Chapter

Crowdsourcing Strategy of Information Society

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Abstract

In the modern information society, it has become possible to develop new business models that utilize ICT (information and communication technology) in various industrial fields, industries, and business sizes and types. Crowdsourcing is attracting attention as a new business model in this society. In crowdsourcing, business persons are using Internet websites (crowdsourcing platforms) to generate orders for new business activities, such as "order work to an individual" and "require job orders". In addition, through the utilization of crowdsourcing, the lifestyle of workers is also changing with the provision of new job opportunities. In other words, crowdsourcing offers a new working style to a wide range of people. Thus, the spread of crowdsourcing has created new options for how individuals work and live. In the modern information society, crowdsourcing is a new business model that links a business person (orderer) and a worker (contractor) through a website. In this paper, we outline this new business model for the information society, and discuss the current situation of crowdsourcing, which looks to further influence lifestyle changes in the future. We propose a new business model using ICT, and consider the current situation and potentialities of crowdsourcing, which has elements that may result in major changes in the nature of employment in the future.

Keywords: information society, crowdsourcing, matching business, strategic positioning

1. Introduction

In the modern information society, it has become possible to develop new business models that utilize ICT (information and communication technology) in various industrial fields, industries, and business sizes and types.

Business development using ICT involves more than the typical industries from the past. In the creation of new businesses, it can be applied to a wide range of fields including SMEs (small and medium enterprises) and VEs (venture enterprises) [1].

For example, in the manufacturing industry, an inventory management system is introduced to manage product inventory and determine optimal inventory numbers; while, in the distribution industry, a sales management system is introduced to receive orders and deliver products.

With the introduction of ICT into other fields, there is support for design and drafting by CAD (computer aided design). In addition, the introduction of CIM (computer integrated manufacturing) at production sites can manage the entire range of production activities. With the introduction of CALS (commerce at light speed) in the product life cycle, information, from product design and manufacture

to settlement, is shared between the customer side and sales side. Further, companies in the finance, education, and service industries, for example, are developing new businesses using cutting-edge ICT.

With the advent of the information society, crowdsourcing is attracting attention as one of the new business models that utilize ICT. Crowdsourcing uses a crowdsourcing platform, typically a web site on the Internet, to allow business persons to place orders for an unspecified number of individuals and recruit contractors. In this way, crowdsourcing is creating new forms of work ordering and employment.

In sum, in the modern information society, crowdsourcing is a new business model that links a business person (orderer) and a worker (contractor) through a website. In this paper, we will outline this new business model for the information society, and discuss the current state of crowdsourcing, which has elements that promise major changes in the nature of employment and lifestyle in the future.

2. Information society and crowdsourcing

2.1 What is crowdsourcing?

Crowdsourcing is a coined word meaning "outsourcing works to an unspecified person (Crowd)" [2]. As such, it is "a mechanism to access an unspecified number of individuals or companies via the Internet to procure the necessary human resources" (**Figure 1**) [3].

In other words, through crowdsourcing, business persons use ICT, and through crowdsourcing platforms (websites) of crowdsourcing site business person (orderer), to a large number of general unspecified people (worker, contractor) it is the business consignment (outsourcing) of procuring workers from the outside by conducting business orders of the company and recruiting of contractors in the business.

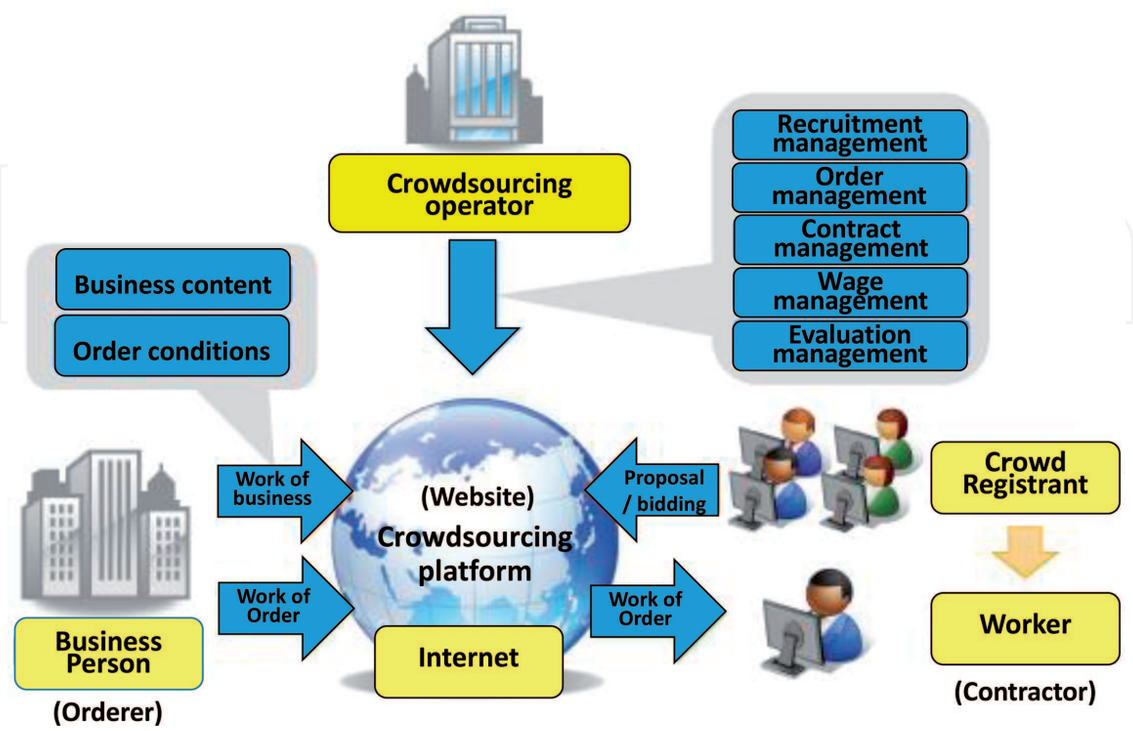

Figure 1.
Crowdsourcing participants and structures. Source: created by author from Ministry of Internal Affairs and Communications (MIAC) (2014), impact on society brought about by rapid evolution of ICT, "Information communication white paper 2014 edition", MIAC.

The respective crowdsourcing relationships between the business person (orderer) and worker (contractor), the crowdsourcing platform of the website (broker), and the flow of business orders, are as follows.

