Knowledge Management in Japanese SMES

日本の中小企業におけるナレッジマネジメント

MS Héctor Rojas Pescio
hector.rojas@ureus.com

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Abstract

The following analysis of Japanese small and medium enterprises SMEs was elaborated founded on the documentary compilation of different recent sources such reports issued by government agencies and academic documentations. As therefore, it is important to clarify that most of the information proceeds from 2017 White Paper on Small and Medium Enterprises in Japan SME, Life Cycle – Continuity in the Next Generation – elaborated by the National Association of Trade Promotion for Small and Medium Enterprises. This last white paper contains many references from reliable sources which are the result of research in SMEs topics such as MOF Financial Statement Statistics of Corporations by Industry, SME Agency, Nomura Research Institute, Ltd. among others.

It aims to identify causes of the problem of low productivity in Japanese SMEs to propose viable contributions that can be materialized through knowledge management framework specifically designed for the small and medium enterprise to improve their productivity.

要旨

日本の中小企業に関する以下の分析は、政府機関が発行した報告書や学術資料です。

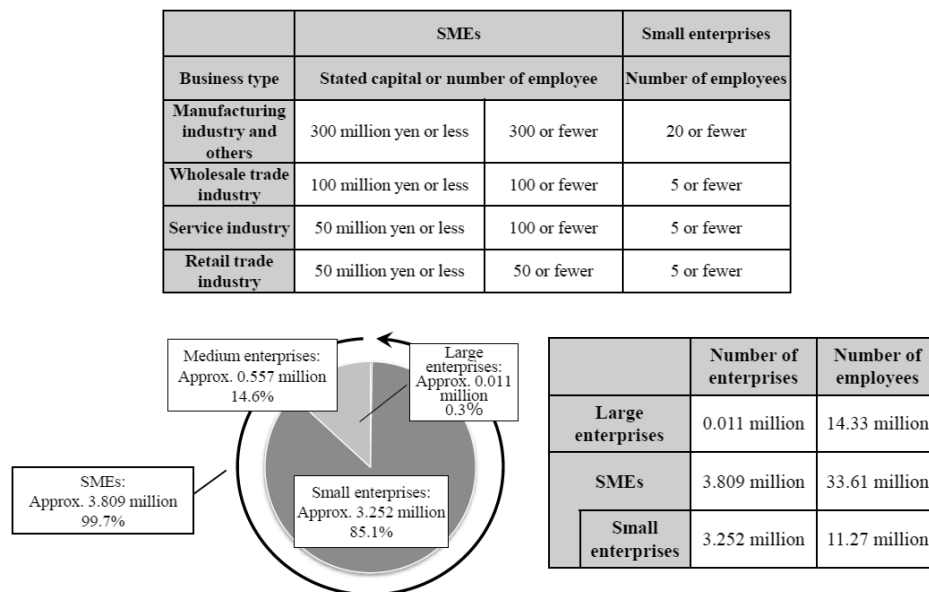したがって、ほとんどの情報が日本の中小企業白書 2017 年から進行することを明確にすることが重要です。

この最後のホワイトペーパーには、産業別企業、中小企業庁、野村総合研究所などの財務諸表統計など、中小企業の研究の結果である信頼できる情報源からの多くの文献が含まれています。

中小企業が生産性を向上させるために特別に設計されたナレッジマネジメントの枠組みを通して、実現可能な貢献を提案することを目的としています。

The role of SMEs in Japanese economy

According to Professor Haruo Shimada, president of Chiba University of Commerce, Japan has an industrial structure where SMEs have accumulated spectacularly, and large enterprises can raise high productivity, originally, the efforts to improve productivity of SMEs overlapped in many layers and as a result helped large corporations, the productivity propensity of the Japanese economy. Thereby, in terms of employment Japanese SMEs provides employment opportunities for the majority of Japanese workers, SMEs are enterprises that advance technology development and business models in anticipation of the future as an energy source to promote innovation in the Japanese economy (Shimada, 2014). Figure 1 shows distribution of employees by business type according to definitions under the Small and Medium-sized Enterprise Basic Act and the Number of Enterprises and Employees.

Figure 1. Distribution of employees by Business type

Business type	SMEs		Small enterprises
	Stated capital or number of employee		Number of employees
Manufacturing industry and others	300 million yen or less	300 or fewer	20 or fewer
Wholesale trade industry	100 million yen or less	100 or fewer	5 or fewer
Service industry	50 million yen or less	100 or fewer	5 or fewer
Retail trade industry	50 million yen or less	50 or fewer	5 or fewer

Medium enterprises: Approx. 0.557 million 14.6%
Large enterprises: Approx. 0.011 million 0.3%
SMEs: Approx. 3.809 million 99.7%
Small enterprises: Approx. 3.252 million 85.1%

	Number of enterprises	Number of employees
Large enterprises	0.011 million	14.33 million
SMEs	3.809 million	33.61 million
Small enterprises	3.252 million	11.27 million

Source: NATPSMES (2017, p2b)

In the same way, Japanese SMEs in most areas except for large cities employees more than 80% of the workers as shown in Table 1.

