

Feature Article

Service quality survey of technical visits for foreign visitors

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1. Introduction

In Japan, new tourism growth markets that utilize regional characteristics, such as industrial tourism, are expected as per the national growth strategy. Figure 1 classifies tourism by category, including industrial tourism. “Industrial tourism” is defined as industrial activity that attempts personal exchanges using industrial cultural property of historical and cultural value, production sites, or industrial products as a tourism target or resource. Industrial tourism can be further categorized as “industrial heritage” or “technology and factory”.<sup>(1)</sup> The characteristics of industrial tourism for industrial heritage are defined in relation to the remains of factories and local industries, the histories and cultures of industries, society and living standards, etc. Examples include experiential tourism to learn through corporate museums and museums that display the history and products of industries, production processes of products, and traditional crafts.<sup>(2)</sup> In contrast, the characteristics for technology and factories are defined as factory tours and technical visits. Factory tours include general attractions such as the Ryukyu glass village in Okinawa and the Shinano wine factory in Shinshu Matsumoto. Technical visits involve visitors from other countries or regions whose purpose of visit is to observe advanced technology, production systems, modern industrial facilities, etc.<sup>(3)</sup>

Chukyo, the representative industrial production area in Japan, is particularly focused on technical visits that provide specialized and technical information to specific customers. Figure 2 shows the hierarchical needs of technical visits. Technical visits are structured for three purposes: business needs that directly aim at negotiation and technology transfer, needs

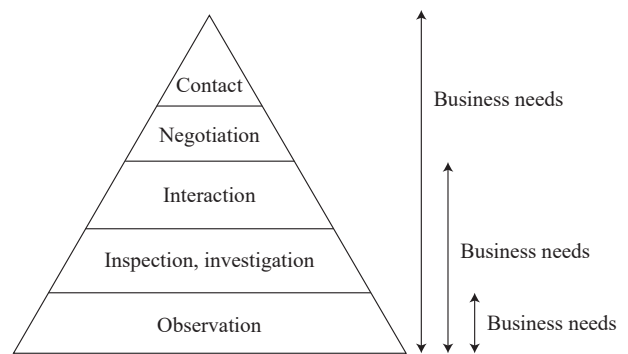


Figure 2: Purposes of technical visits

aimed at exchanging information with business partners and other peers in the same industry, and needs for collecting information and making excursions such as to international conferences.<sup>(4)</sup>

Although there are many studies that target industrial heritage, there are not so many studies that target technical visits. Therefore, this article clarifies the actual state of technical visits using a case study of AVEX Inc., which is a small/medium manufacturing enterprise in the Chukyo region. The company has commercialized technical visits and has achieved remarkable success. Furthermore, the evaluation result of the service quality of the technical visits for foreigners provided by AVEX Inc. is shown based on a questionnaire survey. Moreover, this article is a summary of the following two papers: Ito et al.<sup>(5)</sup> and Ito and Kawamura<sup>(6)</sup>.

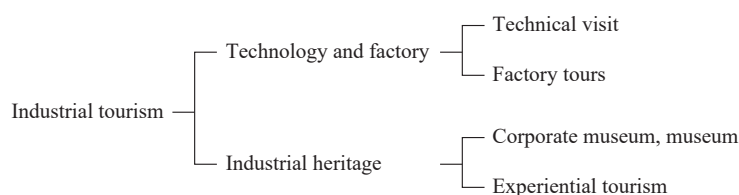


Figure 1: Classification of industrial tourism

## 2. Technical visit for AVEX

AVEX is a small precision cutting and grinding processing manufacturer for automotive components, which was founded in 1949. There are three production bases in Japan. The first is the Nagoya factory (Nagoya City, Aichi Prefecture), which was founded in 1949 and is mainly engaged in multi-product small-volume production. The second is the Tado factory (Kuwana City, Mie Prefecture), which was founded in 2004 and is mainly engaged in mass efficient production. Its aim is to keep the line “simple and easy to understand” such that “abnormality can be seen.” The third is the Kaizu technology center (Kaizu City, Gifu Prefecture), which was founded in 2011 and mainly pursues next generation technology. AVEX received a request from a Japanese intermediary company and, in 2004, started accepting factory tours free of charge. AVEX commercialized its technical visits (a factory tour service) following the Lehman Brothers’ collapse in 2008 in order to help support its core manufacturing business. In 2017, approximately 3,000 visitors from over 30 countries attended technical visits at AVEX.

