Working together towards open data business

Lessons learned from cooperation between cities and businesses

6Aika

The aim of the 6Aika Open Data and Interfaces Spearhead Project is to bring the opening of data as part of the cities' normal operations and to help the cities facilitate the creation of data-based services and business.

Content

Towards better services

A shopping list that provides you with an optimised route through the hypermarket. An app that measures your personal energy consumption by the second and displays it in real-time. A list of the best-selling artists at each time of year. A hitchhiking service similar to Uber, which involves people picking up passengers traveling in the same direction free of charge.

The above are just some examples of the types of new applications and services that companies and developers can build based on data. The sky's the limit when it comes to the innovative ideas, concepts and services that can be built upon open data and APIs.

Helsinki, Espoo, Vantaa, Tampere, Turku and Oulu have rolled up their sleeves and started to open up their data at a rapidly increasing pace. At the same time they are also building APIs that allow companies and developers to utilise said data in new ways. However, companies and developers are not interested in just any kind of data. In order for data to be effectively utilised in business operations, it must be opened up and made available in a sufficiently unified manner.

There are already plenty of ways in which open data is being utilised: consulting companies, free products funded through advertising, paid applications... Even so, the best open data business models are yet to be discovered.

In Finland, business operations based on open data have so far remained fairly small-scale. Perhaps the most well-known Finnish application based on open data is BlindSquare: a navigation app for the visually impaired that utilises GPS and open map data. Another good example is Vainu, a service that helps companies find the most potential partners by enriching public company data and open data.

While Finland is undoubtedly a pioneer when it comes to opening up data, only a small fraction of the data that Finnish cities produce has so far been made available for utilisation. Opening up such vast amounts of data will eventually give rise to completely new business opportunities and perhaps even entirely new industries.

In order to promote businesses based on open data, Finnish cities are engaging in widespread cooperation and collaboration with various industries. This guide collects the experiences of the six largest cities in Finland over the last four years. What kind of measures have been implemented, what lessons have been learned? How could the cities further develop their cooperation with businesses?

The fact is that there is no single definitive path to success. What is needed instead are various ways of supporting, assisting and inspiring companies to utilise open data in their business operations. The hope is that these lessons will be of use to others as well.

Promoting the utilisation of open data benefits everyone. Commercial services can operate alongside public ones, diversifying the range of services available. On the other hand, cooperation between the public and private sectors also helps determine what kind of data should be opened up and how. In the end, the creation of new businesses based on open data serves to make cities more dynamic and attractive.

The best open data business models are yet to be discovered.

In order for data to be effectively utilised, it must be made available in a sufficiently unified manner.

There are many ways to help companies utilise data.

Accelerating data-based business

Open data can and should be used for commercial purposes. In order to make doing so as easy as possible, the six largest cities in Finland, namely Helsinki, Espoo, Vantaa, Tampere, Turku and Oulu, are working together to open up data and harmonise APIs across the cities. As part of these efforts, the cities also provide companies with support, information and sparring for the commercial utilisation of open data. The goal is to enable the development of new business operations.

In 2014–2017, this work has been conducted under the 6Aika Open data and interfaces spearhead project. During the project, the six cities have established contacts with over a hundred Finnish companies and encouraged them participate in various activities. In addition to this, the cities have worked together with companies, entrepreneurs and software developers to design harmonised APIs and prioritise the types of data to be opened. The aim has been to make opening up data a natural part of the everyday operations of cities.

The project is part of the extensive Six City Strategy (6Aika), under which the six largest cities in Finland work together to develop better and smarter cities. From an international perspective, the strategy represents an entirely new and unique form of cooperation. The strategy is set to be implemented in 2014–2020. The Six City Strategy and its projects are funded by the European Regional Development Fund (ERDF), the 6Aika cities, other project developers and the Finnish Government. In addition to this, projects receive funding from the European Social Fund (ESF).

Utilising data increases its value

Data is not consumed when used. As such, the same data can be utilised by numerous parties to develop new business, applications and services. Open data and APIs can also help cities develop their own internal processes and achieve cost savings.

