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It Can Spill Out on to the Street – Revitalization Potential of an Adaptive Reuse Project

Rebecka Lundgren[1] and Riikka Kyrö[1]
[1]Department of Technology and Society, Lund University (LTH), Sweden
Contact: rebecka.lundgren@lth.lu.se

Abstract. *The revitalization of existing neighborhoods has been a frequent topic of public and academic debate in post–industrial times. Yet, little is known about the potential of individual, commercial real estate development projects to revitalize neighborhoods. Adaptive reuse of existing buildings, especially when combined with collaborative spaces, have been linked to positive social impacts beyond cultural heritage, such as aesthetic experience, and social inclusion. This study utilizes a social lifecycle assessment (S-LCA) framework to evaluate the social impact of an adaptive reuse project. The focus is on the revitalization potential on the respective neighborhood. The case neighborhood is Möllevången, located in Malmö, Sweden. The neighborhood and city both suffer from socioeconomic challenges, such as high unemployment rates, drug abuse, and vandalism. A building within the neighborhood has been refurbished for offices and workshops for the creative industries, as well as spaces open to the public and local community. Significant revitalization potential on the neighborhood was identified, predominantly through the categories of community development and engagement, cultural heritage, local employment, and neighborhood characteristics. The findings are useful to real estate owners and developers wanting to increase neighborhood vitality through real estate development projects, as well as researchers interested in ways to assess the social impact in development projects. The study identifies aspects where a real estate project can function as a tool to revitalize existing neighborhoods.*

Keywords: *adaptive reuse, creative industries, social sustainability, refurbishment, revitalization*

1 Introduction

The decline and potential revitalization of existing neighborhoods has been a frequent topic of public and academic debate in the Global North in post-industrial times. Real estate development is known to play a crucial role in the revitalization. Foster (2020) suggests the adaptive reuse of existing buildings, which are not

optimally used, entails potential to revitalize neighborhoods. Adaptive reuse is the process of extending a building's lifecycle by giving it a new use, usually coupled with refurbishment (Fufa et al., 2021). Adaptive reuse will enable maintaining the cultural heritage (Foster, 2020; Langston, 2008; Yung & Chan, 2012), which has been found to have a positive impact on the local community (Armitage & Irons 2013). The adaptive reuse of buildings, as an alternative to demolition and new construction, may also hinder the negative effects connected to gentrification. Further, adaptive reuse combined with shared spaces has been found to deliver social sustainability through aesthetic experience and social inclusion (Kyrö & Lundgren, 2022). Shared, or collaborative spaces, may include spaces such as co-working, collaboration hubs, shared studios, and public offices, as well as third places such as cafés (Sankari, 2019).

Use of the social lifecycle assessment (S-LCA) framework in the built environment has been limited, however, Lundgren (2023) adapted the framework to better suit the context. Indicators include physical, economic, and social factors which is in line with what Vehbi and Hoşkara (2009) consider to be the impact of revitalization. The physical revitalization specifically has been connected to adaptive reuse (Vehbi & Hoskara, 2009). Further, shared spaces have been linked with positive social impact on the local community, both in the economic and social dimension (Lundgren, 2023).

Extensive research exists on the connection between new construction, especially in housing, and urban revitalization (e.g., Atkinson, 2003, 2004; Davidson & Lees, 2005). Financial investments in an area often take the form of new construction (Atkinson, 2003; Davidson & Lees, 2005). Less attention has been paid to adaptive reuse projects and their potential. Moreover, the revitalization of areas with other types of development, such as, workplaces, has received less attention (Meijer & Syssner, 2017). In fact, few studies exist on individual real estate development projects' potential to revitalize the respective neighborhood. In-depth knowledge of different types of development projects as a tool for revitalization would be valuable.

The aim of the study is to explore the potential revitalization impact of an individual real estate development project by answering the following research question: How could different initiatives by the real estate developer impact revitalization of a neighborhood? This study employs a case study of an adaptive reuse project in Malmö, Sweden, and utilizes the S-LCA framework by UNEP (2020) to identify the potential in a systematic way. The S-LCA has been previously adapted to the building context by Lundgren (2023), and includes several categories linked to revitalization in the local community stakeholder category, such as community development and engagement, cultural heritage, and local employment. We will identify positive, negative, and mixed impacts, and suggest improvement potential to be considered in future real estate development projects.

The remainder of the paper is structured as follows. Next, Section 2 briefly discusses the key concepts of the paper; revitalization, adaptive reuse, and shared spaces. Section 3 introduces the study design, and the following Section 4 presents

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the results, which are further discussed in Section 5. The paper concludes with Section 6, with recommendations for future real estate development.