1. The business person uses crowdsourcing in operations where it is difficult for the company alone to respond to a given need, or in operations where external ordering is most efficient.

2. The workers cover a wide range, from individuals without special skills to specialists with well-defined expertise.

3. The business person inputs the work content and order acceptance conditions (work period, work time limit, remuneration, salary, fee, etc.) to the crowdsourcing platform of the website.

4. The worker confirms the work content in the crowdsourcing platform and applies for the specific work.

5. For each task, matching between the business operator and worker is performed, the worker is determined, and a business contract is concluded.

6. The worker is paid a fee after delivering deliverables to the business person.

In the crowdsourcing site business person, the crowdsourcing platform (website) carries out management operations such as defining work content and work location, recruitment management (such as compensation), ordering management, contract management, payment management, and performance and evaluation management.

Crowdsourcing contractors (workers) do not have to work at the business person's facility or at a location near the business person. In other words, workers can work anywhere with Internet access: urban areas, rural areas, sparsely populated areas, islands, overseas, etc. Workers can perform work anytime, anywhere, regardless of the business person's location.

In a 2014 survey involving Freelancers Union, a group for freelancers (workers) in the United States, and Elance-oDesk, a crowdsourcing company, the following elements were identified: "(1) independent contractor: work for a specific project or contract; those who hold a contract", "(2) moonlighter: those who hold a side job from late at night to early morning while holding a regular job", "(3) diversified worker: those who have multiple income sources", "(4) temporary worker: specified by non-regular employment; those who work with their employers", "(5) business owner: have five or fewer employees and work themselves as workers and businesses" [4–6].

The percentage of each element type was: (1) independent contractor (40%), (2) moonlighter (27%), (3) diversified worker (18%), (4) temporary worker (10%), (5) business owner (5%). There are many ratios of independent contractor and moonlighter.

2.2 Crowdsourcing and cloud computing

In recent years, one of the information system configurations that has attracted attention in organizations such as companies is cloud computing, which may on the surface appear similar to crowdsourcing, but is in fact fundamentally different'.

Crowdsourcing outsources work to unspecified people through the Internet; whereas, in cloud computing, computer resources such as software and data

related to computer management and use are employed as needed, by means of the Internet [7, 8].

Cloud computing can be roughly divided into (1) SaaS (Software as a Service), (2) PaaS (Platform as a Service), and (3) IaaS (Infrastructure as a Service), according to the types of functions and resources to be provided.

1. SaaS is an Internet-based service that enables remote control of application software having a specific function. SaaS services include online storage and office software that can be used with a web browser.

2. PaaS is a service that enables remote control of the software execution environment via the Internet. PaaS service allows a subscriber to remotely operate an environment in which an OS or middleware has been installed on a computer.

3. IaaS enables remote control of the virtualized computer itself via the Internet. In IaaS service, users prepare, install, and operate all software, such as the OS.

Thus, the "cloud" in cloud computing is a symbol representing a cloud on the other side of a network in a system configuration diagram; whereas, the "crowd" in crowdsourcing refers to an unspecified crowd of people meeting on the Internet platform. "Cloud sourcing", meanwhile, is a specific form of outsourcing in which companies, etc. outsource operations to external vendors and workers.

2.3 Business object of crowdsourcing

Through crowdsourcing, one can rapidly secure workers in-house, such as for software development, including "writing of text", "design of logo and illustration", "programming of the Web and application"; as well as pursue recruitment initiatives based on a specific plan. It is possible to procure and process workers from outside the company in a short time and at a low cost; workers, for example, with specialized skills that are difficult to perform, or a group of workers.

In addition, in crowdsourcing, operations are outsourced widely to professionals and non-professionals. Thus, crowdsourcing is more than the outsourcing of highly specialized tasks demanding specialized skills. Crowdsourcing covers a wide range of projects, including the outsourcing of simple tasks such as data entry and information gathering.

Among the typical crowdsourced task categories are: "Explanation", "Graphics", "DTP (Desk Top Publishing)", "Web Design/Coding", "Content Writing", "Editing of Video/Image", "CMS (Content Management System)", "Blog Homepage", "Application Development", "Web Skills", "Middleware", "Smart Phone Site Development", "Software Development Language", "Environment/Framework", "Data Base", "System Development Technique", "Source Code Management", "Incident Management", "Cloud OS (Operating System)", "Social Media", "3D (Three Dimensions) Technology", "Testing/Operation and Support", "Qualification Skills", "Language/Interpretation/Translation", and "Lawyers"; all of which typically involve specialized work or work requiring special skills.

In addition, among the categories requiring no experience in crowdsourcing, or involving comparatively simple work, are: "Writing (Catch Phrase/Copy Writing, Name Recruitment/Naming, Blog Writing, Review, Article/Content Creation, Document Creation, Editing/Proofreading, Sales Copy/Sales Letter, E-book Production, Mail Magazine Agent/DM (Direct Mail) Creation/Other Writing)", "Task/Work (Data Creation/Input, Question/Question/Testing Test, Internal

Job/Light Work, Various Agency/Call, Photo/Video, Data Classification/Categorization, Other Tasks/Work)", "Office Work/Business Support/Survey (Site Operation/Support, Business Support, Interview, Mystery Shopper, Masking Investigation, Inquiry Response, Email Correspondence, Telephone Support, Sorting of Documents, Business Card Arrangement, Bookkeeping Charges, Secretary Behalf, Easy Investigation, such as the work of other support)"; all of which are typically involved in various fields and industries.

2.4 Forms of employment in crowdsourcing

Thus far, in Japan, the main form of employment of human resources has involved a business entity, such as a company, which bears the primary burden of risk, and engages full-time employees through the conclusion of employment contracts between a business person (orderer/enterprise) and a worker (contractor/individual).

In the information society, however, a wide variety of temporary staffing agencies, worker dispatch companies, job placement agencies, business contractors, etc., have emerged, due to changes in the social environment surrounding businesses, changes in individual needs, and changes in personal lifestyles.

Traditionally, depending on the details of the employment contract between the employer and the worker, full-time employees, contract employees, temporary employees, part-time workers, and part-timers (for whom, in each case, the burden of risk in the employment contract rests on the company, intermediary, agent, etc.) are the typical worker profiles.

