

## < A study of safety portal sites to promote exchange and practical application of information among employees >

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### Summary

At JR East, we are faced with the need to pass on skills and knowledge to the next generation and improve safety consciousness. As an effort in this direction, our company has developed a safety portal site on the intranet to facilitate the sharing of safety-related information. This site has been expanding company-wide since 2007. On this site, employees can share information and know-how regarding the prevention of errors and deepen their understanding of human error. In other words, this site supports employees as they improve the safety of railway transport in daily operations and advance as professionals.

### Introduction

Since the establishment of JR East, safety has been our top management priority, and the safety of railway transport has improved through the introduction of technical measures and the creation of a safety culture. As a result, the safety of railway transport has improved and the number of railway accidents has decreased by about half since the company started. However, internally caused accidents have not yet disappeared. In order to decrease the number of these accidents, JR East introduced various systems and standardized work protocols with a manual. Now, we promote various actions to eliminate all accidents resulting from signal passed at danger (SPAD), excessive speed, improper track-closure procedures and other causes that can be attributed to human error. Examples of this include a countermeasure against excessive speed that utilizes a tablet device, support for the track-closure procedures using GPS and so on. These actions have contributed to the decrease in the number of accidents within the company. On the other hand, because employees rarely had accidents, the opportunity for employees to learn the importance of safety decreased.

Furthermore, with the older generation's retirement, we are faced with the urgent issue of properly imparting skills and knowledge to younger employees. In order to stabilize the company's management following the privatization of our predecessor, Japanese National Railways, in 1987, the company had to stop hiring new employees for a period of time. For this reason, we now have a hollowed-out bipolar structure of old and young employees without an intermediate generation, and with the impending retirement of large numbers of senior employees, we are faced with the need to pass on skills and knowledge to the next generation.

Therefore, we are faced with a need to fill the generation gap and improve safety consciousness. To solve these problems, we have performed the following actions in an attempt to enhance our employees and the safety system: we have established a safety culture (improved safety consciousness) and improved the safety management system (passing on skills and knowledge) [1].



Above all, safety culture is the most important, and it seems that the attention paid to safety is high in other countries too [2][3][4]. We managers and front-line employees came together to address safety culture.

- JR East promotes a culture where employees discuss, learn from and act on issues based on information about accidents and incidents that had occurred [1].

We think that, to establish the base of our safety culture, action from the bottom up is as important as action from the top down. In our front-line offices (stations, train depots, maintenance depots and so on), it is difficult for front-line employees to improve safety only by performing the duties that managers give them. A professional in our company is someone who can solve various problems autonomously. In other words, front-line employees must be able to solve various problems that a manager cannot grasp. For example, an employee solves problems that occur during his or her duties voluntarily, and he or she also works with the leadership to solve problems that occur in the workplace. Therefore, in their daily duties, it is necessary for employees to think and act for themselves to ensure the safety of railway transport. This is how employees advance as professionals.

To help employees solve problems autonomously, our company encourages employees to work spontaneously on safety-related activities. These activities are part of what is called the Challenge Safety (CS) Campaign. Employees who participate in the CS Campaign carry out concrete actions spontaneously as follows.

- From other accidents that have occurred and lessons from incidents at other workplaces, an employee thinks about matters that require attention.
- An employee thinks about the weak points of his or her own workplace and raises awareness about them.
- An employee suggests hardware improvements for the company.

These activities are not limited to meetings, presentations and the like, and they should be implemented independently in each workplace so that employees can make efforts on their own. In promoting activities in this way, employees can catch imminent problems and feel empowered to “think and act for themselves” [1].

## Development of the safety portal site

As mentioned above, we are faced with the need to pass on skills and knowledge to the next generation and to improve safety consciousness. As an effort in this direction, our company has developed a safety portal site on the intranet to facilitate the sharing of safety-related information. This site has been expanding company-wide since 2007 (Fig. 1).



Fig. 1 Top screen of safety portal site

The purpose of this site is to help all employees deepen their understanding of human error and prepare themselves to perform autonomous actions to prevent the occurrence or reoccurrence of accidents. This site is being further augmented under our five-year safety plan, “Group Safety Plan 2018,” which positions this portal site as a platform for safety-related information.

The safety portal site has the following concrete contents.

