

Success Factors for Social Systems to Increase the Number of Organ Donations—From the Perspectives of Mechanisms and Organizational Behaviors

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Abstract

Deceased organ donation is much less prominent in Japan than it is in Western and other Asian countries. Because a shortage of organ donation is a serious social issue in Japan, various solutions to the issue have been considered. Although it was believed that the most critical factor in the organ shortage was the absence of a well-established social system, no prior studies attempted to analyze the issue from the perspective of the mechanisms and organizational behaviors. To identify common success factors of increasing organ donation, we conducted a qualitative survey in 5 countries promoting organ donations on a national level and increasing the number of organ donations. We found several important common factors: 1) to change from an explicit consent system to a presumed consent system with establishment of an appropriate in-hospital system, 2) to increase the level of job satisfaction of healthcare professionals and help them generating better results, 3) to demonstrate managements' leadership for all staff to realize the importance of organ donations, 4) to establish an environment where medical professionals engaged in organ donations can appreciate autonomous working styles, the recognition of the importance of the work. It is suggested that these successful factors are introduced into Japan with long-, mid-term strategy to enhance organ donation.

Keywords

Organ Donation, Qualitative Research, Organizational Behavior, Organizational Structure, Motivation

1. Introduction

More than 200,000 people in the world currently need life-saving organ transplants. 120,000 people in the United States (US), 63,800 people in the European Union (EU), and 14,000 people in Japan were waiting for organ donations [1]. Each day, on average, 18 people in the US and 12 people in the EU die while waiting for a transplant. Anywhere in the world, the shortage of organ donations is a serious social issue, and it is urgently needed to promote efforts to increase the number of organ donations and reduce the number of patients on a waiting list.

The number of deceased donors per million in the Japanese population was only 0.76 in 2016; this number is much lower than in European countries such as Spain (43.40 per million population; pmp), France (28.73 pmp), the U.K. (21.44 pmp) and Germany (10.40 pmp) [2]. As a result, Japan is facing the following four social problems: 1) Many patients on waiting lists die annually because they are unable to receive an organ transplant; 2) The lack of opportunities for renal transplants has resulted in an increasing number of patients who require dialysis (320,448 patients as of the end of 2014), which has consistently weighed on the national medical expenditure (roughly 5% of the total amount of 42.4 trillion yen in 2015); 3) a ceaseless stream of patients seeking transplants abroad has raised ethical questions internationally regarding whether Japan is committed to the self-supply of organs for those in need; and 4) While organ transplantation relies on the population's altruistic attitude to organ donation, in many cases the intention of such people is not appropriately reflected in the medical setting, resulting in "infringement of the right of expectation" against Article 2 of the Organ Transplant Law (fundamental principles).

The Japanese perception of organ donation is not necessarily negative. In the Public Opinion Poll on Organ Transplants conducted by the Cabinet Office in November 2017, 41.9% out of a total of 1991 respondents aged 20 years or over replied that they were "willing to donate" organs in the event of brain death, surpassing those who answered "not willing to donate" (21.6%) [3]. These results lead to the question of why there is a chronic shortage of donated organs in Japan.

Many countries have so far been making a wide variety of efforts to resolve the organ shortage problem. With this as the background, this research aims to perform analyses of 5 successful countries (case study) from the perspectives of mechanisms, organizational systems, and motivation, and to identify common success factors.

2. Methods

Qualitative research was conducted through literature reviews on mechanisms (social administration systems) for organ donations, organizational systems (organizational structures, organizational cultures), and motivation (system for influencing individuals working in an organization), as well as through interviews.

2.1. Interviewed Countries

Interviewed countries are Spain, Belgium, France, Germany, and Singapore. These five countries were selected from among countries promoting organ donations on a national level and increasing the number of organ donations, based on the following reasons.

Spain is the country with the largest number of organ donors in the world. Since the establishment of Organizacion Nacional de Transplantes (ONT) in 1989, the country has been working on the increase in the number of organ donations as a national comprehensive strategy [4]. Belgium ranks in the world's top five in terms of the number of organ donors every year in and after 1990. Since its change in the mechanism regarding organ donations, the country has been focusing on the allocation and training of human resources engaged in organ donations. Meanwhile, regarding organ donations as a national priority concern, France established a social system, including a reform of an organ donation promotional organization, at the time of the revision the country's law concerning organ transplants in 2004. Germany introduced measures to develop professional staff and provide many benefits for organ donation hospitals, when constructing its legal mechanism. Singapore established a national registration system and began to develop professional human resources at the time of the revisions of the country's law regarding organ transplants in 2004 and 2009.

