

# **Building Permits and Processes - One of the Most Advanced e-Services in Swedish E-Government**

**Patrik OTTOSON, Sweden**

**Key words:** e-service, digital cadastre, portal, building permit, public private partnership, business model

## **SUMMARY**

Building houses is a complicated matter. Now, the building process is a bit simpler and supported by composite e-services – a portal [mittbygge.se](http://mittbygge.se). For the private builder and even for professionals, the building process is hard to grasp, to follow, and to estimate by costs. Building permits can now be applied through an e-service. This service handles transactions from the citizen to the local authority by integrating the business process of different players. Some thirty citizens, who have recently been through the building process, were interviewed. From these interviews, the citizen needs, process, and perspectives were considered. As a result, we adapted language, services, and the structure of the portal to the needs of the citizens. The project was a public private partnership, as well. This colored the project from the beginning to the end and it was a big success. A business model was developed. This business model is the base for the company created within the project. Now, the company works in real operation and has customers. The involved government authorities have a co-operation agreement with the company, and the authorities own the brand of the portal ([mittbygge.se](http://mittbygge.se)).

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## **1. THE BUILDING PROCESS**

Building houses is a complicated matter, especially for individuals. The building process is hard to grasp, to follow, and to estimate by costs, even for professionals. The private builder has to be in contact with estate agents, local and government authorities, neighbors, architects, constructors, carpenters, plumbers, banks, insurance companies, inspectors etc. If the house is bought through a total contract of building, the processes are fewer. But in Sweden, the private builder is still responsible for everything.

Today, there exists no exchange of information between different players in the building process. This means that the private builder has to transfer information from each process and provide every player with this information. In a chain of communication, information is often lost or misunderstood. And the messenger is here a layman, mostly not familiar with the building process. Most individuals build one house in a lifetime. All together, the dream of a new house ends up in a nightmare and in an exceeded budget.

Local and government authorities and companies strive to increasing effectiveness and to lowering costs. The Internet bank was one of the first e-services in Sweden. More than fifty percent of the Swedish population uses it today. It is more popular among younger people (25-34 years – 80 %) than among elderly people (62-74 years – 20 %). The Swedish Tax Agency estimates that more than 60 % of the declarations will be completed on the Internet in 2008. Citizens or customers now perform much of the previous work, earlier executed by authorities or companies. The e-services may also include advanced support like computation and interaction with other databases in order to reduce errors and increase assistance. Today, the processing is quicker, less costly, and less incorrectly. This is a win-win situation for individuals, companies, and authorities.

## **2. PUBLIC PRIVATE PARTNERSHIP**

In order to help the private builder, two government authorities, four local authorities, two companies, and three universities decided to co-operate within a research project. The project was economically supported by the Swedish Governmental Agency for Innovation Systems. The project appointed to create a composite e-service for supporting the private builder through the building process. The e-service should be trusty and the same irrespectively of which part of Sweden the citizen live. It should not matter if a person built his summer cottage in the west coast or a permanent residence in the hometown. The service should be the same. In the design of the e-service, the customer needs and demands should be considered and prioritized. Therefore, it was also said that as many local and government authorities and companies as possible should jointly support the e-services.

A one-stop-shop was to be created as the place where the citizens should be supported in the building process. A cluster of organizations was meant to support this “shop”. Behind this only composite e-service and portal, there could be different suppliers of IT-components and issue tracking systems (workflow systems). One project goal was to build this e-service on standardized IT-components, like e-identification, “My pages”, e-formulary, and secure/standardized information exchange (SHS). Components from different government-certified IT-suppliers should be used. Another goal was to use existing information and transaction services. A maximum of two new e-services was to be developed within the project.

The project became a so-called public private partnership. This means that all players in the field of the building process were invited to the project (IT-specialists, banks, local and government authorities, estate agents etc.). Everyone that accepted the terms and the conditions of compensation were accepted as partner. This colored the project from the beginning to the end. It was a big success.

### **3. THE CITIZEN IN FOCUS**

As a starting point, the needs of the citizens were to be investigated and prioritized. Some thirty citizens, who have recently been through the building process, were interviewed. From these interviews, the needs, process, and perspectives were surveyed and considered. As a result, we adapted language, services, and the structure of the portal to the needs of the citizens. It is easy to construct something with an inside-out perspective. This has been the fact for most Swedish companies and authorities for hundreds of years. Just recently, Swedish authorities are trying to have a customer focus or an outside-in perspective.