### 1. Information about accidents and incidents

Employees can read information about accidents and incidents that occurred in the past. For example, JR East’s transport safety department sends a safety warning about accidents and incidents that have happened inside and outside the company. An accident calendar extracts significant railway accidents from the past 366 days and produces a summary of the accidents that occurred on any given day (Fig. 2). Finally, security information provides data from the Ministry of Land, Infrastructure and Transport regarding railway accidents, incidents and transportation obstacles.

### 2. Safety rules and manuals

Various rules and manuals (official regulations about the railway, rules and manuals for each system, a manual for major earthquakes and so on) are placed on site so that employees can deepen their understanding of basic safety.

### 3. Analysis of accidents and incidents

It is important for the prevention of accidents that employees learn from accidents that have occurred. At JR East, accident analysis utilizes JR East’s version of the “4M4E Analysis Method” [6]. The site provides an overview of the analysis. Furthermore, as part of the site, we have developed a support tool to help employees learn lessons from incidents experienced by others. In addition, we have developed a method of image training for irregular situations, enabling danger to be anticipated and dealt with according to the situation. This will help to protect passengers and employees in the event of accidents and other problems or disasters like the Tohoku earthquake and tsunami of March 2011. By utilizing these contents, employees can work on preventing further accidents.

### 4. Provision of information about the human factor

In order for front-line employees autonomously to prevent the occurrence or reoccurrence of accidents, we have posted information on the site about nontechnical skills such as error-prevention skills as well as safety knowledge (so-called technical skills) such as an accident calendar looking back on past accidents, information on safety rules and their origins and information about accident analysis methods. For example, Human Factor News provides information about the human factor; the educational program about human error provides employees with an understanding of the mechanisms through which errors occur, encouraging them to formulate countermeasures for themselves (Fig. 3); and the diagnosis tool helps employees understand their duties in promoting safety. By utilizing these contents, employees can learn about human factors and improve their nontechnical skills.



Fig. 2 Accident calendar



**安全ポータル**

サイトマップ  
安全ポータル掲示板  
グループ安全計画2018  
安全をつくる  
安全のルール・マニュアル  
映像資料  
研究開発  
さらに興味のある...

**お知らせ**  
○「安全警報」に「JR西日本 山陽本線」  
○「安全力診断ツールへあなたの安全」  
○「安全警報」に「JR西日本 芸備線」

**安全の現状**  
OS運動をさらに活性化する  
事故・事象を自らのこととして学び考える  
ヒューマンエラーを防ぐ

Click this image to see detail

宇宙人の特徴 (1つでも)  
特徴A くりくり目  
特徴B 丸鼻  
特徴C タコロ  
特徴D しっぽ髪

地球人  
宇宙人

制限時間

Fig. 3 Educational program about human error

### Development of safety bulletin board

Various information from the safety portal site has contributed to the promotion of the CS Campaign, which has been carried out in each workplace. After the CS Campaign had spread widely throughout the company, the transport safety department and safety research laboratory of JR East established a “safety bulletin board” on the safety portal site in order to support the exchange of information about the CS Campaign among workplaces. In addition to the unilateral provision of information from management, the safety bulletin board allows bilateral communication among different employees in different workplaces, which we believe leads to more active participation in the CS Campaign; employees gain more safety knowledge as well as hints from other workplaces (Fig. 4).

**安全ポータル掲示板**

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投稿者	投稿日時	閲覧数	返信	操作
【東武東上線】 東武東上線センター 安全部一斉メール配信完了	昨日 (14:01)	0	0	削除
【国鉄東武】 北武地区 平塚地区 北武地区安全部一斉メール配信完了	6時間前	0	0	削除
【東武東上線】 東武東上線センター 安全部一斉メール配信完了	6時間前	0	0	削除
【JR東武】 東武東上線センター 安全部一斉メール配信完了	5月26日	0	0	削除
【国鉄東武】 東武東上線センター 安全部一斉メール配信完了	昨日 (12:32)	0	0	削除

Fig. 4 Top screen of safety bulletin board

As a result of questionnaires, interviews and the content of posts to the bulletin board, the creation of the bulletin board had four effects . Each effect is listed below with an example of a representative post and reply.

### 1. Serving as a reference for the CS Campaign

When employees send positive messages about the CS Campaign, other employees in other workplaces can refer to them, and these employees can take further action. In this way, it offers a chance to activate the CS Campaign in an employee's own workplace (Fig. 5).

