Innovating Human Resources in Solution Business

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The evolution of technology has accelerated changes in business domains and contents, so that there is now intensified competition to acquire new markets. In this situation, companies need to concentrate on their core competences. They must create new business domains voluntarily, by making the most of the content they have. We are in an age where it is difficult to survive in business, and companies should grow via their own unique strategies. Fujitsu is providing solutions, mainly technological ones, to accelerate the expansion of our global business in both circles of services and products. We are developing human resources that can provide value and satisfaction for our customers. This paper introduces the concept behind and course of actions for this human resources innovation, which we are conducting to master advanced technologies appropriately to fit the purpose.

1. Introduction

The environment surrounding corporate management has been changing for various reasons. Clients have begun seeking high-performance proposals that contribute to improved management value and their realization. To address clients' requests, Fujitsu is promoting the development of solution service professionals and the deployment of organizations specialized in solution services.

In this paper, we will introduce the approaches and future directions of Fujitsu's Soft Service Division for developing human resources that have competence in offering solutions that help to improve clients' management value while ensuring high quality and speediness.

2. Changes in business environment

In the corporate management environment, there has been a change of borderlines between industries as a consequence of technological developments and a drastic increase in the global population, which has resulted in larger markets and globalization. Business has become more complex and sophisticated, generating new competition and collaborations.

The complexity and sophistication of business have also led to the complexity and sophistication of business processes and operations onsite. In the business process environment where advanced IT systems are used, disorders of IT functions can be a cause of dysfunction in business.

These changes in business have promoted a differentiation of products and services, accelerating the integration of IT and business processes to enhance competitive strength. This in turn led to a reduction of PDCA cycles. Accompanying these phenomena, the application scope of IT has expanded and the volume of IT developments has explosively increased.

With the progress of this situation, in-house-centered systems that supported large-scale IT

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developments during the rapid economic growth period have transformed to outsourcing-centered systems, making it possible to downsize corporate information system divisions.   Meanwhile, the hollowing-out of business know-how has progressed through long-term use of a business process suited to the IT format in each function using IT systems.

Standardization and public disclosure of IT have encouraged the establishment of virtual reality technologies.   This IT innovation has accelerated the development of countermeasures to changes in the business environment. With the increase in the number of tools to create an IT system for business processes, various combinations of tools have been made accessible. On the other hand, drastic changes in the IT development infrastructure such as virtualization and SaaS have resulted in changes in competition in development based on the development infrastructure. Because IT innovation has lowered the entry barrier to the soft service business market, many new players have entered. As a result of severe competition for survival in each specific IT area, the perceived importance of intellectual property and human resources has been enhanced.

3. Approaches to date and human resources required in future

In the beginning of the 1990s, Fujitsu commenced a professional service business based on a concept called PROPOSE to start offering service products.   Thereafter, an in-house system to certify professionals who can act as service providers in various service-related areas including consulting was introduced (Fujitsu Certified Professional [FCP] system). Currently, Fujitsu is developing professional human resources based on an infrastructure for developing human resources to improve professional competence in a stepwise fashion from the time of recruitment.

On the other hand, there was a period when the quality and quantity of the resources and products supplied as well as the innovation of internal processes fell short of customers' expectations due to rapid business growth, and this affected how customers rated such products and services.

Insufficient human resources as the main resource of projects and the characteristics of the activities shown below had a significant effect on the required technical skills and competencies:

1) It takes longer to master technical skills due to the versatility of IT applied and the increase of third party components.

2) Increased opportunities for participating in multi-party projects comprised of companies and subcontractors who have multiple specialties.   Splitting work with other participants within the same process also increased.

3) Sophisticated requests from clients increased. To address such requests, they need to be analyzed in a sophisticated way.

There is no instant remedy for these issues. Nevertheless, we consider that the following human resources will play an important role: (a) human resources that have the potential to integrate people and knowledge distributed in multiple functions; (b) human resources that can securely establish interfaces among multiple processes and organizations and guarantee overall quality; and (c) human resources that can steadily maintain projects and proceed with standardization while giving consideration to situations associated with those projects (**Figure 1**).

