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JACEK SZOŁTYSEK
SEBASTIAN TWARÓG
MARTYNA WRONKA

Social networks and the situation of blood donation in Poland: a logistics perspective

Focus on how to be social, not on how to do social

Jay Baer, Convinence & Convert

1. Introduction

The basic form of self-organization of society is the state, therefore its security is a common concern of its citizens. An important element of national security is the health safety of citizens through ensuring equal access to health care, being the primary goal of the health system. One of health care system components is reliable blood system. An unexpected change in demand for blood and its components may induce a bullwhip effect, and the organizations that form supply chains of blood have to deal with supplies unreasonable in terms of their size and structure. Hence, authors direct their attention to the area of logistics, offering tools that enable to govern the efficiency of material and information flows within the functioning of economic systems.

Nowadays the logistics in supply management of blood chains plays a secondary role and integration flows is often done randomly and intuitively. Rapidly growing recognition of social logistics (T. Takahasi, 1988, pp. 245

Professor Jacek Szołtysek
Department of Social Logistics
Ph.D. Sebastian Twaróg
Department of Social Logistics
MSc Martyna Wronka
Department of Entrepreneurship and Innovative Management
University of Economics in Katowice

-251; Tenhunen 2008, pp. 515-534; Szołtysek 2010, pp. 2-6; Szołtysek 2011, pp. 13-18) is the result of the fact that it provides tools to improve the efficiency of the blood system, both in terms of existing blood supply chains as well as the potential offered by the network structures. Efficient supply in the blood system, expressed in high degree of readiness to donate blood is a critical success factor in the system. An important role in this process is played by social networks as a source of general mobilization of potential blood donors. Finding a way to change the relationship between social networks and the blood system may be a way to mitigate the disturbances occurring in the flow of blood and blood components in Poland. Thus the aim of this article is to present the impact of social networks on the formation of blood flow and its components in the system of civilian blood in Poland.

2. Parallel entities

Social networks are a self-organization method of social groups, employed to wield effective influence on decision makers, or to make actual changes in reality. Their independent activities show an increasing effectiveness, owing to the possibility of using the Internet. In recent years, social networks created on an ad hoc basis proved its real impact on the functioning of society: leading to a change of government in the countries of North Africa (Tunisia, Egypt), promoting the democratization of elections (Russia - from December 2011 on), stopping the ratification of ACTA (Poland), fighting for freedom (Syria, the process is in progress). Driving force of social networks is used more and more frequently to increase the efficiency and effectiveness of social services. We leave the period of exercising control and stigmatizing malpractices, and rapidly enter a period of co-creating social values.

The basic form of self-organization of society is the state, the security of which is a common concern of its citizens. An important element of national security is the health security of citizens, with an infallible blood donation system as its component. In Poland, the blood donation system consists of two parallel-operating subsystems: civilian and uniformed services. In this article, the authors focus on the system of civilian blood donation. It consists of 21 independently-functioning supply chains of blood and its components (Szołtysek, Twaróg 2009, p. 15). Blood supply chains in the institutional dimension consist of the donor and blood recipient, as well as institutions and organizations participating in the flow of blood and blood components from its acquisition until transfusions. Institutions and organizations mentioned here are regional blood and

transfusion centers (21), together with local branches (158) and hospitals (830). In any case, from the logistics point of view, undertaken activities should lead to the situation where adequate blood (group), at the right time, place, form (packaging, temperature, expiration date, an appropriate description) and in the right quantity is delivered to the final buyer (blood recipient). The creation and operation of that system involves only the citizens residing within the country and meeting the conditions specified by statute or directives (regarding age, weight and health). What one encounters in Poland because of such boundary conditions is a closed system, the functioning of which is strongly related to the input and output with the society it operates for. This connection should serve as a pretext to reflect on the shape of relations between social networks operating in different spaces (which might be said to represent citizens' activity) and the blood donation system in Poland (as functioning in reality) aiming at combining these two parallel entities. The purpose of the blood donation system is to ensure the health safety of the state, by guaranteeing efficiency in the availability of blood and its components. This can be achieved only through the citizens' willingness and generosity to honorarily donate blood and blood components (which is, in fact, the essence of blood donation).

