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## Trouble at Tessei

Teruo Yabe, the newly appointed Director and General Manager of Tessei, walked Tokyo Station's quarter-mile Platform 21 enroute to his office. It was August 2005, and Yabe knew that his office, located just below the tracks, would provide respite from the afternoon heat and a chance to reflect. Number 21 was one of four platforms where Tessei's Tokyo employees cleaned Shinkansen ("bullet") trains (**Exhibit 1**). From arrival to departure, each train was only in the station for twelve minutes. Providing time for passengers to disembark and board left Tessei only seven minutes per train to complete its work (**Exhibit 2**).

A subsidiary of the East Japan Railway Company (JR East), Tessei was struggling. As of 2004, safety issues, operational mistakes (including crews failing to finish their work in seven minutes), customer complaints, and employee turnover were all at or near historic highs. As JR East continued to increase the frequency of departures in Tokyo, it needed more from Tessei, but it kept getting less.

Earlier in 2005, Yabe had reached retirement age after a distinguished 39-year career at JR East in safety, operations, and management (**Exhibit 3**). In traditional Japanese companies like JR East, upon reaching retirement age, senior managers with successful careers were often offered senior positions at subsidiaries, a practice called *Amakudari* ("descent from Heaven"). Working with JR East staff, Yabe had been considering positions at two prestigious subsidiaries when the Vice Chairman suddenly called him directly and asked him to lead a turnaround at Tessei. With no background in cleaning, Yabe had mixed feelings, especially given Tessei's negative reputation within JR East.

Turning around Tessei would not be easy. Tessei's work represented one of the most complicated cleaning operations in the world. Cleaning a Shinkansen train in exactly seven minutes was the equivalent to cleaning six Boeing 737s in less than half the typical time it took to clean one. Japanese customers, who paid as much to ride the Shinkansen as they would pay to ride an airplane, demanded perfect, on-time cleanliness, so every mistake was costly.

Meanwhile, recruiting talented, motivated individuals to Tessei was very difficult in Japan, where train cleaning was considered a "3K" job: *kitanai* (dirty), *kitsui* (difficult), and *kiken* (dangerous). During his first month, Yabe had worked alongside many of Tessei's front line employees, speaking with them about their experiences on the job, and learning how the work took its toll (**Exhibit 4**). Many who had come to work at Tessei had difficulties finding other jobs, due to unfavorable career histories (**Exhibit 5**). "In a way, they have 'drifted' to Tessei," Yabe thought, ending up there almost as unintentionally as he had.

As he descended beneath the platform, Yabe knew it was time for action. He wondered which levers – operational and organizational – he should pull first to get Tessei back on track.

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## Company Background

Tetsudo Seibi Kabushiki Kaisha (a railway maintenance company, commonly called Tessei) was founded in 1952 to clean train cars on Japanese National Railways (JR). When JR was privatized and split into six regional companies in 1987, Tessei became a subsidiary of JR East.

The company's primary objective was to clean JR East's Shinkansen trains. With a maximum operating speed of 320 kilometers per hour (200 miles per hour), Shinkansen trains were commonly referred to as *bullet trains* in English, due to their bullet-like shape and high speed. In 2005, over 325 million passengers rode the Japanese Shinkansen system, making it the most ridden high-speed rail network in the world, and JR East accounted for 39% of this volume (**Exhibit 6**).<sup>1</sup> Owing to the exacting demands of travelers and the complex logistics of coordinating a highly-utilized railway system (Shinkansen trains sometimes operated only three minutes apart even when traveling at 320 kilometers per hour), Shinkansen trains adhered to strict schedules. In 2003 for example, Shinkansen trains had an average arrival time of within six seconds of schedule.<sup>2</sup>

Tessei's principal revenue source was fees from JR East. Managerial misconduct in the early 2000s had led to a reduction in the commission fees paid to Tessei by JR East. Consequently, from 2001 to 2005, company revenue had declined 12%, while the number of cars cleaned had increased by the same percentage (**Exhibits 7 and 8**). In response, the company sought to cut costs by increasing its proportion of part-time employees.<sup>a</sup> As of 2005, the majority of Tessei's employees worked part time (**Exhibit 9**). The average worker was 53 years old, had held a number of previous jobs, and often had encountered difficulties on their career path.

Turnover was a major challenge. Tessei hired 20-30 part-time employees per month, as many proved unable to endure the hard work the job entailed. Safety was another important issue. The number of on-the-job accidents reported by Tessei employees had risen sharply from 2001 to 2005 (**Exhibit 10**). Complaints from customers were also on the rise. Commonly reported issues included untidy bathrooms and forgotten items left behind on the Shinkansen that were not returned.

