

HERITAGE BUILDINGS AND DIGITAL STORAGE: WHICH CONCEIVABLE MATCH?

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Abstract

The purpose of the article is to define the relationship between property issues and new urban experiences it creates. The article is divided by chapter 3. The first presents the background and urban issues that led to the questioning and, more specifically, the issue of keeping a portfolio of real or virtual way under pressure from the major urban issues. The second part defines the concept of heritage and its representation in a virtual world. We rely heavily on Unesco's work on the preservation of digital data as well as the collective work of Petauque (FR) on the question of meaning to the stored information. Finally, we present the risks of the theory made facing the ground in describing the example of Godin Familist re project that underlies all of our research. It is clear that the article is based on actual experience and is therefore a posteriori looking for experienced face the reality of the Brussels urban governance.

Contextualization: heritage, urban issues and memory

Our paper deals with the questioning of the city, technologies and their relationship to heritage. Thanks to some semantic proposals, we will try to change the way people see heritage protection standards according to urban upheavals that emerge with new technologies and in the context of sustainable new change necessary for the durability of urban projects which turn cities into permanent experimental laboratories.

Our article is based on a practical approach, after a "life-size" experience lived between 2008 and 2012 as part of the work carried out by the team of Cooparch-RU cooperative town planners. This work is complemented by an essential and detailed experience feedback leading to a more theoretical approach of the notion of sign and medium which is widely based on the

current discussions about the concept of storing information related to new means of reproduction and transcription of memory space. In this regard, and in order to better understand the issues which led us to find a medium that would enable us to respect the memory of a symbolic city site while offering to that place the ability to shift to safeguard the strength of evolution of an urban area of more than one million inhabitants. We have used the most recent that technology could offer to retranscribe the architecture in data and pictures. When decision time becomes a factor ; the example of the Godin factory that we will study raises the crucial question of the role of material heritage in the city within the meaning of such citizenship in relation to urban issues that are constantly in motion and that also define this citizenship. This approach might be more emotional than it was supposed to be, but we still try to show that the essence of the real estate is not always in the bricks. In this case, technology is designed to increase the memorial value and may even become its rescue guarantor. Nowadays, technology offers a new era to specialists of town planning and architecture ; that of concrete real-life virtuality thanks to an almost unlimited computing capacity. Some new solutions were used in this experiment such as laser scanning, satellite geotagging, 3D graphic representation and integration of geotagged databases. However, in this case, technology is only a medium faced with a much more important stake whose issues and potential risks we are trying to synthetise in these words: data storage.

If our work as a practitioner of the city allowed us to convince the local authorities of the relevance of the storage process of an architectural memory by virtualization tools as part of a scientific and technical approach to the preservation of patrimonial memory, we were faced with the inability of the authorities to ensure data continuity and preservation, as if the transfer from paper to bits was a revolution in itself. It seems to be in the light of feedback, including from MIT, we will also relate in the article to make clear the real issues of our specifically Brussels approach.

Who would dare destroy a high social value heritage?

If the memory of a city is important, its development is essential and is the guarantee of continuity and therefore of the sustainability of that memory.

The first step of our experimental approach has first been confronted with the question of the value of a site, the Godin Familistère in Laeken (Brussels), the work of Jean-Baptiste Godin who also created the Familistère de Guise, a utopia based on Fourierists precepts.

The second step of our approach consisted in specifying the value of the urban project through its impact on the scale of the Brussels metropolitan area and in the context of frantic territorial competition where sustainable development of the city was the main issue. An increase in value thanks to which we can judge the relevance of the constraints of maintaining or not the architectural heritage in comparison with the urban project.

The third and final step consists in defining a medium to reconcile both patrimonial issues and those of the city without forgetting the importance of the definition of this medium, its use and sustainability. This is about the point of interface that the integration of new technologies emerges in connection with new memorial approaches to Familistère bricks.

A social experience catalyst factory in a city traumatized by Brusselization

The object of our approach was the analysis of all the workshops of foundry and production of the famous Godin stove whose only branch of Guise¹ factory was developed in Laeken (Brussels) from 1858 to 1968. The site is located along the Willebroek canal connecting Brussels to Antwerp and along the Senne, one of the three rivers that irrigate Brussels and its region. Surrounded by infrastructures (city entrance highway, Schaerbeek-formation station, greengrocer's evening market), the site was initially devoted to an exporting counter which was wisely nicknamed 'the Indienne' well defining its business purpose. When Godin purchased the site, he gave it another form of activity through the creation of a foundry to manufacture the famous stoves name of their inventor. After the closure of factories and in spite of a thirty-year-lethargy, the heritage value of the site and more specifically of some buildings like the copy of Familistère was highlighted among others by G. Vanderhulst who wrote several notes about this by the Royal Commission for Monuments and Sites of Brussels region, including that of 2006. He uses explicit terms, removing any ambiguity as to the expected quality of the place: "*The site of the former GODIN stove factory is, in many ways, exceptional at the regional, national and international levels. It deserves a major legal protection despite its sometimes disturbing state of degradation, and following real estate projects*". At that time, the site was still under a development of low quality and most polluting industrial activities with no connection with those initially organized: vehicle boning, tyre traffic, etc. Some warehouses were transformed to allow the setting-up of cold rooms or other storage spaces.

Worse, buildings with an affirmed patrimonial nature were neglected, among others two particularly significant:

- The first one concerns the Familistère itself, classified in August 1988, and exact reproduction of a block of Guise Familistère. This building was not subject to the same social fervour as Guise complex, as shown by its desertion by workers at the plant permanent closure. However, nowadays, it still creates a force recalling Godin intentions, his social and cooperative approach. It still reminds us that when it was closed down, 263 employees were still cooperators of the building. It is undoubtedly the heritage object contributing to the unique identity of the Laeken site and JB Godin major work on Guise site which an application for registration on the UNESCO list is under consideration.
- the second building of major historical interest is the Indienne located in the heart of the manufacturing workshops and whose construction predates Godin arrival. This 3-floor-building was profoundly transformed by Godin who had self-conceived cast-iron columns put in to reinforce floors for stoves storage. Forestry identity resulting from the abundance of columns earned him the nickname "Cathedral".