3. Blood supplies in the blood donation system in Poland

In Poland, the acquisition of blood is based on voluntary and unpaid blood donation. Such actions are based largely on altruism. Altruism, for example, is not limited to human beings, but is typical of many different social species. Experiments with rhesus monkeys have shown that they would refrain from pulling a chain to deliver food if it would result in shocking other monkeys. This suggests that empathy and reciprocity are not merely ideals, but rather ESSs that seem to be the encoded behaviors of many species (Clippinger 2005, p. 5). Neuroscientist Antonio Damasio has argued that social emotions have an identifiable physiology and measurable role in the behavior of the human brain. "Anger, fear, shame, indignation, jealousy, pride, compassion, gratitude, sorrow, and joy appear to be part of an overall program of bio- regulation (Damasio 2003, p. 160).

The condition for the effective functioning of this system is a positive blood balance, or, a situation in which at any given moment the number of blood donations at the disposal of the system is equal to or exceeds the demand for blood in the same period. This means that in the case of balanced (that is, fluctuating around the average) demand for blood and blood components the

public interest in honorary blood donation remains at a stable level, sufficient to cover the demand. Both the demand for blood and its supply are subject to periodic changes, the reasons of which are various, and which are not covered on the scale of an average year. Blood supply is liable to the traditional fluctuations associated with the seasonal mobility of citizens. The period particularly difficult in terms of the shortage of blood are the summer holidays (from June to September). During that time, blood supplies shrink rapidly. Many people travel away, so there are fewer donors, and on the other hand, with more accidents taking place, the demand for blood increases. That is why, in the summer, blood is frequently disposed towards life-threatening situations only. The demand for blood and blood components is usually constant and predictable, but is subject to fluctuation caused by both the occurrence of disasters (due to which the demand unexpectedly surges), and regular or one-time mass events (in their case, the risk of accidents for which blood therapy is requisite rises; e.g. EURO 2012), or is associated with inadequacies of the health system (take the lengthy funding negotiations with the National Health Fund for instance).

As the response to the situations in which the supply and demand for a given good are subject to such a fluctuation that it is impossible to meet the demand of the current supply, logistics proposes a number of tools to determine the optimal size of supplies and their location within the system, owing to which the ordered needs for a good could be satisfied. Some of the blood types are replaceable under certain conditions (Type O negative - universal blood type) - this creates a real challenge for the logisticians and other people responsible for the management of blood in Poland (Twaróg 2010, p. 11), whereas an impediment to their activity lies in the fact that blood as a resource is liable to strict storage and distribution conditions (respectively, a relatively short expiry date and stringent transport regulations). Those circumstances are one of the reasons why blood centres' activity, in terms of urgent acquisitions of blood, is increased during the periods of blood shortages. The research of the described relationship, conducted by the authors on the civil blood donation system in Poland, showed that the annual number of donations is sufficient to cover the demand (which allows for the realization of the doctrine of self-sufficiency in the blood donation system in Poland). Nonetheless, every year, there are appeals to the public to donate blood, due to urgent need for it. This means that, in spite of familiar logistics solutions, the blood supply management principles are insufficient to guarantee the continuity of demands' satisfaction.

However, there are situations, in which there is too much blood supplies in the system. In such cases, blood donor sessions in mobile facilities are cancelled,

and the potential donors, who come to blood collection centres, are requested to return at another time. From time to time, the media reports on incidents of selling or wasting blood and its components. Then, the effectiveness of the aforementioned appeals for blood drastically decreases. This in turn requires the active work of the people involved in promoting blood donation. This is not, however, a uniquely Polish issue - the Internet resources provide the reader with a number of negative comments, from the people whose blood was not drawn for various reasons. Sahlgrenska **University Hospital in** Gothenburg **in western Sweden has launch a massive social media campaign to encourage blood donors to help meet a shortage.** "The number of donors has declined and we have a constant shortage of blood," Ulrika Ljung at Droppen said in a statement. The campaign will be made up of social media, radio, television and billboard advertising and is in response to a massive shortage of blood donors and thus blood. The goal of the campaign is to recruit 6,000 new donors over a three year period [www.thelocal.se/36550/20111005]. Underneath, a catty comment appears: "Shortage of blood? The other day I wanted to donate blood and was told that you have to speak good Swedish to be allowed to. Perhaps they should let foreigners who don't speak good Swedish donate blood."