Table 1. Employment in Japanese regions by enterprise size

	大企業	中規模事業者	小規模事業者		大企業	中規模事業者	小規模事業者		大企業	中規模事業者	小規模事業者
北海道	14.8%	52.7%	32.5%	石川県	12.6%	52.2%	35.2%	岡山県	14.6%	53.6%	31.8%
青森県	8.9%	54.6%	36.5%	福井県	11.1%	50.4%	38.5%	広島県	21.4%	50.7%	27.9%
岩手県	11.9%	52.8%	35.3%	山梨県	8.3%	49.1%	42.6%	山口県	17.9%	49.8%	32.3%
宮城県	14.9%	53.2%	31.9%	長野県	12.9%	49.6%	37.5%	徳島県	9.0%	48.8%	42.2%
秋田県	7.0%	54.4%	38.6%	岐阜県	13.1%	50.9%	36.0%	香川県	18.1%	49.9%	32.0%
山形県	12.2%	50.6%	37.2%	静岡県	17.1%	49.8%	33.1%	愛媛県	14.1%	50.3%	35.6%
福島県	15.6%	48.7%	35.7%	愛知県	29.6%	47.1%	23.3%	高知県	7.3%	50.3%	42.4%
茨城県	12.1%	49.8%	38.1%	三重県	13.5%	50.7%	35.8%	福岡県	24.9%	48.9%	26.2%
栃木県	14.4%	47.1%	38.5%	滋賀県	16.2%	50.6%	33.2%	佐賀県	7.7%	54.7%	37.6%
群馬県	19.3%	47.0%	33.7%	京都府	23.8%	46.0%	30.2%	長崎県	7.5%	53.1	39.4%
埼玉県	19.2%	47.7%	33.1%	大阪府	33.6%	43.7%	22.7%	熊本県	9.1%	53.1%	37.8%
千葉県	23.4%	45.2%	31.4%	兵庫県	19.0%	49.8%	31.2%	大分県	14.6%	49.9%	35.5%
東京都	58.9%	30.1%	11.0%	奈良県	5.4%	53.3%	41.3%	宮崎県	7.6%	52.0%	40.4%
神奈川県	24.2%	47.8%	28.0%	和歌山県	12.1%	45.7%	42.2%	鹿児島県	12.7%	48.6%	38.7%
新潟県	14.8%	50.7%	28.0%	鳥取県	6.2%	56.3%	37.5%	沖縄県	11.3%	52.5%	36.2%
富山県	16.4%	51.7%	31.9%	島根県	7.0%	53.0%	40.0%	全国計	30.3%	43.9%	25.8%

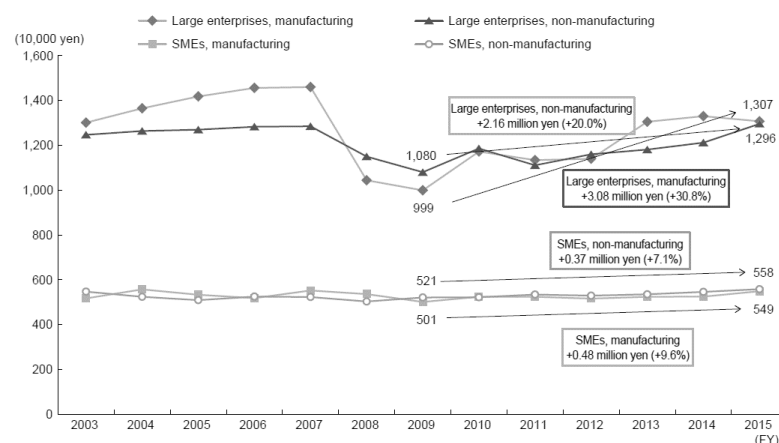資料：総務省「事業所統計調査」・総務省・経済産業省「平成24年経済センサス」再編加工　　　※本店事業所所在地別の従業者割合

Source: SMEA (2016, p4)

Productivity in SMEs

The White Paper on Small and Medium Enterprises in Japan (2017) sustains that added value per capita (labor productivity) among large enterprises had been gradually increasing from fiscal 2003 to 2007 and dropped in fiscal 2008 and 2009 due to impacts of the Lehman crisis, but returned to an increase thereafter (figure 2). On the other hand, labor productivity in SMEs remained virtually unchanged over the past 13 years, and a large difference in labor productivity has emerged between large enterprises and SMEs.

Figure 2. Added value per employee (labor productivity), by enterprise size

Source: MOF, *Financial Statements Statistics of Corporations by Industry, Annually.*
Note: Large enterprises here refer to enterprises with a capital of ¥1 billion or more, and SMEs refer to enterprises with a capital of less than ¥100 million.

Source: NATPSMES (2017a, p42)

The causes of variations in labor productivity are determined by two main factors, the increase or decrease in added value and the increase or decrease in number of workers. The same report specifies that during 2016 among large enterprises from manufacturing and nonmanufacturing industries mostly increased their added value. The added value of manufacturing SMEs declined, and non-manufacturing SMEs showed an increase but not as large as large enterprises.

In an international comparison of labor productivity, Japan ranked a low 22 among 35 OECD countries in 2015. At 0.4%, the rate of increase in Japan also ranked a low 28th (figure 3).

