

**Adaptive Reuse:  
Planning for Economic Development in Former Industrial Cities**

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Marissa Meaney

Advisor: Justin Hollander, PhD, AICP

Reader: Christine Cousineau, AICP

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## **Abstract**

In the wake of a new and unprecedented migration toward urban cores, stakeholders involved in local planning efforts are maximizing strategies for smart growth and infill through the retrofitting of former industrial buildings.<sup>1</sup> This phenomenon is significant as it not only caters to modern uses in the current environment, but simultaneously preserves the rich industrial heritage of the past that is displayed through these unique architectural forms. This thesis seeks to identify and measure the success of uses that have been implemented in the cities of Turin, Italy and Lowell, Massachusetts, USA. A personal, rich comparative analysis, this thesis presents the results of research exploring economic development in the forms of population growth, increased tourism and commercial activity, and job market expansion.

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<sup>1</sup> Laurel Prevetti, "Preserving and Enhancing Communities: A Guide for Citizens, Planners, and Policymakers," *Journal of the American Planning Association*, 75.3 (2009): 376.

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# Chapter One: Introduction

The decline of heavy manufacturing following the Industrial Revolution left a multitude of defunct factories scattered throughout cities across the United States. Today, many of those factories still stand, but have been adaptively reused to suit the uses of the modern economy.

One such example of a structural transformation can be found in the Long Island City neighborhood of Queens, New York. This particular neighborhood, which has recently garnered national attention as it was the planned site for the new Amazon headquarters, has a long-standing industrial history. Since the neighborhood, which once existed as its own city, has been incorporated into the borough of Queens and thus the City of New York, it must meet the growing economic demands of the largest city in the United States. The former industrial factories have now found new uses, one of which caters to the tourism sector of the economy through its transformation into a hotel.

The Paper Factory Hotel in Queens now stands inside a factory built in 1934,<sup>2</sup> second home to the Pilot Radio Company, founded in 1925, which manufactured FM tuners, televisions, and hi-fi equipment.<sup>3</sup> The company eventually was bought out and subsequently changed locations in 1963.<sup>4</sup> Two years later in 1965, the Romo Paper Products printing company moved into the original Pilot Radio building and continued operations for ten years, before finally ceasing operations in the 1970s.<sup>5</sup> Just over forty years later, real estate developer Gal Sela was the first to see the potential in the massive warehouse, especially given the up-and-coming status of Long Island City.<sup>6</sup> He purchased

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<sup>2</sup> "Our Hotel," The Paper Factory Hotel, accessed April 10, 2019, <https://www.paperfactoryhotel.com/our-hotel/>.

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

<sup>6</sup> Ibid.

the building in 2012 and rehabbed it into a hotel which opened its doors a year later. The Paper Factory Hotel successfully pays homage to its industrial heritage while simultaneously offering visitors to New York City more affordable hotel rates than those in Manhattan, where they can enjoy the benefits of twelve-foot ceilings, oversized windows, and rustic yet aesthetic furnishings.<sup>7</sup>

This hotel transformation is just one example of how adaptive reuse has become a major key actor in promoting economic development. This thesis seeks to analyze the adaptive reuse efforts put forth by the two cities of Lowell, Massachusetts and Turin, Italy, whose economies once relied solely on industrial manufacturing, and who consequently witnessed economic depression as a result of the decline in industrial manufacturing. The following introduction will provide an overview of the Industrial Revolution, and particularly how it played out in the cities of Lowell and Turin, before concluding with the question that guided the research conducted in this thesis. Following the introduction are the methods used to answer the research question, then a review of the literature,, followed by the explanation of the roles that these cities have taken within the “creative economy”.<sup>8</sup> The last of the characteristics of the creative economy is adaptive reuse, which introduces the following chapter that explains in depth the various industrial structures of the two cities and how they have been transformed to meet modern demands. The discussion chapter spells out the results of these transformations. Lastly, the conclusion provides further explanation of the effect that adaptive reuse has on local economies, and lists a number of policy recommendations that municipalities should adopt in order to achieve maximum success.

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<sup>7</sup> Ibid.

<sup>8</sup> Richard Florida, *The rise of the creative class: and how it's transforming work, leisure, community and everyday life* (New York: Basic Books, 2004), 6.

## *The Industrial Revolution*

The Industrial Revolution is known as the transition in manufacturing from hand production methods to machines<sup>9</sup>. New innovations in technology – the invention of the spinning jenny, cotton gin, power loom, new alloys of iron and steel, and the steam engine – led to the development of machine tools, the rise of steam-powered manufacturing and transportation, and the increased presence of factories. Located along rivers, whose currents provided hydropower, planned industrial cities sprang up throughout the United States and Europe<sup>10</sup>. Rapid urbanization followed, caused by massive migrations to cities in Europe, and unprecedented levels of immigration to the United States. Workers needed to live close to their industrial workplaces, concentrated in cities. As such, industrial cities were economic strongholds during their era of glory from the late-nineteenth century to the early-twentieth century.

The industrial revolution made possible important technological developments in textiles, steam power, iron making, paper making, glass making, and machine tools<sup>11</sup>. As a result of these industries, steel production and coal mining also became well-developed industries. Different types of structures characterized the many areas of industrial production. Mills, for example, were typical of the textile industry and were located largely throughout the Northeast of the United States<sup>12</sup>.

In the early to mid-twentieth century, the United States and other countries including Great Britain, Germany, Japan, Italy, and the Netherlands, underwent a second industrial revolution, known also as the Technological Revolution<sup>13</sup>. Much of this shift in manufacturing was largely dominated by the building of railroads, large-scale steel

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<sup>9</sup> Lee Wyatt, "The Industrial Revolution," (Westport, CT: Greenwood Press, 2009), 4.

<sup>10</sup> Ibid, 3.

<sup>11</sup> Lee Wyatt, "The Industrial Revolution," (Westport, CT: Greenwood Press, 2009), 2.

<sup>12</sup> Ibid, 60.

<sup>13</sup> Lee Wyatt, "The Industrial Revolution," (Westport, CT: Greenwood Press, 2009), 4.

production sites, widespread use of machinery in manufacturing, and the beginning of electrification<sup>14</sup>.

Moreover, automobile industry experienced rapid growth and development during the Second Industrial Revolution. German inventor Karl Benz patented the world's first automobile in 1888<sup>15</sup>, the first of its kind to generate its own power and not operate as a motorized stage coach or rely on horse-drawn power. In Detroit, Michigan, Henry Ford successfully built his first car in 1896<sup>16</sup> and worked as a pioneer in the automobile industry, which eventually led to the founding of the Ford Motor Company in 1903<sup>17</sup>. Five years later, in 1908, the Ford Model T was released on the market<sup>18</sup>. Ford was especially well-known for using machine tools to eliminate human effort, and having all manufacturing work be performed on an assembly line. This process of mass production successfully lowered the price of the Model T from \$850 in 1908 to \$298 in 1923<sup>19</sup>.

Similarly, in Europe, particularly in Italy, the automobile industry took off with rapid success as the Fiat Automobile Group was established in the northern Italian city of Turin. Fiat Automobiles, formerly FIAT, whose acronym stands for *Fabbrica Italiana Automobili Torino* (Italian Automobiles Factory, Turin), opened its first plant in 1900<sup>20</sup>. By 1910, Fiat had become the largest automotive company in Italy, and eventually went on to being the largest in Europe and third-largest in the world, after Ford and General Motors, for over twenty years<sup>21</sup>, after Ford and General Motors. In 1923, Fiat opened its Lingotto building, a five-story building that at the time was the largest automobile manufacturing facility in

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<sup>14</sup> Ibid, 82.

<sup>15</sup> Richard Johnson, "Bertha Benz: Thanks to his wife, Karl Benz gets credit for inventing the auto," *Automotive News* 20.3 (2016), 43.

<sup>16</sup> Christopher Wells, "The Road to the Model T: Culture, road conditions, and innovation at the dawn of the American motor age," *Technology and Culture*, 48.3 (2007), 497.

<sup>17</sup> Ibid, 497.

<sup>18</sup> Ibid, 497.

<sup>19</sup> Ibid, 497.

<sup>20</sup> Alberto Vanolo, "The Fordist city and the creative city: Evolution and resilience in Turin, Italy," *City Culture and Society* 6.3 (2015), 70.

<sup>21</sup> Ibid, 70.

Europe<sup>22</sup>. It was the first in Europe to employ the assembly line, and was where all Fiat automobiles were manufactured until the closure of the building in 1982.<sup>23</sup>

### *Deindustrialization, Deurbanization, and Shrinking Cities*

Almost immediately following the Second World War, developed countries worldwide witnessed two major socioeconomic transformations – deindustrialization and deurbanization. Deindustrialization is characterized as the shift from manufacturing as the major source of employment and income, to the service industry.<sup>24</sup> British economist Alexander Cairncross provided four distinguishing factors of deindustrialization<sup>25</sup>:

1. A straightforward decline in employment in manufacturing or in output
2. The shift from manufacturing to service sectors, so that manufacturing has a lower share of total employment or output
3. A declining share of world trade in manufactured goods so that there is a progressive failure to achieve a sufficient surplus of exports over imports
4. A continued balance-of-trade deficit cumulates to the extent that a country or region is unable to pay for necessary imports to sustain further production of goods<sup>26</sup>

Deurbanization likewise took its toll on former industrial cities. Also known as counter-urbanism, it is described as the move of residential and subsequently employment locations from the largest urban centers to suburbs, smaller towns, and rural areas.<sup>27</sup>

Members of the newly suburban society of the time might argue that deindustrialization offered a vision of a clean environment, both social and ecological. The smokestack factories had seemingly disappeared, and the decrease in hard labor allowed

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<sup>22</sup> Ibid, 70.

<sup>23</sup> Ibid, 70.

<sup>24</sup> W.F. Lever, "Deindustrialisation and the Reality of the Post-Industrial City," *Urban Studies*, 28 (1991): 983.

<sup>25</sup> A. Cairncross, "What is De-industrialisation?" in *Deindustrialisation*, ed. F. Blackay (London: Heinemann, 1982).

<sup>26</sup> M. Chisholm, "Deindustrialisation and British Regional Policy," *Regional Studies*, 19 (1985): 304.

<sup>27</sup> Lever, "Deindustrialisation and the Reality of the Post-Industrial City," 983.

for more leisure time and an array of social opportunities.<sup>28</sup> To others, however, that same falling demand in blue-collar labor led to high levels of unemployment, decreased standards of living as the cities were deprived of their economic power, wider disparities in income as white-collar jobs allowed for a newer and more affluent social class to develop, and ultimately less caring attitudes about repairing an urban environment that had been seemingly damaged.<sup>29</sup>

Deindustrialization and deurbanization are two of the many underlying processes that give way to a shrinking city.<sup>30</sup> This phrase points to a phenomenon that is defined by loss of overall population, tax revenues, political representation, and federal dollars.<sup>31</sup> In the case of industrial cities, along with the rapid suburbanization of the white population,<sup>32</sup> as well as the suburbanization of employment,<sup>33</sup> a major cause of city shrinkage was the monostructural economic model. Cities devoted themselves to a concentration on one type of economic growth, or one industry, thus ultimately rendering themselves vulnerable to rapid decline.<sup>34</sup>

Political and economic disinterest led to the further demise of industrial cities. As a result, much of the built environment in industrial cities went untouched for decades. The industrial buildings, which once stood in grandeur as they supplied the labor and production for the local economy, were subsequently left vacant and abandoned.

