



Photo by Delano Kern

From urban data flows and civic hacking to a smart city software ecosystem

Kiev Gama

Assistant Professor - Centro de Informática - UFPE

Associate Member - CESAR (Recife Center for Advanced Studies)

Researcher - INES (INCT para Engenharia de Software)

kiev@cin.ufpe.br

 [@kievgama](https://twitter.com/kievgama)



Instituto Nacional de Ciências
e Tecnologia para a Engenharia
de Software

Assignment:

- Thinking with a "bottom-up smart city" mindset, what problems did you see here or in your city could be overcome with the help of IT?**
- Who are the citizens that could benefit from that? What are their needs? (employ the techniques from Gemma's workshop)**
- What resources are available (data, APIs)?**
- What can be made available through a possible solution?**
- Are there similar solutions ?**
- What professionals (from which disciplines) would be required to develop a solution in that context?**
- What obstacles would you have to overcome?**

2009



Obama's Memorandum on Transparency and Open Government

Transparency - "[P]ut information about their operations and decisions online and readily available to the public."

Participation - "[O]ffer Americans increased opportunities to participate in policymaking."

Collaboration - "[U]se innovative tools, methods, and systems to cooperate ... across all levels of Government and with nonprofit organizations, businesses, and individuals in the private sector."

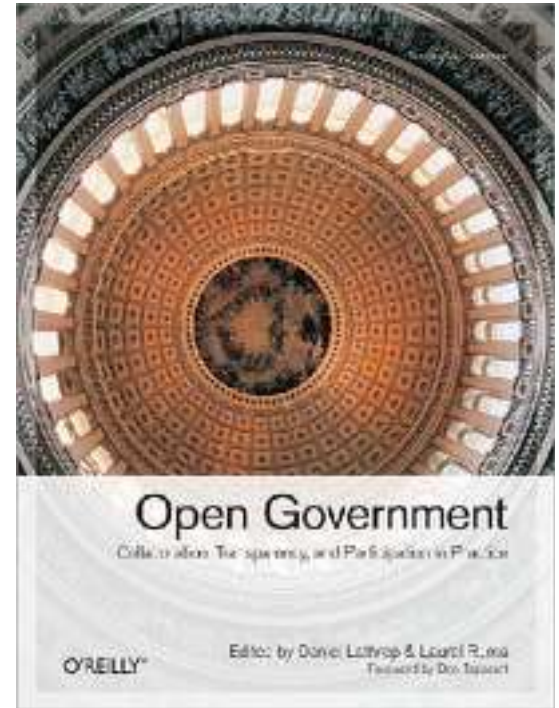
2011



The Open Government Partnership is a multilateral initiative that aims to secure concrete commitments from governments to promote transparency, empower citizens, fight corruption, and harness new technologies to strengthen governance. In the spirit of multi-stakeholder collaboration, OGP is overseen by a Steering Committee including representatives of governments and civil society organizations.

Toward Government 2.0

Government 2.0 or Gov 2.0 refers to government policies that aim to harness collaborative technologies to create an open-source computing platform in which government, citizens, and innovative companies can improve transparency and efficiency. Put simply, Gov 2.0 is about "putting government in the hands of citizens".



Open Standards Spark
Innovation and Growth

Build a Simple System and Let It Evolve

Design for Participation

Learn from Your "Hackers"

Data Mining Allows You to Harness
Implicit Participation

Lower the Barriers to Experimentation

Lead by Example



Lessons

Gov 2.0 combines Web 2.0 fundamentals with e-government and increases citizen participation by using open-source platforms, which allow development of innovative apps, websites, and widgets. The government's role is to provide **open data, web services, and platforms** as an infrastructure.

The Open Definition



“Open data and content can be freely used, modified, and shared by anyone for any purpose”

opendefinition.org

open data is citizen empowerment



dados.gov.br

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Descrição do trabalho	Atual	Quanto
Mapa Geomarketing de Fichas 2012	Atualizado em 15/04/2012	10.000
Mapa Geomarketing de Fichas 2011	Atualizado em 15/04/2012	10.000
Mapa Geomarketing de Fichas 2010	Atualizado em 15/04/2012	10.000
Indicadores sobre Política Agrária	Atualizado em 15/04/2012	10.000
Indicadores sobre Comércio Exterior	Atualizado em 15/04/2012	10.000

Dados em destaque

Classe do RAC - Programa de Aceleração do Crescimento
 Criado em 2011, o programa tem como objetivo fortalecer o Programa de Aceleração do Crescimento (PAC) por meio de parcerias...

Reclamações de Consumidor.gov.br
 O Consumidor.gov.br é um sistema online para registro e resolução de reclamações de consumidores em relação aos produtos e serviços oferecidos...

Índice Nacional de Preços
 Este índice reflete a variação mensal dos preços de produtos e serviços consumidos por famílias de baixa renda...

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Bem vindo ao portal de Dados Abertos de Pernambuco

Este portal disponibiliza os dados públicos sobre o estado de Pernambuco, permitindo a visualização e o download dos dados em formatos abertos, como CSV, JSON e XML. Os dados são atualizados regularmente e estão disponíveis para uso em aplicativos e sistemas de informação.

Procurar dados abertos

Por: []

Edição

Este portal possui uma ferramenta de edição de dados, permitindo a atualização de informações em tempo real.

Área de Usuário

Este portal possui uma área de usuário, permitindo o acesso a funcionalidades avançadas, como a criação de alertas e a exportação de dados.

Assessoria Técnica

Este portal possui uma assessoria técnica, permitindo o contato com o suporte técnico para resolver problemas e dúvidas.

Open Data for All New Yorkers

Where can you find public Wi-Fi in your neighborhood? What kind of tree is in front of your office? Learn about where you live, work, eat, shop and play using NYC Open Data.

Search Open Data for things like 311, Buildings, Crime





Government Open Data

Data produced or commissioned by
government or government controlled entities

Principles



Complete
Primary
Timely
Accessible
Machine Processable
Non-discriminatory
Non-proprietary
License-free

**Open Data is an
important resource for
civic innovation**

civic hacking

"Civic hacking is a **creative and often technological approach** to solving civic problems. These civic problems run the gamut from voter registration and public education to helping consumers buy homes and choose financial advisors"

**Civic hackers can be
programmers, designers, data
scientists, good communicators,
civic organizers, entrepreneurs,
government employees**



search the site

ABOUT | BLOG | ISSUES | TOOLS | PARTICIPATE | POLICY | PRESS | REPORTING | APPS | CONTACT | SIGN UP

MAKING GOVERNMENT
ACCOUNTABLE &
TRANSPARENT

Congress for iOS

Follow bills, contact legislators and more. Now on both iOS and Android.