"Open APIs allow data to be utilised regardless of the technologies or code ownership models that their back-end systems are based on. I hope that in the future the parties utilising APIs will also participate in generating ideas and developing them. After all, open data is just raw material for the services that utilise it. In order to create added value for citizens and companies, it needs to be refined into new end-user services."

— **Tapio Ahomäki, Trimble Solutions Oy**

What use is open data to cities?

In the public sector, the need for digital services is increasing while at the same time budgets are decreasing. As a result, cities are increasingly turning to various IT solutions for their management and development needs.

In most cases, there is no need for cities to develop all the software and services that they use internally. It is far more effective to act as an enabler and openly offer data to be utilised by others. Allowing the development of applications and services based on open data ultimately results in better services for residents. What's more, it can also lead to surprising innovations, ones that cities couldn't even have imagined, let alone commissioned.

Opening up data also makes the public sector more efficient. When the data produced by cities is easily accessible through open APIs, it can be utilised not just by the organisations producing it, but by other parties as well. Open APIs also help prevent situations in which the data contained in a system can only be accessed by ordering it separately from the system provider. Furthermore, open data helps keep track of what residents' tax funds are being used for. For city administration, open data provides business intelligence, helping form an overview of how the city is currently developing.

Opening up and sharing data also directly benefits various actors operating in cities, such as information services and business services. When the utilisation of data increases, its quality also improves. For companies providing consultation services, it serves as ideal raw material and trial material.

Open data is

» public
» machine-readable
» free of charge

Five reasons to open up data

Open data…

» …makes it easier for companies to develop new products and services for cities.
» …enables the development of innovations based on data in collaboration with different actors.
» …provides cost-savings in the public sector by providing access to data across sector boundaries.
» …supports better decision-making and business intelligence.
» …promotes transparent administration and democracy.

Source: *www.hri.fi*

"We utilise the Linked events API of Helsinki, Espoo and Turku. And provide an event calendar for Vantaa.. It has been great to get to develop new services for residents and to utilise and expand existing data. We'd like for cities to be even bolder in launching quick trials and experiments. The best results are created through bold experimentation and learning by doing."

— **Roope Suomalainen, Eventz Today**

"As a municipal systems provider, we serve approximately 60 Finnish cities and municipalities, with whom we've been collaborating for decades in the field of software development. Cities participate in development in many ways, from drawing up specifications to testing results. Having a unified process for all cities allows resources to be invested in product development instead of into developing dedicated solutions for each city."

— **Tapio Ahomäki, Trimble Solutions Oy**

Why use open data?

Open data serves as digital raw material, which is free of charge for companies. It is widely available from a variety of different sources. Open data is easy to utilise in digital applications and services, as it is published in a machine-readable format. It can also be combined with other types of data.

Data can, of course, be used for more than just applications or services. It can also serve as background information for placement decisions, marketplace analyses, quotation requests or data production processes, for example.

A report by Capgemini Consulting (© European Union 2015) predicted that in 2016 the European open data market would be worth approximately EUR 200 billion. According to the report, by 2020 there will be nearly 100,000 new jobs in Europe revolving around open data.

In Finland, the collaboration between cities creates unique opportunities for data-based business. The resulting unified data openings and harmonised, open APIs serve to expand the potential uses of data. In addition to this, the APIs also make the data easier to use and increase its mobility. When several cities provide APIs based on the same specifications, an application or service created for one city is easy to extend to other cities, expanding the market and making it more attractive in the process.

Open data and APIs

Open data is data that can be freely used by anyone – even for commercial purposes. Open data is licensed under terms that allow it to be reused. It is easily accessible and machine-readable, allowing it to be utilised in digital services, for example.

An open application programming interface (API) provides access to data in a format that applications and websites can understand. With the help of APIs, data such as public transport timetable information can be easily converted into a format that can be parsed by a mobile phone navigation app, for example.

Open data in business

Visualisations

Visualisation allows raw data to be converted into a more understandable form. For example, an organisation's financial situation is much easier to understand when the figures are presented in a clear graphical format.

