
Original Article

Japanese firms' environmental strategy: Examples from electronics-related industries

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Abstract Japanese firms began to recognise the importance of environmental issues in the mid-1980s, and have since found that environmental protection and management measures offer opportunities in terms of corporate strategy, hence the emergence of Environmental Strategy. Presented here are the results from a case analysis of five Japanese firms from electronics-related industries. The process of new strategy formation resembles a four-stage life cycle. Factors likely to influence environmental strategy depend on the stage, and we therefore propose an analytical framework for each stage. The results show that there are three routes to becoming a 'Pro-active Environmental Strategic Firm': a pioneering firm with a technologically advanced firm tends to follow with adoption and application of environmental strategy by top-down directive, followed in technologically advanced firms by the adoption and application of environmental strategy, and a venture firm independently starts an environmental strategy. Some firms have already embarked upon long-term environmental strategies, and our results suggest that domestic environmental strategy will permeate throughout Japan's industries, and expand overseas through Japanese subsidiaries.

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Keywords: environmental strategy; electronics-related industries; strategy life cycle; resource-based view; transformational leadership

Preface

Many of today's environmental issues derive from economic activities of companies. Therefore, companies' environmental measures should contribute enormously to mitigating their environmental impact. Japanese companies in electronics-related fields (such as electric appliances, electronics and information appliances) and the automobile industry are engaged in extensive overseas operations, ranging from material procurement and production to sales, so their environmental approach deserves attention.

In Japan, pollution was a major issue during the latter part of the high-growth period (late 1960s-c1973), but it was not until the mid-1980s that environmental issues came to public attention. Japanese companies did not start to take substantial measures on environmental issues until relevant regulations were established, initiating the 'reactive to regulation' mode of the early 1990s (Horiuchi, 1995). However, before environmental issues drew high public interest, there were some pioneer companies considering environmental measures as a business issue and actively implementing measures ahead of most companies.¹ Moreover, other companies, with the capacity to work on environmental measures, were influenced by these pioneer companies, transforming themselves into companies employing environmental management strategy, as called for in the last half of the 1990s (Takagaki, 1998). Then in the 2000s, environmental management systems (ISO14000 Series)² and environmental reporting³ have gained ground, and legislation targeted at a recycling-based society has also been set in progress.⁴ Meanwhile, among the companies keen on environmental management in the 1990s, some have maintained a low profile, but others have expanded their environmental activities into company-wide, long-term programmes.

This article aims to investigate the stages that companies' environmental management goes through to establish business strategy and the kind of factors that exert influence along the route of strategy formation. We also re-evaluate Japanese companies in terms of deployment of environmental management and discuss the long-term prospects of environmental management.

Electronics-related companies have been selected as the object of analysis, and as a framework for the analysis, technological strategy and the resource-based view (RBV)⁵ are used.

Meaning of Environmental Management Strategy and Concept of Strategy Formation

Meaning of environmental management strategy

Grant (2007, Figure 1.3) has summarised the progression of strategic management over the last 60 years by focussing on the themes that companies have faced at each stage, as follows: (1) financial budget, (2) strategic planning, (3) search for strategic positioning, (4) pursuit of competitiveness, (5) response to new economy and (6) response to the new century. It was after the 1980s that environmental issues came to general attention, and in Japan too, it was in the mid-1980s when public interest in environmental issues increased, leading to discussions in the fields of economics or policy science. However,



it is only since the late 1980s that discussions have started in the field of management studies.⁶

Environmental issues in the 1990s changed social awareness, which also made for an extremely important change in external factors for companies. The handling of environmental aspects of company activities, including raw material procurement and methods of manufacturing and sales, has now become a major strategic issue, and since the 1990s the issue of environmental management itself has also come to be seen equally as a strategic issue.

Concept of strategy formation

As Grant (2007) indicates, companies inevitably face changes from time to time, representing each time a change of external environment. A company develops strategy to deal with such changes according to certain steps; by using a 'lifestyle' concept, four periods – introduction, execution, continuity and stagnation – are suggested as progression stages of a business issue transformed into strategy (Takagaki, 1998).

First, the 'introduction period' is the time for a company to embark on a specific environmental measure, and its preparation is not always fully completed within the company. In the 'execution period' for the specific environmental measure, the company's environmental approach is not broad or holistic. The 'continuity period' is the time of adherence to specific environmental measures, and the company accumulates experience through its implementation. Lastly, the 'stagnation period' is when the specific environmental measure becomes part of routine operations, and strategic activities diminish or slow down. After this 'stagnation period', the activities will either die out or be carried over as part of a follow-on strategy.