2 Revitalization, adaptive reuse, and shared spaces

Urban revitalization, regeneration, renewal, and renaissance are all buzzwords which describe positive change in areas or neighborhoods in decline (Ciesiółka et al., 2020). Whatever you may call it, it has been a frequent topic in post-industrial times as it concerns many cities, especially of the Global North (Meijer & Syssner, 2017). The popularity of the re-terminology could stem from avoiding the term gentrification, which tends to have a negative connotation, as it is seen to commercialize urban areas at the cost of certain social groups (Lees, 2008). Granger (2010) suggests that financial investments related to gentrification may bring positive social impacts to a neighborhood yet has negative implications as well. One potential negative implication is a neighborhood losing its distinct character (Glow et al., 2014).

Rahbarianyazd (2017) argues that, despite the negative effects of revitalization such as displacement, revitalization is necessary for a sustainable society. The cultural sector has been brought forward as the initiators of the gentrification process, however, are then also affected by the influx of investments (Pallares-Barbera et al., 2012). Nevertheless, Rahbarianyazd (2017) suggest the displacement does not mean it will be a place for high income people, but rather the creative class who values being in an area with a strong history and that care needs to be taken in revitalization projects to take the context into consideration.

Vehbi and Hoşkara (2009) suggests revitalization impact, in this case of historic urban quarters, can be evaluated based on a set of indicators relating to the physical, economic, and social revitalization. The economic dimension includes indicators such as employment and business opportunities, movement of people, and vitality, all leading to economic stability. The social dimension indicators relate to quality of life, community, and traffic, whilst the physical revitalization evaluates the prudent use of resources, protecting the environment, the built environment, and landscape. The physical revitalization is predominantly connected to the preservation of cultural heritage, including adaptive reuse (Vehbi & Hoskara, 2009). Revitalization has in previous studies been connected to social sustainability (e.g., Ibrahim & Abdul Ghani, 2018; Rahbarianyazd, 2017; Vehbi & Hoskara, 2009). Creating positive identity in an area and the restoration of cultural heritage was found by Ibrahim and Ghani (2018) to contribute to positive revitalization by increasing the vitality of an area.

Adaptive reuse has been connected to all three sustainability dimensions (Conejos et al., 2015), with focus often being on social sustainability when coupled with cultural heritage preservation (Yung & Chan, 2012). Armitage and Irons (2013) suggest that cultural heritage preservation will define the cultural identity and contribute to the historic streetscape. Yung and Chan (2012) observed that the conservation of existing buildings enforced the meaning of the place, provided a cultural identity, and enabled social inclusion. Reusing historic buildings also has a high labor component (Armitage & Irons, 2013), which could create work in the local

area. With that said, the narrow focus on job creation potential (Mies & Gold, 2021; Walker et al., 2021) and other employment-related concerns in social sustainability assessments (Padilla-Rivera et al., 2020) is highlighted as an issue by Mies and Gold (2021). Vanclay (2003) highlight the importance of including impacts on vulnerable groups in the community into social sustainability assessments.

Kyrö & Lundgren (2022) found that adaptive reuse combined with the collaborative use of spaces, delivers aesthetic experience enabled by the cultural heritage preservation, attractive site surroundings, creative content, and social inclusion. Kiroff et al. (2020) have found that the creative industries are particularly keen to re-locate to former industrial areas and buildings. Kyrö & Lundgren (2022) find that adaptive reuse is particularly suitable for collaborative and creative use due to a distinct 'Vibe'. The vibe stems from the temporality and unfinished feel of old buildings and facilitates the creation of a social community, a 'Tribe' (Kyrö & Lundgren, 2022).

Collaborative use of spaces often entails pro-social, community enhancing motivations and outcomes (Orel & Alonso Almeida, 2019; Waters-Lynch & Potts, 2017). Lundgren et al. (2022) found high levels of prosocial motivations for sharing spaces with the community feeling as one of the most prominent reasons for sharing space. Waters-Lynch and Potts (2017) add that shared spaces can act as focal points for finding people, ideas, and other resources, which they would otherwise struggle to find. Jamal (2018) observed that shared spaces even played a role in revitalizing local communities and boosting local economic development.

The effects of revitalization, through adaptive reuse, of old industrial buildings can be both positive and negative. Chan et al. (2015) found effects related to economic impact on the tenants, as well as a social and economic impact on the local community. Whilst more space which meets the needs is made available, the cost of these might be displacing people and organizations and the local culture might be destroyed. However, Wadu Mesthrige et al. (2018) found no significant positive value increase in nearby properties from the revitalization of old industrial buildings, although point out that this might be a slow process, and increases might happen in the future. In order to enhance the social sustainability of adaptive reuse it has been suggested that factors such as promotion of education and local culture, meaning of the place, social inclusion and psychological needs, and public participation and opportunity for skills development are significant (Yung & Chan, 2012).

