

Swedish public open source movement working from the bottom up

British open source code from FixMyStreet provides basis for Swedish national service

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In Sweden, the public open source movement is working its way from the bottom up. Kivos and Open Jämtland are two regional organisations coordinating interoperability and open standards issues for their respective municipalities. Both promote the use of open source software and open standards by public agencies as well as software vendors, and enable and deploy open source based solutions for local government. In these endeavours they are supported by SALAR, the Swedish Association of Local Authorities and Regions, which represents all 290 Swedish municipalities and all other regional governments.

Another supporter is Vinnova, the Swedish Government Agency for Innovation Systems, which invested 380,000 euro to develop of a platform for public e-services. This will host about ten e-government services which will be delivered through the cloud, offering services that can be used by all municipalities.

One of these municipal services is 'Fixa min gata', the Swedish equivalent of Britain's FixMyStreet. The first pilot was recently launched. Eventually it will be available to all Swedish municipalities as a single, national service.

Kivos ('[Kommunsamverkan i Väst för Open Source](#)', in Swedish; Local Collaboration in the West for Open Source) is a regional partnership in western [Gothland](#) (Götaland) in the south of Sweden. Its primary aim is to promote the use of open source software and open standards. It does this by disseminating information and experiences on the deployment of open solutions among municipalities and other government organisations, by stimulating the demand for open source software and promoting the inclusion of open standards in the requirements for the procurement of information systems, and by cooperating with universities and colleges on issues of open source and open standards.

Kivos

Kivos was founded by nine municipalities that were already cooperating in this specific area. In April 2009 they collectively [asked ten Swedish software suppliers](#) to support the open [ODF](#) and [PDF](#) document formats, instead of the proprietary Microsoft Office formats that were preventing the municipalities from completing their transfer to [OpenOffice](#). In December of that year, the municipalities decided that it was a natural and necessary step to move from a loose network to a firmer organization.

"The municipalities around here are like good neighbours," says Göran Westerlund, CIO for the town of Alingsås. "We discuss our problems quite often. And in 2008-2009, many of us were looking for an alternative to Microsoft Office. OpenOffice was mature and usable, but the municipalities shared the same problem: our IT suppliers did not support the OpenDocument formats."

"In many of our municipalities the CIOs and people working in IT are frustrated because the Swedish market is locked in. In certain areas we have just two or three software companies. We

are quite weak when we are talking to them, because there is not enough competition. So in the end we pay too much. Furthermore, interoperability between applications is an issue, because these companies do not talk to each other about open standards or standardised protocols. So we have to buy specific e-services from these particular software companies, and run the risk that we cannot get a unified e-government service out to the citizens. We are unable to present a single entrance because the individual software packages cannot be connected to each other."

Pushing open source

Although Kivos is now an official cooperation, it is still organised like a network of municipalities. "When members are having the same problem, we start a group to work on it," Westerlund explains, "trying to solve it just once for all the members of Kivos."

"Currently we have two main projects: FixMyStreet and Jukebox. In 2011 we wrote several letters to the central government, trying to persuade them to look into the issue of the open document format. We did get some answers, but they were not the ones we were hoping for. So there are no national policies to help us with this issue. In this matter, we are on our own. Sweden is different from some other countries: it's political."

There is, however, support from SKL (Sveriges Kommuner och Landsting), known in English as [SALAR](#) (Swedish Association of Local Authorities and Regions), the body representing all 290 Swedish municipalities and all other regional governments. "They work on standards for education and healthcare, for example. But they also deal with IT and issues around the development of e-government services," says Westerlund. "So they negotiate with central government on these topics. In their latest documents they were discussing open source as a mandatory requirement. That's an important result of Kivos's existence."

"SKL stated in their agenda that open source is the way to go," Westerlund continues, "and we are pushing this issue, making sure it remains a hot topic. So we discuss it with other municipalities in our region and in our network, and with the national organisation."