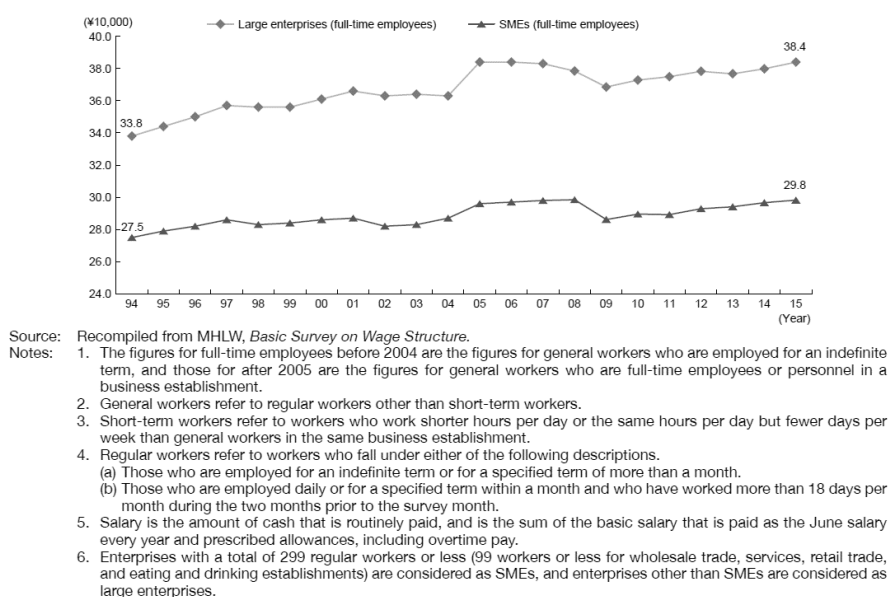Figure 3. Labor productivity of OECD member countries

Source: Japan Productivity Center, *Productivity Trends in Japan 2016.*
Notes: 1. Overall labor productivity is calculated as GDP / number of employees and converted to US dollars using purchasing power parity (PPP).
2. The necessary data for the above have been supplemented mainly by OECD statistical data and data from the statistics bureau in each country.

Source: NATPSMES (2017a, p44)

National Association of Trade Promotion for Small and Medium Enterprises analysis pointed labor productivity and total factor productivity (TFP) are used as indicators of SME productivity. Labor productivity is a quantitative expression of how <u>efficiently added values were generated per working hour</u>. TFP is the total contribution of all factors to production that cannot be measured by the input of production elements such as capital and labor.

Also is important to consider that in SMEs, "low income" was given as the reason for job separation at a high rate. When looking at the amount of salary by enterprise size, we see that a disparity in wages still exist between large enterprises and SMEs, ranging from ¥275,000 to ¥298,000 in SMEs and from ¥338,000 to ¥384,000 in large enterprises in the past twenty years (figure 4).
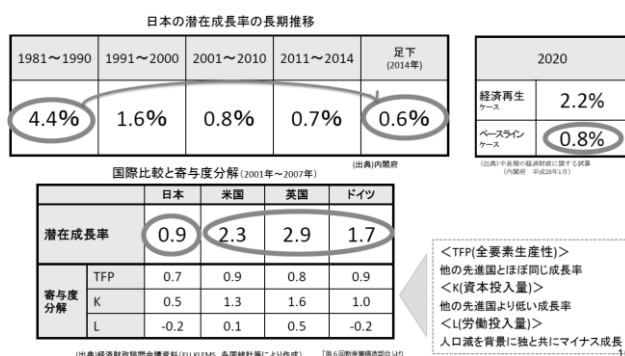
Figure 4. Salaries by enterprise size

Source: Recompiled from MHLW, *Basic Survey on Wage Structure*.
Notes: 1. The figures for full-time employees before 2004 are the figures for general workers who are employed for an indefinite term, and those for after 2005 are the figures for general workers who are full-time employees or personnel in a business establishment.
   2. General workers refer to regular workers other than short-term workers.
   3. Short-term workers refer to workers who work shorter hours per day or the same hours per day but fewer days per week than general workers in the same business establishment.
   4. Regular workers refer to workers who fall under either of the following descriptions.
       (a) Those who are employed for an indefinite term or for a specified term of more than a month.
       (b) Those who are employed daily or for a specified term within a month and who have worked more than 18 days per month during the two months prior to the survey month.
   5. Salary is the amount of cash that is routinely paid, and is the sum of the basic salary that is paid as the June salary every year and prescribed allowances, including overtime pay.
   6. Enterprises with a total of 299 regular workers or less (99 workers or less for wholesale trade, services, retail trade, and eating and drinking establishments) are considered as SMEs, and enterprises other than SMEs are considered as large enterprises.

Source: NATPSMES (2017a, p85)

This last aspect has a relevant socio-economic connotation because SMEs employs the share of the population with the lowest economic income. Moreover, the potential growth rate in Japan is sluggish at less than 1%. TFP (total factor productivity), K (capital input) and L (labor input) are sluggish as showed in figure 7.

Figure 7. Potential growth rate in Japan
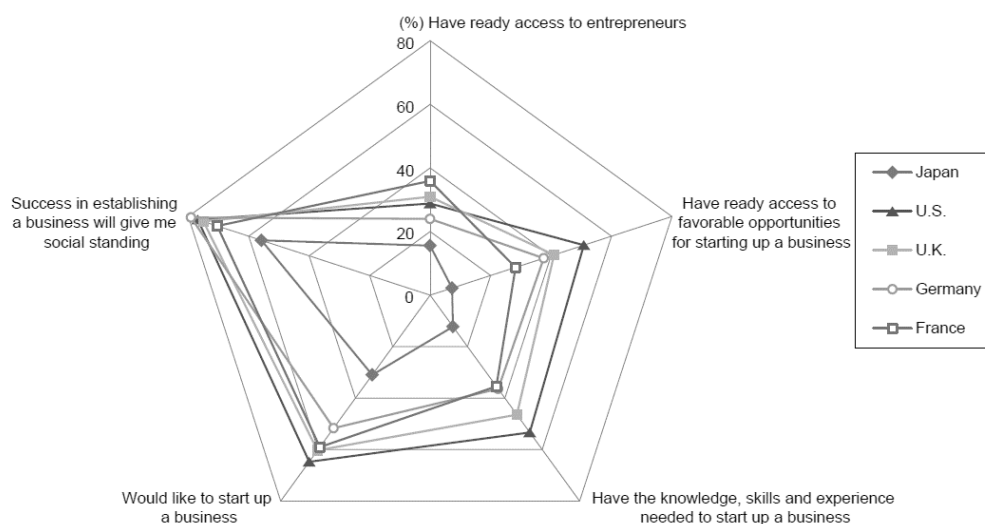

