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Civic Tech Communities As a Modern Practice of Social Reality Changes in the Era of digital Tranformation

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Abstract : Development of social Internet platforms such as Facebook, Twitter, VKontakte, not only gave an impetus to the development and formation of the network society, but also to the formation and extension of an entirely new type of online applications – Civic apps, grounded in the idea that the civil society is able to independently solve a number of various issues, such as rectifying the consequences of natural disasters. Civic apps are a practical software aimed at encouraging online activity of the users contributing to a positive social development.

These applications are built with the aim of raising the level of public good, civic engagement and generally for increasing social capital, they operate online, likewise Mobile apps.

Non-profit organizations, public national organizations, various government agencies are interested in the development of civic applications and involve various IT specialists, thus creating hybrid forms of interaction and, as a result, innovation. If we trace the history of the civic applications development, it can be noted that at the first stage of their development it was for the NGOs or the public sector to refer to the IT-sphere in request to build them. Eventually, civic applications transformed into Civic Tech, and there formed an entire civil tech community, which does not just develop civic applications, but also initiates their creation, thus enhancing hybrid interaction. These areas will be discussed in the article.

Keywords : Civic tech communities; social reality; civic app; network analysis; open government; community action.

1. INTRODUCTION

Development of social Internet platforms such as Facebook, Twitter VKontakte, not only gave an impetus to the development and formation of the network society, but also to the formation and extension of an entirely new type of online applications – Civic apps, grounded in the idea that the civil society is able to independently solve a number of various issues, such as rectifying the consequences of natural disasters. Civic apps are a practical software aimed at encouraging online activity of the users contributing to a positive social development.

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formed an entire civil tech community, which does not just develop civic applications, but also initiates their creation, thus enhancing hybrid interaction.

In general, the activities of civic tech community can be divided into two areas: Open Government and Community Action (Figure 1).

Open Government – projects designed to change "from the top-down" and based on the transparency in government institutions action, the development of open database, access to public services in electronic form, public participation social and political decision-making: Data access and transparency; Voting; Visualization and Mapping; Data Utility; Resident Feedback; Public Decision Making.

Community Action – projects designed to change "from the top-down" and based on the information exchange, funding and merely cooperation under the principle of a P2P: Peer-to-peer local sharing; Civic crowd-funding; Neighborhood forums; Information crowdsourcing; Community Organizing.