Cooperative network model

Currently, Kivos has fifteen members: Alingsås, Ale, Borås, Falköping, Grästorps, Hallbergs, Osby, Mölndal, Stenungsund, Uddevalla, Vara, Vårgårda, Tibro, Tidaholms, and Åstorps. Although most of these are located in western Gothland, membership is open to other municipalities as well, Westerlund says: "We do have participants that are not from the west of Sweden, but they share the same values and the same ideas."

Westerlund agrees that the cooperative network model of Kivos can be used by municipalities in other regions to organise themselves. As a matter of fact, eight municipalities in the north-west of Sweden are working together in a similar way. [Open Jämtland](#) (in Swedish; Regionalt Kluster för Öppen Källkod och Öppna Standarder), however, was initiated by the Regional Council of Jämtland County, coordinating interoperability and open standards issues for its municipalities: Berg, Bräcke, Krokoms, Ragunda, Strömsund, Åre, and Östersund.

E-services platform

In November 2012, Vinnova (the [Swedish Government Agency for Innovation Systems](#)) invested 380,000 euro in the development of a platform for public e-services. The platform consists of various projects to be implemented by SKL. They will be delivered as hosted cloud services,

offering e-government services that can be used by all municipalities. This approach takes the concept of sharing and reusing one step further: from the joint development of open source software to cost reduction through shared services.

Eventually, the platform will host about ten e-government services:

1. Digital libraries;
2. Web-based services for self-assessment and decisions on environmental impact taxes;
3. Open and secure exchange of information within schools;
4. A website to share open e-services and apps, including the FixMyStreet service;
5. Digital declaration of paternity;
6. A cohesive digitized process for building permits and specifications;
7. Digitization of the administration associated with elections;
8. A scalable methodology for common service definitions to create a more dynamic municipal service offering;
9. A public conference room;
10. A web-based service for ideas, for the dissemination of experiences, and for crowd-funding the development of an e-society.

These sub-projects will be jointly developed through broad [cooperation between municipalities, counties and regions](#) (in Swedish). The central coordination lies with SKL's CeSam division ('Center för eSamhället'; Center for eSociety), which is responsible not only for the actual development of the software but also for attracting more participants.

The project is part of an agreement between Vinnova and SKL on stimulating innovation in the public sector. The deliverables from the sub-projects are new e-services and prototypes, processes and procurement documents, and feasibility studies and tutorials. The results will be made available so that they can be used by other local agencies and form the basis for further development and procurement.

While SKL does not have a lot of money to spend, it does support innovation in various fields. Vinnova, on the other hand, is able to provide substantial funding for organisations and projects. Some of the projects that Vinnova supports are based on open source, others are not. According to Westerlund, however, Vinnova knows about interoperability, open standards and open source, and its criteria are solid.

Knowledge transfer

Kivos is involved in two of the sub-projects: 'Fixa min gata' and a portal for sharing e-services and apps. "The latter project does not have a specific name," Westerlund explains. "It is not supposed to be a local software repository like SKL had before. We now want to build a portal to share experiences specifically with open source software. We think that knowledge transfer at this moment is more important, especially since there are several local sites on which municipalities share their experiences. So we want to provide a central place for best practices, project case histories and so on. The official plans and concepts we are currently working on will be presented in June."

'Fixa min gata'

'[Fixa min gata](#)' (in Swedish) is based on FixMyStreet, which began in the UK and has now spread to several other countries. [FixMyStreet](#) is used to report potholes, broken sidewalks, graffiti, non-functioning lamp posts, and other problems.

The first pilot of 'Fixa min gata' was [launched](#) on 11 April 2013 by [Sambruk](#) (in Swedish);

Municipalities for Joint Development of e-Services), Kivos and FFKP ([Föreningen fri kultur och programvara](#), in Swedish).

The development of 'Fixa min gata' began in 2011, and a beta release was introduced last year. The site runs on [Debian Linux](#) servers and uses the [nginx](#) open source web server. Although the new service is being developed by three organisations, it will eventually be made available to all municipalities as a single, national service.

