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Business Process Standardization of Multinational Enterprises: Two Distinctive Organizational Models

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Abstract: Business process standardization practice was studied in the context of integration and adaptation. 31 Japanese and non-Japanese MNE were interviewed to find a practice of standardizing business process globally. 4 distinctive types of standardization were identified. Two top down approaches were consistent with organizational characteristics such as clear job specification, in contrasting on those using Kaizen-like approaches, with general characteristic employment as membership, which can be called T-type and J-type, respectively. Both top-down and Kaizen-like approach uses replication strategy to have globally integration but remains flexible when executed at different geographic location to have adaptation needed.

Key words: operation standard; integration and adaptation; business process management; process replication; kaizen approach

JEL codes: F0, L2

1. Introduction

Together with organizational resources (financial, technology) and shared value, business process can be an important organizational source of competitiveness (Christensen, 2013). The process can be defined as changing some input to produce output (Armistead et al., 1996). As the process is carried out by member of organizations, there are options how to control of the execution of the process. Detailed descriptions in manuals, if situations facing members are predictable and clear, can also be used. When there is uncertainty of the details of situations, corporate cultures or shared values, such as Johnson & Johnson's famous credo, use of HRM structure such including incentive and evaluation structures, are examples of attempts to guide the behavior of the members, without specifically instruct members what and how to do. Defining business process by BPM is also a manner employed widely. For the case of using BPM (Business Process Management), processes can be formalized for an organization with multilevel layers, such as starting from a list of processes, broken down to elements, then activities and finally to task (Armistead et al., 1996), as described in appendix.

The context this research discusses is how such business process formalization is globally organized, in a way, how the magnitude of standardization is globally integrated (standardized) or adapted (different manner of standardization by location). The question can be an example of classical integration-responsive (adaptation) discussion in international business literature (Bartlett & Ghoshal, 1998; Ghemawat, 2011).

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In spite of the advantages for MNE for using BPM method to keep consistency globally, make it faster for IS application implementation (i.e., like the case of BPR), have an economy of scale, and secure rapid geographical expansion by process replication, in a preliminary discussion of the industrial association(BPM-Japan Association) and a few foreign BPM experts in Japan, firm-wise application of BPM method in Japanese companies is still weak. Is this the case and if so, can this be explained to some organizational characteristics? These are the question that this research tries to answer. While the BPM and the replication approach has been long examined (Fatemeh et al., 2016), focusing on the current question on why not for Japanese companies would bring a new insight of the influence of organizational characteristics.

For the scope of this research, it concerned MNE's strategic use of managing of the processes of entire organization, not simply for some rather limited functions, such as production, which, with more defined environment, and influence of quality management requirement, tends to have standardized operation procedure.

2. Literature Review

2.1 Routine Replication, Transnational and Flexible Replication

Established process can become a routine (Nelson & Winter, 1982) and transferred internationally as a replication (Winter & Szulanski, 2009); replication is a natural geographical extension by copying something that is found effective. Replication of routines thus favors integration when compared to responsiveness. Shared replication for IKEA was confirmed by Burta et al. (2011) in that IKEA's marketing strategy were replicated in Sweden, UK and China. However, in an intensive case study by Jonsson and Foss of IKEA (2011) found that replication of process established globally can be considered as "flexible replication" so that high level concept/process are globally standardized, whereas, lower level processes are left responsive according to the market need of specific countries. This "flexible replication view" of Jonsson and Foss (2011) may contests with Fatemeh et al. (2016) view that business process approach has an affinity to integration. Integration/responsiveness on HR system as a process brings a similar notion to flexible replication, as "transnational HR approach". National culture, organizational politics, as well as international decoupling of value chain within MNE influences HR system practice (Edwards & Kuruvilla, 2005; Santacreu-Vasut &Teshima, 2016). Edwards et al. (2016) studied MNE from US, UK, Ireland, Canada, Spain, Denmark and Norway, concluded many processes are standardized. There are other study takes integration/responsiveness of HR system as a balance of economy of scale by standardization and adopting host county legal system and customs (Dickmann *et al*. ,2009; Ahlvik & Ingmar, 2015; Budhwar et al., 2016; Festing & Eidems, 2011; Almond et al., 2005; Minbaeva, 2008; Williams & Lee, 2014). Overall, these studies indicate that integration/responsiveness on this subject goes simple trade off to have common meta structure and responsiveness to local condition; similar to flexible replication concept by Jonsson and Foss (2011) for IKEA.