Applications

Open data serves as the core content or provides added value in a multitude of applications. Notable and well-known examples include navigation, map, housing search, weather and event applications.

Marketing

Combining data from different sources makes targeting sales and marketing efforts and offering solutions that support them easier, regardless of whether your target audience consists of consumers or businesses.

Training and consulting

As the importance of data continues to grow, the demand for competent trainers and consultants will also increase. Open data can also be utilised as background material in consulting and in training materials.

Products and services

Many products and services can be enriched through the utilisation of open data. Connecting services more firmly to the world around us can help create better customer experiences. For example, open data can help cars avoid traffic congestion, guide them to vacant parking spaces and adjust driving speed according to traffic lights.

Research and development

Open data can serve as raw material for product development, support the identification of weak signals and enable co-creation between different parties

Data journalism

We are living amidst an overwhelming flood of information. Data journalism focuses on filtering, analysing and visualising vast amounts of data from different sources in order to create new information, perspectives, interesting news and articles.

Business intelligence

Open data boosts business intelligence across a wide range of industries; in agriculture, production management that utilises weather data helps time fertilisation rounds, pest control measures and harvests, while in cities, open data can help ease traffic congestion and reduce costs and emissions.

Data enrichment and distribution solutions

Open data has already led to the creation of new forms of business in Finland, such as API monitoring and data enrichment, some if which have also been successfully imported.

Background material

Work can be conducted faster and more precisely when basic information is readily accessible. For example, the opening up of map data has facilitated the preparation of tenders.
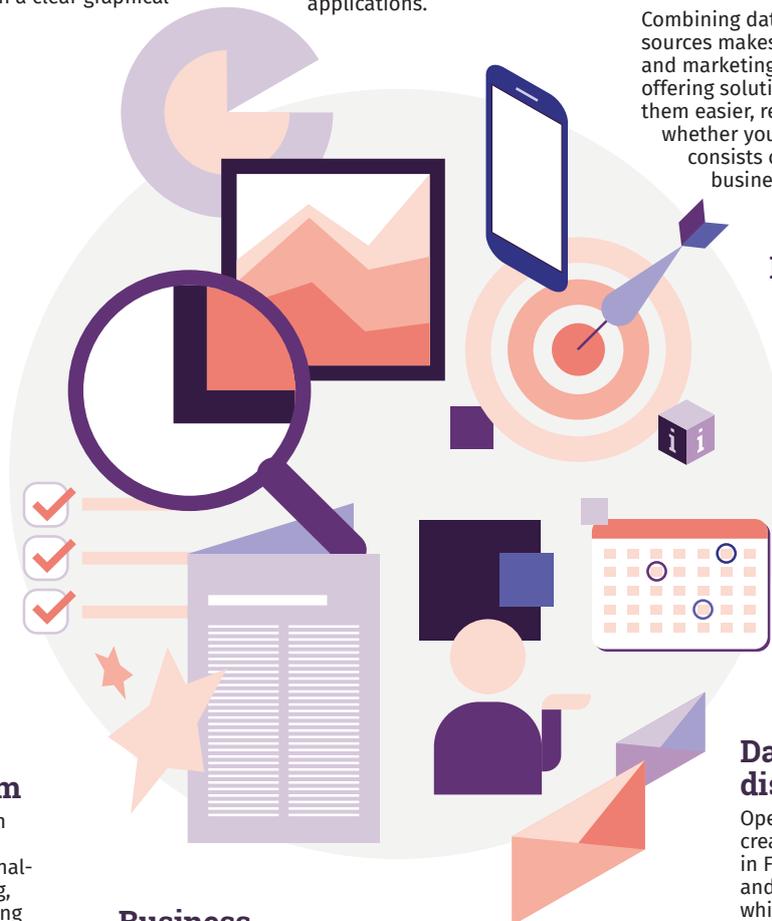
Making use of open data

Helsinki, Espoo, Vantaa, Tampere, Turku and Oulu are engaging in extensive collaboration to accelerate the creation of data-based businesses. One of the main goals of this collaboration is to promote companies' utilisation of open data.