Not surprisingly, some of the first ideas had to be rejected. The project thought that citizens should prioritize bank services, but they did not. Today, the citizens have well-established bank contacts, both through the Internet bank and by a personal bank official. The needs in a prioritized order were:

1. What can I do?
2. Grasp the process – estimate time and costs
3. Advices, considerations, exchange of experience
4. Apply for permissions
5. What happens in my neighborhood?
6. Find maps
7. Find construction drawings
8. Find house lots
9. Compare catalogue houses
10. Find craftsmen
11. Follow the process
12. Identify and find information about my estate

It appears from the interviews that the citizens were very self-focused and they are not thinking in terms of e-services (see especially point 1 and 5 above) – an important lesson. The order of the building process should pervade the portal and e-services to be built. It should be process oriented, from a citizen point of view. Unfortunately, full e-services corresponding to the needs in 1 and 5 were too extensive. But, from the needs of the citizens we started to build and to adapt the portal and e-services.

#### 4. BUSINESS MODELS

A business model describes the business logistics in an organization. It estimates which value an organization offers one or more target customers, how it should be performed and through which channels. The business model also explains how the value for products or services is created in relation to partners, suppliers, and own capabilities (Osterwalder, 2004). The goal is to create profitability and sustainable revenue, and to minimize costs. If one just considers Internet business models, there are nine of them (Rappa, 2008):

- **Manufacturer Model** is based on the power of the web to allow a manufacturer to reach buyers directly. This model gives efficiency, improved customer service, and a better understanding of customer needs.
- **Advertising Model** is an extension of advertising in traditional media. Here, a web site provides content and services mixed with advertising messages in the form of banner advertisements. This model works best when the traffic is large or specialized.
- **Brokerage Model** is based on market making. Brokers bring buyers and sellers together and facilitate business. Usually a broker charges a fee or commission.
- **Affiliate Model** provides purchase opportunities wherever people browse the Internet. It does this by offering financial incentives to affiliated partner sites, e.g. percentage of revenue, banner exchange, and pay-per-click. This model works fine on the web, which explains its popularity.
- **Community Model** is based on user faithfulness. Users invest in both time and emotion. Revenue can be based on the sale of ancillary products and services, voluntary contributions, contextual advertising or subscriptions. This model is well suited for the Internet.
- **Infomediary Model** is based on data about customers and their habits, as well as data of suppliers and producers. This information is valuable in raw or analyzed form, and can be used in marketing campaigns or in assisting buyers or sellers to understand a market.
- **Merchant Model** is based on retailing goods and services. Sales are based on list prices or through auctions.
- **Subscription Model** is based on periodically charging. It is common to combine free content with subscribed content, e.g. "member-only". Subscription and advertising models are often combined.
- **Utility Model** is based on metering usage. This is also called on-demand or a "pay as you go". Metered services are based on actual usage rates.

Very early, the strategy of the project was to establish a company. This company should run the services in a profession, business-to-customer-way. The value chain was analyzed (Porter, 1980). Normally, there are no limitations in the construction of a company's business model.

But in this case, it was a public portal and e-services where the company is a representative of several public bodies. The Swedish National Financial Management Authority was consulted, because they are the government's expert in performance and financial management. It was decided and stated in the project that:

- The portal should generate high traffic (frequently visited)
- The portal should have no advertising (it is not prohibited, but it does not align being impartial as an authority)
- Government authorities are not allowed to own companies (no mixed ownership)
- A consortium of local and government authorities handles strategic questions concerning the development of the portal (regulated in an agreement)
- No economical transactions between the consortium and the company should be performed
- The consortium owns the brand
- The IT-components used on the portal is based on a utility business model (“pay as you go”)

From these statements (which actually took a while to figure out) the business model was developed. The business model consists of two parts:

1. A **subscription model** is intended for targets customers – local authorities. These authorities can connect their issue tracking systems (workflow systems) to the e-services and combine general information with municipality information. This model may generate revenue up to 300-500 thousands euros. New services and broaden target groups (e.g. to companies and government authorities) may increase the revenue.
2. The **infomediary model** is intended for the target customers – professionals like constructors, architects, suppliers, banks, insurance companies, consultants etc. The portal captures information about private builders and what they are going to build – from large constructions to small works. This information can be sold to a second part. This model may generate revenue up to 5-10 million euros, or even more.

## 5. THE PORTAL MITTBYGGE.SE

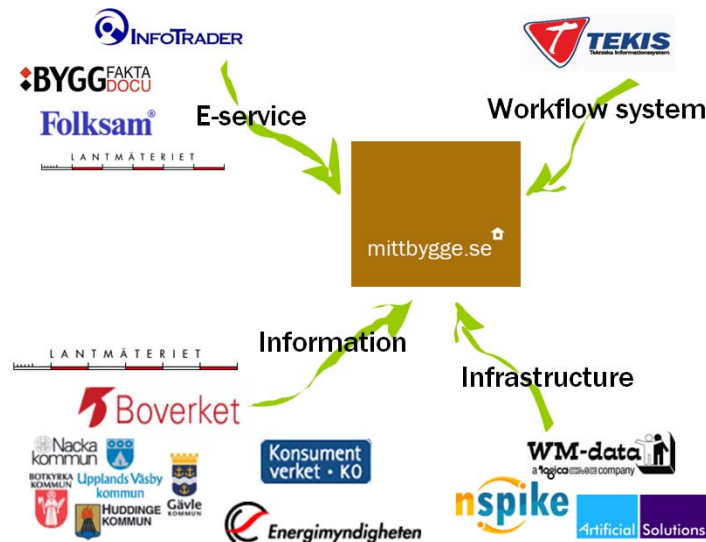
The portal mittbygge.se is the result. The portal is built considering customer needs, business development, and standardized technology. Even the name mittbygge.se (which means “my building”) was carefully investigated. The name considers the outside-in thoughts and focus on the customer.