3 Study design

The study employs a single-case study design using an application of S-LCA to evaluate the revitalization potential of an adaptive reuse case. The following sub-sections introduce the case neighborhood and project, the method, and the data.

3.1 Case study

The case neighborhood is Möllevången, located in central Malmö, Sweden. The neighborhood and city both suffer from socioeconomic challenges, such as high unemployment rates, drug abuse, and vandalism (Hansen, 2019). The neighborhood was formerly a multifamily residential and industrial area,

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housing small scale factories such as textile and bike manufacturing works. The neighborhood has since the decline of the industries suffered from social issues (Hansen, 2019). In 2019, the neighborhood was at risk to be listed as a *vulnerable neighborhood*, a notorious list maintained by the Swedish Police Authority. The list includes areas with especially high crime rates and social exclusion. Due to this threat, the local real estate owners decided to take action and try to prevent the neighborhood from ending up on the list by forming a business improvement district (BID) collaboration (BID Malmö, 2023). BID has been reported to help another neighborhood in Malmö to reduce non-violent crime, such as vandalism (Kronkvist & Ivert, 2020). Möllevången has since the threat of ending up on the list of vulnerable neighborhoods experienced revitalization efforts, including the adaptation of former industrial buildings to new uses (Hansen, 2019).

The neighborhood has been a popular area for activists and the cultural sector for a century and the cultural identity is still strong today (Hansen, 2019). In the 1920s to1940s the area was rich in social and political life, however this changed when families started moving out to the suburbs. The response from building owners was reduced maintenance leading to derelict buildings and tenants were increasingly low-income households (Hansen, 2019). By the 1960s and 70s the crime rate was the highest in the city and the neighborhood had the reputation of being a slum. At this time major redevelopment in the area was taking place, yet the majority of buildings are from the early industrial times. The current revitalization of Möllevången began in the 1990s when the city of Malmö shifted focus from industrial to knowledge-based work. The neighborhood, despite its social issues, was a central city location where artists had begun utilizing the vacant industrial buildings. In more recent years there has been an increase in investments in upgrading buildings and the population is made up of wealthier residents and companies (Hansen, 2019).

As the area has a long-standing strong cultural identity, consequently also the existing building stock is being adapted predominantly for uses by the creative industries. One of these adaptive reuse projects, Trikåfabriken, was chosen as the case project (Figure 1). The building has been owned by the current owner for several decades. The project was initiated in 2020 and finished in 2022 and comprises the adaptation of a former textile manufacturing facility into modern offices, studios, workshops, and collaborative spaces. The project was selected due to the incorporation of many social sustainability initiatives within the project, the business plan of the developer building on long-term ownership, local community analysis, and the will to invest both in the physical environment and in social initiatives (Figure 2). The case project is considered unique in terms of focusing on social initiatives and community building, and therefore gives promise of a high information content as described by Flyvbjerg (2006).

3.2 S-LCA and system boundaries

Our assessment builds on the S-LCA framework by UNEP (2020). We propose that revitalization is captured by the category Local Community. The Local Community indicators are grouped into sub-categories, namely, access to

Figure 1. *Building façade towards the street Friisgatan in Malmö. Photo: Riikka Kyrö.*

Figure 2. *Street art was one of the social initiatives included in the project. Photo: Stena Fastigheter.*

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Immaterial and material resources, Accessibility, Community engagement, Cultural heritage, Delocalization and migration, Health and safety, Local employment, Respect of indigenous rights, Safe and healthy living conditions, and Secure living conditions (UNEP, 2021). Additionally, Lundgren (2023) developed the sub-categories Community development and Neighborhood characteristics to better suit assessments in the built environment. An earlier framework to evaluate revitalization by Vehbi and Hoşkara (2009) includes some of the same indicators but is not as extensive as the Local Community category in the S-LCA framework, especially when adapted for the built environment by Lundgren (2023). Similarly, the indicators suggested by Yung and Chan (2012) for assessing social sustainability in adaptive reuse are included in the S-LCA framework adapted by Lundgren (2023). Therefore, the use of the S-LCA adapted by Lundgren (2023) is likely to provide a wider impact assessment than employing frameworks specific for revitalization or adaptive reuse.

