert," is appointed for the ensuing stages. If no crowdworker is found, the process repeats.

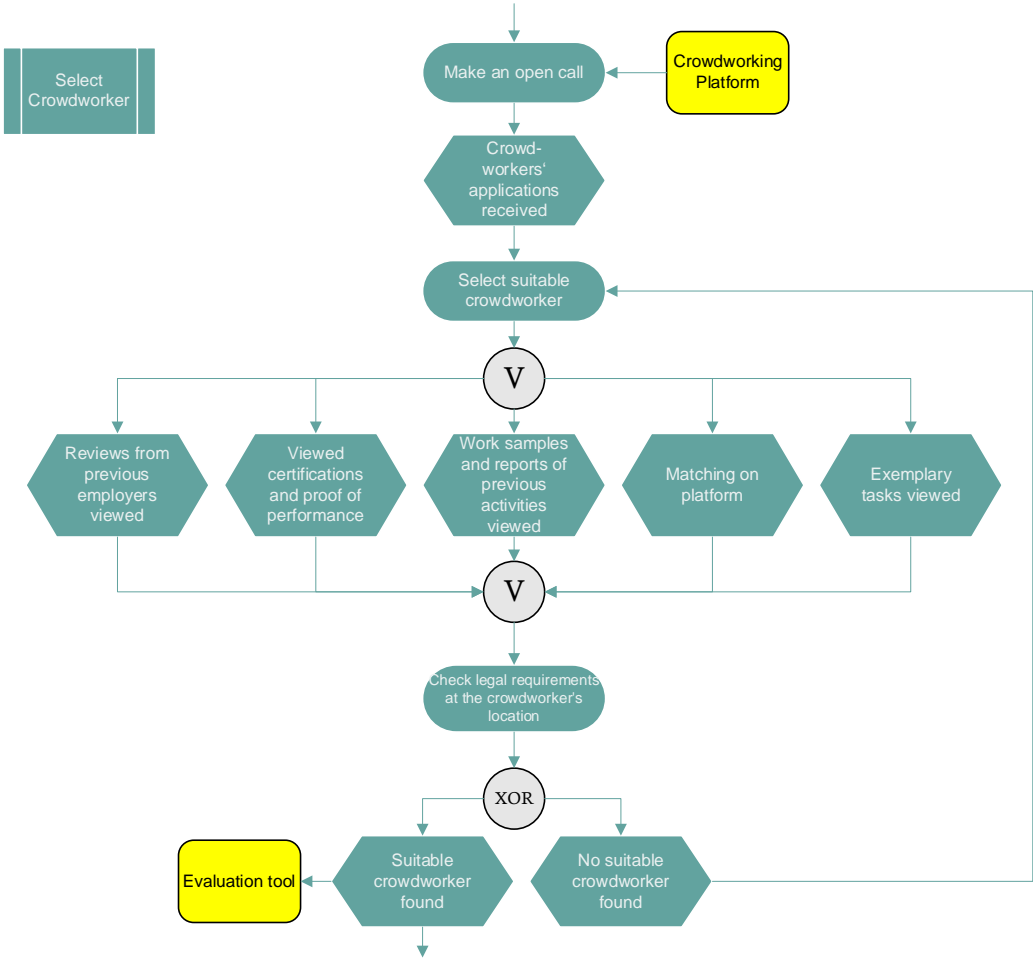


Table 3: Module “Select Crowdworker”

5.3 Accepting Solution

Once a solution is submitted, the crowd expert can review the platform's assessment of the solution. Subsequently, the internal company quality control is conducted by the Quality Management (QM) team, utilizing predefined acceptance criteria documented in the test plan. The Failure Mode and Effect Analysis (FMEA) method is employed for continuous improvement. If the results' quality does not meet the specified requirements, consultation with the crowdworker is necessary, and the submission period may be extended. If a solution cannot be found with the current crowdworker, the process of selecting another suitable

crowdworker must restart. Even if the results meet the quality standards accepted by QM, any weaknesses identified during the process are pinpointed and addressed for improvement in future projects through QM measures. This is elucidated in Table 4.