2.2 Kaizen Approach

Another approach of using business process concept is one known as "Kaizen" such as Toyota Way. Having been perfected by Toyota (Liker, 2003), this is a close cousin of six-sigma (Antony, 2011). Although Toyota Way is a package of value system and Kaizen methodology, the Kaizen process uses business process modeling and a mechanism of improvement as common to BPM. Tsukada's case on the application of Toyota Way to sales and marketing in US (Tsukada, 2012), uses the concept of distinguishing formalized and tacit knowledge developed by Nonaka et al. (1996). Toyota Way primarily developed for manufacturing function as TPS (Toyota Production

System) for bringing the word of "Kaizen (continuous development)", is not only a strong cultural value, but also a strong business process guideline carefully and extensively shared in the all the manufacturing plant. Tsukada (2012) conducted a case interview with a survey for the effectiveness on the Toyota US dealer, to find the nature of the tastiness of the Toyota way, with an extensive coaching/training mechanism, made it more challenging to apply to sales situation where the daily situation may be more variable, while the dealer survey indicated general effectiveness of the Toyota Way. When Toyota way is looked in a business process perspective, as proponent BPM methodology often cites as such, it is rather a common and replicated general-purpose problem-solving methodology that can be applied to daily task level. Toyota Way, known to have originally developed by the imported US quality improvement concept, has grown to a general-purpose Kaizen methodology, even if mixed with other corporate values such as respect of human and team work (Tsukada, 2012).

Kaizen may fit with many Japanese companies with its emphasis on initiative and participation of employees. Top down BPM approach, however, has advantages of using replication strategy to deploy quickly, and bring uniform visibility to MNE management. Even with these advantages, except for limited application with ICT software introduction, success of top-down BPM is so far limited for Japanese MNE.

For integration/responsiveness on technology transfer question, Sugiyama (2009), using a framework of manufacturing architecture developed by Ulrich (1995) and Fujimoto (2012), argued that for cases of automobile transnational subsidiary development, integration and responsiveness evolved in a mutually-influencing cycle. In particular case for an automotive company Honda, by citing the case for developing design capability in its US subsidiary, and the one of over-adopting of audio component in Indonesia, in order to successful globally, the company should be both integrated and adopted.

2.3 Organizational Characteristics

If the process is one representation of employee daily work, HR system also influences employee actions through value, evaluation criterion, and job structures. By taking a classification of Perlmutter (1969) of internationalization, Furusawa (2008) from the standpoint of global HR management, conducted survey of about 120 companies (85Japanese and 32 Western), with follow-up interview of some of them (Toyota, Panasonic, Toray, Sony, Cannon, Komatsu, GE, IBM, HP, 3M, and Johnson and Johnson), concluded that global HR management should have both value integration and institutional(HR rule) integration. In the survey, there was a clear difference status in local staff assignment of subsidiary and corporate value integration in Japanese and western companies (3.6 for Japanese, 4.59 for western in scale of 5) as well as the degree of institutional integration. This brings a disadvantage of Japanese companies in attracting non-Japanese candidate seeking for a global career (similar argument by Nakamura, 2005). Furusawa (2008), however, mentioned that there is an exception for such a generalization, as Toyota, who has a good HR institutional integration, in which global layer is treated equally with a standard performance and competency assignment system. Also, Toyota Way works as a unified value system. This view of Toyota Way as a value system is shared by a recent study such as Hayashi (2017).

The attractiveness of Japanese organization is often said to be weak (Nakamura, 2014b). Takahashi (2012), summarized that, Japanese companies with weak on job-based hiring, making OJT from senior as a standard, disturb the progress of in-house training. For the job market in China, Japanese companies is less attractive not to give a good training to those who may not stay long, and promotion is rather on seniority. Kusunoki (2016) by reviewing employee assigned not by their will, as a fundamental feature of Japanese employment. Summarizing these observations brings a feature of Japanese organization in being behind value integration, assumption on long-term employment, and weak job matching.