Check it out



Support our work.

Get Involved



A NEW KIND OF PUBLIC SERVICE
By the People, For the People, For the Good of All.

ABOUT | PROGRAMS | FELLOWS | CITIES | APPS | BLOG | DONATE | GET INVOLVED

MEET FIVE
COMPANIES
IMPROVING
GOVERNMENT

Our five accelerator companies have landed in CIA's San Francisco headquarters. Learn more about the companies or learn more about the program.



WHO'S GOT
OUR BACK?



**crowdsourcing
of
solutions**



<http://bigapps.nyc/>

<http://rioapps.com.br>



● hackathon

Search term

● "open data"

Search term

+ Add comparison

Worldwide ▾

2004 - present ▾

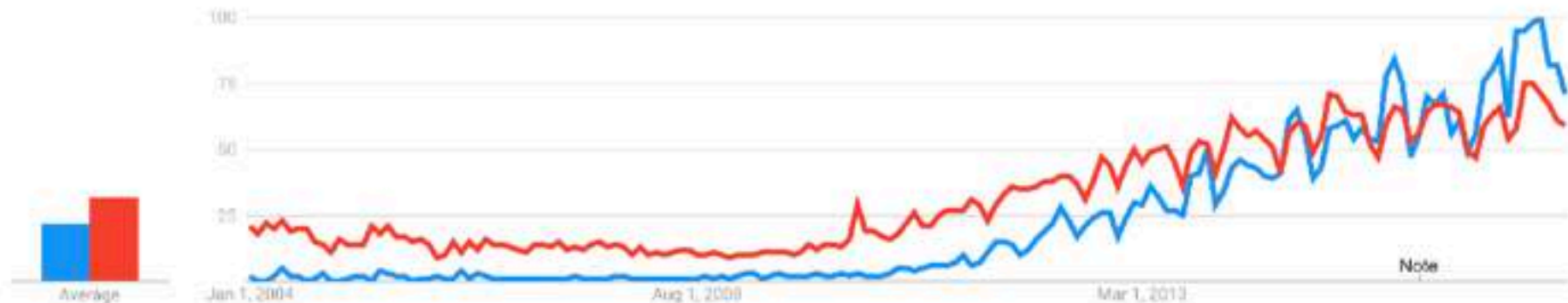
All categories ▾

Web Search ▾

Interest over time ⓘ



Correlation obviously does not imply causation, but...



In the beginning: contests focused on exploring data

Evolution: specific demands

Connected Cities Challenge

CityCharge

A solar-powered charging station for public spaces that uses Bluetooth and beacon technology to gather environmental data and act as a wi-fi hotspot.

Civic Engagement Challenge

Benefit Kitchen

A benefit screening tool that low-income families can use to learn about the public benefits for which they're eligible.

Contests with specific focus

Zero Waste Challenge

Treasures

A mobile app that allows users to share objects with others in their community.

Affordable Housing Challenge

JustFix.nyc

A tool that assists tenants with their housing issues by providing a platform for renters to organize and take action in getting repairs made in their apartments.

hackathons

“Hackathon” combines the terms “hacking” and “marathon” and implies an intense, uninterrupted, period of programming.

More specifically, a hackathon is a highly engaging, continuous event in which people in small groups produce a working software prototype in a limited amount of time.



**KEEP
CALM
AND
HACKATHON**

crowdsourcing of solutions developed by the local community:

Create a culture.

Engage people.

Software engineering for social Good

Ferrario, M. A., Simm, W., Newman, P., Forshaw, S., and Whittle, J. (2014). Software engineering for 'social good': integrating action research, participatory design, and agile development. In Companion Proceedings of the 36th International Conference on Software Engineering, pages 520–523. ACM.

**open data hackathons would
help saving \$\$ in the
development of useful Apps**



Emprel



design?

(data-centered instead of user-centered)

Software quality?

(no quality assurance!)

RISK



Apps from hackathons tend to be abandoned by their creators

solutions

open source?

hire the teams?

incubation?

give hackathons a purpose

Emprel

Living Labs



our attempts:

Citizen-centered design

City as a laboratory

Not limited to technology

it would be difficult to make the
developers go visit the city



**we spoke to representatives
of many departments of
Recife's mayorship**

**they know their users
"pains"**

personas + cenário

LUCIANA

18 anos, estudante

Luciana tem um namorado há 3 anos e está grávida do seu primeiro filho. Não se cuida e está bastante insegura com a quantidade de orientação que recebe no posto de saúde e no Espaço Mãe Coruja, além da que ouve da mãe e das amigas. A enfermeira do posto diz que o melhor é o parto normal e dar de mamar ao bebê. Já a mãe diz que o melhor é cesariana por Luciana ser muito mole para dar! Uma amiga sua, que tem dois meninos, até falou que o peito ficou "arriado" porque deu de mamar e o leite de peito é fraco, muito melhor dar mingua para matar a fome e o bebê dormir. As pessoas falam que ela deve tomar vacina, fazer os exames, ir a várias consultas, mas ela se pergunta a necessidade de tudo isso. Pra que serve cada coisa? Cada um diz uma coisa e Luciana pensa: o que é melhor pra mim e pro meu filho? Como saber?



CONCEIÇÃO

38 anos

Conceição, mãe de quatro filhos, acaba de ter uma bebê prematura. Seus três primeiros filhos fazem um habitual ou eventual de alguma doença. Não tem emprego ou trabalho, sua renda é a do Bolsa Família que diminuiu recentemente por conta das faltas dos filhos na escola. Sua filha precisa ainda de alguns cuidados especiais e está sendo acompanhada pelo IMP, mas, apesar de buscar ajuda, Conceição perde as datas corretas das atividades que precisa fazer para cuidar de sua bebê. Tem dificuldade para fixar tanta informação e precisaria ser revisada e lembrada com frequência, pois não locais e instituições diferentes e sorizinha via não dá conta.