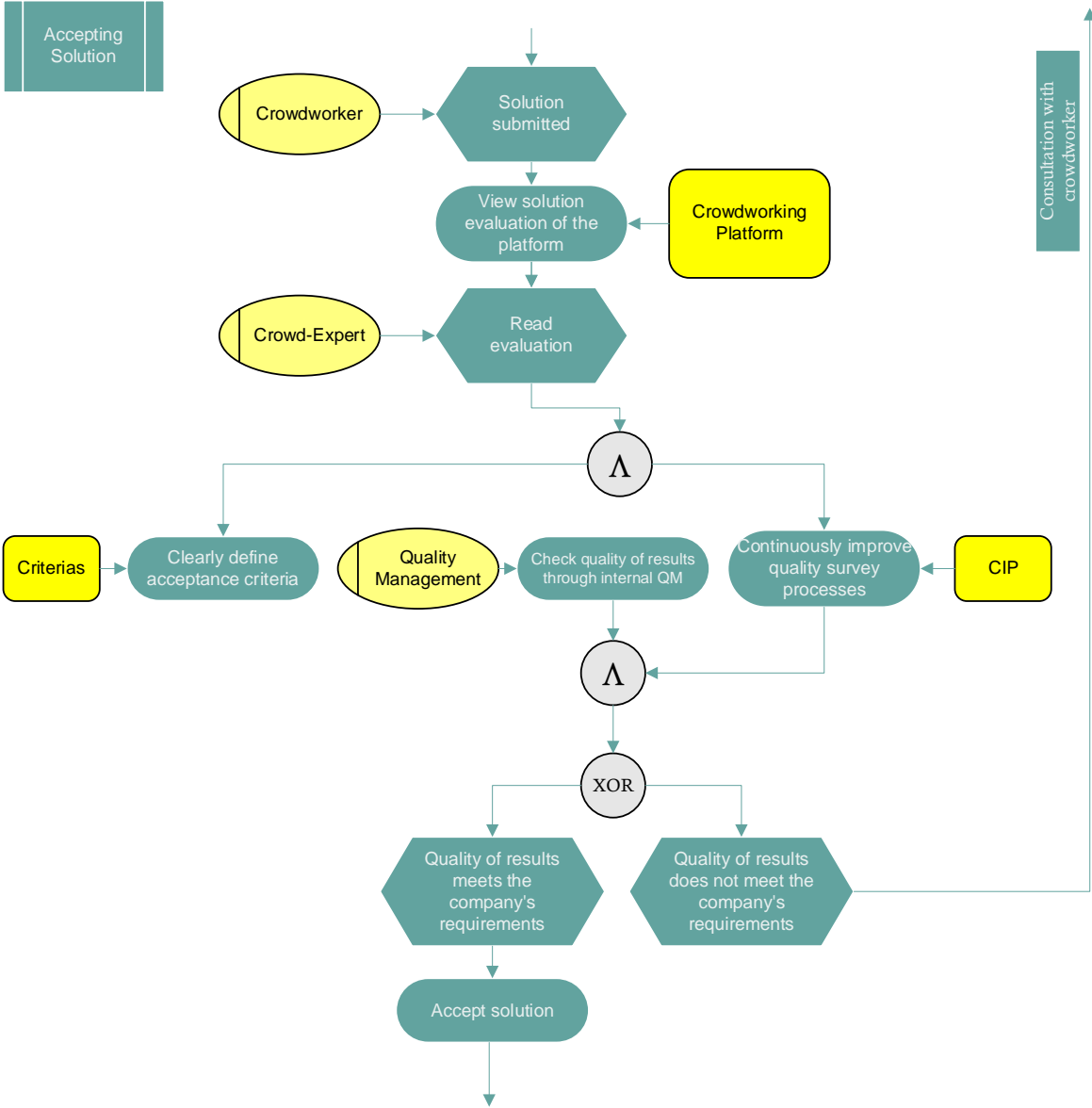


Table 4: Module "Accepting Solution"

5.4 Enter into a contract with a crowdworker

To formalize the agreement with the crowdworker, it is imperative to seek legal counsel from the company and, in collaboration with the crowdworker, deliberate and contractually document pertinent aspects such as liability, copyright, data protection regulations, general

terms and conditions, and nondisclosure agreements, as illustrated in Table 5. Once the contract is finalized, the actual project implementation can commence.