However, with the introduction of crowdsourcing, business activities are widely outsourced (ordering) to a large number of generally unspecified individuals. Crowdsourcing thus does not typically involve the execution of work after closing an employment contract between a business person and a worker; but rather the execution of work based on a business contract between a business person and the worker (the risk burden is on the individual).

One result is that, for the modern business person, how to effectively utilize the knowledge resources of specialists outside the organization (out-house group) has become one of the sources of competitiveness in business. Businesses must not depend on themselves alone in the creation of new products and services, using only their own resources and technologies (in-house group). Instead, they must establish core competencies in their areas of activity, and differentiate themselves from other companies.

2.5 Crowdsourcing and competitive advantage

Businesses use specialists and special skills contractors outside the organization, while also carrying out simple operations such as "work with no experience", "work with low expertise", "fine work that can be divided", etc.; thereby making effective use of external resources. In other words, it has become necessary for business persons to outsource their work "when it is necessary", "without direct work", and "with little effort", from their own organization.

Therefore, as a result of the arrival of today's information society, the practical use of ICT is a premise of successful business activity. Unlike in the past, it is often necessary for businesses to make effective use of resources outside the organization, not only in the case of large companies that utilize BPO (business process outsourcing) for most of their operations, but also for SMEs and VEs. To establish their competitive advantage, they must often use resources outside the organization as labor options, for tasks beyond their core competencies.

One of the success factors of modern business is how to make the best use of cheap external labor, and to establish a competitive advantage, each of which is facilitated by crowdsourcing.

In addition, using crowdsourcing, the business person obtains advance information on the prospective worker's quality of work, which is disclosed in advance, through the crowdsourcing platform, enabling him/her to order work after a full and detailed evaluation, including dialog if necessary.

3. Crowdsourcing classifications and functions

3.1 Classification of crowdsourcing

Crowdsourcing modalities can be classified in various ways, and as yet no clear delineation has been made. Thus, here, for practical purposes, they have been roughly classified, based on elements such as the work content and compensation assigned in placing an order, into three types: (1) platform, (2) reward, and (3) order [9].

Hereafter, we will discuss crowdsourcing in these terms.

Crowdsourcing organization in the US, crowdsorcing.org, from the work of crowdsourcing platform handling, (a) cloud labor: simple work requiring high-level skills, (b) crowd creativity: leverage creative talents around the world through the internet, (c) crowdfunding: raise funds for new projects and company establishment from a large number of unspecified people, (d) distributed knowledge: collect, build, and share knowledge assets and information, (e) open innovation: use ideas from individuals outside the organization, are classified into five [10].

3.1.1 Platform type

Platform type crowdsourcing is based on the specific forms of crowdsourcing platform that are provided for workers, and is also referred to as the business classification type of crowdsourcing. The platforms can be classified into three types: (a) integrated platform, (b) sector specific platform, and (c) research and development platform.

3.1.1.1 Integrated platform type

In information system development, crowdsourcing work may include things such as "basic design", "detailed design", "programming", "unit test", "connection test", and "system test". Other information system fields include "website creation", "Web design", "EC (Electronic Commerce) site and net shop construction", "application and smart phone development", "hardware design and development", and "project and maintenance, operation management".

In manufacturing, etc. crowdsourcing may for example include "design work", such as designs and patterns plans and layout creation. In addition, in business writing, etc. there is "copy writing" which aims at advertising copy that is easy and interesting for the user to read, and "Web writing", involving the generation of website text.

In the integrated platform type, there is a wide range of work, including "photograph and video shooting", "data input", "questionnaire", "interview and question", "answering machine", "various agents", "check and inspection, investigation", "office work and secretarial", "accounting and finance", and "human resources and payroll", etc.

As described above, in the integrated type, a business person and worker collaborate in the execution of various orders by handling a wide range of work types.

3.1.1.2 Sector specific platform type

In the fields of logos, banners, and illustrations, crowdsourced work may include "logo creation", "banner creation", "illustration creation", and "game illustration creation"; while other printed matter and DTP design fields include work such as "leaflet creation", "business card creation", "brochure creation", "poster creation", and "packing and package design".

The character, icon, and animation fields include work such as "recruitment of character design", "manga and animation production", "icon creation", and "goods production and novelty". In addition, the map, signboard, and infographic fields include work such as "map making and guide map creation", "signboard design", and "infographics". The POP (Point Of Purchase), menu, and seal fields include work such as "seal and label design" and "POP design".

In the sector specific type, there are operations that limit the types of jobs to specific and often specialized fields such as "binding, book design" and "design and production of CD (Compact Disc) and DVD (Digital Versatile Disc) jackets". As described above, the sector specific type is a system in which a business person and a worker receive and place orders of limited operations by handling specialized operations.

3.1.1.3 Research and development platform type

Business persons use crowdsourcing to address a wide range of issues around the world, in order to respond to their own management, and other, challenges. As a worker (specialist in research, engineering, etc.), it is possible to address various issues, regardless of the time or place.

In the research and development (R&D) platform type, when an enterprise does not have an R&D department, or wishes to accelerate R&D, the company can broadcast its technical issues worldwide and make a broad search outside its own technological and developmental capabilities. In R and D type work, not only researchers at universities and research institutes, but also general inventors and researchers at companies, make technical proposals for the tasks on offer.

The R&D platform type improves the speed of solving technical issues in the enterprise, and facilitates the technical proposals of researchers and engineers. As described above, the R&D platform type involves a business person and workers receive and submit a technical proposal by handling the work of problem solution and proposal.

3.1.2 Payment type

In payment type crowdsourcing, a worker receives compensation as an economic reward. The payment types can be classified into four groups: (a) gift payment, (b) point payment, (c) payment-agency payment, and (d) cash payment.

3.1.2.1 Gift payment

The gift payment worker receives a reward as an economic compensation, such as an Amazon gift or an iTunes gift. Amazon gifts can be used to purchase products that are handled by Amazon.com, Amazon.co.jp, Javari.jp, etc. ITunes gifts can also

be used to purchase songs, albums, playlists, audiobooks, music videos and movies in the iTunes Store and the App Store.

3.1.2.2 Point payment

Point payment workers receive, as economic compensation, rewards from various services at points such as PeX Japan (Japan's largest point exchange website), PointExchange Japan (Currently, RealPay), T-POINT Japan (Strategic Comprehensive Alliance, Yahoo! JAPAN, etc.), etc. The points can be used for electronic money, gifts, miles, goods, and various other point types.