In order for open data to be used in business operations, it must be discoverable and easy to utilise. However, measures to promote the use of the data are no less important. The fact is that open data is still a new concept for many companies, as a result of which it is vitally important for cities to provide sparring, assistance and guidance. In addition to providing examples and ideas, other measures by which cities can offer concrete support to companies include practical training, technical support, experimental procurements and networking.

In many cases, the best way to get started is to go over the basics: what is open data, what kind of open data is available, where to find it, how it can be utilised and what kind of added value it can provide. On the other hand, companies that are already familiar with open data are often more interested in hearing ideas and examples from other actors, such as what kind of applications have been built based on open data and what kind of business activities have already been developed. Of course, there are also many companies that are already actively utilising open data. However, even these companies may wish to engage in discussions from a business perspective.

Overall, the 6Aika cities have been very active in organising meetings with companies in order to discuss open data and provide sparring assistance, for example the persons who have contributed the most to building this type of business collaboration and networks are the 6Aika cities' dedicated open data community managers. That said, business collaboration is an integral part of all work related to opening up data and APIs. The cities have, for example, conducted surveys to determine companies' data needs and provided companies with opportunities to actively influence API solutions.

One of the most important ways of promoting the commercial use of open data has been the organisation of various events, training courses, coaching and workshops. These events have attracted many companies interested in APIs, the utilisation of geographic data and data visualisation, for example. The workshops have also proven to be a good way to bring people together to discuss ways of utilising open data and new business models. In addition to companies, the 6Aika cities have also collaborated with educational institutions, generating ideas and planning and implementing courses. New ideas, applications and concepts have also been sought through the Data-Business Challenge, an open data idea and solution competition.

In addition to events, training courses and meetings, other channels that the 6Aika cities have found effective for sharing information and discussing open data, APIs, concrete examples and relevant news include the Databusiness.fi website, social media, blogs, paid visibility and a dedicated newsletter. Additionally, the 6Aika cities have also published a series of brochures that detail the lessons they have learned over the years and provide instructions and recommendations so that other cities and actors can also benefit from their experiences.

Promoting the commercial utilisation of data

The 6Aika cities have promoted the commercial utilisation of data through various events, training courses, coaching and workshops. In addition to organising events themselves, the cities have also actively participated in events organised by others.

> Events, training courses, sparring, examples, technical support and networking are all good ways of providing concrete support for companies.

Community managers keep abreast of companies' needs

The 6Aika cities' dedicated Community Managers are tasked with accelerating business operations built upon open data. To this end they survey companies that could potentially benefit from open data, provide advice and sparring services, share information about open data and the ways it can be utilised, build networks and conduct networking. Meeting and getting to know companies are crucial parts of this work: in order to consider and promote the utilisation of open data, the community manager must first get to know companies' business ideas, which they can also help refine further. In addition to this, a large part of the community managers' work has consisted of organising and participating in various events, training courses and workshops. The community managers have also engaged in cooperation with educational institutions and communities in order to ensure the participation of future developers of digital services as well.

The DataBusiness Challenge and hackathons

Databusiness Challenge 2016

The Databusiness Challenge was major competition organised by the 6Aika cities for the purpose of seeking applications and ideas for improving the everyday lives, leisure and participation of residents. At the same time, the competition promoted the use of data opened up by the six cities. The competition received a total of 42 entries, and prizes were awarded in five different categories. The Databusiness Challenge was the natural continuation of the Open Finland Challenge (2015) and Apps4Finland (2009–2014).

Hackathons

In addition to their own Open Data Makes You Move competition, the cities have served as partners in a number of hackathons organised by other organisations, including Ultrahack and companies' own hackathons.

Events for companies

Utilising municipalities' open data seminar

This seminar brought together over a hundred participants, including municipal agencies interested in the possibilities of open data and companies operating in the industry. The seminar showcased possibilities, experiences and best practices related to opening up data. After this, companies presented their own open data products and ideas to municipal representatives.