Source: SMEA (2016, p2)

Finally, while SME business conditions are slowly improving, there are ongoing structural challenges including stagnant business entries, slackening productivity, the aging of managers and growing labor shortages among others that will affect the future of SME's productivity.

Current challenges in SMEs

From the information gathered it was possible to identify among others the following challenges that affect SMEs productivity and will be accentuated in the near future.

Low entrepreneurship, an SME is the result of an entrepreneurial awareness by nature. Entrepreneurship emerges as a work alternative for those people whose matters of opportunities or interests seek to convert their ideas and capabilities into a company, although many of these initiatives give way to the creation of large companies such as Honda, Matsushita Electric, Sony and others; but all productive organizations no matter their size contributes to Japan in many dimensions such as social, economic, innovation being this last contribution due to the lack of resources (entrepreneurs must necessarily appeal to creativity and innovation to survive in a competitive market). Last decade's new business entrepreneurship in Japan have presented a low and declining rate. When comparing international of entrepreneurial awareness (figure 6) the factors used to query its levels, Japan has a far lower proportion of responses to all the queries than Western countries, particularly for "Have ready access to entrepreneurs" and "Have the knowledge, skills and experience needed to start up a business". This result indicates that the level of entrepreneurial awareness in Japan is considerable low when compared with Western countries.

Figure 6. International comparison of entrepreneurial awareness

Source: Formulated by the SME Agency from the *Report on the FY2015 'Survey of Entrepreneurial Spirit' Survey of Business Startup and Venture Support* (March 2016, Nomura Research Institute, Ltd.).
Notes: 1. Shows the results of the Global Entrepreneurship Monitor (GEM) surveys.
2. Here, the "Have ready access to entrepreneurs" response shows the GEM survey "indicator of entrepreneurial activity penetration" (the proportion who responded "Know someone who started up a new business in the last two years").
3. Here, the "Have ready access to favorable opportunities for starting up a business" response shows the GEM survey "indicator of business opportunity recognition" (the proportion who responded "A good opportunity to start up a business will come up in the area where I live in the next six months").
4. Here, the "Have the knowledge, skills and experience needed to start up a business" response shows the GEM survey "indicator of knowledge, skills and experience" (the proportion who responded "Have the knowledge, skills and experience needed to start up a new business").
5. Here, the "Would like to start up a business" response shows the GEM survey "Assessment of career choice" (the proportion who responded "Most people in your country think that starting up a new business is a desirable career choice").
6. Here, the "Success in establishing a business will give me social standing" response shows the GEM survey "Assessment of the social standing of entrepreneurs" (the proportion who responded "People who succeed in starting a new business gain respect and social standing in your country").

Source: NATPSMES (2017a, p107)

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Aging managers, as SME managers are aging the number of business exits has hit a record high, despite a decline in the number of bankruptcies. Enterprises with managers aged 60 or more and 80 or more hit their respective record-high shares of closed enterprises. The largest age cohort of managers shifted from 47 years old to 66 years old in 20 years as shown in figure 7. A side effect to consider that SMEs requires an adequate knowledge capturing process applicable to business experts (the most knowledgeable and experienced people) before they retirement.

Figure 7. Distribution of Ages of Managers of SMEs (by five-year interval)

Fig.1: "COSMOS2 (corporate information file)" (Teikoku Databank, Ltd.) (rearranged and processed)
(Note) The mode value is the value that occurs most frequently.