In the 1990s, public concern highlighted environmental issues, so in such circumstances of changed external conditions, companies directed strategic attention to environmental measures. We may say therefore that this represented the 'introduction' and 'execution' periods of environmental strategy. Market conditions being tough, environmental measures became necessary for company survival. In the late 1990s, more and more companies implemented environmental measures, indicating the start of the 'continuity' period. Changes in outside conditions at this time included (i) prevalence of environmental management systems (ISO 14000 Series certification) (Horiuchi and Mukai, 2006), (ii) spread of environmental reporting and (iii) establishment of environment-related laws.

Because environmental issues are highly varied, company responses will vary from specific to more comprehensive environmental measures, according to project development; some projects may be relatively short term, while others may need several decades. Here, we refer to early and project-specific

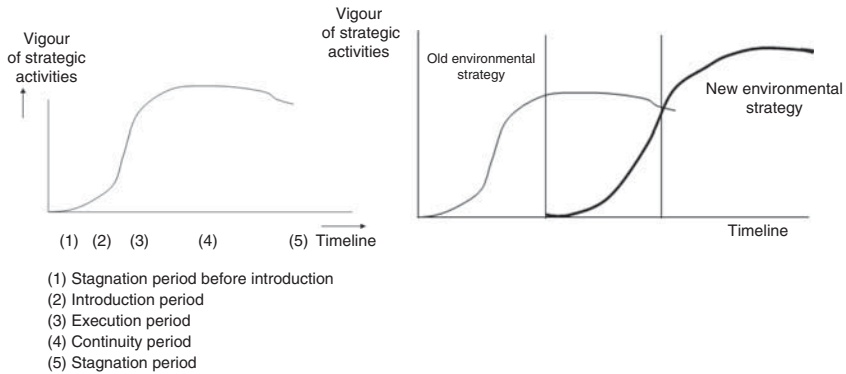


Figure 1: Concept of deployment of environmental management strategy.

environmental strategies (1990s onwards) as ‘old environmental strategy’, and strategies with a more comprehensive and long-term outlook as ‘new environmental strategy’.

‘Old environmental strategy’ did not cover all business activities and were insufficiently long term in outlook, largely because the activities had to respond to rapid changes in external factors in the 1990s. On the other hand, ‘new environmental strategy’ looks at environmental issues across a whole range of business activities in the long term.

The left-hand side of Figure 1 shows the deployment of strategy for environmental management. The vertical axis indicates the vigour of strategic activities. The horizontal axis is a timeline, showing (1) stagnation period before strategy formation, (2) introduction period, (3) execution period, (4) continuity period and (5) stagnation period. As regards this timeline, as the start year of environmental management strategy varies according to company, the time taken to arrive at the continuity period will also vary.

The right-hand side of Figure 1 is a conceptual diagram showing the shift from the old environmental strategy to the new. During the continuity period for a specific ‘old’ environmental strategy, a more comprehensive ‘new’ strategy will enter its introduction period; when it passes into its execution period, a shift is effected from the old to the new environmental strategy.

Methodology and Case Studies

Methodology

We analysed the environmental strategy of selected companies over three periods of ‘introduction’, ‘execution’ and ‘continuity’. The ‘stagnation’ period

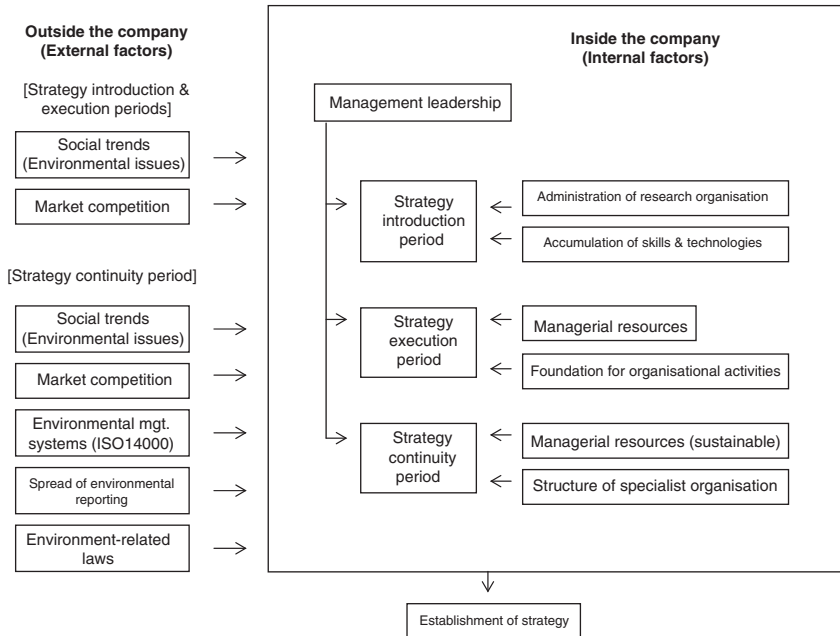


Figure 2: Model of environmental strategy formation.

was excluded, as our focus is an analysis of the process of formation of environmental strategy. The framework for this analysis is explained below, with a diagram showing the model of environmental strategy formation (Figure 2).