2.2. Interview Survey Method

Semi-structured interviews were conducted for persons in charge of each country's promotion for organ donations. As persons grasping the current states of organ donation system, president and educational director of Donation & Transplantation Institute in Spain, scientific program director of the International Transplant Coordinators Society in Belgium, director of science & medicine of national institute in France, director of national institute in Germany, and national coordinator in Singapore were interviewed. Total interview time was as follows: Spain—40 hours; Belgium—12 hours; France—5 hours; Germany—5 hours; and Singapore—4 hours.

Interview items were institutions (definition of the death, description of the definition of the death in the transplant law, organ donation consent system, way of registration of one's wish to donate, registration status of citizen's intention to donate organs), organizational structure (allocation organization, promotional organization, specialization of jobs, establishment of division, chain of command, centralization, formulation), organizational culture, and motivating factors at hospital in each country.

3. Results

The following section describes the results of previous study reviews and interview surveys, from the perspectives of mechanisms, organizational structures, organizational cultures, and motivation.

3.1. Mechanism

A mechanism is a system of behavior patterns established as a model in society. This research focuses on organ donation consent systems. Although an organ donation consent system is specified in detail in each country's relevant law, the WHO guiding principles on human cell, tissue and organ stipulate that on an international base, organ donation consent systems are roughly divided into two types: an explicit consent (or opting-in) system and a presumed consent (or opting-out) system.

Under an explicit consent system, an organ donation is performed based on a clear indication of the relevant person's wish to donate his/her organ. Under a presumed consent system, an organ donation is conducted on the presumption that the relevant person agreed to donate his/her organ, unless the person indicated prior to his/her death that he/she did not wish to donate his/her organ. These days, there is a tendency to further divide a presumed consent system into the following three types: 1) hard opting-out, 2) soft opting-out, and 3) presumed consent. As for a), a "non-donor registry," a system to register one's wish not to donate his/her organ, is introduced, and the first priority is placed on the person's wish. In a way, if the person did not clarify his/her wish at the non-donor registry, the person is deemed to have had a wish to donate his/her organ, and his/her family cannot refuse an organ donation. This system is employed in Austria. As for b), although a non-donor registry is introduced, the ultimate priority is placed on the wish of the person's family. The type 2) is observed in Belgium, France, and Portugal. As for 3), a non-donor registry is not introduced. The type 3) is employed in Spain, Italy, Sweden, and some other countries.

Table 1 indicates the requirements established by each country concerning organ donation.

The difference between an explicit consent system and a presumed consent system lies in how to deal with a case where the relevant person's wish during his/her lifetime is unknown. According to surveys conducted in European countries, less than 10% of people have registered their wish during their lifetime. In many cases, the relevant person's family decides whether his/her organ should be donated. It is suggested that in such cases, if a presumed consent system is adopted, it is more highly likely that the family would consent to an organ donation and that the number organ donors is larger.

Actually, data from the Association of Organ Procurement Organizations indicate that the percentage of family refusals to organ donations is lower in countries with a presumed consent system. There are four previous studies concerning the relationship between the difference in organ donation consent systems in many countries and the number of organ donations [5] [6] [7] [8]. Of them, three studies indicate that the number of organ donations is larger in countries with a presumed consent system statistically significantly ($p \leq 0.05$).

Additionally, as for the number of organ donations before and after a change in an organ donation consent system, there are reports from Austria [9], Belgium

Table 1. Social administration systems in each country.

	Country				
	Spain	Belgium	France	Germany	Singapore
No. of organ donations per million population	43.40 (2016)	31.06 (2016)	28.73 (2016)	10.40 (2016)	7.97 (2013)
Year of establishment of the transplant law	1979, 1999	1986	1994, 2004	1997	1987, 2004, 2011
Definition of the death	Brain death (Whole brain death)	Brain death (Whole brain death)	Brain death (Whole brain death)	Brain death (Whole brain death)	Brain death (Whole brain death)
Description of the definition of the death in the transplant law	Described	Not-described (Based on the latest science)	Described	Described	Described
Organ donation consent system	Presumed	Presumed (Soft opting-out)	Presumed (Soft opting-out)	Explicit	Presumed (Soft opting-out)
How to register one's wish	Donor card	National registration system	National registration system	National registration system	National registration system
Percentage of registration of one's wish	Not registered	YES: 0.9% NO: 1.8%	YES: Not registered NO: 1%	Data not available	Not open to the public

[10] [11], and Singapore [12] [13]. In Austria and Belgium, when their organ donation consent systems were changed to a presumed consent system, family care professionals were introduced, increasing the number of organ donations considerably. Meanwhile, in Singapore, since the number of organ donations did not increase, due to some problems with the in-hospital process, it is suggested that it is necessary to establish an appropriate in-hospital system, including the training of medical staff, at the time of a change in an organ donation consent system. As a result of interviews, in Singapore, the training for medical staff has been improved and the number of organ donations has steadily increased.