Fork

Since the software is not developed jointly through a repository, but delivered to all municipalities as a shared service ([Software-as-a-Service, SaaS](#)), individual municipalities are not actually contributing code and patches. Instead, their input is formulated in functional terms, i.e. as requirements. This development and delivery model may prevent the creation of a community around the software. "I don't think that's a problem," Westerlund explains. "The code is still open, so people can share and come with new ideas. Collaboration will not take place on a municipal level, but on a higher, international level: other countries can take and use our code, just like we did ourselves with the FixMyStreet software."

"Originally, the FixMyStreet service was developed in Britain by an organisation called [My Society](#), and then released as open source software," [Rikard Fröberg](#) explains. He is the former project manager at FFKP. "Since the source code was made available for download, anyone can see how it works, and even fork it because it's published on [GitHub](#). Thus far, several other countries have forked off their own projects and adapted and translated it for their own citizens. I think the one preceding us was Norway. The fact that not only the source code but the whole project was available -- including documentation, blogs and mailing lists -- was a major advantage. We could simply [fork it](#) and engage directly with the community if we had any problems or questions."

Citizens first

Furthermore, Fröberg thinks the idea behind the software itself is very good. "It flips the coin on how e-government services are usually made -- at least in Sweden, but probably throughout Europe," he says. "Normally, a municipality, or a group of municipalities, or another public agency develops a service to make its functions available to the citizens, so people can use the web or a mobile app to connect with the authorities, have a dialogue, fill out forms, make applications, and so forth. But My Society actually did the opposite: they asked the question 'What would a citizen want if he or she needed to file complaints, ask for repairs, or fix his street environment?' They would need a system that is easy to use and they would not want to spend time finding out who to contact within the organisation responsible for maintaining the road. That could be the municipality, the state, or even a private party. The citizen does not care; he or she just wants easy access to a form to report a pothole in the street. So My Society made a system that has the citizen as its focus."

"FixMyStreet is meant to be a country-wide platform. Regardless of where you live, you can go to this portal, find your street on a map, and report the problem. The system will then take care of where and to whom to send this complaint."

"In parallel with the map interface, the back-end contains a look-up service that's aware of which areas of the map belong to which administrative organisations. When you click on the map, the system knows that, for example, the city is responsible for the roads in this specific area. And it then uses a list of e-mail addresses to forward the report."

E-mail messages

"When you report a problem, the system also asks for a category," Fröberg continues. "In theory, all these categories can be sent to different e-mail addresses. So, you can set up the back-end to send a pothole report to the department dealing with the streets, and the streetlights category to the company responsible for their maintenance. Although it can be tuned to a really fine-grained matrix of geo-locations and categories this way, in the initial release we started with a single e-mail address for each of the 290 municipalities for all of about ten categories. And in the mail messages we ask the recipient to contact us and provide us with a more appropriate address if that's available. So our primary goal is to make this service available to every citizen in the country, just like they did in Norway and the UK, but we are very open to helping municipalities make it better and more precisely targeted."

"At least until this summer we will adjust the e-mail addresses ourselves if people ask us to. And we will be swift about it, because we want this to be a high-quality service, so it has to be well targeted within the municipalities. We don't want citizens to feel that there is a problem because we've sent it to the wrong address."

Dialogue

'Fixa min gata' does not interfere with the actual reports, nor with the senders and the recipients. The system merely acts as an entrance for citizens to report their problems. "We check the sender's e-mail address using a verifying link the first time someone files a report," says Fröberg, "so we make sure that this is a working address. But when the message is actually sent to the municipality, it contains the citizen's address as the sender, so it looks as if he or she sent it personally. That also makes it easier for a municipality to reply directly to the person who actually reported the problem."

