WPLT LONG TERM

D.LT.1.4 Blueprints for regional market places

Analysis of digital trading platforms for construction products in North-Western Europe
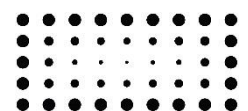
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1. Introduction

1.1. Context

This study was realized at the behest of Buildwise within the framework of the Interreg-funded project Digital Deconstruction. This project aims at developing an innovative digital decision support system, integrating various digital tools, that help defining the most sustainable and economical deconstruction and reuse strategy for building.

More information can be found on the project webpage:
https://www.nweurope.eu/projects/project-search/digital-deconstruction/

1.2. Scope

This study aims to benchmark existing digital platforms active in the trade of reclaimed construction materials. Platforms in the present selection are located within the geographical scope of the Digital Deconstruction project: France, Belgium, Luxembourg and the Netherlands.

To qualify as a digital trading platform for construction products, the platform (website or app) needs to :

- Have an offer of materials that can be accessed online ;
- Have an important but not restricted focus on construction materials ;
- Propose second-hand materials, including deconstruction materials, surplus or non used materials, offcuts, etc. ;
- The platform does not need to be linked to a physical location and does not need to offer the whole selling process online to qualify.

A total of 45 platforms were considered for this study, from which seven were then excluded because they did not fit the scope for various reasons:

- There was no offer of construction materials;
- There was no offer of reclaimed materials;
- There was no digital trading offer;
- The platform was not accesible anymore.

Two of them (Opalis and Smart Symbiose) will nevertheless be the object of a small focus given that although they do not fit exactly the scope of the study. Their analysis can still bring interesting insights and perspectives regarding digital trading platforms for construction products in general. This will be further detailed in section 2.5. Other platforms.

2. Digital platforms

Appendix 1, which includes the overview table of the 48 considered platforms, provides a general characterisation and a light SWOT analysis for each of the 41 platforms within the scope, which will be the focus of this section.

2.1. Geographical distribution

The digital trading platforms surveyed are distributed as follows across the four scope countries:

Country	Number of platforms surveyed
Belgium	12
France	18
Netherlands	9
Luxembourg	2

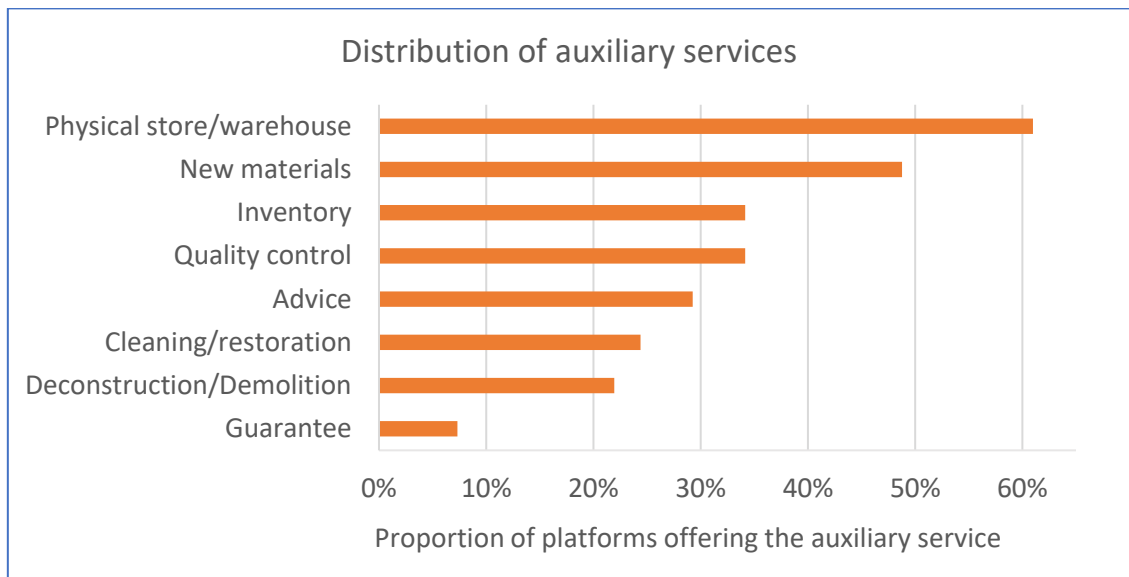Table 1. Geographical distribution of platforms

2.2. Business models

Platforms can be present as belonging to different types of organisations which can generally be private companies, cooperative companies, associations or public initiatives.

