



KLIP goes Digital

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**INFORMATIE
VLAANDEREN**

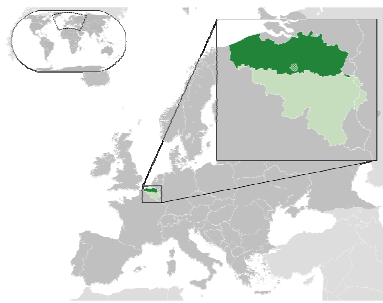
www.vlaanderen.be/informatievlaanderen



Flanders

Dutch speaking region in the north of Belgium

very densely populated → Flanders = one big city?



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Flanders is the Dutch speaking region in the north of Belgium. About 7 million people are living in our region, on approximately 13.500 km². So, one of the most densely populated regions in Europe, with a very dense structure of utility networks.

Informatie Vlaanderen

- > Est. 2016,
- > The new Flanders information agency,
- > Brings together Flemish government activities with regards to:
 - E-government
 - public helpdesk support
 - geographical information
 - etc.

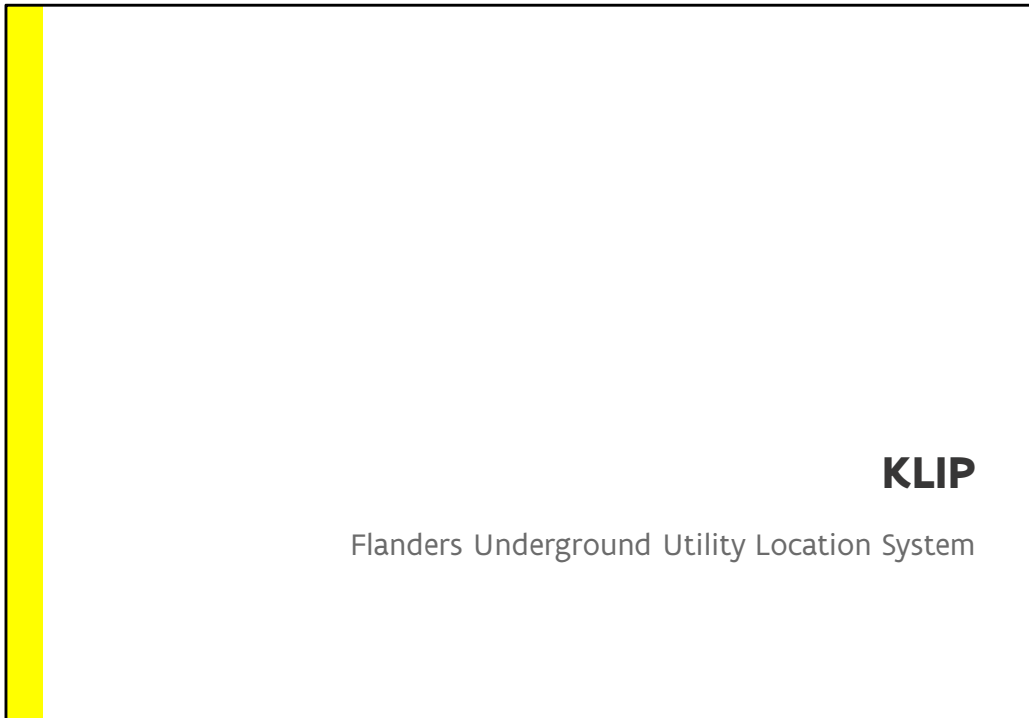
Mission

1. To develop a coherent government-wide information policy
2. To support the Flemish government in its transition to an information-driven government

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- > Our agency “Informatie Vlaanderen” can be translated as the Flemish information agency. We were established in 2016, as a result of a merger of a few other departments of the Flemish governments. Those departments had activities with regards to a number of activities:
 - e-government solutions,
 - public helpdesk support for citizens, companies, governments and other organisations
 - Geographical information (the agency formerly known as AGIV)
 - A number of other smaller entities
- > Our mission is to **develop a coherent government-wide information policy** and to support the Flemish government in its transition to an information-driven government



- > Flanders developed the KLIP system, which is a broker system between map requesters and utility network owners with regards to the positioning of utility networks in the underground of Flanders. In these 15', I will explain briefly the origin of the system, how it is established.