<div align="right">Source: NATPSMES (2017b, p2)</div>

Business succession, SMEs and micro businesses get older and many presidents have to deal with their own retirement and the succession of the next generation to their companies (family member, executive, or employee among others). In this aspect is important to consider the needs of in-house knowledge transfer process of internal aspects that guarantees the proper delivery of command.
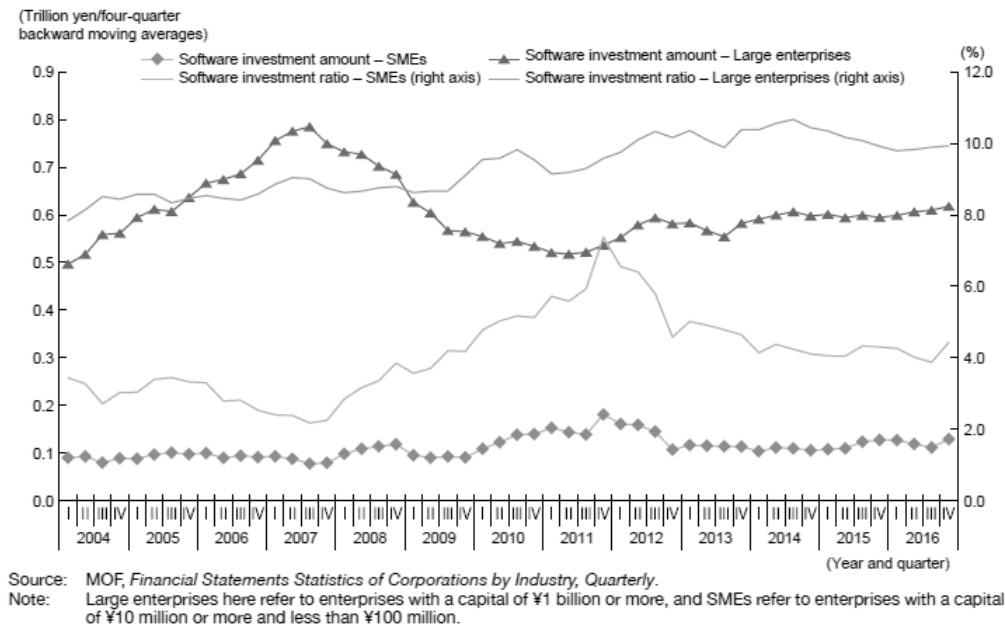
Personnel shortage, the number of employees of SMEs is decreasing to the point where lack of manpower to become normal, is well known new graduates are large companies strongly oriented, persisting the tendency to favor large enterprises among those nearing university graduations and those making job changes. It is worth mentioning this situation move away qualified workforce (advanced knowledge) from SMEs, that's why outsourcing such as freelance support (especially related to Information Technologies tasks) will be increasingly necessary.

IT management, for companies to strengthen their competitiveness and improve their productivity in the context of the current knowledge economy, it is necessary to make IT management highly available to achieve structural reform that allows problems to be solved. However, in many companies it is difficult to generate this corporate value through the merger of management, operations and IT. The main factor is the upward flow in the development process of information systems, which are the core of IT administration. In this role, the importance of the process of developing the information system and its method of implementation arises. Although there are many methodologies for this process, for large corporations with abundant management resources the development of information systems comprises a challenge that is often insurmountable in the scenario of SMEs with limited management resources such as personnel with technical knowledge on IT topics (Oshima, 2011).

Current situation of SMEs shows delay in IT investment, about half of SMEs are being introduced for office systems, e-mails, internal control of payroll and accounting work, but in procurement, sales, order

management and so on directly linked to revenue, 1 only 20% of enterprises have been introduced. As shown in figure 8, of all investments indicators for IT-related, SME investment in software has remained unchanged over the past decade or so, but large enterprises have increased their investment in software in recent years.
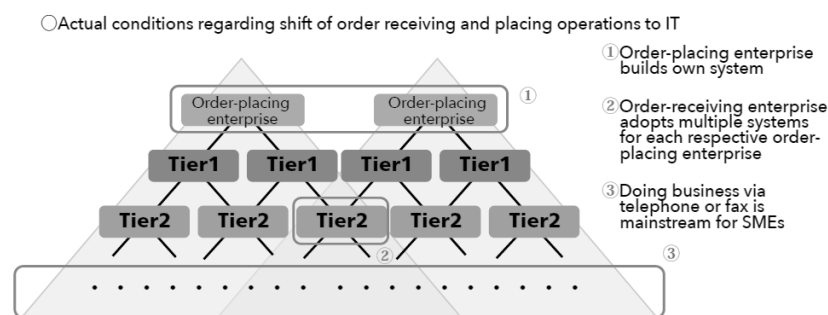
Figure 8. Software investment amount and software investment ratio

Source: MOF, *Financial Statements Statistics of Corporations by Industry, Quarterly.*
Note: Large enterprises here refer to enterprises with a capital of ¥1 billion or more, and SMEs refer to enterprises with a capital of ¥10 million or more and less than ¥100 million.

Source: NATPSMES (2017a, p15)

Among others, another relevant aspect to highlight is the problems arising from absence of data coordination systems. White Paper on Small and Medium Enterprises in Japan 2017, as it says, "when it comes to coordinating data among enterprises that includes the work of receiving and placing orders, regardless of whether they do so by exchanging faxes and phone calls or—even if the process has been moved to data systems—they do so by building multiple independent data systems, the following issues will arise due to the absence of data coordination systems that transcend barriers in a given industry" NATPSMES (2017a, p15).

Figure 9. Problems arising from absence of data coordination systems

Source: NATPSMES (2017a, p327)

The same report indicates that <u>resolving this type of problems will boost the productivity of SMEs to a considerable degree</u>, for which a Data Coordination Committee was created to establish data coordination systems that transcend the barriers within of an industry. Its main objective includes ordering operations

between companies and further increasing productivity in SMEs, also implementing a model project to survey and test the coordination of the system (NATPSMES 2017a, p327).

Other relevant aspect to mention is that among the effects from use of outside resources, the greatest share of responses corresponded to supplement the human resources as well as technology and know-how needed with a 63.0%, confirming the economic implications and needs of advanced human capital and technology in SMEs. The same report among the issues regarding making use of new technologies once again the problem most frequently cited was that of lack the technology and personnel with know-how at 45.1% (NATPSMES 2017a, p439).

