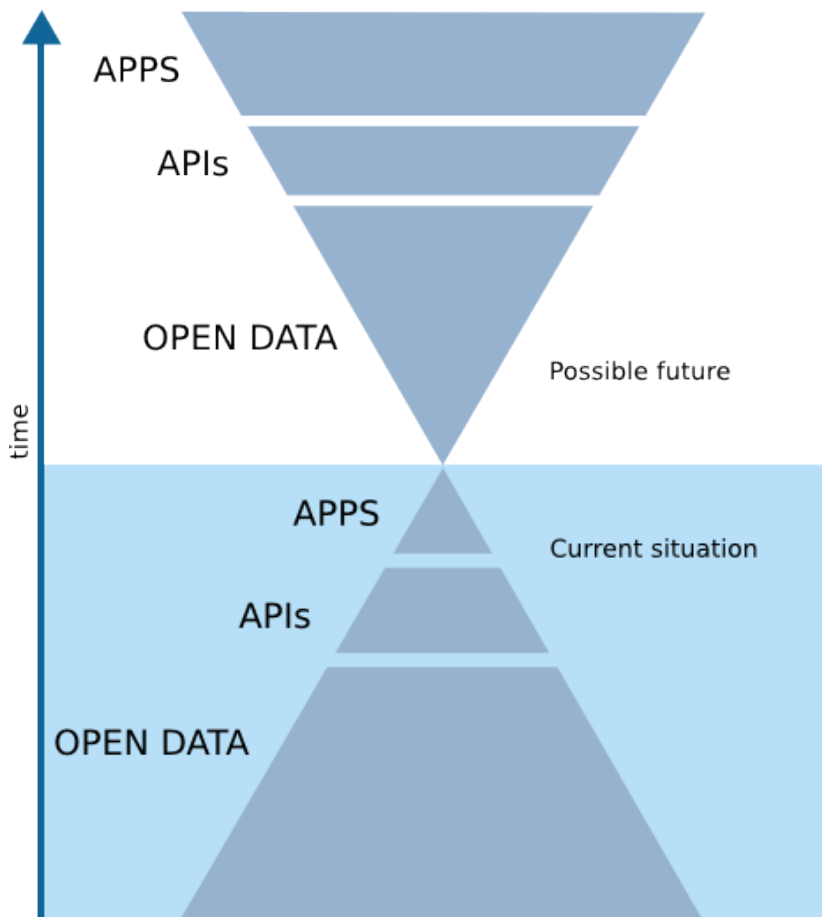


# Developer community can be more than just an 'App Factory'

Submitted on 15 Oct 2013 by Jarkko Moilanen

Open data community related developers are often seen as "App Factories", a community of talented developers interested in designing and implementing open data driven or enhanced applications and services. Unfortunately this is how too many people see the role of this community. Based on my experiences, in different developer communities this is not simply the case. Apps are just the tip of the iceberg, at least when it comes to using open data.

The current situation in Finland is that we have a certain amount of open data especially in [Helsinki Region](#). We have some open APIs such as [Ahjo](#) and [TKL transportation API \(Siri\)](#). What we don't have is too much is applications and services which are based on the data and APIs. Below is a simplified and exaggerated model of the situation in Finland. I suspect that there are other regions in Europe which have the same situation.



The lower part of the image shows the current situation. The focus is on data; it is, sought after, opened, used to some extent and more data is revealed every day. The shared data holds in the "pie" is enormous. The situation with the APIs is not too good either. There are APIs but developers might not be aware of them all, they possibly have no access to them, there aren't enough examples of usage or documentation is missing or insufficient. Nevertheless, interest towards building APIs is rising in Finland. Applications and services are only the tip of the iceberg.

The upper part of the image represents one possible vision for the future. The iceberg is flipped over. In this vision, the amount of applications and services (apps in image) are in the majority. They are

built on top of multiple APIs which in turn use open data. This should be the aim; high quality applications and services are the purpose. This is most likely the reason why some people think that the open data developer community as merely an "Apps Factory".

## Separate worlds between developers and the public sector

The open data developer community can be more than just an "Apps Factory" for businesses and public sector alike. Developers and businesses have some connections, at least in open source related efforts. The situation is the worst in relations between the public sector and the developer community. They live at the moment in separate worlds in Finland. Perhaps we should change the way we think about these communities. Perhaps each community should be given a bigger role in building and helping in data reuse both in the public sector and in the business sector.