While it can be argued that most platforms share a common approach towards circular economy inherent to their very activity, this does not reflect in a common business model. Nevertheless, a general trend can be observed as most platforms which are not financed by public funds are not the main business of the organisations operating them.

- The upside to this fact is that these organisations do not need to have these platforms profitable to keep them running. This can be particularly true for non-profit oriented organisations.
- On the other hand, the downside can be that these platforms do not represent the main priority for these organisations, which can lead to lack of maintenance or promotion, making these functioning platforms essentially empty shells.

Auxiliary services offered by the organisations running these platforms include physical shops or showrooms (25), selling of new materials (20), including stock surpluses or custom-made products, buildings reuse potential estimation (14), quality control (14), advisory services (12), including material passports and training, products cleaning and restoration (10), deconstruction (9) and products guaranteeing (3).

Distribution of auxiliary services

Physical store/warehouse
New materials
Inventory
Quality control
Advice
Cleaning/restoration
Deconstruction/Demolition
Guarantee

0%   10%   20%   30%   40%   50%   60%

Proportion of platforms offering the auxiliary service

Some platforms do not rely on complementary services or activities but rely exclusively on the platform activity to generate an income. This income can be generated by a commission on transactions or on revenue from advertisement and sponsored publications. For this revenue to make the platform profitable, an important traffic is necessary. While actual figures regarding traffic on these platforms were not obtained for this study, a good correlated indicator can generally be the number and the frequency of ads published on the platform, indicating an important notoriety. Such platforms include 2ememain/2dehands, Le Bon Coin which are two well-known generalist reuse platforms, but also Relieve Furniture, Backacia and Vanbaal-Materiaalhandel.

The business model of the platforms can be described using several criteria, such as:

- Source of income (*how is the platform financed?):*
  o Public funds
  o Advertising revenue
  o Commission on sales
  o Paid membership
  o Costs covered by other services of the organization

- Scope (*who can access the platform?):*
  o Restricted: typically a very local platform that only exchanges materials among their partners network
  o Restricted sales, open access to purchase: the platform organisation controls the materials offered in the platform but a larger public can purchase them.
  o Fully open access: a larger public can publish offers (moderated or not by the platform organisation) and make purchases.

- Target audience
  o B2B: acessible to professionals only
  o B2C: accessible to private individuals only
  o B2B + B2C: accessible to both professionals and private individuals.

- Types of interactions enabled by the platform (*what is the role of the platform in the material exchange process ?*)
    - o Connection: the platform enables a potential customer and provider (seller or donator) that can be the platform itself to get in contact about the prospective transaction over a reclaimed material or product
    - o Payment: the platform enables the potential payment of the transaction to be performed through a provided feature
    - o Material exchange: the platform contributes to the sold material or product transitting from the provider to the customer, by storing or delivering for instance.

- Degree of control from the platform over each type of interaction (*is it required to go through the platform once the first contact has been made ?)*
    - o Connection: the platform can simply facilitate the first contact between the potential customer and provider and letting them interact on their own (phone, e-mail, physical meeting…), can provide a dedicated message exchange platform or can just limit the connection by not providing any communication channel between the two parties
    - o Payment: the platform can let the customer and seller arrange their own payment option, can provide or impose an online payment solution or can act as a third party through which the transaction money must transit
    - o Material exchange: the platform can let the material or product go from the provider to the seller without ever having a look at it or can suggest or enforce a quality control on the products and materials on display on the platform

- Degree of dematerialization of interactions (*is the platform a mere interface?*)
    - o Virtual: the platform is an interface and does not have a storage location. The materials transit directly from the provider to the customer without being stored by the platform organisation
    - o Physical : the exchange of materials is done physically in a location selected by the platform, for example a warehouse managed by the platform; the platform organisation stays in control of the whole process.
    - o Virtual + Physical: the platform offers the option for a physical interaction as defined above, but enables the provider and customer to proceed to the material exchange outside of the offered location.

2.3. Features

There are two main ways for platforms to showcase their products and materials.

– For 88% of platforms, the materials catalogue is integrated into the website with each product having its own page or sheet. This enables for the implementation of various features, easier navigation, but also means that a more complex maintenance is required to keep the platform running.
– For 12% of platforms, the materials catalogue is available as a file (e.g. PDF or spreadsheet file) downloadable or displayable through an online document-viewer. While this requires less maintenance for the platform owner with only one file to be regularly updated and uploaded, this presents several drawbacks for the user as the product availability is less certain and this prevents to use filter or search options.