As stated above, it is thought that a change to a presumed consent system will contribute to the increase in the number of organ donations, although that change must entail a national consensus. As a result of previous study reviews, in the U.K., where an explicit consent system is employed, chronological surveys on public awareness were conducted and discussed for approximately 30 years. According to surveys on public awareness performed in and before 1976 [14], 34% of citizens agreed to a change to a presumed consent system, followed by the increase to 57% in 2000 [15] and 64% in 2007 [16]. In the country, the consideration for the change has begun. It is necessary to engage in full discussion in order to change an organ donation consent system.

3.2. Organizational Structure

An organizational structure indicates how jobs are officially differentiated and coordinated, affecting employees' attitudes and behaviors [17]. First, regarding

the sphere of an organization as a country, a region, and a hospital, this paper provides an overview of the structural network for each country's organ donation organizations and the scale of the country (Table 2).

Since Belgium is a member of an international organization consisting of seven countries (Eurotransplant), the country has not established a national institute, but has adopted a system under which each region directly accesses to the international organization. Thus, the country has employed an organic structure. The difference with Germany, which is also a member of Eurotransplant, is a country scale, as well as the number of organ donation hospitals and transplant facilities. In spacious countries with many organ donation hospitals, such as Germany, Spain, and France, a more hierarchical and functional structure is needed. In Singapore, since there are two transplant hospitals and 13 organ donation

Table 2. Organizational Structure in Each Country.

	Country				
	Spain	Belgium	France	Germany	Singapore
Population (million)	47.02	11.10	65.03	81.75	4.84
Area(km ²)	505,957	30,528	544,000	357,000	710
Allocation organization (original name)	National institute (Organizacion Nacional de Trasplantes)	International institute (Eurotransplant)	National institute (L'Agence de la Biomédecine)	International institute (Eurotransplant)	National institute (National Organ Transplant Unit)
Promotional Organization (original name)	National institute (Organizacion Nacional de Trasplantes)	Transplant hospital	National institute (National Organ Transplant Unit)	National institute (Deutsche Stiftung Organtransplantation)	National institute (National Organ Transplant Unit)
Specialization of jobs	Extensive range of duties	Extensive range of duties	Extensive range of duties	Extensive range of duties	Extensive range of duties
Establishment of division	Independent as division	Not independent as a division Link (in-hospital Cos.) belongs to each medical department	Independent as division	Belongs to emergency medical department	Division formed by a multiple number of national Cos.
Chain of command	Direct from hospital director to Co. division	Direct from hospital director to link	Direct from hospital director to Cos. division	From hospital director to emergency medical department	Direct from hospital director to Cos. division
Centralization	Empowered to in-hospital Cos.	Empowered to link	Empowered to in-hospital Cos.	Empowered to in-hospital Cos.	Empowered to national in-hospital Cos.
Formulation	In-hospital Cos. with the decision right regarding jobs	Link with the decision right regarding jobs	In-hospital Cos. with the decision right regarding jobs	In-hospital Cos. with the decision right regarding jobs	National in-hospital Cos. with the decision right regarding jobs

hospitals, regional differentiation is unnecessary, leading the country to employ a system under which a national institute provides direct support to hospitals. It is indicated that an appropriate structure has been selected based on the scale of each country and the number of its organ donation hospitals.

This research also analyzed in-hospital organizational structures relating to organ donations. The elements to be considered for the design of an organizational structure are the specialization (differentiation) of jobs, the establishment of a division, the formation of a chain of command, the centralization, and the formulation [18]. As indicated in **Table 2**, as for the establishment of a division and the formation of a chain of command, the results depend on the number and characteristics of staff engaged in organ donations. However, all the countries have common features in that the level of the specialization is lowered by expanding the sphere of each job, the decentralization is achieved through the empowerment, and the formulation is maintained at a low level despite a clear job description. It is reported that the expansion of the sphere of each job will help solve the problem of an ineffective use of human resources, and that the decentralization contributes to the increase in a job satisfaction level [17]. In this regard, it is thought that an organizational structure functions properly with the aim of increasing the productivity of people directly engaged in organ donations, and the level of their job satisfaction.