Publishing the information about blood shortages while denying its collection results in a decrease of the confidence in the blood donation structures, and in a reduced willingness of the citizens to donate blood in an emergency.

The experience of recent years shows that in such cases an effective way of finding volunteers ready to donate blood, aside from PR activities [Twaróg, 2012], is mobilizing them by means of social networks.

4. Social networks and their impact on blood donation system

"The basic assumption of network relationships is that one party is dependent on resources controlled by another, and that there are gains to be had by the pooling of resources. In essence, the parties for a network agree to forego the right to pursue their own interests at the expense of others. Thus, network forms of organization represent a particular form of collective action, one in which norm of reciprocity, trust, reputation, and normative rather than legal sanctions maintains the spirit of collaborative goodwill within the lateral or horizontal modes of collaboration." (Powell 1990, p. 303). "Social networking websites are online communities of people who share interests and activities or who are interested in exploring the interests and activities of others. They typically provide a variety of ways for users to interact, through chat, messaging,

email, video, voice chat, file-sharing, blogging and discussion groups" (Jothi, Neelamalar & Shakthi Prasad 2011, p. 234). Social Networking Site (SNS) to refer to the full range of products and services across platforms, which cover content creation, networking, sharing and collaboration and which support existing offline networks or the creation of new ones. As a result, we are including global platforms such as Facebook and YouTube, thematic networks such as NetMums, localised Community Forums and also Virtual Worlds such as Second Life (Online Social Networks 2008, p.11). Social networks work on the basis of relationships between people and provide an opportunity for a new form of relationship between the public sector and citizens that can support service transformation. A number of variants of the social networks is to be listed, as presented in table 1.

Table 1. The Players of Social networks

Blogs	*From the late-90's rise of The Drudge Report until the late 2000's, blogs served an intermediary role as the "media's media," discovering and popularizing real-world stories underreported by traditional news outlets. Increasingly, however, blogs are able to distribute information independently of mainstream outlets. In many cases, events in the blogosphere have themselves become the story.*
Forums and Message Boards	*Forums and message boards are discussion sites, which allow users to join, typically without requiring any application or qualification process. Users may create personal profiles, start pages dedicated to conversation on a specific subject, and participate in pre-existing conversations.*
Twitter	*Twitter functions by allowing users to "broadcast" short messages of 140 characters or less. Most messages, or "tweets," are available to the public – however, users typically only view the messages of people whose Twitter feeds they have subscribed to.*
Facebook, LinkedIn, Social Directories	*Facebook presents a particularly important opportunity for not-for-profits through its ability to incorporate applications. Applications are tools that allow users to "opt-in" to certain games, quizzes, contests, news feeds, and so on. Organizations can use these to actively reach out to donors and volunteers and inject their mes- sage into the social media conversation.*
Miscellaneous	*Mobile device applications, especially on the iPhone and Blackberry* *Specialty retail sites ("e – tailing") such as Woot.com and Zappos* *Casuals gaming platforms* *Non – conventional advertising, including in video games and virtual words*

Source: Abrams Research, Social Media Guide for Non – Profit Organizations, p. 2-3 (own study)

It is important to note that some social networking sites are not mutually exclusive and can fall into multiple categories (fig. 1).