## Working at Tessei

There were four stations at which Tessei cleaned Shinkansen trains including: Tokyo, Ueno, Oyama, and Tabata. The largest of these was Tokyo station where Tessei crews cleaned 120 trains (with a total of 120,000 seats) each shift, and up to 168 trains a day during the high season. Crews worked two 8.5 hour shifts per day, from 6:00 am to 11:00 pm. Each crew typically had 22 members and cleaned 20 trains a day.

The process by which Tessei employees cleaned Shinkansen trains was highly standardized. The cleaning operation in every car included collecting garbage, cleaning the floor, wiping dirty tray tables, cleaning the bathrooms, exchanging seat covers (in business and first class cars), and retrieving lost items. For passenger comfort, the crew was also tasked with rotating seats 180-degrees, since Shinkansen trains reversed direction rather than turning around between arrival and departure.

In seven minutes, one person cleaned a regular 100-seat car, three people cleaned a business-class car, four people cleaned a first-class car, and three people cleaned all of the bathrooms, all under the supervision of a team leader. The train-cleaning process was complicated by a variety of factors. First,

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<sup>a</sup> Part-time employees earned ¥1,050 per hour (\$9.50 USD), whereas full-time employees earned ¥910 per hour (\$8.23 USD). However, full-time employees also earned benefits and bonuses, such that their total annual salary was 1.2 times higher than that of part-time employees.

Shinkansen trains were not standardized. In order to accommodate more destinations with a limited platform capacity, JR East would often pair trains in the station, so that different routes with common tracks could share a platform. Depending on their destination and whether they had been paired, Shinkansen differed in length, ranging from 6-car to 17-car configurations (**Exhibit 11**). The mix of coaches also varied among trains, including regular, first-class, business-class, and two-story varieties (**Exhibit 12**). Finally, trains arrived and departed from different platforms, and from different locations on each platform, depending on the train length and coach configuration. Because of the limited time available to complete each cleaning, employees needed to be in the right place when a train arrived.

Owing to the exacting demands of the cleaning process and the dangers inherent in the workplace, Tessei trained employees to work “appropriately,” stressing the importance of working efficiently, providing clean trains, improving service quality, and not getting injured. Tessei’s Cleaning Manual, which was given to each new hire, provided detailed descriptions of each work process, as well as guidelines governing the state of employees’ physical condition, clothing, and cleaning supplies (**Exhibit 13**). Each new hire also received on-the-job training from Tessei’s more experienced supervisors.

At the beginning of each day, employees would change into their uniforms and clock in. Next, they would verify and confirm their assigned work roles, note their assigned group and cleaning tasks for the day, and review the details of each assignment, which included model-specific instructions, arriving train numbers, arrival times, track numbers, and track positions. Employees were expected to complete these preparations in time to participate in the group warm-up exercises before the cleaning day began.

## The Cleaning Process

During their shifts, employees came to the platform three minutes prior to the scheduled arrival of an assigned train. Once there, they would empty the platform’s garbage cans and stand in a position that corresponded with the stopping position of their assigned car door (**Exhibit 14**). Employees would stand in this position until all passengers had disembarked from the train. After the last passenger exited, employees would check the forbidden movement indicator, a signal above the platform, which confirmed it was safe to board the train. Prior to boarding, employees would point at this indicator and shout “Ok!” for confirmation. From this moment, employees had seven minutes to board the train, complete their cleaning assignments, and exit.

A crew supervisor would secure each entry door in an open position for the employees and hang a “cleaning in progress” sign, to prevent customers from boarding the Shinkansen while Tessei’s work was underway. Once aboard the train, bathroom cleaners would begin moving through the bathrooms in each coach, cleaning toilets and washbasins, restocking toilet paper, and emptying trash. Those assigned to clean the main cabins of particular cars would set out their tools, which included a flexible broom, dustpan, and bag of supplies. Tools were organized and positioned in their designated places, in the front of each car on the far side of the train deck, where they would not obstruct walkways.

With tools in position, cabin cleaners would begin by putting on gloves and removing garbage. Checking the cabin’s overhead racks, the area beneath each seat, and the netting in front of first class seats, cabin cleaners would collect any foreign objects that they found. Larger refuse and forgotten items (which at the conclusion of the cleaning process would be taken to the station’s lost and found) were to be collected by hand, while smaller debris was to be swept up using a flexible broom. Employees were trained to move forward while picking up garbage, rather than collecting it while facing backwards, and were instructed to take extra care not to spill leftover drinks while collecting them. After finishing the main section of the cabin, employees would empty the garbage room and

verify that its door was left completely closed. Employees would then remove and store their gloves, in order to keep the seat upholstery and headrest cover cloths clean.