The AVEX technical visit is part of a tour coordinated by a Japanese intermediary company. They lead visitors and provide tour programs as packages such as tourism and industrial tourism. Tours are conducted in groups of 10-30 people that move from destination to destination by a reserved microbus. There are mainly short-term tours (3-5 nights) as well as extended

tours of about two weeks. The tour contents of the AVEX technical visit are planned mainly in the Chukyo area. Visits consist of practical training about production and programs including education, mainly visiting Toyota’s manufacturing-related facilities and museums. Sometimes this includes traditional Japanese sightseeing spots such as Tokyo, Osaka, and Kyoto. Many of the client companies (overseas) are engaged in the manufacturing industry in various fields ranging from light industry to heavy industry. Figure 3 shows the flow of business information prior to visitors’ AVEX technical visit. A local consulting company hears the client company’s needs and engages in tour planning and selling. Japanese intermediary companies receive a request from the local consulting company and arrange with the companies they will visit as well as accommodation, transportation, interpreters, etc. AVEX receives requests from Japanese intermediary companies and provides the technical visit to visitors.

## 3. AVEX factory tour services

The purpose of the AVEX technical visit is to share knowledge and experience through visiting manufacturing sites. The visit comprises a two-hour tour to demonstrate the concepts of Japanese management such as management policy and human resource development. Planning contents describe the company profile and philosophy, management activities (policy