The assessment is carried out in two steps as recommended in the S-LCA methodological sheets (UNEP, 2021). Firstly, a generic assessment is carried out employing publicly available national and regional data to remove indicators which are deemed not relevant or of low significance for the specific location. Secondly, the remaining indicators are assessed utilizing site-specific data. The generic assessment led to the exclusion of several indicators from site-specific consideration as they were deemed not applicable, as per the recommendation in the S-LCA methodological sheets (UNEP, 2021). The excluded indicators relate to the sub-categories Indigenous rights, Access to immaterial and material resources, Safe and healthy living conditions, and Secure living conditions. These were deemed not applicable mainly due to the location of the building, in Southern Sweden.

Our assessment includes 8 sub-categories with a remaining 42 indicators. The indicators are rated based on the recommended S-LCA reference scale of -2 to +2, where a rating of zero implies compliance with rules, regulations, or societal expectations, -1 and -2 are applied when activities fall below or starkly below this level, and +1 and +2 are applied when activities are above compliance or thought to be ideal (UNEP, 2020). Indicators which scored 0 were assigned a rating of neutral in the overall analysis. Positive scores were assigned positive ratings and negative scores negative ratings. In instances where data from different sources provided contradictory results a mixed impact rating was given. As an example, for the indicator Strength of policies on local hiring preferences, a positive impact identified in the document review as procurement documents contained requirements above the regulatory requirements to hire locally. However, an interviewee noted that this is difficult to follow up on and can thus not be guaranteed, which was considered a negative impact. Consequently, a mixed rating was assigned.

The social impact is assessed for the construction process and use stage of the building lifecycle, as these stages have been found to include significant impact in previous studies (e.g., Goel et al., 2020; Karji et al., 2019; Liu & Qian, 2019), and the related activities are local. The inclusion of the product or end-of-life phases, for example, would result in the inclusion of numerous localities.

3.3 Data

This assessment evaluates the intended social impact of a real estate development project on the local community. The social impact is assessed through primary data collected in interviews, observations made during two sites visits, and an archival review. The assessed impact is the intended impact as perceived by the respondents and outlined in project related documentation. Two semi-structured interviews were carried out in person, and two online in the fall of 2023. The respondents were the core internal stakeholders of the project, namely, the business developer of the owner/developer, the relationship manager of the owner/developer, project manager of the turnkey contractor, and the architect. The internal stakeholders were selected as respondents based on their experience from other adaptive reuse cases, and their knowledge of the case project. It is worth noting that the respondents' interests in the project may direct their responses towards positive, creating a bias.

The study was data triangulated with documents and observations during site visits. A web page and five documents relating to sustainability and procurement were reviewed, comprising 151 pages. Two site visits, one taking place in October 2021, and one in October 2022, support and validate the interview and archival data. Table 1 presents an overview of the respondents and reviewed documents.

Table 1. *Data.*

Code	Date	Duration (min) / Pages	Role / Document type	Organization	Type
N1	16 September 2022	83:33	Business developer	Owner & developer	Online
N2	30 September 2022	52:05	Project manager, site	Turnkey contractor	In person
N3	3 October 2022	60:46	Architect and end-user	Architect	In person
N4	10 October 2022	27:25	Relationship manager	Owner & developer	Online
D1	N/A	N/A	Webpage	Owner & developer	N/A
D2	N/A	5	FAQ sustainability	Owner & developer	N/A
D3	N/A	61	Sustainability story	Owner & developer	N/A
D4	N/A	41	Guidance on climate standards in procurement	Owner & developer	N/A
D5	N/A	31	Procurement document	Owner & developer	N/A
D6	N/A	13	Environmental programme	Owner & developer	N/A
S1	October 2021	3 hours	N/A	N/A	N/A
S2	October 2022	1 hour	N/A	N/A	N/A

4 Results

The site-specific assessment outcome suggests a positive social impact and potential for revitalization. Of the 42 indicators included in the assessment, 13 were rated as neutral impact, 27 as positive, and two as mixed positive and negative impact. The neutral ratings were spread across all sub-categories, less

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Table 2. *Impact assessment, category Local community.*

