Addressing the mismatch:
A strategy for creating adaptable office buildings and adding value for corporations

Reflection

Yiannos Mexis
4600924
29/05/2020
TU DELFT

TITLE:
Addressing the mismatch: A strategy for creating adaptable office building and adding value for corporations.

Master Thesis
Date: 29th May, 2020

Personal details
Ir. Ioannis (Yiannos) Mexis
Student number: 4600924
Phone number: XX
Alternative Phone number: XX
Email: yiannosmexis@gmail.com

Delft University of Technology
Faculty of Architecture and the Built Environment
MSc Architecture, Urbanism and Building Sciences
Track: Management in the Built Environment
1st Mentor: Hilde Remøy
2nd Mentor: Philip Koppels

Reflection

This booklet presents the author's reflection to the graduation research and the process followed. Specifically, the three main topics that will be discussed are: Research topic, Research relevance, Research methodology & process.

1. Research topic

This research is conducted as part of the Management in the Built Environment department within the chair of Real Estate Management (REM). This chair focuses on facilitating the users of the built environment, management of real estate portfolios, while contributing to organisational and societal objectives, sustainability challenges and economic feasibility. The REM chair provides a number of research laboratories addressing the aforementioned topics from different perspectives. This thesis was not conducted following directly any of the proposed laboratories, although there is a relation with the "Adaptive reuse" laboratory and the "CRE alignment & adding value". The focus of the proposed laboratory is on existing buildings and specifically on energy neutral building adaptation and circular adaptive reuse. On the other hand, acknowledging the market's rising interest on adaptability, the focus of this thesis is on the development of new office buildings who have the capacity to adapt to present and future demands.

The goal of this study is to create a strategy that will assist the creation of buildings which can respond to their user's constant change of demands, the development of a dynamic and adaptable owner-occupied portfolio for corporations that can manage the risk of buildings becoming obsolete due to their low built-in adaptive capacity. On the same line, the large-scale ambition of this thesis is to illustrate the benefits of adaptability and stimulate the shift towards a more sustainable and future-proof future.

Specifically, the strategy will explore how the proposed actions can add value for corporations. Therefore, depending on their core business objectives, corporate real estate managers can tailor and apply components of the strategy, while expecting the added value for the real estate portfolio and consequently the impact they will have on their organisation's performance and goals (Van der Voordt, 2016). In that sense, the strategy can support the decision making process of corporate real estate managers regarding the future accommodation strategies of their organisations.

2. Research relevance

• Scientific relevance

The demand for a sustainable solutions and the rapid increase in the way society evolves -resulting in constant change of demands- have resulted in adaptability being a major theme in the field of scientific research. Though the increase of obsolete buildings and the shortage of adaptable and flexible real estate, signifies that despite the research on this topic, there is still gap that needs to be addressed in order to stimulate the supply of future proof buildings.

Reviewing the existing literature, many authors have developed tools or proposed actions dealing with adaptable solutions. Though Estaji (2017) and Kouyea (2018) had stated, there is a lack of a comprehensive and thorough strategy addressing the matter.

One of the frameworks that is still been used by authors when writing about adaptable solutions is Brand's "6 S-Building layers" framework (Brandt, 1994). Though Schmidt III (2014), stated that according to him, two factors were missing from the framework. These are the surroundings (location) and the social factor (human factor – owners and users). Despite that observation, no author has created a strategy for adaptable solutions considering these two principles.

In addition, as Gosling et al. (2008) had stated, developing a guidance for enhancing the adaptability of new and existing buildings in order to create life-long buildings is a gap in literature that needs to be addressed.

Real estate is of major importance to organisations as it supports and contributes to the operations and value creation of the corporations. (Van der Voordt, 2016; Lindholm et al., 2006) Thus, when designing a strategy for the development of adaptable office buildings, in order to make it comprehensive, one needs to consider how the proposed actions add value to the organisation by supporting its core business. Yet, combining strategies for adaptability, with the corporate real estate management view and models of added value comprises an unexplored field of scientific research.

Therefore, this research contributes to the body of knowledge about adaptability strategies for new office buildings, providing a more comprehensive approach and linking it to the perspective of corporate real estate management.

• Societal relevance

The constant societal, economical, technological and environmental changes have a direct impact on users' preferences when it comes to their working environments. Consequently, corporations will need to cope with the new demands and provide an efficient work environment which adds value for their organisations. Therefore this paper aims in promoting the construction of adaptable environments as a way to cope with the rapid change of our societies.

