

Corporations in the Information Society

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A. Information, Industry and Corporations

The information society means an information-rich or information-affluent one. Even in the information-rich society, our lives are mainly led by materials, which a variety of our behaviors—such as wearing, clothing, residing in homes and eating—are inevitably involved in. Information-richness means that information content constitutes a great portion of material lives. One such example is demonstrated by the fact that the cost ratios of materials such as goods, services and energies (raw materials, production facilities and labor) have declined these days.

The systematization of information develops as an industrial society is built up and grows. In the industrial society of an earlier period, where production was destined for one's relatives or adjacent communities, consumer needs were feasibly monitored with the communication of little information, and hence information costs were almost negligible. In the developed society, however, information is needed on the quality, scale, distribution and trends of consumer needs that are likely to change in the expanded market throughout the nation and further all over the world. The lack of this information will cause a great loss to both producers and their societies, because the needed may be produced, while the non-needed not turn out.

The development of industrialization brings on an increase of needs, which leads to the progress of informationization. This is one of the most important aspects of the systematization.

Informationization makes many contributions. This article is going to mention its contribution to the industry in two perspectives—"The industrial informationization" and "The industrialization of information."

Industrial informationization can be abstractly defined as information content as a production element of goods and services. In other words, the input of information replaces that of materials and energy, when

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information units are increased, while those of materials and energy are reduced. The production trend toward the "light-thin-short-small" can be analyzed in this context. As for design, it is a kind of information which enables materials to be light, thin, short and small. This means the replacement of the materials input with as much information input. The JIT (just-in-time) is what exemplifies the reduction of inventories taking advantage of information, where the increased investment in information contributes to the reduction of investment in materials. A cordless taxi is another example. Its information system ensures the same level of services with a reduced number of taxis and drivers. Also in this system, information replaces facilities as well as hands. In the case of firm banking, information saves the traditional liquidity by reducing cash reserves in memory. This indicates information savings on the input of money. Shopless sales can substitute information for shops, clerks and facilities. The informationization has a feature which is likely to replace the input of production elements of commodities and services.

There is another aspect in informationization. The informationization sometimes coins new terms, such as "the diversified and small-scale production system" and "the flexible manufacturing system (FMS)." In the past high growth age, the logic of production dominated that of consumption as well as of marketing. In short, the theory of mass production and mass distribution was applicable to that of consumption and marketing in those days. One undeniable thing lies in the fact that the economy of mass production can't be changed regardless of period. A question is brought forth by the fact that the logic of mass production can be applied to marketing and consumption that is becoming diversified.

The order entry system can be referred to as an answer to that question. Taking the example of the steel industry, the orders come in rather smaller quantity compared with the capacity of steel making. Orders per hour average only 20 tons, though the steel making capacity reaches up to six million. This represents the diversified and small quantity production system. This system contradicts the production theory, which insists that small orders give a reason for expensive production costs.

What is needed in this production system is to make small-quantity orders compatible with production scale, which is decided by product design as well as technology and production plan. The order entry system is one solution.

The system puts its priority on sorting out information on orders to offer the basis of production.

Also, there has been rapid progress in the informationization of the management system. A growing need for information has occurred in planning management strategies and making plans to cope with the trend toward diversification, expansion and flexibility. Also, timely specific information has been needed for the management and control of these plans. Informationization has become an indispensable factor in all the processes of corporate management.

Now we have the other side of informationization; the industrialization of information. The industrialization of information can be identified in the context of the debut and growth of the information industry. There is an aspect in the industrialization of information that its development is stimulated by the informationization of the industry. The latter spurs the growth of the information industry, the computer industry and then the information processing industry.

The information industry stands still very small in the whole industry, but the industry's contribution to the latter is scaled up in terms of the number of workers on information, including those who are involved in this field throughout the whole industry.