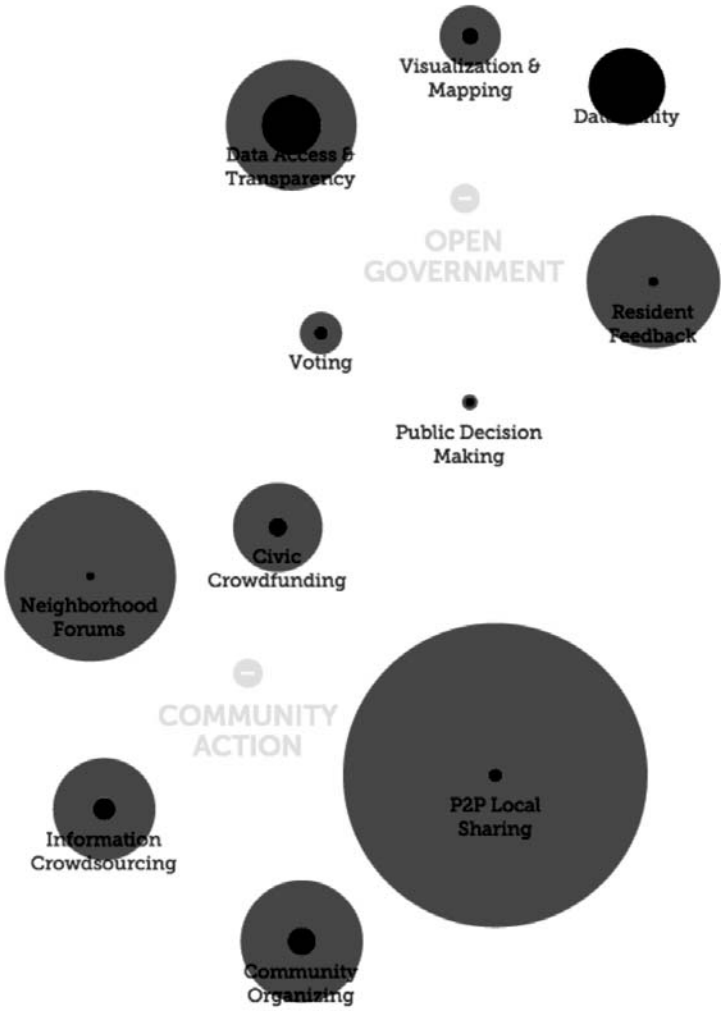

Figure 1: Areas of civil tech community activities [10]

2. CIVIC TECH COMMUNITY: THEORY, METHODOLOGY AND WORLDWIDE EXPERIENCE

At the end of 2015 a researcher Stefan Baack from the Alexander von Humboldt Institute for Internet and Society conducted a research of civic tech community based on the largest web hosting server for IT-projects and their co-development – GitHub [2]. Currently the platform is being used by 12 million people, the total number of projects accounts to over 31 mln., the creators call it "social network for developers". The analysis of network activity on GitHub followers lead to building a civic tech community scheme (Figure 2) [10].