The rest of the initial Godin site extending over more than 4 hectares gathers 19th century industrial buildings of the 19th century which had already been heavily reshaped. On this last point, and according to the full maintenance of the site defenders, opinions differ. While architectural and industrial value is interesting from Brussels point of view, this architecture is

¹ Located in French Thiérache, Aisne Department

² Note presented by the CRMS in August 2006

relatively trivial (Cooparch, 2008) when compared to other Belgian examples of brick buildings and industrial framework made of wood.

After 40 years of lethargy, that is to say a quarter of their history, the factory and the Brussels Familistère see a new page in their history started at the dawn of the 21st century. Indeed, the industrial site is indeed a major urban issue to the north entrance of Brussels urbanization, based on the reconquest of the channel. The site is opposite the royal property, adjacent to Schaerbeek train station (future Hub TGV) and close to the morning market whose infrastructures also seem doomed to rapid change. The takeover of the site by the real estate and commercial developer Equilis³ is crucial as it provides a solution significantly contributing to the achievement of Brussels Region objectives by creating on the Godin site a new shopping centre and hundreds of accommodations and the adjoining land .

The commercial project which will be inaugurated in 2016 has required many negotiations before entering its present stage of construction⁴ and has raised the question of the overall heritage value of the entire complex.

Negotiations between the commercial developer, the Brussels Region and heritage institutions to which we have actively contributed took place from 2008 to 2012. The major challenge consisted in finding the general balance between the intrinsic value of the site at the level of the history of the city and the need for the last-mentioned to fight on equal terms for the commercial development of the north of Brussels, on an inter-regional level.

These negotiations led to the acknowledgement that, although the Region had to respect the memory of the site and protect more specifically some buildings of unquestionable historical interest related to Godin's history as well as to the history of the Brussels industry, the issues and the economic and urban impact of the setting up of a shopping centre were higher. Heritage fanatics have undoubtedly risen up against this form of 'heritage enhancement' reeking of Brusselisation in link with sinister memories of dismantling of facades which are still nonchalantly stocked on some Belgian wasteland. This is a justified perception of the problem based on a traditional interpretation of the heritage questioning in Brussels and it is in this context that our involvement with the introduction of digital tools has changed the perception of the solutions put at authorities disposal which, so far, have not managed to decide between the urban project and enhancement heritage hence running the risk of seeing northern Brussels urban development biased.

A site, a major urban issue

This craze for heritage site was paralleled (from the mid 2000s) by a proposal from the property developer Equilis to build a commercial complex of more than 35,000 m² instead of Godin workshops. At the same time, all the heritage preservationists got wind of the project then called "Under the Sky".

But what matters is to estimate the importance of this project as part of the development of the metropolitan urban area of Brussels. Indeed, in the early 2000s and for the first time after a

³ Belgian company of commercial real estate development and combined projects. The main shareholder is Mesdagth family, Carrefour Partner and Champion supermarkets owner.

⁴ Dokxs Brussels Project Art & Built

drastic exodus of the population to the outskirts which had begun in the 1970s⁵, the Brussels Region has the prospect of seeing increase in its population by more than 310,000 people, that is to say 1/3 of the population in the early 2000s. The Federal Planning Bureau projects an increase of over 15,000 inhabitants / year for the next 20 years including 170,000 between 2010 and 2020⁶. In some regional towns, the annual demographic growth rates are above 4%. Brussels will have never been so populated than it will be in 2030 with over 1.3 million inhabitants, which will give way to a heavy change in urban balance and will therefore have an impact not only on public transport as new metro lines will have to be created, but also on the housing and services, among other commercial, in other words, our main topic. PRDD⁷ clearly defines these issues as it will create 90,800 flats by 2020 as well as services going with these developments.

In this context, the commercial project called DOCKS Brussel is one of the elements of urban and service mix for the north face of the Brussels Region which will be supplemented by industry, housing, offices and sports infrastructures. But even more, this programme is part of a major territorial competition for the capture of new Brussels residents of whom over 40% will be located in the north face of the city thanks to different projects which are currently in progress such as the new district around the future stadium. This territorial competition is expressed by a border war between Flanders and Brussels with the Uplace project on the other side of the Brussels ring road, a commercial project whose concept developed along the Brussels ring road is still expected so far with more than 55,000 m² of retail shops for more than 190.000m² of constructed floor surface⁹s. The stake of this territorial competition is the capture of wealth faced with the principles of sustainable development, including that of mobility. Finally, on a regional territorial scale, if Brussels inhabitants gradually rediscover a long-neglected valley that was long neglected, it is because this space is the only space of mixed reconversion in a region which increasingly focuses on administrative services. But all of these issues should not eclipse the question of housing which gets out of reach of the middle classes. The channel is expected to meet one of the five regional challenges which consists in curbing its population growth.

These issues have crystallized on the Godin site whose seduction weapon materialized by the offer of a new shopping centre which had a much more important impact on the urban territory than the scale of the site itself. The point of the topic on protection of a heritage site was not only the risk of developing a few thousand square meters of shops instead of historic buildings of some value, but rather the orientation of the sustainable running of the city for the next 30 years. Not to mention the fruitless territorial competition between Flanders and the Brussels Region.

⁵ « Record number of inhabitants in Brussels-Capital Region », IBSA, information note, April 2012

⁶ We can see that Brussels has undergone a positive demographic growth for the last 3 centuries, except at the beginning of the 19th century and between 1975 and 1995. Particularly, we notice that more than 1,250, 000 inhabitants lived there in 1945, that is to say less than the population expected by 2040. Source : Cooparchr-RU, « Estimation of the capacity of RBC densification according to accessibility and heritage criteria. » Study for the Office of the President, 2012 , Brussels

⁷ Regional Plan of Sustainable Development, Brussels Government, 26 the September version

⁸ Reverse gear for Uplace, Brussels Inter Environment, www.ied.be, article published on 4th June 2014 and consulted on 1st April 2015 .

⁹ «Fact and Figures Uplace Machelen, [WWW.uplace](http://WWW.uplace.eu) .eu .Site consulted on 26th March 2015.