Organizational mode is compared for Japan and USA by Hirano (2014), proposing J-type, where autonomous control of employee work is observed with characteristics such as use of internal labor, strong HR department. A (American)-type, on the other hand, is characterized by strong centrally controlled work standardization, employment based on job competencies, use of outside labor market, and strong line managers as developed the similar concept by Aoki (19890). Similar argument for characterizing the Japanese employment practice as membership as opposed to "by-job" by several authors (Hamaguchi, 2009; Hamaguchi, 2013; Hamaguchi, 2014; Yashiro, 2015) confirm Hirano(2014) and a classic study of Jacoby (2005) of comparing Japanese and American HR function. One caution is Ishida and Higuchi (2009) of comparing Japanese and US companies in California to conclude the institutional features of the two countries are converging.

For the aspect of complementarities of work and employment practice, Tsukada (2012) in the study of applying Toyota Way to sales function argued that three essential components of Toyota philosophies include Japanese type management, that is consistent to J-Type model of Hirano (2014). Sugiyama (2009), studying transnational change as interaction between HQ and subsidiaries, argued that the rules can substitutes the time takes for integration, by making architecture more modular-based, but competitive advantages of the Japanese MNE would be lost. These studies may suggest strong link for formalization of work process and organizational characteristics, at least for the case of the Japanese companies.

2.4 Research Framework

With these literature review, this research tries to clarify the relationship of BPM and Kaizen-approaches, both are successful application of the process thinking. How the flexible replication is mimicked for solving integration-responsiveness question? And what organizational characteristics related to these two questions.

3. Method, Result and Discussion

3.1 Method and Samples

3.1.1 Method

31 Japanese and non-Japanese MNE were selected for a qualitative semi-structured interview. Interview was done face to face during the time March 2015 to August 2017, except for a few exceptions for conducting interview by telephone and e-mails. Common question includes existence of process standard, manner with which they are implemented, scope of such standardization, and if possible, relation to HR structure. Samples were chosen to have a sufficient distribution in industry according to product attributes of Rezk et al. (2016), as horizontal (inter-countries) decoupling may influence modularization of process thus standardization. Other factors considered are overall number of employees and the degree distribution of business. The index of the concentration of business was defined as sum of square of the share of business by countries where MNE has business. For example, if an MNE is active in two countries with 50% each of the share of business, the index of concentration will be 2*0.25, where 0.25=50%^2. This index is similar to Herfindahl-Hirschman Index used to define market integration (Ghemawat, 2011). Total employees and the index of concentration were considered in selecting interviewee MNE, as the wider employees and market, some standardization approach would be required for managing the organization. Coding software was not used as expression of the methods of process standardization differs significantly by sample companies, and interviewee does not necessarily have very clear view of process management practice. This can be considered as a weakness in research method that may have to be improved in the future.

3.1.2 Samples

The distribution of industry of the samples was summarized in Table 1. The code inside the parenthesis is a decoupling code of Rezk et al. (2016). The number of employees is distributed to 1,600 to over 300 k. Concentration index was between 0.05 and 0.67.

Table 1 MNE Interviewed

Industry	Company interviewed
automotive	Nissan (DVC/GN), BMW (DVC), Suzuki (DVC), NSK(GN), Michelin (GN)・UD Truck (DVC), Yachiyo(supplier to Honda) (DVC), Bosch(DVC)
Electronics/instruments/information	Panasonic (MR/GN), Hitachi (GN/GN/MR/LCL), CISCO, inorganic A (GN), HOYA—Minolta (GN), Censor Technologies (GN)
pharmaceutical/cosmetics	Nihon Kayaku (DVC), Parxtel (MR), Kao(MR), L'Oreal (MR/LCL), J&J (MR), Shiseido (MR or LCL)
food	Danone (MR)
distribution/trading/transport	AEon(DVC), Tokyo Elecron(GN), Nihon Yusen Logistics(DVC/GN)
finance	European mega bank C(GN), Japanese megabank D(LCL)
others	Inorganic B(LC), Gore (GN), Komatsu(DVC)・Kubota(DVC)

* Code inside parenthesis refers to decoupling code by Rezk et al. (2016).