Two e-services were constructed – one to apply for building permits and one to retrieve construction drawings. Both work with the workflow systems and registers of the local authorities. The e-service for building permits lets the citizens to digitally apply. During this process, it interacts with other authorities to get correct information, e.g. property units from National Land Survey. Interaction is carried out through web-services. The portal is based on service-oriented-architecture (SOA).

## 5.1 Information Infrastructure

Swedish Administrative Development Agency (Verva) coordinates the development of central government in Sweden and is one of the government's central advisory agencies. The work with e-government and infrastructure is governed by Verva. The portal was built on the existing infrastructure of the e-government, like e-identification, "My pages", e-formulary, and secure/standardized information exchange (SHS). We also used a standardized digital assistant, which can utilize information from many authorities in order to help the citizen with questions. We used questions and answers from three government authorities, three local authorities, and combined with own questions and answers to make a skilled assistant.

All together, a base for an infrastructure was created. In this infrastructure there were information from local and government authorities, e-service from private and public bodies, IT-infrastructure and workflow systems from private companies (see figure 5-1). It is easy to set up a portal using one supplier, but we had about 25 suppliers. The most complicated things were to create compatible interfaces and make everyone follow the standards or agreements. By using standardized components makes it easy to connect to other processes and systems in the future. When the structure of the portal is on place it can be best practice for other portals.



**Figure 5-1:** Integration of information, e-services, IT-infrastructure, and workflow systems

The exchange of information between the portal and the workflow systems is obtained using XML-files. These XML-files is open and free for any supplier of workflow systems. Today, three suppliers have adapted their systems to work with the e-services of building permits, and one is coming. There are two suppliers of the IT-infrastructure. This means that the local authority may use any supplier, but the citizens get the same interface and service all over Sweden.

## 5.2 Real Operation

Business models were supposed to be a great challenge. Extra focus was put onto these questions. The proposed business models were accepted with minor changes. The pricing models were changed a bit. The costs for combining municipality information with general information are the same as connecting to the e-service of building permits. In the proposed business model, e-services yielded greater revenues. But after testing the portal for half a year, the most popular part of portal (for the citizens) was the information services – some hundred illustrated pages assembled from different authorities. Now, some of the local authorities have outsourced part of their information build up of their own web sites to mittbygge.se. By doing that, they cut costs from day one.

By having this focus on business models, the result of the project was early transferred into real operation. A small company was established. Parallel and supported by the project, the company took over the administration of the portal. The project was for three years, the transaction was one year before the end of the project.

## 6. DISCUSSION AND CONCLUSIONS

The project had three challenges; the focus on the customer, a good business model, and the IT-infrastructure. Even if the greatest challenges should have been on the customer and the business, the largest trouble was on the IT side. Perhaps, it was so because of statements that the standardized IT-component could be put together with just “a small portion of glue”. In a chain of IT-processes, based on web-services, the weakest link is the interface and single components (web-services). If one single component or interface does not work, the whole chain falls apart. This shows the importance of standardized and agreed protocols of web-services.

An important role of project was to breach in the front line concerning e-government infrastructure. The project has shown that it is possible to build e-services on new standardized technology. It has also shown that a public private partnership is possible within the IT development, and that e-services can be outsourced to a private company. The generic effects on other e-government ventures will be great. This is a good example of market development. It was too expensive and too complicated for a single company or authority to do this by itself. But jointly together, it was a success.

The generic effects in the SDI (Spatial Data Infrastructure) area can be seen right now. The project has become a model in itself for several SDI projects. The planning portal for planners will inherit and employ the same e-service for permits. The national geodata project (connected to Inspire) uses the ideas from both the portal mittbygge.se and the planning portal. There are also discussions of connecting the building processes of mittbygge.se together with planning, cadastral procedures etc. By doing that the citizens can follow their processes from idea and planning to building and living, independently of the player.

The future of mittbygge.se is to develop more e-services and broaden the information services to hold information about home and living. But the greatest challenge is to realize the second part of the business model – the infomediary model. It could be possible to grow organic, but co-operation is probably a better and faster way to progress.

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## BIOGRAPHICAL NOTES

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