Context

> Flanders

- More than 600.000 km underground cables and pipes
 - > drinking water, sewer, gas, electricity, telecommunications, ...
- Damage caused by excavation works
 - > security/health
 - > material damage
 - > economical damage

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- > To start with, the region of flanders contains about 600.000 km of underground cables and pipes, of various origins, such as drinking water, sewer pipes, high/medium/low pressure gas networks, electricity, telecommunication networks for private and professional use, etc.
- > There is always a risk of security and health problems, material damages, with economic losses when carrying out excavation works.

It Went Terribly Wrong

Ghislenghien, 2004



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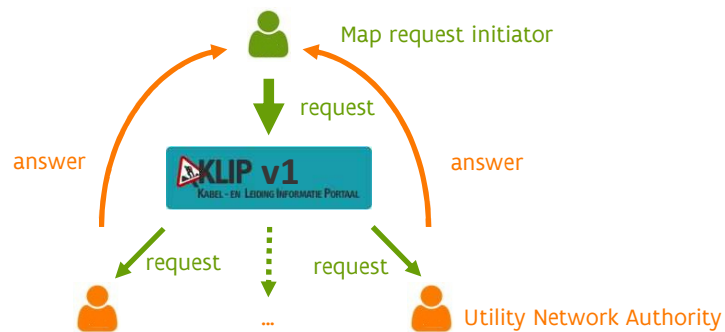
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- > However, it never went that wrong as in the summer of 2004. A high pressure gas pipe was exploded during nearby excavation works. 24 people lost their lives, of which 5 firefighters. 132 people were injured, most of them had severe burns.

- > Quite soon after this disaster, the Flemish government tried to answer two questions:
 - How can these risks during excavation works be mitigated?
 - Which role can a government play in a possible solution?

KLIP First Phase

2007 - 2015

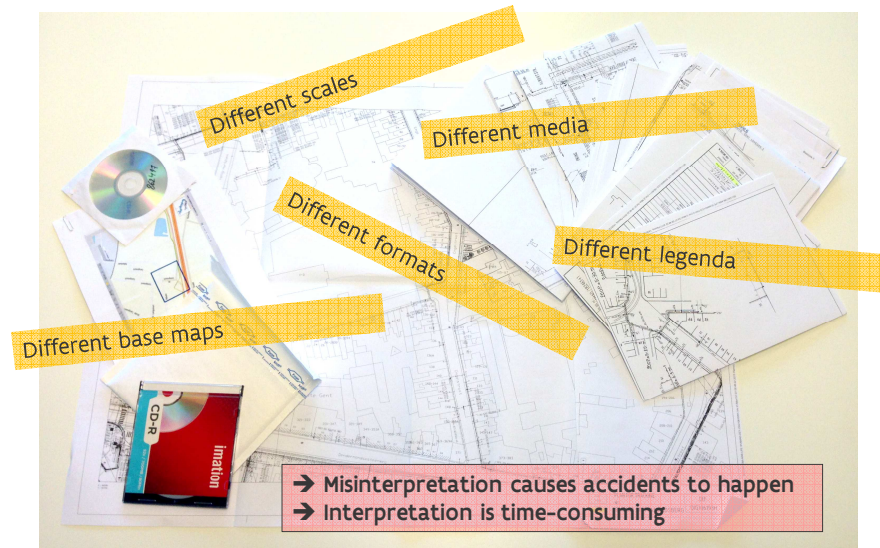


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- > In 2007, a first version of KLIP was deployed into production by our agency. KLIP was a broker for map requests, which were sent to the different utility network authorities. Each network authority assembled a set of analogue or digital maps, digital files or other media directly to the map requester.

Result



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- > As a result, the map requester still needed a lot of time to have a kind of overview on the underground, based on a variety of answers on different media, on different scales, in a variety of formats, with different base maps, each with a different legenda or presentation means.
- > Of course, this solution still gave too much room for interpretation and misinterpretation of the information.