3.2 Results

Among the 31 companies interviewed, 5 companies had very developed system. Two French (Michelin and Danone) and a German (Bosch) and Two Japanese (Kao and Komatsu). Although 4 of them called their system as "Way" (Bosch called theirs Bosch PS, after Toyota Production System), ones with European companies and those with Japanese companies exhibit significant difference in philosophy.

3.2.1 Michelin and Danone as Flexible Replication

Michelin/Danone system is a fairly straightforward application of BPM in way that level 1 structures (immediate below total value chain mapping, called process map) identifies major process group to which Performance Department is responsible. At level 2, sub-processes are defined and BPO (Business Process Ownership) are appointed, who is responsible for the application of global process standard, in way that local application is effective in way to meet local market condition, while, conceptually meet standard at global level. This combination is very similar to "flexible replication view" of Jonsson and Foss (2011). BPO is organized in functional structure from headquarter, region, to countries, where BPO of different levels are appointed, as belonging to process and performance department. The business process and standardization concept cover the entire companies. Accordance to the standard was constantly evaluated through self- and internal-audit and status regularly reported to the top management. For the case of Michelin, standard for the sales is called MMSW (Michelin Marketing and Sales Way) and introduced around 2005 together with the concerned BPO positions. Even if the global dissemination of MMSW requires involvement of various meetings and training, it was rather smooth, as Michelin had a tradition on respecting method and process.

For the case of Michelin and Danone, the standards are not static. At least once a year, BPO of regions meet to discuss if a new standard is required or discuss of the proposal of new standard. Thus, there is a room that country/regional need can be reflected back in standards. A new standard proposed will need to be approved by corporate management, exhibiting the top-down nature. In relation to other aspects of organization, a standard job description by position is created for each BPO domain, standard business process controls conceptual level of IS application, rather than IS system forces business process to align, as often cases with BPR cases.

For each of the major function, Bosch has, for example, Bosh Production System, taking it from TPS (Toyota Production System). Bosch heavily learnt from Toyota about 10 years ago, when their quality issue as supplier did not satisfy Toyota. However, Bosch system is stronger top-down to operational levels, German-centered global process standardization, compared to the two French examples. Bosch thinks especially important for the business with global B2B customers. Bosch application of standard is perhaps stricter than the two French companies, as modified application of standard require a preliminary approval from the HQ, which may not easily be accepted. This strong pursuit of global standard sometimes invites complaints from the Japanese clients looking for responsiveness to their needs. Bosch operates with four distinctive business unit that can make a small modification to the corporate common processes.

Business process standard of these companies are purely operational in way that corporate value statement is not the part of process standard. For the case of Michelin, general competences used in HR system include some value/conduct guide, such as teamwork, as a part of standard job description, tied to business process domain.

3.2.2 Kao and Komatsu

Both Kao (leading toiletry companies) and Komatsu (world number 2 construction machinery company) did not have written formal expression on the nature of the corporate culture, although home country members felt it natural that there was a clear distinctive corporate culture, including values, rules of conduct. As they expanded globally, it was rather non-Japanese employees expressed the culture be clearly stated. For the case of Kao, Kao Way was first published in English. During the editing, established Japanese members were consulted if the articulation was consistent with their understanding.

Both Kao and Komatsu Ways, besides the statement and expected conduct relating to corporate values, contain Kaizen type business process for continuous improvement. According to Komatsu, one employee joined Komatsu from Toyota found Komatsu and Toyota Ways are very similar. Toyota's "five if" to find the route cause, and Komatsu's "genchi-genbutsu (real place and real object)" convey similar concept, for example.

Although published as a guideline, understanding and execution of these "Ways" are not so easy. Both companies have organized annual workshop at operating location, where employee discuss what is the right application of Ways, to understand how Way concept should be applied. Good examples are shared in the corporate intranet that other location can study. However, such examples do not lead to creation of global standard, but rather stay as benchmark or reference for other location. Komatsu has another mechanism of enhancing as appointment of Komatsu Way expert, who can be consulted inside companies, or sent to other location if so requested. Both Komatsu and Kao had a long and strong management dedication to the Ways. For the case of Komatsu, the long story in developing their Chinese operation grass root when executives regularly visited subsidiaries and talked with local management/employees for their better understanding of Komatsu Way as described by Kuramoto (2012).