Next, employees were required to rotate the seats. Completing this part of the process required verifying that all tray tables and footrests were stowed in their upright positions. Depending on the type of car, rotation was an automated or manual process. With automation, the rotation took place at the push of a button. Before pushing the button, employees called "*Rotating seat!*" to prevent the injury of their colleagues. Manual rotation required a particular posture to prevent back injury.

With seats rotated, employees would begin the process of cleaning table trays. Each tray was opened 45-degrees to check for stains. Stained and spotted trays were thoroughly wiped, as were all window frames. Once trays were clean, employees would turn their attention to cleaning the floor. A floor cloth was used to wipe up badly soiled areas, followed by a flexible broom to remove debris. Employees were taught how to lightly press and sweep so that the bristle tops did not rise above the floor. Broom bristles would primarily collect dust balls and hair, which employees would remove in the break room between cleaning assignments with special combs. Employees were required to sweep the inside of the train, including the washrooms, from left to right, moving forward, and sweeping in three directions to collect debris in the deck. Employees used dust pans to collect debris in most cars, and cordless vacuums to collect it in first-class cabins.

With floors cleaned, employees would change each seat's disposable headrest cover (called a *motare*), which was affixed to each headrest with velcro. Depending on the type of seat, this activity sometimes involved manually raising or lowering the headrests. Furthermore, motares came in different sizes, and it was up to each employee to make sure they had supplies that were compatible with their assigned train.

With headrest covers changed, employees would raise the blinds at each seat, and double-check that blind hooks were in their specified positions. Next, employees would move from the back of the car to the front, pushing on each backrest to ensure that every seat was properly locked. Then, standing at the front of the car, the employee would conduct a visual check, pointing and calling out, "*Motare! Blind! Seating direction!*" to ensure completion of all tasks. Finally, the employee would gather their cleaning supplies and exit the train, to make way for oncoming passengers.

Once the process was complete, employees would return to the designated Tessei rooms beneath the platform to prepare for their next assignments (**Exhibits 15 and 16**).

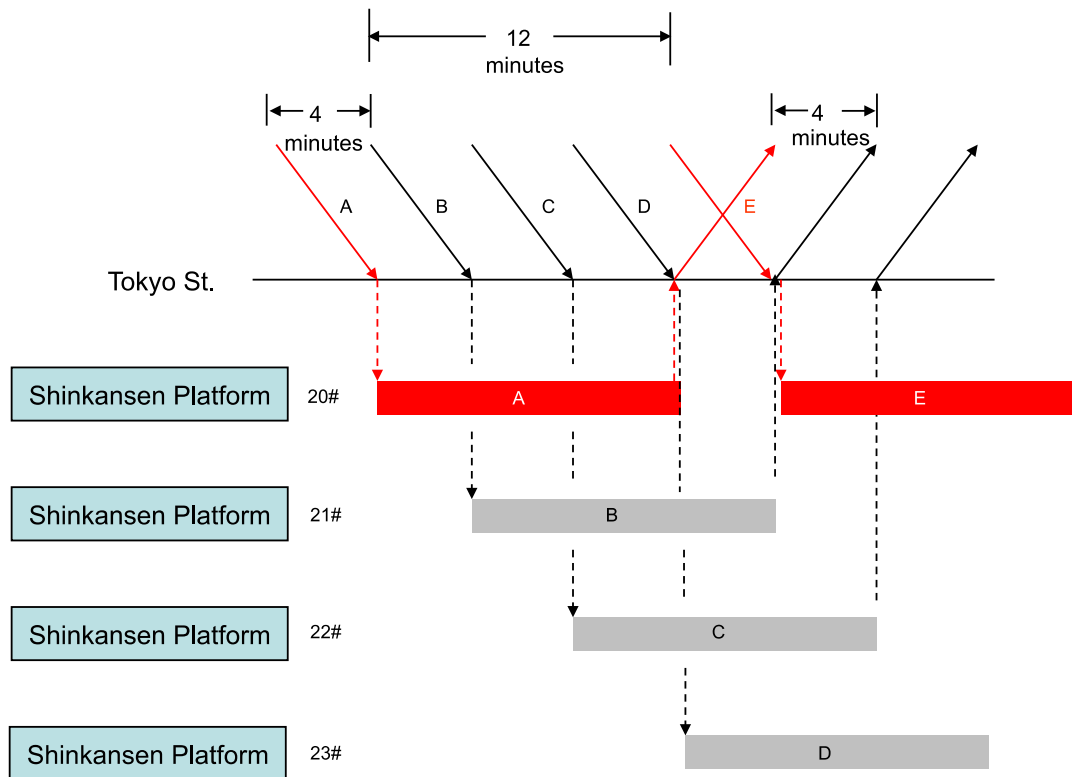
## Mind the Gap

Yabe reflected on the challenge he had inherited. Tessei's mandate was to provide clean trains and improve the service experiences of JR East's customers, but the company appeared to be falling short on both dimensions. Its quality, timeliness, customer and employee satisfaction, and safety records all seemed subpar.

