

# Digitization-Oriented Business Ethics Judgement Knowledge Structure and Application

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**Abstract.** The massive data formed in the process of corporate ethics management poses a challenge for the high-efficient and accurate business ethics judgement. Therefore, this paper establishes a Digitization-Oriented Business Ethics Judgement Knowledge Structure (DOBEJKS), defines its elements including entities, activities, information and relationships, and designs an application methodology of using the DOBEJKS to make business ethics knowledge extraction, knowledge reasoning and knowledge judgement. It provides a reference for effectively carrying out the intelligent judgement of business ethics based on data.

**Keywords:** Knowledge Structure, Business Ethics Judgement Application, DOBEJKS

## 1. INTRODUCTION

As one of the key parts of corporate value, business ethics[1] are more and more important to a corporation. How to judge the ethics for corporations is well worth researching. Nevertheless, the judgement of whether a corporation is ethical or not is quite complicated work, which traditionally needs searching and analyzing huge amounts of data and making a right judgement to each corporate event.

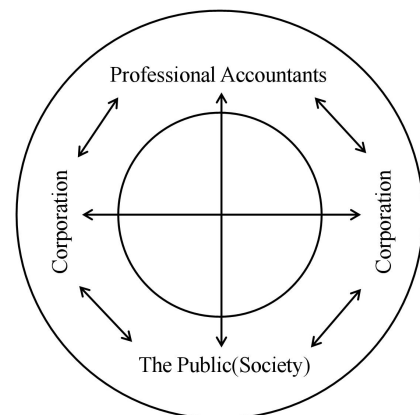
Nowadays, knowledge creation and related digital intelligent methods are used increasingly in social, technical and many other areas[2]. Thus, far more than the traditional thinking, as a good helper, modern digital intelligent method can be also very useful and helpful to judge the ethics of corporations for it makes intricate business problems solved much easier. But according to the past evidence, understanding the business ethics depends on corporate ethical matters and factors in all spheres of the working environment. However, the environment is so complicated that effectively recognizing the ethical behaviors can not rely on a single knowledge point or one simple signal, even a set of actions. The content underlying the business ethics is actually comprehensive knowledge, which contains ethical elements widely and profoundly. In the background of digitization, how to identify the ethical status of corporations digitally demands a more efficient,

accurate and sufficiently reflective mechanism. This situation results in the need of a new business ethics knowledge structure suitable for modern digital intelligent technology. Therefore, a Digitization-Oriented Business Ethics Judgement Knowledge Structure (DOBEJKS) is established in the background of digitization to meet the requirement of the application of digital intelligent technology.

## 2. ESTABLISHMENT OF DOBEJKS

In order to use digital intelligent technology to tell whether the corporation operates ethically, the events and related elements of business ethics should be represented as a knowledge structure system, that is, DOBEJKS.

This business ethics knowledge structure system contains all the related business ethics judgement elements including entities, activities, information and their relationships. So it is necessary to divide the DOBEJKS consisting elements into 4 parts — Entities, Activities, Information and Relationships, as shown in Fig. 1.



↔ activities, information and relationships

**Fig.1** DOBEJKS Consisting Elements

### 2.1. DOBEJKS Entities

In the DOBEJKS, there are three entities of the Knowledge of Business Ethics, which are corporations, professional accountants and the public (society). Here, the definitions of the entities are given as follows.

- Definition of Corporations: Business units which are engaged in the business activities, operate to get profit, make reports to shareholders and the public, set ethical policies and culture, identify ethical strategies and goals, and nominate professional accountants as well.
- Definition of Professional accountants: Serving units which deal with corporate financial data independently, increase the credibility of the financial statements, and fulfill the fiduciary responsibility to the corporations and the public(society).
- Definition of the Public(Society): Inspection units which include all the social representatives called stakeholders, who have certain interests in the corporate activities and professional accounting behaviour, and/or have impacts of the corporation[3]. They are shareholders, employees, customers, suppliers, governments, creditors and so on, even media.

The definitions above mean that judgement of the ethicality[3] of a corporation depends on the activities between the two business units which are engaged in the same business event, between the business unit and the serving unit supplying service for the former, and between the business unit and the broad social inspection units.

## 2.2. DOBEJKS Activities

These above three entities have their own activities, on which the symbol of ethicality is labeled digitally. Thus, in the DOBEJKS, standards of ethical activity are identified and shown as the following :

- Standard 1: If the corporate activity is labeled as “ethical”, it should be accepted by the other business entities of the activity.
- Standard 2: If the corporate activity is labeled as “ethical”, it should be acknowledged by the serving units supplying the professional qualified service to the corporation.
- Standard 3: If the corporate activity is labeled as “ethical”, it should make the inspection units comfortable so that they do not raise any objections.
- Standard 4: additionally, if the corporate activity is labeled as “ethical”, the business work given by the corporation to an serving unit is acceptable to all the other entities.
- Standard 5: Others are labeled as “unethical”.