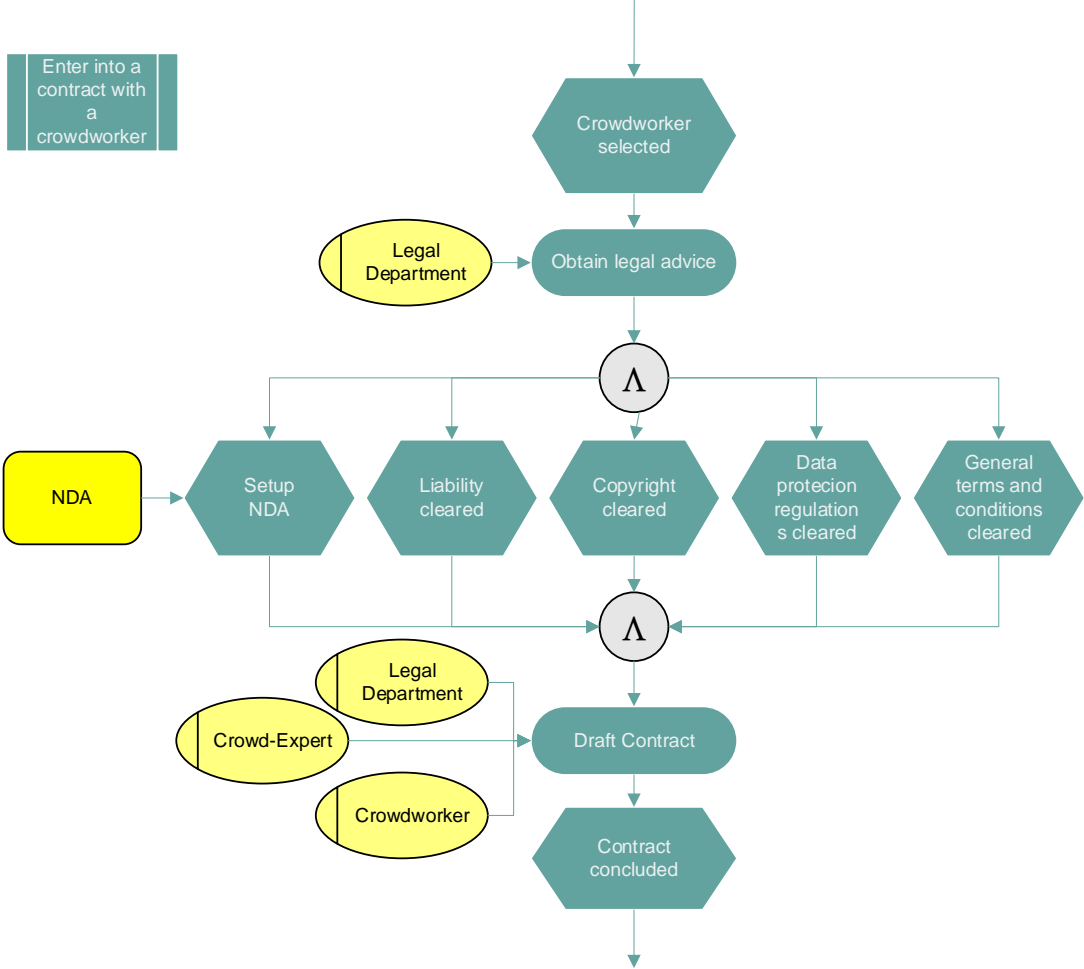


Table 5: Module “Enter into a contract with a coworker”

**6. Conclusion**

In this research we developed reference process modules for crowdworking. Our findings provide clear managerial implications and theoretical contribution. As it concerns the managerial implication, managers of already established crowdworking platforms can benchmark their individual governance and controlling mechanisms in use with our reference process modules in order to gain insights on how to improve their mechanisms. Platforms, that does not yet use any mechanisms and currently seeking to start governance strategies, can use our reference process modules as a blueprint for designing own solutions that help to effectively govern and control the crowd along the whole crowdworking process. Against this background, our reference process modules help to make crowdworking more manageable, more

controllable, and thus more successful.

We contribute to theory by answering ongoing calls for research in the area of crowd governance. As outlined by Pedersen et al. (2013) and Robert (2019), investigating this phenomenon is currently neglected, however, is highly important since systematic governance and controlling mechanisms of involved stakeholders are key for a successful crowdwork campaign (Deng et al., 2016). Our research is the first contributing to this research field and therefore significantly expands the current body of knowledge.

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