Indicator – Potential impact	N/A	Neutral	Positive	Mixed
Accessibility		**1**		s
Access to area surrounding the construction site during the construction period		x		
Community development		**3**	**11**	
Design for future transport needs			x	
Educational and local cultural promotion means			x	
Encouraging businesses to make investments in the area			x	
Enhancing livability and social wellbeing			x	
Influencing neighboring communities positively			x	
Involvement of local community in project related activities, e.g., design & construction			x	
Meaning of the place			x	
Meeting the community needs in pursuing development			x	
Mitigating the risks associated natural disasters		x		
Preserve local characteristics			x	
Provision of open places, paths**,** and facility for public use			x	
Rehabilitation of existing infrastructure assets		x		
Resilient planning enabling future expansions		x		
Social inclusion of different groups in the building			x	
Community engagement		**2**	**4**	
Addressing communities' concerns promptly and transparently		x		
Diversity of community stakeholder groups that engage with the organization			x	
Number and quality of meetings with community stakeholders			x	
Organizational support (volunteer-hours or financial) for community initiatives			x	
Sharing with community the projects' rationale, constraints and expected outcomes		x		
Strength of written policies and community engagement at organizational level			x	
Neighborhood characteristics			**5**	
Consideration of aesthetic quality of the project			x	
Designing in a way that represents the local character and identity of the community			x	
Development in a previously developed site			x	
Green landscape, vegetation (trees, flora, and fauna in neighborhood)			x	
Reflecting public art in neighborhood			x	
Cultural heritage		**1**	**3**	
Evidence of policies/management plans(s) to protect and/or support cultural heritage			x	
Documented initiatives and activities oriented to support and promote cultural heritage			x	
Relevant organizational information to community members in their spoken language(s)		x		
Organizational program to include cultural heritage expression in product design			x	
Delocalization and migration		**2**		**1**
Number of individuals who resettle that can be attributed to the organization		x		
Strength of organizational policies related to resettlement		x		
Organizational procedures for integrating migrant workers into the community				x
Health and safety		**3**		
Controlling disturbances to surroundings		x		
Protection of the community during construction/demolition periods of a project		x		
Traffic management during construction period		x		
Local employment		**1**	**4**	**1**
Design to allow for local employment opportunities			x	
Forecast and monitoring of the actual project impact on the economy of the community			x	
Labor intensive practices to generate employment / more employment locally			x	
Percentage of spending on locally based suppliers			x	
Percentage of workforce hired locally		x		
Strength of policies on local hiring preferences				x
TOTAL	**0**	**13**	**27**	**2**

neighborhood characteristics, of which all indicators were rated as positive impact. Table 2 presents a summary of the findings, which are then discussed per category. The categories have been grouped where commonalities were found between two or more categories, namely, 'Community development and Community engagement', 'Neighborhood characteristics and Cultural heritage', and 'Delocalization and migration, Health and safety, and Local employment'. The category Accessibility has not been discussed further as a neutral rating for the single indicator did not suggest a significant impact. A summary of findings including the potential impact, means of impact, and improvement potential for the neutral, mixed, and negative indicators, concludes this section.

4.1 Community development and Community engagement

The most significant positive impact was found in the community development sub-category. The sub-category includes many indicators of which most were positive, and some were neutral, however, no negative impact was identified. The preservation of local characteristics was an important factor in this sub-category, together with meaning of the place, which also related to the conservation of the building and the selection of tenants to be within the cultural sector, thus the meaning of the place in the way of local identity is strengthened. Some groups, in the cultural sector and of various "ranks" are preferenced for leasing spaces. This doesn't mean that everyone in the cultural sector was welcomed, but special accommodation was made to find spaces and rent levels that attracted those who could add to the cultural feeling of the place.

Another significant impact was the provision of open places and places for public use, and the inclusion of different groups in the building. The outdoor space is open to the public during the days and includes spaces to meet and interact, such as activities and games; *"Then we have created the courtyard. It is shaped in a way so that it is a social meeting point but also with creative, contemplative elements. So, there is everything from a ping pong table to a leafy tree, to just garden beds. And there is a place to play boule. So, you should be able to be active, you should be able to work, you should be able to just hang" (N1)*. There are other spaces open to the public, such as third places. The provision of public and shared spaces enables the building and the site to be used by different groups and thus enables social inclusion. However, it should be noted that the property is privately owned and not a public place as such. With privately owned property there is always the risk of exclusion of groups of people, or activities not deemed appropriate by the private owner and their security service providers.

Other positive impact on community development were design for future transport needs, educational and local cultural promotion means, enhancing livability and social wellbeing, influencing neighboring communities positively, involving the community into project related activities, and meeting the community needs in pursuing the development. Swim school, study assistance, and summer jobs are initiatives directly impacting the neighborhood; *"Safety and security is a core theme, so if we can contribute to the feeling of safety in our areas, then people will like it there and so it is all connected. But then also, if we can contribute to the*

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schooling going well, that they [the local children] have something meaningful to do in their spare time and not get lured into the wrong crowds and wrong role models in the area, then there is concrete value for us in terms of people liking the area and also less wear and tear in the area. But then there is also societal good in that. It is known that every individual who doesn't succeed in society, who doesn't succeed with school, costs society enormous amounts, so in that regard our investment, and other real estate owners' investments, are rather small" (N4). Many of the mentioned impacts are enabled and enhanced by close collaboration with several non-profit organizations with roots in, and close contact with, the local community. The project is also believed to encourage other businesses to make investments in the area; *"The investments we are doing at Trikåfabriken, can contribute to stabilizing the whole area, and can also increase the attractiveness. And the attractiveness is increased by it being more secure and pleasant. And more, and more will want to invest when there is a better investment foundation" (N1)*.