Analysis of strategy 'introduction' and 'execution' periods (until 1990s)

The questionnaire survey of all industries previously cited (Takagaki, 1998) revealed the most pressing external factors, and also taken into account were (i) environmental issues as a social trend and (ii) market competition.

Influential internal factors were identified based on a model of technological strategy formation (Chiesa *et al.*, 1996), as the feasibility of environmental measures largely depends on environmental technology capability. Inside the company, influential factors vary according to the stage of strategy deployment. For the 'introduction period', (i) management leadership, (ii) whether administration of research organisation functions or not, and (iii) level of technology accumulation were considered. For the 'execution period', (i) management leadership, (ii) managerial resources, and (iii) foundations for upgrading company-wide organisational activities were considered.

Analysis of strategy 'continuity' period (2000s)

For external factors, changes between the end of the 1990s and the 2000s were taken into account, and the following were noted: (i) environmental issues as a social trend, (ii) market competition, (iii) prevalence of the ISO14000 Series environmental management system, (iv) spread of environmental reporting and (v) establishment of environment-related laws.

For internal factors, (i) management leadership, (ii) sustainable managerial resources and (iii) structure of specialist organisation were considered; these were obtained by summarising factors from the point of RBV represented by Barney (1997) and Grant (1991).

According to Barney, (i) value, (ii) rarity and (iii) imitability are necessary characteristics for managerial resources, and (iv) whether foundations are laid allowing organisational activities or not is very important. Grant suggests a five-step method of analysis of managerial resources and strategy in which the quality of managerial resource can be evaluated through the presence/absence of leadership and foundations for organisational activities. Regarding 'sustainability' of competitiveness, Grant claims that even if a company can deliver competitiveness through its managerial resources and capability, that does not mean its competitive advantage will be maintained in the long term. He also states two characteristics, (i) durability and (ii) imitability, that are necessary for a company to ensure sustainability for its strategy. From these views, managerial resources and ability within a company are considered influential during the continuity period.

Case studies

Case studies⁷ were carried out based on surveys including interviews, and the following five Japanese companies from electronics-related industries were selected for analysis: Canon, Ricoh, Toshiba, Ebara Seisakusho and Shinozaki Seisakusho.

Electronics-related industries were selected because: (i) they have a high likelihood of strategy formation, (ii) plastic waste and recycling is feasible, although various kinds of plastic parts are used (including variations of colour, molecular-weight and additives), (iii) change of environmental management in these (assembly-type) industries may influence and be applicable to other industries (through parts suppliers to other users), (iv) they are growing industries, and (v) they have active overseas operations.

As for technological developments related to environmental issues, the following are specific to electronics-related industries: (i) substitutes for chlorofluorocarbons (CFCs), (ii) disposal of scrapped products and (iii) recycling technologies. Plastics are particularly associated and related



with (ii) and (iii). Matters common to factory operations across all industries are (i) prevention of pollution, (ii) waste treatment and (iii) packaging materials.

Contents of Case Studies

The five companies selected for analysis

Canon

Since 1988, under Ryuzaburo Kaku as president of Canon and Keizo Yamaji as vice-president, the company has adopted *Kyosei*, 'living together with environment', as its business philosophy. An internal decision was made to initiate a recycling process at a new toner cartridge manufacturing plant to be built in Dalian, China; collection for recycling started in 1990 and the recycling as well as manufacturing departments began operations in 1991. This was extraordinarily rapid, as the establishment of new facilities normally takes at least 2–3 years from site selection to plant design to construction. This move was anticipated to give Canon an advantage over other manufacturers in the growing market for laser beam printers, fax machines and photocopiers.

Fujio Mitarai from Canon's founder family became president in 1995, and concentrated on cutting costs through improving production efficiency. The company's environmental activities seemed diminished around 2000, but, under the understanding that environmental measures would bring about cost reductions, its environmental strategy has nonetheless been progressing since the 1990s.

Canon's environmental strategy introduction period lasted from 1988 to 1990, when the execution period started, and within a very short time, the development of recycling technologies and plant construction was accomplished. After 'execution', from 1991 to 1997, came 'continuity', when the collection area for recycling was expanded.

Throughout the 2000s, according to the annual evaluation by the *Nikkei* newspaper, Canon's environmental management has remained in the top rankings of the manufacturing sector, indicating stability and continuity in its environmental strategy.

If recycling of main units – not to mention components – and long-term measures are considered as new environmental strategies, the time around 2000, when Canon's environmental profile was low, can be regarded as the stagnation period before the introduction of a new environmental strategy.

Ricoh

Ricoh initiated environmental strategy at the end of 1990, about three years later than Canon, but Ricoh has since put great effort into research and

development, making broad progress since 1992. The company had a crisis of confidence over its ability to secure top ranking in the domestic photocopier market; it was already struggling with expanding sales in Europe, as it did not have Germany's environmental 'Blue Angel' mark due to its delay in tackling environmental issues.