Databusiness tour 2017

The Databusiness tour showcased cities' open data and APIs to companies and gave a stage to companies that are already making use of the data opened up by cities. The tour's events were themed based on the strengths of each city, with Tampere focusing on traffic, Turku on 3D models and APIs, Oulu on open data in an urban environment and Helsinki on the potential of open data in the tourism industry.

Making Your Data our Business

The Making your data our business event presented locally notable instances of opening up data and also included company presentations and visualisations. In addition to these, discussions were held with organisations opening up data on the challenges associated with implementing and utilising open data.

Business day at the Iso Omena Service Centre

Open to everyone, this event included introductory presentations, briefings and workshops. The event provided participants with the opportunity to collaborate and network with other companies and entrepreneurs interested in open data.

Data-driven business – Learning by doing

This event showcased the open data resources of Tampere and Finland and also included a company presentation that explored the challenges and solutions of data-driven business through cases studies. In addition, suggestions were collected from companies on what kind of data should be opened up next. The event also included a joint discussion on the revenue models of data-driven business, and testing of the Business Model Canvas template in planning data business.

Open networking events

The 6Aika cities have also sought to activate open data networks by inviting their representatives to open networking events. These events have explored different themes related to open data, showcasing the types of data provided by cities and providing companies with the opportunity to talk about their own open data operations.

Helsinki Loves Developers

This monthly developer meeting, first organised in 2012, brings together representatives from organisations providing open data in the Helsinki metropolitan area, as well as residents and companies interested in open data.

Open Data Afterwork

A monthly local open data networking event, focusing on discussion and the exchange of experiences. The discussion is usually steered, though not restricted, by a short opening presentation.

Training courses

Data analytics course

A three-day introduction to data analytics that provided companies with information and means of utilising and analysing big data and open data as part of their own business or in support of it. The course was free of charge and offered primarily to management and data analysts.

QGIS course

A training course focusing on open geographic information and its potential. In addition to this, the course introduced participants to the open source geographic information system QGIS. Separate courses were organised for city employees and companies.

Open data in decision-making

This course provided companies with advice on how to utilise open data when choosing a company's location, for example.

How well do you know your customer base?

This course served as an introduction for companies on how to make the most of their customer information with the help of open data.

Workshops

Beef up your business with open data

These events explored the possibilities of open data in accelerating business. The workshops focused on the participants' own business operations and explored ways of driving the use of open data in participating companies.

Turning data into business with the Business Model Canvas

This facilitated workshop introduced participants to the Business Model Canvas and tasked participants with developing a business idea based on open data with the help of the Canvas model.

API workshops

The 6Aika cities invited companies to participate in the design of the APIs that they set out to harmonise right from the get-go. These workshops provided companies with the opportunity to influence the specifications and further development of the APIs.

Consulting

Open data expert consultation

A service that involved a data expert assisting a company in implementing open data and available APIs as well as with related technical issues. The consultation was free of charge for the company.

Business consulting

Holding meetings with companies, providing consultations and sparring have been major parts of the work of the 6Aika community managers. Companies have been provided with advice on both open data and APIs.

Experiments

Databusiness Challenge city experiments

The 6Aika cities procured small projects from companies that involved testing products developed or improved with the help of open data in real operating environments.

Cooperation with educational institutions

Smart City Dreams Spring Party

An event for students and companies that explored the significance of co-creation, crowdsourcing, innovation and open data in the production of public services. The event included a poster session on smart city concepts developed by master's degree students of Laurea University of Applied Sciences and showcased the ideas of open data companies.

Open data Laurea

In spring 2017, master's degree students from Laurea University of Applied Sciences and the City of Vantaa worked together to develop 24 service innovations that make use of the open data produced by the city. Some of the students continued to refine their ideas in their master's theses, while two of the ideas led to the establishment of pre-startup teams.