The platforms with an integrated catalogue provide various features. One of the most relevant features is the possibility to buy the product online. This feature is available for 58% of platforms with an integrated catalogue, enabling the customer to pay for the product online. While this feature enables the customer to buy the product as easily as on an online shop dedicated to new products, not having this feature sometimes results from an intentional choice. According to some organizations behind these platforms, the market for reused construction materials is not mature enough and too complex to sell these materials as simply as if they were new. This will be further detailed in section O. Regarding the materials advertised on the platform, 61% of platforms store a part or the entirety of these materials in their own physical location, which can be a warehouse, a store or a showroom. When a physical location is present, the platform usually acts primarily as a showcase for this location. While it is not always the case, online purchase will be less present for these platforms, the potential buyer being encouraged to come at the warehouse to check the materials for themselves.

2.4. Other platforms

Two platforms that are not trading platforms were also considered for this study.

The platform **Opalis** was founded by the Belgian actor Rotor and further expanded through the Interreg FCRBE project. This platform aims at facilitating the reuse of construction materials, and among other features, provides an overview of professional retailer selling reclaimed construction materials over the same geographical area as the present study, minus Luxembourg as of November 2022. While many Opalis retailers do not have a digital platform, a potential customer can still find determinant information from a search on Opalis. Indeed, a filter by materials and the map of retailers provide enough details for potential customers to refine their search and know where to look for specific reclaimed materials.

The platform **Smart Symbiose** is financed by the Flemish environmental public agency OVAM. This platform aims at identifying opportunities between various companies or organisations to implement material flows through valorisation and reuse. This platform is not aimed specifically at construction materials nor at reuse, but presents an interesting possibility in the sense that it can extend the scope of materials with a potential for reuse when looking outside the boundaries of the construction sector.

Focus on platforms.

To identify if a product or a material fits their needs, especially to be implemented in a construction project, potential customers will usually require as much information as possible. Because of this, most platforms aim at providing detailed characteristics, for their products, including for instance the dimensions or the condition, no matter if the catalogue is integrated or available as a file. However, the quality and the exhaustivity of these characteristics can vary a lot depending on the way the platform works. Platforms with restricted sales (i.e. preventing users from posting their own publications) have more control on the information released and can then ensure that all publications maintain a consistent level of quality. Open-access platforms (i.e. allowing users to post their own publications) can still keep a verification phase before publication. They can also ensure the consistency of publications through forms to be filled with mandatory fields ensuring that a minimum level of information is provided. However, which characteristic is mandatory varies from one platform to the next, but also within a platform, as characteristics that are important for one type of product may not be as relevant for the next. Because of this, some platforms have a single type of form with very few mandatory information while others have several forms designed, depending on the type of material or product the user wants to circulate.

The information characterizing the product enables the user to efficiently find the products they are looking for. Most platforms dedicated exclusively to construction materials offer product categorization which enables the user to look for specific building elements. The other product characteristics, especially if they are entered through dedicated fields before the ad publication, usually result in additional filters available on the platform interface to better refine the research. While catalogues available as a file cannot let the user do such and advanced research, they usually organize the materials by category and provide consistent characteristics as the platform has a better control on the information published.

Some platforms feature other options that, while noteworthy, are not systematically implemented, including:

- Newsletter *(existing in 27% of the platforms):* subscribing to a newsletter enables the customer to be kept aware of new ads, new projects or any information that the platform may find relevant to share;
- Sharing options *(existing in 24% of the platforms)*: buttons to share a product sheet on social networks or through e-mail may appear as a gadget, but with the growing importance of social networks and the potential need to have the product validated by the project team before buying, this option can enhance the user experience while being easy to implement;

> The platform U-Mine offers the possibility to download a PDF report of the material on sale. While this report is strictly limited to a table listing the information already available on the platform's material sheet, this option enables the user to easily share the product information with the project team or to attach the report to a tender.

- Request for material *(existing in 20% of the platforms)*: the currently available offer of material on a platform may not always correspond to what the potential customer is looking for. Some platforms offer the possibility to send requests for materials. These requests may be accessible only to the organisation managing the platform, especially when the platform is not the main service, or to other users as well, generally as a publication. These requests enable the potential customer to increase the probability to find the right product, make

donators aware that their materials may have a potential for reuse, and enable the platform to get in touch with the potential customer.

