

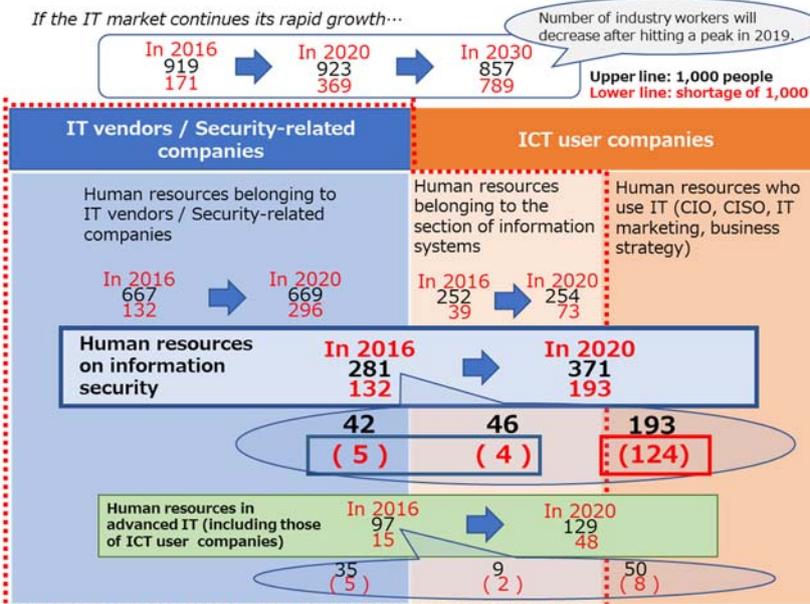
## Shortfall of Human Resources in Information Security and its Solutions: *Plus (+) Security Human Resources (SUMMARY)*

Human resources in the area of information security can be largely classified into two types: *security specialists*, who belong to IT vendors/Security-related companies and are mainly engaged in security issues, and *plus (+) security human resources*, whose members require security skills for application of IT in their primary tasks. This report illustrates the major shortage found in the area of *plus security human resources* and suggests appropriate measures to be taken. The objective of the report is to facilitate an understanding among IT vendors/Security-related companies, relevant government agencies, and the management of business operations, general affairs divisions, and HR divisions of ICT user companies regarding the “necessity of *plus security human resources* for their respective organizations. In addition, measures such as the cultivation of human resources based on the full use of Japanese corporate culture are suggested.

### **I. Human resources in the area of security must be understood as consisting of *security specialists* and *plus security human resources***

A large portion of the current shortage in human resources in the security area is attributed to a shortage of people who belong to ICT user companies and have the skills to secure and manage the information security of their individual companies. Such individuals are not necessarily specialists of such security. A report by the Ministry of Economy, Trade, and Industry (METI) in 2016 also indicated a shortage of workers (approximately 124,000) who are acquainted with information security for the daily use of IT in ICT user companies (see the figure in the red box of Chart 1). However, the total shortage of human resources in the security area for IT vendors/ Security-related companies and the section of information systems of ICT user companies (or *security specialist resources* as defined in this report) remains relatively mild at approximately 9,000 (see the figures in the blue box of Chart 1).

**Human resources of IT vendors / Security-related companies and the section of information systems of ICT user companies**



**Chart 1. Serious shortage in IT human resources: Estimated to reach 789,000 in 2030**

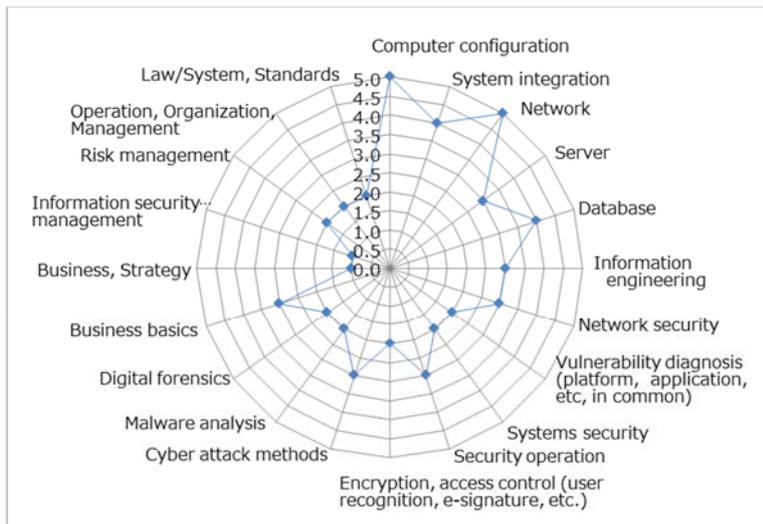
Source: Findings of METI's Study of Recent Trends and Future Estimate Concerning IT Human Resources