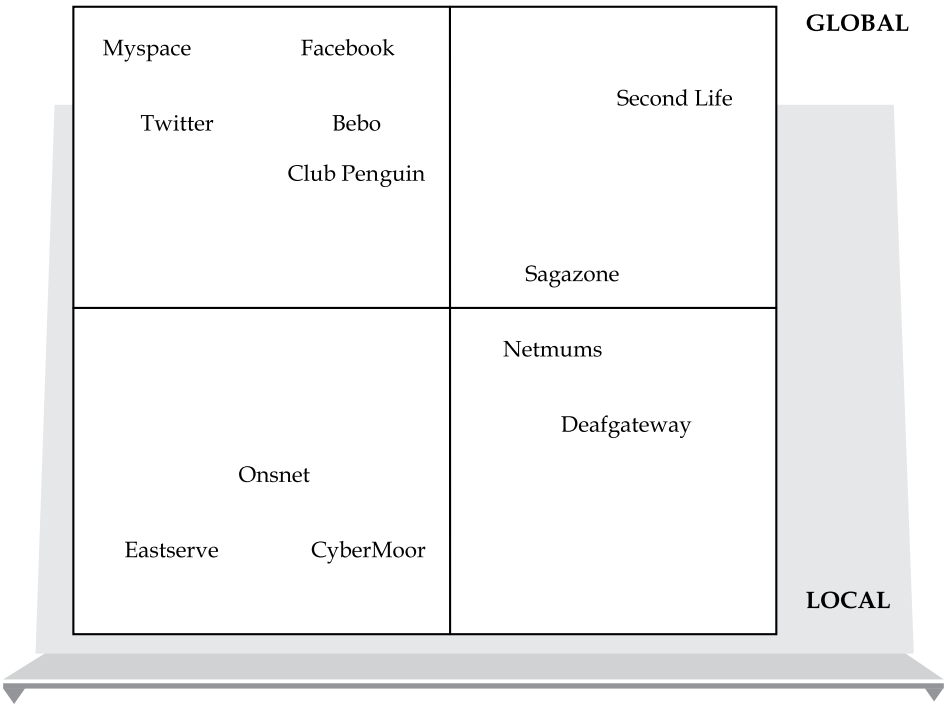

Figure 1. The reach of the network and its relationship to 'offline' networks

As described further in the article, the examples of how social networks are used to support the blood donation system indicate their growing popularity and effectiveness. It probably stems from the fact that social networks arise from the natural need of people, who share the same views or seek to achieve specific goals, to work together. The environment in which the realization of social networks occurs may be either real or virtual world. Sociability motive is defined as the degree to which using SN web site is perceived to be effective in maintaining and developing social relationships with others. Human beings need to build beneficial relationships with others (Brewer 2004, p. 108) and thus they have a strong need to feel connected (Baumeister & Leary 1995, p. 499).

The tools used by the system of blood donation to enlist new donors come from the fields of marketing and logistics (especially when it comes to maintaining regular contact) and require, on the one hand, a specialized and experienced staff (either connected with the system institutionally, or attached to in on the basis of liking), and, on the other hand, a group of honorary blood donors, ready to cooperate for the sake of the higher purpose. Depending on the strategy adopted to acquire blood (often understood as an unconscious principle of cooperation between the system and potential, as well as multiple, blood donors) different forms of communication are followed. These actions are also pursued in social networks, often in the form of voluntary activities of their participants.

The evaluation of these tools' effectiveness is based on the obtained results, measured by how adequate the number of donations is in relation to the gap revealed in the blood demand. The experience of the social networks involved in supporting the blood donation system indicates a growing number of donors obtained as a result of interactions in these networks. Therefore, a dialogue between the blood donation system and the society is to be held, in order to raise the citizens' willingness to donate blood, with a belief that the system works efficiently, and the acquired blood is not wasted. Thus, it seems promising to communicate through social networks, as representatives of society, because they provide the organizers of the system with additional tools (arguments for motivation), related to their specificity and the speed at which information spreads, as well as to the response, which is decidedly larger in such networks. This feature is shared by all networks.

5. Supporting the blood donation system through social networks

In the Internet environment, networks are characterized by 24/7 readiness, allowing members to interact at any time. The features concerning: 1) common views and goals, 2) a temporally unlimited access to resources at the disposal of the social network, allow to create a psycho-sociological model of an average member of a network (a node). Such a model increases the likelihood of effective selection of tools to communicate with the network, and enhances the efficacy of actions directed to the network. It should also be noted that a particular social network's node may also belong to the structure of many other networks. The transfer of information (an impulse to action) may lead to its repetition within many networks, and this greatly expands the field of influence. Social networking sites have a significant role in the following scenarios and therefore could be used to directly benefit excluded groups and individuals:

- supporting and liberating vulnerable groups by providing them with a voice and by enabling access to people with similar issues or challenges; an example being people suffering from chronic or serious illnesses such coronary heart disease,
- organising for political action, legislative improvement and legal rights/ protection,
- enabling minority groups to have a further means of organising and supporting each other, and presenting themselves and their views to a wider society,
- linking to public and third sector services to provide a more collaborative approach by involving citizens in the process; an example would be carers,
- supporting special interest groups; these could be existing groups such as one for local history or those arising out of a particular social problem such as bullying at the local school (Online Social Networks 2008).