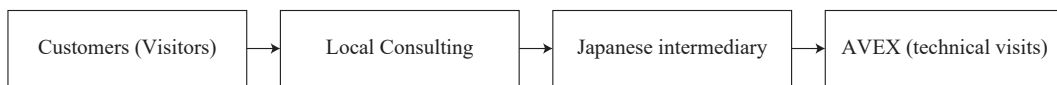


Figure 3: Business information flow

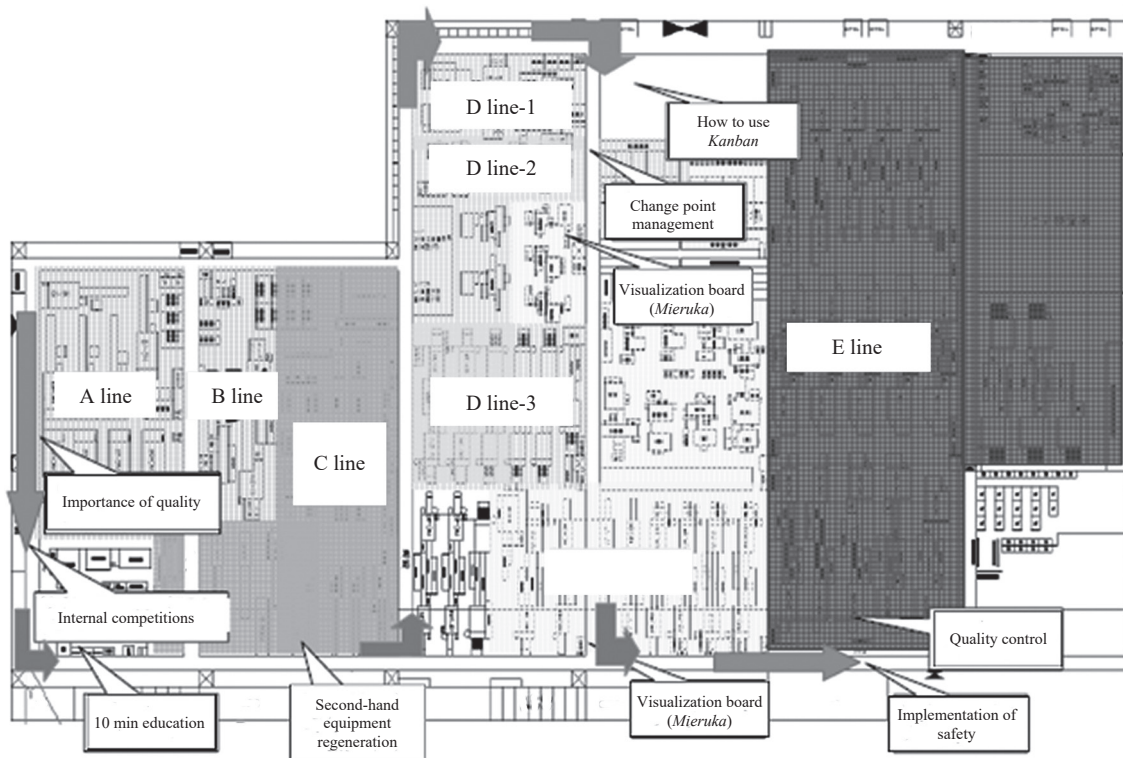


Figure 4: Factory inspection route in Tado

management, sales strategy, recruitment education strategy, etc.), factory inspection (improvement activity, workplace education, quality control, TPS), and FAQs. Figure 4 shows the factory inspection route in the Tado factory. The “A” and “B” lines explain the importance of quality, internal competitions activities, and “10 minute education.” The “C” line explains the activities concerning second-hand equipment regeneration. The “D” line explains how to use “Kanban” and change point management, and visualization boards (*Mieruka*) for quality. The “E” line explains the efforts to visualize improvement activities, the status of the implementation of safety activities, and quality control.

Details of the planning content are shown in (1)-(7) below.

(1) Introduction to quality control

This is an introduction to the concept of Toyota’s quality control that extends to the post-process, i.e., customer. This is to make efforts to increase the satisfaction of the post-process by keeping in mind what kind of impact quality has on customers. For example, activities for employees to read their own quality declaration, change point management, visualization of abnormality, abnormal announcement board, etc.

(2) Introduction to *Kanban* production

*Kanban* is a mechanism that uses a display tag with information exchanged between each step of the production process. This style of production intends to reduce inventory waste. For example, post-process shows the information such as what they want, when they want, how much they want, and in what way they want. Accordingly, it is possible for the previous process to carry out efficient production. It explains the merits of being able to detect abnormalities easily.

(3) Introduction to visualization activity

This is an introduction to 2S (organize and order) activities that are thoroughly done in the factory. For example, manage the product name and product number and color-coding and eliminate unnecessary items at production sites. By doing that, it explains there are effective utilization of production space and reduction of work movement loss.

(4) Introduction to strengthening activities

To realize highly profitable manufacturing, they introduce the efficient production line with the shortest lead time in the production process. For example, four improvement activities (improve productivity, reduce inventory, reduce defect, purchase cost reduced) are carried out by members of each department.

(5) Introduction of human resource development

This is an introduction to human resource development theory as “a company that values people.” For example, employees aim for self-sustaining human beings, recognize the gap with the present situation against “what it should be,” think about what to do in order to fill up the difference, at each level “give the opportunity as a company, make your

own goals and make yourself act habitually.”

(6) Introduction to improvement activities

This is an introduction to the “zero-zero presentation,” which is a new improvement mechanism that draws out the ideas of employees. This is performed five times per year with the aim of having consciousness to numerical value. They summarize the improvement points of work for each team and report it to officers. It is an effort to demonstrate the potential ability to improve the day-to-day operations only with wisdom and without spending money.

(7) Introduction to technology transfer

This is an introduction to facilities restoration activities of second hand equipment that is strategically purchased with old employees and young employees. This is not only aimed at curbing capital investment costs, but also aimed to transfer directly technology to younger employees through an understanding of equipment structure, characteristics, and strengthening.

#### 4. Questionnaire survey for service quality

The survey was conducted on South Korean and Chinese visitors at the AVEX Inc. Tado plant between August 8 and December 20, 2017. A total of 1,133 visitors (644 South Koreans and 489 Chinese) participated in the survey. After excluding invalid answers, 652 completed questionnaires (452 from South Korea and 200 from China) were analyzed.