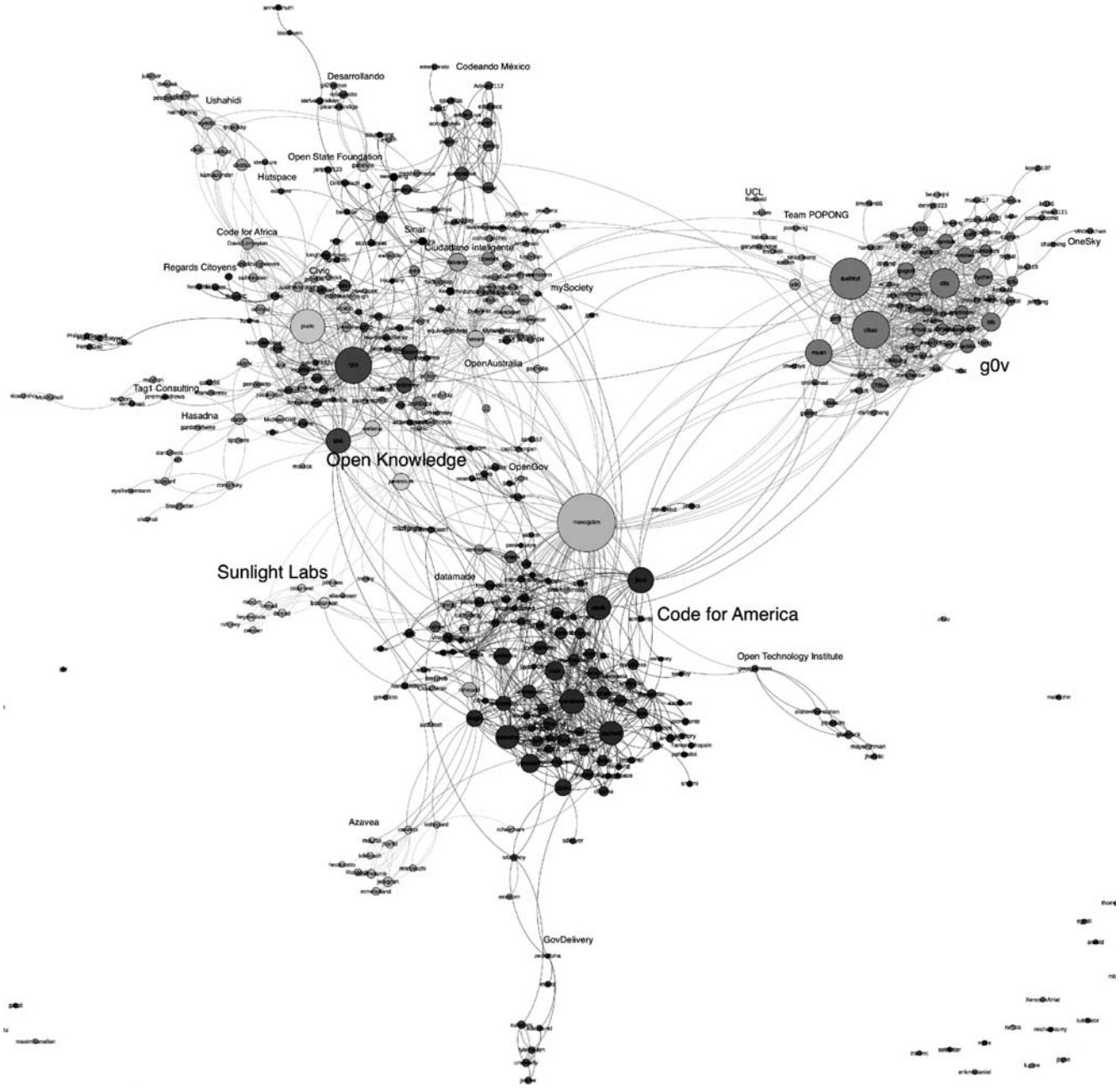

Figure 2: The follower network [10]

Figure 2 features GitHub platform users as hubs or vertices of the net, with a certain color denoting the organization which they belong to. Almost all the clusters are grouped by country. Thus, for example, clearly distinguished: Taiwan and Korea civic tech community, USA cluster, Europe cluster, Latin America cluster, Africa cluster. For a detailed description Stefan Baack visualized a community net of GitHub contributors repositories (see Figure 3).

The network based on the analysis of followers is a visualization of the exchange, including the exchange of ideas, while the network based on the analysis of contributors is collaboration, *i.e.* a network of collaboration without integrating the structures, however, characterized by accumulating social capital of the network elements. It is important to note that the use of network analysis in this study shows multidimensional possibilities of building a network topology which enables to conduct analysis which considers a number of factors, even latent ones. For example, considering the analysis of contributors, despite the fact that there is still the breakdown of clusters of civic tech community by country, there is a marked increase in the power of certain clusters and a decrease in that of the others. For example, when

analysing an African cluster we distinguish a significant subcluster Ushahidi, which was not observed in the network analysis of followers. It is because the Ushahidi platform and the platform-based developments are used worldwide to implement various crowdsourcing projects relating to data mapping. In addition to the analysis of civic tech community, Stefan Baack developed an interactive map of civic developers' location, the map is not complete, but it entirely reflects the trend [13]. The analysis of the map shows that despite the global nature of online space, the major part of the civic tech community is largely concentrated in Europe and North America. There is the only label on the map which indicates the presence of global civic tech user Russian community. The question is how efficiently this map can reflect the trends in the development of civil projects in Russia? To answer this question, we conducted our own research of the development of the civic tech community in Russia.

Figure 3: The contributor network [10]

3. CIVIC TECH COMMUNITY IN RUSSIA: RESULTS OF RESEARCH

After analyzing the online-space of Russia, we came to the conclusion that the key element in the functioning of civic tech community is a project called "Greenhouse of Social Technologies". In 2010, owing to this very project, there appeared a portal "Virtual Rynda" and crowdsourcing projects in Russia were initiated.

"Virtual Rynda" – a mutual assistance coordination platform, which aims at exploiting the potential of the Russian Internet community in terms of cooperation among the users of online-space and a variety of organizations, including non-profit organizations, government agencies and businesses. The project site enables everyone to share their distress or offer help through various channels (Internet or mobile communication), thereafter, such posts are systematised and mapped [8]. Nevertheless the project itself is not promoted as a charity fund or organization, it functions only as a kind of a requests and offers classifier, and is a crowdsourcing platform that operates online, aimed *per se* at encouraging social responsibility and civic engagement.

This very project was the starting point of the empiric study [9], conducted by the authors of the article. The study objectives were to determine the network structure, which integrates Russian crowdsourcing resources, based on mathematical analysis (graph theory and stochastic modeling) of social networks and online communities within the Facebook platform; and to describe the dominant actors in the studied network structure based on the social graph theory. All these factors have allowed both qualitatively and quantitatively describe the structure and efficiency of the networks based on the Facebook platform and focused on crowdsourcing. The "starting points" of the empiric study were two of the first and currently the most popular Russian crowdsourcing projects – "Virtual Rynda" and "Liza Alert", resulting from the civic self-organization through online-space.