A well-considered choice offering all the territorial resilience capabilities

It is at this stage that the question of the resilience capability of a regional territory must be asked and when political choices have to be tackled. These choices are as complex as the city is but their challenges can be understood provided a transversal approach is developed.

The first challenge is urbanity that defines what makes the city a city, that is to say a place of mixed mesh with surrounding neighbourhoods. The shopping centre project adapted to town-planning restraints imposed by the Region, is a project interfaced with different neighbourhoods which are under renovation or constantly evolving. But above all, this project offers the possibility of an intra-regional catchment while providing a real multimodality of moving as opposed to "everything for the car" of the nearby ring road. Thus, the creation of infrastructure, private or public, has often been a catalyst to develop other urban spaces in major cities. The process was the same in this case with, in addition, a guarantee of giving better value to the sustainable development policy suggested by the Region. But the most important resilient feature of the project is undoubtedly its integration into the complex maze of the present city. The project is not an extension of the city but rather a mutation faced with demographic issues and the point of the channel reconquest as a physical structure of regional identity. It is no coincidence that 3 town planners Secchi VIGANO - Djamel CLOUCHE and Kristin Jensen, selected to consider the future of Brussels in 2040¹⁰, based their reflection on its relief and valleys to develop their own vision of the territory regional.

From Brick to digital time, which place should we leave to memory?

The shopping centre project thus made all its sense at that specific location and was all the more economically valued in terms of present and future urban challenges. However, politicians could not make the same mistakes as in Brussels past by demolishing the heritage value of the site. It is in this context that a solution based on digital technologies emerged. It required above all a redefinition of the concept of heritage and of the medium in which it fitted.

The issues of value and heritage protection are relatively recent. In this regard, we would like to recall that although the Royal Commission for Monuments and Sites was established almost immediately after the Belgian revolution (January 7, 1835), it was not before the mid-70s that the definition of heritage widened to social questions. A palace revolution which allowed the development of research on this subject and enabled to make the link between a building or a place and its inherent story : the true story. This new approach is completed by the collective or inhabitants' right of initiative to legally claim the classification of the building.

Today, this social and contextual issue is part of the concept of classification and opens the field for new ideas, whatever the heritage (material or immaterial). Faced with these many questions, we were commissioned by the developer of the future shopping centre and by the Brussels Region Heritage Minister to offer a satisfactory solution to all parties. A feat which was supposed to meet urban challenges without denying the heritage site value, and as we will

¹⁰ Brussels 2040, 3 visions for a metropolis, BOZAR architecture, exhibition catalogue from 16 th March to 15 th April 2012, ed... Brussels-Capital Region, 2012

realize later, especially its memorial value in terms of its social value which is intimately linked to the history of Guise site.

Before taking up to this challenge, it appeared useful to us to define the various types of assets, in addition to that relating to the brick and whose intrinsic value was, as noted above, highly subjective. Godin site was the ideal study case as Godin himself attached little importance to architecture, convinced that what mattered was the social use of the building and not its architecture in itself.

Setting new values to define heritage, a transition to better understand the digital approach.

"This historical study of the former Godin plants in Laeken-Brussels allowed to glimpse the importance, not only of Godin character, by the specificity of his socialist utopian ideology and technical innovations, but also of the Laeken site and of its Familistère, as messenger of a memorial value which is more social than historical, aesthetic or technical. Indeed, even if the only other example of this type with a factory familistère, the Guise site in France, we have noticed that architecturally, technically and aesthetically, the Laeken site is less developed than that of Guise while in Grand Hornu, Bois-du-Luc, or in Guise, the intention to town planning is clear in the layout of the site. In the case of the Laeken site, we can not say that an overall projection is present from an architectural and urban point of view. ¹¹"

This was the conclusion given to the heritage value by Cooparch architects and town planners in 2008 before demolition. However, this conclusion could only be partial as it did not answer the question of maintaining the memory of the site and its social role in the global history of the atypical course of the manufacturer and utopian JB Godin. We had to tackle a new problem : if the building disappeared, a significant piece of the scientific potential of research ideas on Godin would also also risk disappearing. The danger of losing forever the potential of an analysis of the running of the plant and the inner social relationships was too important to be overlooked. It was a matter of a production process in the plant that could not be dissociated from workers who were at the same time cooperators of the Brussels Familistère. From this unanswered acknowledgement in 2008, it was necessary to open the reading field of historical memory for heritage preservation. The goal of our evaluation was to solve the equation between urban and heritage issues. A process that could not content itself with already proven solutions and which was also supposed to convince of the accuracy of the development of new specific criteria. The immateriality of relationships at work in a building site or geographic location were indissociable. Our role was to develop a solution offering to any researcher the opportunity to go on studying the site, but taking into account the fact that the site would not physically exist (in part) on a territory. A very singular definition which is specific to the architectural and social Godin site issues but also an approach that we thought should be compared to the archaeological approach that collects, reads and destroys to better understand. This purpose was ambitious and, as far as we knew, unique of its kind in Belgium. It required a bit of adventure and great conviction to convince institutional actors of the relevance of a new theoretical approach to the preservation of material heritage through digitization. In an

¹¹ Cooparch-RU, « the site of the former Godin factories in Laeken, historical and contextual », p.63, 10th November 2008

underlying way, we had to define the heritage criteria which would allow to highlight the elements that form the base of this new memorial dematerialized approach.

Far from a wish to theorize about the concept, we turned towards the current research on the definition of digital records and their preservation. Here is a summary of these researches as well as their risks and potentialities. We realize the synthesis below, also revealing their risks and potential.

About the value of a brick, virtual or real

Our criteria were defined by the cultural context in which the project came within and, more generally, the question of historical memory in Europe. The concept of heritage is closely linked to the culture of the society in which it lies. It is therefore difficult to extract from it and the new memorial digital approach is all the more difficult to develop that Europe is probably one of the continents that resists digital innovations the most. Experimentation of age-old arts and heritage fields such as architecture has evolved very little since the French Revolution (G. GIOVANNONI 1998)¹². Indeed, before any specific approach to the issue of Godin factory preservation, we had to carry out a work in order to objectivize the method in relation to targets and invariants, that is to say memory preservation methods.

