



Overview of selected application challenges around the world

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Study of success factors in crowdsourced challenges based on public data

Table of contents

Introduction	3
Adopted manner of analysing challenge methodologies	4
Difficulties in the analysis of gathered materials	5
Case studies	5
Apps for Democracy	5
NYC Big Apps	8
Open Data Challenge Series	12
MadData	15
TechSoup Foundation Challenges	19
Success factors	23
Summary	26

Introduction

The project "Apps4Warsaw" (official name of the project: "MUNDO – Miejskie Usługi na Danych Oparte" [Data-Based City Services]) is run by a partnership of organisations and institutions: TechSoup Foundation, the Unit for Social Innovation and Research "Shipyard", Orange Poland S.A. (Orange Labs), Digital Center Project: Poland and the Warsaw University of Technology, within the framework of Social Innovations Program of the National Centre for Research and Development (NCRD). Honorary patronage over the project was taken by the Mayor of the capital city of Warsaw. The project is carried out in cooperation with the local government. Its aim is to improve the capital inhabitants' quality of life and mobilize them to actively participate in the city's social life, which will contribute to its development.

Currently, the role of the citizens themselves is changing considerably: from mere objects of the authorities' actions and passive receivers, to a more subjective function, in which the citizens are informed consumers and sometimes even co-creators, "prosumers" of services (producers – consumers). The "Apps4Warsaw" project enables the inhabitants of Warsaw to participate in creating solutions to urban problems regarding transport, environment or infrastructure in cooperation with representatives of the public administration and the IT sector. The main means to achieve this aim is public data, whose potential, according to the partners, has been to-date used to an unsatisfactory extent due to the lack of common access to information. The central assumption of this project is that data, after being appropriately processed to the form of accessible and readable information, can become a useful tool for reducing, optimizing and solving numerous problems which citizens, non-governmental organizations and entrepreneurs face every day. The purpose of the project and tests will be to prepare and carry out the first crowd-sourced web app challenge based on appropriately prepared and shared public data sets from Warsaw local government's archives. The result of the project will be specific technological products, i.e.: platform for aggregating data, websites, portals and applications created by the challenge participants, as well as a methodology of the social process of their creation.

The works of the partnership are divided into 2 stages: the first stage lasts from April 2014 to February 2015 and its result will be the platform for sharing urban data. The second stage, carried out throughout the first half of 2015, is a web and mobile app challenge incorporating data shared on the platform.

The purpose of this report is to present the current open-data application challenges, and in particular to analyse the factors which support the increase of durability of the winning applications. This document will serve as the starting point for the methodology of the "Apps4Warsaw" challenge, which will take place in 2015.

Adopted manner of analysing challenge methodologies

In the overview, applications and services using open data were taken into consideration. The data had been prepared beforehand by the organiser or had to be obtained in the process of carrying out the programming project. Challenge processes were analysed with regard to their duration and stages that they consisted of (challenge announcement, hackathon, workshops, public voting), target groups and participation conditions, the number of registered participants or teams, type of support from the organisers – from the provision of data sets, through mentoring, to financing of incubation process. The methods of selecting winners and the type of awarded prizes were also taken into consideration. Every challenge had a different definition and indicators of success, and hence different factors leading to success and supporting it. The aim of this document is to create a list of challenge success factors, based on particular examples and in relation to the challenge success indicators in "Apps4Warsaw" (application durability, social change, continuation of activities by the local government).

An initial analysis of the gathered material revealed the challenges which, due to their similar purposes, the engaged institutions or the process model, might serve as inspiration for the challenge carried out in this project. They were discussed in detail as case studies in section 4 of the report. The source of information about them were the materials of the organisers shared on-line, reports from events published in the media and on blogs, as well as reports on the usage of open data or compilations of information on app challenges (European Public Sector Information Platform [Topic Report No. 2012 / 08 - Innovation Contests for Open Data](#)). In some cases (Nesta Open Data Challenge Series and TechSoup Foundation challenges), descriptions of challenge methodologies created by the organisations coordinating the events, were available. In the case of the MadData challenge, which took place in 2014 in Madrid, the starting point for analysis was the study visit of the project team members at the event. Additionally, interviews with organisers' representatives were conducted in order to obtain unpublished information as well as to get to know their opinion about the adopted working methods from a time perspective, possible suggestions of changes, and guidelines for the organisers of similar initiatives. Part 6 of the report presents a list of success factors to which particular attention should be paid when developing the challenge methodology for "Apps4Warsaw".

Difficulties in the analysis of gathered materials

The main obstacle encountered during the analysis of the open-data app challenges was the scarce amount of summaries. The majority of materials was of promotional, informational (press materials, including announcements of results) or prescriptive type (challenge methodologies); results of challenge evaluation were rarely published, and critical analyses (including cross-section ones) were almost completely unavailable. Another difficulty was the comparison of very diverse initiatives: from weekend programming sprints, to long, complex challenges in which hackathons were just an element of the process. Hence, contacts established while carrying out this task and first-hand information obtained thanks to them were of utmost importance. Their biggest asset was, as it was already mentioned, ex post critical evaluation.

The authors of this report are convinced that it will not only prove to be useful in “Apps4Warsaw”, but serve also as a handy source of knowledge for similar initiatives in the future.

Case studies

Apps for Democracy

Apps for Democracy is the first series of urban open-data app challenges in the world, started in 2008 in Washington, DC, USA. Two editions of the challenge have taken place; the purpose of the second one (2009) was to particularly engage the community of inhabitants in solving social problems using technology. Both editions aroused extreme interest all over the world and became an inspiration to organize similar initiatives in other cities. Unfortunately, due to the city's change of priorities in the use of technology, the project was abandoned. A lot of the [shared data](#) haven't been updated since then. The initiative was co-organised by the City Hall and [iStrategyLabs creative agency](#).

Duration of the process

On the basis of experience from the first two editions of the challenge, the organisers prepared [a guide to organising similar initiatives](#). According to the guide, an ideal challenge process together with preparation should take about 4 months, although the first edition of the Washington challenge was prepared and launched in 6 (six!) days, and lasted for 30 days.