Masamitsu Sakurai succeeded Hiroshi Hamada as president in 1996; this was an unprecedented appointment, as he was the first president with an engineering background and under his leadership, environmental strategy was greatly furthered. Mr Sakurai had long working experience in Europe and had become familiar with the high environmental awareness in Europe while working at a subsidiary company in the United Kingdom.

During the 2000s, Ricoh has maintained a high place next to Canon in several environmental management rankings of the manufacturing sector, including the *Nikkei* evaluation. In its 2005 environmental report, Ricoh detailed four measurements for value comparison, including environmental preservation cost, economic effects, environmental preservation effects and environmental impact; these have been favourably received as the most appropriate environmental accounting information (Amano *et al.*, 2006, p. 180). Ricoh has announced its 2050 Environmental Vision, and it seems that the company is now entering the introduction period for its next new environmental strategy, out of the continuity period for the old environmental strategy.

Toshiba

Toshiba started working on an organisational structure change for environmental measures in 1988, while Joichi Aoi was president, and established a research centre dedicated to environmental technologies in 1989, carrying out staff exchanges between the research centre and factories. Environment-related activities are carried out by a separate organisation from the line organisation, as seen in certifying environmental auditors from staff dedicated to environmental management. Using a different organisation for an operation is a common method, also applied to plant safety inspections or small-group activities. This company-wide organisational structure for environmental management has become a strong foundation for developing strategy across the entire corporate group.

To shift from heavy electrical and home electrical appliance manufacturing to energy and electronics (E & E) as its core businesses, Toshiba had to raise the motto of 'Commitment to people, commitment to the future' in the midst of tough market competition and tackle environmental issues seriously. Active attention to environmental issues was hoped to prove the company's strength in maintaining competitiveness.



Under the leadership, since 2005, of President Atsutoshi Nishida, Toshiba is regarded to have been generally successful in its business restructuring and efficiency improvement measures from the last half of the 1990s. At present, the company is carrying out an innovation activity called 'i cube' to multiply through close collaboration the effects of the development, manufacturing and sales departments, aiming to continue 'sound growth and profit' for all businesses in domestic and overseas operations, based on organisational resilience. Under the belief that sustainable growth as a 'corporate citizen of planet Earth' is feasible only when its social value as a company is recognised, Toshiba has been intensifying corporate social responsibility (CSR) activities covering global environment preservation, social contributions and compliance. The 2008 version of the company's environmental report consisted of about 70 pages full of substantial information. Announcing 'Environmental Vision 2050' in November 2007, to illustrate its target of achievement through promoting the environmental management of the Toshiba Group, the company has undertaken to aim for utmost contribution to the global environment, respect for diversity in countries and regions, and the creation of new values. Toshiba is thus shifting to a new environmental strategy with its 2050 goal.

Ebara Seisakusho

The company Ebara Seisakusho (hereafter Ebara) was originally a manufacturer of machinery and plant equipment, including hydraulic machines such as pumps and wind turbines. Under Hiroyuki Fujimura, who became president in 1988, Ebara's machinery business was restructured to combat the recession in the plant equipment sector in the 1980s, and the company began to emphasise environmental equipment and services towards developing them into its main business field. Ebara also attempted to nurture precision electronics and information and telecommunication businesses, which were expected to be pillars of their future enterprise. From around 1990, environmental businesses were highlighted, and the domestic environmental equipment market grew two- or threefold from the 1980s level. From the mid-1990s to the first half of the 2000s, Ebara pushed its environmental business forward and became a representative firm among advanced environment-oriented companies. It also expended much energy towards overseas operations.

However, partly because leadership in management faltered after president Fujimura's retirement in 1996, Ebara has been unable to transform its accumulated assets of environmental technologies into a clear business strategy, and for several years has seen its business slow down. In 2000, the company had its ISO-14000 certification rescinded due to environmental misconduct. Ebara used to produce a large environmental report of about 40 pages every

year, but since 2008, this has been downgraded to a sub-section of around 15 pages in a CSR report of about 50 pages. Ebara is in stagnation, and is now rarely seen as an advanced environment-oriented company.

Shinozaki Seisakusho

Shinozaki Seisakusho (hereafter Shinozaki) is a small company employing about 20 people, situated in Shinagawa Ward, Tokyo, and specialising in laser processing. The company received ISO-14000 certification in 1997, the first among small and medium-sized companies in Japan. This was thanks to decisions by top management (under Hiroshi Takakuwa), who considered that the introduction of environmental management would enhance capability in business administration, and help the company move away from the role of a subcontractor dependent on larger companies. After that, Shinozaki received ISO-9000 certification for quality management. Treating environmental management as a means, not an aim, is a unique feature.