Further, the community engagement was seen as revitalizing the neighborhood through participation in and support and creation of initiatives with a wide variety of stakeholders. Local real estate owners and non-profit organizations and BID were consulted throughout the project. Local kids and a local artist were involved in the mural and figuring out what to do in the courtyard.

The project is also believed to have a positive impact on local employment, both during the construction phase and the use phase. During construction labor intensive practices are used, through renovation, which generate local employment. The turnkey contractor believes that in construction in general, locally based contractors, especially sub-contractors, are relied upon which was the case in this project as well; *"it's easier to have local sub-contractors that know the area we are working in and such. So most often they are local" (N2)*. When the building is in use, more local employment opportunities are enabled through the creation of smaller spaces and shared spaces, which allows smaller businesses and start-ups to use the building, and these smaller businesses tend to be from the local community. The adaptive reuse and shared space creation also enabled the space to be used more efficiently and doubled the number of people able to use the space at any one time; *"we are so many that we can contribute. It can spill out onto to the street. It can make a difference for those around us. That is, some sort of interaction" (N3).*

4.2 Neighborhood characteristics and Cultural heritage

The positive impact on neighborhood characteristics related to e.g., consideration of aesthetic quality of the project, the project being designed in a way that represents the local character and identity of the community, development in a previously developed site, and the building reflecting public art in the neighborhood, where the preservation of the existing building contributes to significant impact for the indicators as it is in keeping with the traditionally cultural identity of the community. Public art is also reflected in the façade where a local artist worked together with local school children to create a mural. The remainder of the exterior has kept its original characteristics from its time as a factory. Greenery, in the form

of vegetation, was incorporated in the courtyard, whereas on the site there was very limited vegetation prior.

The significance of preserving the local characteristics which were found in both the neighborhood characteristics and the community development sub-category was enhanced in the cultural heritage sub-category, where positive impact was found in the ways in which the project preserved the cultural heritage, both in relation to the physical building, but also the ambiance resulting of the activities inside it*; "So, for us it has been an important step to invest in this area, and to invest with above the board, functional tenants that can contribute to the area in its entirety. It's been very important to us when we chose the content, and the way we chose to renovate the building" (N1)*.

4.3 Delocalization and migration, Health and safety, and Local employment

Mixed impact was found for two indicators relating to delocalization and migration, and local employment, both are however in this case related to employment. The delocalization and migration sub-category included two indicators which were rated as neutral, namely, number of individuals who resettle and strength of organizational policies related to resettlement. There was no delocalization prevalent in the neighborhood as a result of the project, nor efforts made to ensure this, and therefore a neutral rating was assigned. There were however several measures to attempt to make the new spaces more affordable to existing tenants by increasing space efficiency and thus being able to offer smaller spaces, with a similar function, at total rent levels similar to pre-refurbishment. This resulted in several existing tenants being able return to lease the new spaces.

The strength of organizational procedures for integrating migrant workers into the community was however, despite some positive impact, also considered a risk due to issues with following up on contractual agreements. Migrant workers in this instance refer to both labor from other countries and immigrants living in Sweden. There are measures in place in the project for this indicator however in that jobs are made available for those in the local community, which tends to include immigrants, by creating summer jobs for the young adults; *"our aim are those living in our communities, and those who are interested to see what it is like to work with real estate" (N1)*. Additionally, requirements are included in the construction contract about hiring diversified work force and people outside of the job market, this is nevertheless hard do follow up on which could have a potential negative impact as it might not be adhered to by contractors and sub-contractors. The difficulties in following up on construction contractual agreements relating to employment is also the reason for the indicator relating to strengths and policies on local hiring preferences being rated as mixed impact. In general, contractual agreements relating to employment issues are difficult for the project owner to follow up on; *"how difficult it is to follow up on, and how few control tools I have to follow up on it. So, you say very nicely up here that you are doing a bunch of things, but there are no tools to carry it out in the value chain" (N1)*. The project has mainly used local consultants, contractors, and material providers, and the construction contract included a preference to hire people from the local

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community which might be outside of the job market. Nevertheless, this is again difficult to follow up. The building owner does, however, tend to work closely with the local community and value chain actors to highlight any opportunities for hiring from the local community.