The cultivation of security specialists has traditionally been considered an urgent issue in easing the shortage of human resources in the security area. However, recent reports have indicated that such shortages are more serious among the wholesale, retail, medical, and welfare industries, among others, as compared to the information services and telecommunication industries. Human resources in the area of security required by the former industries are not necessarily security specialists such as white hackers. Despite this, it is still widely believed that society is lacking human resources such as white hackers, with government measures also placing an emphasis on technical elements. In reality, however, in ICT user companies requiring security skills regarding the use of IT in their primary tasks, the category of human resources that is currently facing a significant shortfall is *plus security human resources*. For this reason, the cultivation of human resources in this category remains an urgent issue.

**II. Periodic personnel transfer is a good opportunity to cultivate *plus security human resources***

The Japanese style of frequent personnel transfer every few years is thought to be a negative in terms of the cultivation of specialists. However, a type of rotation cycle where a company staff member is assigned to an information security section to learn relevant skills before returning to the business field while another staff member is concurrently assigned to the same security section extremely favors the cultivation of *plus security human resources*, of which there is currently a shortage of more than 124,000. In other words, such a cycle will facilitate the formation of a "local fire brigade of information security" in the business sector of various companies, namely, a group of staff members who, while typically engaged in their own tasks, also gather as a response to deal with security incidents that occur in their company. For this purpose, it is also important for individual ICT user companies to visualize the career paths of those staff members who have acquired the relevant security skills and experience.

### III. There is no way to determine the areas of scarce human resources in the area of information security in Japan. Visualization of human resources is critical



Visualization of human resources  
Source: NPO Japan Network Security Association/JTAG

An article appearing in *Nikkei Business Daily* on August 28, 2018 titled “Security Human Resources: Disappeared the crisis of ‘Shortage of 190,000’” reported that against the many voices pointing out a shortage in information security resources, a number of individuals in the cyber defense field have stated that no such shortage exists. The reason for this discrepancy may be that the human resources needed in the field of cyber defense are security specialists. In contrast, the sense of shortage in *plus security human resources* still remains strong.

Why does this type of argument, regarding whether Japan is faced with a shortage of human resources in information security, continue? One reason may be that the visualization of human resources has yet to be established in Japan. The Information Security Education Providers Association, a subordinate organization of the NPO Japan Network Security Association (JNSA), has promoted the visualization of human resources and the introduction of a human resource accreditation system. The chart shows an example of the visualization of security skills. This type of effort in visualizing human resources will help clarify the degree of sufficiency of security specialist resources as well as the degree of shortage in *plus security human resources* for a more objective determination of the current situation. For this reason, visualizing security human resources is an essential part of solving this problem.

### IV. Conclusion

This report illustrated that the often claimed shortage of human resources in the area of information security is not one of security specialists but rather *plus security human resources* (people who know about information security in addition to their primary tasks). This report also suggested new measures for cultivating *plus security human resources*, such as making use of personnel rotations, which are different from traditional methods in the cultivating of security specialists. The cultivation of *plus security human resources* in Japan, which is currently faced with a substantial shortage of such professionals, is an urgent task. To create a safe and secure society, personnel in charge of security in government agencies, as well as those in charge of building security teams at ICT user companies, are expected to change their mindsets regarding the cultivation of the much wanted *plus security human resources* and implement the measures suggested in this report.



[Contacts]

Toshihiro Hirayama, Senior Fellow

hirayama@j-cic.com

Kanji Uesugi, Senior Fellow

uesugi@j-cic.com

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