Shinozaki has developed 'fabless' (no possession of fabrication facilities) operation by building networks with regional laser processing firms and outsourcing work, allowing Shinozaki to concentrate on technological development. The company frequently appeared in the media or gained achievement awards for its development of laser technologies; however, since 2000, it has rarely made the news *vis-à-vis* environmental matters.

From the strategy introduction period to the execution and continuity periods

Table 1 shows a summary of these five companies in terms of the influential factors indicated in the model of environmental strategy formation (Figure 2). Symbols used in the table indicate four different ratings of comprehensive evaluation for each factor, determined from the results of detailed interviews with those companies. The validity of the responses was also verified by checking each company's activities, including environmental reports.

Analysis

Progression of strategy formation

Strategy introduction period

Among external factors during the strategy introduction period, 'market competition' and 'social trends (environmental issues)' influenced four companies, Canon, Ricoh, Toshiba and Ebara, around 1990. Shinozaki dealt with environmental management as measures, rather than aim, and the content

**Table 1:** Evaluation based on model of technological strategy formation

| <i>Influential factors</i> | <i>Canon</i> | <i>Ricoh</i> | <i>Toshiba</i> | <i>Ebara</i> | <i>Shinozaki</i> |
|---|--------------|--------------|----------------|--------------|------------------|
| Outside the company (External factors) | | | | | |
| <i>[Strategy introduction period]</i> | | | | | |
| Social trends (Environmental issues) | ○ | ○ | ○ | ⊙ | X |
| Market competition | ⊙ | ⊙ | ○ | ○ | X |
| <i>[Strategy execution period]</i> | | | | | |
| Social trends (Environmental issues) | ○ | ○ | ○ | ⊙ | X |
| Market competition | ⊙ | ⊙ | ○ | ○ | X |
| <i>[Strategy continuity period]</i> | | | | | |
| Social trends (Environmental issues) | ○ | ○ | ○ | ⊙ | X |
| Market competition | ⊙ | ⊙ | ○ | ○ | X |
| Environmental audit (ISO14000) | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ |
| Spread of environmental reporting | ⊙ | ⊙ | ⊙ | ⊙ | X |
| Establishing environment-related laws | ⊙ | ⊙ | ⊙ | ⊙ | X |
| Inside the company (Internal factors) | | | | | |
| <i>[Strategy introduction period]</i> | | | | | |
| Management leadership | ⊙ | △ | ⊙ | ⊙ | ⊙ |
| Administration of research organisation | ○ | ○ | ⊙ | ○ | X |
| Accumulation of skills and technologies | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ |
| <i>[Strategy execution period]</i> | | | | | |
| Management leadership | ⊙ | ⊙ | ⊙ | ⊙ | ○ |
| Managerial resources | ○ | ○ | ⊙ | ○ | X |
| Foundations for organisational activities | △ | ⊙ | ⊙ | △ | ○ |
| <i>[Strategy continuity period]</i> | | | | | |
| Management leadership | ○ | ⊙ | ⊙ | ○ | ⊙ |
| Managerial resources (sustainable) | ⊙ | ⊙ | ⊙ | ○ | X |
| Structure of specialist organisation | ⊙ | ⊙ | ⊙ | ○ | X |

Explanation of symbols:

⊙ : large influence; ○ : significant influence; △ : small influence; X : No or little influence.

NB: Symbols above indicate four different ratings of comprehensive evaluation for each factor, determined from the results of detailed interviews with those companies regarding those factors. Validity of responses was also verified by checking each company's activities, including environmental reports.

and scale of its business activities indicate that its environmental impact was not large, and external influences were smaller. The case of Shinozaki will be discussed separately.

As for factors inside the companies, 'administration of research organisation' and 'accumulation of skills and technologies' reflect potential for

technological resources. Both factors heavily influenced the four companies alike.

For Canon, Toshiba, Ebara and Shinozaki, a big influence of ‘top-down management’, rather than ‘management leadership’, is noticeable. Ricoh’s President Hamada was not quite the top-down management type, but is assumed to have been a strong supporter of developing environmental technologies, as the research and development budget was maintained in 1992 despite Ricoh’s operating profit entering negative figures.

Strategy execution period

Carrying over from the strategy introduction period to the execution period, ‘social trends (environmental issues)’ and ‘market competition’ strongly influenced the same four companies. In the 1990s, when market competition intensified, environmental issues came to the fore, alerting these companies that waste control and recycling were not only essential duties for companies, but also opportunities for competitive advantage.

Internally, ‘management leadership’ continued to be influential, and all the companies affirmed the influence of ‘managerial resources’ and ‘foundations for organisational activities’.

Strategy continuity period

As external factors, ‘social trends (environmental issues)’ and ‘market competition’ influenced the four companies, as in the introduction and execution periods. In addition, there was large influence from ‘environmental management’, ‘spread of environmental reporting’ and ‘establishment of environment-related laws’.