Participants

Both Washington projects were aimed at anyone who was interested, had the skills necessary for working on an application, or – in the case of the second edition of the challenge – also for diagnosing problems which can be solved through technology.

The only prerequisite to take part in the first challenge was to create some kind of application using information available on the city's public data portal. Back then, there were no other requirements or criteria, in accordance with the organisers' belief that an abundance of rules has a detrimental effect on the participants' creativity. As a result, 230 registrations were submitted and 47 applications were created (25 were anticipated). The attendance was huge due to a well-thought informational and promotional strategy and familiarity with the developers' community, as well as personal engagement of the organisers in informing and encouraging people to take part in the challenge. Both individual participants and teams were admitted to the challenge, and their projects were considered and awarded separately.

In the second edition of the challenge, it was necessary to use the data from the 311 intervention system for the city dwellers. 311 is the telephone number which USA citizens can call to report e.g. rubbish laying around in the forest or a hole in the road and, as a result, request a reaction from appropriate services. Information reported by citizens was shared in the form of an [open API](#) and became the basis for the second edition of Apps for Democracy. Such a limitation (requirement to use data from 311 and not just any data shared by the city) meant a smaller interest, which led to the organisers increasing the award pool from 20 to 35 thousand dollars.

Stages of challenge process

In the first edition of the challenge, after the registration closed, public voting was held on the website and voting by judges took place as well. The process was, therefore, not very complicated. In the second edition, the ways of defining problems for solving and selecting winners were modified, which increased the judges' influence on the shape of the created applications.

At the first stage, the city inhabitants had 30 days to find social needs which could be met and social problems which could be solved through technology. At this stage, they could also win awards. Then, the gathered topics were passed on to the developers who started their work using the 311 open API. The second stage of the challenge was divided into three rounds, and the winners of each of them received awards. After every assessment by the judges, the teams could make quality-improving modifications to their projects.

Support for participants

The organisers prepared a series of events in the form of camps and un-conferences, which the developers had already been familiar with, in the aim of facilitating their work and exchanging experiences. After collecting challenge submissions, if there was enough time left until the closing of submission registration, the organisers gave the participants feedback on the basis of which the developers could improve the submitted projects. Taking into account the developers' motivation to take part in challenges (according to the organisers, the desire to obtain an award is secondary, while the most important motivation is exposure and acknowledgement in the community), the organisers went an extra mile to create a friendly atmosphere during the accompanying events and in the challenge's PR, as well as to present

the winning projects in the leading media. After the end of the challenge, the organisers have been supporting the winners in contact with the media and making it possible for them to take the floor during industry conferences.

Winner selection method

The Apps for Democracy winners were selected by a jury which included representatives of the city of Washington, venture capital funds, scientists and people working in new technologies, and in the case of the first challenge also by the votes of internet users. The main purpose of public voting was to increase awareness of the challenge and the use of public data in applications, including reaching more developers interested in participation.

When making their decision, the judges took into account the following criteria, as a consequence of the challenge's main aim: to increase usefulness and level of urban public data use by the Washington community, business and public administration.

Criteria for application evaluation:

1. Usefulness for Washington citizens, visitors and authorities;
2. Universality of the application and the possibility to use it by the administrations of other cities;
3. Attractiveness of the project with regard to comfort of use;
4. Inventiveness and originality of the application.

Moreover, in the second edition of the challenge, the Chief Technology Officer had the possibility of awarding a separate prize of USD 14, 000 for a 9-month period of support for the development of the selected application.

Success indicators

Apps for Democracy generated more savings for the Washington administration than any other initiative.

[Vivek Kundra, former Chief Technology Officer in Washington]

The organisation of the challenge cost the city USD 50,000. 47 applications were created [of the combined value of USD 2.3 million](#), which led to ROI reaching an astonishing figure of 4000%. The question whether all the created applications would actually be commissioned by the administration remains open. Some of them were updated by the creators after the end of the challenge, while some turned out to be a challenge-only project. Unfortunately, when this report was compiled, the challenge's webpage was not available anymore and neither was the list of created applications (formerly at <http://www.appsfordemocracy.org/application-directory/>). The series of open-data app challenges in Washington was limited to two editions.

An indisputable achievement of the organisers were effective PR, due to which Apps for Democracy started an international wave of similar initiatives. Among the first followers were Finns from the [Helsinki metropolitan area](#) who have been organising Apps for Finland (originally under the name of Apps for Democracy) since 2009. The methodology they use is largely based on the Washington example and evolved from a simple challenge in which developers' own work dominates, into a model which focuses on the cooperation between

coders, administration and the local community. The ultimate goal of the process is **to develop the community** and mobilize administration **to open new data sets**.

Success factors

The factors of success in this case were the innovation and appeal of Apps for Democracy to its participants (it was the first such challenge in the world), as well as good organisational preparation resulting from iStrategy Labs' good knowledge of PR tools and developers' community.

NYC Big Apps

NYC Big Apps is an annual contest for applications that make the life of New York inhabitants easier. It was started by mayor Michael Bloomberg as part of the city digitalization programme (in line with the concept of a smart city). In 2014, the 5th edition of the challenge took place. The basis of the works were over 1,000 databases collected from the police, educational authorities, transport companies and other partners. Over 100 teams worked on these resources.

The award pool includes over USD 150,000 (when this report was prepared, the challenge was still in progress) and content-related support offered by 20 sponsors (Microsoft, Amazon, Facebook, General Electric, among others). The operator of the challenge is HR&A Advisors, working upon the order of the organizer – a non-profit organisation called NY Economic Development Corporation (a separate representation of the city authorities).

The challenge is divided into two sections. The first one (BigApps) is about creating applications working on open databases. The second one (BigIdeas) is a kind of a brainstorm on the topic of the problems indicated by the initiative's partners (e.g. How to incorporate new technologies in the water management processes?) in one of the four categories (everyday life, work, education, entertainment). The applications from the first section do not have to deal with these problems (they only need to use the data bases), but it is appreciated by the judges. In every of the four problem categories, an additional award for the best concept is presented (it doesn't have to be a finished application).