With an unrelenting seven-minute deadline for each assignment, there was little room for error; and yet, being on the front line for thirty days had revealed a laundry list of inefficiencies. Yabe believed that Tessei could do better, but how?

Yabe weighed his options. The months ahead would present an opportunity for him to make a significant change at Tessei, but which levers should he pull first?



**Exhibit 2** Sequencing of Train Arrival, Cleaning, and Departure

Source: Company documents.

**Exhibit 3** Teruo Yabe

- 1966: Graduates high school; joins Japan National Railways
- 1966-1979:
  - Train crew, inspection, working at a local bureau of JNR
  - Then moved to operation safety division at JNR HQ.
  - As a person in charge of safety system, he got involved in system developments and investigation and cause analysis of accidents.
- 1980: Deputy manager in charge of safety policy at Japan Railway East\*
  - Involved in making the JR East's first safety plan and the plan on investments for safety. He put focus not only systems but on human factor.
- 1996: Manager, transport dept., Tokyo branch
- 1998: Stationmaster, Tachikawa station
- 2000: General manager of transport dept., Yokohama branch
- 2001: General manager, transport dept., Tokyo branch
- 2005: Joined Tetsudo Seibi (later renamed TESSEI) as a board member, general manager of corporate planning



Source: Company documents.

**Exhibit 4** Quotes From Employees about Their Front Line Experiences

- “Customers see me and say to their children, ‘Look, if you do not listen to your parents, you will become like them.’ It is a world of discrimination.”
- “We are only allowed to do what we are told to do. It would be great if I could help customers when I find them looking for help. I therefore asked my senior staff whether I could provide guidance to customers, whether I could provide some help, I was told, ‘As our company does not have such a contract, you should not do such a thing.’ I felt a bit disappointed. I knew I could not hope going closer to customers. I should not think beyond what I am told to do.”
- “The company has a culture like taiikukai-kei.<sup>a</sup> If we deviate from what we are supposed to do even a little, senior staff points that out. Senior staff are really scary and intimidating. They are years older than me so they are exacting. We are scolded and yelled in the passage even with a minor mistake such as being slow to push a button to rotate chairs or picking up someone’s broom. Of course there are some who are kind but overall impression is scary.”
- “My parents do not tell others where their daughter is working as they think working at a cleaning company would look shameful to others. They keep it secret.”
- “I found out that I would be late if I just followed the regular procedures. The procedures said lifting window shades, putting down armrests and then pushing the button. I however started to rush to push the button as soon as I collected trashes on the floor. It was actually a deviation from what I was told to do, but if I did not deviate, I would have been yelled again. No other options. That was hard. I would have been scolded if I had just followed what I was told to do. I had to think on my own what to do.”
- “I am scared about customers asking me questions. I have no confidence that I will be able to answer properly, so I try best not to see customers’ eyes.”
- “If we were a bit behind the schedule while thinking what to do, a chief would yell at us. The chief passed by, telling us “You have x minutes” and I thought “So now she passes by me now, I have to finish these things by the time she comes back.” I applied myself only to cleaning during the seven minutes. I was desperate.”
- “I felt offended and hurt when I was scolded and yelled. I started to observe a group of experienced cleaners. Those who excelled stood out. I began to benchmark these people.”
- “I was 40 when I joined the company and even so I got a reaction *Such a young person has joined*. As there were many women, they valued teamwork, sort of, or how should I say...people did not like to see someone doing something different from what others were doing. The culture was cohesive and very much disciplined, which might have been characteristics about a female group. Today, we have much more younger and less experienced people. What we find challenging is how to train these less-experienced young staff and let them work.”
- “Headquarters is very strict on costs and they do not let us use soap. Soap bars run out very quickly as there are so many of us but there is a quota on how many soap bars one team can use. Even if we insist that we used all soap bars and want to have new ones, a person in charge of resource management does not give us any, saying, *We already gave you the allocated amount of soap bars.*”

Source: Casewriter interviews.