Map Requesters, Network Authorities and Public Domain Authorities

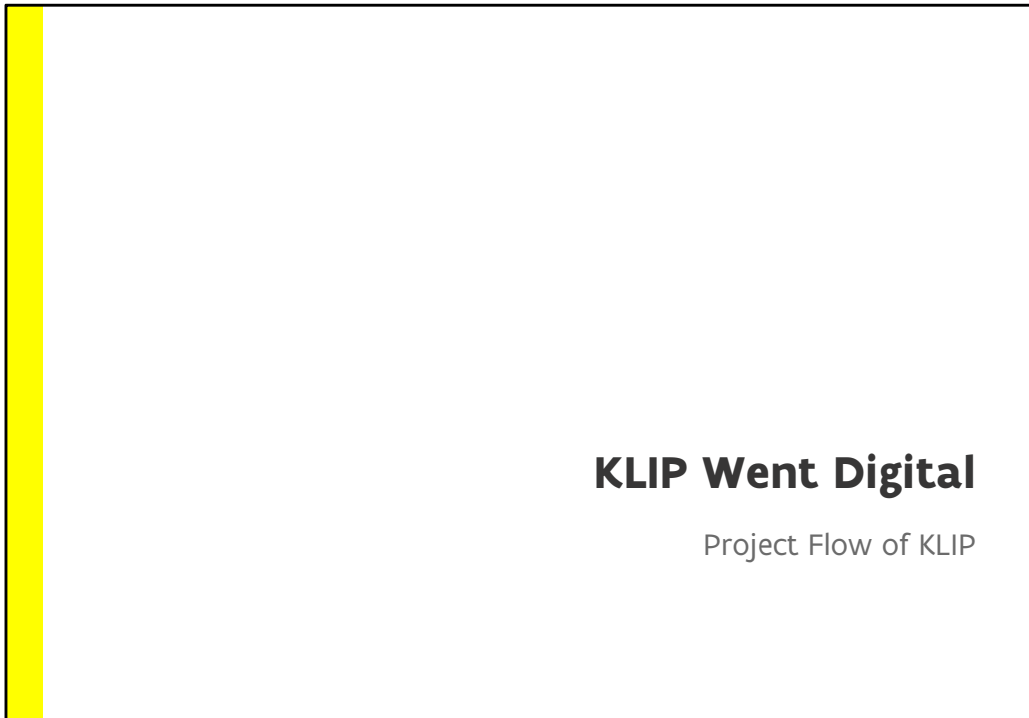
Our Users

Users

- > 14388 Map Requester Initiators (MRI)
 - Construction initiators/ordering parties, contractors, consultancy offices, citizens, ...
 - 1502 companies
 - 1258 citizens

- > 244 Utility Network Authorities (UNA)
 - utility companies, public administrations, hospitals, universities, ...

- > 75 Public Domain Authorities (PDA)
 - public administrations, ports, Belgian rail, ...



- > So, the first version was quite a step forward in the exchange of information, but not really the most ideal solution. As of 2011, the agency made an agreement with the construction sector and the utility sector to develop a fully digital exchange solution.

Business case

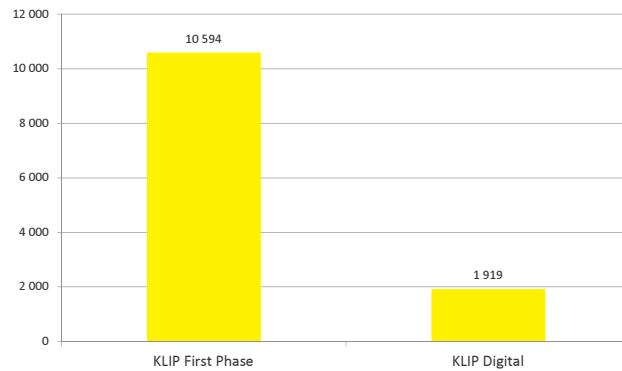
- > Define “What’s in it for me?” for
 - Map Request Initiators
 - Utility Network Authorities
 - Local Governments
 - Flemish Government
- > Different scenario’s: KLIP light vs. KLIP fully Digital
- > Impact analysis → business case to empower new legislation

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- > In order to build a digital exchange platform, a business case was made in collaboration with the various stakeholders. Of course, every target group has to find a number of needs fulfilled in the solution. Map requesters, utility companies, local governments and the Flemish government decided on the needs and the architecture of the solution.
- > They came on 2 different scenario’s. A solution with full digital exchange was chosen among others.
- > Based on the positive impact of shortening the interpretation of underground information by ground workers, an agreement was reached on the business case, including the financing. New legislation was made, in order to ensure the deployment of the system and the payment of 10 euro per map request.

Why Digital?