3.3. Organizational Culture

An organizational culture forms employees' attitudes and behaviors, and affects their job satisfaction level and productivity [17]. To form an appropriate organizational culture, it is imperative for top management to present a vision and ensure that the vision is shared.

First, it is thought that it is essential to present the public with a value that organ donations are important, and to ensure that the value is shared on a national level. In France, since the relevant law was established in 1994, the increase in the number of organ donations had not been observed. As a result, in 2004, the system and function regarding the country's national institute were totally renewed, and the increase in the number of organ donations was designated as the country's "unepriorit nationale" (first priority). In 2009, it was also selected as the country's "grande cause nationae" (national grand cause). At the same time, the country increased the number of full-time, in-hospital Cos (Coordinators). (The percentage of organ donation hospitals in France hiring such Cos. increased from 48% to 96%). Moreover, developing a systematic training program, the country allocated budgets to hospitals in proportion to the number of their organ donations and the level of their activities. This consistency in words and deeds has helped gain a trust from the public and medical professionals, and enhanced the commitment to activities relating to organ donations, resulting in the increase in the number of organ donations.

In Spain, a national institute announced that the country ranked the top in the

world in terms of the number of organ donations, and that the country's excellent training program was commended by the Transplantation Society. Moreover, these announcements were covered by the mass media, making the public proud of their country. In Singapore, a national institute has distributed booklets regarding organ donations to all the households in the country several times, and the booklets describe how to express one's wish regarding the donation of his/her organ(s). Moreover, the national institute has a special awareness program for leaders of Islam, Hinduism, and other religions from which support for organ donations is relatively low. Also in Belgium and Germany, the countries' national institutes are continuously making efforts, though they are not sufficient yet, to disseminate the importance of organ donations to the public through the mass media.

Subsequently, on a hospital level, it is essential for the director at each hospital to communicate to all staff that an organ donation is an important medical activity, and to enhance the commitment of the director and staff. At each hospital in France, there are many opportunities to be engaged in activities regarding organ donations: the hospital director communicates to all the staff that the increase in the number of organ donations is a national policy; feedback concerning organ donation activities is provided to all the staff; and knowledge surveys regarding organ transplants and donations are conducted. Additionally, a place where organ recipients can express their appreciation to the donors' families is secured at each hospital, and all staff members are engaged in local transplant awareness programs. Thus, opportunities are provided to make staff familiar with organ donations.

Also in Spain and Belgium, hospital directors make serious efforts to have all staff realize the importance of organ donations, encourage them to contribute to their hospitals in terms of organ donation activities, and urge them to work on organ donations as an effort to be promoted by the entire hospital. On the other hand, in Germany and Singapore, the level of hospital directors' commitment is low. Instead, regional Cos. and national Cos. are involved in cultivating an in-hospital culture.

As indicated above, it is thought that it is important for national institutes to present to the public the importance of organ donations. It is also important for the hospital director at each hospital to demonstrate his/her leadership and have all staff realize the significance of being engaged in organ donations.

3.4. Enhancing the Motivation at Hospital

In Europe, Enhancing the motivation of medical professionals engaged in organ donations at a hospital leads to increasing a job satisfaction level and generating better results. As factors for enhancing the motivation, extrinsic rewards, intrinsic rewards, and job characteristics are analyzed at this research in terms of how they are utilized in each country.

Extrinsic rewards include monetary rewards and participation in academic

meetings. According to Herzberg's two-factor theory, these rewards are hygiene factors and help reduce workers' dissatisfaction, but do not enhance the motivation leading to a job satisfaction [19]. Actually, in Spain, France, and Belgium, workers are not fully satisfied in terms of extrinsic rewards. The emphasis is rather placed on intrinsic rewards, such as autonomous working styles, the recognition of the importance of the work, the approval from coworkers, and growth opportunities for individuals. To provide such rewards, hospital directors take the leadership for promoting organizational reforms.

In Germany, to enhance staff's motivation, regional Cos. provide organ donation hospitals with many benefits. Such regional Cos. have hospital directors recognize the merits to be generated for their hospitals by the increase in the number of organ donations, provide hospital staff with monthly information magazines to make them familiar with organ donations, and have introduced a system under which the workload of medical staff engaged in organ donations is reduced. Additionally, there is a system for in-hospital Cos. under which the ceremony of Organ Donation Award is annually held at a palace to commend in-hospital Cos. who are engaged in many organ donations and promote high-level activities, thereby cultivating their pride. In Singapore, approximately 10 Cos. from the country's national institute have formed teams at two transplant hospitals to provide support and training for in-hospital staff and motivate them.