The portal also allows you to add a comment to the report. "A reported issue will be marked with a little dot on the map. When you click on that, you can see what the report was about. It also allows the municipality as well as other citizens to leave additional comments. It's like a thread under that report. The initial reporter will receive all this feedback. That's why we urge people not to be anonymous, because we want to start a new dialogue. For example, the municipality can reply saying 'We just fixed it'. That way, you can also receive a 'Thank you'. Or they can say something like 'We can't find the pothole; please send us more information.' We do not want this to be a blind service where people can send in anonymous complaints. It's a challenge for communication and dialogue as well."

Pilot

'Fixa min gata' is currently running as a pilot. "The municipality of Alingsås is [in the lead](#)," Fröberg explains, "They received 18 reports over the last two weeks, and they recently told us they had 33 reports that had been attended to. Over all, about fifteen municipalities that have received reports so far. The reason that Alingsås stands out like this, is that they were involved as a testing partner when we translated the software into Swedish. We wanted to give the interface the Swedish administrative look-and-feel, and for that reason some municipalities partnered with us. From the very beginning, Alingsås has promoted 'Fixa min gata' on its website, and in press releases and in the communications with citizens. So Alingsås received its first report the same day the site was officially launched."

The feedback from the municipalities, however, still requires improvement. "We have forwarded quite a few reports already, but we are not sure whether they fixed the problem or not. It could

very well be that they did solve it but don't know how to report it as fixed. In the message we send along information on how to mark it as fixed, but we have no way to make them actually use this feature. On the other hand, after four weeks we send a message to the person who originally filed the report, asking them to check whether the problem was fixed, and to follow up with the municipality if it was not. They can also mark the problem as solved. Actually, anyone who passes that location and sees that the problem no longer exists can mark it as fixed. For now, we have to give it more time, to see how it develops. If the municipalities do fix the problems but don't report them as solved, we have to find out why that is."

No mobile app

Currently, there is no mobile app available for 'Fixa min gata'. "I think there is an [app for Android](#) in the UK pilot project," says Fröberg, "but it is rather basic and not well developed yet. The source code is available, though, so anyone could fork that project and translate the app into Swedish. We could do it ourselves, but the web interface works very well with a smartphone browser. People can even use their mobile browser to file a report, because the web application can use the phone's GPS to locate its position. So, you could say it actually works like an app."

"FFKP decided early on that we wouldn't deal with the app, because we wanted to get the main (web) system up and running. That also contains the back-end functions that the app would talk to. But we leave it for someone else who sees the need to create an app and integrate it with the central system."

Open311 standard

"That's another good thing about the original FixMyStreet software that we forked," Fröberg continues, "It supports [Open311](#), an American open standard and API [[Application Programming Interface](#)] for citizens to report non-emergency issues."

"The fact that our system supports that standard has already led to [one commercial vendor](#) (in Swedish) of a reporting system that is already in use by quite a lot of Swedish municipalities, to support the Open311 API and integrate 'Fixa min gata' with their solution. Actually, we asked them to do it and they liked the idea. We have already configured our system to use this interface for these municipalities, so that we do not send e-mail messages but instead deliver incoming reports directly into their reporting systems. That way, municipalities using this commercial solution do not see any difference between whether a citizen filed a report via their own website or using 'Fixa min gata'. From their point of view it's fully transparent. And if they close an issue in their back-end system, for example saying 'We have fixed this hole in the street', this commercial system even reports back to 'Fixa min gata' through the same API, so it is automatically closed on our website as well."

Efficiency

Obviously, this setup is far more efficient than the traditional way of reporting problems. Previously, people had to send private e-mail messages, pick up the phone, or even walk into the city hall to make an oral complaint. "A small city can publish a map interface on its website and ask its citizens to use it," says Fröberg. "But not everybody will know about that system. So whatever comes in, in whichever way, in the end a civil servant will have to enter it into the system manually. The tight integration between our 'Fixa min gata' system and this commercial solution eliminates that extra work."