Some efforts to mix the vectors between all three parties - business, community and public sector - are in motion. One of the efforts originated from a few Finnish open data enthusiasts and entrepreneurs who have drafted a framework to create "common ground" or "playground" for all parties. The concept of "common ground" is discussed in more detail later on in this blog post. In brief, the plans are there. What we need is some seed money to establish the platform. While we consider governmental organizations such as The Ministry of Finance as one option for funding, at the same time we are open to crowd funding and business driven funding as well.

## Adopt open source practices

How do we proceed in within this context? One obvious option is to mimic open source community practices. The open-source model includes the concept of concurrent yet different agendas and differing approaches in production, in contrast with more centralized models of development such as those typically used in commercial software companies. A main principle and practice of open-source software development is peer production by bartering and collaboration, with the end-product, source-material, "blueprints", and documentation available at no cost to the public. In open source community openness, transparency and sharing are key values. When groups such as developers and the public sector are brought together, they have to meet at half way. Both probably need to make compromises. Below are a few practical examples what could be done.

## Beta testers for apps, services and data

[Linus's Law](#) defined by Eric Raymond states that "Given enough eyeballs, all bugs are shallow". In open data this should be extended to include:

- application
- service level
- data level

It is obvious that the public sector and the developer community can co-operate at application level, just like businesses and developer communities do at the moment. I would extend the same co-operation to data level, where community could validate, develop and even construct joint data sets based on these needs. The co-operation and discussions about data flaws and other issues should

be transparent and open. As result, the public sector would have a tool to improve data quality which is not always the best possible for various reasons. Developers are willing to give their time for the good of the public if they are given a chance.

From a practical perspective one possible platform for that kind of discussion is **GitHub**. All discussions do not need to take place at Github interface with which developers are familiar with, since GitHub API provides means to extend the same functionality to other platforms. That way, each party could engage in the same discussion from a chosen place with different tools.

## Data extension wizards

APIs are ways to extend data reuse. Someone out there always has a better idea of how to use your data. Much of the API development is relatively expensive and thus the public sector is reluctant to pour scarce resources into that. [Unfortunately APIs are a key factor in extending data reuse](#) thus needed and much asked for. The open data community developers could give a hand in building APIs. Other developers could help in creating code examples, some create documentation, generate automated tests and finally some developers use the APIs in applications and services.

Not all developers want to create popular applications for end-users; some prefer to help inside the community under the radar. Some open data community developers are more prone to "middleware" development. Those developers could create, for example, **CKAN extensions** for all CKAN systems worldwide, but initially serving the needs of local or regional users, application developers and even end-users.

## Modern time bounty hunters

Organisations could announce bug bounties, which anyone could grab and solve. The bug could be related to some API, service, mobile application, data processes, missing documentation part or something else. Bounties are tied to reward systems, which is vital. Give some serious thought on the reward system instead of offering just old fashion money. Other additional rewards could be fame or some resource for use. Whatever the rewards are, the key point is the [gamification](#) of the process. Gamification is the use of game thinking and game mechanics to engage users in solving problems. Gamification is often used in applications and processes to improve user engagement, returns on investment, data quality, timeliness, and learning. Good examples of gamification are [Stack exchange](#) services such as Stack overflow and the Finnish version of open data 'stack overflow' [avoindata.net](#).

As it was mentioned above, some developers are more talented in building [back end solutions](#) rather than user interfaces. The same applies to bug solving. Some developers are keen on fixing bugs rather than implementing something from scratch. Besides, bugs come in different flavours, some of them are hard, some easy or something in between. Bugs labeled as "[low hanging fruits](#)" are easily achievable tasks and which do not require a lot of effort. Fixing one little easy bug is an excellent starting point for someone just entering the domain. It gives instant gratification and encourages continuity.