To demonstrate and implement a digital method of preserving architectural data, we drew our inspiration from studies carried out through similar questioning within the framework of the preservation of written data while bearing in mind the suspensive condition to preserve this specific heritage especially considering the deterioration in the quality of paper. This approach is complemented by an analysis of the work carried out by UNESCO about the issue of digital memory and its preservation conditions in the context of the digital age, regardless of the work to preserve.

Preserving the architectural heritage today

Architecture, like any art, is no exception to the rule when it comes to developments in the new information society that allows to dematerialize, but can architecture actually be dematerialized to be lived? Asking this question is in itself a questioning of heritage conservation principles as applied today in most heritage services in Europe. Yet, the Venice Charter which was approved May 31¹³, 1964, that is to say 30 years before the opening of the Internet to the public, remains highly relevant today. However, it deserves a new interpretation which would refound the challenges of architecture preservation for future generations. A second reading of the original text¹⁴ seems necessary, incorporating the new digital paradigm. Here is an extract from the Venice Charter preamble :

"Imbued with a spiritual message from the past, the monumental works of people remain a living witness to their old-age traditions. Humanity, (...) must hand them down in the full richness of their authenticity. It is therefore essential to release and make public on an international level

¹² Gustavo Giovanni, *Urbanisme face aux villes anciennes*, Paris, Seuil Publisher (collection Sc.), circa, p.215

¹³ 2nd International Conference of Architects and Historic Monuments Technicians, Venice, 25-31 May 1964, ICOMOS, International Meeting of monuments and sites, International Charter on the preservation and restoration of monuments and sites, text definitively carried in 1965.

¹⁴ http://www.international.icomos.org/charters/Venice_f.pdf, consulted on 22st April 2015

the principles which should govern the preservation and restoration of monuments, while leaving each nation the task of ensuring their enforcement under its own culture and traditions. (...) Our assessment criteria were defined as follows: cultural and societal heritage value and memory dynamic value. "

We will bear in mind this specific issue which underlies the need for a living and adapting heritage to reallocate, as described in art.5 from the 'preservation' chapter as well as in the art.9 from Restoration chapter, enacting the rules of all existing restorations and defining restoration principles as an exceptional operation that cannot distort the heritage of primo historicity. In addition, the act of restoration ends where the assumption begins, as far as conjectural reconstitutions are concerned. Heritage is therefore defined by material issues included in a cultural context that is by definition moving and evolving. So much that, according to culture and the country concerned, the value of content is more important than the container. Nicolas Fiévé¹⁵ shows so by the exemplary reading of the value of heritage in Japan and offers a new approach to the architectural heritage as a component part of the artistic and cultural heritage, without dominating it.

The interpretation of the Venice Charter is complex and, above all, as cultural as societal. It varies and adapts to suit the needs, requirements or policies. It therefore seemed to us useful to analyze the issue of the Laeken site with a less sensitive approach and analyzing what the studies through the memory retention generally experiencing the brunt of the digital transformations. With this approach, we have been able to better understand the principles of cultural and societal values in the memory and its preservation methods for hardware. A theoretical approach to better define the concepts of heritage preservation facing the digital challenge. This approach was then used to make choices in full knowledge of the facts.

Among form, sign and medium, which space for memory in the digital age?

Definition: document

As above-mentioned, it appeared useful to test the idea that an architectural heritage can be maintained in a different way in comparison with traditional methods of preservation and restoration such as the ones generally carried out in Europe. This idea sets the built heritage in a broader reflection on memory and its meaning in the context of urban transformations which are increasingly important in order to meet both demographic and climate problems. Architecture and heritage thus take up on a new form, including syntactic, by simply becoming a "document" illustrating the scope of the story it contains if not totally devastated and lost. It is the price to pay for the issue of the cities resilience. A notion that appears, among others in Pédaque RT collective (2003) whose interest was to develop a reflection on the interaction between the memory elements (books, documents, scripts, ...) as an object of analysis and digital technologies. The document is no longer a simple object, it becomes a semantic definition covering a general term which includes much wider criteria. The study demonstrates

¹⁵ **Nicolas Fiévé**, *Architecture et patrimoine au Japon : les mots du monument historique, L'abus monumental. Actes des Entretiens du Patrimoine, Paris, Fayard, 1999, pp.325-328*

that the document changes form and meaning in the Digital Age, opening a new chapter with the possibility of opening new areas of approach. These are often still largely undetermined at a time in history when digital technologies do not allow referential stability through the constant evolution of technologies. On the other hand, this instability offers new reading fields such as the development of the process of the digital documenting architecture.

The filing process of Godin site in Laeken comes within these principles and proves so: the building becomes an archive document. However, this would not be the first time a building is digitized and an architectural model can also become an archive document like the pieces of writing of an architect on the design of a project. However, this definition of architecture as a document has offered us the opportunity to get ourselves out of an analysis by traditional methods of preservation of architectural heritage. By objectivizing the request, does Godin have more social than architectural value? "

Decomposition: form, sign and medium

In order to better define the interest of this comprehensive approach for the Laeken site, we had to decode the Godin architectural production process, his writings (Social Solutions, 1880¹⁶) and his social goals¹⁷ which made his cultural and societal values highlighted.

To set architecture and link it to a documentary context, we must redefine the architectural object through what makes up the digital document with its archive features. Architecture must then be supplemented by the analysis of its level of documentary compatibility, drawing inspiration from Pédauque works¹⁸ defining the form, sign and medium:

- Form: certainly the easiest to define, but insufficient by itself to translate a building into a document. It is commonly translated as an object, material, manipulable or at least tactile.

We should however note that today, the Oculus Rift type technologies (developed by Oculus VR) or HoloLens¹⁹ (Microsoft), virtual and augmented reality glasses, offer a new field to manipulate virtual objects. Meanwhile, these technologies are no longer toys for gamers but connected objects that could become everyone's daily life within a period of no longer than 5 to 10 years. This technological contribution offers a new dimension to the tools available to researchers and should force us to reconsider all the available media, whether we are an architect or a historian. In this sense, the frontier between the two fields gets very tenuous and probably obsolescent in the coming years. These tools will necessarily redefine the meaning and the definition of the senses of touch, hearing as well as the visual immersion capacity defining the real-life experience of a building, real or not.