In terms of the impact of incoming Information Technologies, Japanese SMEs must consider from now how they will face the Fourth Industrial Revolution, generating value by means of the new shapes of disruptive technologies through innovations such as the Internet of Things IoT, Advanced Robotics, Mobile Internet and Automation of Knowledge Work among others. Therefore SMEs must also acquire new technological absorption capabilities through knowledge understanding the real speed with which IA evolves (according to Ray Kurzweil's Law of Accelerating Returns) in the years to come.
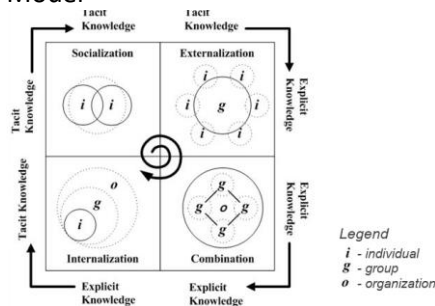
SMEs knowledge management's state of art

As mentioned before, many of the challenges that Japanese SMEs actually faces (and that will be accentuated in the future) have direct relation on how business specifically in-house knowledge is managed in SMEs. Even if knowledge management is considered as a well identified concept in Japan, is essential to clarify some notions and the current state of knowledge management in SMEs from reliable sources of information.

Inside a working context, knowledge is embedded in people's heads and relationships among them (customers, workers, suppliers, etc.), work practices (processes), document and systems, products and services, organizational memory between other forms of knowledge assets. Davenport and Prusak define knowledge within organizations as "…a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of the knower. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, networks and norms" (Davenport & Prusak 1998, p5).

According to professors Ikujiro Nonaka and Hirotaka Takeuchi knowledge management is the capacity of an organization to create new knowledge, disseminate through the organization and express it in products, services and systems (Nonaka, I., Takeuchi, H., 1998 p1). Another definition of knowledge management is the systematic management of knowledge to increase competitive advantages through its processes (knowledge creation and transfer). Other authors in this topic consider creation and measurement as knowledge management two theoretical bases.

Figure 10. Knowledge creation SECI Model

Source: Nonaka, I. y Takeuchi, H. (1998)

In addition to Japan's contribution to world's knowledge management through the SECI model among other theoretical foundations about this topic, Japan have a long way traveled on this discipline, as it for decades large firms are intensive in the way they manage their intangible assets developing systems and frameworks for this purposes; Japan's knowledge management Society was created in 1998; similarly, the School of Knowledge Science has been educating professionals and research in cognitive areas since 1990; Asian Productivity Organization APO (with in headquarters in Tokyo) has been contributing with the promotion of knowledge management through events and publications such as "knowledge management Tools and Techniques Manual" (APO, 2010) to mention some. Therefore, is important to ask: what is the real implementation status of knowledge management in Japanese SMEs?

According to the Report on the Japanese National Innovation Survey 2003 (J-NIS 2003), the implementation of knowledge management by purpose showed the results included in table 2.

Table 2. Implementation of knowledge management by purpose

Implementation of knowledge management, by purpose, 1999 - 2001: Percentage of all companies

Implementation of documented policy on knowledge management. Percentage of all companies (%)				Value system and corporate culture that are intended to promote knowledge sharing. Percentage of to all companies (%)				Implementation of policy / program intended to improve employee retention. Percentage of to all companies (%)			
Whole scale	Small scale	Medium scale	Large scale	Whole scale	Small scale	Medium scale	Large scale	Whole scale	Small scale	Medium scale	Large scale
20	17	28	35	24	21	30	42	17	16	19	21

Implementation of knowledge management, by purpose, 1999 - 2001: Percentage of all innovation achievement companies

Implementation of documented policies on knowledge management. Percentage of all innovation achievement companies (%)				Value system and corporate culture that are intended to promote knowledge sharing. Percentage of all innovation achievement companies (%)				Implementation of policy / program intended to improve employee retention. Percentage of all innovation achievement companies (%)			
Whole scale	Small scale	Medium scale	Large scale	Whole scale	Small scale	Medium scale	Large scale	Whole scale	Small scale	Medium scale	Large scale
35	32	39	48	46	42	50	59	28	28	27	27

Source: (MESTPI, 2003 p82)

As shown, all innovation achievement companies have a considerable greater level of knowledge management implementation (76.6% average) in comparison to all companies universe.

According to the academic paper "Knowledge Management Strategy and SMEs", since 2004 a new movement of small and medium-sized companies was created after a prolonged economic recession. To subsist in a market where the traditional business model loses its business, a new strategy opened an unexplored market where the resource of these corporate actions is "knowledge". This report also declares it is not an exaggeration to say that the magnitude of knowledge capacity influences the present and future of SMEs.

In this way, the examples of knowledge management practices of SMEs increase gradually, but in reality, SMEs have a difficult environment to introduce compared to large companies. This trend can be understood even for small and medium enterprises that there are few good examples of successful introduction of groupware, which is a tool to perform knowledge management. The reason management capabilities are often limited to one man; the resolution of short-term problems takes precedence. In addition, as an impediment to the introduction, it is noted that the importance of knowledge is not noticeable. In addition to this, there are also many misunderstandings about knowledge management.

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SMEs that there are few good examples of successful introduction of groupware, which is a tool to perform knowledge management. The reason is that there are many managers of one man types; the resolution of short-term problems takes precedence. In addition, as an impediment to the introduction, it is noted that the importance of knowledge is not noticeable. In addition to this, there are also many misunderstandings about knowledge management, for this reason, raises the importance of understanding knowledge management.

As mentioned above, efforts in SMEs have not been generalized yet, with the exception of some companies. While we recognize the importance of knowledge management, there are several other causes that hinder implementation.