Duration of the process

In 2014, the challenge started on 7 May. The award ceremony is scheduled for 16 September. The list of finalists will be announced on 5 August.

Participants

According to the challenge rules, it is open both to individual people and organisations. Companies employing over 25 people can take part in the challenge but do not have the right to awards. Employees of the organiser, operator, sponsors and selected city hall departments are ineligible to take part. Recruitment is open and during each stage, teams working on particular applications are created. The distribution of prizes among the members of the winning team is the team's responsibility. The team line-up changes up to the finals, after e.g. meetings during hackathons.

The best applications are selected as challenge winners, regardless of the number of their creators. On 19 July, the jury is evaluating only applications meeting the criteria. Participation in the whole cycle (series of meetings and workshops described below) is not compulsory, but strongly recommended (it can be taken into consideration during evaluation).

Stages of challenge process

- 1. BigApps Launch Event** Challenge inauguration (7 May 2014)
Half-open event (submission registration and selection). Meet&greet session, presentation of sponsors, partners and data managing entities. Short workshop for teams (teambuilding).
- 2. Google Glass Demos & Design Spirit** (13 May 2014)
Presentation prepared by sponsors (Google Glass is one of the prizes). Presentation of basic programming concepts related to the device.
- 3. 'Appy Hour Brooklyn – Getting Started** (14 May 2014)
Integration evening before the first hackathon.
- 4. BigBuild Brooklyn: Getting Started** (17 May 2014)
A full-day programming workshop (hackathon) dedicated to preliminary issues (acquiring first users, using public data). Teamwork interlaced with workshops for all participants. Some of the mentors available on site (for consultation).
- 5. Leveraging Tech to Support Low-Income New Yorkers** (28 May 2014)
Meeting with one of the sponsors of the BigIdea part (Urban Future Lab) dedicated to the technologies aimed at diminishing social exclusion.
- 6. 'Appy Hour Manhattan – Gearing Up** (5 June 2014)
Integration evening before the hackathon. Motivational lectures by invited project partners.
- 7. BigBuild Manhattan: Building Hardware + Software** (7 June 2014)
Hackathon dedicated to perfecting the source code and hardware questions. Possibility to rent mobile devices, perform tests and consult specialists in electronics, power supply, steering devices, etc.
- 8. 'Appy Hour Queens – Getting to Beta** (19 June 2014)
Integration meeting dedicated to product development.
- 9. BigBuild Queens: Perfecting Your Product** (21 June 2014)
Hackathon dedicated to product stability, ease of use and marketing. Morning: workshops and mentors' presentations. Afternoon: five hours of working together. Evening: product presentations.
- 10. NYC BigApps 2014 Block Party** (19 July 2014)
Event presenting the achievements of the teams. The audience (free entrance) chooses five products, which are then presented to the public (in the form of 4-minute presentations). The presentations are judged by the jury on the spot and one of them makes it to the finals. Besides that, the jury choose the other 19 final applications (from all applications, not only the ones chosen by the audience).

11. NYC BigApps 2014 Award Ceremony (16 September 2014)

Selection of winners and presentation of awards. From July to September, the finalist teams can implement improvements to their projects.

Support for participants

As it was shown above, the participants can take part in workshops (BigBuild) and integration meetings ('Appy Hour). During the cycle, three meetings of every kind were scheduled. Each of them supported a different stage of product development. During the workshop meetings, lectures by selected mentors were held and there was a possibility to consult them about specific issues. All in all, workshop meetings took ca. 30 hours of work with the participants. The purpose of integration meetings was to motivate and build the community; it took a total of ca. 10 hours. Peter Robinson, engaged in the organisation of the three editions of Big Apps, emphasized that face-to-face meetings are necessary in order to carry out this last goal.

The mentors were available for consultation also outside workshops, during consultation hours. Support was provided by a total of 50 mentors in the following thematic fields: product development, hardware issues and engineering, code quality, business development of a company, legal issues, design and appearance, marketing. Additional support was provided by administrators of databases and city authorities (training on the use of particular databases, their compatibility, etc.).

Besides mentoring, meetings with sponsors' representatives were scheduled in order to offer an insight into hardware specifications (e.g. in the case of Google Glass – a prototype of the device).

Winner selection method

The winners were selected from the 20 teams and applications which qualified for the final by a jury composed of ten judges. The qualification takes place during the Block Party event on the basis of the decisions of 39 auxiliary judges. One out of 20 applications makes it to the final, selected on the basis of a voting by all Block Party participants.

Applications can be submitted until 12 July 2014 (a week before the Block Party). Every submission must contain:

- link for downloading the application;
- short description of the application;
- list of creators along with a description of their duties;
- list of data which the application uses;
- specification of category and (if possible) thematic field (Big Idea) to which the application fits. More than one category can be specified, but the primary choice needs to be emphasized (it is impossible to get the main prize in more than one category).

Before the selection of the main winners, a public presentation of applications and a session of questions from the judges are scheduled.

The main categories in which prizes can be won are everyday life, work, education and entertainment (in each of them the prize is USD 20,000). Moreover, additional prizes were provided for the best applications in particular categories (mobile app, web app, add-on device, data processing tool, game) – up to USD 5,000 in each category. In the BigIdea

category, the prize is USD 1,500, the possibility to use co-working space free of charge for 3 months and an invitation to present the idea to the city authorities. Moreover, the sponsors prepared additional prizes (e.g. free courses, mentoring, business plan consultations).

In the main categories, the applications are assessed with regards to their:

- potential influence on the life of the inhabitants, tourists and entrepreneurs;
- long-term effectiveness, especially the potential user base;
- innovative use of technologies or data sets;
- aesthetics and ease of use;
- multidisciplinary character of the project (e.g. to what extent it links various indicators, problems, etc.);
- participation in Big Apps events, status of works presented on the challenge portal.

The laureates of all the editions of the challenge can benefit from a support programme, under which they can take part in an annual integration event for the community and a workshop related to the particular field (since September 2014). They can also contact mentors in the subsequent editions, receive free legal advice and benefit from subsidized office space.