Note: Interviewees were asked to reflect on their experiences prior to Teruo Yabe’s arrival.

<sup>a</sup>A taiikukai-kei is an organization with a strong command and control culture, where difference in years of experience matters.

**Exhibit 5** Profiles of Tessei Employees**Female, Joined in May 2005, at age 55**

- 1965: Graduated from Arakawa Junior High School
- 1965: Joined Niki no Kashi, a confectionary company (customer service)
- 1970: Quit Niki no Kashi in order to prepare for marriage
- 1977: Joined Takahisa Industry, a maker (assistance to machine operation, product finalization)
- 1980: Quit Takahisa Industry as her revenue went down due to shorter working hours
- 1981: Joined Suzuko Transport (as a driver)
- 1984: Suzuko Transportation bankrupted
- 1984: Joined Nisho Transport (as a taxi driver)
- 1985: Quit Nisho Transport for childbirth preparations
- 1986: Joined Kazuhiro Seisakusho, a maker (inspection and product finalization)
- 2004: Kazuhiro Seisakusho bankrupted
- 2004: Joined Sango Nibankan, a nursing house (support and cleaning)
- 2005: Quit Sango Nibankan as wages were lower than the first offer
- 2005: Joined Tessei

**Female, Joined in March 2002, at age 48**

- 1972: Graduated from Mizumoto High School
- 1972: Joined Ikebukuro store, Tobu Department Store
- 1976: Quit Tobu Department Store
- 1977: Joined Fujibo Logistics Center
- 1978: Quit Fujibo Logistics Center
- 1993: Joined Ikeguchi Dental Clinic
- 1995: Quit Ikeguchi Dental Clinic
- 1995: Joined Hinode Oil Sales
- 2001: Quit Hinode Oil Sales
- 2001: UNIQLO Joined Chiba Newtown Store
- 2002: Quit UNIQLO (after three months)

**Male, Joined in December 2004, at age 50**

- 1969: Graduated from Nishi-toyama junior high school
- 1971: Graduated from Chiyoda Electronic Vocational School
- 1971: Joined Omori Factory, Pioneer Corporation (electronics)
- 1974: Quit Pioneer
- 1974: Joined Metro Mutual Support Association
- 1996: Quit Metro Mutual Support Association
- 1997: Joined Tokyo Seibi Corporation, a building management/maintenance company (in charge of operating room of a hospital)
- 2000: Quit Tokyo Seibi Corporation
- 2001: Joined Hitotsubashi Hospital as a helper
- 2002: Quit Hitotsubashi Hospital
- 2002: Joined Kimura Makizumi Hospital as a helper
- 2003: Quit Kimura Makizumi hospital
- 2004: Joined Kobayashi hospital as a part-time helper

**Male, Joined in November 2000, at age 54**

- 1961: Graduated from Daisan Kameido Junior High School
- 1961: Joined Kameido factory of Hitachi as a technical staff
- 1966: Transferred to Hitachi Seiko
- 1974: Quit Hitachi Seiko when the factory moved
- 1975: Joined Ito Warehouse
- 1980: Joined Phoenix Contact (his department at Ito Warehouse was transferred to Phoenix)
- 1987: Quit Phoenix Contact
- 1991: Joined Tokyo King
- 1994: Quit Tokyo King as the company was bankrupted
- 1995: Joined JR Tokai Passengers
- 1996: Transferred to JR Tokai Logistics
- 2000: Quit JR Tokai Logistics

Source: Casewriter interviews.