The first identified cause is that it is not incorporated in the management strategy scheme. In an industry where the appeal is lost in general, it is difficult to survive if you do the same as other companies, so you have to do something different from other companies. Many SMEs do not read the seriousness of the environment blaming the situation due to economic conditions.

The second factor is that there are many cases in which the solutions are focused on IT. Much of the knowledge management of small and medium enterprises that is carried out is a type of preparation of a server and storage of common information, the so-called exchange of information. The goal is also an overwhelmingly large amount of document management and not objectives, followed by sales support, such as daily sales reports and customer proposals and customer service. The use is also maintained in part, and the results are not confirmed so much at present. In this way, the exchange of information and the exchange of knowledge are often confused.

According to the Japan Post Research Institute survey, the factor that triggered the introduction of knowledge management is the majority of the "information system review" in the case of large companies. The goal of introducing knowledge management is to improve corporate value, but by introducing it, improvements in employee skills, awareness of the participants, improvement of business processes by introducing best practices, reducing costs by eliminating duplication work, quality of service and direct effects such as improvement of. To be successful, it is necessary to control corporate vision, mission, strategy and tactics. If you disseminate the subject of knowledge, there is a possibility that you can include elements of low value and those that are not directly related to your business.
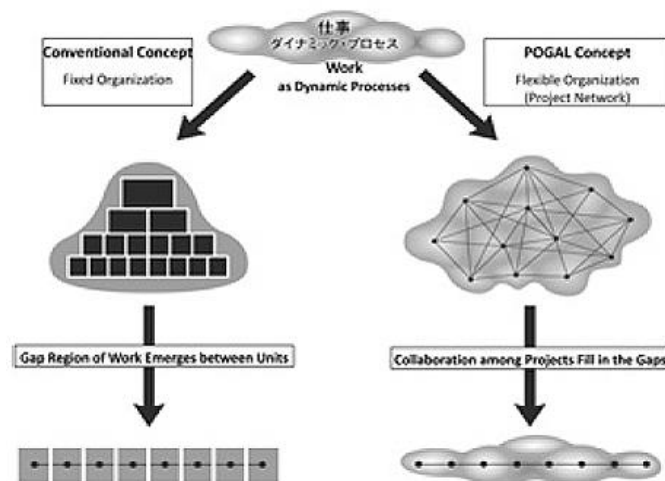
APQC proposes the following four promotion factors (facilitators) to introduce knowledge management in companies: leadership, corporate culture strategy, information technology and evaluation. Especially important are leadership and corporate culture strategy. Regarding model innovation projects of IT-based management, the introduction of knowledge management is gradually increasing, but plans without management participation are highlighted in the implementation project (Kurihara, 2004).

Between success cases studies of knowledge management in Japanese SMEs, Japan Gore-Tex (JGI) a chemical manufacturer with more than 40 years of business operations developed a sustainable knowledge creation for innovation based. Its CEO Mr. Tadashi Inoue, firmly believed knowledge creation as the core of all business activities to realize continuous innovation in both technologies and marketing. Based on this concept, JGI created an unusual organizational structure as well as many unique ways of work and has been improving them for more than a decade. This case is an extreme example of knowledge management in a medium-sized company that has truly focused on continuous knowledge creation. JGI sustains that the first step in knowledge creation is "Make Corporate Philosophy Work" through a shared corporate philosophy that enrich workers considering risk and unknown future challenges the organization as a team must face. JGI developed a Project Organization Governed by Autonomous Leadership (POGAL), an organizational

concept that has no hierarchy and considers Japan Gore-Tex as one organic aggregation of projects, equivalent to permanently based units that connect "people" and "work". POGAL and serve as the basis for knowledge creation.

JGI accepted the reality of work understanding the range of work is elastic like a rubber string; therefore any static organizational structure cannot avoid a gap region of work. JGI has developed a distinctive project-based organization that usages flexibility to answer to dynamic changes in work as shown in figure 11.

Figure 11. POGAL Concept

Based on the understanding that knowledge creation always begins from motivated individuals, and that active interaction among such individuals enables creating and sharing knowledge, JGI designed human-centric knowledge management systems by focusing on face-to-face interaction.

Arbor Technology is a traditional Taiwanese SME founded in 1982 and manufactures Industrial Personal Computers with embedded and networking capability. Traditionally, Arbor Technology was operated in a project-based way to respond to the unique requirements of customers from various industries. Thus, how to benefit from the past experience of various product designs and create value-added services becomes a strategic issue for the profitable growth of the company. The company developed Computer-on-Module and Time-to-Market Business Models through its knowledge management project to improve customer solutions and satisfaction. Engineers could easily deploy any embedded architecture to meet customers' requirements quickly and add value. The company has accelerated its design cycle time and improved customer service increasing profits through economies of scale revenue increased in 9 million USD in one year.