"Interestingly, it even works both ways. If a municipality has this commercial package, our system goes in there through the API and asks the service what the categories and their codes are. For those municipalities, 'Fixa min gata' will automatically use this information to populate the list of categories available for selection when filing a complaint. So, the report looks exactly the same, whether it comes from us or from the primary interface."

"We hope that more vendors will integrate their systems with 'Fixa min gata'. Hopefully, competitors will feel that this company now offers a feature that they do not, and will also support Open311 integration in their future products. It's an open standard and very easy to implement, and we need it to communicate with the back-offices of the municipalities."

Simple and inexpensive

According to Fröberg, the existence the UK version of FixMyStreet made it simple and inexpensive for FFKP to implement a Swedish version. "We did a legal investigation, to make sure we were compliant with all the laws. That took twenty hours, including getting some permits and licenses needed to spread geographic information. In our country, if you use a map, add some geographic data, and then publish it freely, the Swedish mapping authority should give you permission. We did not have to pay a fee, but we needed their clearance."

"We also had to investigate the laws regulating the collection and use of personal information, from a privacy perspective, because we are encouraging citizens to give their names and e-mail addresses, which will be sent to the municipality. So we have to inform everyone who files a report that they should be aware that this information will be stored -- securely -- and that it will be forwarded to the municipality, in order for them to know who sent the report and how to contact the sender."

Geo-data and translation

"Another thing that took us some time was to get hold of all the administrative borders," Fröberg continues, "all the geographic data and the regions that identify a municipality. If someone clicks on a map, we have to know what city that point is in."

This actually relates to a political issue in Sweden: most geographic data is not freely available. Instead, it is regulated through copyright and license fees administered by a [public agency](#) called [Lantmäteriet](#) (in Swedish). The odd thing is that municipalities are responsible for providing geo-data on the one hand, but on the other hand they sometimes have to buy back their own data.

"So we extracted information from the [OpenStreetMap project](#), Fröberg says. "Luckily, they had already done all the gathering of this data, so we only had to translate it into another geo-data format, using a script that we also found on the internet. So that was pretty straightforward. Finally, it took us one day to import this map into the 'Fixa min gata' service."

The translation of the software into Swedish took a little more effort. "We spent about forty hours translating. We used [Transifex](#), an online platform for collaborative ([crowd-sourced](#)) translations. They are made in a standard way [[gettext](#)]. So we created a sub-project from the English translation and added a new entry for Sweden. And then you can translate all the strings using the web interface, or you can download it all onto your computer and upload it again when you're done."

Very inexpensive

All in all, this has proven to be a very inexpensive way for a country to create a new service. "It was not a lot of work," Fröberg admits, "but of course we had to do a lot of testing, to make sure that everything worked fine before we could make it available as a service to the citizens. To get everything in place and to make us feel comfortable about its quality actually took quite some effort. For example, there were some aspects of the UK system that could not be transformed to the Swedish situation. There are some things we do differently over here, for example who is responsible for what. So we had to spend about another forty hours fiddling with technical issues, including the testing and fine tuning."

According to Fröberg, the total cost is estimated at 35,000 euros, divided between these areas:

- translations;
- technical setup and adaptations;
- writing documentation;
- meetings, traveling, and interviews with municipalities;
- map data (importing administrative boundaries into the map lookup service);
- legal investigation, permits, and legal texts.

Shared service center

When the 'Fixa min gata' service is complete it will be transferred from the specialists at FFKP to Sambruk, the national Swedish organisation for e-government services. "We at FFKP are the ones who make it work," Fröberg explains. "We find the source code, we fork it, we start the dialogue with the mother project, we translate the software, we do the legal investigations, and we get all the permits. Now that all this work is done, and we feel that by June it will be stable enough, we will transfer the ownership, the maintenance and the responsibility for the system to Sambruk. This non-profit organisation consists of about 110 out of the 290 municipalities we have in Sweden. Their purpose is to share and cooperate on technology that is basically the same in every municipality. They make software products and platforms available to their members, and take care of the operational part, so they prevent municipalities from reinventing the wheel. They will also run the 'Fixa min gata' service for their members."