7 competition categories

(health, public processes, sports, environment, accessibility, human rights, public security)

50+ participant projects

(27 in 2013 and 20 in 2014)

3 day hacking

Solutions were more creative than in previous years



We wanted to understand better what was going on.

Then we finally started some research on that...

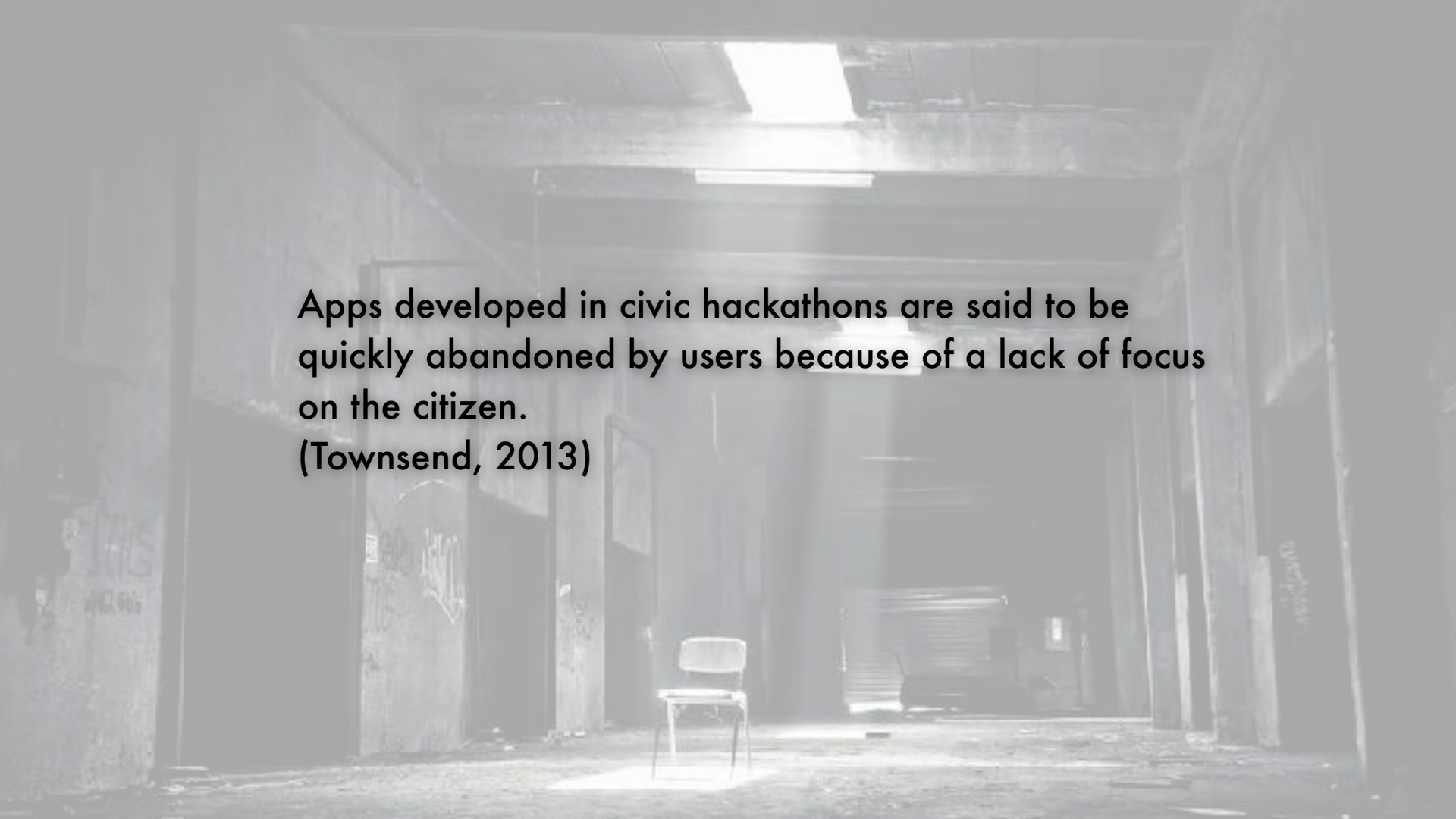
why do you attend to hackathons?




<https://goo.gl/DBNeam>

**App Contests being used as a way to
explore open data sets**

App contests were seen as an opportunity for governments to invest in crowdsourced software as a new form of procurement (Johnson and Robinson, 2014)

A grayscale photograph of a long, narrow, and dimly lit hallway. The walls are covered in graffiti and appear worn. The floor is dark and reflective. In the center of the hallway, a single white plastic chair sits on the floor. The lighting is dramatic, with a bright light source at the end of the hallway creating a strong glow and long shadows. The overall atmosphere is one of abandonment and neglect.

**Apps developed in civic hackathons are said to be quickly abandoned by users because of a lack of focus on the citizen.
(Townsend, 2013)**



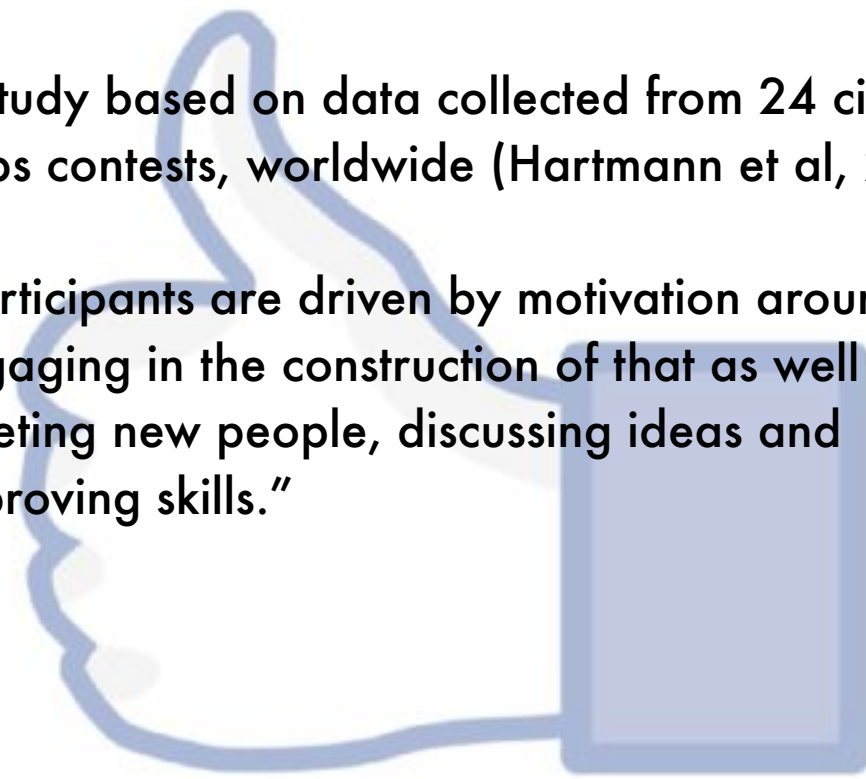
Instead of being motivated by civic engagement, hackathon and application development contest **developers are driven by entrepreneurship and the rewards** of the contests.
(Almirall et al., 2014)