The information industry, which can be called industrialized information, however, shows rapid growth. This implies the possibility of commercialized information production, in which the processing of information is performed in the market instead of in house. The information is likely to be processed outside the company and information services are also available from outside. This can happen on the bases of economies of scale as well as learning effects of the information processing or the information industry. Sometimes economies of scale and learning effects are hardly expected from the in-house information processing. The learning effects of the information industry can be expected when the information system is established and a lot of information is processed—enough to be accumulated. The effects bring on economies of scale and then the rapid expansion of the information market. This explains the process of industrialization of information.

The industrialization of information tends to create a new kind of industry. The logistics industry is an example, which serves the function of logistics on behalf of a corporation by contract.

The afore-mentioned contents on information, industry and corporations are summarized as follows:

(1) Industrial Informationization

a. Informationization of logistics system

Informationization of input, informationization of the input replacement process, informationization of information-intensive process output.

b. Informationization of the management system

Informationization of the plan, do, see process.

(2) Industrialization of information

The growth of the information industry, computer industry, information process service industry, information distribution industry.

The industrial informationization and the industrialization of information share an interaction, which facilitates each development. The development of the information industry boosts the industrial information and vice versa, and the progress in informationization is made through such feedback gained from both.

B. Information and Corporate Management

What will happen to corporate management as informationization is advanced? It appears that sophisticated informationization is demonstrated by the increase in the number of information workers as well as in the proportion of information equipment in an office. The broad application of information equipment produces swift changes in offices, so-called office automation (OA). The automation tendency is likely to extend to factories, leading to factory automation (FA), which means the application of information equipment in the production process. Also, it is going on in shops under the slogan of shop automation (SA) or service automation. The on-going progress of the sophisticated informationization has a hefty impact on corporate structure, the inter-dependency of jobs as well as concerned employees. Analyzing all of these influences seems to be beyond our ability, but we are going to do some work on the preparatory research for them.

First, let's start with the approach to the influence on the organizational

structure. What will happen to the classical pyramidal structure of a corporation? The corporate structure will be given a variety of forms by the informationization. A corporation grows and expands into diversified businesses with the development of corporate circumstances. There usually lies a wide gap between organization segments, and the pyramidal structure is likely to change. The beefing up of staff and the technocracy is one such traditional example.

The sophisticated informationization also affects the formation of organizational sections as well as the pace of building up an organization. It means whether the informationization encourages the adoption of the matrix E-type of organization or not, or generates a lot of network type of organizations through the application of all kinds of new information media. The effectiveness of the traditional concept of an organization is to be newly defined. For example, the concept of the "span of control", which implies the number of subordinates controlled by one manager, and the "control loss," the loss caused by insufficient control, is complicated by the sophisticated informationization. The current concept reveals that a manager is a man of leadership, power of command and control. But the advanced informationization calls for the change of that concept against such management resources as materials, money or information—not against people.

The current or near-future corporate circumstances are going to look forward to the flexibility and liquidity of the corporate structure. Because it costs to keep flexibility, the corporate structure will avoid extreme flexibility.

What happening will occur to the distribution of responsibility and authority within an organization? Will the distribution of authority within the organization be centralized or decentralized? It seems that new information technology affects both the centralization and the decentralization of authority distribution and offers several choices for us.

The development of information technology tends to facilitate the centralization as well as the decentralization of information processing and decision-making. It is certain that the miniaturization of micro-processors and the current status of electric communication technology will spur the decentralization of information and enable versatile access to information accumulation. The broad application of terminals performing as personal computers as well as word processors will intensify this tendency. Main computers are increasing the chances for diversified processes and applications for managerial as well

as sociological information.

On the contrary, however, chances are that the information management system will be beefed up and the centralization of information and authority will be accelerated. When electric motors replaced steam engines, the dispersed use of energy was facilitated because the power control of an individual machine was made possible. At the same time, it created the huge system of regional or nationwide electricity supply. In addition, the development of automobiles stimulated door-to-door transportation, resulting in the personalization of transportation equipment, which spurred the decentralization of transportation services and simultaneously gave a boost to the growth of the petroleum industry and the expansion of energy supply network as well as reinforced the interdependency between industries and the world economy.