Returning to the "Greenhouse of Social Technologies" analysis, we have to note that the main objectives of the project are to promote the dialogue and build partner relationships between the IT-specialists and civil society activists, as well as in building innovative network applications for civic participation and solving social problems. Thus, this project aims to:

- Hold a wide range of educational events for IT-experts and socially active citizens in order to identify the social issues that could best be solved by implementing new technologies;
- Carryout informative campaigns, to illuminate the development of civic web applications in Russia and worldwide;
- Train non-profit organizations employees and initiative groups representatives how to apply new technologies;
- Develop a dialogue between civil society activists and IT-specialists [3].

The project is hosted by te-st.ru on-line portal, as well as by different social platforms, including VKontakte with 5,000 subscribers, Facebook – 11,000 subscribers, YouTube – 2,000 subscribers and Twitter – 1,000 followers. The main information/ news generator into the public field is the portal of the project, which is on average visited by about 200,000 people a month. Its gender composition accounts to 19% of female and 81% of male members. The portal contains a database of civic apps from different countries, the total number amounts to 400 applications of various orientation. Having conducted the content analysis of the projects, we divided them into the following areas (the order corresponds to the number of projects in the area): education and medicine, charity, search for civic apps, crowdfunding, legal fundamentals, politics, ecology, blogs and specialized communities, transport, tourism, security, mapping, emergency situations, volunteering, social studies, IT-services, the development of democratic principles, open education. Also, the portal hosts "Greenhouse of Social Technologies" own projects, which mainly focus on the following areas: community development through encouraging civic engagement and community initiatives support, support to people with disabilities, assistance to orphans, including their social adaptation.

In addition, the portal tries to accumulate information resources of a variety of online-communities, including global communities, hosted by different social platforms. The main topic of accumulated online-communities is as follows: action against violence, parents and children, the history and preservation of cultural heritage, leisure and creativity, environment, volunteering, support to homeless animals, the transparency of public institutions and free internet, IT-volunteering, urban studies, education, donorship. It is worth mentioning that VKontakte is the most popular among Russian users, however, the above mentioned communities are equally hosted by VKontakte (55%) and Facebook (48%), with a monthly traffic of over 46 million people (10 million active authors) using VKontakte and more than 21 million people (1.5 million active authors) using Facebook [11]. This once again shows that Facebook in Russia is a unique social platform both in terms of the age structure of users – more than 65% aged between 25 and 44, as well as in terms of public content – this platform focuses on business contacts and business rather than on leisure activities, as observed in Vkontakte or even greater degree in Instagram.

The largest branch of “Greenhouse of Social Technologies”, as shown above, is a community hosted by Facebook, which does not just allow you to somehow bring the subscribers to the projects target audience, but also to interact with the global tech community.

We analyze the community “Greenhouse of Social Technologies” in Facebook by visualizing it as a social graph (Figure 4).

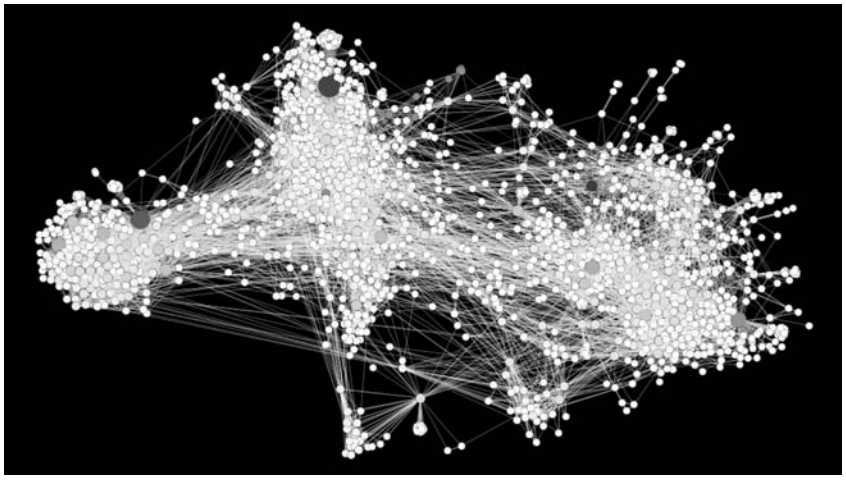

Figure 4: The social graph “Greenhouse of Social Technologies”