- Localisation *(existing in 39% of the platforms)*: several platforms offer additional information regarding the material localisation, in particular platforms whose catalogue extend beyond the materials they have in their warehouse. Showing where materials or deconstruction projects are located, on a map for instance, enables the customer to better identify if an interesting material is in the vicinity and prompt them to visit the site, but also to anticipate any potential logistics that may be required as delivery is usually not an option.

- Delivery *(existing in 39% of the platforms)*: Some platforms offer the possibility to deliver the materials directly to the address provided by the customer, either for free or for a delivery fee. Other platforms which have multiple physical sites offer the possibility to let the customer choose one of them as a pick-up location. However most platforms do not offer a choice to the customer and indicate where they can come to pick the product up, either at the platform's warehouse or directly on the site where the product was extracted.

2.5. Audience

These platforms have various approaches regarding the way they populate their catalogues, which can be a question of quality versus quantity, but also a way to market their other services.

Access to sales

About 24% of platforms enable users to post their own publications on the platform without any control. In some cases, the posting of this publication requires for the seller to pay a fee.

Other platforms prevent users to post their own publications. There can be several reasons for that, which are not exclusive:

- The platform only releases publications about materials from demolition sites that they manage or where they operate;
- The platform wants to maintain a minimum level of quality in the publications;
- The platform wants to ensure that the suggested material or product really has a potential for reuse;
- The platform wants to promote its other services by having the user directly contact them.

Access to purchase

Access to the platforms to potential buyers is generally less restricted than access to sales. In most cases, the catalogue can be accessed freely or by registering a free account for 93% of platforms. However, even when the catalogue is accessible, transactions can be restricted to a certain type of public, for example professionals or partners, as it is the case for 34% of platforms.

> In two cases, Upcyclea (France) and Excess Materials Exchange (Netherlands), the access to the whole platform is restricted and a paid account is required to be able to profit from the platform services. Although the exact offer differs between them, both platforms rely on a closed network of users that have the materials they manage, through construction and deconstruction works, but also as building components, digitally tracked and traced. When the material becomes available for circulation, or when there is a need for a material, a matchmaking can be made. In both cases, such a system needs to offer an extensive network for it to be reliable and interesting to the customer. Upcyclea ensures this by offering an extensive range of services to this network, where the digital trading platform is just one element, while Excess Materials Exchange is not focused exclusively on construction materials and can then aim at a cross-sector wide audience.

Regarding the materials advertised on the platform, 61% of platforms store a part or the entirety of these materials in their own physical location, which can be a warehouse, a store or a showroom. When a physical location is present, the platform usually acts primarily as a showcase for this location. While it is not always the case, online purchase will be less present for these platforms, the potential buyer being encouraged to come at the warehouse to check the materials for themselves.

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3. Focus on platforms

3.1. Presentation

For the sake of this study, actors from selected platforms were met to collect their personal opinions, insights and expectations regarding their digital platforms.

Actors from the following platforms were met:

- Cornermat (Belgium)
- Cycle Up (France)
- Batiterre (Belgium)
- Future unnamed platform from LuxInnovations, EcoTransFaire and the Luxembourg Institute of Science and Technology (LIST) (Luxembourg)

Other platforms were contacted but either did not answer or declined to participate to the study, including:

- Gebruiktebouwmaterialen (Netherlands)
- Oogstkaart (Netherlands)
- RotorDC (Belgium)

3.2. SWOT matrix and insights

While each platform has its own particularities, the present section aims at synthetising them through a unified SWOT matrix. All bullet points are further developed in the corresponding subsections:

Strengths	Weaknesses
- Managing multi-locations stocks - Fluidifying logistics and optimizing storage spaces - Offering guarantees - Working as a network of actors	- Digital platform as an auxiliary activity - Avoiding the all-digital - Non coordinated cross-publications
Opportunities	Threats
- An entry door to other services - Favorable context to circular economy	- Too many sollicitations - A fluctuating market not mature enough - Keeping a physical contact

3.2.1. Strengths

Managing multi-locations stocks

Several platforms manage one or several physical locations where reclaimed materials are stored. Managing a digital platform where their physical stocks are showcased enable them to better manage these stocks. Indeed, while maintaining the information on the digital platform accurate and up to date can be tedious, it also forces the actors managing these platforms to implement a process to keep track of their stocks and thus be able to quickly answer to the demand. This is even more important when several physical locations are managed as it provides a way to better control where each material is located.

Fluidifying logistics and optimizing storage spaces

The multi-locations stock management can also enable platforms to add external locations, such as deconstruction sites. This enables the product to become available before reaching the warehouse, and even before deconstruction. The need for storage space at the platform warehouse can then be avoided and transport can then be organised from the extraction site to the customer location, thus fluidifying the logistics.