For the HR point of views, two companies have different approaches. Kao had a worldwide common HR practice, without, however, a clear job description, but a transfer document uniquely at each local position. Application of Kao Way has to be one of annual objectives to enhance the use of Kao Way. Komatsu considers HR and sales practice need to respond to the local situation. Komatsu, however, considers the level of Komatsu Way practice, as an important consideration, when promotion of candidates to local management level is discussed.

3.3 Discussion

3.3.1 Classification

By analyzing data, I have identified the following 5 different groups. Key components obtained from interviews are used as keys to classify the process standard practice of these companies. Lack of global process standardization separates (e) from the other. The one to separate (a) and (d) from (b) and (c) is if the standard is organized as top-down structure, or general-purpose kaizen methodology. Then (a) and (b), as well as (b) and (c) are separated by the existence of formal structure, such as BPM and performance departments (for the case for (a)) and clear statement of Way, Overall classification scheme is summarized in Table 2.

Table 2 Classification of Cases by Keys

Classification of keys	Existence of standard			
	yes		no	
	Global/Top-down/All process including sales	By site/Kaizen/Mostly production	(e)	
Formal Structure	(a)	(b)		
No formal structure	(d)	(c)		

1) Top-down standardization using BPM concept (Michelin, Danone) [BPM type],
2) Common all-purpose improvement process (Kaizen) combined with corporate value and standard conduct (Kao, Komatsu) [Way type],
3) Mostly Japanese companies with Kaizen methodology but not as formalized as Way [Way-approach],
4) Top-down standardization but clear use of BPM process model structure and BPO are not present [semi-global standard],
5) All other companies that have no clear standardization structure.

Table 3 summarizes the origin of countries to the type distribution. Although number of samples is small, and randomness can be challenged, application of various regression model shows, I found a statistically significant relation, only when (a) + (d) as dependent variables with only explanatory variable as whether or not the country of origin is Japan ($P=0.00021<0.01$). Size, industry, and market concentration did not have significant influence. This implies the selection of standard practice and country organizational characteristics (that of Japan) has strong relationship that will be discussed in 3.3.4. Only exception for a company from Japan that uses top-down approach (d) is a semi-conductor trading company, that has simpler functions like sales, supply chain, and administration, and its operation has been very structured after an introduction of ERP and CRM in the last 5 years. This reverse process standardization (IT standardize process) will be discussed later (3.3.5).

Table 3 Cases of Standardization by Country

Std Type	Non-Japanese			Japan
	France	Germany	USA	
(a)	2	0	0	0
(b)	0	0	0	2
(c)	0	0	0	4
(d)	0	3	3	1
(e)	1	1	1	12

3.3.2 Standard and HR practice

Business process, corporate culture, corporate value and standard conduct are all ones influencing employee behavior in rather spontaneous and autonomous manners. Also, aspects of HR related structure aim to influence employee behavior, through incentive and promotion scheme, and competency definition. It is not surprising that global standardizing of HR system of Michelin (Sendo, 2007) were followed closely by the introduction of business process-based standardization. Business process description and job description is therefore different way as for the employee expected conduct (activity, output, and desired level). Job description can be standardized at two levels: one to have a standard format applicable to all the jobs to be hosted (meta structure); and one that same jobs are essentially described same (e.g., job description of marketing manager is same across the globe). Table 4 shows the existence of such common job description according to standardization models. Although again samples are small, business standard and common job description are closely related.