Networks

Business panel

This network of over 200 companies brought together companies and experts interested in data-based business and open data. The companies got to influence which APIs the 6Aika cities would start to harmonise first and what kind of new APIs they would create. At the same time, the network helped the cities survey the needs of companies in regard to what kind of data should be opened up. The companies participating in the panel also received regular information on the results of the project.

Business network events

Events organised by local entrepreneur organisations and chambers of commerce proved to be a great way to reach new companies. In many cases a presentation on open data complemented the event programme nicely, providing interesting new perspectives.

Communications

Databusiness.fi

A website that highlights business based on open data, provides ideas on how to apply open data and provides guidance on where to find open data. The website includes a large number of examples of how companies have utilised open data.

Open data showcases

The Databusiness.fi website provides over a hundred examples of companies that are already utilising open data and APIs. The examples were collected as part of a showcase survey, which was also used to survey open data business models. The results were published in a dedicated brochure titled *Open data business – 100 showcases*.

Paid visibility

In order to reach as many companies as possible, the cities have also paid for visibility in publications targeted at companies. These have included guest articles in Kauppalehti and Tivi newsletters as well as articles in printed supplements to Kauppalehti and Talouselämä newspapers.

Guides

Harmonised Smart City APIs

This brochure provides concrete descriptions of the open APIs that the cities have created and harmonised as well as information on how open APIs benefit cities, companies and software developers. Furthermore, the brochure provides instructions on how to develop and implement APIs.

Read the brochure in PDF format: *https://www.databusiness.fi/content/uploads/2017/10/CookBook_web_v1.1-1.pdf*

The 6Aika cities' open API recommendations

The recommendations describe the significance of APIs and the objectives related to them from the perspective of cities. The recommendations are intended to serve as a general policy to be applied alongside cities' strategic policies, principles and guidelines.

Read the brochure in PDF format: *https://www.databusiness.fi/content/uploads/2017/10/APIrecommendations_final_web.pdf*

The 6Aika cities' API toolkit

What should you take into consideration when creating an open API? A guide for city data administration managers.

Read the brochure in PDF format: *www.databusiness.fi/content/uploads/2017/10/20171002_KuutoskaupunkienAPI_web.pdf*

Open data business – 100 showcases

A survey that provides over a hundred examples of companies that are already utilising open data and APIs. In addition to this, the publication examines open data business models. The showcases can also be found on the Databusiness.fi website.

Download in PDF format (In Finnish): *http://www.databusiness.fi/content/uploads/2017/10/Liiketoimintaa_avoimesta_datasta_2017.pdf*

"One of the most rewarding aspects of this cooperation is the fact that we have been heard. The city administration has been active and things are happening, albeit slowly. For smaller companies, finding the right cooperation parties and decision-makers in different units can be very difficult, and progress can be slow. Having a single source of assistance and information has helped address these issues. In my experience, increased awareness and visibility of the Databusiness.fi website, have been beneficial for our company."

— **Karri Kylliö, Sport Venue Oy**

Taking your message to companies

Although open data is available to everyone, few companies are aware of its significance or potential. In general, companies are largely unaware of open data and may have difficulties understanding how it relates to their own business operations. On the other hand, companies' means of utilising open data or APIs may be limited, and related operating models may not exist or may be unknown.

In many cases, the best way to start promoting open data to companies is to first go over the basics: what is open data, what kind of open data exists and where can it be found.

A good way to help companies understand open data is to provide examples of how other cities have started experimenting and what kind of results these experiments have yielded.

In some cases, a more direct approach may be more effective: have you tried this type of API yet? Adopting a sales-oriented attitude goes a long way in getting companies on board.

A good way to conduct field work is to join existing communities and seek out events that are worth participating in. The new contacts established this way are often the key to success. When participating in events, be sure to reserve an adequate amount of time for networking and discussions.

> Many companies are still unfamiliar with open data. Providing good examples is the way forward.

> Know your companies. If you don't, get to know them.

A city should know its companies as well as the companies know their customers. However, the fact is that there are often few people in city administrations who are familiar with the business world. Even so, companies are also city residents and good taxpayers whose service needs must be taken into consideration.