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<sup>28</sup> G. Gappert, *Post Affluent America* (New York: Franklin Watts, 1975).

<sup>29</sup> G. Gappert, *Post Affluent America* (New York: Franklin Watts, 1975).

<sup>30</sup> Philipp Oswald, *Shrinking Cities Volume 1: International Research* (Germany: Hatje Cantz Verlag, 2005).

<sup>31</sup> Jill Desimini, "From Planned Shrinkage to Formerly Urban," *Landscape Journal: design, planning, and management of the land* 33 (2014): 17.

<sup>32</sup> Justin Hollander 2010, "Moving Toward a Shrinking Cities Metric: Analyzing Land Use Changes Associated with Depopulation in Flint, Michigan," *Cityscape* 12 (2010): 137.

<sup>33</sup> Scott Martelle, *Detroit: A Biography* (Chicago: Chicago Review Press, 2014).

<sup>34</sup> Marco Bontje, "Facing the challenge of shrinking cities in East Germany: The case of Leipzig," *GeoJournal* 61 (2014): 14.

## *Historic Preservation*

Following World War II, urban renewal was implemented as a national policy to enable cities to compete with suburbanization: clearing slums, demolishing antiquated buildings, and creating road space for the automobile were thought to be ways to re-attract population, business, and tax revenue to cities.<sup>35</sup> Immense sections of city blocks were razed, and by the 1960s the face of cities had completely changed. Amidst this movement, growing consciousness of the destruction of the past arose. The efforts to memorialize the past and give voice to the life that once was is often associated with the nineteenth-century movement of Romanticism.<sup>36</sup> When considering dominant cities that underwent distinct political and economic transformations<sup>37</sup> throughout the course of history, this desire to preserve is especially prevalent.

As a result of these efforts, the National Historic Preservation Act was enacted in 1966 by the 89<sup>th</sup> United States Congress, and signed into law by President Lyndon B. Johnson.<sup>38</sup> Though there had been previous laws to encourage preservation, such as the Antiquities Act of 1906 and the Historic Sites Act of 1935, none were as comprehensive as the National Historic Preservation Act.<sup>39</sup> This law spelled out a designated process by which preservation would be carried out in the United States, including the requirement for each of the fifty states to establish its own historic preservation office and complete an inventory of all important sites.<sup>40</sup>

For the purposes of industrial structures, historic preservation has played an immensely significant role. Industrial landscapes, though obsolete, represent a wealth of

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<sup>35</sup> National Park Service, "Introduction," *Historic Preservation*. U.S. Department of the Interior, January 13, 2015, <https://www.nps.gov/subjects/historicpreservation/introduction.htm>. (accessed November 20, 2018).

<sup>36</sup> Thomas E. Leary and Elizabeth C. Sholes, "Authenticity of Place and Voice: Examples of Industrial Heritage and Preservation and Interpretation in the U.S. and Europe," *The Public Historian* 22 (200): 50.

<sup>37</sup> *Ibid*, 63.

<sup>38</sup> National Park Service, *Historic Preservation*, <https://www.nps.gov/subjects/historicpreservation/introduction.htm> (accessed November 20, 2018).

<sup>39</sup> *Ibid*.

<sup>40</sup> *Ibid*.

memory<sup>41</sup> and a rich cultural heritage. One of the first designated industrial historical parks in the United States was the Lowell National Historical Park in Lowell, Massachusetts. Given this distinction in 1978, this site commemorates the Industrial Revolution of the United States through its representations of labor in the textile industry, immigration, and urbanization.<sup>42</sup> This effort gave way to the revitalization of over four million square feet of vacant mill space for the purposes of public and private institutional, residential, and commercial development.<sup>43</sup>

Meanwhile, in Europe, local and regional officials also sought to preserve many of the industrial landscapes. One of the most notable examples is the Ruhr Valley in western Germany, a region that lies between the Rhine, Ruhr, and Emscher rivers<sup>44</sup>. The region was a pioneer for the coal mining and steel manufacturing industries,<sup>45</sup> which, much like many of the urban industrial areas in the United States, was met with significant population decline and economic loss after the end of the industrial area. The preservation movement began in 1969, only three years after the United States had passed the National Historic Preservation Act. What differentiates this experience, however, from that of the United States are the bottom-up strategies that were implemented that originated from local descendants of mining workers, many of whom were students at the University of Dortmund<sup>46</sup>. The desire to stop a private developer from demolishing a housing complex for former coal mining workers<sup>47</sup> sparked a revolution that led to the preservation of the industrial landscape of the region. *Zeche Zollverein*, a former coal mine Essen has since been transformed into a museum that showcases the industrial heritage of the Ruhr Valley.

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<sup>41</sup> Constance Bodurow, "A Vehicle for Conserving and Interpreting Our Recent Industrial Heritage," *The George Wright Forum* 20 (2003): 137.

<sup>42</sup> Bodurow, "A Vehicle for Conserving and Interpreting Our Recent Industrial Heritage," 139.

<sup>43</sup> *Ibid*, 139.

<sup>44</sup> Anne Brownley Raines, "Change through industrial culture: conservation and renewal in the Ruhrgebiet," *Planning Perspectives* 26 (2011): 183.

<sup>45</sup> *Ibid*, 184.

<sup>46</sup> *Ibid*, 186.

<sup>47</sup> *Ibid*, 187.

It is a UNESCO World Heritage Site,<sup>48</sup> whose reuse focuses on fostering of culture and design, as well as entertainment and tourism.

The following question seeks to be answered through this case study analysis:

*How do cities adopt adaptive reuse strategies and use them to foster local economic development?*

The importance of industrial preservation lies in the possibility of these unique structures to be adaptively reused. As technology, the labor market, social activities, and economies are constantly changing, these industrial structures must be able to withstand the test of time and ensure that their physical form can accommodate the evolving needs of urban residents and industries.

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<sup>48</sup> UNESCO, "Zollverein Coal Mine Industrial Complex in Essen," *United Nations Educational, Scientific and Cultural Organization*. United Nations, December 13, 2001. <https://whc.unesco.org/en/list/975> (accessed November 20, 2018).

## Chapter Two: Methods

The research question seeks to analyze whether positive trends of economic development have resulted in the wake of adaptive reuse transformations of former industrial structures. A literature review was conducted to establish the context of the topic. The cities of Lowell, Massachusetts and Turin, Italy, were chosen for a case study analysis. These cities were selected because of their significance within the industrial manufacturing era, the effects that deindustrialization had on local job markets, the types of structures that were successfully retrofitted, and the span of time that would make for adequate analysis of economic change.

Research was performed on each case study city through various methods. Prior to exploring the sites in person, a thorough analysis of previous research was conducted in order to ensure appropriate and accurate level of understanding and knowledge of the projects that have been completed. Visits to each of the cities were made with the intention of touring the various industrial structures throughout the areas. Systematic observations were conducted during each visit to record the program of uses within each structure, the purpose that these new uses serve, and the overall aesthetics of the revitalized buildings.<sup>4950</sup> Lastly, photos were collected to show the neighborhood changes over the course of the last one hundred and fifty to two hundred years. Photos are a combination of those sourced through databases including Eatly, EDIT Turin, Boott Cotton Mills, Gumula Architecture, and Wannalancit Mills, coupled with those that were taken by the author on site visits.

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<sup>49</sup> John Gaber and Sharon Gaber, *Qualitative Analysis for Planning and Policy: Beyond the Numbers* (New York: Routledge, 2007).

<sup>50</sup> Leila C. Kahwati and Heather L. Kane, *Qualitative Comparative Analysis in Mixed Methods Research and Evaluation* (Thousand Oaks, California: Sage, 2019).

The study evaluated a number of criteria: population, job market analysis, development, and tourism trends. Justification for each of the criteria is listed below.

### *Population*

Overall, population size is an excellent indicator of the economic strength of a city. Cities that are economically prosperous will continue to grow, whereas those that lose a sizeable portion of their job market will shrink. Former industrial cities suffered greatly from shrinkage as a result of deindustrialization. Regrowth in population is a sign that cities are regaining their economic vitality.

Population counts were taken from a collection of municipal documents and reports.

### *Tax Base*

Municipal tax revenue is a strong example of economic growth. As former industrial structures that have been left abandoned are reused and repurposed, the new building proprietors contribute property tax payments as the newly rehabbed property increases in value.

Tax revenue data was collected through various municipal documents and reports.

### *Job Market Analysis*

A labor market analysis is another sign of economic growth for a city. It could be directly related to the reuse of a former industrial structure, as some buildings repurpose their facilities to allow for office space, such as small startup companies. Indirectly, should industrial reuse lead to increased development in surrounding neighborhoods, newly-generated office space could give way to various companies who are looking for more affordable rent.

### *Tourism*

The tourism industry is an important source for local revenue. Trends in tourism should be studied to analyze whether or not the effects of industrial reuse coupled with historic preservation have led to a redefined tourism sector within the city.

## Chapter Three: Literature Review

The adaptive reuse of industrial buildings represents a well-studied interdisciplinary sphere within urban planning, architecture and landscape architecture, environmental studies, and historic preservation. Former industrial buildings present a problem in and of themselves – they are defunct structures that are typically custom designed to serve industries that no longer exist, they sit on top of a contaminated site, and yet many of them cannot be completely demolished as they are both very sturdy and protected by historic preservation designations. However, they simultaneously stand as public eyesores to local residents who pass by the derelict abandoned property of overgrown shrubbery, broken windows, iron fences, and vast walls of exposed brick or concrete. As such, the many actors who take part in the adaptive transformation of industrial buildings are faced with a number of obstacles.

This literature review seeks to answer questions about the general process that any given entity (i.e. local government, private developer, etc.) typically undergoes when attempting to convert a former industrial structure to modern use. A series of questions guide the literature search, with the most important being the main research question:

*How do cities adopt adaptive reuse strategies and use them to foster local economic development?*

Additional guiding questions include:

*Who are the main actors in industrial reuse?*

*What are the predominant uses?*

*What are the impacts (positive and negative) on the community and local economy?*

*What are the barriers to retrofitting the industrial structures?*

*What role does historical preservation play in industrial reuse?*

*What are current examples of former industrial structures that have been successfully retrofitted?*

*What are the major policy and planning mechanisms that support industrial reuse?*

Using the network of online databases provided by Tufts University, the literature review search was conducted using the following keywords and phrases: *brownfield*, *brownfield revitalization*, *industrial reuse*, *adaptive reuse*, *industrial revitalization*, *historical preservation*. Peer-reviewed articles were selected from the search, primarily based on the number of times that they had been cited by other researchers. After selecting all of the appropriate articles, additional searches were performed based on the works cited within the articles themselves. This led to a well-rounded and robust collection of literature.

There are multiple actors who come into play when considering the appropriate reuse of a former industrial buildings. One of the first major steps in determining whether or not a site is suitable for transformation is to assess the site contamination and initiate the process for depollution of the site. The Environmental Protection Agency (EPA) defines a *brownfield* as a property whose expansion, redevelopment, or reuse may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. (Environmental Protection Agency) The EPA is a principal actor in industrial reuse through the process of brownfield revitalization,<sup>51 52 53</sup> primarily due to its enactment of the Brownfields Revitalization Act of 2002,<sup>54</sup> which codified the practices, policies, and guidance of the EPA in its effort to assist states, communities, and other stakeholders in the cleanup and redevelopment of brownfields sites.<sup>55</sup> Through this act, the EPA is able to

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<sup>51</sup> Charles Bartsch, "Success story," *Journal of Housing and Community Development* 59 (2002): 19.