Success indicators

They are not clearly specified; there is also no access to evaluation reports. On the basis of press data it can be assumed that in 2009:

- 240 applications were created;
- Ca. 270,000 unique users visited the challenge website;
- 83,000 people voted for the applications;
- The winning application (MyCityWay) gained financing from private investors, amounting to USD 20 million.

In the 2010 edition:

- 58 applications were submitted, 14 winning ones were selected;
- 400 data sets were used.

In the 2011 edition:

- 96 applications were submitted, 11 winning ones were selected;
- 750 data sets were used, aggregated in the NYC Open Data Platform.

Success factors

As one of the biggest events of the kind (taking into account the number of submissions and the award pool), NYC Big Apps has developed a number of mechanisms which streamline the challenge process. The following factors can be described as the main ones:

Dividing the cycle into three workshop events enables the organizers to adapt the program to the stage of works on the applications and serves as a motivating and mobilizing factor. A large number of mentors and specification of fields in which they offer support makes it possible to support the participants throughout the whole course of work on the applications. Here, hackathons are a culmination of several stages of own work and not only its initial or final stage. By adding the BigIdea element to the challenge, it was possible to establish a

tighter link between the contest and the real needs of the city inhabitants, as well as gain additional conceptual support for applications in the subsequent editions or projects in other cities. Peter Robinson emphasizes that city units do not have sufficient facilities to individually create solutions which can be the result of the Big Apps challenge. The success of the subsequent editions is also supposed to encourage stubborn units to share their data. Big Apps challenge is part of the IT and statistical strategy of the NYC, within which a special city department was also appointed to work on large data sets and make them public. Thanks to this, the office has competent staff which can cooperate with the participants of the challenge as mentors and judges. Content-related support goes also the other way: since data is publicly available, the city benefits from the users' help in verifying the correctness and quality of data.

Despite extensive support, some critics (e.g. Joshua Brustein from NY Times) indicate that the companies which are created as a result of the challenge sometimes cannot acquire a sufficient user base. It concerns in particular concepts based on voting, inhabitants' suggestions and social media – maybe because already existing social media (e.g. venue rating in Google Maps or on Facebook) engage a large part of the active audience.

Regardless of these reservations, the largest achievement of the challenge is said to be the increase in urban data transparency and conscious citizen participation. Besides benefits resulting from the creation of dedicated solutions, these two are the arguments for the continuation of the challenge by the city authorities.

Open Data Challenge Series

A project organized by the British organizations Nesta and Open Data Institute, financed from public funds by the Department for Business, Innovation and Skills and its subordinate Technology Strategy Board. It comprises 7 thematic challenges for data-based applications and services.

Duration of the process

The whole series lasts two years. The particular contests last ca. half a year from the beginning of registration to winner selection.

The first challenge concerned crime and justice and ended in February 2014. The subsequent challenges concerned education (selection of the winner in June 2014), and energy and environment (July 2014). While this report was being written, two challenges were in progress, concerning housing and food, and two more were being planned.

Participants

The challenge is addressed to everyone who is interested. The organisers do not inform about the number of participants – the process seems to be oriented towards projects which are supposed to turn into implemented services rather than towards generating a large number of submissions. Therefore, the largest part of information concerns the winning projects; in every challenge, during a 2-day workshop called "Innovation and Creation Weekend", 3 projects are selected for initial incubation and then the laureate is selected from these projects.

The information gathered on the internet shows that from several to more than a dozen project teams took part in the “Innovation and Creation Weekend” for particular challenges. There is no unambiguous, official data about it. The way of participants' registration changed as well.

During the first open challenge, Crime & Justice Open Data Challenge, 7 teams took part in the workshop. The participants registered individually via websites and created or joined teams during the workshop. Out of the projects prepared during the 2 days of the workshop, judges selected three for the next stage of the challenge.

During the subsequent challenges, Energy + Environment Open Data Challenge and Education Open Data Challenge, specific ideas for services or applications had to be submitted at collabfinder.com. Also people preparing the project and looking for projects to join could be submitted on the website. Then, the organizers selected projects eligible for the “Innovation and Creation Weekend” workshop.

In each challenge, 19 projects and ca. 60 people were registered at the collabfinder website.

Additionally, many more people took part in various stages of each challenge, helping with opening the relevant data sets, participating in the open stages of social problems' definition or working on projects during the "creation weekend".

Stages of challenge process

1. "Scoping"

This stage consists in passing from the general, predefined topic of the challenge (e.g. education) to three precisely defined challenge tasks (e.g. "helping parents to make informed choices concerning the priorities in their children's education"). The organizers gather information about potential users and market opportunities in the selected subject area and search for relevant data sets.

2. "Application"

The challenge submission registration opens. The participants receive the knowledge about the concerned area gathered by the organizers as well as access to a number of open data sets. Particular ideas are submitted to the challenge and teams are created around them. The judges select the teams eligible for the next stage.

3. "Weekend"

Two days of team work on projects with expert support. At the end, judges select 3 projects which win GBP 5,000 and the opportunity to take part in incubation.

4. "Incubation"

Further development of projects and tests of the idea with users, with the benefit of expert support. At the end, the projects are presented to the judges, who select the winner. The main prize is GBP 40,000 and further incubation of the project.

Support for participants

The participants were supported in many ways; the whole process was oriented towards perfecting the projects and preparing them for implementation as fully as possible. Even the manner of defining the challenge tasks was supposed to make these aims easier to achieve, thanks to precise determination of real social problems and the specific needs of potential users related to them. Then, the teams were provided supervision from fixed mentors and

help from specialists, as well as the conditions to work during the "creation weekend". All cash prizes had to be spent on project development. Two incubation stages were scheduled as well.

Winner selection method

At each stage, a panel of judges selects the winning projects. Their decisions are final. When selecting the projects to take part in the hackathon ("creation weekend"), the judges assess the projects in accordance with the project description placed on the website by the participants. At the subsequent stages, they assess the personal presentation of the project ("pitch").