Table 4 Existence of Common Job Description

Std Type	Yes	NA	N
(a)	2	1	0
(b)	0	0	2
(c)	0	0	4
(d)	3	1	2
(e)	0	2	12

3.3.3 Relation to Production Architecture

Frequently from Japanese companies interviewed, when BPM based top-down approach was explained, there was a question if local responsiveness is secured. Also, preference against BPM model can be from respecting the floor level initiative as the strengths of Japanese manufacturing, especially in the integral architecture (Fujimoto, 2012). Iwao (2016), using IMVP (International Motor Vehicle Project) data, argued that for the case of technology transfer of the Japanese auto manufactures, not simply routines (Winter & Szulanski, 2009) are transferred, but DC (Dynamic Capabilities) are transferred. Iwao (2016) defines DC as a capacity to cope with unknown situation. This view may be consistent of Toyota ex-chairman describes Toyota way to “establish process to cope with un-known problem” (Cho, 2017). The argument of Iwao (2016) may be a natural extension of one by Sugiyama (2009) that, by analyzing technology transfer (trans-nationalization), both integration and responsiveness proceeds mutually influencing as evolutionary way. Besides concern for the lack in capacity for local responsiveness, strong belief in floor level capability as a source of the strengths of the Japanese manufacture seems to be influencing the choice of the model of process standardization.

Interesting observation by a French manager from Danone is the difference can be explained by that European firms need to show clear visibility of job specification to employees to which clear process description is very helpful. Also, the rate of turnover of Japanese companies are much lower (i.e., 2-3%) and with tasks generally shared by employees, the risk of losing employees are small enough not to require clear description of work and process.

3.3.4 Two Different Models

From the all the above observation and argument, I propose that there are two distinctive organizational models by extending the concept of comparative J (Japan) model and A (America) model of Hirano (2014) and Aoki (1989), using aspects found in this research and literature survey discussed, as J model and T (Top-down)

model. The comparative characteristics are summarized in Table 5.

Table 5 Type Comparison

Aspects*	J-Type((b) and (c))	T-Type ((a) and (d))
Setting Standard	By Site	Top-down global
Level of Standard**	Local at 4-5	Global at 3
Mechanism of Integration	General-Purpose (Way) By Expatriates	Description at meta-level
How to be responsive	By Location	Flexibility in Practice
Balance of Integration/Responsiveness	General Purpose Kaizen Method & Discretion at Site	Flexible Replication
Relation to HR system	Less formalized	Compatible with Standard Job Description
Knowledge (Tsukada, 2012)	Tacit	Formalized
Speed of deployment	Log-term	Short-term
Capability (Iwao, 2016)	Dynamic	Routine
Cost to Maintain	High((b))	High ((a))
Employment (e.g., Yashiro, 2015)	Membership (Long-term)	Job

*One underlined come from literature
**IBM (2016)

Both of J and T types, tries to solve the balance of integration and responsiveness, by keeping cores (J as a general-purpose problem solving; high level process description for T), to leave room of flexibility. In this way, both can be considered as "flexible replication" of using one that is successful to apply to other location but keeping it responsive enough. The adaptation of different strategy, bottom-up or top-down, as called in this paper, presents consistency to the aspects of organization characteristics.

When Japanese automakers started investing in US in 1980's, the interest in Toyota lean production started in research communities. Until recently when emerging country MNE, especially ones from China have an academic attraction, Japan was the most studied as a different model (Westney, 2009). HR aspects of Japan and US were extensively studied by Jacoby (2005), finding of which is still consistent with J/A model of Hirano (2014) and Aoki (1989). The J/T model I have presented is a natural extension of this line, but by including business process argument and samples of European MNEs.

Many argues that while Japanese practice is membership-based, that has to be changed to job-based employment, with a clear specification and modularization of work (Hamaguchi; Yashiro 2015; Yamada, 2016; Yamada, 2017). However, such organizational characteristic including membership based, when combined to the J-type process global standardization, produces one consistent package for MNE. Both T- and J-type has respective advantages and limitation, but each seems to be consistent.

Talking of Toyota Way, Tsukada (2012) mentioned "although many companies had corporate conduct principle on the wall, it is only Toyota who actually implemented it". The implementation may come with some cost as, Bowen & Spear (2007) described that "although many Japanese auto manufacture tries to implement Toyota way without a clear success, as they had not spent enough time as Toyota". A recent study by Sen (2017) of transfer of technology of Japanese auto manufacture, especially the practice of Kaizen, states the effectiveness of transfer depends on face to face time-consuming communication with the local staff and Japanese expatriate. This aspect is a cost to bare if an MNE choses to deploy this approach.