- The sign: the authors define the signs of a document, which characterizes it as real-life carrier of the intentionality and making the document inseparable from the context in which it is produced so that it keeps its meaning.

Except considering the last 20 years and the apparition of cultural globalization, which gives way to a more generic production, architecture has always been a carrier of the meaning that

¹⁶ Jean Baptiste Godin, Solutions Sociales, La Digitale Publisher, Paris, 1979 (first published in 1871)

¹⁷ Patricia Toucas sld de Michel Dreyfus, Les coopérateurs : deux siècles de pratiques coopératives, L'atelier/ouvrières publisher, Paris, p.316-317, Paris, p.316-317

¹⁸ Roger T. Pédauque. Document : forme, signe et médium, les re-formulations du numérique 3, 2003

¹⁹ <https://youtu.be/gym11JnFQBM>

defines a programme in symbiosis with its place. The form, drawings, the programme of a building are certainly a form of sign through the document, which, in this case, is defined by the building façade. In the case of Godin site in Laeken (Brussels), the meaning of the place is the copy of Guise Familistère, place of life and workers' cooperation. This listed building could be demolished. The second element which gave sense to the principles set up to respect heritage was the 'Indiennerie', the first building that was purchased by Godin and turned a bit in a rush to make it operational as soon as possible faced with social and political unrest of the Second Empire, and with anti-bourgeois Godin stand²⁰. A political situation that forced him to consider an economic retirement outside the French borders and a fast setting up of his factory in Belgium. This building is immediately transformed by Godin to be reassigned to the new storage activity of stoves waiting for being shipped through the port of Antwerp. A change implemented a few years before the construction of other industrial buildings. And beyond the temporal contextualization, the building and its conversion by Godin, demonstrate a real technical clear-sightedness by the constructive choices he has brought to the building.

- The medium: the definition of the medium is also interpreted as an information and communicating element, a communication that allows the creation of relationships and social experiments through the document (ibid.).

This reading is well suited to architecture and even comes within the basis for the goal of any architect wishing to offer any conceptual thinking (the building) to the community, the city or territory. Whatever the time, architecture has always been subject to sensory experiments around the containers and the content. However, today, these elements are changing in one respect : the sensations of these contents can be rewritten digitally and even increased. As a result, architecture is no longer the only link with an experimental wrapping of sensations considering that a virtual space can cause the brain to forget that sensory wrapping is virtual for real sensations. The collective work "Mobility and hybrid courses"²¹ under the supervision of P. Laudati, D. Laousse and K. Zreik makes it clear especially as, nowadays, the question is whether the terms of augmented and virtual realities are still appropriate to describe this type of interaction where the virtual partly creates reality.

In the light of new research on digital issues, the analysis of this dissection of the document shows that digitalization of space in society, in the social, lived and built senses, enable us to place architecture as the structure of documents-items that meet transportable criteria of writing and semantics. The "reader" can take this new approach over all the more easily that all documents can now be on the same medium. Indeed, the emergence of standardization of new technologies such as 3D digitization of spaces by lasers can create an image of an existing site, in all its dimensions and on a precision scale which could not even have been considered 5 years ago. These data are transcribed as a piece of information whose meaning has grounds for existence only if they recover form, sign and medium as already specified, but transposed into digital codes. This new approach which remains experimental, only makes sense thanks to the level of definition that technology can achieve when it comes to the plotting of buildings and

²⁰ **Jean_Baptiste Godin**, *La politique du travail et la politique des privilèges*, La Digitale Publisher, 2009, first publishing in 1875.

²¹ *Hyperurbain 4*, Paris, Europia Publisher, 2014

may define a level of sufficient analysis to scientific research. Indeed, the degree of accuracy achieved today, and the imprecision that goes with it, is the millimetre and paradoxically offers a precision of detail that any plotting made by man could ever reach. The paradigm of the building or monument plotting therefore changes to be given a scientific paper value, accurate and true reflection of reality. Then virtualization technologies offer the opportunity to bring the destroyed or disappeared building back to life. One cannot deny the interest that this type of monument plotting might have had considering the patrimonial massacres recently carried out by the Islamic State against Persian architecture in Syria. The Syrian issue shows the concrete relevance of digital archiving. An approach that is defined on the basis of principles of preserved memory, and which, above all, offers the potential for subsequent rebuilding according to the strict rules of the Venice Charter, as all plans of the original situation exist and are available. Similarly, another example is the Mostar Bridge (16th century), which was destroyed during the Balkan War and rebuilt by the international community, based on historical documents. These two contemporary examples seem to demonstrate the relevance of digital technology allowing the setting up of documents, with the advantage of full reversibility.

Transposing a building as a simple document while having the ability to experience it as part of a virtually reconstructed item with the same characteristics as the ones of the real or rebuilt item as it is commonly done, opens a field for the architectural archiving concept. This is a question which must be considered through the urban transformations that are growing faster and faster. This new definition contrasts with or challenges the very definition of the document as heritage and history professionals interpret it nowadays, most of the time in paper form for lack of bricks. Tomorrow document can be defined thanks to its digital nature, as a state, sometimes temporary, sometimes permanent, but still reversible and convertible (Dominique Cotte, 2004)²². The technical-theoretical approach defined at that moment cannot relegate to a position of secondary importance other aspects such as culture or societal /living memory. Elements of architectural experience and that can not be neglected in the entire setting-up of the semantic reading of a built "document". This is the case, for example, of collective actions and real-life working experience in a factory which, at first, seem difficult to reflect in a virtual transcription. Therefore, the creation of an architecture-document can only be one of the components of the memory of the deconstructed place. Other elements become a necessary complement to the understanding of a whole so that the experience can really be 'augmented'