3.1.2.3 Payment-agency payment

A payment-agency payment worker receives, as financial compensation, a reward through one of the world's leading payment-agency companies such as Paypal (Singapore), Alipay (China), Pay-easy (Japan), Linepay (Japan), Google pay (US), R pay (Japan), etc. A credit card is required to use the payment-agency method.

3.1.2.4 Cash payment

Cash payment workers receive compensation directly by bank transfer, with cash as financial compensation.

3.1.3 Order payment type

Order payment crowdsourcing is a distinct work order structure. The order types can be classified into four groups: (a) micro task payment (fixed salary), (b) contest competition payment (fixed salary), (c) project payment (fixed salary), and (d) project payment (hourly salary).

3.1.3.1 Micro task payment type (fixed salary)

Micro task payment crowdsourcing consigns small units of work at a low price, such as data entry by workers, or questionnaires, explanatory text creation, and list creation. In this order type, the work content is subdivided, and a supplier is determined for each sub-unit.

3.1.3.2 Contest competition payment (fixed salary)

Contest competition payment crowdsourcing recruits work in a competitive format, such as design, naming, or catch phrase creation, and chooses from among the best. In this order type, a large number of works, ideas, plans, etc., are collected, and the best are selected from among them.

3.1.3.3 Project payment (fixed salary)

In project payment crowdsourcing the supplier is selected in response to a proposal from a worker, for work such as application development or website creation. In this order type, information on the quality of the worker is obtained in advance, and the work is ordered based on judgments of skills, evaluations, comments, etc. In addition, business estimates are solicited and bid for (price, delivery and content, etc.), on the basis of which the supplier is determined.

3.1.3.4 Project payment (hourly salary)

In this order type, crowdsourcing provides time management software for the respective worker's PC, and pays rewards on a time conversion basis for work done. In this case, the worker is paid regardless of whether there are deliverables or not.

3.2 Crowdsourcing features

The relationship between a business person (orderer) and a worker (contractor) in crowdsourcing is typically restricted to exchange via a website (crowdsourcing platform) on the Internet. Crowdsourcing is not a business model that involves work requests to specific regions or individuals, because it is based on work orders for an unspecified number of people or a recruitment of contractors.

With the crowdsourcing system, workers can view and confirm the work content from the projects (work information) provided to the crowdsourcing platform, and then select the work of their choosing, performing it in their own chosen place and time, and with considerable latitude in terms of how much work they choose to do. Then, the worker obtains an "Amazon gift voucher", "iTunes gift", "PeX", "Point Exchange", "T-POINT", "cash", etc., as remuneration for the work.

The crowdsourcing platform (website) thus intervenes between the business person (orderer) and worker (contractor). The platform lists the information, work content, and working conditions, as defined by the business person, and provides them directly and widely to prospective workers.

In addition, the business evaluation of the workers related to the project is performed by the business operator who has placed an order and comments on the crowdsourcing platform. The worker's work history and work contents are screened.

Therefore, we see the emergence of a new kind of business model, wherein the business person can preliminarily evaluate a prospective worker's work quality, select the worker most suitable for the work content and cost, and efficiently place the work order.

Hitherto, in the relationship between a business person (orderer) and worker (contractor), it has been difficult to make such preliminary evaluations before outsourcing the task. However, with the use of crowdsourcing, information about the work quality of the prospective worker (crowdsourcing experienced) can be obtained in advance via the crowdsourcing platform.

The business person can thus place an order for a task, having determined the skills, evaluations, reviews, and the like, of the prospective worker, based on the prior information. Therefore, it is possible to reduce the risk of mismatching based on insufficient preliminary evaluation along conventional lines.

3.3 Typical features of crowdsourcing

The main functions of the crowdsourcing platform are: (1) contact and reporting, (2) business item matching, (3) contract progress and settlement management, (4) business follow-up, (5) business scouting, and (6) administrator management [11]. In each function, matching between a business person and a worker is performed before placing an order for work or recruiting a contractor.

3.3.1 Contact and reporting

In this function, the platform sends an email from the business person to a registered email address, regarding information such as business content and order

acceptance conditions. Also, in the text, information can be distributed quickly and efficiently using a fixed format.

3.3.2 Business item matching

This function allows the worker themself to search for work and apply directly for the desired work content. In addition, when the business person places an order for work, it is possible to quickly search for a worker who wants to receive a work order, and to order the work quickly and efficiently.

3.3.3 Contract progress and settlement management

This function performs progress management and settlement management of the project item after the contract has been concluded between a business person (orderer) and worker (contractor). In addition, the payment of compensation to workers can be managed quickly and efficiently through the intermediation of the crowdsourcing platform.

3.3.4 Business follow-up

This function allows the business person and worker to mutually confirm the work content ordered and the work evaluation. Also, both the business person and worker can quickly and efficiently confirm the necessary information.

3.3.5 Business scouting

This function allows the business person to approach the worker directly by referring to information such as the worker's public profile and task evaluation. In addition, the business person can rapidly and efficiently initiate operations by directly approaching workers.

3.3.6 Administrator management

This function can set a fee for prepayment or additional payment of compensation to the worker. In addition, the function enables stable cash management in terms of the constructed business model, including the management of stable funds on the part of both business person and worker.

Thus, once again, crowdsourcing using ICT enables a business model that achieves optimal and rapid matching between a business person (orderer) and worker (contractor), which has traditionally been difficult to achieve.

4. Current state of crowdsourcing

4.1 Features of crowdsourcing

By using crowdsourcing to carry out work, a business person can (1) assign tasks to workers in a timely and appropriate manner, (2) experts and special skills immediately it is possible to order work from the owned worker, (3) if necessary, secure a large number of workers inexpensively. In addition, crowdsourcing makes it possible to quickly and inexpensively evaluate the labor force outside the organization by judging its expertise and skills; and to easily utilize this labor force.

For example, in the case of ordering work by crowdsourcing, it is possible to match the business person (orderer) and worker (contractor) in a minimum of 15 minutes, in a timely and appropriate manner. Also, in terms of price, it is possible to place an order with a conventional business person at a cost of one tenth to one half. Furthermore, in the case of assigning work to specialists or highly skilled workers, it is possible to use split ordering, while checking the quality of workers online. Therefore, business persons can achieve significant cost reductions in their business operations [9].