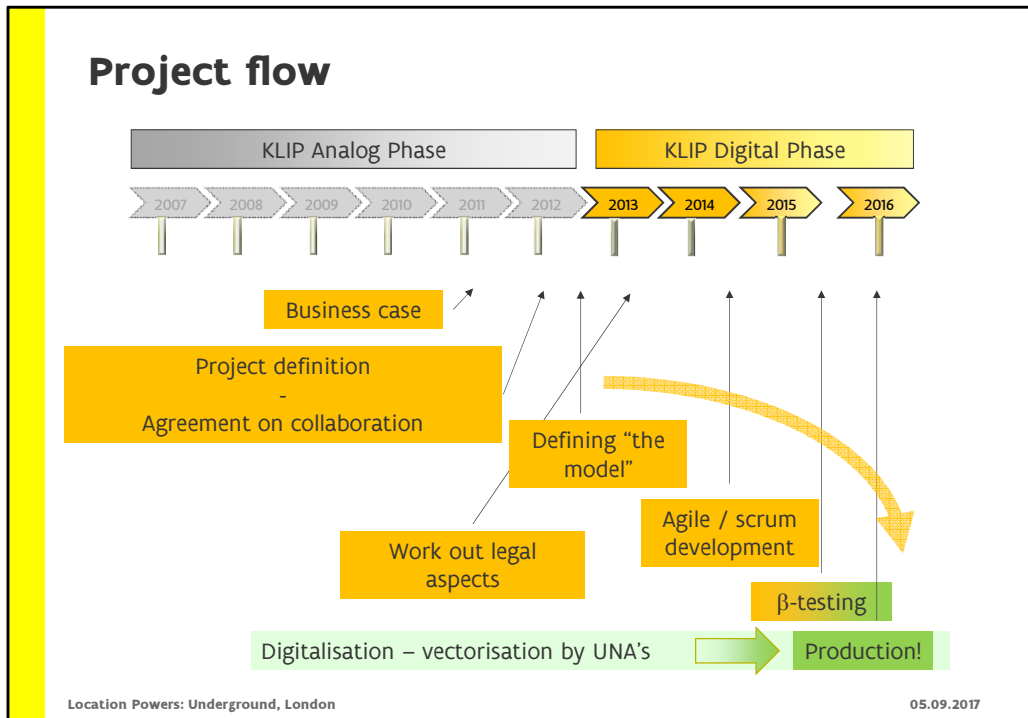


- > **Gross administrative cost reduction with 80% (10 Meuro → 2 Meuro)**
- > **Reduction delivery time requested maps with 50%**
 - 15 work days → 7 work days

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- > The most important cost reduction was the one of interpreting the maps, which could be lowered with 8 million euro each year.
- > Furthermore, delivery time of the maps could be reduced with 50%. In practice, and mainly due to a number of powerful service API integrations, the delivery time for a complete answering package for a request dropped to an average within 2 working days.

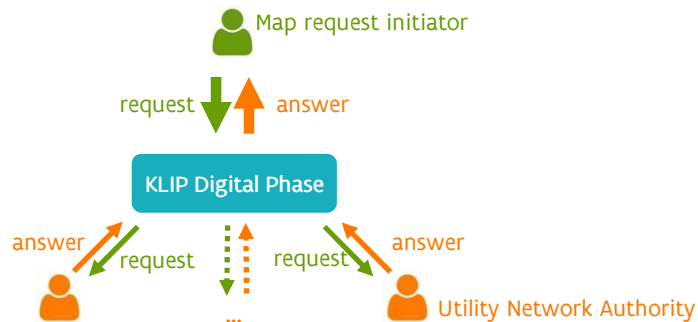


- > This schema is illustrating the project flow of the transition towards a fully digital exchange solution. As mentioned before, the business case, linked with a project definition and a collaboration agreement, are key in the start-up phase of the project. It results in the legitimacy of the project and a stable basis for financing the project.
- > Next step is the definition of a common data exchange model, the IMKL (information model of cables and pipes). This agreed data model is based on the European INSPIRE model for utility networks and extends the INSPIRE model where needed. In addition, an agreement was also made on a common presentation model of cables and pipes, namely PMKL.
- > In parallel with the modeling step, the legal aspects for obligating the digital exchange, the financing and for the responsibilities of each party (map requesters, utility network authorities, public domain authorities and our agency) were prepared.
- > Based on these agreements, the appropriate portal and web service API were developed and got a first deployment in April 2015. As of the first of January 2016, all larger Utility Network authorities switched to exchange information in a digital format.
- > At this moment only 3 of 244 network authorities are not compliant to the

obligation.