The social graph presented in Figure 4 was derived from a network of pages related by the use of “Like” button and, as a result, interacting by transmitting different content in the created network. In general, the use of “Like” mechanism integrated into various social online-services, gradually acquires the features of social action that is described in the works by M. Weber [14], T. Parsons [7] and defined as action which is “‘social’ if the acting individual takes account of the behavior of others and is thereby oriented in its course” [15].

The study of social action in online-space is a crucial constituent of modern social research, due to which the operation of users, user groups and social bonding is performed. One should realize that not every social action leads to social interaction. Undoubtedly, virtually all the action in online social networks are asynchronous by nature, but they have linear sequence, which results in a change in the behavior of other users. Social action performed in online social networks is characterized by temporal duration, for example, the post can be “liked” right after it has been allocated or in some time.

Online social networks users are featured in two dimensions: the one is the result of network technology operation; the other is the social image resulting from encounter of people and communication [4]. The first dimension comprises cliques, communities; and the result of social action in this dimension is almost always objective, expected and clear. Social action with regards to the other dimension is almost usually subjective and the results can be quite unstable with respect to the expected outcome.

The resulting social graph consists of 1522 vertices and 11047 links between them. The basis of the resulting social graph comprises Non-Profit Organization – 21,69% vertices, Various Community – 11,8% vertices, Social Media – 7.25% vertices, Non-Government Organization – 5,93% vertices. The contribution of political institutions, politicians and political parties to the generated graph accounts to less than 1% of the vertices, which shows their low activity in civil engineering – which is generally confirmed by other studies. This results, as one of the consequences, in a low voter turnout during the election period. Unfortunately, neither State community nor tech community do not comprise the hubs of this social graph. Figure 4 features vertices/ hubs (hereinafter – Hub) marked red, which have a maximum degree for the given social graph – deg (x) (average degree for the given social graph equals 14.5, the degree of a "Greenhouse of Social Technologies" hub equals 78). The first hub with deg (Global Voices) = 399 is a global multilingual online-community "Global Voices" branch hosted by Facebook. It is bloggers, volunteers, journalists community designed to link languages and cultures in the process of the dialogues coverage in civic media [5]. The second hub with deg (TechSoup Global) = 321 is a branch nonprofit organization "TechSoup Global" hosted by Facebook, which is implementing a program of technological support to non-profit sector worldwide [12], including Russia. Both hubs have the highest outbound power in the given social graph, which means their significant role in shaping the contents of information messages that pass through social graph "Greenhouse of Social Technologies".

Examine the relationships of the social graph "Greenhouse of Social Technologies" with the global tech society. Unfortunately, its direct links as a portal or its branch on Facebook with Git Hub are not observed, it has interconnections with global tech community contributors – "Open Knowledge" and "Ushahidi" (In Figure 4 they are highlighted green, while the vertex of the project "Greenhouse of Social Technologies" – blue), but the connection is not direct – indirect interaction is conducted through the community "OKFN Russia" (Open Knowledge Foundation Network, Russian Department). "OKFN Russia" – is an association of enthusiasts and activists working on the issue of open data, open government and open science in Russia.

Giving the overall description of the social graph "Greenhouse of Social Technologies" it can be said that its structure and shape shows us how technological component in Russia is distinguished from the civic one. Thus, it can be assumed that the civic tech community development is at its earliest stage. The stage at which the needs of civil society are clearly defined, but communication processes between the customer and the supplier – Russian IT-structures in particular – are still not developed. Most often, Russian civil society fall back on the inventions and experience of foreign companies and communities. This leads to further misbelief that a substantial investment into IT-services is required. They fail to realize that a great number of tools and technologies have already been developed and need to be adjusted to particular projects. Also, this leads to the fact that IT-volunteering field in Russia. is not virtually developed.