Whether FFKP will be involved in the further development of 'Fixa min gata' remains to be seen. "It is up to Sambruk, but they probably will need help in some areas and we could be one of those to help them with certain aspects. But this is a very open project, so anybody could be asked, or they can issue an open call for tenders. That is why it's so important from a municipality perspective to promote open source: they no longer depend on a single vendor who has all the knowledge. Everything is open to competition."

Co-ownership

According to Fröberg, Sambruk is currently working on a form of co-ownership. "There will be a consortium or another entity that will own the 'Fixa min gata' platform. It would require some membership fees for maintenance and further development. They are working on the terms for a business model that supports future development and feature requests, to make sure this project survives in the long term as well."

"We at FFKP now have until the end of June to get the last details in order, to get all the e-mail addresses right and to find out how to integrate with the systems at the municipalities. After that, the system will be frozen in a final release. That is the product that the municipalities will get. And then this project is complete for us. We'll see whether we will be contracted again in the future. It

could be us; it could be anybody; it's up for grabs."

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Results

Success factors:

- Free and open source mother project (we did not ask permission to fork and start working);
- We had a good dialogue with Sambruk and some initially interested municipalities to give rapid feedback;
- Initial municipalities (in particular Alingsås) promoted the service to their citizens;
- Being open to requests to change e-mail recipients etc. within the entire start-up phase, until June;
- The code was designed to be localised, e.g. there was a platform for translating in place;
- GitHub makes it easy to create and maintain your own fork of the mother project;
- The use of an open standard and open API for integration with other systems (Open311) made it inexpensive and easy to integrate with 'Fixa min gata';
- The fact that one vendor agreed to integrate via Open311 even before the official launch will hopefully encourage other vendors to use this open standard;
- Choice of open map data: OpenStreetMap (no license fee, free to re-use, attribution as the only requirement);
- Keeping the project open so that it encourages competition when maintainers procure technical services in the future;
- Some municipalities do not have any system for filing reports and feedback, so this a value-adding service for them in their dealings with citizens;
- Current design works fairly well in mobile browsers, and there is no urgent need for a dedicated app.

Stumbling blocks:

- Map data is very unfree in Sweden: there are strict copyright claims, fees are payable, and users have limited right to share and publish map data to third parties (solution: use OpenStreetMap);
- Many municipalities in Sweden (290), with a strong tradition of independence, results in many different existing processes and back-end systems for dealing with reports;
- Some areas are not completely mapped in OpenStreetMap (solution: encourage people to contribute to OpenStreetMap); on the other hand, in some areas OpenStreetMap is actually more up to date and detailed than, for example, Google Maps;
- Some municipalities have paid a lot for commercial systems for filing reports and tracking issues; they might feel that this service competes with the one they have bought, and that this produces extra work for them (counter-argument: they are required by law to act on received emails anyway);
- Postcode geo-data is not free in Sweden (Postcode are used as a simple way to center the map near "your street" as an alternative to entering "Street name, City"). Partial solution: use free postcode center coordinates, though these are incomplete.

Challenges:

- Balance between freedom to make independent decisions and producing a service that is acceptable to the municipalities. We want it to be good for users, but we don't want it to be inconvenient for the municipal officials;
- How to promote the service and spread awareness among citizens in all 290 municipalities?
- Could we free up Public Sector Information (PSI) map data under a license compatible with that of OpenStreetMap and contribute data to OpenStreetMap?
- Could we free up PSI map data with postcode center coordinates, for use in services that include the need to center a map on a known location?

Who did what?

- Sambruk: owned the project;
- FFKP: technical development, pre-study, translations, etc.;
- Morus konsult AB: legal investigation (geographical permits, personal information protection law, etc.).