Offering guarantees

Only one platform, Cycle Up, offers the possibility to have the materials sold guaranteed through an insurance process. This attracts smaller actors to publish their materials ads through the platform to benefit from this insurance, thus better populating the platform's catalogue. In addition, this insurance increases customer confidence in the products, encouraging them to overcome their possible wariness ofreused materials.

Although this service is not directly linked to their digital platform, it should also be noted that Batiterre is currently involved in the development of a certification for processes related to reused construction materials (including logistics and restoration) that aims at increasing the audience trust in these materials.

3.2.2. Weaknesses

Digital platform as an auxiliary activity

The digital platform is only but one activity in the range of services offered by the actor. While all actors deem it necessary to have a digital platform to better showcase their materials in stock, the income generated by the platform, and to an extent for some actors by the physical marketplace, is marginal compared with their other services. Indeed, services such as the completion of inventories or advisory activities generally are more cost-effective and usually are the backbone of the organisation's business model. For this reason, the digital platform is generally not considered as the main priority for business development.

Avoiding the all-digital

A current barrier for the growth of the market for reused construction materials is the general lack of trust of potential customers towards materials which are not new, and the lack of technical guarantees in particular. Several actors expressed that while a digital platform is a good and necessary way to showcase the range and availability of reclaimed construction materials, it can also be a way to amplify this wariness. Indeed, the potential customer only receives a limited information from the platform and cannot "experience" the material as they would in physical form.

Non coordinated cross-publications

To increase the visibility of their reclaimed materials or to better answer requests from potential customers, the interviewed actors are generally open to collaborate with other platforms. This collaboration can take several forms, such as obtaining specific materials available in another platforms, in order to either meet requests, populate their catalogue or enhance visibility for their own materials by publicising them on other platforms. However, this way of working complexifies the stock management for these platforms, as it can become arduous not to lose track of which material is advertised on which platform and in which quantity. This can be the case when a product is sold via one platform, but the mirror publication is not deleted or updated on other platforms. In this situation, potential customers of these mirror-ad platforms are provided with incorrect information which can decrease the apparent reliability of the mirror-ad platforms.

3.2.3. Opportunities

An entry door to other services

While the direct revenue from these platforms can be small compared with the actors' other activities, the platforms bring other benefits to the actors. Indeed, potential customers may discover reuse actors and their services through the platform, while searching online either for a buyer or for a seller of reclaimed materials. Thus, the digital platform becomes an entry door to advertise the actor's other services. This is especially the case when there is a mandatory contact between the customer and the actor, for instance if there is no possibility to buy materials directly online or if the customer musts come to the platform's warehouse to pick the materials up.

Favourable context to circular economy

While circular economy may have been seen as a niche trend a few years ago, it has now become a major issue for various reasons, be they ecological, economic, social, political reasons or generally a mix of all the above. This state of things reflects well in the construction sector as reclaiming and reusing materials are becoming more and more systematically considered, even though interviews showed that each country or region has its own pace, and they are not at an equal state yet.

This means that there is an increased demand for digital platforms, as they are becoming more necessary to enable materials to circulate, but also to easily find reclaimed materials and integrate them into technical specifications or into a tender.

Working as a network of stakeholders

While there is a natural form of competition between platforms, all of them see each other as a partner rather than as a competitor. Collaborations are frequent between platforms, including cross-platforms publications, supplying from another platform, sharing knowledge and experience. Each platform has its own way of working, but they all seem to be aware that this particular market needs partnership rather than competition to create the right opportunities at the right time.

3.2.4. Threats

Too many solicitations

One of the first issue that was systematically and spontaneously addressed by the participants was the lack of time. The reuse construction material market is still an emerging market. It has promising perspectives regarding circular economy, and an ever-increasing demand for extraction and integration of reused construction materials. But some of the market stakeholders feel that there is too much research and studies from external organisations about the reuse of construction materials, and not enough reuse operators, either on the deconstruction or on the logistics side. As such, they feel that participating to such research and study works is a time-consuming activity preventing them from developing their business. And while they understand that the purpose of such studies is to improve their business in the end, they still feel that they are usually redundant and too frequent.

A fluctuating and not mature-enough market

As the market for reclaimed materials is still emerging, there are no steady inflows or outflows for this market. Indeed, materials with potential are not systematically reclaimed and put on the market, and depending on the opportunities, a high demand can result in a temporarily empty catalogue. While on one hand this can be an indicator of success for the platform, on the other hand, an empty display is more likely to make potential customers turn away. Therefore, it is important for these platforms to maintain their catalogue as populated as possible.