To maximize the values to offer and to ensure continuous growth by coping with the changing market environment in future, Fujitsu needs to have professional and competitive human resources with specialist abilities. As shown in **Figure 2**, Fujitsu is considering a strategic shift of human resources from existing business areas to new business areas to keep up with the rapid
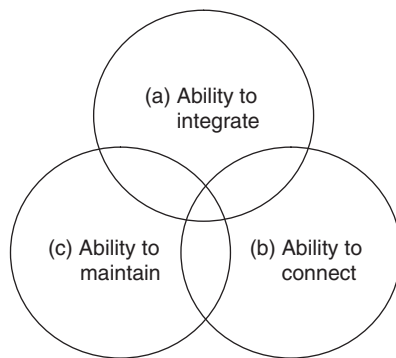
Figure 1
Three abilities required of professionals.

Figure 2
Intentional shift in resources.

changes in business and technologies. In this paper, we call the human resources that handle information systems in a broader sense (including the business system) information system (IS) human resources.

4. Requirements for IS human resources

The importance of the human resources engaged in information systems, the skills and the kind of personality they need to have are examined based on common awareness of the challenges from respective standpoints in various institutes and organizations including the Ministry of Economy, Trade and Industry,[1] Ministry of Internal Affairs and Communications,[2] Information-technology Promotion Agency (IPA),[3] Japan Users Association of Information Systems (JUAS),[4] and Information Processing Society of Japan (IPSJ).[5]

As already mentioned, advanced mutual relationships and integration between business and information systems will lead to changes in the nature of partnerships between vendors and their clients. IS human resources who build and maintain this new relationship should emphasize the value-added services in the expanded areas of business activities. To do this, it is essential to have innovations of mindsets and skill sets.
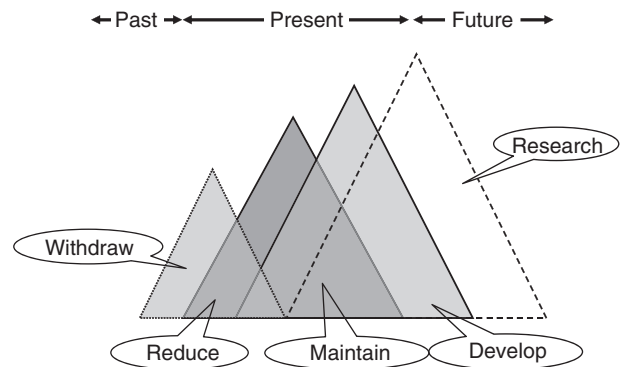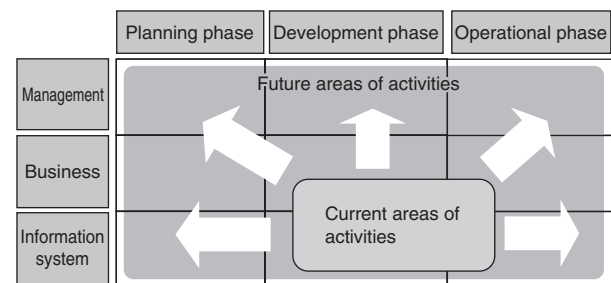

Figure 3
Expansion of areas of activities in business.

4.1 Expanded areas of business activities

For IS human resources to be able to offer IT solutions that support the evolutional development of their clients, they need to offer seamless and consistent services that encompass a wide range of services, from the planning phase in the upstream process to the development and operational phases in the downstream process, without confining themselves to the conventional development phase (**Figure 3**).

This means there is a need to not only expand phases but also diversify categories into management and business categories. Further, it has the implication that it is essential to develop professional human resources that can address each of these categories.

While the planned quality in the planning phase refers to quality from the users' viewpoint, the design quality and development quality in

the development phase refers to quality from the vendors' viewpoint. In the operational phase, the operational quality from the users' viewpoint in a real sense is critical, because the effect of introduction is significantly affected by how the system is operated. Further, by reflecting users' requests for modification generated during the operational phase in the new planning phase, it is possible to continuously promote the development of the information system.

To help clients achieve success in their business, the area of activities should be expanded to cover whole categories while assuring high quality on a consistent basis. If the requirements exceed the limit of individual approaches, those limits should be overcome through the synergy of team approaches and with contributions from many professionals who have experience-based knowledge.

4.2 Emphasizing value-added services as higher-level business

IS human resources not only expand areas of business activities but also emphasize the value-added services to be offered. To cope with management- and business-related requests from clients, they need to create new value-added features on a continuous basis through collaboration with the clients and from the viewpoint of the clients' customers.