The adopted criteria of evaluation are:

- innovation;
- probable social influence in the problem areas defined in the challenge (preferably supported by data);
- range and effectiveness of open data use;
- market potential of the proposed product or service – possibility to build a durable business on its basis.

Success indicators

The main goals of the project are solving selected social problems and creating durable applications. Ed Parks from the Nesta team adds that they will be measured on the basis of the number of downloads of the created solutions and examples of their beneficial influence. When our report was being closed, it was still too early to verify whether these goals were achieved or not.

For now, during the already finished challenges, previously unavailable data sets were opened, 3 projects were selected for perfecting during the challenge and winners were chosen.

Success factors

Similarly to success indicators, at the current stage it is still impossible to indicate the factors for the possible success. It is, however, necessary to take into account several procedures:

- The tasks for each challenge are very precisely defined with the participation of experts in the field;
- There is lots of financial support for development and incubation and it is concentrated on several selected projects;
- The hackathon consists in working on projects which were at least initially thought-out beforehand, which can help to avoid working on random ideas;
- The mentors help the teams manage their work.

MadData

MadData is the first edition of the challenge for city applications using open data shared by the Madrid City Hall in 2014. The challenge process is co-organised by the City Hall in cooperation with the consulting company Everis.

Duration of the process

The impulse to organise the challenge was the launch of [open data portal in March 2014](#). Recruitment for the challenge, perceived as a tool for promoting database use, started in the summer. The results of the challenge were announced in November 2014.

Participants

The challenge was open to all participants, in particular entrepreneurs, web and mobile app creators, designers, data journalists and social innovators. 80 people took part in the challenge, creating a total of 14 projects. 9 of them made it to the final (three in every category of the challenge), and 3 received awards. Most of the teams formed before the rivalry started, and two of them fused during the hackathon in September.

Stages of challenge process

The challenge process was fairly simple. It consisted of two basic stages: the submissions and the finalists' work on the projects. The second stage ended with the selection of winners.

- **START**

Accepting submissions to the challenge started in 2014. At this stage, there was no selection of participants. The organisers draw attention to the number of submissions, which was smaller than expected (ca. 80 while 200 were expected). It can be partially explained by the fact that the submission registration took place during the holiday season. The registered participants took part in a hackathon on the weekend of 27-28 September 2014. The aim of the works was to create an initial version of the project, which was the basis for the next stage. The decision to qualify a project to the final stage was made by a jury consisting of representatives of the Madrid City Hall, Medialab Prado, the city culture centre and the consulting company Everis who co-organised the event.

- **RACE**

Contrary to the challenge rules published earlier and as a result of a smaller number of submissions than expected, only 9 instead of 15 projects made it to the next stage. It met with criticism on the part of the teams who did not qualify to the finals (there were 14 teams in total, so in accordance with the initial rules, the organisers should have qualified all of them). The decision of the jury was announced on 6 October 2014. Since then, the teams had time until 4 November to prepare the final version of their projects. The final projects were developed in 28 days with support and advice from the City and Everis.

- **FINAL**

The decision of the jury was officially announced on 11 November 2014. During the event, to which representatives of all engaged institutions and organisations as well as the press were invited, the teams presented their projects in the form of 6-minute presentations and answered additional questions from the judges during 4-minute sessions. The judges made their decision on the basis of an earlier assessment of the projects, the presentations and the teams' answers to the additional questions. Prizes were awarded.

Support for participants

The support from which the participants benefited can be divided into stages in accordance with the challenge's rhythm. At the stage of submissions, a workshop was organized 3 weeks before the hackathon, during which the participants learned about the mechanism behind the portal on which data is published and about the data itself. It was also an opportunity to research their needs and interests regarding access to data. During the hackathon, the participants could obtain help from volunteers dressed in green T-shirts (students of technical faculties) and Everis employees, who constituted the frontline group. If the participants had more advanced questions, they had to consult the city hall employees or other Everis employees, but this support was not structured. During the hackathon, representatives of the Spanish chapter of the Open Knowledge Foundation and Impact Accelerator made speeches. During the 28 days of works on the applications, support on the part of organisers was available – team members could ask them questions.

The winning teams received EUR 5,000 as prizes.

Winner selection method

The final nine projects were selected on the basis of information provided by the participants in the registration forms, which they had to fill in by hand at the challenge venue (which met with criticism on the part of the contestants). Among the required information were: team name and members, contact information for the team's "spokesperson", description of the project and the used data, use of Datune (Everis' data platform, made available specifically for the hackathon), used technologies, scope of works which the team carried out during the weekend, a list of additional materials created by the team (prototype, video presentation, etc.) along with links. The finalists were selected by the jury.

After the 28 days of works on the final applications, their effects were assessed from the technical point of view, and then evaluated by the directors of the city hall departments from which the used data had come. The judges awarded the projects from 1 to 5 points (3 had no value) for meeting every criterion for evaluation in the given category. Then, arithmetic mean was calculated on the basis of the judges' marks. The judges made and announced the final decision during the event which took place on 11 November.

Criteria for project evaluation:

1. Category: business innovation (5 projects)
 - Extent to which the available open data was used;
 - Universality of solution;

- Originality of idea;
- Functioning and completion of the project;
- Complexity of the project and innovative approach to using technology;
- Usefulness and social functions of the application;
- Business model.

2. Category: social innovation (4 projects)

- Extent to which the available open data was used;
- Universality of solution;
- Originality of idea;
- Functioning and completion of the project;
- Complexity of the project and innovative approach to using technology;
- Usefulness and social functions of the application;
- Social innovation model.

3. Category: data visualisation (9 projects)

- Extent to which the available open data was used;
- Value and usefulness of the visual presentation of selected data;
- Universality of solution;
- Originality and value of the graphical project.

One project could be assessed in more than one category, which is why the number of assessed projects does not equal 14.

Success indicators

The organisers expected ca. 200 people to take part. Therefore, the attendance is not a success, as only 80 people took part in the process. 14 projects in total were created, while the initial assumption was that 15 projects would be approved for the final (after selection).