SERVPERF, an internationally renowned service quality evaluation scale used for research in various fields, was modified to design the questionnaire to evaluate the service. Specifically, after several visits to the factory of AVEX Inc. and confirming the essential elements for the technical visit field, the questions were modified based on a study conducted to evalu-

Table 1: Question items for main survey

1. Equipment is attractive
2. Factory and equipment appearance are clean
3. Documents during the factory are easy to understand
4. Range of equipments and documents are abundant for your area of interest
5. Staff are well dressed and neat in appearance
6. Performance of the program is correct
7. Program fees that offer good value for money
8. High standard of lecture material
9. Appropriate and manageable participants sizes
10. Contents of the program are informed in advance
11. Staff are always willing to help you
12. Atmosphere is easy to ask a question
13. Valuable feedback from staff
14. Behavior of staff instills confidence in you
15. Staff are friendly and polite to you
16. Staff has sufficient knowledge to answer your question
17. Staff provide personal attention to you
18. Staff understand your specific needs
19. Staff understand your best interests
20. Friendly environment with access to many opportunities for interaction with other participants
21. Comprehensively satisfied with this program
22. Would like to recommend this program to your friends

ate service quality in fields such as tourism, IT, education, and retailing.

As a result, we modified the SERVPERF questions to design a five-dimensional questionnaire with 20 questions. Two questions on the satisfaction level and loyalty were also added (See Table 1).

### 5. Evaluation result

Table 2 shows the evaluation results of service quality by South Korean and Chinese visitors. The alpha coefficient in each dimension of South Korea and China was about 0.8 or more. The internal consistency of the scale is generally considered to be high if the value is 0.7 or more. This suggests that the questions formulated represent properly the five dimensions of service quality.

The average scores of each dimension were 4.38 for tangibility, 4.25 for reliability, 4.45 for responsiveness, 4.64 for assurance, and 4.4 for empathy, with a high overall average score. This demonstrates that the service quality of AVEX technical visits is high. Consequently, AVEX seems to have already passed through the stage of focusing on improvement of its service quality. The company is expected to add value to the program and enhance its cooperative relationship with the local community by attracting foreign visitors to technical visits.

### 6. Conclusion

This paper indicated the business model and the contents of technical visits related to AVEX conducted in the Chukyo

area. Furthermore, it showed the evaluation result of the service quality of the technical visits. High average scores were obtained in the five dimensions, namely, tangibility, reliability, responsiveness, assurance, and empathy, by both South Korean and Chinese visitors. This revealed that the service quality of technical visits was high.

The number of previous studies focused on technical visits is small. However, based on the results above, in the globally growing travel market, technical visits are expected to become a pillar of Japan's future tourism strategy. It is hoped that research on technical visits will become active in the future.

### Notes

- <sup>(1)</sup> Suda, H., Tokuda, K., and Yazumura, K. (2002). *Theory of new industrial tourism*. Subaru.
- <sup>(2)</sup> Saito, H. (2005). The present condition of industrial tourism and its possibilities in Yamaguchi Prefecture. East Asiatic Commercial Intelligence Institute at Tokyo. Vol. 64, 37-54.
- <sup>(3)</sup> Ibit.
- <sup>(4)</sup> Kadono, K. (2002). Possibility of technical visit. *Monthly Tourism*, Vol. 428, 44-49.
- <sup>(5)</sup> Ito, K., Kawamura, H., and Kato, M. (2017). Technical visits and industrial tourism. *Journal of Global Tourism Research*, Vol. 2, No. 1, 45-52.
- <sup>(6)</sup> Ito, K. and Kawamura, H. (2019). Service quality evaluation of technical visits for foreign visitors. *Journal of Global Tourism Research*, Vol. 4, No. 2, 91-98.

Table 2: Evaluation results of service quality

No.	South Korea			China			
	$\alpha$ coefficient	Average	SD	$\alpha$ coefficient	Average	SD	
1	0.80	4.38	4.30	0.78	4.42	4.33	
2			0.664			4.59	0.673
3			0.637			4.31	0.705
4			0.687			4.39	0.655
5			0.709			4.51	0.576
6	0.79	4.25	4.54	0.86	4.42	4.50	
7			0.604			4.30	0.680
8			0.683			4.40	0.625
9			0.763			4.48	0.617
10			0.797			4.52	0.642
11	0.83	4.45	4.18	0.85	4.56	4.56	
12			0.546			4.60	0.591
13			0.589			4.56	0.591
14			0.608			4.61	0.565
15			0.563			4.74	0.496
16	0.86	4.64	4.71	0.83	4.62	4.50	
17			0.476			4.56	0.618
18			0.522			4.52	0.609
19			0.581			4.47	0.641
20			0.635			4.38	0.677
20	0.85	4.40	4.39	0.87	4.43	4.34	
20			0.642			4.38	0.766
20			4.21			0.808	