4. ONLINE-TECHHOLOGIES IMPLEMENTATION IN NGOS ACTIVITIES

World report on the implementation of technologies in NGOs activities, held in the autumn 2015 by the Public Interest Registry and Nonprofit Tech for Good and based on a survey of 2 780 NGOs from 133 countries (Africa – 7.6%, Asia – 13.5%, and Australia Oceania – 3.8%, Europe – 14.6%, North America – 58.8%, and South America – 1.7%), shows how the global NGO sector uses online technology in their activities [1]. The study also involved 355 donors from 27 countries. The study was conducted by questionnaires via email and social platforms in English. It is likely that those NGOs for which English is a principal language must have been excluded from the research. It reflected the specificity and degree of interaction between global civic tech community and NGOs. The main findings\ results:

- 92% of NGOs worldwide have a website;
- 46% of NGOs regularly blog; 75% regularly email. Minor NGOs have an average of 6035 subscribers, average – 55 596, major – 357 714;

- 75% of the NGOs accept online donations. Payment methods include credit cards (82%), The PayPal (52%), direct debits (47%), SMS (6%), a digital wallet (3%);
- 95% of NGOs have a Facebook page. A minor NGO has 5723 likes in average, a middle – 28 337, a major – 127 930;
- 83% of NGOs have an account on Twitter. A minor NGO has 3332 subscribers in average, an average – 13 680, a major – 66 167;
- 40% of NGOs have an account in Instagram. A minor NGO has 504 has subscribers in average, an average – 2676, a major – 10 548;
- Among other social networks which NGOs use have LinkedIn (52%), YouTube (51%), Google+ (30%), Pinterest (22%), Tumblr (6%) and Snapchat (2%);
- 78% of the NGOs agree that social media are effective for online fundraising.

In general, the results showed a fairly high level of use of online technologies by NGOs from different countries, that is precisely achieved through the development of global civic tech community, as the results of its activity are equally accessible all the representatives of various civil society structures through the Internet – the global communication system. It is difficult to accurately extrapolate these data to Russian NGOs, since it is necessary to conduct a further research on the use of social platform VKontakte.

5. CONCLUSION AND DISCUSSION

The global information space allows not only to reduce distances and save time when solving a problem, but also the experience of solving a problem in a remote region can initiate the generation of revolutionary civic technologies, which are globally used to address particular social issues. A platform "Ushahidi", which proved to be absolutely efficient in earthquakes in Haiti and extinguishing fires in Russia [6], can serve as an example of the trend. Such civic apps become the basis of entire communities, bringing together IT-experts and civil society activists and the emerging global civil technological community.

The main problem faced by the global civic tech community in the development and functioning is a problem of IT-sector visibility and civic society activists, and the possibility of bringing them together to solve one or another important social issue. To eliminate the barriers between the NGOs and the online technologies some issues are to be settled. Firstly, a well-developed system of civic activity needs to be developed; secondly, some intermediaries are to be found, which will not only create a common space for communication, but also, which is vital, are able to clearly define the goals and the tools to achieve them. One should keep in mind the peculiarities of IT-sphere and civil society activists' terminology. One example of such intermediary in Russia is the above mentioned project "Greenhouse of Social Technologies". The hackathons held (hackathon) – are those platforms of IT-sector, business, government and civil society activists' productive interaction. Hackathon – is a platform which hosts a small team of specialists from different areas of software development (programmers, designers, managers) working together to solve any issue. Hackathon usually lasts from one day to a week. As a rule, its task is to create a full-fledged Hackaton software, but there are Hackathons, which are designed to comply with educational or social purposes. Such Hackathons are used to design web-services (mobile apps, websites, web applications, infographics) to address socially important issues. The result of a Hackaton and a collaboration of civil society activists and IT-specialists is not the prototype of future applications, but a minimum viable product ready to launch – the pilot version of the app, where you can test your ideas. Certainly, for improving the efficiency of such projects state programs for the development of civil technological communities are to be introduced.

6. ACKNOWLEDGEMENT

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