<sup>52</sup> Peter B. Meyer and Thomas S. Lyons, "Lessons from Private Sector Brownfield Redevelopers," *Journal of the American Planning Association* 66 (2000): 47.

<sup>53</sup> Kristen R. Yount and Peter B. Meyer, "Bankers, Developers, and Investment in Brownfields: Environmental Concerns and the Social Psychology of Risk," *Economic Development Quarterly*, 8 (1994): 340.

<sup>54</sup> Bartsch, "Success story," 19.

<sup>55</sup> Environmental Protection Agency, "Overview of EPA's Brownfields Program," *United States Environmental*

provide a series of grants that support revitalization efforts, as well as support state voluntary cleanup programs<sup>56 57 58</sup> that have aided and encouraged states to engage local residents<sup>59 60</sup> in the cleanup of brownfields sites. Additional actors in industrial reuse include the municipal government<sup>61</sup> that works alongside the property owner to determine the process for site decontamination and subsequent steps for redevelopment, and private developers<sup>62</sup> who may purchase the property if applicable and determine, alongside the municipal government, what modern uses may be appropriate.

Particularly within the United States, and more specifically the Northeast, a vast majority of abandoned industrial buildings have been converted to residential use.<sup>63</sup> As the idea for pushing density becomes increasingly popular in order to foster sustainable cities, housing as a mechanism to kickstart brownfields revitalization provides that link between smart growth and infill.<sup>64</sup> Though site cleanup for housing requires a much more stringent process to meet residential versus commercial standards,<sup>65</sup> this strategy is particularly attractive to local officials, as they are able to source additional funding for cleanup and remediation through Community Development Block Grants (CDBGs) and Low Income Housing Tax Credits (LIHTCs).<sup>66</sup>

It is important to note that key actors face multiple barriers – financial, social, environmental, and architectural – in their attempts to retrofit former industrial structures.

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*Protection Agency*, United States of America, November 6, 2018. <https://www.epa.gov/brownfields/overview-epas-brownfields-program> (accessed November 20, 2018).

<sup>56</sup> Bartsch, "Success story," 19.

<sup>57</sup> Meyer and Lyons, "Lessons from Private Sector Brownfield Redevelopers," 47.

<sup>58</sup> Yount and Meyer, Bankers, Developers, and Investment in Brownfields: Environmental Concerns and the Social Psychology of Risk," 49.

<sup>59</sup> Bartsch, "Success story," 20.

<sup>60</sup> Meyer and Lyons, "Lessons from Private Sector Brownfield Redevelopers," 47.

<sup>61</sup> *Ibid*, 55.

<sup>62</sup> *Ibid*, 56.

<sup>63</sup> Bartsch, "Success story," 20.

<sup>64</sup> *Ibid*, 20.

<sup>65</sup> *Ibid*, 20.

<sup>66</sup> Bartsch, "Success story," 20.

As previously mentioned, environmental mitigation is the first major step in clearing the property for new development. Unfortunately, this is a costly process,<sup>67 68</sup> and the cost of cleanup may ultimately exceed the potential property value.<sup>69</sup> Additionally, many lenders are unwilling to finance loans strictly due to those environmental concerns<sup>70 71 72</sup> given the uncertainty and uncontrollability of the outcome.<sup>73 74</sup> Lastly, many private developers lack the proper knowledge of environmental mitigation<sup>75 76</sup> further rendering lenders hesitant to issue loans.

There are a number of social constructs that are associated with polluted industrial sites which can also hinder development. Unsurprisingly, there is a stigma associated with industrial land<sup>77 78 79 80 81</sup> due to the likely and plausible presence of environmental contamination. Furthermore, the sites must be located in a desirable area,<sup>82</sup> likely in or within close proximity to the urban core, so that they would make for a socially and economically stimulating development. A third barrier to consider is the idea that private developers are at times unwilling to purchase certain properties<sup>83</sup> due to the interest of the

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<sup>67</sup> Christopher A. De Sousa, "Turning brownfields into green space in the City of Toronto," *Landscape and Urban Planning* 62 (2003): 188.

<sup>68</sup> Yount and Meyer, "Bankers, Developers, and Investment in Brownfields: Environmental Concerns and the Social Psychology of Risk," 340.

<sup>69</sup> *Ibid*, 340.

<sup>70</sup> Bartsch, "Success story," 21.

<sup>71</sup> Yount and Meyer, "Bankers, Developers, and Investment in Brownfields: Environmental Concerns and the Social Psychology of Risk," 339.

<sup>72</sup> Meyer and Lyons, "Lessons from Private Sector Brownfield Redevelopers," 48.

<sup>73</sup> De Sousa, "Turning brownfields into green space in the City of Toronto," 189.

<sup>74</sup> Yount and Meyer, "Bankers, Developers, and Investment in Brownfields: Environmental Concerns and the Social Psychology of Risk," 339.

<sup>75</sup> De Sousa, "Turning brownfields into green space in the City of Toronto," 194.

<sup>76</sup> Meyer and Lyons, "Lessons from Private Sector Brownfield Redevelopers," 49.

<sup>77</sup> Bartsch, "Success story," 22.

<sup>78</sup> De Sousa, "Turning brownfields into green space in the City of Toronto," 182.

<sup>79</sup> Michael Greenberg, Karen Lowrie, Laura Solitare, and Latoya Duncan, "Brownfields, TOADS, and the Struggle for Neighborhood Redevelopment," *Urban Affairs Review* 35 (2000): 719.

<sup>80</sup> Meyer and Lyons, "Lessons from Private Sector Brownfield Redevelopers," 51.

<sup>81</sup> Yount and Meyer, "Bankers, Developers, and Investment in Brownfields: Environmental Concerns and the Social Psychology of Risk," 342.

<sup>82</sup> Meyer and Lyons, "Lessons from Private Sector Brownfield Redevelopers," 56.

<sup>83</sup> *Ibid*, 49.

municipal government in wanting to influence the programs of use,<sup>84</sup> which thus results in a lack of trust between the two entities.<sup>85</sup> The process becomes further complicated and arduous if the property in question is tax-delinquent,<sup>86 87</sup> and the property owner must then work with the municipal government to pay back the taxes owed before proceeding with the plans for redevelopment.

Once these barriers have been overcome, there is an important series of policy and planning mechanisms that support industrial reuse and ensure that the process achieves maximum efficacy. In consideration of the physical structure of some industrial buildings, it might be worthwhile to engage strictly in conversion versus wholesale redevelopment,<sup>88</sup> such as transforming a former factory into office space. The structural strength of these buildings is usually able to carry greater loads than office or residential uses, and much of the required work is limited to installing new systems and rebuilding the interior. When preparing to plan for the reuse of former industrial buildings, municipal governments must consult the proper key stakeholders,<sup>89</sup> and it would also be to their benefit to consider what other off-site investments can be made – such as transit infrastructure, labor force availability, etc. – that would improve the real estate market conditions and render the industrial sites more attractive.<sup>90</sup>

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<sup>84</sup> Ibid, 55.

<sup>85</sup> De Sousa, "Turning brownfields into green space in the City of Toronto," 188.

<sup>86</sup> Accordino & Johnson 2000

<sup>87</sup> Bartsch, "Success story," 23.

<sup>88</sup> Jayantha Wadu Mesthrige, Johnny K.W. Wong, Lin Nga Yuk, "Conversion or redevelopment? Effects of revitalization of old industrial buildings on property values," *Habitat International* 73 (2018): 53.

<sup>89</sup> Ibid, 63.

<sup>90</sup> Meyer and Lyons, "Lessons from Private Sector Brownfield Redevelopers," 56.

The ultimate results of the industrial reuse process are the effects on the local community and economy. Overall, the redevelopment of the property itself improves the living environment for city inhabitants, it enhances the quality of life, public safety, and the image of the city.<sup>91 92</sup> It improves the neighborhood aesthetics<sup>93</sup> and has the potential to provide new public recreation enhancements through the generation of open and green space.<sup>94</sup> Redevelopment of an abandoned building rids the property of its contaminants and pollutants, physically cleans up the site, and deters crime including graffiti, loitering, and potential exchanging of illegal substances. Additional positive effects include those which generate overall economic development,<sup>95 96 97</sup> such as providing employment through the cleanup and subsequent reconstruction of the site<sup>98</sup> and promoting development which in turn raises tax revenue.<sup>99</sup>

In conclusion, the literature above provides well-rounded findings on the importance of industrial reuse and the long process that municipal governments must endure to continuously foster local economic growth.

There are cities worldwide whose economies relied heavily on industrial manufacturing, and subsequently faced economic disinvestment and population decline as a result of the shift in the labor market. This thesis conducts a case study analysis of industrial reuse brought on by two former industrial cities who have taken their abandoned structures and have creatively adapted them to directly suit the needs of the

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<sup>91</sup> De Sousa, "Turning brownfields into green space in the City of Toronto," 196.

<sup>92</sup> Mesthrige et al. "Conversion of redevelopment? Effects of revitalization of old industrial buildings on property values," 53.

<sup>93</sup> De Sousa, "Turning brownfields into green space in the City of Toronto," 194.

<sup>94</sup> Ibid, 194.

<sup>95</sup> Bartsch, "Success story," 24.

<sup>96</sup> De Sousa, "Turning brownfields into green space in the City of Toronto," 194.

<sup>97</sup> Meyer and Lyons, "Lessons from Private Sector Brownfield Redevelopers," 46.

<sup>98</sup> Mesthrige et al. "Conversion of redevelopment? Effects of revitalization of old industrial buildings on property values," 53.

<sup>99</sup> Ibid, 53.

community. Such new uses include those that provide housing, programmable space, tourism opportunities, glimpses into a rich industrial heritage, and showcase the current local culture. Furthermore, it is imperative to understand if those practices were successful in spurring economic development and population growth. Ultimately, these case studies are intended to be used as best practices for increasing the prevalence of creative reuse of industrial buildings.

## Chapter Four: Turin, Italy and Lowell, MA and The Quest for Cultural Branding

In the wake of a post-industrial economy, a number of cities that once thrived on Fordist models<sup>100</sup> are searching for innovative mechanisms that will leverage the urban economy, generate revenue, and foster culture and tourism. Efforts toward transforming industrial cities into service-oriented economies have been accompanied by a growing interest in using cultural heritage as a tool for urban regeneration.<sup>101</sup> Cultural, or urban branding, is mobilized as a key tool to modify the way in which the city is perceived by external investors, tourists, and local inhabitants.<sup>102</sup> It is widely implemented to combat the stigma that is associated with decaying industrial cities, effectively representing the city as one that is dynamic, technologically advanced, and culturally vibrant.<sup>103</sup>

Lily Kong, Professor of Geography at the National University of Singapore, identifies four main characteristics of what can be considered part of “cultural economic policy”.<sup>104</sup> These include the launch of flagship arts developments and high profile events in the inner city that are often linked to local heritage so as to foster cultural tourism; growing infrastructural investment needed for cultural production such as studios or cultural

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<sup>100</sup> Fordist model economies refer to those which used systems of mass production that were pioneered by Henry Ford in the early Twentieth Century. Cities and towns that employed mass production usually specialized in one specific standard good, such as cars or textiles in the cases of Turin and Lowell. Goods were typically moved along an assembly line that was powered by a largely unskilled labor force.