The expansion of diversified information processing has contributed to an increase in the role of large-scale data bases and the communication of information between countries worldwide, letting in excessive information destined for a certain organizer or organization.

The more efficiency and convenience are stressed in our society, the more the individual information is centralized, which is likely to spur the centralization of information to violate privacy.

To make efficient use of the merits of decentralized processing and application, political, administrative as well as financial decentralization is called for. This is an indispensable factor for the effectiveness of public decision making and a particularly important one for the improvement of the function of modern democracy.

Whether information processing is centralized or not is closely linked to the fact that our society will develop into a free world or a controlled one. Informationization will continue in either case. Thus it depends on our values as to what type of society will come to be. The centralization and decentralization of corporate management through informationization is attained by the same procedure.

Now let us view the cooperative relationship among organizational members. An organization is defined as the behavior system of people, which is required of information processing and communication. As informationization is being developed to an advanced degree, organizations showed introduce new information media, including computers, which causes changes in the cooperative relationship among organizational members. A greater emphasis is placed on

the cooperative relationship between members and information equipment or between information equipment-involved men rather than that among members. As a result, the organizational communication pattern undergoes substantial changes. Communication increasingly occurs between information equipment and men, while communication through meetings, conversations and phones diminishes. An increasing number of people become involved in controlling machines or get controlled by machines.

These are not unfamiliar happenings in factories, but they have started to spread in offices. However, office jobs cover a wide range—from routine and typical ones done by clerks to flexible ones performed by managers and professional people. Also, all involved need a variety of information equipment. But office workers' jobs sometimes include flexible ones and those which are not necessarily required of simultaneous performance as well as strict control. All of these imply that the office automation may track away from automation involved in factories.

Anyway, it is important to study what the new office environment in the age of highly advanced informationization brings to office workers' psychology and, further, what response they show in the new information technology. Information technology is being developed for work stations. The development of various functions of work stations is facilitated by software. The most important factor, among all, to pick up the development is the user-friendliness of equipment. The open-mindedness of workers provides a more decisive factor to accelerate the development in the OA rather than in the FA.

New information technology is characterized by its facilitization of the definiteness and the standardization of works, making a great contribution to the achievement of efficiency in men's typical activities. Also, it helps to keep its effectiveness by providing efficient support for men's flexible and creative activities. In this respect, it is important to know how the familiarity develops between new technology and workers engaged in creative activities. Also, of particular interests is what the sophisticated informationization brings to Korean-style management, Japanese-style management and other peculiar types of management. For this study, such factors as the structure and the movement of an organization, the cooperative relationship within an organization, decision making, communication, the relationship between a corporation and its employees and the mental state of employees

are to be clarified in advance. And then the influence of new information communication technology on those factors can be taken into consideration.

Also, in this case, the study is headed for the interaction between corporate management and the informationization. The most important thing is what influence is generated by the informationization against the efficiency and effectiveness of the management and what changes are needed for the informationization to achieve the advanced level of efficiency and effectiveness. Harmony with human nature is also added to the study so that corporate jobs have a good impact on human life.

In addition, we have more to study on the specification as well as the maturization of informationization, regional economization, networks between corporations, marketing, multinational corporations, power game and security. This article is going to an end with the study on what will happen to competition as the informationization develops. Competition is given a variety of forms by the informationization. First, the horizontal competition between corporations can be developed. Second, makers, wholesalers and retailers no longer need brokers. And third, the competition springs up among corporations of different scales. This leads to a question in such a way that large scale corporations can exercise stronger power against small and medium scale firms as the informationization progresses.

So far we have tried primary accesses toward the relationship between the informationization and the corporate management. There still remain a lot of room to call for clear identification for the basic concepts of the above mentioned. As the informationization is a great historical as well as sociological change matching with the industrialization in the past decade, the more systematic and profound study is to be made to clarify them.

References

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