The next step, KLIP Digital Phase

Since 1st of January, 2016



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- > This schema is illustrating the new process for map requests since the digital solution was deployed.
- > Map requests are still registered in KLIP and sent to the utility network authorities.
- > The main difference is that the digital answers are sent to the KLIP by the various network authorities.
- > The KLIP platform has the responsibility to package and present these answers into the map viewer, with one base map, presented in accordance to the presentation model PMKL. This viewer is available as an online and stand-alone offline PC version. As of 2018, tablet versions for Android and iOS will be available.
- > The map request initiator will use the KLIP viewer when preparing or executing the excavations, he can print the maps or download the vector data tin order to integrate into a CAD system for combining with other data.

KLIP today

Can't explain it better:

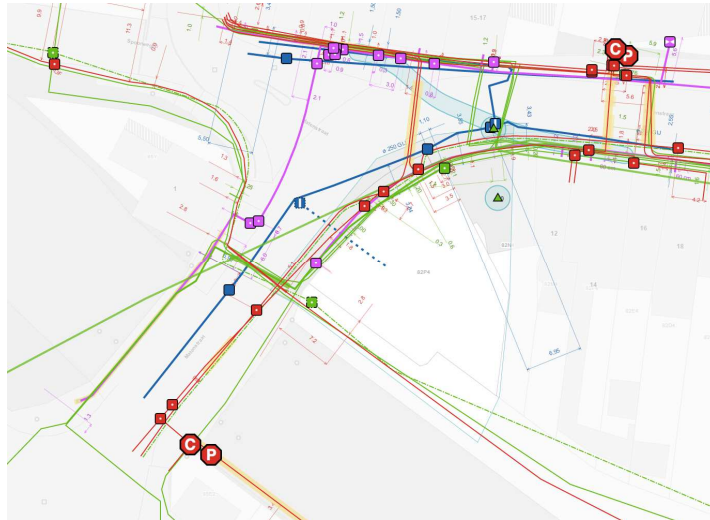
<https://www.youtube.com/watch?v=cyMJROmt7Eo>

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- > This is a link to a small introductory film, which explains the process and the benefits in short.

One of the results – an offline viewer

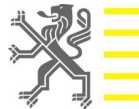


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- > What's in it for the map requester? Those excavators or construction companies or network utility authorities will have a detailed overview of all responses to a request into one viewer. This viewer is available online but also as an offline viewer. A KLIP-package can be downloaded for offline use, without any internet coverage in the field. In 2018, we will release also 2 app-versions for offline use on Android- and iOS-tablets.
- > Within this viewer, a geographical view is available, and is clickable for accessing attribute data, such as element types, a depth component, contact information, precaution measures that must be taken into account, detailed scans of automated drilling paths, etc.

KLIP = Collaboration



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- > The KLIP solution could not be built, put into production and couldn't be a succes without the support and the agreement on financing with these partners.
- > They can be divided in a few major categories:
 - Construction sector
 - Utlity sector
 - Construction study and engineering sector
 - Governments
 - Informatie Vlaanderen is in fact a kind of neutral party between them and is responsible for the operational management, evolutive maintenance and innovation projects

A Lot of effort went to...

- > Finance model for investment and operational management
- > Stakeholder management: lots of stakeholders!
- > Project organization
- > Technical workout: UX design / AGILE development / automated testing / continuous integration / etc.
- > **Establish stakeholder buy-in, by convincing users with a good ICT solution based on real user needs**
- > **Later on, enforce by law**

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- > For sure, a lot of effort went to the financing model, management of the stakeholders, etc.