<sup>101</sup> Beatriz Garcia, “Cultural Policy and Urban Regeneration in Western European Cities: Lessons from experience, prospects for the future,” *Local Economy* 19.4 (2004): 321.

<sup>102</sup> Alberto Vanolo, “The image of the creative city, eight years later: Turin, urban branding, and the economic crisis taboo,” *Cities* 46 (2015), 4.

<sup>103</sup> *Ibid*, 5.

<sup>104</sup> L. Kong. “Culture, economy and policy: trends and developments,” *Geoforum: special issue on culture industries and cultural policies* 31.4 (2000): 388.

districts; the revival of urban public spaces; and a growth of public-private partnerships to address urban issues.<sup>105</sup> In an effort to develop this new form of cultural economic policy, modern urban economies place strong emphasis on the “creative class,” or those who are engaged in knowledge-intensive works which “create meaningful new forms,” such as artists, scientists, analysts, business managers, and opinion makers. For industrial cities in particular, the creative class aids in celebrating a new post-Fordist urban identity - one that embraces a modern economy, lifestyle, and form of consumption.<sup>106</sup> This new economy is characterized less by its dependence on labor input and raw materials, and instead, more so on human creativity, which has the potential to continuously generate new ideas.<sup>107</sup>

A key element to the framing process for cultural branding is the connection to local identity. The cities of Lowell and Torino are no exception to this pattern. Having once been a leader in the textile industry, with an ever-evolving population of various immigrant backgrounds, Lowell, Massachusetts is actively engaging in strategic planning efforts that pay tribute to its industrial heritage and celebrate the community’s diversity. Likewise, Torino, Italy, the former headquarters of FIAT automobiles, has creatively engaged its residents and community in local initiatives that strive to maintain the economic vitality that the city once possessed.

Such innovative strategies were necessary to attempt lifting the respective economies out of decline.<sup>108</sup> After most of textile mills in Lowell ceased operations in the 1940s,, and following the closure of FIAT in Turin in 1982, both cities were left without

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<sup>105</sup> Ibid, 388.

<sup>106</sup> AJ Scott, “Creative cities: conceptual issues and policy questions,” *Journal of Urban Affairs* 28.1 (2007), 4.

<sup>107</sup> Alberto Vanolo, “The image of the creative city: Some reflections on urban branding in Turin,” *Cities* 25 (2008), 374.

<sup>108</sup> Ibid, 378.

their main driving economic force. As a result, both cities faced steep declines in their population counts, as inhabitants employed within the industrial workforce searched for economic opportunities elsewhere. (See Table 1)



Figure 1: Turin, Italy and its Metro Area, with Lowell, Massachusetts at the same scale  
Source: Google Maps

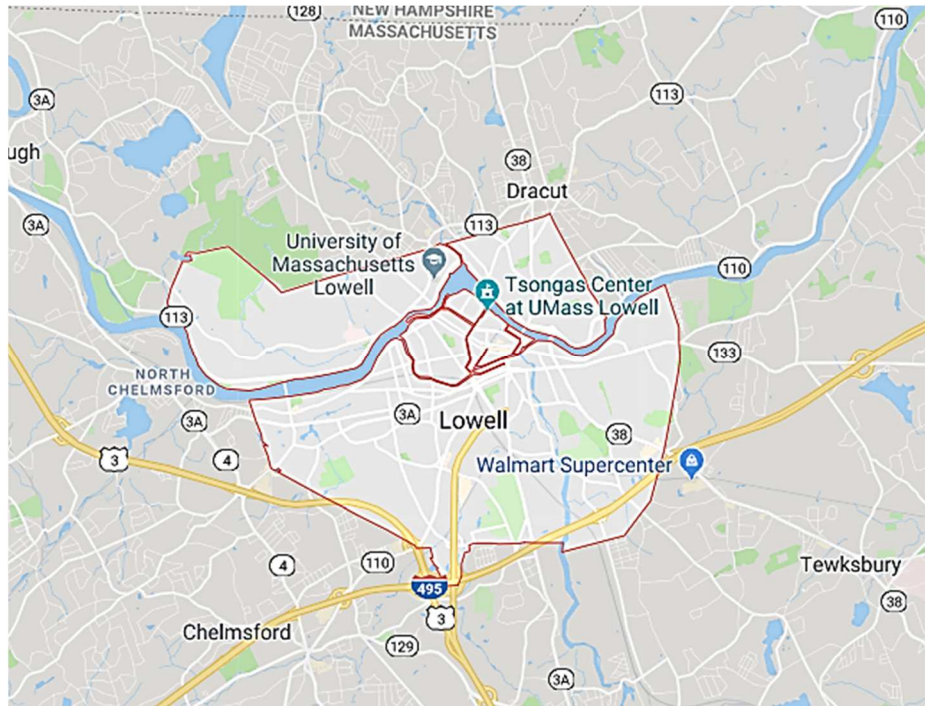


Figure 2: Lowell, MA and its metro area (Greater Lowell)  
Source: Google Maps

Table 1. Population counts in Turin and Lowell, 1900-2010

Population	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010
<b>Lowell</b>	94,969	106,294	112,769	100,234	101,389	97,249	92,107	94,239	92,418	103,439	105,167	106,519
<b>Turin</b>	329,691	415,667	499,823	590,753	unknown	719,300	1,025,822	1,167,968	1,117,154	962,507	865,263	872,367

Sources: *Sustainable Lowell 2025* and *Torino Strategica 2025*

Table 2. Characteristics of Turin and Lowell

City	Founded	Area	Population (City)	Population (Metro)	Largest Industrial Complex	Complex Size
<b>Turin</b>	~28 BC	50.2 mi <sup>2</sup>	882,523	2.82 million	Lingotto	16,000,000 ft <sup>2</sup>
<b>Lowell</b>	1653 (Settled) 1826 (Inc.)	14.5 mi <sup>2</sup>	111,472 (est.)	312,447	Boott Cotton Mills	>600,000 ft <sup>2</sup>

Sources: *Boott Cotton Mills*, *Sustainable Lowell 2025*, and *Torino Strategica 2025*

Both cities shared a common trait in adopting strategic planning as an urban framework. Currently, both cities are working toward goals for the year 2025, as laid out in

*Sustainable Lowell 2025*<sup>109</sup>, and *Torino Strategica 2025*<sup>110</sup>. An analysis of the similarities and differences between the two cities is broken down into four different categories that shape cultural and urban branding efforts: Arts and Culture, Technology and Innovation, Urban Agriculture and Adaptive Reuse through Historic Preservation. The analysis shows that the cities have made nearly equal headway in all fields except adaptive reuse. The City of Torino has made significant strides in creating spaces that harmonize all of the aforementioned elements of cultural branding and furthermore adding new space to the public realm. However, in Lowell, the vast majority of formerly-industrial structures possess single-use functions. A creation of mixed-use spaces, both public and private, would provide an additional boost to the further development of the local economy.

### *Arts and Culture*

Art spaces, artist districts, fairs and exhibitions have been frequently featured in the urban agenda of old-industrial cities willing to regenerate their economic base and image.<sup>111</sup> Investments in the art sector are often led by public regulators who view the production and consumption of culture as efficient tools for achieving not only economic growth and competitiveness, but also social development.<sup>112</sup> Just as museums, libraries, theaters, and concert halls are being constructed more frequently, so are cultural events such as music and food festivals and expositions being established. These events often aim

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<sup>109</sup> City of Lowell, “Sustainable Lowell 2025” (master plan, Lowell, MA, 2013), 1.

<sup>110</sup> City of Turin, “Torino Strategica 202” (master plan, Turin, Italy, 2015), 1.

<sup>111</sup> Francesca Rota and Carlo Salone, “Place-making processes in unconventional cultural practices: The case of Turin’s contemporary art festival Paratissima,” *Cities* 40.A (2014): 90.

<sup>112</sup> *Ibid*, 91.

to capture a specific audience, often with a goal of attracting visitors to more peripheral, less-frequented areas of the city.<sup>113</sup>

Art festivals are particularly unique in their nature, especially in their ability to provide a collective and vibrant entertainment opportunity right within the public space. Concerts, dance performances, food showcases, and exhibitions of visual works are harmonized to provide an unforgettable experience for residents and visitors alike. Festival goers have the opportunity to interact in outdoor art in everyday places such as public streets or squares,<sup>114</sup> while performers and participants take not only pride in showcasing their talent, but also pride in their city, the place to which they belong.

The Paratissima art festival in Turin, Italy, can be defined as a bottom-up contemporary art exposition open to the participation of any artist that temporarily uses private properties in the urban fabric, both occupied or vacant, as unconventional galleries and museums.<sup>115</sup> Born as a critique against the Artissima international art fair, an annual event in Turin that showcases the public-led circuit of contemporary art initiatives, Paratissima was made to represent the “healthy” alternative that offered visitors the chance to enjoy artwork in everyday settings. Its inaugural year was 2005, in which the festival was held in an apartment under renovation. Between 2006 and 2007, the festival occupied former industrial buildings - a former fur factory and prison to be exact, before then moving to the streets of the San Salvario neighborhood for the following four years.

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<sup>113</sup> Maria Lewicka, “Ways to make people active: The role of place attachment, cultural capital, and neighborhood ties,” *Journal of Environmental Psychology* 25.4 (2005): 386.

<sup>114</sup> Nicholas Whybrow, *Art and the City* (London & New York: Tauris, 2011), 47.

<sup>115</sup> Rota and Salone, “Place-making processes in unconventional cultural practices: The case of Turin’s contemporary art festival Paratissima,” 93.

Most recently, it was held in La Caserma “La Marmora,” a former military barrack that will now be redeveloped under the guidance of local architect Carlo Ratti.<sup>116</sup>

Since its inception, Paratissima has enjoyed immense economic success. In 2011 alone, the revenue generated exceeded 1,300,000 Euro, after initial costs of 160,000 Euro that were supported by artist fees, local institutions such as the Borough of San Salvario and the Regional Government of Piedmont, and lastly by bank charities.<sup>117</sup> The festival enjoyed massive participation, totaling 50,000 visitors over the course of the five-day event, along with 530 local artists and 178 showcased events. Moreover, this art festival has succeeded in creating a convivial social atmosphere, where organic interactions amongst visitors, participants, staff and volunteers filled the public urban space from day to night.<sup>118</sup>

If one travels to the City of Lowell during the last week of July, one will inevitably encounter the Lowell Folk Festival, the longest-running, free folk festival in the United States.<sup>119</sup> After playing host to the National Folk Festival for three years between 1987-1989, Lowell experimented with hosting its own first festival in 1990 with immediate success. The festival is a joint venture between the City of Lowell, the Lowell Festival Foundation, Lowell National Historical Park, the Greater Lowell Chamber of Commerce, the Greater Merrimack Valley Convention & Visitors Bureau, and the National Council for the Traditional Arts. The festival takes place over the course of one weekend, transforming the

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<sup>116</sup> “La Caserma ‘La Marmora,’” Paratissima, accessed March 10, 2019, <https://paratissima.it/la-caserma-la-marmora/>

<sup>117</sup> Rota and Salone, “Place-making processes in unconventional cultural practices: The case of Turin’s contemporary art festival Paratissima,” 94.