[The winners of the first open-data app challenge in Madrid:](#) Bileit (application for buying cheaper last-minute tickets for cultural events), K-social (solution for people who are anxious about their safety in relation to violence on the grounds of sex or sexual orientation) and Busines Init (solution for entrepreneurs looking for an office to run their business), despite further successes in international challenges (Bileit was a finalist of Apps for Europe in the 2014/2015 edition) have not been successful on the market.

It is worth noting that despite the goals set by the organisers, little action was taken to build a community or help the participants get to know each other. At the end of hackathon, the presentation of all projects was not planned, which led to some of the participants remaining unaware of the subject or nature of other teams' works.

Failure? No, if the goals set by the organisers are taken into account.

I wouldn't focus on achieving success understood as a product or a start-up launch. If this happens, perfect! For me, however, it is more important to popularize ideas, build community, create space for attempts and mistakes. Only then can we create something real. If we don't expect direct profits, we'll obtain indirect benefits. Communication between silos in the city hall will improve. The challenge is only an element of a larger whole, one of the many meetings and workshops. An important first step. [Marcos García, director of Medialab Prado, during a meeting in Madrid City Hall, 29 September 2014]

The undertaking was perceived by the organizers as a small part of the data reusing process. Its promotional value (media coverage) was emphasized, as well as culture-forming properties, in the meaning of creating the culture of data reusing, creating a community of entities, companies and institutions who use the data, and building connections between the units of local authorities who can learn more about each other and cooperate better thanks to common access to data. What raises high hopes is the possibility of creating new solutions and ideas which can be developed after the end of the challenge, as well as social verification of the data with regard to possible mistakes. The challenge was a proof for the city's authorities that it is worth to share data as it can be used to build useful solutions.

Success factors

The appointment of an Open Data Team in the Madrid City Hall surely contributed to the success of the first open-data activities in the city. Sharing numerous new data sets as well as orientation towards process, openness about mistakes and flexibility enabled achieving success in the form of evidence for open data usefulness in applications.

An additional incentive to take part in the challenge was 30 new data sets, shared just before it started. The data concerned traffic intensity, city buses and libraries. The number of available data sets was criticized by some participants and the media. The sets were perceived as random and hard to combine, as they concerned unrelated topics or did not describe the given problem in a complete way (e.g. data concerning Tweets about the public bike system was shared, but data about the system itself was not shared). Daniele Grasso, El Confidencial journalist, deplored that the organizers did not sufficiently take into account the users' suggestions expressed by their votes for data sets on the open data portal, which reflected the real needs for data.

The prizes of EUR 5,000 for each of the three winning teams also weren't insignificant if we take into consideration that the challenge's participants were mostly students, who are just embarking on their career. Finally, the recency effect of the topic of open data in Madrid and the enthusiasm of city hall employees who were convinced by open data helped to achieve the goal of launching the data opening process in Madrid.

TechSoup Foundation Challenges

TechSoup Foundation has developed a methodology for working in the formula of a challenge with social activists and developers; as a result, applications or portals that can address a selected social problem are created. An essential goal of the process is building a community of socially engaged people who use technology in their activities, as well as providing education on the matter. TechSoup Global has been organising similar activities since 2006. TechSoup Foundation has been directly involved in two such processes: [Community Boost](#) in 2013, in which over 70 teams from Serbia, Kosovo and Bosnia and Herzegovina as well as [Your Things](#), ending in 2015 in Turkey, to which almost 90 projects were submitted. Up to now, open data has not been used in these projects.

Duration of the process

The methodology assumes a period of 16 months for conducting the whole multi-stage process.

Participants

Social activists, representatives of NGOs and developers are expected to take part in the process. An important element of the whole assumption of the challenge is the cooperation between people from various backgrounds and a combination of competences.

Stages of challenge process

1. Accepting submissions

Submissions are accepted for 4 weeks. To register, the candidate must submit an idea for application or portal. At this stage, preparing a prototype of the application is not necessary. The organisers invite participants to a number of off-line events (workshops, meetings), whose aim is to give an outline of the challenge process and work together on the ideas for applications. The aim of these activities is to generate the best possible ideas for applications, which will be the basis of subsequent work.

2. First voting

This stage takes from 3 days to a week. It starts with a public voting, which reveals the 15 most popular projects. Out of them, judges choose 7 teams which are qualified to the final.

3. Announcement of finalists

Common decision of the voting audience and judges is announced.

4. Finalists' work

The finalists work on the ideas for 4 weeks. During that time, they are provided remote support from mentors (programmers, UX specialists UX, fundraisers, PR specialists, etc.), as well as support during meetings, including the hackathon. The hackathon ends this stage of the challenge. Clickable prototypes of applications are eligible for a final evaluation.

5. Second voting

It can repeat the scheme of the first voting or take place during the Award Ceremony (in the latter case, only judges select the winners). Alternatively, the choice can be left to the people voting on-line, although this is not recommended due to a risk of fraud.

6. **Award ceremony**

Announcing the results of the challenge. During the event, the winners can present their projects to the invited guests – potential sponsors, investors, partners, etc. The ceremony has a large promotion potential and can attract the attention of the media.

7. **Closing the challenge**

After announcing the results, it is necessary to inform all the persons concerned about its results.

8. **Incubation of the winning applications**

The winners of the challenge receive financial prizes for further development of the application in the incubation process (workshops and mentoring which will enable them to perfect the prototype from the technical and organisational point of view). Apart from winners, a selected final team can be invited to the several-month-long incubation.

Support for participants

Support starts before the official opening of the challenge, at the stage of formulating ideas for submission and forming the challenge teams. The organisers provide broad technical and organisational support at the stage of the finalists' works on the projects and during incubation. They also take care of PR activities and promotion of the winning projects. The participants have highly appreciated these activities.

Winner selection method

The winners are selected by judges and the audience in the combined process described above. While the audience is guided by their own criteria for assessment, and the result achieved here is mostly an effect of the team's efficiency in promotion and communication, the judges take into account strictly defined criteria. Among them are:

- possibility of implementing the idea (whether it will find users);
- potential for social change;
- probability of arousing interest and/or acquiring investors;
- project's innovation;
- project's scalability.