Traditionally, business persons "outsource work", "adopt recruitment of mid-career labor", "search for work consignment workers", "conclude employment contract with workers", and "time spent on that", etc.; all of which typically involve significant costs before the start of operations. In addition, after contracting with the worker, the business person must factor in "expenses for time spent in fulfilling the contract (coordination costs)", as well as "expenses to ensure that the contracted worker properly executes the contract content (motivation costs)". However, crowdsourcing enables business persons to execute operations without these cost problems, and thereby enhance their competitive advantage.

At the same time, the worker can scrutinize the work information, such as "work place", "work content", "work amount", "work time", "work experience required", "special skills required", "remuneration", etc.; and can themselves control the amount of work directly. For example, full-time homemakers can pursue domestic work and hobbies of interest during intervals of daily work, such as housework, childcare and nursing care, while also receiving outsourced orders for tasks demanding their particular skills. Thus, various forms of crowdsourcing have been developed in response to the needs of both business persons (orderers) and workers (contractors); and currently, many companies provide crowdsourcing services throughout the world, including Japan.

In crowdsourcing, business persons provide business services such as:

a. "System development, design, writing, photograph and video photography, data entry, questionnaire, interview, answering machine, various agency, check, office work, secretary, etc.", which describe a wide range of operations without limiting the field;

b. "Brochure, catalog, flyer, poster, company information, business card, postcard, logo mark production, etc.";

c. "Announce the company's business issues to the world via the website, and seek outside third parties for planning, technology, and development capabilities not possessed by the company." In addition, there are start-up initiatives such as "a business person that develops a single-focus enterprise" and "a business person that develops a multi-focus enterprise".

4.2 Crowdsourcing platform positioning strategy

Crowdsourcing platforms are typically characterized by the work they handle. Thus, a matrix diagram may be configured based on the "work content", "remuneration type, etc." ordered by the crowdsourcing platform. In the matrix chart, the vertical direction (Y-axis) ranges from "Many Items Business" to "Specific Business", and the horizontal direction (X-axis) from "Low Specialization Business, Simple Business" to "High Specialization Business, High Skill Business". In this way, the diagram can be utilized to locate the full range of crowdsourcing business types [12] (**Figures 2** and **3**).

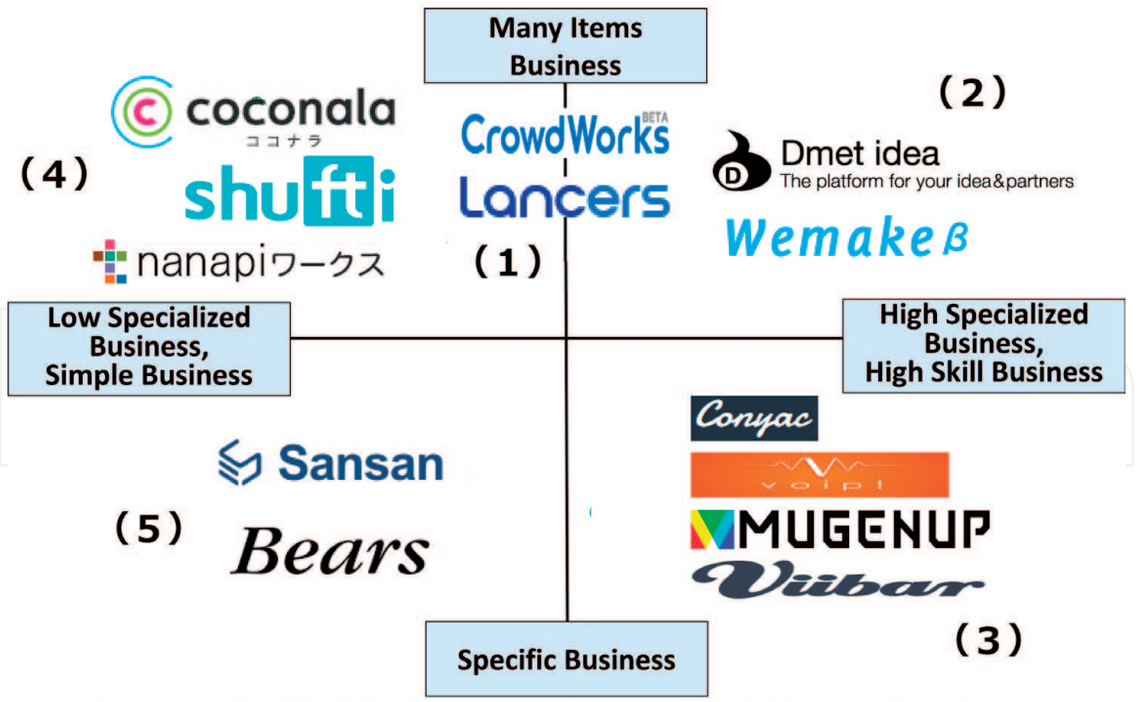

Figure 2.
Positioning strategy for Japanese crowdsourcing companies. Source: created by author.