Buildings constitute important components of our environments. Due to their image, presence in their context or functions they house, they form the identity of areas, and their preservation adds value to their context (Langston, Wong, Hui, & Shen, 2008). On the other hand, buildings with low adaptable capacity, are hard and expensive to adjust to new needs or even transform in order to respond to societal problems such as shortage of housing (Remøy, de Jong & Schenk, 2011). As a result, when they do not support their users' objectives anymore they become vacant. Static and obsolete building constitute a problem, for users, as they cannot fulfil their demands, for owners-investors, due to loss of income, for the society, causing areas' deterioration, with rising risk, vandalism and technical decay and finally for the market as the devaluation of buildings creates an unhealthy and unattractive context for new developments (Remøy & van der Voordt , 2009). As a solution to this problem, adaptable strategies can assist in prolonging buildings' lifecycle.

The large impact that the construction industry has caused on the environment, being accountable for half of the greenhouse gas emissions produced and resources consumed, has resulted in sustainability becoming a major concern (Remøy & Wilkinson, 2012; Remøy, 2016; Geraedts, 2008). As a result, sustainability measures are imposed by governments in order to reduce the environmental issues caused by the built environment. According to literature, adaptability and flexibility contribute to a sustainable construction agenda, assisting in the development of a more sustainable and healthier environment (Gosling et al., 2008; Geraerts, Remøy, Hermans & Rijn, 2014a). In alignment with the sustainability demands, the creation of a strategy for adaptable office buildings is highly relevant as it addresses a major societal problem.

Users constitute a very significant aspect of the work environment and therefore of this thesis. Providing employees responsive workplaces that are optimised to their needs, has an impact to their satisfaction, job performance and consequently to the company's productivity and wealth (Lindholm et al., 2006). In addition, the supply of quality, efficient and sustainable environment is a major factor of attracting and retaining workers (Jylhä et al.,2019).

• Applicability

Considering the complexity, and the number of professions involved in the development of projects, this strategy can be adopted by different actors:

Corporate real estate managers, allowing them to create adaptable, flexible and sustainable portfolio, which will be able to address the changes in the demands and prolong their lifecycle. Adaptability is often related to high initial costs and uncertain returns which would mean that the proposed strategy is focused mainly on the core portfolio of organisations (Schmidt III, 2014). Though as it will be explained later, such strategy does not actually entail high financial risks and could be applicable also for peripheral real estate. The strategy can also provide a tool for organisation to brief the architect -a task which constitutes the most important phase when developing a new idea in order to ensure a good match between the corporate strategy (demands) and the delivered project (future supply)- and control the design and delivery of the project (Remøy et al., 2011; Blakstad, 2001).

Similarly to corporations, developers and investors can apply this strategy in order to construct adaptable projects which they can afterwards sell or lease, as adaptable buildings imply higher future value/ returns (Remøy et al., 2011).

Architects and engineers of the construction sector can also apply this strategy in order to create more adaptable buildings for their clients.

Finally, although this strategy is mainly focused on creating adaptable office buildings, it can be implemented in other types of buildings too, as it addresses aspects that are shared within the built environment. Therefore, depending on their goals and the building type they develop, actors can apply the strategy after tailoring it to fit their needs.

3. Research methodology & process

• Literature review

The objective of the literature review was to gain knowledge on the research's main concepts: adaptability and added value, which would then constitute the foundation for creating the paper's strategy. In order to do so, a substantial amount of literature was studied from various authors – aiming to formulate a more comprehensive scientific perspective on fields of study. Having a clear goal from a very early stage of this research, allowed to author to complete the objectives for this part of the research, and develop a preliminary strategy which links adaptability with added value. The process during this part was smooth without any delays or issues. The only difficulty encountered was the large amount of literature studied, which made the writing process a bit more complicated. Though having more sources resulted more objective and thorough conclusions.

• Research methodology - Case studies

For the second part of the thesis a qualitative research is used primarily, along with a quantitative section, which consist on three case studies. The qualitative research method was followed in order to gain more thorough insights on the two topics, understand the actors' perception, the benefits, risks and the future of adaptability. In addition this being the first scientific attempt of linking the concept of adaptability and added value, a qualitative research was vital for gaining insights from practice and provide comprehensive foundation that could be generalised by conducting a future research focused more on a quantitative approach. The quantitative research was used to compliment the qualitative findings and provide input for the strategy developed.

For the methodology part, three cases were selected based on a number of predefined criteria. As the cases were only limited, the ones selected had also some differences (public/ private clients, new development/ redevelopment) in order to see how these affected the outcome and the buildings' adaptive capacity. Considering the findings from this analysis, the cases were proven to be of great value and the number was ideal for the purpose of the research. Conducting both a documentary data analysis and interviews was proven to be a very successful method. The former provided the author with background information on the case and its adaptive capacity, saving time from the interviews which could be dedicated for other questions and allowing the author to customize the interview protocol depending on the case each time. The interviews constituted of two parts, the qualitative and quantitative. Reflecting on these two parts, for the quantitative part the tables that the interviewees were asked to fill in were a bit too long, though the interviewees seemed to be interested and engaged throughout the process. Due to the author's interest and dedication on the research, additional quantitative data were collected which also required more time to analyse. Considering both the final strategy developed and the rest of the findings, these additions were valuable.