<sup>118</sup> Rota and Salone, “Place-making processes in unconventional cultural practices: The case of Turin’s contemporary art festival Paratissima,” 94.

<sup>119</sup> “Frequently Asked Questions,” Lowell Folk Festival, accessed March 10, 2019. <http://lowellfolkfestival.org/about/planning/faqs/#history>

entire Downtown Lowell into an open public sphere. There is live music, dance performances, arts and crafts and food stations, and a family activity area. Visitors of all family types, ages and racial and ethnic backgrounds customize their festival experience, all the while enjoying an open public realm where social interactions are just as exciting to celebrate as the showcased activities themselves.

### *Technology and Innovation*

The embracing of the “knowledge economy” in post-industrial cities was yet another strategy implemented to transition out of industrial manufacturing and into the service sector, with priority in the fields of research and development and information and communications.<sup>120</sup> A pivotal moment for Turin was its winning bid for the 2006 Winter Olympics. Between its awarding in 1998 and the Games themselves in 2006, the city took on a number of new, innovative transformations and infrastructural investments, including the construction of its metro line, which can metaphorically be considered as the shift of the city away from its automobile heritage.<sup>121</sup> Additionally, new buildings were constructed by famous architects including Isozaki and Fuksas, and public art installations began to light up the city at night.

The success of the Winter Olympics was short-lived, as the economy of Turin took a hit in 2008 when the global crisis struck. In a more recent effort to once again revive itself, Turin began its quest to become a “smart city.”<sup>122</sup> With funds offered by the European

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<sup>120</sup> Alberto Vanolo, “The Fordist city and the creative city: Evolution and resilience in Turin, Italy,” *City Culture and Society* 6.3 (2015), 70.

<sup>121</sup> *Ibid*, 70.

<sup>122</sup> Vanolo, “The image of the creative city, eight years later: Turin, urban branding and the economic crisis taboo,” 4.

Union to cities that vowed to optimize their infrastructure through modern technologies, Turin strove to effectively “green” the city. In its campaign, organized by the Torino Smart City foundation, organizers were not hesitant to reflect on the industrial past of the city. On the contrary, they highlighted the industrial success of Turin to demonstrate that the city has, in fact, always been and will be “smart”. The campaign showcased the technological and cultural assets of the city by listing some of its product brands such as, but not limited to FIAT, Lavazza, Martini, and Einaudi.<sup>123</sup>

Over the past ten years, the knowledge economy of Lowell has grown substantially. The city has shifted from its traditional manufacturing roots to accommodate more knowledge-based industries including health care, technology, and education. In particular, officials at the local higher education institution, the University of Massachusetts, Lowell, are continuously seeking to expand their student population with the addition of new housing, departments, and programs. Currently, the university is becoming increasingly closer to its enrollment goal of 19,000 (it had 18,300 students in 2018), and has been cited for the past three years by the “Chronicle of Higher Education” as one of the top ten growing universities.<sup>124</sup> Additionally, it provides an array of resources for companies – large and small, established or startup – to partner with the university. Companies looking to license technology or make improvements to existing technology are invited to engage with the university and explore patent licensing or connect with research collaborators.<sup>125</sup>

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<sup>123</sup> Ibid, 6.

<sup>124</sup> Alana Melanson, “Moloney Touts UMAss Lowell Progress on Enrollment, Affordability,” University of Massachusetts, Lowell, last modified October 15, 2018, <https://www.uml.edu/news/news-articles/2018/sun-moloney.aspx>

<sup>125</sup> “Partner with Us,” University of Massachusetts, Lowell, accessed March 10, 2019, <https://www.uml.edu/research/companies.aspx>

## *Urban Agriculture*

The gastronomic sector of the “creative city” provides a tool for uniting various subjects through the production of food, specifically through urban agricultural programs. Local residents have the ability to join forces<sup>126</sup> and address the problems facing urban, industrial wastelands including ecological decay, lack of residential recreational facilities, and general disinterest and disinvestment in neighborhoods. The turning of an abandoned wasteland into a fruitful, green garden restores ecological practices through informal social interaction. It furthermore extends the opportunity to neighborhood residents to engage in active place-making efforts.

In Turin, urban gardening began as an informal movement, mainly brought on by the migrants who moved into the city from the Southern and Western regions of Italy. These residents were forced to adapt to their new, urban lifestyle, as they had previously lived their entire lives in the countryside, and likely engaged in agricultural activities on their own land. These former country dwellers resumed their home-growing practices on whatever small plot of land they could locate within and on the borders of the city. Initially, these informal, non-commercial agricultural practices were synonymous with “uncivil urban life,”<sup>127</sup> and native Turinese residents often looked down upon the uneducated peasants who took up such practices. Only recently have local policy makers, stakeholders, and economic actors considered the value of urban gardening, as the city continues its search for alternatives to enhance its post-industrial, service-based economy.

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<sup>126</sup> Vanolo, “The image of the creative city, eight years later: Turin, urban branding and the economic crisis taboo,” 6.

<sup>127</sup> *Ibid*, 7.

Urban agriculture in Lowell has long been practiced informally by immigrants with farming backgrounds. The movement started more officially however with the founding of the grassroots organization Mill City Grows. Established in 2011, this organization strives to promote food justice by improving physical health, economic independence, and environmental sustainability in Lowell through increased access to land, locally-grown food, and education.<sup>128</sup> City residents, particularly youth, are educated on the importance of access to top quality food and community leadership, and subsequently are given the opportunity to grow their own food through community gardens. Lastly, the organization has set up a mobile market, where all residents can purchase food that was organically grown by fellow, local community members.

### *Adaptive Reuse*

As the industrial era came to an end, leading cities were left with factories and structures that stood empty, waiting for new uses and programs to occupy their space. Rather than destroying these buildings to make way for new architectural structures, both Turin and Lowell kept them as physical means of preserving their industrial heritage. These are the buildings on which the local economies were founded and thrived, that today serve as symbols of an era of economic glory. Now, modern economic trends of service and consumption have allowed for new industries to find home inside these transformed

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<sup>128</sup> "Our Programs," Mill City Grows, accessed March 10, 2019, <http://www.dev.millcitygrows.org>

structures, as these former wastelands and derelict buildings stand as “complex resources” that can provide economic and other benefits for the local community.<sup>129</sup>

The City of Turin has demonstrated advanced progress in its ability to establish a variety of programs within its industrial buildings. The largest, and most famous of these transformations is that of the Lingotto, the former FIAT manufacturing facility. Additional redeveloped buildings include the Officine Grandi Riparazioni (OGR), a former train repair facility; Toolbox Torino, a former factory; EDIT Torino, a former electric cable factory, and others. Details of the transformation process, as well as a list of new occupants and their uses, are discussed in the following chapter.

As described in the introduction, the National Historic Preservation Act, which established the Lowell National Historical Park, protected mills and other industrial structures across Lowell. Developers who invested in rehabilitating mills benefitted from state and federal tax breaks, so long as they adhered to historic preservation standards. The strict guidelines precluded the possibility of structurally modifying portions of the historic mill buildings, rendering it difficult to install a variety of programs of uses, as they might not easily fit into the structure as it stands.<sup>130</sup> Therefore, the vast majority of new spaces in historic buildings consist of housing and office space, both of which cater to a growing population and service-sector economy. Quite possibly the most notable reuse function is that of the museum, which includes the American Textile Museum, the Tsongas

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<sup>129</sup> Roy Small and Josefina Syssner. “Diversity of new uses in post-industrial landscapes: diverging ideals and outcomes in the post-industrial landscapes of Lowell, Massachusetts and Norrköping, Sweden,” *Journal of Urban Design* 21.6 (2016): 766.

<sup>130</sup> Small and Syssner, “Diversity of new uses in post-industrial landscapes: diverging ideals and outcomes in the post-industrial landscapes of Lowell, Massachusetts and Norrköping, Sweden,” 771.

Industrial History Center, and the Patrick J. Mogan Cultural Center.<sup>131</sup> These museums provide the cultural, historical and educational opportunities for residents and visitors to Lowell, and along with housing and office space, effectively constitute the majority of the uses within industrial structures.

What sets Turin apart from Lowell is its continuous ability to take into account the importance of the public realm in each new space that is designed. Though the majority of the structures' tenants are private companies, there is still space for organic social interaction amongst the residents and visitors of Turin. Specifics of third spaces and their social and economic effects on the City of Turin will be analyzed in the next chapter, followed by a policy recommendation for the City of Lowell.

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<sup>131</sup> Ibid 774.

## Chapter Five: The Redeveloped Industrial Structures of Turin and Lowell

The cities of Turin and Lowell both employed adaptive reuse strategies on their stock of industrial buildings as a measure to aid in their continued quest for cultural branding, and thus strengthening their creative economy. Structures in post-industrial landscapes are already at an advantage, as they are often located near or in the city center or urban core, sometimes along waterfronts, and more often than not supported by existing infrastructure.<sup>132</sup> Not only are they physical assets, but also hold cultural and historical value, as they stand as reminders of the life that used to exist within the same city. Turin and Lowell, in an effort to not neglect their industrial heritage, have both chosen to use it as capital and thus rehabilitate these industrial structures to fit modern uses. In doing so, these cities display willingness to continuously meet the needs of an evolving economy.

This section draws a comparative analysis between the different programs of uses among former industrial structures in Turin and Lowell. Empirical data were collected, firstly through the research of various sources that highlight the specific structural transformations that took place within the urban environments, and secondly by in-person observations that were conducted in both cities.

Observations were made by comprehensive note-taking and photo documentation, and the resulting data were then compiled into a table that lists the various structures,

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<sup>132</sup> Luis Loures, "Post-industrial landscapes as drivers for urban redevelopment: Public versus expert perspectives towards the benefits and barriers of the reuse of post-industrial sites in urban areas," *Habitat International* 45.2 (2015), 72.

their current owners, and their programs of use. Lastly, the latest statistics regarding property tax values and revenue from tourism-related attractions were pulled from public records and were subsequently compiled. The findings from the most recent years were then compared to the years during which adaptive reuse strategies had not yet been entirely fulfilled.