Maslow [20], McClelland [21], and Herzberg [19] advocated the content theory of motivation, and all of them insisted that it was important to focus on a job itself as a motivation factor. Hackman and Oldham advocated the job characteristic model, insisting that if a job has higher levels in the following five characteristics (core job dimensions), it is more highly likely that the worker is spontaneously motivated [22] [23]. "Skill variety" (the degree of various skills and abilities to which a job requires), "task identity" (the degree to which the worker can be engaged in the entire process of the job), and "task significance" (the degree to which the job impacts other people) generate a sense of meaningfulness in the job additively. In this regard, if the level of any of these characteristics is high, a sense of meaningfulness will increase. Next, "autonomy" (the degree to which the job provides the worker with discretion to plan out the work and determine the procedures in the job) makes each worker aware of the responsibility for the outcome of the job. "Feedback" (the degree to which the worker can obtain sufficient feedback regarding his/her job progress and performance through the implementation of the job) helps the worker gain the knowledge regarding the result of his/her job. Put simply, if a worker is assigned a meaningful job, and is informed of the result of the job, the worker can appreciate a feeling of achievement. A synergic effect of these things leads to a high level spontaneous motivation and a high level job satisfaction.

In Spain and France, in-hospital Cos. are engaged not only in the entire process regarding an organ donation; their responsibilities include training for

medical staff, education and awareness programs for the public, research and development for higher quality, resource management, and media management. In Belgium, links with other professions (brain surgeons or kidney physicians) and regional Cos. cooperate in covering all the above duties. In Germany and Singapore, regional Cos. and national Cos. at hospitals are engaged in media management and regional awareness programs, although the sphere of the jobs of in-hospital Cos. is extensive. Each job is useful for enhancing the degree of a wide variety of core job dimensions. Improving job contents contributes to enhancing the motivation of in-hospital Cos.

4. Summary and Conclusion

Focusing on five countries that have been working on the establishment of a social system to increase the number of organ donations, this paper analyzed examples of these countries from the perspectives of mechanisms, organizational structures, organizational cultures, and motivation, and identified success factors common to the countries.

As for mechanisms, it is indicated that an organ donation consent system correlates with the number of organ donations, and that a change from an explicit consent system to a presumed consent system contributes to the increase in the number of organ donations. However, at the time of such a change in an organ donation consent system, it is necessary to establish an appropriate in-hospital system, including training for medical staff. It is also imperative to engage in a full discussion and achieve a national consensus.

As for organizational structures, it is suggested that it is important to select the optimum structure for a country-region-hospital network with consideration given to the scale of the relevant country. At a hospital, expanding the sphere of each job, empowering on-site staff, and enhancing the level of their autonomy are effective for an organizational structure aiming for increasing the level of job satisfaction and productivity.

As for organizational cultures, it is critical for a national institute to present the importance of organ donations to the public. It is also essential for the hospital director at each hospital to demonstrate his/her leadership and has all staff realized the significance of engaging in organ donations.

As for the enhancement of motivation of in-hospital staff, it is important for the management to establish an environment where medical professionals engaged in organ donations can appreciate autonomous working styles, the recognition of the importance of the work, the approval from coworkers, and growth opportunities for individuals. It is also necessary to improve the job contents for in-hospital Cos. It is suggested that these motivation factors will increase the level of job satisfaction and help generate better results.

It is thought that the key lies in introducing as many of these factors as possible at the country, regional, and hospital levels, with consideration given to the relevant country's medical system and environment, combining bottom-up and

top-down approaches, and forming an organization where on-site medical staff can demonstrate their full capabilities as professionals.