The ability to evaluate the quality of a social relationship is a precondition for social self-organization. Trust is the consequence or state when one or more members of a network perform according to mutual expectation. It is not an abstract moral virtue, but a network property—a byproduct of the quality of interactions between parties (Sobber, Wilson 1998). The ability to build and leverage trust among members of a group builds *social capital*[1]and significantly reduces transaction costs because such networks become self- synchronizing and self-enforcing. The other key component for self-organization is transparency. Everyone in a social network needs to see what the others are doing so that there are no hidden agendas or false measures, and each can adjust their behaviors to the others. Transparency is not only a precondition for effective markets, but organizations as well, and becomes the basis for applying peer pressure, one of the most effective means for enforcing social norms (Clippinger 2005, p. 17). Another established way to look at collaboration and coordination in organizations is from an economics perspective, whereby independent actors are seen as making rational choices based upon their informed self-interest. Such economic analyses presume that every decisionmaker possesses a combination of *unbounded rationality*, *unbounded greed*, and *unbounded will power* (Mullainathan, Sendhil, Thaler 2001).

To meet the needs for blood, current supplies are used, or autotransfusion is performed. Since, as previously indicated, the system deficiencies often occur, the search for donors can be conducted by means of social networks.

1 Social capital is defined as current or potential resources gained through an actor's individual network (Buenoet al. 2004, p.557).The number of social ties of individuals and organizations can normally give us ideas about the degree of their social capital.

To use an example from Russia, donors may be found via a website called DonorSearch.ru, which is in turn coordinated with one of the most popular social networking sites, "vk.com" (*v kontakte*). This initiative was created in the social network, owing to the involvement of an individual, but did not attract the state authorities' interest. During a year and a half of its activity, the addresses of 5,000 people willing to donate blood if necessary appeared in the website's database. The actual results of the donors' network functioning may be seen at http://vk.com/topic-21179173_24022855. I-Blood.com, which operates mainly in Bangladesh, has a similar range of activities. I-Blood is a social blood networking platform which is solely dedicated to save human lives. This network facilitates anyone, who needs blood, by providing an extensive source of blood donor in Bangladesh as well as in abroad. The most significant objective of this network is to build a strong connection among the people through out the world and to know their friends by blood group. The necessity and importance of blood needs no explanation and specially to those who have gone through the ordeal of frantic blood searching for his/her near and dear one in emergency. This vast and updated network will cut the trouble to a great extent and only few clicks will be enough to find the necessary and desired blood group. For that one has to create an account on I-Blood which is completely free and has to explore for further activities. The network is connected with Facebook and Twitter.

Another instance is the Takes All Types, a not-for-profit organization that uses online social networks like Facebook to recruit and mobilize volunteer blood donors, launched today at http://apps.facebook.com/takesalltypes and http://www.takesalltypes.org. Blood collection organizations nationwide will benefit from Takes All Types from the ability to reach local donors who have the specific blood types they need. This approach promotes more regular and reliable blood donation, and allows for fast, targeted mobilization of local donors for immediate action in cases of emergency. When blood reserves are low, the collection organization can use Takes All Types to call for donations by SMS text message, e-mail, phone, fax and private Facebook message.

In Poland, an example of social network's support for the blood donation system is Przystanek Woodstock, an annual music festival. In contrast to the previously described instances, this action is not continuous - it involves mobilization of blood donors just once a year. Przystanek Woodstock is a huge summer music festival held in the beginning of August in Kostrzyn on the Oder, Poland. The Festival is organized by the Great Orchestra of Christmas Charity Foundation (Wielka Orkiestra Świątecznej Pomocy) in order to thank all