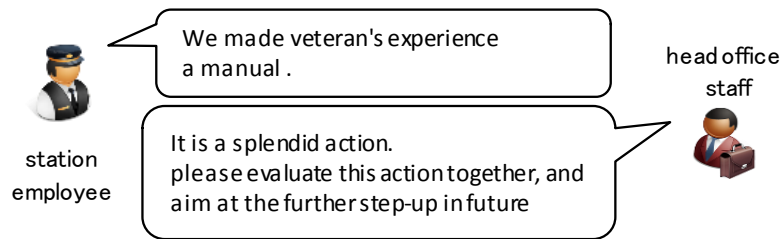


Fig. 5 An example of posting activity in the CS campaign from a certain workplace

### 2. Sharing good examples about safety

By sharing information through the site, employees can develop new knowledge about safety measures (Fig. 6).

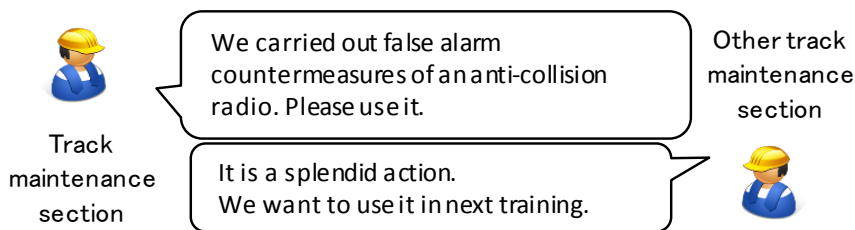


Fig. 6 An example of sharing a safety measure

### 3. Serving as a trigger to exchange opinions and information among the workplaces

The safety bulletin board provides an opportunity for employees to exchange their opinions with employees in other branch offices (Fig. 7). Based on the knowledge that they get from this exchange, employees improve the safety in their own workplaces.

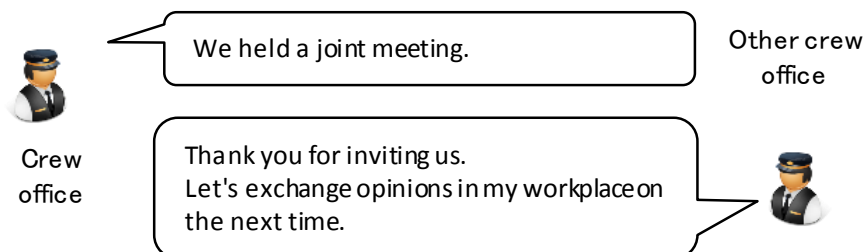


Fig. 7 An example of an opportunity for exchanging opinions

### 4. Improving knowledge about safety

An employee posted a question about safety, and another employee in a different position answered the question. In this way, the first employee improved his or her knowledge about safety (Fig. 8).

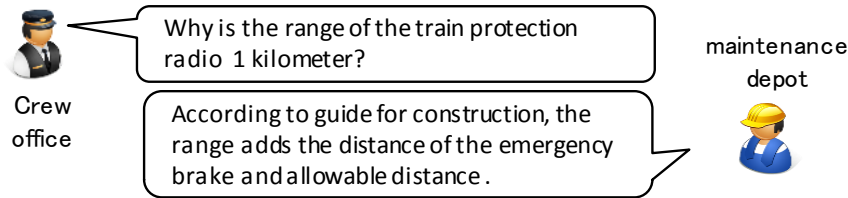


Fig. 8 An example of improving knowledge about safety

## Conclusion

We inaugurated the bulletin board in November 2014. At present, front-line employees not only report the activities of the CS Campaign in their own workplaces, but they also communicate bilaterally with fellow workers in different workplaces through the bulletin board. By communicating on the bulletin board, employees share good examples from their workplaces and enable other employees to improve the safety of their own workplaces. The usefulness of such bilateral communication is indicated by the content of the posts and the results of the above-mentioned questionnaire. In addition, the establishment of the bulletin board has enabled greater access to the safety portal site (approximately 740,000 logins per month). This indicates that the bulletin board has improved access to the site.

However, not all of our employees browse the safety portal site, and, in the present condition, it is not available to some employees. Therefore, we will raise awareness of the site through informational magazines published by and distributed within our company in the future. By doing this, we support employees' efforts to improve the safety of railway transport in daily operations and to advance as professionals. Furthermore, by linking the site to the company's intranet and allowing access from tablet devices, we have made the site available to employees who are not on site. In the future, we will continue to improve and promote information sharing about safety.

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