Expanding the area of activities will lead to a greater number of contact points with clients. Then, the clients will start seeing the service providers as business partners instead of just vendors. The added value created by developing new business scenarios through sharing context and issues with clients is larger than the added value generated by the price reduction obtained through outsourcing in-house services. The added value obtained by making products is transformed into added value obtained by creating events, based on the establishment of mutual relationships through interaction between products and people. By realizing

business solutions pursuant to this business scenario, greater added value is offered.

4.3 Nurturing a mindset for partnership

IS human resources establish a profound partnership in a real sense by nurturing a mindset that enables the sharing of the clients' business success as a part of the project team.

In an age of rapid changes, human resources that are placed in a conventional operational environment and limiting conditions that only address upcoming changes cannot sufficiently satisfy clients' expectations. The clients expect human resources to predict changes in the clients' business environment, anticipate their future requests, and also enjoy the creative side of business. Namely, they expect there to be human resources with initiative that can adapt to changes.

While maintaining an order-issuer/contractor relationship with clients, collaborations are realized by sharing a sense of value with the clients and serving them in creating a system that benefits their management. To enable the sharing of higher targets of the clients such as management-related requests, human resources that have a mindset and skill set as well as sufficient skill level suitable for the mission should be developed. Further, a system to address projects needs to be established by integrating this new type of human resources. By understanding the knowledge based on practice, experience and relationships with clients through project activities, it can share a business-related sense of value with clients. This helps the clients to feel a sense of safety, trust and integrity, which in turn further reinforces the continued partnership.

- From a relationship based on a "point" to a relationship based on a "line or plane"
- From a partial relationship to a holistic relationship
- From a partially-optimized relationship to a totally-optimized relationship

- From a temporary relationship to a continuous relationship
- From a short-term relationship to a long-term relationship
- From a personal relationship to a collective (team-based) relationship

4.4 Mastering multi-functional skill sets

With the expansion in the area of activities from a confined, computer-based world to the real-life world, new areas of knowledge and skill sets are required. Knowledge of social science is needed in addition to knowledge of computer science. Instead of human resources that stick to just one professional area, multi-functional professionals are required who have a wide range of advanced knowledge about a series of procedures necessary to establish an information system. They need to be equipped with the skills described below.

Hard skill: A skill that enables a professional to describe the preferred mode of information system by seeing the big picture of the clients' business including the business with the clients' customers. Skills for meticulous analysis and design are critical. Particularly, in the area of modeling where structures of business and information system should be appropriately captured, it is essential to be able to make a difference between the things susceptible to change and those that never change by recognizing the signs of changes.

Soft skill: A skill that enables a professional to reach an agreement on a solution upon observing clients' business practices and identifying problems. Teamwork and collaboration based on so-called personality power or personal competency are also critical elements in this context. The ability to identify the actual situation using the five senses is critical. Particularly, in fieldwork where facts about business practice need to be determined, it is imperative to feel the changes, experience the facts and have insight into the essence of the

situation with a fresh viewpoint and without any preconceived notions.

Multi-functional professionals need to have the following skills:
1) Basic ability for business
   Able to observe, listen, consider, act, and cooperate.
2) Ability to build information systems
   Able to plan, design, build, operate, verify, and guarantee.
3) Ability for management
   Able to implement and improve projects and conduct program management.
4) Ability for business development
   Able to plan and develop business.

5. Nurturing IS human resources

IS human resources can address expanded areas of business activities and offer high value-added services. Further, they have an insightful mindset that helps to build partnerships and form multi-functional skill sets. In brief, IS human resources are people with attractive personalities and humanistic minds who react sensitively to changes in the technological environment, and who have skills and an unlimited thirst for self-development. It is a very challenging task to develop such human resources. It is essential to implement human resource management and knowledge management while firmly focusing on success.

5.1 Human resource management

Human resource management cannot always be successfully implemented just by training employees. The critical elements are a strong motivation for self-development through business, a framework to provide appropriate education and training suitable for the skill set to be mastered, implementation in the actual projects and a review after this implementation, and a strong sense of achievement supported by fair assessment and treatment. Human resource development is gradually achieved in a series

of stages from nurturing to treatment through deployment and evaluation.

To master skills effectively, the targeted skill set is attained by combining education and training that is optimally tailored for each person using a key performance indicator (KPI) for training. The goal of the training is to have staff acquire knowledge and make sure they have the ability to perform independently. Targeted skills are driven home by preliminary study, drills, follow-up activities on the experience of actual projects and mentoring, aiming to reinforce the ability for practice.

The critical point is to formulate an individual development plan for each person instead of just applying the same plan for everybody. The following elements should be taken into consideration:

1) Period of development: Setting periods for both short-term development and medium- and long-term development.