Success indicators

The aim of the challenge is to reinforce the civic society's potential to use IT solutions in solving social problems. With such an aim, the indicators of success will be establishing continuous cooperation between the participants, creating new IT solutions, as well as strengthening the social awareness of the potential that resides in people and the technology available to them.

Quantitative indicators of success, in the case of the two challenges carried out by the TechSoup Foundation, are several dozen submitted ideas, scores of participants and thousands of people voting for the selected projects. In case of the already finished Balkan project Community Boost, an additional indicator of success is the continuation of

activities regarding the use of technology for government transparency and accountability by one of the local partner organisations.

Success factors

The success of the aforementioned processes is enhanced by good (i.e. well-thought and transparent) communication with the participants and observers of the challenge, including the media, at each stage of the process. Reaching the relevant target groups and subsequently leading them through the challenge process in accordance with their needs is key for conducting the project. An attractive, well-formulated theme of the challenge (authorities' transparency and accountability or topics important for young people) helps to reach the potential participants. In order to build a community, numerous off-line events are necessary, during which the participants have a chance to establish relationships and cooperation. Broad technical and organisational support provided to the participants helps to achieve high quality results. The prizes – USD 5,000 for each of the winning projects and incubation – are, besides publicity, social and educational profits from participation, very appealing.

Selected conclusions from other challenges

Below, we present the most interesting ideas, solutions and inspirations resulting from the analysis of other selected open data app challenges, which did not appear in the fully described examples.

- **DATA CUSTODIAN**

The role of a data custodian is, on the one hand, to correctly gather source data and expose it on the web according to the generally accepted rules, and on the other hand, for the purpose of the challenge, to provide the necessary information about the data to the participants. The participants contact this member of the organisational team first whenever they have a query concerning data.

- **PARTICIPATION OF ADMINISTRATION**

Involvement of the administration in the challenge process is an indispensable condition for its success – working with data is possible only if procedures to enable continuous access to up-to-date city data are implemented. The participation of the administration in the challenge, however, has often enough been larger. The jury of the Australian GovHack challenge included city hall employees. In Chicago CleanWeb Challenge, one of the prizes was the possibility to present the project to the city mayor, and the challenge task itself was formulated in accordance with the city's development strategy (Sustainable Chicago 2015 Action Plan). Moreover, the city hall organised some of the challenge meetings. In many cases, including e.g. MIT Big Data Challenge, the challenge was based on a problem formulated by the administration, hence giving a public institution the role of the originator of the

challenge's topic and, indirectly, the receiver of its positive effects. The involvement of the administration in the process increases the chance that the challenge and the idea of open data will take hold in the city, and as a consequence enables the further development of this area and a gradual increase of social gains.

- **CODE OF CONDUCT**

The challenges, besides typical terms and conditions concerning the criteria for participation, the course of events and the use of the website, happen to have a kind of a moral code; cf. e.g. during GovHack (Australia), the section [Event Code of Conduct](#) ("Treat others with respect"), the section Nature of Submission ("Don't do bad things"). Accepting a Code of Conduct is good practice also during other events in and outside the world of IT: conferences, conventions and wherever else a large group of people comes together and the organisers want to make sure that the principles of social coexistence are observed, which will make the experience positive for everyone. The Code of Conduct is all the more important if the organisers are planning off-line events.

- **ORIGINAL PRIZES**

In [the challenge organised by the Canadian mint](#), the winners were awarded gold ingots. Interesting, original prizes attract the attention of potential participants and the media. However, they should be treated more as PR activities of the donors than as a factor which can really influence the prospective participants' decision about taking part in the challenge.

- **SEPARATE CATEGORY OF PRIZES FOR OPEN DATA TOOLS**

A category of prizes in which ideas for facilitating work with open data, tools, platforms, etc., are appreciated is addressed rather to developers or officials than to end users (city inhabitants). For example, in the [OpenDataChallenge](#), besides main awards for an application and a visualisation, the following awards were also presented: Better Data Award, Open Data Award, Talis Award for Linked Data for working with, preparing and sharing data in a valuable way (therefore, officials could also receive the awards). Increasing the number of awarded prizes (not necessarily their value) positively influences the number of participants, as victory seems to them more probable.

- **INSPIRING INFORMATION ABOUT THE TARGET GROUP**

The organisers of some challenges are very committed to accurately presenting the target group, problems or themes which constitute the challenge task. This approach increases the probability of creating a solution that addresses real social needs. For example, the organisers of the [Equal Futures challenge](#) prepared quotes, drawings and sketches of potentially useful applications made by girls from the target group.

- **USING ALSO PHYSICAL PUBLIC RESOURCES**

E.g. the possibility to use bus stops, advertising screens in means of public transport, etc. Such a solution was employed in the Disability Employment App Challenge, suggesting the use of a network of counselling centres for the unemployed.

- **INVOLVING A NON-OBVIOUS GROUP OF PARTICIPANTS IN THE CHALLENGE**

The organisers of the [Fajk challenge](#) invited journalists to take part in a weekend hackathon and work on open data with developers and graphic designers. Some of the teams represented particular editorial offices. Their abilities to find interesting stories, knowledge of

social problems and issues which are interesting to the general public helped to develop ideas into projects addressing real social needs.

- **GLOBAL PARTICIPANTS**

In the [challenge organised by NASA](#), teams from all over the world could take part. Participation in the off-line events was not compulsory and the nature of the problems did not require any knowledge of the local context.

- **AN ADDITIONAL TASK – FORECASTS**

One of the tasks in a challenge concerning open data might be predicting the future. As part of the [MIT Open Data Challenge](#), a data set with deleted fragments of information was presented to the participants, who were then asked to suggest an algorithm which would make it possible to predict the missing data as accurately as possible. Such an algorithm can be potentially useful when forecasting future social behaviour or phenomena. In this case, the task consisted in predicting the demand for taxis depending on weather data, planned events, etc.

Success factors

Of course, a necessary, but insufficient condition for the success of any kind of an open-data-oriented process or event is access to the data. The organisers must ensure that there is as much shared data as possible and that it is as interesting as possible to the participants, that the continuity of access is not at risk, and that the formats are developer-friendly (the full list of guidelines concerning open data is available at <http://opengovdata.org/>). When these criteria are met, it is necessary to consider all aspects of the challenge process, taking into account the planned results.