Contest participants go after money but also look for visibility that would help them get investments.
(Lee et al., 2015)

The criticism we found in literature is **not** based on empirical evidence

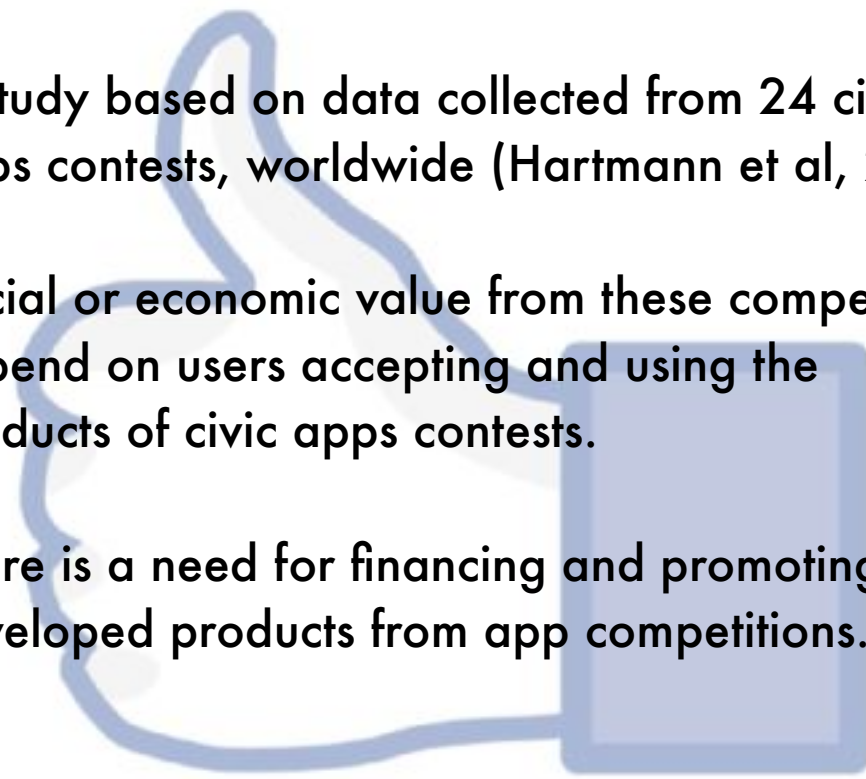


However, **positive findings** were based on
different types of evidence



A study based on data collected from 24 civic apps contests, worldwide (Hartmann et al, 2016)

"Participants are driven by motivation around engaging in the construction of that as well as meeting new people, discussing ideas and improving skills."



A study based on data collected from 24 civic apps contests, worldwide (Hartmann et al, 2016)

Social or economic value from these competitions depend on users accepting and using the products of civic apps contests.

There is a need for financing and promoting the developed products from app competitions.

A survey with 150 hackathon participants from the USA
(Briscoe and Mulligan, 2014)

The motivation of the interviewed participants:

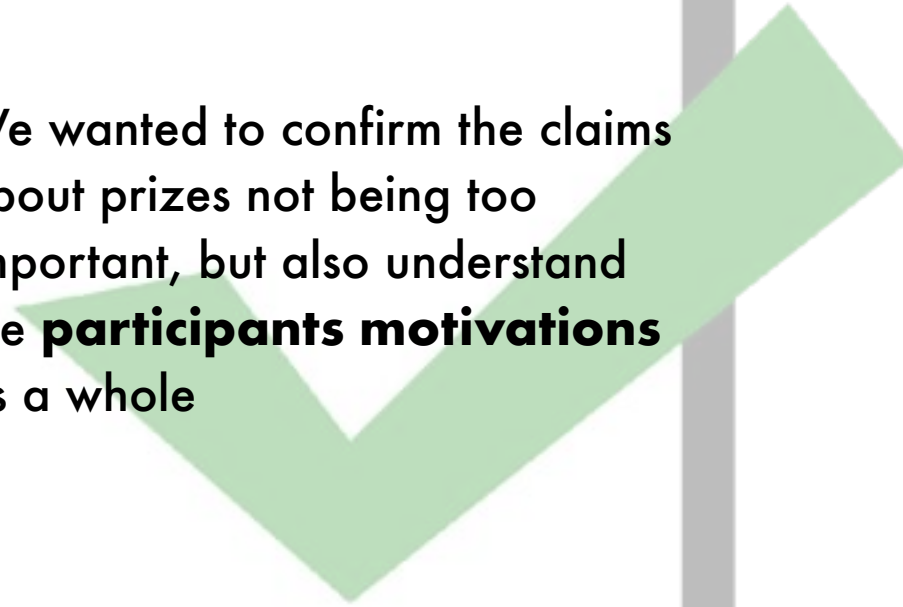
1. learning
2. networking
3. social change
4. win prizes
5. free pizza
6. build a product
7. glory
8. find a team
9. find employment
10. attract investors

SOLVE TO
INNOVATE

A survey in a 24h civic hackathon in Sweden
(Juell-Skielse et al., 2014)

top three triggers of motivation:

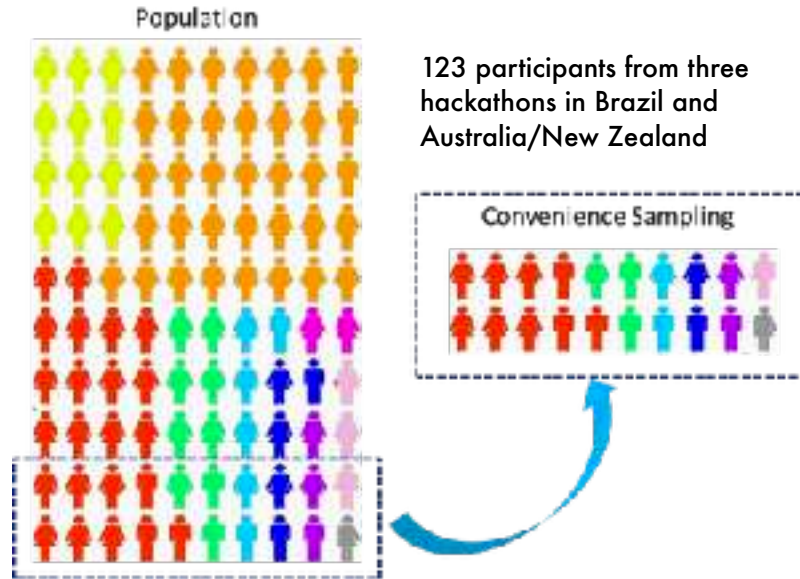
1. fun and enjoyment
2. intellectual challenge
3. status and reputation



We wanted to confirm the claims
about prizes not being too
important, but also understand
the **participants motivations**
as a whole



**RQ: What are the main
motivation factors of
participants in
civic hackathons?**



Usage of convenience sampling in situations when the target population is very specific and of limited availability (Kitchenham and Pflieger, 2008)

Search ...

 **GovHack**
empower enable connect.

#gic Win prizes & ...

#GovHack with twice of locations

Connections Event
Coming early July Menu ▾

29-31 July 2016

GovHack is an open data hackathon held across Australia and New Zealand

[SEE EVENT LISTINGS](#) [ADD TO YOUR CALENDAR](#)



1 weekend
42 locations
3000+ participants



24 hours
45 participants

Hack a City

27th / 28th May 2016

Hackacity is a hackathon that aims to test big data and promotes its use to develop solutions that will have an impact in the city, but also foster collaboration amongst stakeholders. For 24 hours, participants get together to develop solutions based in open source platforms as FIWARE to address challenges faced by the citizens, using data provided by the city.



REDE BRASILEIRA DE
CIDADES INTELIGENTES
& HUMANAS

:organization



data:





Hacker Cidadão - Recife's annual city hall civic hackathon held by Emprel



August, 2016



2 weekends
46 participants

- ☑ **Developer**
- ☑ **Designer**
- ☑ **Project Manager**
- ☑ **Activist**

55



32

Hack a City

36





Learning and developing new skills
Performing teamwork
Networking (make contacts, meet new people)



Learning and developing new skills
Networking (make contacts, meet new people)
Engaging in the resolution of civic problems



Networking (make contacts, meet new people)
Engaging in the resolution of civic problems
Learning and developing new skills

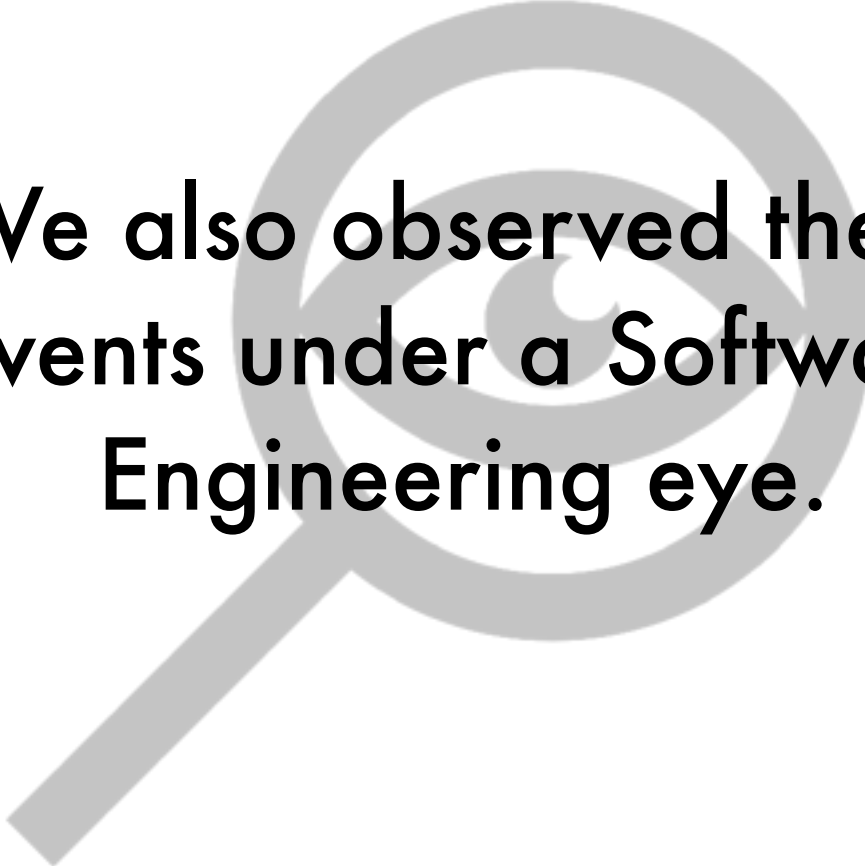


Top-three motivation factors were:

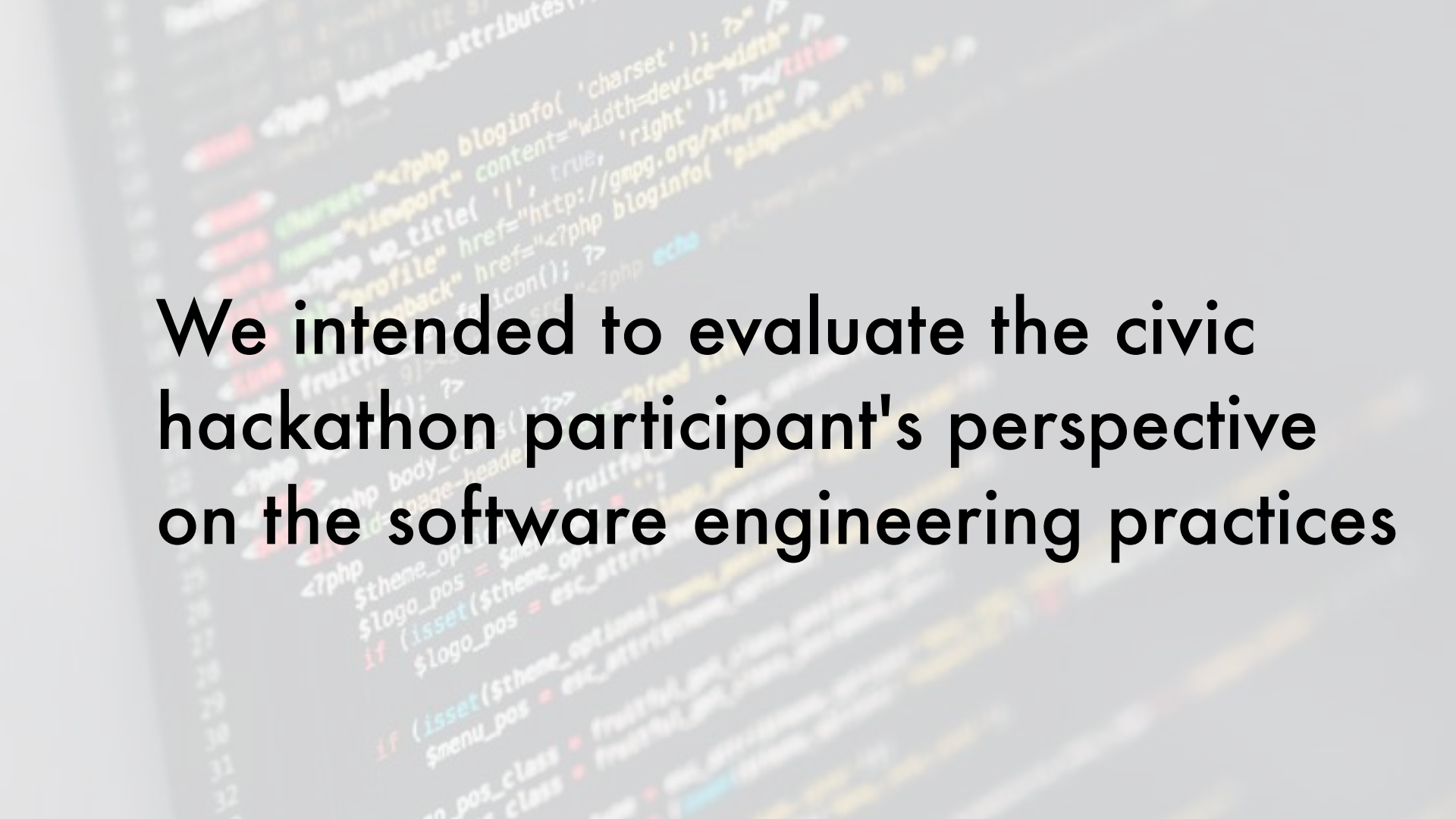
- learning and developing new skills
- networking with other people
- engagement in the resolution of civic problems

Results confirm findings from Briscoe and Mulligan (learning, networking and social change).

We reinforced the finding that prizes are not the most important factor



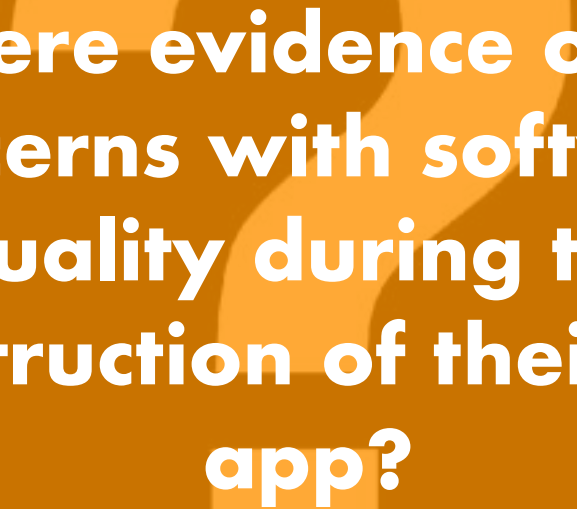
**We also observed these
events under a Software
Engineering eye.**

The background of the image is a blurred screenshot of a code editor. It shows lines of PHP and HTML code. Visible snippets include: `<?php language_attributes(`, `charset=<?php bloginfo('charset'); ?>`, `viewport" content="width=device-width" />`, `wp_title('|', true, 'right'); ?>`, `profile" href="http://gnpg.org/xfn/11" />`, `back" href="<?php bloginfo('page_url'); ?>`, `fruitful = fruitful`, `<?php body_class(`, `$theme_options[`, `$logo_pos = $theme_options[`, `if (isset($theme_options[`, `$logo_pos = esc_attr($theme_options[`, `if (isset($theme_options[`, `$menu_pos = esc_attr($theme_options[`, `$logo_pos_class = fruitful`, and `$menu_pos_class = fruitful`.

**We intended to evaluate the civic
hackathon participant's perspective
on the software engineering practices**



How are functional requirements being identified for applications in civic hackathons?



**Is there evidence of any
concerns with software
quality during the
construction of their civic
app?**



**How do teams
create and manage their
tasks in civic hackathons?**



**How are the civic
apps being released
and maintained?**

Questionnaire

How did your team identify the functional requirements for the application?

How did your team deal with software architecture?

Did your team use pair-programming?

How did your team performed tests in the project?

How were the project tasks created and assigned?

How was the project managed?

Did your team use version control?

Did your team finish the project?

Do you or your team plan to maintain you project?