4.4 Summary of revitalization impact

The results suggest impact on revitalization and revitalization measures was created through four different means, namely, the construction process, the

Table 3. Summary of revitalization impact.

Measure	Potential impact	Means of impact	Improvement potential
Building conservation	Preservation of local characteristics and cultural identity	Physical space	
	Meaning of the place – strengthening of local identity	Physical space	
Selection of tenants within the cultural sector	Meaning of the place – strengthening of local identity	Use of space	
Open places	Social inclusion	Use of space	Risk of exclusion of certain groups need to be managed in order for true social inclusion to occur
Public spaces	Social inclusion	Use of space	Risk of exclusion of certain groups need to be managed in order for true social inclusion to occur
Swim school, study assistance, and summer jobs	Increasing safety and security	Community initiatives	
Investment in building renovations	Increase other investors' willingness to invest in the area by increasing the attractiveness	Physical space	
	Labor intensive practices leading to increased employment by use of local contractors and sub-contractors	Construction process	
Consultation with local community stakeholder groups	Community engagement	Community initiatives	
Local kids and artist creating a mural	Community engagement, meaning of the place - strengthening of local identity	Community initiatives	
	Public art is reflected	Physical space	
Higher space utilization rate	Increased economic activity in area and increased local employment opportunities as a result	Physical space / Use of space	
Integration of migrant workers into the community	Integration in local employment	Construction process	Need to ensure contractual agreements can be followed up on
Preference for hiring people from the local community	Integration and local employment	Construction process	Need to ensure contractual agreements can be followed up on

physical space, the use of space, and community initiatives. Some impact related to more than one of the four categories. The most significant findings are presented in Table 3 together with the possible improvement potential, if such was found.

Some community initiatives are directly linked to the project, e.g., public art, however, some initiatives are implemented in the local community due to the owner having one or more properties in the area. The independent initiatives are however thought to have a direct positive economic impact on the re-development long-term as the neighborhood will be safer and more secure if kids and young adults succeed in school and have something useful to do in their spare time. Hiring adults from the local community is also believed to increase integration and local employment which might have a similar effect. A safe and secure neighborhood is thought to lead to a lower vacancy rate and thus higher income from the spaces, as well as higher property values.

5 Discussion

This study set out to explore the potential of an individual real estate development project to contribute to neighborhood revitalization. The positive revitalization impact on the neighborhood relates to either the building conservation, i.e., the direct result of the project, or the organizations' local community initiatives relating to the project. The sub-groups of cultural heritage and neighborhood characteristics are both directly related to the project as it results in the preservation of cultural heritage which in turn enables the community to keep its strong cultural identity. One of the indicators in the community development sub-category also relates to the cultural heritage, e.g., preserving local characteristics. The significant positive impact found on the local community through the preservation of cultural heritage supports the findings of Kyrö & Lundgren (2022), Armitage and Irons (2013), and Yung and Chan (2012). The project was inspired by the local art scene and in turn delivered art created by the local community. The tenants being selected due to their connection to the cultural sector also enabled the project to assist in keeping meaning of the place which was already prevalent and the identity which it was attached to. Gentrification, in the form of higher rent levels, has thus in this case not resulted in a loss of local community identity, as found by Glow et al. (2014).

The shared spaces which were delivered through the project were also believed to have a positive impact on the local community. The positive impact related to the public spaces which are open for anyone to use thus creating social inclusion, which is further enhanced by the many different uses of the open spaces, which supports findings by Kyrö & Lundgren (2022). Further, the community engagement was seen as having a positive impact on the local community through a variety of initiatives and stakeholders. Collaboration with the local school was established to create the artwork on the façade, however, this collaboration is intended to continue. Additionally, there are several other initiatives aimed at educational and cultural promotion, e.g., swim school, study assistance, and summer jobs, which are all present in the local community of the project. The initiatives have been enhanced by collaborations with other local non-profit organizations. The building owner has investments in several areas and the non-

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profit organizations tend to be localized in specific neighborhoods and thus tend to have deeper roots in the community and can provide insights in order to deliver a more positive social impact according to the project owner.