KLIP is enforced by law in Flanders

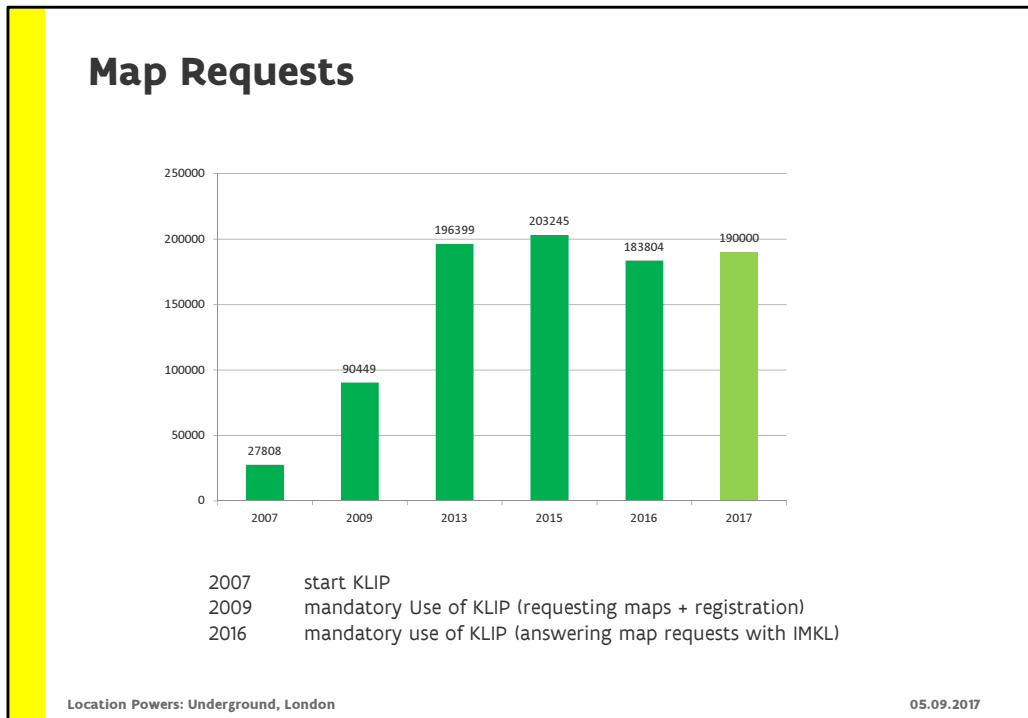
- > Since 01.09.2009 – mandatory use of KLIP (first version)
 - Map Request Initiator (MRI)
 - > map requests for excavation works
 - > works can only start after receiving all the plans
 - > Specify geometry (*map request zone*) of excavation
 - Utility Network Authority (UNA)
 - > defining managed zone to check overlaps between map request zone
- > Since 01.01.2016 – Extra obligations (since digital version deploy)
 - UNA
 - > Mandatory provision of digital information
 - > Mandatory use of IMKL-format



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- > One of the most important aspects of KLIP is that we enforce the use of the system by law.
- > We do this because it can only be of effective use in the field if everyone is involved, if everyone is eager to use the system and because everyone does get some benefit of using it.
- > The role of our agency changed seriously in 2016, since we got an important role in assembling the answers into a viewing package.
- > Furthermore, the utility network authorities of course get extra obligations with regards to the provision of digital information and for the use of one single data model for exchanging information.



- > This diagram is showing the evolution over the last couple of years of the use of KLIP.
- > We had a decrease in 2016 due to the paid service that KLIP is nowadays. However, we expect an increased use again of over 200.000 map requests in 2018

KLIP awarded

- > won the Belgian e-Gov Award for “Profitability 2016”
- > nominee for
 - Belgian e-Gov Award for “User Friendliness 2016”
 - Belgian e-Gov Award “Best Project of 2016”



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- > We were quite proud when we got a Belgian award for e-government projects in the category of “profitability”. In fact, this is based on the business case efforts that we made in flanders, to have a financing model to fund operational management, the evolutive maintenance and innovative developments with regards to KLIP.
- > We were also nominated (meaning top-3 of the candidates) in the category “user friendliness” and also for the major award “ best project”.

Across the Flemish border



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- > We are discussing the re-use of the information and presentation models throughout all Belgian regions. So that the Belgian construction sector and utility sector can have one single process of exchanging underground information in Belgium.
- > Our collaboration with Holland is standing already for many years. Together with them, and with a number of Scandinavian countries, we have put together an interest group for sharing knowledge.
- > And since the beginning of this year, we also participated in OGC's concept development study, the NYC workshop in April.

The 3 utterly important next big things for KLIP in Flanders

1. Data quality

2. Data quality

3. Data quality

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- > The current KLIP solution is only the beginning. It should be the trigger to improve data quality within the next couple of years. The construction workers would like to see improvements in this area. We will start an analysis of the responses of the utility sector in order to see where it can be improved.

Info and Documentation

- > Everything about KLIP (most of it in Dutch...)
 - www.klip.be

- > Test
 - <https://beta.klip.vlaanderen.be/>
 - > application
 - <https://klip.vlaanderen.be/api>
 - > API documentation

- > All documentation can be found via these links. Mostly in dutch..

Any Questions?

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