‘Management leadership’ continued to be strongly influential within Ricoh and Toshiba, and ‘input of managerial resources’ and ‘foundations for organisational activities’ influenced all the companies alike.

The ‘Strategy continuity period’ started in the 2000s and environmental measures were broadly in place, but a gap appears between the companies which evidently were following new strategic activities (Ricoh and Toshiba) and those with less evident activity. In the 1990s, Ebara had linked business restructuring with its business target, but its business slowed down in the latter half of the 2000s. As for Shinozaki, its environmental management strategy has weakened in the 2000s.

Opportunities of strategy formation: Transformational leadership

As with Canon, Toshiba and Ebara, if management leadership is strong and top-down management effective, not only will the formation of technological



strategy be accelerated, but also the strategy will permeate the entire company faster, shortening business strategy development time. This is because top-down management makes the direction of strategy clear, reducing internal resistance and hastening the progress of strategy from introduction to execution. Such top management persons can be called transformational leaders,⁸ pointing the way forward for their company under major changes in the external environment.

For the introduction period of strategy driven by top-down management, senior executives, observant of industry competition and trends in environmental issues, felt a sense of emergency and started the development of environmental technologies. This is seen at Canon under President Ryuzaburo Kaku around 1990, at Toshiba under President Joichi Aoi, and at Ebara under the first half of Hiroyuki Fujimura's presidency. All three presidents exercised charismatic leadership and had great interest in other activities as well as environmental issues. In particular, for the presidents of Canon and Ebara, who had then internally promoted and were taking over from founder-family members, there was need to show to an internal audience their ability, and to improve employees' morale. They also needed to show to an external audience their leadership abilities. Canon, Ricoh, Ebara and Shinozaki are all highly technology-oriented companies with considerable knowledge accumulation, and they have established organisational structures for technological and operational control. Shinozaki had a high standard of technological expertise, but as a small company, its administrative control ability was not very strong. However, it related to environmental issues through its involvement with recycling, and started environmental management to enhance its ability in business administration. This was an unusual approach among small and medium-sized companies, so the senior manager of Shinozaki, Hiroshi Takakuwa, though actually a company founder, was also a reformer-type chief executive.

Even if top-down management is absent, some companies can enter strategy execution after the introduction period, and Ricoh is an example. For Ricoh, market competition around 1990 was a big defining factor. Its development of environmental technologies did not start quite as early as some manufacturers like Canon and Toshiba, and photocopier and printer industries were seeing large changes and tough competition in the product market. Before President Sakurai was appointed, Ricoh had no strong management, but under Hiroshi Hamda's sympathetic management, a sense of emergency and stimulation seem to have grown.

To outsiders, strategic activities after the retirement of the leading executives appeared to slow down in companies where top-down management took place. However, in the strategy continuity period following these retirements, steady development continued within the companies, manifesting a situation

where tangible effects are evaluated internally and more highly recognised. Canon and Toshiba around 2000 are the examples of this.

Re-evaluation of Japanese companies

All five companies analysed for the case study have been working on environmental measures under specific action programmes based on technological strategy, and it can be said that they have introduced, executed and sustained environmental measures as business strategy. They have been treating environmental measures not simply as countermeasures, but as strategic issues. Therefore, these five proactive management style companies have a high level of ability to cope with environmental issues. They are the Type [1] companies in Figure 3, defined here as ‘environmental strategic companies’.

In Figure 3, company types are categorised by ‘ability to cope with environmental issues’ on the vertical axis and ‘attitude towards management’ on the horizontal. ‘Ability to cope with environmental issues’ is actually

| | | | | | |
|-----------------|-------|---|---|------|--|
| | | <Ability to cope with environmental issues> | | | |
| | | High | | | |
| Reactive | [II] | <i>'Companies responsive to regulations'</i> - Big Japanese companies in the past - Companies with highly advanced technologies | <i>'Environmental strategic companies'</i> - Companies running eco-businesses - Companies actively complying with international standards | [I] | <Attitude towards management> |
| | [III] | <i>'Unresponsive companies'</i> | <i>'Venture business-type environment-oriented companies'</i> | [IV] | Proactive |
| | | Low | | | |

Figure 3: Archetype by company’s environmental management style.

Note: Modified from Horiuchi (1995), and based on the argument in this article. Here, [III] type companies are defined as ‘unresponsive companies’ - not detailed in this article, but to be dealt with in future research. Horiuchi states that the third quadrant is for ‘indigenous industries in underdeveloped nations’, ‘multinational companies’ factories abroad’ and ‘very small enterprises’, but the case for multinational companies is questionable.



managerial resources, while 'attitude towards management' can be replaced with capability, which could even mean management leadership or presence/absence of activated organisation.