Table 3 – Industrial Structures in Turin and Lowell

<b>Name</b>	<b>City</b>	<b>Former Function</b>	<b>Present Function</b>	<b>Location within City</b>
Eat, Drink, Innovate Together (EDIT)	Turin	Electrical Cable Factory	Restaurants, Incubator Kitchen, Microbrewery	Peripheral
Eataly	Turin	Carpano Vermouth factory	Food market and restaurant complex	Peripheral
Lingotto	Turin	FIAT Automobiles manufacturing facility	Multifunctional shopping and entertainment center	Peripheral
Officine Grandi Riparazioni (OGR)	Turin	Train Repair Facility	Multifunctional exhibit space, startup space, restaurant	Central
Boott Cotton Mills	Lowell	Textile Mill Complex	Apartments and Condominiums	Central
Hamilton Mills	Lowell	Hamilton Manufacturing Company - textiles	Lowell Community Health Center	Central
Mill No. 5	Lowell	Appleton Mills – textile manufacturing	Multifunctional marketplace with stalls, café, theatre	Central
Wannalancit Mills	Lowell	Cotton Mill	Office and research space	Central

### *Lingotto - Torino*

The most notable of the former industrial buildings in Turin is the Lingotto, which, as previously mentioned, once stood as the manufacturing headquarters of FIAT automobiles. In 1982, after the plant closed, FIAT executives called for twenty renowned architects to propose new conversion strategies for the Lingotto; those proposals were

ultimately rejected.<sup>133</sup> In 1985, Italian architect Renzo Piano was selected to design the building interior: his vision stood out amongst the rest as being the only one to incorporate a mixed-use functionality. In his intentions to bring the city indoors and create a “city within a city,”<sup>134</sup> Piano created space for shops, offices, two hotels, university classrooms, incubator space for startup companies, exhibit space for trade fairs, a shopping mall, and public parks. Redevelopment occurred over a period of 10 years, between 1992 and 2002. The ultimate goal was to integrate the Lingotto with the rest of Turin, by creating uses that would attract residents to the center on a regular basis.<sup>135</sup>



Figure 3 – Lingotto, Turin.  
Credit: Marissa Meaney

Today, the Lingotto still stands as Piano had intended it. The center has a dedicated stop at the eastern end of the metro line, and at the exit from the station platform, signs reading *Centro Polifunzionale di Lingotto*, or Lingotto Multifunctional Center, point

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<sup>133</sup> Clifford Pearson, “How Renzo Piano turned FIAT’s Lingotto Factory, a modern industrial icon, into the embodiment of changing times,” *Architectural Record* 91.3(1997): 42-49. 43.

<sup>134</sup> *Ibid*, 43.

<sup>135</sup> *Ibid*, 43.

pedestrians in the right direction. Immediately outside the Lingotto, the ovular-shaped former factory can be seen standing in its splendor.

Inside, city residents and visitors have full access to the multifunctional center that Piano created. The majority of the first floor is lined with small retail stores, with a full-scale supermarket and electronics superstore as the two anchors. The center of the facility, which is immediately seen upon arrival to the main level from the escalator, provides an entry to the Pinacoteca Agnelli, which is the art gallery located on the second floor. To the right of the gallery entrance is the main piazza, or square, which contains an assortment of fast-food style restaurants such as McDonald's, and other full-service restaurants. It is important to note that though there is no public food court-style seating, each establishment instead having a designated set of tables and chairs, it is still appropriate, as is in European fashion, to spend as much time sitting and chatting after having ordered and finished said meal or coffee. This particular atmosphere provides that third-space element that is characteristic of European urban life.

Additional amenities throughout the first floor of the Lingotto building include an indoor playground for children, an eight-screen cinema, two four-star hotels, and study and classroom space that is rented by the Polytechnic University of Turin. This is also an anchor space, located next to the electronics superstore. From the first level, patrons are able to peer through glass windows into what appears to be a large study lounge, which is accessed by university students who must tap their ID card on a reader next to the entrance. Located on the additional levels of the Lingotto building are corporate offices, a gym, and a glass-made spherical conference room that was constructed on the roof, where meeting attendees can look out over the city of Torino with a 360-degree view. Lastly,

connected to the main oval building is what is now the fully redesigned convention center, Lingotto Fiere. This multifunctional space hosts events twelve months out of the year, and is equipped with four large conference halls with a capacity of up to six hundred people, four smaller meeting rooms, three pavilions, two full-service restaurants, and five bars.

The scale of the Lingotto presented city officials and architects with both advantages and challenges. The amount of space leaves more room for diverse uses, but risks the possibility of leaving fragmented empty spaces, as is the case today. However, the state of the Lingotto today stands as an incredible symbol of the resilience of Turin, and it remains a place to which residents refer with pride.

### *Eataly - Turin*

Located just across the street from the Lingotto building stands yet another former factory that was once owned by the Carpano Vermouth Company<sup>136</sup>. Today, this warehouse is home to the original location of Eataly, a food retail company that now boasts multiple locations worldwide, many of which are larger than that of Turin. Eataly was founded in 2005 by Oscar Farinetti,<sup>137</sup> who had the idea of applying conventional distribution strategies, as he did with his former appliance business, to that of food retailing. Farinetti, along with his close friend and founder of the Slow Food Movement, Carlo Petrini<sup>138</sup>, made the vow to provide market outlets to small producers who guarantee top quality products at a price that is fair to consumers, and respect to quality, sustainability, and just

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<sup>136</sup> "Twelve Fun Facts about Eataly," Eataly, accessed March 10, 2019. [https://www.eataly.com/us\\_en/magazine/eataly-stories/fun-facts-about-eataly/](https://www.eataly.com/us_en/magazine/eataly-stories/fun-facts-about-eataly/)

<sup>137</sup> Silvia Massa and Stefania Testa, "Beyond the conventional-specialty dichotomy in food retailing business models: an Italian case study," *Journal of Retailing and Consumer Services* 18.5 (2011): 477.

<sup>138</sup> *Ibid*, 477.

agricultural practices. As such, apart from acting as a mere grocery space, Eataly provides spaces where consumers can not only buy, but eat and learn about high-quality foods all under one roof.<sup>139</sup> Shopping experiences can potentially be met with educational classes such as learning to cook a healthy meal on a budget, or just simply learning about the concepts of good, clean, and fair food.



Figure 4: Eataly, Turin

Source: "Eataly Torino," Digital Image, Eataly, accessed March 10, 2019, <http://www.eataly.net>

Immediately upon entering into Eataly Lingotto, visitors are met with fresh produce, which is contained in baskets alongside the wall, right before the seemingly narrow passageway opens up into a large atrium. The first of the three full-service restaurants, Ristorante Casa Vicina, lies straight ahead, whereas the opposite side of the room hosts the meat counter. Shoppers can pull up a bar stool and order a wide range of cured meats from the menu, all the while learning from employees about the sustainable Slow Food processes

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<sup>139</sup> Massa and Testa, "Beyond the conventional-specialty dichotomy in food retailing business models: an Italian case study," 477.

that brought this meat to the market. This type of “sampling while learning” style is common throughout the rest of Eataly, and can be done with other food products such as fish, pasta, cheese, and pizza, and beverages including beer and wine. A series of escalators in the atrium brings visitors down to the lower level, where the wine and beer bars are located, as well as the Ristorante Manuelina. Shoppers can purchase various bottles of wine and beer, or can even fill up a personal bottle from one of the many barrels that are contained in this cellar area.

Eataly Lingotto has proven successful for a number of reasons. First and foremost, it transformed an otherwise mundane experience, that of food shopping, into one that is pleasurable. The supermarket environment in Eataly is no longer a place through which shoppers pass in the shortest amount of time possible, but rather is yet another third space where friends and families can enjoy the experience together, and take leisure in what is typically viewed as a chaotic activity. The innovative format of the space provides an animated ambiance of people shopping next to those who are eating, reading, or browsing the Internet. Secondly, the methods imposed by Eataly go far beyond simple consumption. Customers who enter Eataly are informed about every aspect of the products they are to buy, from its origins, history, processing and delivery in order to make shopping a responsible activity, effectively allowing the consumer to learn, choose, embrace, and support a cause.<sup>140</sup> Lastly, Eataly has generated significant revenue for the City of Torino, the results of which will be discussed in the following chapter.

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<sup>140</sup> Massa and Testa, “Beyond the conventional-specialty dichotomy in food retailing business models: an Italian case study,” 479.

### *Officine Grandi Riparazioni (OGR) - Turin*

Another of the more recent industrial structure transformations is that of a former train repair factory, located just outside of the historic center of Turin. Construction of the OGR began in 1884 and lasted for a period of ten years. When it was finally completed, it became the new center for the repairs of locomotives and railway vehicles, especially given its convenient location right behind the Porta Susa train station, which is now the central station of Turin. Operations in the warehouse officially ceased in 1994 and remained vacant for almost twenty years. In 2011, a new life for the OGR began when the celebration for the 150th anniversary of the Italian Reunification (Risorgimento) was held inside the vacant warehouse. Following the success of the celebration, a public-private partnership was formed between the City of Torino and the CRT Foundation, a nonprofit, philanthropic organization founded by Banca Cassa Risparmio Torino, one of the major banks in the area. The formation of this partnership in 2013 allowed for the spatial transformation to finally begin, with the architectural firm Carlo Ratti Associates spearheading the design.

The peculiar H-shape of the OGR building gives way to a unique format that allows for different sectors of industry to be held in different parts of the building. The North Wing houses the cultural and creative sectors, with modular spaces dedicated to the performing arts, including theatre, concerts, and exhibitions.<sup>141</sup> On the opposite side, the South Wing opens itself to innovation and technology, with the aim of creating a meeting point between entrepreneurs, investors, and businesses. This area is still under construction, with an expected completion date of late 2019. When finished, the space will serve as a hub for

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<sup>141</sup> "Urban regeneration: the challenge of the New OGR," Urban Promo, accessed March 10, 2019. <https://urbanpromo.it/2015-en/progetti/urban-regeneration-the-challenge-of-the-new-ogr/>

scientific research, with a focus on supporting local startups, fostering projects within the creative industries with the potential to partner with leading firms in the area, and the development of a research center that will concentrate on smart data.

In keeping with European trends however, the space would not be complete without an element built for the public realm. The main goal for the operations at the OGR is to integrate the ongoing research projects with public-life activities. As is such, the transect passageway between the two wings is home to Snodo, a unique tasting experience that can be found only in Turin. This space offers a dining experience surrounded by 360-degree views, and is comprised of five separate areas that cater to different meals and social experiences. The Pausa Caffè is open all day, serving as the typical Italian-style bar that can be amply found throughout the country, complete with breakfast food in the morning, snack foods in the afternoon, and cocktails in the evening. The Social Table is a 25-meter rectangular table, where guests can sit down alone or together, and eat from a full-service menu while simultaneously building connections with those sitting around them. The Ristoro, open for lunch and dinner, offers a casual dining experience, where guests can enjoy a menu of traditional Piedmontese cuisine. By contrast, the Officina del Gusto provides a sophisticated, fine dining experience in a room that is set around an open kitchen, complete with sleek, modern furniture. Lastly, the Dopolavoro - literally translated as After-work - is a casual cocktail lounge, where nearby employees can link up with colleagues and friends to share a drink, as the former industrial workers once did. While the indoor space protects employees and visitors during the chilly months of an Alpine winter, a refurbished courtyard in between the two wings creates a traditional piazza, where events and activities are held during the warmer months. A calendar of events can

be found on the OGR website,<sup>142</sup> allowing city residents to be notified of the many events that will be taking place in a newly-created public space.

### *Eat, Drink, Innovate Together (EDIT) - Turin*

Lying just north of the Po River is the urban neighborhood known as the Barriera di Milano, which is characterized as having the largest number of industrial structures in Turin. One of these buildings was home to an electrical cable factory, and now provides space for EDIT, an innovative incubator space that combines food with the shared economy.

The project was born out of the investment of Marco Brignone, a former prominent banker and investor in Turin, who shares a deep passion for art. Having already experimented with previous spatial transformations of industrial buildings in the Barriera di Milano neighborhood, Brignone designated EDIT as his next project, and brought on Giovanni Rastrelli, a former startup businessman, as his Administrative Director.

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<sup>142</sup> "Events," Officine Grandi Riparazioni, accessed March 10, 2019, <http://www.ogrtorino.it/en/events>.