Corporate and cultural value of memory

Corporate

Assuming that heritage lovers put up with this new systemic paradigm of the building turned into a memory document whose qualities reveal a moment in time and that this building could be maintained or converted to data, themselves reconstructible according to the requirements of Society, should this theoretical principle be developed in parallel with the redefinition of heritage preservation rules in order to give the same preservation status to data as the one given to a

²² **Dominique Cotte**, *le concept de document numérique*, *Archive ouverte en Sciences de l'Information et de la Communication*, <http://archivesic.ccsd.cnrs.fr/>, document published on 11th March 2009 and consulted on 15th April 2015

historic building protected by its listing? An approach that can only be undertaken on a world-wide scale and by UNESCO in particular which has been taking an active interest in this issue since 2003²³ and has materialized in the Declaration of Vancouver²⁴ in 2012, a fundamental declaration in the definition of preservation of digital documents but also when it comes to free access to them. On the occasion of this agreement, UNESCO explicitly acknowledges that *digitization prevents scanning documents of inestimable value from being handled and thus deteriorated further*. Obviously, the approach remains essentially linked to the new form of digital and artistic documents whose only substance is dematerialized without physical medium. However, a new reading of the founding texts can provide a genuine interest in the issue of physical assets such as architecture. This is what is specified by *a good management of reliable digital content which is essential for sustainable development* by also emphasizing the need to develop *an emergency digitization programme aimed at preserving documentary collection threatened by natural disasters or armed conflicts*. An approach that seems premonitory today when we see what is going on in Syria.

The interpretation of this Agreement may be put into perspective with the interpretation of the question of architecture in the form of two concepts which are part of our foremost preoccupations as far as our approach is concerned:

- The first one is about the architecture built in analogical form, and whose value is the very presence on a territory or city. All traditional heritage protection rules are implemented here.
- The second one concerns the digital heritage, either in analogical form (plans, drawings or models) or digital (plans, models, ...) for reasons of preservation and availability of that memory. In addition, the process of digitization in order to preserve an analogical paper, here in the architectural form, shows the interest of the archiving concept even before the possible disappearance and enhancement of the quality of the digital document as a scientific protection element.

Cultural

If the societal value of heritage can be defined at the level of questioning the evolution of our society, the cultural definition of heritage enables us to better understand the nuances of the more local issues and, therefore, often tinged with emotions. However, we cannot initially extricate ourselves from the cultural question initially at the level of the group forming a society of individuals bound by the same cultural values. These values can be expressed on the scale of a country that we will call a "society", offering specific reading of the historical memory. For example, Japan differs from European culture by the meanings given to heritage objects and their containers, in this case, buildings. Closer still is the question which still currently arises in France when it comes to the heritage value of the buildings defining the industrial period. A period for which France found it difficult to get rid of the traditional notion of heritage, namely churches, castles and bricks from all other times than the 19th and 20th centuries which were industrial ground. Indeed, how to classify and restore the machinery of a colliery knowing that it will never function any more for what it was dedicated to at first? What about the social heritage

²³ UNESCO, *Directives pour la sauvegarde du patrimoine numérique*, 2003

²⁴ UNESCO, *Declaration of Vancouver*, Vancouver, 26-28 September 2012

of a public space, a place of social struggles which must be altered to allow the transition of modernity through a LRT²⁵?

In other respects, architecture is an element of everyday cultural experience and sometimes subject to aesthetic modes that define its method of preservation. The example of the love-hate of Belgium towards the Art Nouveau just after World War II and until the 1980s shows that the value of heritage is not intangible, poured in cement. This period of determination to destroy the pre-war heritage is also a specific time of Belgium's history that was dedicated body and soul to modernity. It is therefore not neutral for the Belgian history of building preservation, and through its mechanisms, it reflects its time.

Property assets are not only a preserved architectural style. In some cases, it can represent a collective social history despite its architectural trivialization, which is partly the case for the Laeken Godin site. Architecture then becomes carrier of meaning not for its intrinsic qualities, but for what it represents.

The publication about community centres in the French-speaking Community (Tatiana Willems, Renaud Zeebroek²⁶) shows without a shadow of a doubt that the content (cooperatives, meeting rooms, shops ...) was more important than the container. And if Hendrik Defoort, in the same book, describes the significant role of avant-garde buildings such as the community centres of Brussels by Horta and the Vooruit in Ghent both designed to impress the European Socialists, they nevertheless remain exceptional compared to the hundreds of other cooperatives houses built in the late 19th century or early 20th in Belgium whose architecture is much darker or even ordinary.

Mr. Halbwachs offers us an even subtler definition of the concept of memory in his book entitled "collective memory"²⁷. Here is an extract:

"If between the houses, streets and groups of their inhabitants, there were only an accidental relationship of short duration, men could destroy their house, their neighbourhood and build others on a different level; but if stones agree to be carried, it is not ²easy to "change the relationship that has developed between stones and men. When a group of people lives for a long time in a location suited to their habits, not only their movements but also their thoughts are set on the succession of material images that represent their external objects (...) Stones and materials will not resist you, but groups will do so and you will meet with the resistance, if not of stones, at least of their old layout.

The description of the relationship between bricks and the social content of these is explicit and sums up the question of bricks as storage medium. If this makes indissociable the relationship between social history and the building-container, what Halbwachs could not predict is the emergence of technologies offering the opportunity to immerse ourselves once again in architecture and living environment. Let's imagine ourselves going for a life-size walk in the community centres of Brussels, in full immersion. A unique experience that would undoubtedly

²⁵ Light Rail Transport (Transport Commun en Site Propre) : this question arose for the realization of Bordeaux tramway which required the creation of a third electrically conducted rail in order to allow Public Transport through Historic Bordeaux without damaging the quality of street spaces by tramway crossing.

²⁶ *Les maisons du peuple entre militantisme et loisirs*, Tatiana Willems and Renaud Zeebroek coll sld, collection of *European Ethnology studies*, CFWB Publisher, Brussels.

²⁷ Halbwachs M, *La mémoire collective*, Paris, Albin Michel, Bibliothèque de l'évolution de l'humanité, 1997, second publishing reshaped by Namer G.J., p.200

bring out a new imagination and integrate the architectural dimension of brilliant speech on the balcony of Emile Vandervelde Square. Today, all this is technically possible and gives a new dimension to the historical social approach, written in its original urban context.