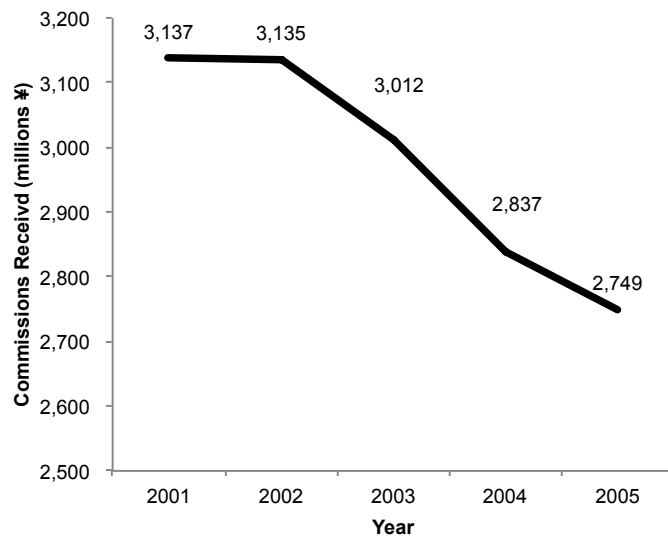


Exhibit 6 Map of JR East Shinkansen Lines and Ridership Statistics



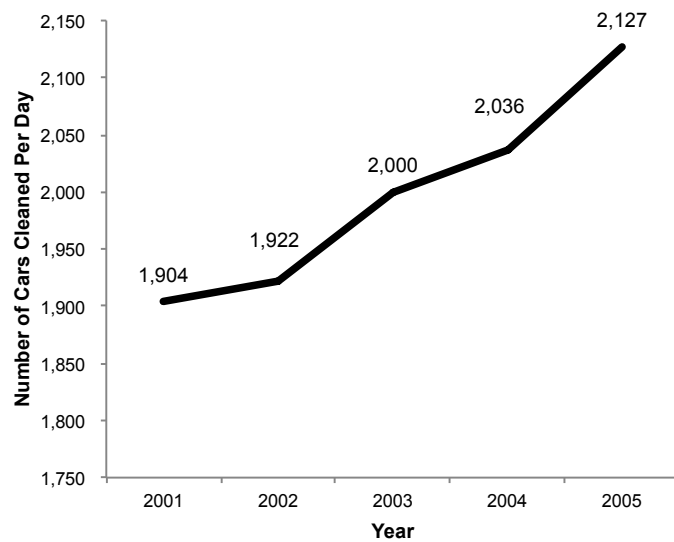
Line	Start	End	Length	Opened	Annual Passengers
Tohoku	Tokyo	Shin-Aomori	419.4	1982-2010	76,177,000
Joetsu	Omiya	Niigata	167.5	1982	34,831,000
Nagano	Takasaki	Nagano	72.9	1997	9,420,000
Yamagata	Fukushima	Shinjo	92.3	1992	3,728,840
Akita	Morioka	Akita	79.1	1997	2,523,975

Source: Company documents.

**Exhibit 7** Commissions Received by Tessei (2001–2005)

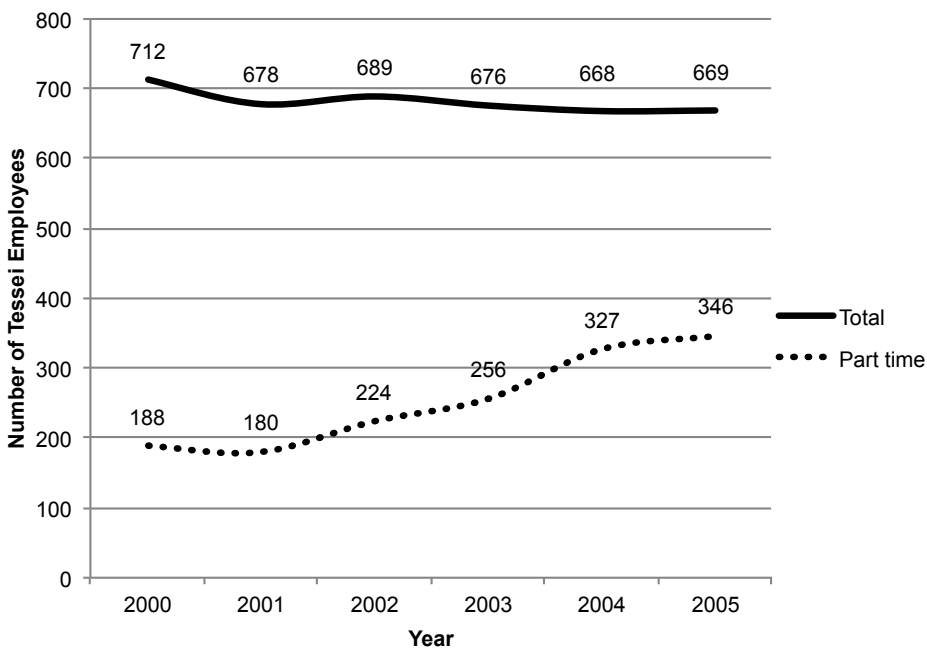
Source: Company documents.

Note: ¥2.75 billion = \$24.55 million USD in 2005.