Figure 5: EDIT, Turin

Source: Filippo Ferraris, "EDIT Torino," Digital Image, Enerbrain, accessed March 10, 2019, <https://www.enerbrain.com/edit-torino/>

EDIT is comprised of six various gastronomic venues, the first of which is the Bakery Cafe, located on the first floor of the building. A collaboration between the Lavazza coffee company, which was founded in Turin, and Puerto Lehman, the only star-rated vegetarian chef in Italy, this cafe boasts food and drink products made entirely of natural ingredients.



Figure 6: Pub Restaurant at EDIT, Turin

Source: Filippo Ferraris, "EDIT Torino," Digital Image, Enerbrain, accessed March 10, 2019, <https://www.enerbrain.com/edit-torino/>

Additionally on the first floor is the microbrewery. While brewing of beer at the micro level took off in the United States well over ten years ago, the trend is fairly new in Italy, and true craft breweries are few and far between. Thus, the brewery at EDIT brings together amateur brewers who can rent factory space to kickstart their business, brewing masterminds, and simply those consumers who share a communal passion for beer drinking. The brewery would not be complete without a pub located next to it, which provides a menu that markets traditional Italian pizzas and standard pub foods, but with a twist. Furthermore, the pub proudly showcases information about the locally-sourced ingredients, and how they are carefully prepared inside the kitchen.



Figure 7: Incubator Kitchen at EDIT, Turin  
Filippo Ferraris, "EDIT Torino," Digital Image, Enerbrain, accessed March 10, 2019,  
<https://www.enerbrain.com/edit-torino/>

Further along the first floor are the four shared kitchens, whose spaces can be rented by chefs, caterers, or aspiring cooks who just want to have fun in the kitchen. Opposite the kitchens is the cocktail bar, Barz8, which, much like the Dopolavoro space at the OGR, is a space dedicated to the enjoyment of creative cocktails with friends and other peers. The last of the six spaces is the upscale restaurant, Costardi Bros, where the two head chefs, brothers Christian and Manuel Costardi, offer a sleek dining space where guests can choose between a fixed-price or a la carte menu.

EDIT opened its doors to the public in the fall of 2017, and, following suit on its predecessors, created yet another third space that engages the public. This particular development, however, is set apart from the rest because of its location within a peripheral

neighborhood of the city. Whereas Lingotto, Eataly, and the OGR also may not lie within the boundaries of the historic center, they are all accessible from the center and other neighborhoods of Turin via the local underground metro system. The Barriera di Milano, however, has no such access. In the following chapter, part of the success of EDIT will be measured by its ability to attract residents to an area that is otherwise off the beaten track.

### *Boott Cotton Mills - Lowell*

Perhaps the most notable example of adaptive reuse in Lowell is that of the Boott Cotton Mills complex. Founded by Kirk Boot, one of the early mill leaders in Lowell, the mills were built over a period of time from the mid-1830s to the early twentieth century, and are located between the Merrimack River and the Hamilton Canal. The first of the various adaptive reuse projects to take place was the creation of the Boott Cotton Mills Museum, part of the Lowell National Historical Park. The museum contains the famous weave room exhibit, where visitors can experience the visuals and sounds of the mills when they were in operation.

Apart from the museum, the mill complex contains the Tsongas Industrial History Center, Boott Mill Storage, the Offices at Boott Mills West and South, the Apartments at Boott Mills, and Waterfront Lofts condominium residences.



Figure 8: Entrance to Boott Mills Apartments  
Source: Winn Residential “Boott Mills,” Digital Image, Boott Mills, accessed March 10, 2019, <https://www.boottmills.com/>

Both the apartments and waterfront condos display the original wood beams of the ceilings, exposed brick walls, and tall windows, design elements that are rarities in modern luxury apartments, and thus increase the attractiveness and selling potential of these residences. The apartments are owned and managed by Winn Residential properties, who have their own office located in the office park.

Perhaps the most notable of efforts in transforming the Boott Cotton Mills is that of creating mixed-income housing. In July of 2003, MassHousing, the affordable housing bank of the State of Massachusetts, contributed \$14.2 million to the Boott Mills Apartments in order to create 154 units of mixed-income housing.<sup>143</sup> Of the 154 units, thirty-one, or

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<sup>143</sup> Massachusetts Housing Finance Agency, “MassHousing Commits \$14.2 Million for Conversion of Historic Lowell Mill Building into Mixed-Income Housing” (memorandum, Boston, 2013, 1).

twenty percent, are reserved for low-income households earning no more than fifty percent of the area median income, which in 2013 was \$71,700 for a three-person household.<sup>144</sup> Throughout the City of Lowell, MassHousing financed a total of ten developments, resulting in a total of 1,880 new units, 87% of which are affordable.<sup>145</sup>



Figure 9: Model Living Room at Boot Mills Apartments  
Source: Winn Residential “Living Room,” Digital Image, Boot Mills, accessed March 10, 2019, <https://www.bootmills.com/>

### *Mill No. 5 - Lowell*

Established in 1873 as a textile mill, Mill No. 5 has become one of the many historical landmarks of Lowell. Like the surrounding Appleton Mills and the Boott Cotton

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<sup>144</sup> Massachusetts Housing Finance Agency, “MassHousing Commits \$14.2 Million for Conversion of Historic Lowell Mill Building into Mixed-Income Housing,” 1.

<sup>145</sup> Ibid, 1.

Mills, Mill No. 5 is part of the Lowell National Historical Park, and the Lowell Downtown Historic District. Before any alteration of these buildings is contemplated, their owners, developers or project proponents must undergo a design review and permitting process that apply strict historic preservation standards.



Figure 10: Entrance to Mill No. 5  
Source: Rosie Q, "Mill No. 5," Digital Image, Yelp, accessed March 20, 2019,  
<https://www.yelp.com/>

Today, the fourth and fifth floors of the mill building are home to an array of businesses including a craft marketplace, a yoga studio, an authentic soda fountain parlor, and a two-screen movie theatre.



Figure 11: Market at Mill No. 5  
Credit: Marissa Meaney

After approaching an unassuming mill building, visitors are led to a hallway where they are directed to take the elevator to the fourth floor. As the doors open, a narrow hallway that poses as an indoor market is filled with stalls run by local artists and independent businesses who showcase their creations and bring their passions to life.

The market, known as The Shops Common Hours, are held every Thursday through Saturday, with a farmers market held on Sundays. Often times, the market hosts a theme, such as “International Women’s Day,” where female entrepreneurs dominate the market

stalls, and “Diagon Alley,” where the market hall is transformed to resemble the bustling magical village of the Harry Potter franchise. Additional highlighted events that take place at Mill No. 5 include daily movie screenings at the Luna Theater, live music and speakeasy nights at the Coffee and Cotton shop, and various interactive workshops at the Sutra Yoga Studio.

### *Lowell Community Health Center*

In 2012, conversion of the Hamilton Mill Building was completed under the direction of DBVW Architects, and a brand new space for the Lowell Community Health Center opened its doors in February 2013. The project cost an estimated \$42 million, and was funded in part through a capital campaign, as well as the generous support of over 1,400 individual donors, many of whom are health center employees themselves. With this 100,000 square foot space, the health center has been able to better serve the culturally diverse community of Lowell. Since the Lowell Community Health Center’s opening, 20,000 new patients have been accommodated, and visits have increased by twenty-one percent.<sup>146</sup>

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<sup>146</sup> Lowell Community Health Center, “Bridge Plan 2017-2019” (bridge plan, Lowell, MA, 2017), 2.



Figure 12: Lowell Community Health Center, Lowell  
Source: Heidi Gumula, "Lowell Community Health Center," Digital Image, Gumula Architectural Photography, accessed March 10, 2019, [www.gumulaphotography.com](http://www.gumulaphotography.com)

The new facility has allowed for the establishment of an Interpretive Services Department, an expansion of funding for HIV care, treatment for opioid addiction and asthma, and construction of labs for onsite mammography, radiology, and extended lab and ultrasound services. Additionally, a 340B pharmacy – one which is federally subsidized to provide prescription medicine at affordable rates to low-income recipients – was constructed onsite. Lastly, the addition of new services and departments allowed for the creation of three-hundred new jobs in the healthcare sector.

### *Wannalancit Mills - Lowell*

The Wannalancit Mills, formerly known as the Suffolk Mills, were built in Lowell in 1830 with the creation of the Suffolk Textile Company.<sup>147</sup> Like the other manufacturing facilities in Lowell, the Suffolk Mills produced textiles made from American cotton. Eventually, the Suffolk Textile Company was sold in 1926, and the mills were purchased by the Wannalancit Textile Company in 1950.<sup>148</sup> The mills operated for just over thirty years before finally closing in 1981.<sup>149</sup>

Today, the Wannalancit Mills are jointly owned by the private, Boston-based commercial real estate firm Farley White Interests and the local public, state university, University of Massachusetts Lowell.



Figure 13: Wannalancit Mills, Lowell

Source: "Wannalancit Mills," Digital Image, Wannalancit, accessed March 10, 2019, [www.wannalancit.com](http://www.wannalancit.com)

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<sup>147</sup> Lowell Historical Society, "Lowell History Chronology," (Historical Archive, Lowell, MA, 2009), 1.

<sup>148</sup> *Ibid*, 2.

<sup>149</sup> *Ibid*, 2.

Farley White Interests is responsible for the ownership of 283,000 square feet of flexible office space, complete with an on-site café and fitness center.<sup>150</sup> In addition to administrative offices on the fourth floor, UMass Lowell owns 14,000 square feet of research and laboratory space within the first two floors of the restored mill building. This new innovation hub has since been dubbed the Massachusetts Medical Device Development Center, or the M2D2.<sup>151</sup>

The M2D2 is a biotech incubator for smaller medical device companies throughout Massachusetts, whose inventors and executives are offered easy, affordable, and coordinated access to world-class researchers and resources at the Wannalancit Mills complex. The center contains six laboratory suites, two office suites, six individual offices, a large open collaboration area, a board room, conference rooms, and dining amenities.<sup>152</sup> Performing research in this center gives developers and engineers the opportunity to receive assistance in business plan developments, prototype design and manufacturing, access to patient populations for clinical trials, and networking with university partners.<sup>153</sup> This particular adaptive reuse transformation has allowed UMass Lowell to expand its research facilities, capabilities, and overall national recognition. According to a 2015 report published by the UMass Donahue Institute, the M2D2 Center had produced an annual 7,097 jobs and an annual, overall economic impact of \$854,047,441.<sup>154</sup> Its immense financial impact, is continuously helping to shape the future of the Greater Lowell region.<sup>155</sup>

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<sup>150</sup> "Features," Wannalancit Mills, accessed April 10, 2019, <http://www.wannalancit.com/>.

<sup>151</sup> "Massachusetts Medical Device Development Center & Biotech Incubator," University of Massachusetts, Lowell, accessed April 10, 2019, <https://www.uml.edu/research/m2d2/>.

<sup>152</sup> "Wannalancit Mills Office & Technology Center," University of Massachusetts, Lowell.

<sup>153</sup> "Massachusetts Medical Device Development Center & Biotech Incubator," University of Massachusetts, Lowell.

<sup>154</sup> University of Massachusetts, Lowell, "The Innovation Effect: How UMass Lowell Benefits Lowell and the Region," (Financial Report, Lowell, MA, 2015), 2.

<sup>155</sup> *Ibid*, 2.