Table 2. Characteristics of selected social action

Feature / characteristic	*Donorsearch Russia*	*Takes All Types*	*I-Blood Bangladesh*	*Przystanek Woodstock*
Initiator	*An individual*	*An individual*	*Presidency University Campus students*	*Foundation The Great Orchestra of Christmas Charity*
Purpose of establishment	*Maximising the donor database*	*Maximising the donor database*	*Search for blood Donate blood directly to patients*	*Promoting the idea of blood donation; drawing blood and blood components*
Purpose of operation	*Selection of blood donors and recipients*	*Selection of blood donors and recipients*	*Saving lives through the selection of blood donors*	*Acquisition of blood for the system*
Duration of action	*18 months*	*4 years*	*4 years*	*20 years*
Information channels	*the Internet, telephones*	*the Internet, mobile communications*	*the Internet, telephones, the website mainly*	*the Internet, mass media*
Results of operation	*5000 addresses*	*25.000 on-call volunteers*		*Year 2011: 2941 donations, 3000 donors, 1362.76 liters of blood*
Elements of logistics support	*when necessary to transport blood donors to blood collection centres*	*when necessary to transport blood donors to blood collection centres*	*when necessary to transport blood donors to blood collection centres*	*when necessary to transport blood donors to blood collection centres; optimizing time and place of the transport of blood and its components*
Recognizability	*High - in all major Russian social networks*	*High - on Facebook, Twitter, Myspace, FanBox*	*High on the Internet - Twitter*	*High in mass media and on the Internet - Facebook, Twitter*
Time dimension	*all-year-round*	*all-year-round*	*all-year-round*	*Periodic (once a year)*

Source: own study

its volunteers and supporters who take part in the annual Grand Finale fundraising event in January. The first Woodstock Festival was held in 1995 in Czymanów at the Żarnowieckie Lake (www.en.wosp.org.pl). Along with the concerts, the largest Polish session of blood collection (in mobile facilities) takes place. Each day of the four-day operation, several hundred volunteers donate blood in spite of the heat and dust. In 2011, 2,941 blood donations from 3,000 donors were received during the session, which resulted in obtaining 1362.76 litres of blood.

An example of the cooperation between the "real" world (the blood donation system) and social networks might be LifeCircle + system, designed to improve the current ways of saving lives, by providing adequate amounts of blood wherever it is needed. LifeCircle + prototype, developed by a team of IT students from Łódź, CodeRaiders, won the Polish finals of the prestigious Microsoft® Imagine Cup 2011.The system consists of three main modules:

1. The mobile app designed for a mass audience, available for free download. It provides its users with a permanent connection to the nearest blood donation centre, and enables them to immediately respond in case of a sudden need for blood transfusion.
2. A software for blood donation centres, integrated with the central database, as well as with the computing cloud. It enables optimal blood supplies management, and effective administration of registered donors. This feature, along with the ability to automatically map out the best route in case a blood transport is needed, helps to maintain an optimal blood level in the banks and to prepare the amount needed to secure big mass events. Application of the computing cloud increases the scalability of the proposed solution considerably.
3. The module provides the user with a direct connection with the most popular social media. Utilizing the growing popularity of web portals such as Facebook, and the achievements system (granted for the regular blood donations), the system aims to promote the idea of blood donation (lifecircleplus.com).

The presented examples of community initiatives suggest that the idea of helping the needy in the form of blood donation, owing to the operation of social networks, developed towards creating tools aimed at enhancing the effectiveness of these networks. It is worth emphasizing that such actions are triggered by members of social networks, not by some professional organizations set up to accomplish tasks of the blood donation system. More and more, the latter ones are using the free services brought to them by social networks.

6. Guidelines and recommendations

Society consists of individuals, whose various relationships (ties) form a network. The identification process occurs when people accept influence because they want to establish or maintain a satisfying self-defining relationship to another person or group (Kelman 1958, 1961). The impulse for a need of action induces certain vibrations in an individual, which then are transferred to other individuals, and - when the impulse meets with a favourable response - resonate and circulate the initial need in the network. Such actions have led to the creation of a series of initiatives to support the blood donation system in social networks. The idea of helping your neighbour, realized in the formed of the access to information on the people willing to donate blood if necessary, a voluntary declaration of readiness to assist in creating a network of blood donors, and monitoring the functioning of the system institutionally responsible for the health security of a country, should be supported by the blood donation system, as well as state and local government entities.

Attracting supporters within networks (putting it into a state of resonance) is sometimes insufficient to lead those needs to their satisfaction. In many projects, their goals might be reached only at a specific time and in a specific physical space. Achieving the unity of place and time means providing availability, which is the immanent purpose of logistics operations. In the pursuit of success, the activities' organizer (or perhaps their integrator) should make a proper statement of resources and properly use the opportunities emerging in the environment. These tasks are accomplished by social logistics (T. Takahasi 1988, pp. 245 – 251; Tenhunen 2008, pp. 515–534; Szołtysek 2010, pp. 2–6; Szołtysek 2011, pp.13–18), which provides tools to improve the effectiveness of the blood donation system, both in terms of the existing blood supply chains, and the potential offered by network structures. According to the research conducted by J. Szołtysek, S. Twaróg and R. Otręba, it is requisite to develop managerial competencies in this area, so that they would cover decision making methods other than the business ones (Szołtysek, Twaróg & Otręba 2012, pp. 543 - 551). Developing these competencies might be facilitated if the people responsible for making decisions on the management of blood function either in contact with social networks or directly within them.