Companies and public administration have begun to increasingly solve issues together. Cities have understood that companies possess the best knowledge when it comes to business – the city's role is to provide the development environment and the data for it. As a result, cities have become increasingly attractive environments for developing new ideas.

On the other hand, companies need to calculate the price of every meeting. As such, trial and pilot programmes are good ways of inspiring companies to experiment. The fact is that there are plenty of partners available for companies considering their own data-based ideas. But is there a strategy or a revenue model built around it? Seeking consultation to help address these types of issues has allowed some start-ups to go quite far, from raising funds to winnings awards.

Companies are interested in the needs of cities as well

Companies are also interested in the needs of the public sector. Many of them are happy to hear what kind of needs or issues they could develop solutions for. However, cities have a lot to learn about how to raise issues that need solving. Creating a basis for natural dialogue with companies requires patient cooperation.

Don't dawdle; take the leap

Companies should be met with face to face, e-mail correspondence by itself is not enough. It is far easier to talk to a person at an event than to contact them afterwards. It is also easier for companies to engage with existing concepts. For example, the *Open data expert consultation* service is a well-thought-out service package that has been offered to companies free of charge.

"We are building a system for sports and exercise venues in Tampere and Vantaa, which makes use of both open and proprietary data. With Tampere, we have successfully opened up different parties' APIs. We've engaged in discussions and kept each other informed about new developments. It is very useful for a company to get to see the city's strategy for certain activities, instead of having to just guess which way things are going."
— **Karri Kylliö, Sport Venue Oy**

10+4 lessons learned about business cooperation

Lesson number 1:

Secure your home base. Patience and keeping an eye on the big picture are extremely important. It is crucial for city representatives to be aware of the main objective and vision, and to steer efforts toward them – to keep hold of the reins, so to speak. City processes can be cumbersome. Because of this it may often be up to individual people to get the ball rolling.

Lesson number 2:

Engage in dialogue. Create a business network, utilising the companies that you have had dealings with in the past. Come up with and market opportunities. Interaction is crucial for determining what kind of markets companies are seeking, i.e. what their business challenges are. The information shared by companies helps cities understand business cases and business logic.

Lesson number 3:

Organise events in cooperation with others. It may be difficult to attract an audience for events focusing exclusively on open data. An easier solution is to partner with companies organising events in which open data could be one theme among other relevant topics. These types of events can also include company-organised hackathons and other developer events.

Lesson number 4:

Seek out companies. The right companies can often be found among the users of other development services. SMEs operating in the ICT industry don't need to be told about open data since they are already well aware of it. Such companies also often have the necessary physical and mental resources for development. The best way to find these companies is through company listings, interest groups and networks. Research and development laboratories can also yield leads.

Lesson number 5:

Provide examples. The concept of open data may be difficult to grasp based on theory alone. As such, your potential cooperation partners also need practical information about what kind of applications companies have developed. Spell it out for them. It's a good idea to start with the best showcases from a business perspective, as these are easy for companies to identify with: Oh, that's the way you do it!

Lesson number 6:

Understand companies and their business. Cities also need to have some business expertise of their own in order to understand and interpret companies' needs. If a company cannot find any potential in open data, the city can steer them to other events or offer them some other services.

Lesson number 7:

Incubate and nurture. Finding potential companies takes effort. A good way to find them is to talk about open data at various events and competitions. Such events can help you find new companies that you wouldn't have otherwise known how to attract. You can also discover developer teams through business incubators. Once an egg starts incubating, it's almost as valuable as a partnership already underway.

Lesson number 8:

Not all data is of interest to companies. Cities have many types of data to offer, but not all data has the same kind of business potential. Companies are particularly interested in material related to information technology, maps, geographical information, traffic and construction. Other important aspects include how frequently the data is updated and whether it is provided in real-time. In general, companies have been satisfied with the events organised, but they may also get frustrated if their needs are not met.