Our architecture-document approach is also defined through the approach to preserving the true story which can only be partially transmitted through oral tradition or written work / recordings. This living memory thus becomes document and the architecture document completes knowledge while allowing to make tangible complementary experience in the sense of hearing and eyesight, by "virtual" touch. The process that we develop weaves still its real hybridization as the document can take any form, at different moments of the life of the building or city : paper project, constructed member, protected or virtualized element. Whatever its condition, the document-building offers thanks to current technologies a true-life experimentation: from 3D model to virtual reconstruction and sensory immersion. This is also the purpose of the laboratory implementation DéVisu (arch. SKOPE / T'Kindt) from the University of Valenciennes, in Wallers.

The advantage of this approach is the emergence of a development concept of a virtual sensory experience, complemented by written and sound contributions thanks to which a place and its social history can be translated. If technological contributions of today undoubtedly allow so, this approach must be balanced by the collective imagination that needs to project collectively and not individually in a space in order to live and share space-time in its most instantaneous and indissociable. In the publication *Heritage and collective life* (Coll. 2005)²⁸, Nicolas Robert J. and Alexander Pouleur share with us the experience of Albert 1^{er} Square in an interview summarizing the limits of sensory and virtual approach: " Albert 1^{er} Square is two things to me. Ball game. I attended dramatic struggles of pelota. "Pelota ", it also reminds me of a department store which was there and was kept by Marcel Crohez. It was the "Bon Marché". Pierre Crohez who was president of the literary artistic circle of Charleroi, with whom I had some very interesting conversations, precisely because he was as keen on the arts and literature as I was. And he is a selfless man, a great man of taste (...).

Then, another memory, it was in 1960, the famous 60 strike during which Arthur Gailly had gathered leftists throughout the region around him. Yes, it was in 60. No, it's earlier, it's earlier. It is not during the Royal case. It's not in 1950? 51 or 52 when Belgium took a stand in favour or against Leopold III. There was an open air rally, It was really crowded. The place was full of bursting, it was crammed full. A word would have been enough to turn those who were there into real revolutionaries, the people were so excited. "²⁹

Thanks to this extract, we can understand and define the possibilities and limitations offered by virtualization of the building which became document. Limitations which must be assessed at the level of digitalization systems that are now available to us. Indeed, these limitations develop and enrich so much true-life experience that they lead us to rethink the limits of experimentation. On the one hand, the place can be restored in every detail, including the Charleroi house of cooperatives that was demolished in 1961 to give way for the first Charleroi

²⁸ Coll., *Patrimoine et vie collective*, sld Pierre Wanlin, Culture-Education Permanente, CFWB Publisher, Brussels, 2005

²⁹ Pouleur J. A., *le patrimoine « social vécu » de Charleroi centre. Edifices, ensembles architecturaux, sites, etc. formant le patrimoine de Charleroi « intra-muros » tel qu'il est ressenti par certains acteurs. Ph. D . doctoral thesis, Louvain-la-Neuve Catholic University.*

24-floor "skyscraper" which gave A. Gailly the opportunity to express himself on the balcony. On the other hand, if his speech was probably not recorded, at least as far as what interests us is concerned, it could be reinterpreted according to the basics of the entirely or partially written speech. So here we are in this vanished square with its old buildings disappeared, living again the militant speech of bygone days. The virtual reconstruction of the space is an unquestionable challenge to contextualize this speech. However, and after having read the quoted testimony, nothing can express the relationship between the two actors of the artistic circle of Charleroi. Virtual world cannot transfer the feelings shared between the two characters of the time. The limits are at people's souls door.

From memory value to its preservation

The complex process of digital archiving

New technologies offer the incredible opportunity to develop our senses through immersion in architecture, virtual, but lived. Combined with other media such as written/ spoken or sound, they reveal the potential of augmented experience. An experience that must be considered in its proper place, next to the living heritage of buildings that must clearly be preserved. However it is impossible to deny that faced with the evolution of the city and when a building is loaded with more stories than bricks, the idea of virtualization can be presented as a specific solution as it allows everything to remain in the memory without tarnishing the evolution of the city. It is this approach that we developed for the Laeken Godin Site archiving.

Godin site was, above all, a relatively traditional production site for its time and showed, allowing for exceptions, no outstanding architectural characteristics. The main buildings such as the Indiennerie and the Familistère were preserved and strengthened beyond the traditional classification protection measures of classification by changing the plotplan initiated by the commercial developer, in order to give meaning to the history of the place by the presence of signs of production spaces in the network of public spaces. We have developed a comprehensive digitization strategy of the plant production site. A plot made to a definition of the degree of laser permissible error lasers within 3 mm, to meet all carpenters' drawings on I foundry workshops load bearing timber structures. Additionally, a sensitive approach of the life in this building was filmed through the visit of experts describing step by step the architectural elements and general feeling. A photographic report and monitoring of demolitions, step by step, by the archaeological services of the Brussels region completed this work and helped to create a large database on the site at the same time technical, scientific and sensible.

It also seemed very important to us to link these data to the development of the site in the proposed shopping centre. This model has thus been designed to be "lived" through a geolocated smartphone thanks to which we can virtually move with ease and in all simplicity in old buildings ... while doing our shopping. This last step remains unresolved and may be checked at the opening of the site.

But most important was to coordinate information with the Godin Foundation based in Guise (FR) and to provide copies of all stored data. While this innovative and unusual approach was

accepted by the heritage services of the Brussels Region³⁰, it was not the same for all the archiving services of these data. We were faced with the biggest current problem which is the management of digital data storage and its preservation. A concern joining UNESCO's (Vancouver, 2004) stating that *digital preservation should be a development priority and specifying that investments in infrastructure are essential to ensure the preservation of documents and their long-term accessibility*. Additionally, we were also faced with a lack of understanding from actors and still more, from the administrative system on which they depended. Once more, UNESCO made the point by stating in the *Charter of the digital memory the need for educational and training projects for data professionals which must be developed and disseminated to prepare and convince them to implement the data digitization and storage according to the needs of governments and citizens*.