7. Conclusions

Identification of parallel entities allows to understand the philosophy of their functioning and in particular, the differences between the rules implemented in the real and virtual world. Initially, both of these entities operated independently, however virtual existence seemed as a better and ideal version of the real one, or as its ideal. In both cases main creators and actors are people who exhibit a certain degree of their needs, aspirations, creation opinions or new fashions. The strength of virtual entity involves the ability to consolidate people around a certain idea and by means of that helped to achieve a variety of goals in the real world. The positive results include also the successful (in terms of effectiveness) campaigns support the idea of blood donation (also in practical terms). According to the authors social networks may be one of the main driving forces increasing willingness of potential donors to respond to the demands from blood system, in particular those that are caused by unforeseen increases in demand for blood.

Summary

Social networks and the situation of blood donation in Poland: a logistics perspective

This article aims to present the impact of social networks on the formation on the flow of blood and its components in the civilian blood donation system in Poland. The civilian blood donation system in Poland consists of 21 independently-functioning supply chains of blood and its components (Szołtysek, Twaróg 2009, p. 15). Today, logistics plays a secondary role in the management of blood supply chains, and the integration of flow is performed randomly and intuitively. The rapidly growing recognition of social logistics (T. Takahasi 1988, pp. 245 – 251; Tenhunen 2008, pp. 515–534; Szołtysek 2010, pp. 2–6; Szołtysek 2011, pp.13–18) provides tools to improve the efficiency of the blood donation system in terms of both the existing blood supply chains, and the potential offered by network structures. An unexpected change in demand for blood and its components probably induces a bullwhip effect, and the organizations that form the chains have to deal with supplies unreasonable in terms of their size and structure. A major role in this process is played by social networks, as a source of general mobilization among potential blood donors. Finding a way to

change the relationship between social networks and the system of blood donation may minimize the disruptions occurring in the flow of blood and its components in Poland.

Key words: *social logistics, blood donation, social networks.*

Streszczenie

Sieci społeczne a sytuacja krwiodawstwa w Polsce w perspektywie logistycznej

Celem artykułu jest prezentacja wpływu sieci społecznych na kształtowanie przepływów krwi i jej składników w systemie cywilnego krwiodawstwa w Polsce. System cywilnego krwiodawstwa w Polsce składa się z 21 niezależnie funkcjonujących łańcuchów dostaw krwi i jej składników (Szołtysek, Twaróg 2009, s. 15).

Współcześnie logistyka w zarządzaniu łańcuchami dostaw krwi odgrywa drugorzędną rolę i integracja przepływów dokonywana jest przypadkowo i intuicyjnie. Zdobywająca coraz większe uznanie logistyka społeczna (T. Takahasi 1988, pp. 245-251; Tenhunen 2008, pp. 515–534; Szołtysek 2010, pp. 2-6; Szołtysek 2011, pp. 13-18) narzędzia zwiększające skuteczność funkcjonowania systemu krwiodawstwa zarówno w aspekcie istniejących łańcuchów dostaw krwi jak również potencjału oferowanego przez struktury sieciowe. Niespodziewana zmiana popytu na krew i jej składniki prawdopodobnie wywołuje efekt byczego bicza i jednostki wchodzące w skład tych łańcuchów muszą poradzić sobie z nieuzasadnionymi (wielkości oraz strukturze) tworzącymi się zapasami. Dużą rolę w tym procesie odgrywają sieci społeczne będące źródłem powszechnej mobilizacji wśród potencjalnych dawców krwi. Znalezienie sposobu na zmianę stosunków między sieciami społecznymi a systemem krwiodawstwa może być sposobem na łagodzenie zakłóceń występujących w przepływach krwi i jej składników w Polsce.

Słowa kluczowe: *logistyka społeczna, krwiodawstwo, sieci społeczne.*

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