Hackathon, or usually a two-day-long (weekend) programming sprint can attract numerous participants and the attention of the media. More and more often, it functions as an element of a more complex whole rather than a separate event. On the basis of the analyses above, it can be assumed that it is an appropriate tool for promoting ideas and using open data. Moreover, as a real-life meeting, it supports building a community of data users. Antti Jogi Poikola, who has been taking part in the process of data opening in Helsinki since its beginning in 2009, goes a step further and claims that the app challenge is best suited particularly for that, while the hopes to create lasting solutions during a challenge are futile. Besides promotional and team-building aspects, a short challenge mobilizes the administration to open more and more data sets. How to organise a successful hackathon? Below, guidelines formulated by the hackers are presented. According to the authors of this report, they are a good illustration of how a good hackathon challenge should look like from the point of view of every type of participant – both an activist and a programmer. The guidelines presented here were collected by Marcin Zaród during his research for the PhD scholarship in the Unit for Social Innovation and Research "Shipyard". During ethnographic research in the hackers' community (programming and electronics enthusiasts, not cyber-criminals), Marcin Zaród carried out 5 free-form interviews, focused on the participation in hackathons from the perspective of a programmer-participant. We also recommend the article by Alicja

Peszowska "How to organise a hackathon" ["Jak zorganizować hakaton"], published at Technologie.org.pl.

1. Facilitation is necessary to notice problems and opportunities in both the IT and the social aspect. Non-governmental or public sector employees aren't always capable of preparing specifications that are useful for IT, which leads to the frustration of volunteer-programmers. Such mediation enables optimal use of the programmers' work time;
2. Before the hackathon, it is advised to organise an integration meeting (in the form of a BarCamp, coffee meeting, etc.), which will help to make the use of the workshop time as effective as possible. Due to the fact that different groups of participants have different interests, integration before the hackathon also shortens the initial stage of "breaking in" during the event;
3. Events during the hackathon should be moderated and carefully prepared. It is advised to control the pace of the event (e.g. in NYC Big Apps hackathons, after every two hours of workshop there is a fifteen-minute presentation by a mentor);
4. Mentors should be available during any of the stages of hackathon. It facilitates later contact with them and mobilizes the teams to work on their applications. Mentors can be appointed for a specific time, e.g. for a Q&A session during a break in the workshop;
5. It is advised to provide drinks (preferably with high caffeine content) and food (pizza was the preferred choice of most of the interviewees);
6. Different users prefer different times for the hackathon. Some of them prefer a whole night of work (in order to emphasise the uniqueness of the event and facilitate concentration). Others prefer a day during the weekend (it is easier to maintain concentration and attract working people).

A different formula of the challenge is a multi-stage process, during which the teams will be provided with support from mentors and experts at various stages of work on the solution. A special case here are the processes based on cooperation with a selected organisation or institution who suggested the idea for a dedicated solution or ordered it. The aim of these projects is to develop well-thought and effective solutions to precisely formulated social problems in a defined socio-cultural context. In order for them to succeed, it is necessary to ensure close cooperation and good communication of goals and expectations by the partners, as well as selection of candidates to help choose the teams with the largest potential.

A separate category are the challenges during which there are no off-line events, and the teams do not receive support from the organisers. In such a case, an indicator of success should be the number and quality of submissions which will be dependent on such factors as: scope and quality of available data, scope of challenge promotion, value of prizes and the organiser's prestige. Due to the fact that these aims are different from the those that the authors of this report set for "Apps4Warsaw", this type of challenge is not an inspiration for the Warsaw methodology.

Regardless of the adopted model – hackathon or long-term process – it is important to have good (transparent, intelligible and consistent) direct communication with the participants (well-defined target groups) and observers, including the media. It concerns all aspects of the process, from goals to participation principles and criteria for presenting awards. The latter should be particularly clear and invariable. These aspects of the challenge organisation are not

usually noted by the participants as an asset, but rather a lack or shortcomings in this area are immediately viewed as a notable flaw. Finally, partnerships are not to be underestimated, as they enable reaching the selected target groups and otherwise unavailable resources, including knowledge, contacts and sponsors.

Summary

The attempt to determine the success factors of the selected app challenges proved to be an extremely hard task. The organisers of many of them did not pre-define the quantitative goals or, for various reasons, were not eager to share them, while the achievement of qualitative indicators, such as the effectiveness of the promotion of open data ideas in the society or creation of an open data user community can be hard to measure. When this report was drawn up, it was still too early to unambiguously declare the challenge applications a success or a failure. As it was shown above, there are some recurrent challenge schemes, and their particular elements enable the achievement of the selected goals. Short events attracting numerous participants, such as hackathons, are very popular among the media and support the promotion of open data ideas as well as social education in this area. Meanwhile, long processes, focused on building dedicated solutions in cooperation with relevant organisations and institutions, give the opportunity to support lasting social change.

On the basis of this overview, it was possible to create the methodology for the Apps4Warsaw challenge. The planned process assumes two ways of participation (GOT AN IDEA – original projects and TAKE AN IDEA – carrying out ideas submitted by the office of the Warsaw Capital City Hall or an NGO) and two main stages (general registration, after which the finalists are selected and start working on their projects, supported by mentors and ending in selection of the winners and incubation of their projects). It will be a lengthy, several-month-long process, during which the teams will be provided with comprehensive support from the organisers. It will also include elements known from shorter challenges, such as hackathons. The challenge will be preceded by integration and educational activities. We assume that in this way we will be able to approach the achievement of project goals, that is the promotion of the idea of open data, extension of the range of their use in durable applications and portals, including those created as a result of cooperation between sectors, as well as building a community interested in using open city data to the benefit of the inhabitants of Warsaw. The challenge as a whole can serve as an argument in favour of the process of opening Warsaw. The last recommendation is the suggestion to pay special attention to the transparency of the challenge process and its results in the Apps4Warsaw challenge.