Other of the knowledge management success case studies for SMEs in are Qian Hu ornamental fish farming which demonstrated how knowledge management can make a difference for SMEs in their growth and globalization strategy, aligning knowledge management to their business objectives, and leveraging both internal and external sources of knowledge; Arbor Technology apply knowledge management in the R&D and manufacturing processes; Goldsun is a multi-advertising services company Vietnamese SME founded in 1994 implemented knowledge management with focus on people and technology, developing a knowledge management portal "Click to Knowledge", considered an enabler for sharing, storing, and using knowledge. Migakiya Syndicate a Japanese business consortium among over forty small manufacturers specializing in

metal-polishing, make up the consortium built their businesses as subcontractors or sub-subcontractors to Western tableware manufacturers, but their business significantly declined due to overseas competitors with lower labor costs. Through a collaborative knowledge management implementation, Migakiya gathered different specialties from all small companies together and built up new capabilities for marketing and operating a metal-polishing business. It is appropriate to mention Migakiya developed a collaborative knowledge management model which is held on four pillars: the model, systems of order intake, technological innovation and public relations. About this last issue, Migakiya used their ingenuity to generate effective public relations through SEO (Search Engine Optimization). Applying keyword targeting they generated a high hit rate which allowed them to attract large customers orders for prototype polishing.

Conclusions

Initially, it's imperative to consider the relevance of SMEs to Japanese production chain, in the last years Japanese SMEs have demonstrated they can develop an innovation culture in a more efficient way than large companies do, using speed and flexibility capabilities that small and medium organizations have. But also, must be aware of their weakness and self-imposed limitations, especially during fundraising stage, as in Startup Asia Tokyo 2014 one of problems mentioned about Japanese entrepreneurship among others is its scale of vision is too small. This can be justified by the lack of resources that new SMEs must deal during that stage, setting the goals at the limit of what is viable to obtain a quick return of investment. Also, through the revised documentation it was possible to confirm the presence of high-profit SMEs which get over large companies, but to replicate this results in Japanese SMEs they must use their collaborative culture to develop more joint ventures projects such as associations, syndicates and business-to-business B2B startups and build new business through alliance and knowledge sharing. This last topic was also mentioned during Startup Asia Tokyo 2014 when Dave McClure (founding partner at 500 startups) compared Japan specifically to Germany, and he saw a lack of business-to-business although it's likely that investors are enthusiastic to invest in this startup's category.

Between the current challenges that affects labor productivity most of them such as low entrepreneurship, personnel shortage, aging managers and changes in the employment environment are related directly with SMEs human capital and its knowledge capabilities. Therefore, the approach to follow must contemplate by one side the development of methods and tools as a KM framework that allow SMEs to execute efficiently knowledge management processes considering extraction and transformation of expert's knowledge into know how explicit knowledge such as organizational routines and disseminate it in the organization, and by the other side, strategies that make working in SMEs attractive to university graduates as a workplace or career option through the way of entrepreneurship. Other of the essential challenges that Japanese SMEs must resolve is the improvement of IT management in terms of acquisition of specific knowledge for technology absorption, software investment and the implementation of data coordination systems to raise productivity through added value.

Through the analysis of knowledge management status in Japanese SMEs it could be appreciated that innovation achievement companies have a significant higher level of knowledge management implementation among other companies; therefore, knowledge management can be considered as direct contribution to value addition through the support of innovation processes.

In relation of knowledge management practices in SMEs the research concluded they increase gradually, but SMEs must face a difficult environment to introduce KM in comparison to large companies. In the same way cases of studies showed how with the appropriate strategies knowledge management can contribute to SMEs growth and success.

Among the cases of studies, no specific knowledge management systems where found, but the same source mentioned SMEs used collaboration systems such as portals, groupware and internal projects for knowledge sharing purposes.

Finally, is important to identify and consider critical drivers that contributed to organizational transformation and corporate growth, such as the alignment of corporate vision, strategies, people's engagement and partnership with customers and suppliers.

References

Anh-Minh Do. 2014. 10 ways Japanese entrepreneurs are different from Silicon Valley entrepreneurs. Startup Asia 2014. Japan.

https://www.techinasia.com/10-ways-japanese-entrepreneurs-silicon-valley-entrepreneurs

Asian Productivity Organization APO. 2009. Knowledge management: Case Studies for Small and Medium Enterprises. Japan.

Asian Productivity Organization APO. 2010. Knowledge Management Tools and Techniques Manual. Japan.

Davenport, Thomas H., and Lawrence Prusak. 1998. Working Knowledge: How Organizations Manage What They Know. Cambridge, MA: Harvard Business School Press. Unites States.

Kurihara, G. 2004. Knowledge Management Strategy and SMEs. Japan.

National Association of Trade Promotion for Small and Medium Enterprises NATPSMES. 2017a. White Paper on Small and Medium Enterprises in Japan. SME Life Cycle (Continuity in the Next Generation). Japan.

National Association of Trade Promotion for Small and Medium Enterprises NATPSMES. 2017b. White Paper on Small and Medium Enterprises in Japan. FY2016 Developments among SMEs FY2017 SME Policy Measures Outline. Japan.

Nomura Research Institute, Ltd. 2015. Report on 2014 survey on support for start-ups and new business ventures "On the venture ecosystem with a focus on angel investors". Japan.

Ministry of Education, Science and Technology Policy Institute MESTPI. 2003. Report on the Japanese National Innovation Survey 2003 (J-NIS 2003). Statistics on Innovation in Japan.

OECD. 2013. The Missing Entrepreneurs (December 2013) p.202-203.

http://www.oecd.org/publications/the-missing-entrepreneurs-9789264188167-en.htm

Oshima, H. 2011. Issues in promoting IT management in SMES. Kyoto Gakuen University School of Management. Japan.

Shimada, H. 2014. Recommendation of SME research. Chiba University of Commerce. Japan.

Small and Medium Enterprise Agency SMEA. 2016. Current status and issues of SMEs and small businesses. Japan.