An Introduction to Urban Land Exchange Tooling

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Dutch Urban Land Exchange Portal
Support and Empowerment of Land Owners

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1 Introduction

The Netherlands’ Cadastre, Land Registry, and Mapping Agency (the Dutch Cadastre), has implemented an internet portal for urban land readjustment. The Cadastre is carrying out an extensive programme in which it is developing a new public service for urban land readjustment. One of the key features of this programme is that owners are supported to initiate and participate in urban land readjustment projects. In this same program an internet portal is implemented which supports the execution of these projects.

It is made to do a number of things. First of all it is designed for enhancing collaboration between the participants of urban land exchange projects. It is offered as a free service to the Dutch public and designed to make these projects as transparent and simple as possible. Second, it has extensive functionality to geographically identify the project area and its exchange objects, to design a new plan and to calculate its (financial) consequences.

How and why this concept was conceived, worked out and implemented, is outlined below. Furthermore, an explanation of the underpinning concepts, how it is defined, built and implemented is provided. The article concludes with a number of screenshots.
1 Background

In Dutch society there has been recent discussion concerning the use of legal instruments for the purpose of urban land readjustment and its use in solving spatial issues within the urban area. The discussion is specifically focused on problems such as the vacancy of shops, renewal of industrial or office areas. In 2014 the advising committee of Urban Land Readjustment gave recommendations to the Minister of Infrastructure and Environment in the Netherlands (I&M) about the design and implementation of legislation. The advice recommended the inclusion of an option to impose, in specific situations, the compulsory participation in urban land exchange, in much the same way as is implemented in rural land exchange projects. One important condition was that serious effort should first have been taken in order to come to a voluntary exchange.

In June 2014 parliament urged the Minister to speed up the design and implementation of legislation. This advice from the committee of Urban Land Readjustment provoked a political discussion, especially concerning the issue of compulsory participation.

In the autumn of 2016 it became apparent that this option would not be implemented in legislation. As such, current legislation supporting voluntary participation in urban land exchange project is under design. Expectations are that it will come into effect in the first half year of 2019.

At this time there are more than 100 urban land readjustment initiatives. The central government (I&M) in The Hague as well as local governments have started, or are starting, financial programs to stimulate these initiatives. As a part of these projects, the Dutch Cadastre started in 2014 to develop ideas and concepts for supporting these initiatives. One of these initiatives has become the Urban Land Exchange Portal.

Concepts

Business concepts

For the design and implementation of the portal there are a number of leading business motives. One such motivation is that the Dutch Cadaster considers itself as the centre of expertise when it comes to urban land exchange. Hence, the Urban Land Exchange Portal, provides opportunities to exploit, promote and extend this expertise and these skills. It is expected that the Dutch Cadastre will be involved directly in a number of projects.

Furthermore the Urban Land Exchange Portal should form a free platform for all Dutch citizens who want to initiate and execute urban land exchange projects. While doing this the Dutch Cadastre is automatically informed about these projects.
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Another reason for implementing the Urban Land Exchange Portal is that the urban land exchange process is enriched and enhanced by supplying maps, charts, owner and object data. These data ensure that the process of exchanging urban land is executed with highest level of (legal) certainty. Furthermore, the Cadastre expects the process to be executed more efficiently. This efficiency should also increase because the portal provides a step-by-step approach to the urban land exchange process based on voluntary participation.

Functional concepts

Following the business concepts briefly mentioned above, much thought has been given to the functionality needed. It was conceived that anyone should be able to start a project. To do this one should make an account, and log on to the portal as initiator. In this role the user can invite participants into the project, thus forming a project group. The initiator also has the role of moderator. Map functionality is available to identify the project area and to visualise the wishes of the participants. As mentioned earlier a step-by-step plan is available including help to guide the users throughout the process. The main steps include:

1. Purpose: determine your urban project area and the related goals of project members
2. Investment: determine the parcels in the project area, the owner, the value of the parcels
3. Design: determine the wishes of the individual owners and the final design. Further determine the basis of the final design and how the parcels will be apportioned to the participants and revalidated.
4. Settlement: determine the values of the new parcels and the costs for each participant.

Due to the voluntary nature of this process, these steps are recommended but not mandatory. There are various outputs available. One such output of the portal can be used as input in the land registration systems of the Dutch Cadastre.

Technical concepts

This process of urban land exchange is a relatively new for the Dutch Cadaster. Although legislation is in full preparation there is a possibility that legislation could be altered after a review period of about 4 years. This is due to the belief that the urban land exchange process based on voluntarily participation could be more robust.

This has some effect on the business case of the portal. The lack of certainty that urban land exchange projects are finished successfully, could lead to uncertainty concerning the anticipated revenues from these projects.

In short, this is the main business reason why the IT Department of The Dutch Cadastre has chosen to develop and implement the portal on a cloud platform called Mendix. There are two main arguments involved:

1. Building applications that remain within the sweet spot of the cloud platform can be built with tremendous productivity. This makes it possible to build the desired functionality plus more, within a limited budget. To give an idea, building speed in
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this case is about 6 times higher compared to building in more traditional environments.

2. Running costs are largely based on usage of the application on a day-to-day basis.

In short, developing within the cloud platform is relatively cheap. Running it depends largely on day-to-day usage. The fixed costs are low and variable costs are based on the number of users who utilize the portal.

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Screenshots main screens

url: www.stedelijkherverkavelen.nl

Login page:

![Login page screenshot]

Project overview:

![Project overview screenshot]
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Main Step 1. Purpose: determine your urban project area and the related goals of project members

Main Step 2. Investment: determine the parcels in the project area, the owner, the value of the parcels
Main step 3. Design: determine the wishes of the individual owners and the final design. Further determine the basis of the final design and how the parcels will be apportioned to the participants and revalidated.

Main step 4. Settlement: determine the values of the new parcels and the costs for each participant.