2) Skill to be developed: Appropriate balance among the skills most needed to deploy new technologies or new products and services, skills in focus necessary to deploy specific products and services and professional skills.

3) Place for development: Combination of an official organization such as the section or project team that the concerned person belongs to and a quasi-official organization such as the community.

4) Training for development: Options including lectures, drills, hands-on training, and e-learning.

In skill development, it is important to coordinate the organization and each person so that the development of autonomic human resources with high motivation for improvement can be realized based on a system driven by each person.

5.2 Knowledge management

Professionals who establish and maintain a contact point with clients and improve relationships with clients in the frontline of the business need to have many characteristics. They need to offer added value to clients through collaboration within the framework of the project's activities while maintaining professionalism and competency. The experience-based knowledge obtained should be shared and positively used across the organization as a part of fundamental skills. By combining and applying basic skills to the business plan or new challenges posed by clients, it is possible to offer added value to the clients, resulting in reinforcement of the mutual relationship (**Figure 4**).

These are achieved through community activities, where professionals with abundant experience in the industry at the frontline contribute their experience-based knowledge to the shared knowledge pool that can be used for starting new businesses beyond the framework of organizations.

6. Conclusion

In business practices, borders of different activities are disappearing and the speed of decision making has been accelerated. Human resources, as the main implementer of these activities, need to offer new values.

It is essential to innovate human resources by improving the human development environment that allows the nurturing of human resources that follow the principles of value creation and cost reduction with an ability to use more advanced skills based on an appropriate viewpoint.

- Human resources that aim at development for stable operation instead of development for development's sake

- Human resources that can review the options and applications of essential technologies on a continuous basis in addition to the application of new technologies with a comprehensive technical capability supported by awareness for quality
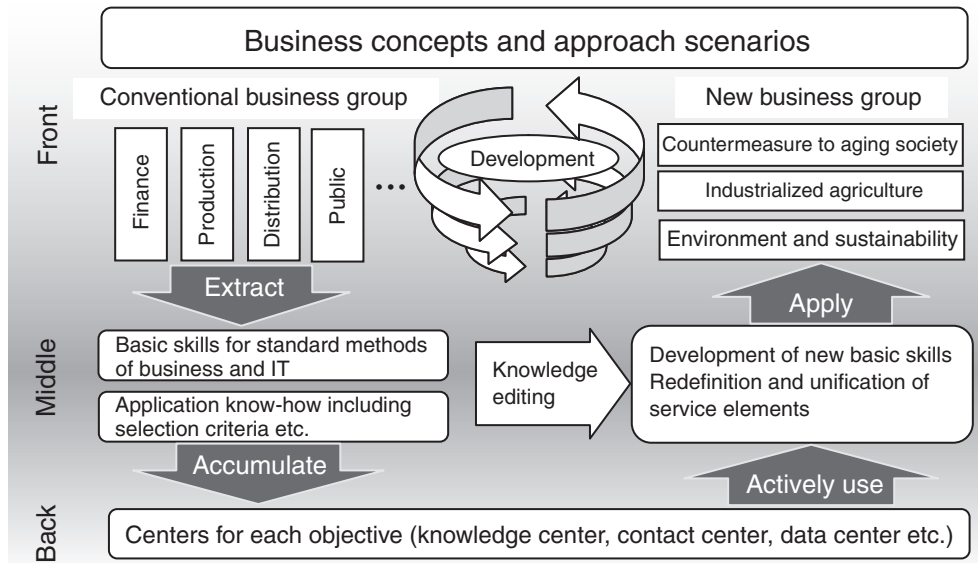
Figure 4
Spiral structure to increase knowledge.

In conjunction with technical developments such as those of systems and solution services, strategic development of human resources should be achieved for those who can use them in an optimal way, thus making it possible to synchronize and allow the coexistence of "development and satisfaction of individuals" and "development and continuation of the organization."

If the knowledge obtained from the failures amid challenging environment changes is not confined to personal experience but integrated in the organizational knowledge for future behavioral standardization, it will be possible to create human resources with an ability to cope with changes. Promoting this strategy at an international level will allow us to avoid the so called "Galapagos Phenomenon" (isolation from evolutionary development).

It is said that the service life of a corporation is 30 years in general. We need to overcome stagnation and hand down corporate genes that can continuously cope with changes. IS human resources are essential for achieving a business breakthrough in these uncharted waters.

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