As we have seen earlier, the situations of those becoming 'environmental strategic companies' vary from company to company. Of large Japanese companies pioneering environmental management strategy, Canon, Toshiba and Ebara fit this bill among the five companies here. They have transformed themselves from Type [II], 'companies responsive to regulations', into 'environmental strategic companies' under strong managerial leadership. Ricoh made a late start, but has caught up very quickly to become an 'environmental strategic company' as a technologically advanced company. Shinozaki is a small and middle-sized company, and despite a highly proactive attitude, its ability to cope with environmental issues on the administration side is not very high. The company turned from Type [IV], 'venture business-type environment-oriented company' to Type [I] 'environmental strategic company' (see Table 2).

To summarise these patterns: breakthrough took place under pioneer executives, and when the race for development of environmental technologies started, technologically advanced companies with a good ability to tackle environmental issues were affected, joining the competition for technological development and starting strategy formation (see Table 2).

It is very important to note that the race to develop environmental technology started under competitive pressures in the industry, and that

Table 2: Categorisation for environmental management strategic companies

| <i>Category</i> | <i>Example – company name</i> | <i>Route to environmental strategic company</i> |
|--|-------------------------------|--|
| Pioneer company | Canon Toshiba Ebara | Becomes environmental strategic company through top-down management putting an emphasis on environmental measures. From Type [II] to Type [I] in Figure 3. |
| Technologically advanced company | Ricoh | Becomes environmental strategic company through bottom-up management under a leader supportive to environmental measures. From Type [II] to Type [I] in Figure 3. |
| Venture-business type environment-oriented company | Shinozaki | Becomes environmental strategic company through top-down management of middle and small-sized business. From Type [IV] to Type [I] in Figure 3. |

environmental strategy formation is spread through technologically advanced companies through influences by pioneer companies. Electronics-related industries are mostly assembly-type manufacturing businesses, and many companies are related to one another through activities like component procurement. Therefore, as seen in Ricoh's Comet Cycle, development of recycling technologies and establishment of recycling systems are in progress through inter-company collaboration over business relations such as material/parts supply or sales routes. Also, environmental management (certification of ISO-14000 Series) has been widespread through business-related networks (Katsuda, 2007). As seen above, due to inducement by some companies, competition to develop environmental technologies has been created in the industry and is prevailing inside and outside the industry through business relations, which implies the possibility of transmission to the whole economy.

Role of overseas subsidiary companies

Ricoh's subsidiary company in the United Kingdom was recognised for its active work on environmental measures and given the Queen's Award in 1992. This incident caused Ricoh to commit itself to working full-scale on environmental issues in Japan. The UK subsidiary became a model for the environmental approach across the whole Ricoh Group. Also in Canon and Toshiba, the sharing of technologies and knowledge between domestic operations and overseas subsidiaries has been furthered.

Overseas operations are actively carried out by many Japanese electronics-related companies, such as in the automobile industry, so electronics-related industries provide an ideal study field in terms of our discussion on how Japan's international businesses tackle environmental issues. Japanese subsidiaries based in Europe, where social awareness on environmental issues is very high, have a particular influence, and a series of case studies and questionnaire surveys have been carried out for Japanese subsidiaries based in the United Kingdom (Takagaki, 1999). According to these surveys, each subsidiary has actively implemented environmental measures in its plants and their product recycling is more advanced than at plants in Japan. Many Japanese subsidiary companies in the United Kingdom have been working on environmental measures on their own initiative. As for the varying conditions of environmental policy among European nations, there is a trend to meet the strictest regulations. From these findings, it was noticed that formation of environmental strategy by subsidiaries in the United Kingdom or Europe had gone further than the 'responsive' measures taken by parent/sister companies in Japan in the late 1990s. In the 2000s, an environmental control



system has been established at business operations in Japan and also has been introduced to operations of Japanese businesses in underdeveloped nations.

A global spread of Japanese companies' environmental strategy through their overseas subsidiaries is very important for the companies' growth as international enterprises, and will be regarded as contributions to the international community.

Shift to new environmental strategy

In the mid-2000s, a divide is becoming clearer between two types of companies; those with the ability to shift to new environmental strategies through the application of accumulated managerial resources and those without. As indicated in Figure 1 (right-hand side), a company shifts to a new environmental strategy, or does not. Toshiba and Ricoh have clearly outlined their commitment to new environmental strategies aimed for 2050, and Canon also has the ability to move towards new environmental strategy. On the other hand, Ebara's priority is to restore its business, and Shinozaki continues to pursue technological development for its survival as a small company, so it can be assumed that these three companies will persist with their existing (or old) environmental strategy.

Since the sub-prime loans crisis began in 2007, recession has affected all industries, but cases like Toshiba and Ricoh can be found elsewhere and are increasing. It is worth watching to see how Toshiba, Ricoh and Canon evolve their environmental strategy from existing approaches to new ones.