Results:

Reports have been filed in 35 municipalities (out of 290) since the launch on 10 April 2014. The impact depends very much on the extend to which the service is promoted by the municipality.

Reports by status:

- 2 closed;
- 78 confirmed;
- 38 fixed;
- 2 hidden;
- 6 unconfirmed.

Feedback:

Most feedback has been positive. Most questions from municipalities concern integration with existing back-end systems. Feedback from users has offered constructive ideas for changes.

The system has only been live since 10 April. It has not been as aggressively promoted as in, for example, Norway, where it was advertised in almost every local media outlet before launch.

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The future of Kivos

Talking about the future of Kivos, Westerlund compares the organisation to a speedboat. "We want to be flexible and be able to react quickly to new issues. The first question we dealt with was about interoperability, OpenOffice and office documents. Then came the issue of Jukebox (see sidebar): a local software company that wanted to sell a solution we were only interested in if they would make it open source. In this case, all our municipalities had the same problem: we wanted to offer certain e-government services but did not have any good platforms. Some other municipalities in Sweden were using software packages that had a different approach. Integration with our systems, however, would have been very expensive. In the municipality of Alingsås, for example, we have over 100 systems. There was a popular solution from this one software company making very simple e-services. It looked good to the citizens and it sent e-mail messages from the back-end. That way, we could deliver our services quite soon without spending a lot of money, and deal with the integration question later, because that will take some time."

Westerlund is not worried about the inefficiencies of all these e-mail messages being sent back and forth between their systems. "On the one hand, we are just buying ourselves some time. On the other hand, hopefully the market will be more mature later. Jukebox is based on the open source integration framework [Mule](#). Starting very simple, integrating forces us to learn a lot more about the systems we are using or buying, about our own back door, so to say. It's a huge problem that we do not have enough knowledge about them, that we do not know how to integrate them."

"The problem is that Kivos is a very small organisation with few resources. We have a board with five members, but in reality we can spend only 5-10% of our time on this. In the projects we run we can invest the resources of our employees, but as an organisation we do not have any employees or a lot of money to spend."

The joint platform that SKL is currently building should make life a lot easier in that regard. Since all e-government services are being developed under a single umbrella, they should be interoperable. "We really hope so," says Westerlund. "Many municipalities, including Kivos, are demanding that SKL takes a leading role, because they have the authority. A couple of weeks ago someone at SKL told me that open source is fundamental to the function of his organisation, so they do recognise and believe in it." This was recently confirmed in the latest SKL action plan '[Handlingsplan för E-samhället 2013-15](#)', which says that: "to reduce dependence on proprietary platforms and solutions, public sector digital services to a greater extent should be based on open standards and open source."

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Jukebox

Jukebox is a case management system for municipalities. It consists of five levels:

1. Citizens can get information on the available services and their meaning without logging in. In the latest version, released in April, cases that do not require a log-in can be registered as well.
2. In the 'My Account' section, citizens can register their cases, follow them, and communicate with the municipality about them.
3. A special Register interface can be used by municipalities that have not linked Jukebox to their business systems. Administrators use it to communicate with citizens.
4. The E-service Builder interface is a simple tool to build the forms that people fill out. The tool requires no technical expertise.
5. [Mule](#) is used as the integration and process engine. It allows for easy integration of Jukebox with existing business systems. That way, information entered by the citizens is automatically registered into the back-office where the staff of the municipality handles the case.

Jukebox is a [Java-based](#) open source application that can be installed on [Linux](#), Windows or any other operating system. Text and image processing can be integrated with the user's [Content Management System \(CMS\)](#).

The software is [hosted](#) on [SourceForge](#) and jointly developed through collaboration between the member municipalities. These are grouped into various constellations, providing funding for specific functionalities. Although there is no official license cost attached to the use of Jukebox, participants pay an annual fee that is used directly to further develop the code.

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This article is written by [Adrian Offerman](#) for the [Joinup project](#) of the European Commission.