- Developer**
- Designer**
- Project Manager**
- Activist**

52



27



30



Questions	Responses (%)		
	GovHack	Hackucity	Hacker Cidadão
a. How did your team identify the functional requirements for the application?			
Organizers gave enough information to understand requirements	25.0	7.7	10.0
Team became the stakeholder based only on their own experience	46.2	46.2	50.0
Team became the stakeholder and gathered information on the web	19.2	42.3	40.0
Team gathered requirements with potential users or stakeholders	9.6	3.8	0
b. How did your team deal with software architecture?			
No time to discuss about software architecture	21.2	19.3	6.7
Minimal discussion about the software architecture	53.8	69.2	76.6
Concerns with applying architectural or design patterns	25.0	11.5	16.7
c. Did your team use pair-programming?			
Side-by-side programming	92.3	80.8	90.0
Pair programming	7.7	19.2	10.0
d. How did your team performed tests in the project?			
The team did not worry about testing	34.6	26.9	23.3
Exploratory tests	65.4	73.1	66.7
Better structured technique (e.g. unit tests, test cases)	0	0	10.0
e. How were the project tasks created and assigned?			
Tasks were created by the team since the beginning	19.2	38.5	50.0
Tasks were defined and assigned as the project evolved	65.4	61.5	46.7
Team was not sure about what tasks they were performing	15.4	0	3.3
f. How was the project managed?			
Decentralized role of manager (everyone supervised each other)	53.8	65.4	83.3
There was a clear project manager	30.8	23.1	10.0
There was no role of manager or leader	15.4	11.5	6.7
g. Did your team use version control?			
The team used a version control tool	86.5	76.9	60.0
The team did not use version control	13.5	23.1	40.0
h. Did your team finish the project?			
Project was not finished	42.3	76.9	63.3
Project was finished	57.7	23.1	36.7
i. Do you or your team plan to maintain you project?			
Intention to maintain the project	48.1	19.2	76.7
Project was abandoned	51.9	80.8	23.3

We analyzed people that developed apps in contests, but also wanted to analyze the apps being produced



Are the civic apps produced in contests being used and maintained?

What is the perceived quality of the civic apps produced in contests?

What is the potential for these civic apps generating impact by being widely adopted or becoming viable businesses?

11 civic apps constests

122 winning apps on multiple categories



2009, 2010, 2011, 2013, 2014, 2015



2010, 2013



2012, 2013-14, 2015-16

Ratings and last update of Mobile Apps still available (Feb/2017)



Contest	App	Platform	Rating	#Evaluations	Last update	Installations
NYC BigApps 2009	NYC Way	iOS	3.5	117	2014-01-21	-
	Parking Finder	Android	4.6	7.719	2017-01-20	500.000 - 1.000.000
NYC BigApps 2010	Parking Finder	iOS	4.5	5802	2016-07-20	-
	Roadify iPhone App	iOS	4	743	2015-01-10	-
	NextStop	iOS	3.5	442	2015-04-19	-
	CultureNOW	iOS	3	13	2013-06-17	-
	HealthyOut	iOS	4.5	1810	2015-11-12	-
NYC BigApps 2013	Child Care Desk	Android	5	2	2014-06-04	100 - 500
	Hopscotch	iOS	4.5	3842	2017-01-24	-
NYC BigApps 2014	Mind My Business	Android	3.5	4	2016-05-13	500 - 1.000
	Mind My Business	iOS	N/A	0	2016-07-27	-
NYC BigApps 2015	benefit kitchen	Android	4.3	6	2015-08-24	500 - 1.000
	benefit kitchen	iOS	N/A	0	2015-11-18	-
	aidlicaid	iOS	4.5	91	2017-01-26	-

Ratings and last update of Mobile Apps still available (Feb/2017)

Contest	App	Platform	Rating	#Evaluations	Last update	Installations
Apps4Ottawa 2010	Ottawa Recycles	iOS	3	7	2011-02-25	-
	My OC Transpo	Android	4.2	2,643	2017-01-15	50,000 - 100,000
	Ottawa Insideout	Android	3.7	26	2011-01-03	5,000 - 10,000
	Ottawa Guide	Android	2.7	18	2011-03-30	1,000 - 5,000
Apps4Ottawa 2013	Bus Buddy	iOS	4	349	2016-11-01	
	O-Transit	iOS	N/A	0	2013-05-12	
	HistoriCity Ottawa	Android	4.4	13	2013-05-23	100 - 500
	My Ottawa City	Android	4.2	44	2014-03-26	5,000 - 10,000
	Rent Compass	Android	3.8	501	2015-03-28	50,000 - 100,000
	Ottawa Garbage Schedule	Android	3.7	46	2016-07-23	1,000 - 5,000

Ratings and last update of Mobile Apps still available (Feb/2017)



Contest	App	Platform	Rating	#Evaluations	Last update	Installations
RioApps 2012	Pacificados Web & Mobile	Android	5	1	2012-06-14	10 - 50
	Easy Taxi	Android	4.4	348.702	2017-01-19	10.000.000 - 50.000.000
	Rio de Bicicleta	Android	3.7	64	2015-01-30	5.000 - 10.000
	Btans	Android	3.2	349	2015-03-18	10.000 - 50.000
	Rio Saúde	Android	N/A	0	2015-10-13	10-50
	Easy Taxi	iOS	4	1233	2017-01-22	-
	BRS Rio - Vias Expressas Ônibus	iOS	3	32	2014-06-12	-
RioApps 2013/14	DenúnciaRio	Android	5	1	2013-11-04	10 - 50
	Hugo Contra Dengue	Android	4	105	2013-07-02	10.000 - 50.000
	Rio Upa	Android	3.7	15	2014-05-24	500 - 1.000
	Procon Cariuca	Android	3.3	132	2014-08-07	5.000 - 10.000
	Me Acorde No Ponto!	Android	3.2	6	2013-10-03	100 - 500
	iRestaurante Básico	iOS	N/A	0	2014-07-16	-
	IrreJola	iOS	N/A	0	2013-11-24	-
	Rio Viva água	Android	5	5	2015-11-04	10 - 50
	Rio Virtual	Android	5	3	2016-02-03	50 - 100
	Seniors App	Android	4.9	16	2015-09-29	100 - 500
RioApps 2015/16	Jump Park	Android	4.9	55	2017-02-03	500 - 1.000
	Advinha Rio	Android	4.7	3	2015-11-04	100 - 500
	Cale. EDF	Android	4.6	48	2016-01-19	1.000 - 5.000
	Rio Street Museum	Android	4.6	19	2014-05-01	500 - 1.000
	E aí, partiu?	Android	4.6	82	2016-06-02	1.000 - 5.000
	NEARBEI	Android	4.2	134	2017-02-02	5.000 - 10.000
	Futebol na Praça	Android	3.3	3	2015-10-01	50 - 100
	Comercializa Lavela	Android	1	1	2015-11-15	10 - 50
	Acessa Mais	iOS	N/A	0	2015-10-02	-