Overall the case studies were probably the most interesting part of the thesis – together with the final synthesis- as there is direct interaction with people from practice, who enjoyed to share their experiences, enhancing the research with new ideas and information.

• Strategy evaluation interviews

After formulating the final strategy two interviews were conducted with an architect and a real estate manager who also participated in the former part of the research. The aim of these interviews was to evaluate the outcome of the research, ensure that the strategy is well formulated and understandable by actors who could implement it, if they consider it a useful tool and finally to make any additional re-adjustments. Both interviewees were really interested with the strategy developed and thought that it could be a useful tool - reflecting the success of the outcome. In addition, they both discussed that it would be enhance its applicability and strengthen it by include the parameter of time. This remark was taken into account and the each life expectancy was included as an additional selection parameter in the final strategy.

4. Overall process

The overall process of this research was very smooth from the beginning until the end. This was a result of having high and clear goals, a feasible plan -with enough buffer time, and dedicated supervisors. The compilation of these factors allowed me to constantly push myself to do more in order to create something that –from my perspective- could have a real impact in our society.

Since I started this project, I wanted to challenge myself and at the same time implement the knowledge I already have from my professional and academic architectural experience. Reflecting back to the past ten months, I can certainly say that I am very glad with the path I chose to proceed with, as this thesis enhanced me as a person both in terms of the knowledge I gained but also through the skills I cultivated.

5.References

- Blakstad, S. H. (2001). A Strategic Approach to Adaptability in Office Buildings, Trondheim: Doktor In-geniør Thesis, Norwegian University of Science and Technology Faculty of Architecture, Planning and Fine Arts Department of Building Technology.
- Brand, S. (1994), How Buildings Learn; What Happens after They're Built, Viking, New York, NY.
- Estaji, H., (2017). A Review of Flexibility and Adaptability in Housing Design. The New Arch – International Journal of Contemporary Architecture; 4:37-49.
- Geraedts, R.P. (2008). Design for Change; Flexibility key performance indicators. 1st International I3CON Conference. T. Hassan. Loughborough, UK, Loughborough University.
- Geraedts, R.P., Remøy, H.T., Hermans M.H. & Van Rijn, E. (2014a) Adaptive capacity of buildings; A deter-mination method to promote flexible and sustainable construction. in UIA2014: 25th International Union of Architects World Congress "Architecture other where", Durban, South Africa, 3- 7 August 2014.
- Gosling, J., Naim, M., Sassi, P., Iosif, L., Lark, R. (2008). Flexible buildings for an adaptable and sustainable future, Cardiff, United Kingdom: Cardiff University
- Jylhä, T., Remøy, H., & Arkesteijn, M. (2019). Identification of changed paradigms in CRE research: a sys-tematic literature review 2005-2015. Journal of Corporate Real Estate, 21(1), 2-18. https://doi.org/10.1108/JCRE-07-2017-0020
- Kouyea, C. C. (2019). Degrees of adaptability, A design framework for adaptable real estate transfor-mation projects (Unpublished Master's thesis) Delft University of Technology, Delft, The Netherlands
- Langston, C., Wong, F.K.W., Hui, E.C.M.& Shen, L.-Y. (2008). Strategic assessment of building adaptive reuse opportunities in Hong Kong. Build. Environ. 43 (10), 1709e1718.
- Remøy, H. (2016). Vacancy and adaptive reuse. In M. Arkesteijn, T. van der Voordt, H. Remoy, & Y. Chen (Eds.), Dear is Durable: Liber Amicorum for Hans de Jonge. (pp. 215-221). Delft: TU Delft Open.
- Remøy, H., de Jong, P. & Schenk, W. (2011), Adaptable office buildings, Property Management, Vol. 29 No. 5, pp. 443-453. https://doi.org/10.1108/02637471111178128
- Remøy, H., de Jong, P. & Schenk, W. (2011), Adaptable office buildings, Property Management, Vol. 29 No. 5, pp. 443-453. https://doi.org/10.1108/02637471111178128
- Schmidt III, R. (2014). Designing for Adaptability in Architecture (Doctoral dissertation). Loughborough, England: Loughborough University, School of Civil and Building Engineering
- Van der Voordt, T. J. M. (2016) The Delft legacy of Adding Value by CREM, Dear is Durable: Liber Amicor-um for Hans de Jonge. (pp. 215-221). Delft: TU Delft Open.