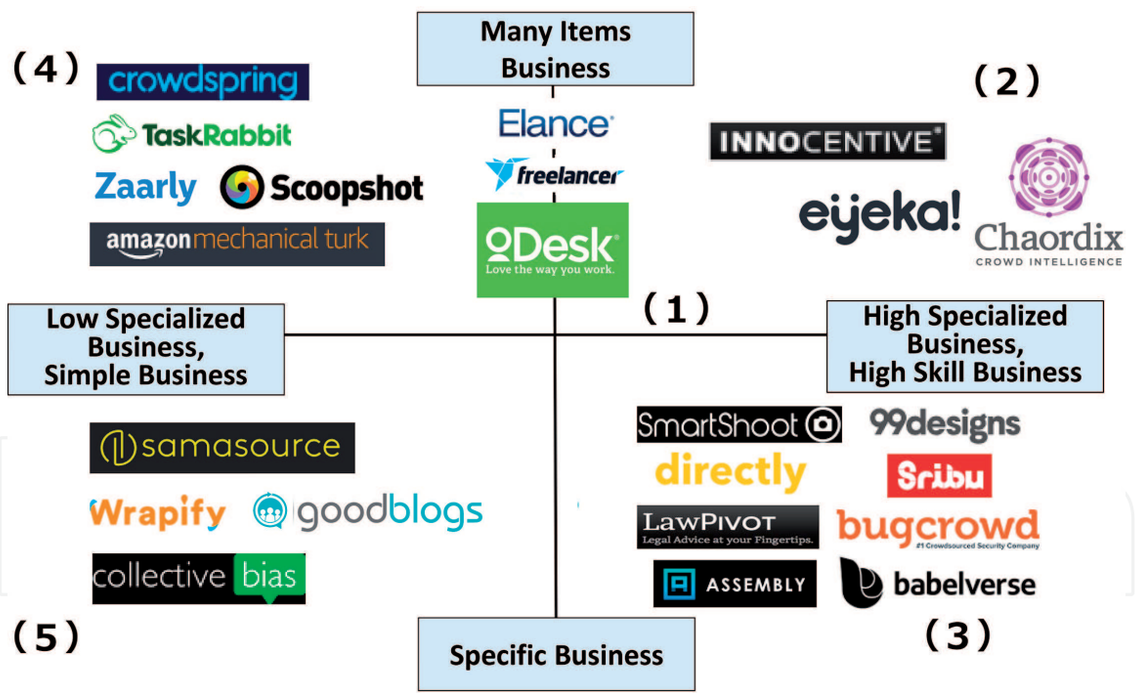

Figure 3.
Positioning strategy for other countries crowdsourcing companies. Source: created by author.

There are five major crowdsourcing platform sectors locatable in the matrix: "(1) Many items business type (general function type)", "(2) Many items business type + high specialization business type (multifunctional type: advanced expertise type)", "(3) Specific business type + high specialization business type (specific function type: advanced functions type)", "(4) Many items business type + low specialization business type (multifunctional type: low expertise type)", "(5) Specific work type + low specialty work type (specific functions type: low functions type)".

4.2.1 Many items business type (general function type)

The crowdsourcing platforms in this service sector are located at the top center of the matrix chart (**Figures 2** and **3**). These platforms differentiate their services from those of other companies by positioning themselves in terms of a "General Function Type". Work types range from "highly skilled work + specialization work" such as programming, writing, translation, web design, etc., to "low skill work + low specialization work" such as simple text creation and data entry provide a wide range of operations.

Major crowdsourcing platforms of this type include "Lancers" and "Cloud Works" in Japan; "Elance" and "oDesk" in the US; "Freelancer" in Australia; and "Witmart" in China.

4.2.2 Many items business type + high specialization business type (multifunctional type: advanced expertise type)

The crowdsourcing platforms in this service sector are located at the top right of the matrix chart (**Figures 2** and **3**). The platforms differentiate their services as "High Specialization + Multifunctional "; and typically offer "many items work" and "work that requires highly specialized skills", for services that combine unique product and service development and existing services.

Major crowdsourcing platforms here include "Dmet idea" (realization of various ideas) and "Wemake" (cardboard furniture using open design) in Japan; "InnoCentive" (expert solutions) in the US; "eYeka" (Ideas competition) in France; and "Chaordix" (question and recruitment of ideas) in Canada.

4.2.3 Specific business type + high specialization business type (specific function type: advanced functions type)

The platforms in this field are located at the bottom right of the matrix chart (**Figures 2** and **3**), and differentiate their services as "High Specialization + Specific Function", offering "highly specialized work" and "work that requires highly specialized skills"; for example, professional photo and video production, real-time interpretation through mobile terminals, order creation of logos and designs in a competitive manner, external blogger requests for company blog writing.

Major crowdsourcing platforms here include "Conyac" (translation), "Voip!" (photograph and video shooting), and "MUGENUP" (illustration production) in Japan; "SmartShoot" (photography, video photography), "99 designs" (design competition), "Directly" (customer care), "Babelverse" (interpretation), "LawPivot" (lawyer), "Bugcrowd" (bug detection), "Assembly" (collaborative development application), and "GoodBlogs" (blog writing) in the US; and "sribu" (design contest) in Indonesia.

4.2.4 Many items business type + low specialization business type (multifunctional type: low expertise type)

The platforms in this service sector are located at the top left of the matrix chart (**Figures 2** and **3**), and differentiate their services as "Low Specialization + Multifunctional", offering "many items work" and "low specialization, low skills work", from simple housework and agency services to office work such as online questionnaires and data entry, and the provision of free-market buying and selling.

Major crowdsourcing platforms here include "coconala" (free market), "nanapi works" (article writing), and "shufti" (office work) in Japan; "TaskRabbit"

(housework/use agency), "Zaarly" (housework/use agent), and "Amazon Mechanical Turk" (input work/questionnaire) in the US; and "Scoopshot" (photography service) in Finland.

4.2.5 Specified work type + low specialty work type (specified functions type: low functions type)

The platforms in this service area are located at the lower left of the matrix chart (**Figures 2** and **3**), and differentiate their services as "Low Specialization + Specific Functions", offering "specialized in specific work" and "low specialization, low skills work" such as mental support for women, training and creation of employment for IT skills, and advertisement with markers.

Major crowdsourcing platforms here include "Bears" (support for women's love), "Sansan" (business card management) in Japan; and "Samasource" (IT skills training and employment opportunities for poor women and young people), "Wrapify" (drivers who want to earn advertising revenue with their own cars), "Good Blogs" (blog writing), and "Collective Bias" (influencer marketing) in the US.

4.3 Advantages and disadvantages of crowdsourcing

In the crowdsourcing business model, the following are the main advantages and disadvantages to (1) the business person (orderer) who outsources the work and (2) the worker (contractor) who accepts the work [13–16].

4.3.1 Advantages and disadvantages to the business person.

4.3.1.1 Advantages to the business person

First, business persons can use crowdsourcing to rapidly and efficiently search for optimal workers. Hitherto, hiring outside the organization (employee recruitment) required time-consuming procedures such as recruitment advertisement, resume submission, interviewing, hiring, a trial period, and regular hiring. In addition, it was impossible to properly judge the quality (such as ability and conduct) of the human resources until sometime after employment. However, through crowdsourcing, the business person can obtain information on the evaluations, reputation, etc. of prospective workers in advance, and can quickly outsource the work according to the work content.

Second, business persons can reduce the cost of doing business by using crowdsourcing. Hitherto, employment involving full-time employees incurred costs (personnel expenses such as salary and social insurance expenses) regardless of how much business was actually conducted; and for business persons, the costs for full-time employees were incurred for everything from simple, labor-intensive operations to highly skilled, complex operations.