Conclusion

This article has analysed how environmental management strategy has been established in the Japanese firms, Canon, Ricoh, Toshiba, Ebara and Shinozaki.

A four-stage life cycle of strategy formation was suggested, comprising periods of strategy introduction, execution, continuity and stagnation. For each of these, influential factors on strategy formation were identified and distinguished between external (outside the company) and internal (inside the company) influences, and a model of environmental strategy formation was created.

More specifically, regarding external factors during strategy introduction and execution periods, we considered (i) environmental issues as a social or public trend and (ii) market competition. For internal factors in the introduction period, (i) management leadership, (ii) administration of research organisation and (iii) accumulation of technologies and skills were considered, and for the execution period, (i) management leadership, (ii) managerial

resources and (iii) foundations for activities within the organisation (including creation of informal organisations) were taken into account. As external factors during the strategy continuity period, (i) environmental issues as a social or public trend, (ii) market competition, (iii) prevalence of environmental management system (ISO14000 certification), (iv) spread of environmental reporting and (v) establishment of environment-related laws were considered. For internal factors during the continuity period, (i) management leadership, (ii) sustainable managerial resources and (iii) structure of specialist organisations were taken into account.

From the case studies, using the model of environmental strategy formation, the following observations were made.

First, there are several different routes that companies may take to become an 'environmental management strategic company' with a high ability to cope with environmental issues and a very pro-active attitude. Like Canon, Toshiba and Ebara, companies with a top-down management (or reformer-type senior executives) fully aware of environmental issues can be 'pioneer companies' and become environmental management strategic companies very early. Even without top-down management, under strongly competitive conditions 'technologically advanced companies' with accumulated technological assets can become environmental management strategic companies under supportive management, as at Ricoh. Even among small and middle-sized companies, companies that demonstrate pro-active business management, like Shinozaki, can become environmental management strategic companies under management leadership, despite their lesser ability to cope with environmental issues.

The implication is that 'technologically advanced companies' can become environmental strategic companies through influence by 'pioneer companies', and that environmental strategy can be transmitted to other companies in the industry when competition is tough. In the 2000s, environmental management systems have spread to other industries through business relations, and against a background of increased environmental reporting and environment-related legislation, methods of environmental management have been developed within companies. This also implies that environmental management strategy will permeate not only the entire national economy, but may also pass outside Japan through the medium of some overseas subsidiaries.

The presence of companies like Toshiba and Ricoh, making the shift to a long-term and holistic environmental strategy, should also be noted.

About the Author

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Notes

- 1 For product recycling, Canon started recycling of toner cartridges in 1991 before public demand for recycling emerged and long before relevant legislation. Also, Sony started recycling of television sets in Germany in 1996.
- 2 As Environmental Management System (ISO-14000 Series) standards, two sets of management-related guidelines ('Requirements with Guidance for Use: ISO-14001' and 'General Guidelines on Principles: ISO-14004') and three sets of guidelines for environmental auditing ('General Guidelines: ISO-14011', 'Audit Procedure for Environmental Management System:ISO-14011' and 'Qualification Criteria for Environmental Auditors:ISO-14012' have been in effect since September 1996. In addition, other standards, including environmental labelling (ISO-14020+) and life cycle assessment (ISO-14040+) have also been issued. Many guidebooks for the ISO-14000 Series have been published, including Hirabayashi and Sasa (1996).
- 3 Environmental reports are produced to disclose to the general public information on companies' environment-related activities. Environmental reporting became popular among companies with overseas operations from the mid-1990s. Japan's Ministry of the Environment established guidelines for environmental reports in 2003, and the number of large companies producing such reports is on the rise.
- 4 The 'Basic Law for Establishing a Recycling-based Society' (2000) laid the foundations for policies for waste management and recycling in Japan.
- 5 This view puts emphasis on managerial resources as the source of company performance and competitiveness. Therefore, from this viewpoint, differences among company performances may be explained from the difference in the efficiency of utilisation of internal managerial resources. See 5.3 in Takagaki (2008, pp. 87–90) for an evaluation method for managerial resources.
- 6 As for economic approach, studies on metabolism, environmental resources, external diseconomy, social cost and economic system have been carried out, and in policy scientific approach, the government's role and consensus building, and international collaboration have been looked at. In economics, social responsibility, green marketing and environmental cost have been highlighted. See diagrams 1 and 2 in Takagaki (1998).
- 7 The questionnaire survey on companies' environmental measures was carried out four times between FY1995 and FY1999, and then in 2002 and 2007. The early questionnaires contained a wide range of questions, to assess the purpose of understanding the actual situations, but the questions were subsequently successively narrowed down to more specific items. Interview surveys were conducted continuously during the same periods, in line with the questionnaire surveys.
- 8 Transformational leaders are top executive officers who are capable, under major changes in external environment, of grasping current situations and making right judgements according to their management policies (Kanai, 2000; Kase *et al.*, 2005).



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