**Exhibit 8** Number of Shinkansen Cars Cleaned Per Day (2001–2005)

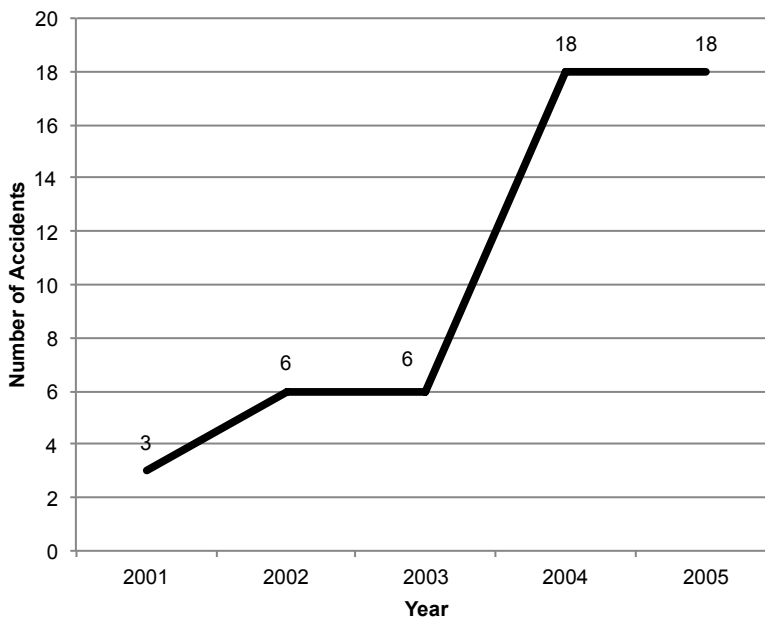
Source: Company documents.

**Exhibit 9** Number of Tessei Employees (2000–2005)



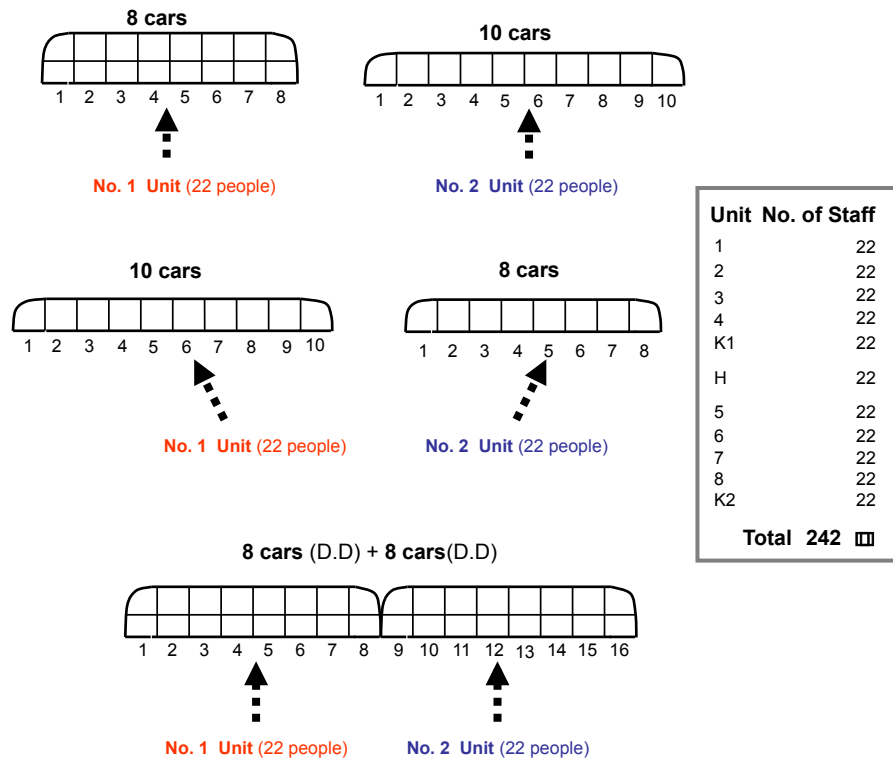
Source: Company documents.