Third, traditionally, it was necessary to allocate personnel depending on the type of industry, in preparation for major changes in the volume of work, such as upsurges in business activity or activity that typically occurred suddenly and only at the end of the month. However, ideally, business persons should access human resources as needed, and this is enabled by crowdsourcing.

Finally, business persons can use collaborative sourcing to collaborate with other business entities. Hitherto, hiring full-time employees has been in charge of business (projects), performing duties as individual business within an organization or as group business. However, with crowdsourcing, business persons can divide the work into several sub-tasks, and order only part(s) of the total work content from

respective workers. And in the case of many work-orders, it is possible to perform effective and efficient operations by leaving some or all of the work in a specific field of expertise to crowdsourced workers.

4.3.1.2 Disadvantages to the business person

First, business persons must ensure information security when using crowdsourcing. In crowdsourcing, a business person consigns work to a worker outside the organization (business order); and in the assignment of work, successful operation may require the disclosure of confidential company information, such as ideas, plans, business schemes, and know-how, as well as proprietary customer information, to the crowdsourced workers. Therefore, confidential information may be leaked through the workers. Thus, when outsourcing work to a worker, it is necessary to decide, before generating an order, how to securely handle the relevant confidential or personal information.

Second, business persons must evaluate and manage work quality, intermediately through the crowdsourcing platform. The business person must, for example, confirm that the task is performed on time and with the expected content. Workers, meanwhile, need not worry about the outcome of the delivered work in continuous outsourcing based on past performance and evaluations. This problem is compounded by the fact that, in practice, a business person will have 10 or more simultaneous work orders in progress, making it difficult to ensure assignment to specific workers. Thus, as it is difficult to assign work based on past results, it is typically necessary to confirm each new worker's skills, past work content, and evaluations.

Finally, the business person incurs a fee for using crowdsourcing, as levied by the Internet website (crowdsourcing platform) that mediates between them and the worker. Crowdsourcing platforms typically have specialized areas such as system development, design, image processing, data entry, etc., with varying fees. Therefore, it is important for business persons to make a careful selection of the optimal crowdsourcing platform for their needs.

4.3.2 Advantages and disadvantages to the worker

4.3.2.1 Advantages to the worker

First, workers can use crowdsourcing to make efficient use of their time. Workers can manage the start, end, and rest time for each task, and effectively develop and apply time management skills. Thus, for example, housewives can take advantage of the gaps in housework and parenting; students, the gaps in their class schedule; and company employees, the gaps in their regular employment schedule. In addition, workers can receive orders for tasks that can be completed in a short amount of time, and works for recruiting ideas.

Second, workers can use crowdsourcing to freely determine their working conditions. Workers can work anywhere, regardless of the place of work or building. Hitherto, in the employment of full-time employees, it was necessary to carry out work in a determinate location, time zone, schedule, building, etc. However, in crowdsourcing, workers can work anytime and anywhere (urban, rural, depopulated areas, islands, overseas, and regions, sites, buildings, places, etc., the location does not matter.) as long as they have an Internet environment.

Third, workers can freely choose desirable work content, such as their favorite type of tasks, work that they specialize in, and work requiring skills they possess. In the past, the hiring of full-time employees had to be carried out in a group based on work orders from superiors to subordinates in the organization. With

crowdsourcing, however, workers can be selective in their choice of tasks, choosing those with favorable content or of especial interest, those that make use of sophisticated skills, enjoyable tasks, and tasks well-suited to their abilities.

Finally, workers can use crowdsourcing to avoid troublesome human relationships. In crowdsourcing, email is the primary form of communication between the business person and worker; and since workers do not have to meet the employer directly in order to carry out their work, no extra communication is required. Therefore, troublesome relationships can be avoided, and it is not necessary to have in-person interactions, secure space for them, and pay the transportation cost to get there.

4.3.2.2 Disadvantages to the worker

First, generally, crowdsourced compensation is relatively less than that of full-time employees. One of the advantages of crowdsourcing for businesses is that they can place orders at a lower cost than the cost of conventional full-time employees. Also, though a multifaceted order may be required, the work can typically be subdivided, making it possible to order only a part(s) of the larger project. Therefore, even highly skilled jobs often have relatively low rewards, and workers must compensate by increasing the number of tasks they take on, in order to achieve their financial goals.

Second, workers must confirm the character and integrity of the respective business person through the mediation of the crowdsourcing platform, with communication between the business person and worker basically conducted by email. Workers may thus be hampered in their evaluation, because there is no in-person meeting. In addition, some business persons may, for example, "demand work that is not included in the contract", "become silent while the project is in progress", or "try to avoid paying compensation." Therefore, when actually receiving an order for work, it is necessary for the worker to confirm the order content, rules, etc., and to confirm the integrity of the business person in advance, based on the latter's work-order history.

Third, workers must ensure that their use of the platform is safe and secure. In recent years, advanced cyber-attacks have become a major threat, and attacks from malicious third parties targeting specific organizations are being conducted. If the response to such advanced cyber-attacks is neglected, there is a possibility that "the confidential information of workers and business is leaked", "a fictitious order is placed", and/or "untraceable damage occurs". Therefore, when using a crowdsourcing platform, it is necessary for workers to confirm in advance the relevant BCP (business continuity planning), etc. for any possible failure or trouble in the information system.

4.4 Crowdsourcing market size

In today's information-oriented society, the size of the crowdsourcing market in order for businesses (large enterprises, small and medium enterprises, venture companies, general incorporated associations, NPO corporations, etc.) to establish a competitive advantage in various business fields Are increasing [17–19].

The size of the Japanese crowdsourcing market is 4.4 billion yen in fiscal 2011, 10.66 billion yen in fiscal 2012 (up 242.3% year-on-year), 21.5 billion yen in fiscal 2013 (up 201.7% year-on-year), and 40.8 billion yen expected in fiscal 2014 (189.8% year-on-year) FY2015 forecast of yen 65.0 billion (up 159.3% year-on-year), FY2016 forecast of yen 95.0 billion (up 146.1% year-on-year), FY2017 forecast of yen 135.0 billion (up 142.1% year-on-year), FY2018 forecast of 1820 It has grown rapidly to 100 million yen (up 134.8% from the previous year) [17–19].

A feature of the Japanese crowdsourcing market is that crowdsourcing services are mainly focused on the Japanese market. This is because in the Japanese market, business communication between operators and workers via crowdsourcing platforms is conducted only in Japanese.