The adaptive reuse and shared spaces created from the project are believed to bring more economic activity into the area. The building will be utilized at a higher rate than before and so an influx of new workers to the area will likely be the result. This supports the findings of Jamal (2018) in terms of the link between shared spaces and economic development. There will as a follow-on effect be possibilities for other businesses to establish themselves in the area, such as restaurants, cafés and shops. More movement in the area is also believed to create an increased feeling of safety which might also increase business activity. The increased activity will likely also lead to increased employment opportunities. This is also the case for the construction phase, as refurbishments tend to be high labor activities as found by Armitage and Irons (2013). However, it is related to employment where possible negative impact can also be found. In both cases it relates to the difficulty in following up on contractual agreements related to employment conditions such as integration of migrant workers and local employment. There are several other initiatives in place in relation to these indicators which provide a positive impact, however in order to ensure that the intended impact is fully realized tools and mechanisms for following up on these contractual agreements must be put in place.

Although delocalization was not anticipated in the local community as a result of the project, there were however existing tenants which did not return post-project despite measures to attempt to reduce the increase in rent levels. The delocalization of certain tenants is often described as the negative impact of revitalization (e.g., Pallares-Barbera et al., 2012; Rahbarianyazd, 2017) and was not avoided in this case, however, it was limited through measures aimed at keeping spaces affordable. Tenants seeking spaces which are far below market rates whilst being unbothered by a maintenance deficit and possible issues with the building meeting legal requirements are likely to be delocalized by any building upgrades. The question then becomes whether such derelict buildings should exist for this tenant category and what social and safety issues might come as a result of these, considering the social issues which arose in Möllevången when buildings were maintained to a poor standard as described by Hansen (2019).

5.1 Limitations

Several limitations arise from the study design. We note the respondents' involvement in the project may be reflected in the overwhelmingly positive expected impact. It would have been of interest to include external stakeholders, such as the local authority, other real estate owners in the area, or the local residents in the assessment, however, the project was only recently completed, which may limit the external stakeholders' experiences of the project.

Only four interviews were conducted, and only two were conducted in-person. Online interviews make it more difficult for the researcher to interpret non-verbal cues. Moreover, only one researcher was present at the interviews,

which creates room for researcher bias. Yet, the interviews were validated with an archival review and two site visits, one of which had two researchers present.

The S-LCA method is still underdeveloped and has not been as widely adopted as its environmental and economic counterparts. Testing and developing the method in the built environment context is especially lacking, with Lundgren (2023) as one of the few examples. Further studies are needed for the assessment framework to become established.

As per the S-LCA guidelines (UNEP, 2020), this study assesses the intended social impact as opposed to the actual realized impact. It is possible that the expected or intended social impact differs from the actual impact and thus a follow-up study would be of interest once the building has been in use for some years. The follow up study could focus on community impact through interviews with different stakeholder groups, including the local community, and incorporate e.g., socioeconomic statistics such as economic activity. Moreover, future studies exploring the viability and impact of adaptive reuse with shared spaces in other localities, such as, other urban settings or rural villages would provide more insight into any locational preconditions.

Despite these limitations, the study provides insights into the intended impact of an individual adaptive reuse project to the revitalization of a neighborhood. The findings are in line with previous studies who found similar positive social impact, including preservation of cultural heritage (Armitage & Irons, 2013; Kyrö & Lundgren, 2022; Yung & Chan, 2012) and links between shared spaces and economic development (Jamal, 2018).

The negative aspects in previous studies often relate to delocalization as a result of increasing rent levels and property values (e.g., Rahbarianyazd, 2017). In this specific case delocalization as effecting the workspace tenants of the case building, rather than local residents. The potential increase in property values, and consequent displacement of people from the local community may present itself at a later stage. Such impacts may be a rather longer-term impact, as suggested by Wadu Mesthrige et al. (2018).

6 Conclusions and recommendations

The studied case suggests ways in which significant revitalizing impact can be attained through adaptive reuse and shared spaces, as well as organization wide initiatives. Measures relating to the adaptive reuse project and the associated social initiatives could be categorized as relating to the construction process, the physical building itself, how the space was used, and the community initiatives. The intended positive social impact to the local community was connected to all four categories and thus future construction projects should consider these holistically.

To achieve the possible positive impact care should be taken to ensure that the local community is engaged in the project, and that the cultural heritage and neighborhood characteristics are preserved or enhanced. One important initiative is making parts of the private property (e.g., inner yard, bottom floor) open to the public. Community engagement and development activities should be delivered in a joint initiative with non-profit organizations rooted in the local community. To

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ensure a positive impact on local employment, mechanisms need to be put in place to allow for easy follow-up. Most importantly, the combination of adaptive reuse, shared spaces, and organization wide initiatives have the potential to deliver significant positive impact. The findings may work as an example and guidance to real estate developers interested in promoting the positive social impacts on the local community in their future projects.

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