These standards characterizes that corporations set up the corporate ethical environment for professional accountants and operate under the corporate stakeholders’ impacts; professional accountants implement audit and other accounting activities for corporations, meanwhile, offer public services to meet the requirement of stakeholders; stakeholders influence the corporations through their behaviour in the short and long run. Thus, business ethics of corporations exist in all the activities.

## 2.3. DOBEJKS Information

All these above activities release the information of corporate ethicality for judgement with digital intelligence. In the digitization-oriented background, to judge certain corporation is ethical or not is to use the information flow among the entities and their activities of the structure, so as to determine the corporate ethical situation. The information is produced from activities, and flows from one entity to another.

However, not all the information is useful to digital intelligent scheme. So, in the DOBEJKS, principles of information identification are as follows:

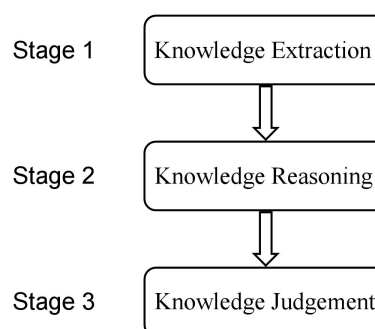
- Principle1: The information about if the activities of the business unit are right or wrong is considered by the DOBEJKS.
- Principle2: The information about if the activities related to the business unit are right or wrong is considered by the DOBEJKS.
- Principle3: The information about other activities unrelated to the business unit is not considered by the DOBEJKS.

## 2.4. DOBEJKS Relationships

In addition to entities, labeled activities and selected information, DOBEJKS also contains description of relationship between two elements. In the knowledge of business ethics, business units set up the relationship through business events, the business unit and the serving unit set up the relationship through professional service, certain business unit and the inspection units set up the relationship through events of public interests.

## 3. DOBEJKS APPLICATION METHODOLOGY

In order to suit for implementation of digital intelligent technology, the application methodology of DOBEJKS consists of 3 stages.



**Fig.2** Three Stages of the DOBEJKS Application Methodology

As illustrated in Fig. 2, the application of DOBEJKS begins with the stage of Knowledge of Extraction[4]. And then the DOBEJKS puts the extracted knowledge into the second stage of Knowledge Reasoning. At last, the result of judgement can be achieved from the final stage of Knowledge Judgement.

### 3.1. Stage1: DOBEJKS Knowledge Extraction

In this stage, if the ethics of certain corporate performance, some business event, or even the entity

itself need to be judged, the related knowledge will be extracted with digital intelligent technology at first, which is called Entity Extraction. After this, all the activities, information[5] and relationships about the extracted entity will be extracted, which are called Activity Extraction, Information Extraction, and Relationships Extraction respectively. All of the knowledge extractions have prepared materials for the next stage.

### 3.2. Stage2: DOBEJKS Knowledge Reasoning

As soon as the digital intelligent technology acquires the extracted knowledge, the reasoning work will be taken. The process of Knowledge Reasoning means that disposing the extracted knowledge with modern intelligent reasoning technology. In this stage, according to given ethical judgement task, digital intelligent technology finds the related extracted knowledge elements to set up ethical relation between them. Therefore, a reasonable connection between them is created. Trough this stage, a lot of connections of the extracted knowledge spots like this are established, and then make the description of the whole ethics status about the given ethical judgement task.

### 3.3. Stage3: DOBEJKS Knowledge Judgement

The stage of Knowledge Judgement is the final step for application of DOBEJKS. In this stage, digital intelligence must make a decision of whether the given entity is ethical or not in accordance to the reasoning of the extracted knowledge. Comparing the ethical situation about the given task, which are the ethics of a corporation, a business event, a performance and so on, with the business ethics features, the judgement decision can be made.

There are 3 principles for digital intelligent judgement about business ethics judgement, listed as follows:

- Principle 1: If all the extracted knowledge about the target of given task is labeled “ethical”, then the judgement decision is “ethical”.
- Principle 2: If there is no the extracted knowledge about the target of given task is labeled “unethical”, then the judgement decision is “ethical”.
- Principle 3: If there is some extracted knowledge about the target of given task is labeled “unethical”, then the judgement decision is “unethical”.

## 4. CONCLUSION

In the background of digitization, complicated business ethics judgement can be resolved by the use of modern digital intelligent technology. But how to use digital intelligent technology needs a suitable knowledge structure. This paper provides a Digitization-Oriented Business Ethics Judgement Knowledge Structure (DOBEJKS), so as to make the digital intelligent judgement feasible in practice. In this paper, the detailed

establishment procedure of DOBEJKS is explained, and an application methodology of DOBEJKS is stated in the end. The work of this paper can be the reference for the relative research of data-based corporate ethics intelligent judgement.

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