The question of data preservation and storage is an even more crucial issue than the memory digitization. This approach is still much debated and for a reason that has not been solved to date : the definition of a universal storage medium. The principle of universality requires the creation of a new language such as digital Esperanto. However, such an approach seems difficult to organize in a digital world that is in its semantic infancy. There are many codes like HTML³¹, but which are not languages strictly speaking. Thus, in the context of digital plans documents, if a model compatible with all, namely AUTOCAD size dwg and .dxf type there is at the same time countless numbers of other coding systems associated with non open source software. In this context, the universal compatibility remains a pious hope, since the transfer of a coding system is a source of losses and interpretations. However, the biggest problem is of another type and is related to the physical storage of data. Indeed, on the one hand, the solution of mastery of language can now be bypassed with the availability of the software and its ad hoc version ; on the other hand, these elements must be preserved in the long term in the same way as the paper serves as a universal medium for all languages and requires specific conditions to ensure its preservation. However, no physical medium can guarantee to date data perpetuity. The obsolescence of these is programmed if we can't ensure the maintenance of all media that can read them. A problem that is not new with the audio recordings and their various magnetic reading media created since the 1930s, with the particularity that currently reading materials vary or change every 5 years. Therefore, the maintenance of digital data and the continuity of its reading are now a real unsolved problem, probably owing to technologies which are still at the dawn of their development and thus not stable.

This issue was recently raised by Kate KONDAYEN in an article in the Harvard Gazette (May 8, 2015) in which she describes the difficulties to keep in working order all the different reading systems aimed at reading or transcribing the stored data. It helps to understand how recorded or digital data storage strategies require an original process which is always questioning.

This was also the case for the point of this paper, namely digital data produced on the Godin Familistère in Laeken. As much on the scale of the city of Brussels as for the Godin Foundation,

³⁰ Following this project, a similar approach was launched for the digitization of the inside of the Brussels Town Hall in order to get a suitable for being archived database of the whole building such as defined today and suggesting a less detailed application for tours in the form of augmented visualization.

³¹ Hypertext Markup Language created by Tim Berners-Lee and being one of the three pillars of the World Wide Web. The vast majority of Internet sites function today with this type of coding allowing the display of pages on the Web.

we have received no guarantee of data preservation process nor of their integration in Brussels city or Aisne Department archives services which are still questioning the matter.

From our side, we had attempted to provide data across multiple formats for which we had guaranteed the original value of the data. We had also planned the integration of a data conversion software so that they could not be damaged during the transfer. These data were made available (and duplicated for security reasons) for the services that manage storage without really knowing what would be done with them.

Conclusion: A peculiarity, new paradigms

The Godin Familistère site in Laeken was then dismantled. The remarkable buildings of the industrial and social history of this site, however, were maintained and better valued than in the original project. All Heritage initiative launched by the Brussels Region has also developed a new approach to the definition of the memory of an architectural place and its way of archiving. However, the coherence of approach was confronted with the question of memory itself, now institutionalized (city, foundation), but has not yet incorporated the paradigms of holding digital data. The significant risk of data loss could paralyze a new approach to the archiving of the city which is today a major issue of urban resilience faced with demographic, technological and climate issues. A singular paradox where the city wants to be smart but forgets its memory if there is no way of knowing of how to preserve it. This article tries to demonstrate the essential link between the emergence of a new approach to urban memory compared to its mutations. If Europe has valued property assets so much that they were made part and parcel of their cultural DNA, European cities also face the necessary development in their urban fabric to adapt themselves to change as it has always been the case.

A memory that can only be of value if the actors of the city and of architecture accept to turn fresh eyes to the size of the architectural object. An object that is no longer only confined to three dimensions of reality. This multifaceted document can also group new forms of integrated sensory dimensions and restores both the container and contents. To paraphrase a few buzzwords which are very judicious here : just like an augmented experience, nowadays, cities offer all digital conditions of former, present and future experience. This perspective offers a new historical and archaeological approach of buildings which have recently disappeared and can still remain present in the form of lines of code. The codes themselves are a source of virtual architecture whose experience complemented by signs, text, sound and customs offers an immersion of which all the specialists in the history of cities and architecture dream, for lack of architecture turned into a museum. The risks of secularization of the cities and their growing difficulties in adapting to the changes are not trivial and it is through this approach that the innovation process of the Leaken Godin site digitization fits. Otherwise, it seems to us that the transformation stakes have priority on memory, this is what we call the instinct of survival. And rather than reject this new dimension of heritage development, it seems possible to open the field of mutation in cities without tarnishing their history.

Furthermore, we have to admit that this approach requires new rules, themselves modelled on the rules of data preservation in libraries and on the development of the concept of architecture-document. A document whose preservation rules are the essential condition for its relevance.

We have shown that the field of research on the concept of digital document is still far from unanimous, already underlining the need to rethink the city archiving, all pieces of information taken into account, these data which found the city and format its history.

All these concepts refer to the social and corporate dimension making up the urban fabric. On the scale of the city feelings and experience, this concept of the document-architecture provides the ability to enhance the value of experience without tarnishing the future, two positions that cannot be dissociated from the inhabitants' well-being. In the end, nobody is custodian of the heritage value of a building; the heritage quality of property can only be measured in the long term whereas the city must develop faster and faster. The creation of architecture-documents, architecture is one of the ways of reconciling the paradigms that seem irreconcilable at first glance.

Finally, this approach has the advantage of putting forward a paradox in the digital era: the villa has never been in greater need for libraries and archivists. However, nowadays, storing data remains today a test subject that can only be stabilized in a context in which technologies are stable. This is not the case today. The role of the archive staff is crucial for the sustainability of data to be stored in the future.

As a conclusion, our intention was to share an atypical and necessary experience facing a new context for Brussels: a growing city battling for territory but which still has to preserve its history. However, to preserve its history. Our new contribution was undoubtedly a look through what digital technologies offer, allowing a shifting in the questioning towards a new space: the virtual and memorial town, one being inseparable from the other.