Lesson number 9:

Workshops and networks are the way forward. Organise free-form idea generating sessions and record the thoughts presented in them thoroughly. Investigate data needs using surveys targeting both city personnel and companies. Organise workshops between companies and the city or between different cities. At their best, such workshops can lead to new cooperation models and contacts who will keep things moving in their own areas of operation.

Lesson number 10:

Invest in data quality. Offering open data is an endurance sport. The data offered to companies must also be of good quality and it must be reliably accessible. Open data culture changes slowly. Even if you have the will, driving things forward takes time, patience and technology.

"*Our company analysed the open feedback submitted to the City of Turku. The most rewarding aspects of this collaboration have been the flexibility and the participation of different parties. The most difficult aspects have been scheduling and the fact that the data has been vague in some respects. We've been able to test and develop our own technology and tools. The collaboration with schools has been good.*"

— **Michael Lindholm, Analystica Oy**

Surprise number **1:**

Open data is still new to companies. In general, companies' awareness of open data is still rather low. For many companies, the idea that the public sector could help them do business is a novel one. As such, there is clear need to raise awareness of open data.

Surprise number **2:**

Development takes time. Companies' needs in regard to open data vary. ICT companies are familiar with the subject, but they can't start drawing up business plans for other companies. Finding the kind of data that a specific company needs can take time and effort. If a company has wishes that they would like cites to take into consideration, they may already be wanting to build business abroad, not just in Finland. However, in such cases development processes may also be slow, and it may take several years for efforts to bear fruit.

Surprise number **3:**

Reconciling needs and inspiring commitment takes time. Cities may not always be able to meet the business needs of companies. Companies, on the other hand, may not see the broader potential of the data being opened up. As such, it may be challenging to get companies to commit to actual product development and involve cities in it. As such, cities should invest in agile experimentation, pilot projects and inspiring commitment.

Surprise number **4:**

Discovering ideas takes effort. Companies may not be as ready to utilise open data as anticipated, and even if they are, they may lack ideas. If companies don't know what kind of data is open, they can't come up with any wishes either. Perhaps cities could also take a more active role in coming up with ideas on how to utilise open data?

"When APIs are still in the process of being created, receiving data may easily take a lot of time. On the other hand, I understand the need to draw up ground rules and develop the necessary technologies. For companies, however, it would be nice to at least have a preliminary schedule based on which things will potentially move forward."

— **Karri Kylliö, Sport Venue Oy**

Interviews:

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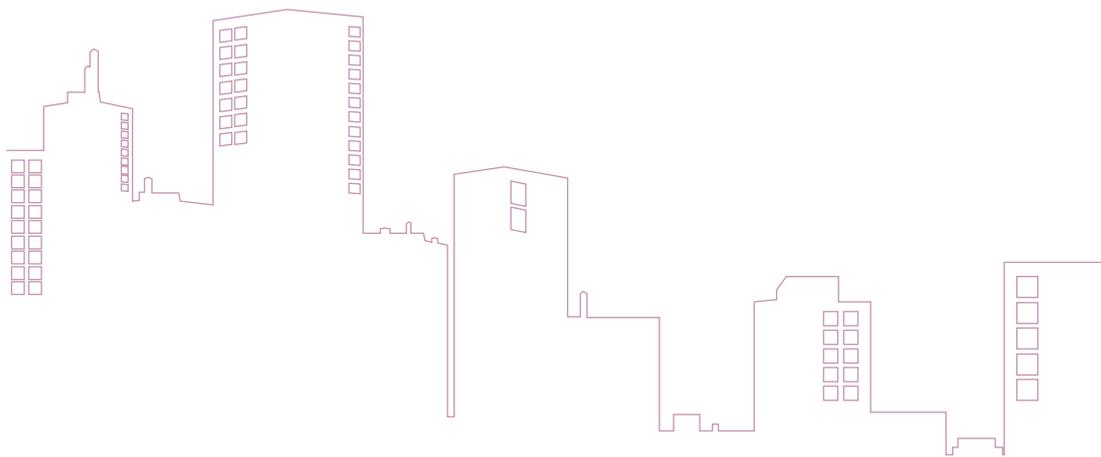
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