3.3.5 Implication with IT System Implementation

For the significance of the organizational models to IT application, (a) type companies (Danone and Michelin) relate process standard to application selection. One of them (Danone) uses flexible replication so that choice of software can be decided at location as far as high-level process follows the common standard. This logical sequence of process to application is not clear for J-model (b and c), but reversely, introduction of ERP and CRM makes procedures globally uniform, without defining high level process description, as found in the case of semi-conductor trading company interviewed. Similar IT-lead standardization was also found in other sample case such as Nissan, where only function process was globally standardized was ones driven by IT application. Besides these, no company from Japan used top-down process structure logically to design organizational process standardization.

Is there possibly difference in firm performance of the two models? Performance is a function too complex to discuss here, but at least with the T-type can makes it quicker for IT application and geographic expansion, while J-type may bring creativity from floor. Comparative merits of the two models may have to be analyzed in lieu of growing open and modular economy in this century.

4. Conclusion

Flexible replication is identified being practiced in top-down application of the organizational-wide BPM approach, where flexibility is found at the lower level of process (task and activities), whereas higher (meta) level conceptual standardization is rather strict globally. Kaizen type does not bring such a firm-wise standardization but bring a general-purpose methodology and corporate values shared in organization. This may also be called a different type of flexible replication.

The choice of the approach to process standardization can be explained by respective characteristics of two organizational models. Both J model and T (top-down) model requires consistent mode of organizational characteristics.

Limited number of samples and future possibility of more quantitative analysis should be considered as the further development of the research. The classification of industry can go to more details by looking aspects of horizontal (inter-countries) modularization, and classification of standardized model can be elaborated. One very interesting question is if model can be extended to other emerging MNE, who tends to have cultural characteristic of adopting to the situation rather than one based on clear and transparent rule (Ghemawat, 2017). Adding further cases from emerging country MNE, J-T dual model might be extended beyond Japanese company sample in the relationship of business process standardization and organizational characteristics. The future questions include how the two model can be combined, and, in general, how use of standard process approach (be it top-down or general-purpose) influences exercise of creativity of employees in organization.

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Appendix: Business Process Management (BPM)

In a formal description of business process is BPM/BPMN (Business Process Modeling/Business Process Modeling Notation), the process description starts with a process map, that lists all the core processes of an organization, then core process, sub-process, activities, and tasks (IBM Japan, 2016). Business Process Management is a way to manage organization by formal description of processes that can be using horizontal organization, replacing the vertical functionally based organization (Ostroff & Smith, 1992).

As early as the late 1990's, BPM was quite widely used in European enterprises (Pritchard & Armistead, 1999), where most of the enterprises surveyed practiced some BPM approach, with one-third appointed BPO (Business Process Owner), who is a global process-wise manager responsible for the application of business process standard. Defining and improving business process involves modeling the process, clarifying major steps, and setting KPI (Key Performance Indicator).

Although business process approach seems to be very basic for most modern organization, there are two general aspects of successful application. In a firm-wise top down BPM approaches, a firm is considered to be a big business process to produce a desired output (e.g., satisfying market needs), from input (e.g., market demand). A firm then is broken to a lower level of major functions (manufacturing, marketing, sales, etc.), which in turn broken down to major sub-functions. For example, market and sales functions can be broken down to marketing process, sales process, and backend O2C (Order to Cash process). The sub-functional process then is divided to major processes to which a BPM based company creates standards. Business process is believed to improve efficiency in a way to attain economy of scale and visibility (Münstermann et al., 2010). Secondly, as a natural consequence, applying business process, that requires applying model, tends to favor application of IT technology by standardizing conceptual structure. This is the essential principle of BPR (Business Process Restructuring) that before introduction of IT system such as ERP (Enterprise Resource Management), BPM-like review of existing business process is conducted, to make them aligned to some standard, that is consistent of the structure of ERP software (e.g., Rouser, 2005). IT system is thus closely related to business process approach to improve organizational innovation (Ogawa et al., 2017) and BPM is sometimes considered as a BPM software.

As application of IT technology conversely influences business process innovation (Ogawa et al., 2017), business process modeling and use of IT technology have strong affinity. However, BPM does not have to bring always IT technology, but sometimes rather work as conceptual hierarchy of managing processes as described above.