## Developer community as strategic resource

The developer community is normally seen as talent pool for companies, but within the open data

community, it can be much more. It can be strategic resource just like power plants. The claim can be justified if the importance of data in our economy and societies are taken into account. **People who know how to manage data, visualize it into meaningful forms, create new extensions to it (APIs), create applications and services on top of open data are not just developers, they are a strategic resource.** They are the makers and shapers of "[data-driven societies](#)"

If businesses and communities manage distributed and open development, there should not be any other than cultural and political level obstacles to cross. Of course, we need to keep in mind that businesses and open source community developers have been "training" co-operation for a long time. Therefore we should not expect that everything will go smoothly, without bumps or excessive behaviour during the early days of bringing public sector and developer communities together. What also needs to be kept in mind is that in open data, aims should not be bipolar, but *tripolar*. We should bring together all three:

- public sector
- open data developer communities
- businesses

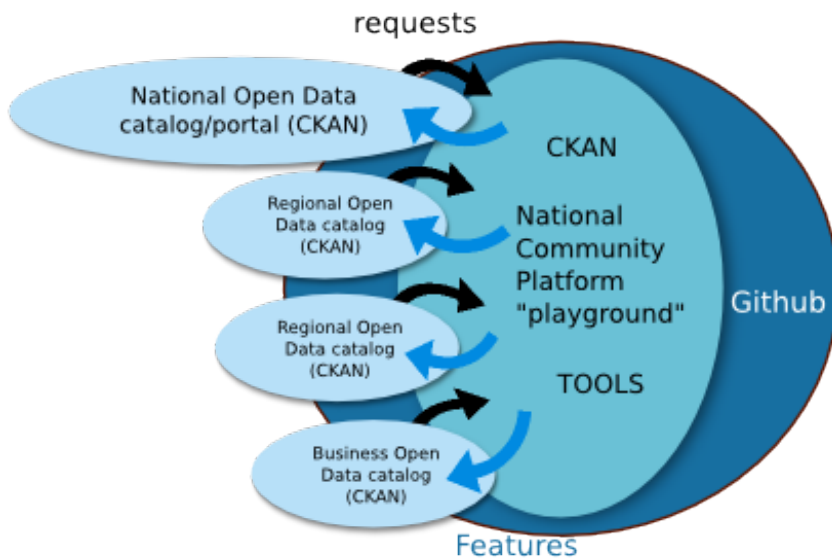
Developers want to build their skills. They want tools to solve their problems. They want recognition and to get paid. Answer to those needs and you will gain the support of an enthusiastic and talented pool of developers. Answer to those needs and you will get plenty of high quality applications, bug hunting, new services and most importantly, it will build a missing bridge between the public sector and the developer community.

## Call for action: Common ground for all parties involved

To take the above into practice, we here in Finland need to build "common ground" or "playground" in which all parties in open data can co-operate, test new CKAN features developed jointly for the needs of national and regional open data catalogues, evaluate data sets and the usability and share knowledge and skills. This playground needs to be at a national level. It has to be based on infrastructure which has some level of continuity. It also has to be managed by an actor which is as neutral as possible. In Finland such organization/platform could be [FORGE](#), with which initial discussions concluded to "go". FORGE Service Lab is a development laboratory for digital services. **DIGILE** believes that [FORGE](#) will further ensure that Finnish companies and public organisations are amongst the very first to both reap the benefits of the opportunities the digital age provides and create situation-specific innovations.



The "common ground" would also contain the needed tools for communication, knowledge sharing, application & API showroom and developer highlights to fulfill developer's needs.



As an example, CKAN based development and needs of all CKAN user organizations in Finland could function as an input to the community. Inputs could be, for example, CKAN feature request, widgets, API development, "bug bounties" or data evaluation. Members of the community would pick up "tasks" to implement alone or as groups. The features would be tested at the community CKAN catalogue. In a way, community catalogue would function as a "development" version CKAN for all organizations. This would be economically efficient for all parties since it removes the need to have own test bed for each CKAN. Once the feature at hand has been tested and verified to fill in the needs, it could be uploaded to the desired CKAN catalogue. Following the logic of open source principles, the Finnish CKAN developer community would commit to upstream whenever suitable. That in turn would give all CKAN users across the Europe a chance to reuse the given feature in their catalogues. Beneath the development would be a shared code repository system such as **Github**.

Additionally, in the ideal form there will be companies which will utilize open data in their business. Those businesses will allocate some resources to shared development and thus ensure steady development. This is common in other open source driven development.

The described approach is a golden opportunity to mix the public sector, volunteer developers and businesses in open data and create a unique open data ecosystem in Finland which might function as inspiration for others to follow. Keep in mind that developers vary; they are not "homogeneous species". Some are more interested about back end systems, some about application development; some are keen on testing and bug fixing. Also keep in mind that vivid community needs not only gurus but a lot of work horses to function. That's why it is called a community.