Currently, crowdsourcing market in the Japanese culture is limited, and saturation is expected in the near future, and permanent growth of the Japanese market cannot be expected. Therefore, it is necessary to disseminate the Japanese market in the future to unexplored business fields and required workers.

In addition, the Japanese crowdsourcing market can be expected to gain new market growth potential by responding to the global market, including multilingual crowdsourcing platforms.

On the other hand, the scale of the overseas crowdsourcing market has grown to Yen 13.1 billion in 2009, Yen 17.4 billion in 2010 (up 132.8% from the previous year), and Yen 28.9 billion in 2011 (up 166.1% from the previous year) [17–19].

The overseas market size data is the total order amount of work for 15 member companies of Crowdsourcing.org, a US organization related to crowdsourcing, and does not include the order amount of major service companies such as InnoCentive and Amazon Mechanical Turk.

A feature of the overseas crowdsourcing market is that business communication between operators and workers via the crowdsourcing platform is basically conducted in English. In addition, the crowdsourcing platform on the Internet can be used "anytime", "anywhere", "anyone", and "anyone" as long as there is an Internet environment.

Therefore, the crowdsourcing platform is large in size for the global market including the Japanese market. The crowdsourcing platform users are operators and workers around the world. In addition, there are many workers, and it offers high growth potential by providing various services with cheap rewards [20–22].

5. Significance of crowdsourcing strategy

The Crowdsourcing Strategy in the information society has the following three corporate strategies [23, 24].

The first strategy is the crowdsourcing platform's corporate strategy that provides crowdsourcing services to both business persons (orderers) and workers (contractors).

As mentioned earlier, the crowdsourcing platform understands the characteristics of the information society (necessary information can be used "anytime", "anywhere", "anyone", "anyone"), and its business purpose and business plan. A business plan must be formulated based on (business design). And the crowdsourcing platform needs to develop its business by selecting its best position from the five positioning.

In other words, in the crowdsourcing platform, if the business design or business plan formulated by the company is wrong, it will handle non-proprietary fields (specialties), and both business persons (orderers) and workers (contractors). Therefore, the service content with poor quality will be provided.

As mentioned above, the crowdsourcing platform must formulate a business design by understanding the characteristics of the information society (necessary information can be used "anytime", "anywhere", "anyone", "anyone".).

And the crowdsourcing platform needs to develop its business by selecting its best position from the five positioning ((1) many items business type (general function type), (2) many items business type + high specialization business type (multifunctional type: advanced expertise type), (3) specific business type + high

specialization business type (specific function type: advanced functions type), (4) many items business type + low specialization business type (multifunctional type: low expertise type), (5) specified work type + low specialty work type (specified functions type: low functions type)).

In other words, if the business design and business plan formulated by the company is misunderstood, the crowdsourcing platform will handle non-professional fields (specialties) and both business persons (orderers) and workers (contractors) Will provide poor quality service content.

In other words, in the crowdsourcing platform, if the business design or business plan formulated by the company is wrong, it will handle non-proprietary fields (specialties), and both business persons (orderers) and workers (contractors) therefore, the service content with poor quality will be provided.

The second strategy perspective is the business strategy of business persons (orderers) who use the crowdsourcing service provided by the crowdsourcing platform.

Business persons need to develop a business plan (business plan) based on their business purpose and business plan (business design), and then develop a business using crowdsourcing services.

Business persons understand the characteristics of the information society, and perform all operations within the company ("Sales", "Accounting", "Human Resources", "General Affairs", "Information System", "Development", "Research", "Production", "Public Relations", etc.). On the other hand, actively utilize the cheap labor force outside the company.

The third strategy perspective is a corporate strategy that corresponds to work style reforms for both business persons (orderers) and workers (contractors).

Japan has various labor environment issues such as "declining birthrate and aging population, decreasing labor force population due to low birth rate", "health adverse effects due to long working hours, and restrictions on working style due to childbirth, childcare, and nursing care".

In particular, gaps in the work environment and restrictions on work styles affect the quality of work and detract from the work of workers.

The working environment in Japan is longer and less productive than overseas. In this situation, Japan will fall into a negative spiral, where productivity will not increase despite long working hours.

And business persons use crowdsourcing services to establish a competitive corporate environment for rival companies.

The third strategy perspective is a corporate strategy that corresponds to work style reforms for both business persons (orderers) and workers (contractors) [25–30].

In order to improve the working environment, the Japanese government is advocating "work style reform". Japan's work style reforms are not implemented for either business persons (orderers) and workers (contractors).

Work style reform is an initiative that promotes "workers happiness and growth" and "improvement of productivity and creativity of business persons" together with business persons and workers. For both business persons and workers, one of the approaches to work style reform is the use of crowdsourcing services.

6. Conclusion

In today's information society, crowdsourcing attracts attention as a new business model that connects unknown business person (orderer) and an unspecified number of worker (contractor) through Internet websites.

Crowdsourcing seeks to reform traditional employment by providing work that utilizes ICT. In conventional Japanese human resources employment, workers were mainly employed as permanent employees who entered into employment contracts with companies; or as part-time, temporary, or seasonal workers. In each case, they were required to work at a designated work place and time.

However, with crowdsourcing, business persons generally carry out business operations by contracting with a large number of outside individuals. As long as there is an Internet environment, workers can now work anywhere and anytime; in urban areas, rural areas, sparsely populated areas, islands, overseas, etc.

In addition, the use of crowdsourcing has changed the lifestyles of workers. For example, new jobs are provided to residents in depopulated areas and islands, and to people who are raising children, pregnant women, students, and freeters (part-time workers), etc. It also provides a new style of working. Further, it is possible to create new jobs for people who have high skills but cannot make use of their skills in marriage retirement, or due to temporal circumstances.

Crowdsourcing creates new opportunities for professionals and non-professionals alike, and can offer inexpensive services that previously required high compensation. In sum, the spread of crowdsourcing has created new options for how individuals work and live. In the future, it will be possible to explore new ways of connecting business persons and workers through crowdsourcing.

Acknowledgements

This work was supported by Japan Society for the Promotion of Science (JSPS) Grants-in-Aid for Scientific Research (KAKENHI) (B) Grant Number 17H03327 and JSPS KAKENHI (B) Grant Number JP19H01532.

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