References

- [1] Japan Organ Transplant Network Homepage, Data on Organ Donation. <https://www.jotnw.or.jp/english/data.html>
- [2] DTIRODaT International Registry in Organ Donation and Transplantation. <http://www.irodat.org/>
- [3] Cabinet Office, Government of Japan (2017) Survey on Organ Transplantation (August 2017 Survey). <https://survey.gov-online.go.jp/h29/h29-ishoku/index.html>
- [4] Matesanz, R. and Dominguez-Gil, B. (2007) Strategies to Optimize Deceased Organ Donation. *Transplantation Reviews*, **21**, 177-188. <https://doi.org/10.1016/j.trre.2007.07.005>
- [5] Abadie, A. and Gay, S. (2006) Impact of Presumed Consent Legislation on Cadaveric Organ Donation: A Cross Country Study. *Journal of Health Economics*, **25**, 599-620. <https://doi.org/10.1016/j.jhealeco.2006.01.003>
- [6] Gimbel R.W., Strousberg M.A., Lehrman S.E., *et al.* (2003) Presumed Consent and Other Predictors of Cadaveric Organ Donation in Europe. *Progress Transplantation*, **13**, 17-23. <https://doi.org/10.1177/152692480301300104>
- [7] Neto, G.B., Campelo, A.K. and Da Silva, E.N. (2007) The Impact of Presumed Consent Law on Organ Donation: An Empirical Analysis from Quartile Regression for Longitudinal Data. eScholarship Repository. <http://escholarship.org/uc/item/46670901>.
- [8] Healy, K. (2005) The Political Economy of Presumed Consent. eScholarship Repository. <http://escholarship.org/uc/item/33x4463s>.
- [9] Gnant M.F., Wamser P., Goetzinger P., *et al.* (1991) The Impact of the Presumed Consent Law and a Decentralized Organ Procurement System on Organ Donation: Quadruplication in the Number of Organ Donors. *Transplantation Proceedings*, **23**, 2685-2686.
- [10] Roels L., Vanreenterghem Y., Waer Y.M., *et al.* (1991) Three Years of Experience with a "Presumed Consent" Legislation in Belgium: Its Impact on Multi-organ Donation in Comparison with Other European Countries. *Transplantation Proceedings*, **23**, 903-904.
- [11] Vanreenterghem, Y., Waer, M., Roels, L., *et al.* (1988) Shortage of Kidneys, A Solvable Problem? The Leuven Experience. In: Terasaki, P., Ed., *Clinical Transplants*, UCLA Tissue Typing Laboratory, Los Angeles, 91-97.
- [12] Soh, P. and Lim, S.M. (1992) Opting-Out Law: A Model for Asia—The Singapore Experience. *Transplantation Proceedings*, **24**, 1337.
- [13] Low, H.C., Da Costa, M., Prabhakaran, K., *et al.* (2006) Impact of New Legislation on Presumed Consent on Organ Donation on Liver Transplant in Singapore: A Preliminary Analysis. *Transplantation*, **82**, 1234-1237. <https://doi.org/10.1097/01.tp.0000236720.66204.16>
- [14] Moores, B., Clarke, G., Lewis, B.R., *et al.* (1976) Public Attitudes towards Kidney Transplantation. *British Medical Journal*, **1**, 629-631. <https://doi.org/10.1136/bmj.1.6010.629>
- [15] National Kidney Research Fund (2000) Public Support for Change in the Law on Organ Donation Says New Survey by the National Kidney Research Fund. Kidney Research UK. <http://www.kidneyresearchuk.org/content/view/200/255>

- [16] British Medical Association (2007) YouGov. Organ Donation Fieldwork Date. [http://www.bma.org.uk/ap.nsf/AttachmentsByTitle/XLSorgandonation07/\\$FILE/organdonation07.xls](http://www.bma.org.uk/ap.nsf/AttachmentsByTitle/XLSorgandonation07/$FILE/organdonation07.xls)
- [17] Robbins, S.P. (2005) *Essentials of Organizational Behavior*. 8th Edition, Pearson Education Inc., Prentice Hall, Upper Saddle River.
- [18] Daft, R.L. (2004) *Organizational Theory and Design*. 8th Edition, Southwestern Educational Publishing, Cincinnati.
- [19] Herzberg, F. (1996) *Work and the Nature of Man*. Crosby Lockwood Staples, London.
- [20] Maslow, A.H. (1954) *Motivation and Personality*. Harper & Row, New York.
- [21] McClelland, D.C. (1951) *Personality*. Sloane, New York.
- [22] Hackman, R.J. and Oldham, G.R. (1975) Development of the Job Diagnostic Survey. *Journal of Applied Psychology*, **60**, 159-170. <https://doi.org/10.1037/h0076546>
- [23] Hackman, R.J. and Oldham, G.R. (1976) Motivation through the Design of Work: Test of a Theory. *Organizational Behavior & Human Performance*, **162**, 250-279. [https://doi.org/10.1016/0030-5073\(76\)90016-7](https://doi.org/10.1016/0030-5073(76)90016-7)