Average user rating on Mobile Apps

Contest	#Apps with reviews	Avg rating	Std. Dev
NYC BigApps	11	4.1	0.6
Apps4Ottawa	9	3.7	0.6
RioApps	22	4.1	1.0

Visits and Maintenance on Web Apps still available (Feb/2017)

Contest	App Name	Domain	#Visits in Dec/2016	Last-Modified
NYC BigApps 2009	Big Apple Ltd	www.bigappleed.com	0	2010-10-23
NYC BigApps 2010	Parking Finder	www.bestparking.com	528200	N/A
	Don't Eat at	www.donteat.at	0	N/A
NYC BigApps 2012	NYCFacets	nyc.pediacities.com	15200	N/A
	596 Acres	596acres.org	274	N/A
	New York Trip Builder	www.nytripbuilder.com	0	N/A
NYC BigApps 2013	Hopscotch	www.gethopscotch.com	181400	N/A
	Poncho	poncho.is	32600	2016-10-31
	SolarList	solarlist.com	633	N/A
NYC BigApps 2014	PIPs	www.pipsrewards.com	1600	N/A
	Heat Seek NYC	heatseek.org	1500	N/A
	CourseKicker	coursekicker.com	431	N/A
	Dream See Doo	www.dreamseedo.org	215	N/A
	Explore NYC Parks	www.explorenycparks.com	0	N/A
	NYCHired.com	nychired.com	0	N/A
	Mind My Business	www.mindmybusinessnyc.com	0	2016-03-22
NYC BigApps 2015	City Change	www.greenbarrelenergy.com	0	N/A
	IssueVoter	issuevoter.org	2900	N/A
	Benefit Kitchen	benefitkitchen.com	188	2017-01-14
	Justfix.nyc	beta.justfix.nyc	0	N/A
Apps4Ottawa 2010	ShinnyApp	www.shinnyapp.com	0	N/A
	OttawaFun.ca	www.ottawafun.ca	0	N/A
	OC Bus Tracker	www.ocbustracker.com	23100	N/A
Apps4Ottawa 2013	OnWatch	ottwatch.ca	1300	N/A
	Save the Rain	www.save-the-rain.com	141	2015-10-12
	Ottawas Heart	www.smewebsites.com	135	N/A
	Ottawa Garbage Collecting Schedule	gisencengroup.ualgary.ca	83	2015-03-17
RioApps 2012	DefibrillApp	www.defibrillapp.com	0	N/A
RioApps 2012	Easy Taxi	www.easytaxi.com.br	69100	N/A
RioApps 2013/14	#StreetArtRio	streetartrio.com.br	615	N/A

Some successful cases

Easy taxi (an outlier)

MyOCTranspo

Embark

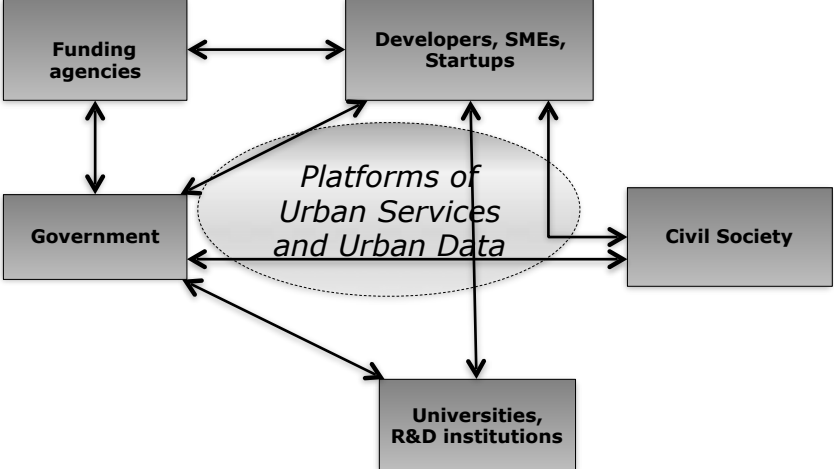
Sportaneous

Parking Finder

**Apps developed in such contests could be
part of an innovation ecosystem**

software ecosystem

a set of businesses functioning as a unit and interacting with a shared market for software and services, together with the relationships among them.

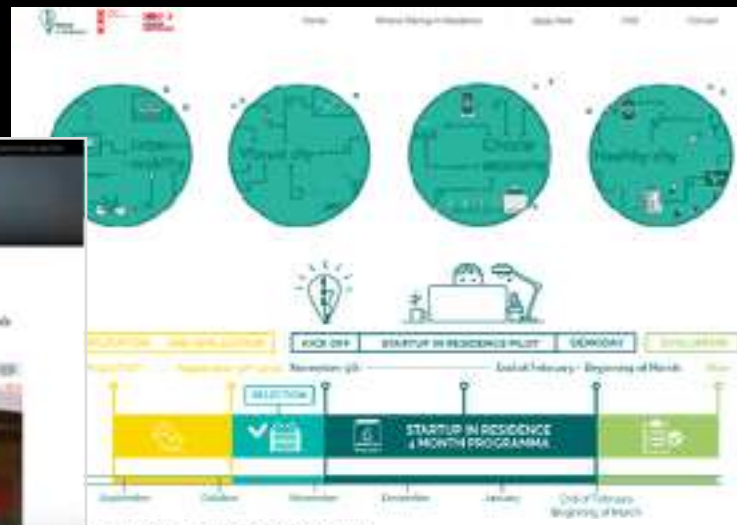


software ecosystem

The **relationships** among these businesses are frequently underpinned by a common technological platform or market and operate through the **exchange of information**, resources and artefacts.

Interesting step to take: a well **structured** civic innovation promoted by the city.

Example: San Francisco and Amsterdam cases



Wrapping up

Free access to Urban Data Flows + Civic Hacking (to build solutions and also produce new data flows)

Both converging to a Smart City Software Ecosystem, build from the bottom-up

Civic Innovation can boost local economy

Events to engage innovators from the local community

Continuity of Apps is actually a problem

Open platforms for open ecosystems



Thank you!