**Exhibit 10** Number of Accidents Among Tessei Employees (2001–2005)



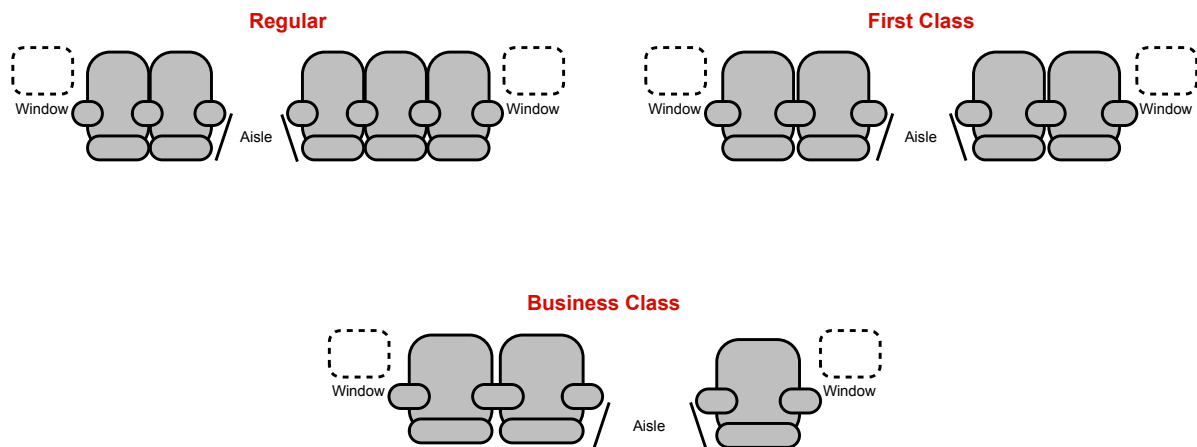
Source: Company documents.

**Exhibit 11** Cleaning Different Types of Trains at Tokyo Station



Source: Company documents.

**Exhibit 12** Seating Configurations in Regular, First Class and Business Class Shinkansen Cars



Source: Illustrations by casewriters.

**Exhibit 13** Excerpts from the Tessei Cleaning Manual**The purpose of appropriate work:**

Eliminate unreasonableness, inconsistency, and waste and do good work

- 1) Work efficiently, in good order, with less waste, and accurately
- 2) Provide clean trains
  - a. Providing clean trains to the customer is our duty and responsibility.
  - b. JR also expects us to improve the quality of our service.
- 3) Don't get injured
  - a. Injury-causing accidents affect not only the worker and his/her family, but also the workplace.
  - b. It's important that everyone maintains a good working environment, be careful not to get hurt and not let anyone get injured.

**Physical condition:**

- 1) Keep in good physical condition for work
- 2) Sleep well and always approach work with a refreshed feeling
- 3) Come to work well ahead of time
- 4) It is prohibited to come to work under the influence of alcohol
- 5) Participate actively and properly in the warm-up exercises

**Clothes:**

- 1) Work in the prescribed clothes
- 2) Don't be disheveled
- 3) Always keep clean
- 4) Don't put anything on clothes, except for the prescribed nametag etc.
- 5) Don't wear working shoes with soles that are worn out and slippery

**Cleaning supplies:**

- 1) Cleaning supply inspection
  - a. Flexible broom
    - i. Check for problems and that the broomstick is well attached
    - ii. Broom bristle tips are aligned and not bent
    - iii. Broom bristle tips are not getting thin
    - iv. Change defective brooms to new ones immediately
  - b. Bag: Check for cleanliness
  - c. Dustpan: Check for cleanliness and damage
- 2) Take caution handling cleaning supplies when entering and leaving the platform.
  - a. Be careful cleaning supplies never touch the customers on the platform.
  - b. Organize cleaning supplies in their designated places.

**Clocking in:**

- 1) Punch the personal card (timecard) with the time clock on the counter in the administrative office.
- 2) Confirm and check off today's assigned work roles with the daily manpower report on the counter.
- 3) Put the personal card into the folder marked with the assigned group and assigned car.
- 4) Find the instruction sheet on the counter for your assigned group and cleaning tasks and take a copy.
- 5) Comparing the model-specific assignment sheet (manual) and the group-specific cleaning task instruction sheet, check them against the following items that you confirmed on the daily manpower report: the arriving train number, arrival time, arriving track number, and seat facing, and then write down the assigned car number on the group-specific cleaning task instruction sheet.

**Clocking out:**

- 1) After the end of work ceremony, confirm and check off tomorrow's tasks in the daily manpower report
- 2) Punch the personal card with the time clock.

Source: Company documents.

**Exhibit 14** Tessei Employee at Tokyo Station



Source: Company documents.

**Exhibit 15** Supplies Room under the Platform



Source: Casewriter photos.

Exhibit 16 Employee Space below the Platform



Source: Casewriter photos.

## Endnotes

<sup>1</sup> Japan High-Speed Rail Passenger Traffic Statistics 2010. [www.publictransport.us](http://www.publictransport.us). December 1, 2011.  
<http://publictransit.us/ptlibrary/trafficdensity/JapanHSRTrafficDensity2010.pdf>, accessed November 2014.

<sup>2</sup> McGuigan, Brendan and Demand Media. "Japan Train Travel." USA Today on the Web.  
<http://traveltips.usatoday.com/japan-train-travel-16935.html>, accessed November 2014.