Keeping a physical contact

Because of the intrinsic nature of construction where each project is unique and materials must answer to requirements that may differ from one project to the next, a digital platform may not always be enough to be able to properly seize if the showcased products will meet said requirements. Organisations with digital platforms are well aware of this particularity and display a will to maintain a physical contact between them and their customers. While not all platforms make this contact mandatory, all participants insist that it remains necessary to better promote reclaimed materials and to create a trustful relationship between the platform and its users.

4. Conclusions

4.1. Assets for a good digital platform

Through this study, a few factors were highlighted that may enable a digital platform to be successful:

- **A well-populated catalogue**
  For the platform to get the interest of potential users, it is necessary to offer a comprehensive catalogue, frequently updated and with various materials. Potential customers need to feel that even if the kind of material they are looking for are not available, it may be worth checking back regularly.

- **A good network**
  To populate the catalogue, the platform and the organisation behind need to rely on a good network. Whether it is contractors or real estate owners that may come with deconstruction projects with potential, partner platforms or sellers that may relay ads or provide with requested materials, the more organizations and people are part of the platform's network, the better the catalogue will be populated.
  A good network also means more potential customers, increasing the likelihood that materials and products showcased on the platform will find buyers, and thus highlighting the platform's success.

- **A professional and user-friendly interface**
  A well-populated catalogue also needs a good interface for the right materials and products to pop-up in front of the potential customer. However, this does not need to be an online catalogue, as some platforms had downloadable catalogues that were well-organized and interactive. On the other hand, some platforms with an online catalogue offer an extensive range of features and filters, but using them does not let the potential customer find anything if the catalogue is not well populated enough or if the products' characterstichs were not encoded appropriately .

- **A filtering process**
  To increase the professionalism of the catalogue, the offer needs to be uniform and reliable. To achieve that, a filtering process needs to be implemented. All successful platforms do not allow users to publish their own ads before some type of control by the actor behind the platform has been implemented first. With considerations about the reliability of reclaimed materials at the center of all attentions, this control can dust off some wariness from the potential customer.

- **A showcase and a window to the organisation's expertise**
  For this control to be efficient, the actor behind the platform needs to have an expertise on the reuse of construction materials. While the relative importance of the digital platform among the range of services from the actor can vary from one platform to the next, any platform that wants to promote a reliable image needs this expertise to ensure that the catalogue's offer is coherent and trustworthy.
  In addition, having this expertise behind the platform usually means that the actor is offering other more profitable services that usually help bankrolling the platform.

4.2. Considerations about a meta-plaform

The question of a meta-platform was raised with the various actors met and through the benchmark analysis. A meta-platform would centralize catalogues from various existing platforms at a single location, simplifying the user experience.

The stakeholders who took part to this survey tend to have a mixed attitude regarding such a meta-platform:

- They understand the benefits of such a platform, such as offering an extensive catalogue, extending the scope of the reached audience, simplifying cross-platform publications, and in a general manner improving the offer for reclaimed construction materials.
- They also feel that the market and the existing platforms are not ready yet for such a platform. Most plaftorms were developed independently and would need internal work to adapt their source code to be compatible with such a platform. Some organisations mentioned that they would be open to the idea if their own source code was used as a base. Furthermore, there is a fear that such a platform would add an additional layer between the potential customer and the organisations behind the platforms while these stakeholders insist that the physical contact is primordial for this typical market.

The benchmark analysis and the interviews with stakeholders have shown that collaboration between platforms exist frequently and in many forms. These platforms have different scopes in terms of audience and geographical scale, with the organisation behind the platform being an essential link to do the matchmaking between the materials and the customer. Furthermore, the various forms of interfaces and catalogues between platforms mean that if a meta-platform was to be set up, it would either require for most platforms to make substantial adaptations to fit the mold. If not, it would lead to a meta-platform with a heterogeneous catalogue, which may repel potential customers.

For these reasons, we feel that a meta-platform may not find its audience as an additional layer between the user and the actor. However, an interesting direction could be to think such a meta-platform not as a trading platform but as a tool between the digital platforms, aimed at improving the collaboration between the platforms while not being accessible to the general audience. Such an approach may enable the platforms to better share their own catalogues internally and thus to improve the circulation of materials between them, while avoiding the main issues that cause the actors' reluctance to adhere to the initial concept of meta-platform.