## Chapter Six

# Different Priorities, Similar Results

Both the cities of Turin and Lowell experienced economic growth as a result of their focus on the creative economy.<sup>156157</sup> Their success was due, in part, to the new spaces that were created as a result of adaptive reuse strategies. These structural transformations resulted in the creation of new housing units, public spaces, economic and employment opportunities, and tourism assets such as museums, tours of the city, and cultural festivals. Though the cities shared the same end goal – to foster economic development – they worked to achieve said goal by focusing on different priorities that met the respective needs of each city and region.

### *Turin*

In a simultaneous attempt to memorialize its industrial past and create a thriving economy out of new business sectors, the City of Turin focused its efforts on the food industry, the arts, and technological innovation. Unlike Lowell, structural transformation processes were not guided by historic preservation design standards, and investors and architects thus had more leeway in altering the exteriors of buildings in order to accommodate modern uses. Additionally, in contrast to Lowell’s preservation of remnants of its textile industry, Turin did not prioritize the museumification of its automotive industry. There does exist a National Automobile Museum in Turin<sup>158</sup>, but it is not

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<sup>156</sup> Jones, Lang, LaSalle, Inc., “Torino Urban Profile 2016: Real Estate Market Overview,” May 13, 2016, 2.

<sup>157</sup> City of Lowell, “FY 2019 Proposed Budget,” (municipal budget, Lowell, MA, 2018), 24.

<sup>158</sup> “Home,” National Automobile Museum, accessed April 10, 2019, <http://www.museoauto.it/website/en>

contained within a former factory. Rather, the museum was established in 1960 in its own building in a separate part of the city. The museum underwent massive renovations starting in 2007, before finally reopening to the public in 2011. Unlike Lowell, which has always remained proud of its rich industrial heritage, Turin, for a period of time, was almost entirely shifting its focus toward the creative economy, so as to rid itself of the economic depression that was brought on by the collapse of the manufacturing industry.

Recent upward economic trends, however, have shown that the automobile industry still contributes significant economic revenue to the City of Turin, along with the engineering and aerospace industries.<sup>159</sup> In fact, Turin is a strong candidate for selection as the site of the new Manufacturing 4.0 Competence Center, financed by the Ministry of Industry.<sup>160</sup> If chosen, the city could evolve into a collaborative hub for advanced urban manufacturing.

This design and engineering industry has emerged as a spinoff from local strength in the car manufacturing sector. Industrial design has put Turin on the international map, with more than 800 companies specializing in design, as well as design training and research. Some of these design and architectural firms, such as Carlo Ratti Associati, were behind the transformations of the former industrial structures into new office space.<sup>161</sup> Design firms are being contracted to meet commercial market demands, which in turn is characterized by hybrid light-industrial and office solutions<sup>162</sup>, such as the OGR and EDIT.

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<sup>159</sup> Jones, Lang, LaSalle, Inc., "Torino Urban Profile 2016: Real Estate Market Overview," May 13, 2016, 2.

<sup>160</sup> Professor Greg Clark CBE, Dr. Tim Moonen, and Jake Nunley. "Turin's Competitiveness," (case study, London, 2018), 9.

<sup>161</sup> *Ibid*, 8.

<sup>162</sup> Jones, Lang, LaSalle, Inc., "Torino Urban Profile 2016: Real Estate Market Overview," May 13, 2016, 2.

Furthermore, the Turin Chamber of Commerce reported in 2015 that 82% of its multinational corporations established offices in Turin through brownfield investments, 45% of which are expert-led.<sup>163</sup> Though much of the brownfield stock of Turin still remains vacant, American real estate market analysts Jones Lang Lasalle (JLL) have predicted that within the next few years, there will be a new wave of brownfield conversion that will provide more office space solutions for light industrial manufacturing and technology industries.<sup>164</sup>

Turin has displayed other significant positive economic trends, including its influx of foreign tourists. Immediately following the 2006 Winter Olympic Games, and especially within the last ten years, the number of tourists in Turin has increased more than 84%.<sup>165</sup> Additionally, hotels in Turin have showed drastic increases in both occupancy rates and revenues. According to a 2015 report published by JLL, there was a 7% increase in occupancy rate as well as a 10% increase over the previous two years in revenues per available room.<sup>166</sup>

In the years since its economic shift toward the creative economy, which is still largely supported by industrial manufacturing – though it bears more relation to research, innovation, and technology – Turin has substantially grown its economic base and has brought out of decline. Currently, the city has one of the largest corporate presences in Italy, hosting more than ten companies listed in the Italian Stock Exchange,<sup>167</sup> and boasting

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<sup>163</sup> Ibid, 3.

<sup>164</sup> Jones, Lang, LaSalle, Inc., “Torino Urban Profile 2016: Real Estate Market Overview,” May 13, 2016, 15.

<sup>165</sup> Ibid, 19.

<sup>166</sup> Ibid, 19.

<sup>167</sup> Ibid, 5.

a GDP that is 9% higher than that of the national amount.<sup>168</sup> Through adaptive reuse, the city has created more opportunities for innovative space that have attracted young entrepreneurs, corporate moguls, and tourists.

### *Lowell*

Priorities in Lowell were slightly different than those of Turin. The growth and expansion of the Greater Boston Area made Lowell an ideal location to construct new housing, as it is conveniently located on the train line and is yet far out enough that rental prices for brand new apartments would not be nearly as high as those in Boston. Secondly, developers who expressed interest in investing in Lowell received multiple grants and tax incentives that dictated the types of developments that they could create.

Grants included:

- \$14.2 million from MassHousing to WinnDevelopment<sup>169</sup> to construct 154 units in Boott Cotton Mills
- \$300,000 from the City of Lowell to Winn Development
- \$324 billion in federal tax credits to the City of Lowell since 1996
- \$40 million to the City of Lowell in state historic tax credits between 2004 and 2012

As was previously mentioned, conversion of the mill spaces into housing and office units involved minimal to no structural change, and thus was considered the most viable option. The housing market dominates the uses for the majority of the adaptive reuse

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<sup>168</sup> Ibid, 5.

<sup>169</sup> Massachusetts Housing Finance Agency, "MassHousing Commits \$14.2 Million for Conversion of Historic Lowell Mill Building into Mixed-Income Housing," 1.

transformations in Lowell. Housing was seen as a priority because of Lowell's relative proximity to Boston, which is undergoing rapid expansion and costly developments. For households who may want to work in Boston but cannot afford Boston's high monthly rents<sup>170</sup> or mortgage payments, Lowell is seen as a viable alternative. All of the new apartments and condominiums provide ample living space with onsite amenities and are within walking distance to the MBTA commuter rail station that will bring passengers directly to North Station in 40 minutes, which is often times less than the average travel time in a personal vehicle for residents in the suburbs of Boston<sup>171</sup>.

Increasing its downtown housing inventory was the kickoff effort to foster economic activity within the city of Lowell. Peter Aucella, the former Director of the Department of Planning and Development for the City of Lowell, argued for the construction of market-rate apartments, as they bring money into the city and help local downtown businesses.<sup>172</sup> He argued that once the people are there, the retail, dining, and entertainment will soon follow, and he was not wrong. According to the latest Semi-Annual Downtown Vacancy Report published by the City of Lowell Department of Planning and Development, the ground-floor commercial vacancy rate in the central business district dropped from 3.8%

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<sup>170</sup> Megan Turchi, "Boston's median one-bedroom rent is \$2,340: Check out these apartments in every neighborhood," Boston.com, last modified August 8, 2018, accessed April 10, 2019, <http://realestate.boston.com/news/2018/08/08/bostons-median-one-bedroom-rent-2340-check-apartments-every-neighborhood/>

<sup>171</sup> Adam Vaccaro, "The worst gridlock in the US is right here in Boston," The Boston Globe, last modified February 12, 2019, accessed April 10, 2019, <https://www.bostonglobe.com/metro/2019/02/12/bragging-rights-boston-now-has-worst-rush-hour-traffic-country-report-says/wMNdRAIrEV7swwShY80NaJ/story.html>

<sup>172</sup> Dan O'Brien, "Boott Mills' completion brings excitement, The Lowell Sun, last modified February 9, 2014, accessed April 10, 2019, [http://www.lowellsun.com/business/cj\\_25098189/boott-mills-completion-brings-excitement](http://www.lowellsun.com/business/cj_25098189/boott-mills-completion-brings-excitement)

in 2014 to 2.5% in 2017, and from 11.1% to 10.3% on the upper floors over the same period.<sup>173</sup> (See Table 2)

Table 4: Downtown Lowell Vacancy Rates

<b>Table 1 Total Ground Floor Commercial Vacancy Rate</b>		<b>Table 2 Total Upper Floor Commercial Vacancy Rate</b>	
<b>Date</b>	<b>Available Space %</b>	<b>Date</b>	<b>Available Space %</b>
December 2014	10.3	December 2014	19.6
July 2015	7.3	July 2015	23.6
January 2016	6.0	January 2016	13.4
January 2017	3.8	January 2017	11.1
July 2017	2.5 (6.6)*	July 2017	10.3 (11.5)*

\*Note: At the request of the City Council, DPD expanded the scope of the downtown inventory to include the Hamilton Canal Innovation District and the JAM Urban Renewal Plan Area. The figures in parentheses represent the total vacancy rate downtown including space in the HCID and JAM. These areas have not seen the same level of commercial activity as the central business district. As a result the vacancy rates are higher when these two areas are included in the calculations.

Table 1 and Table 2 compare the current ground-floor and upper-floor commercial vacancy rates to the vacancy rates over the past three years.

Source: City of Lowell, "Semi-Annual Downtown Vacancy Report"

The Lowell Development and Financial corporation also provided low-interest loans to local business owners, many of whom belong to the extensive immigrant and refugee community, in order to maintain these establishments. As such, between 1990 and 2000, there were decreases in residential segregation, the proportion of the population classified as rent-burdened, and racial gaps in home ownership and education gaps.<sup>174</sup>

Like Turin, Lowell expanded its investment in research, innovation, and development with the establishment of the M2D2 at the Wannalancit Mills. UMass Lowell is

<sup>173</sup> City of Lowell, "Semi-Annual Downtown Vacancy Report," (municipal report, Lowell, MA, 2017),1.

<sup>174</sup> Dwyer Gunn, "What Lowell, Massachusetts can teach the rest of America about economic inclusivity," Pacific Standard Magazine, last modified April 25, 2019, accessed April 10, 2019, <https://psmag.com/economics/what-lowell-can-teach-the-rest-of-america-about-economic-inclusivity>

the second-largest employer in the city, with a total of 2,133 employees.<sup>175</sup> Additionally, the university has seen a continuous increase in its enrollment since 2011. The biggest increase of 6.4% happened between 2017 and 2018, when enrollment jumped from 17,184 students to 18,316.<sup>176</sup> The growth in student population has allowed for university departments and resources to expand, such as the M2D2 lab. Research then performed at the lab in conjunction with university faculty and other sponsors pays money back to the university and city, as developers and entrepreneurs rent spaces while conducting their research.

Overall, the City of Lowell has sustained positive economic growth in the last several years. In total, according to the proposed municipal budget for the 2019 fiscal year, Lowell has seen over two million square feet of renovations, \$150 million of private investment, 1,500 new housing units – both market rate and affordable – and almost 1,000 new business establishments between 2012 and 2017.<sup>177</sup> Since 2013, the municipal tax base has been steadily increasing, with a total assessment of over \$7 billion in 2017.<sup>178</sup> The City of Lowell is experiencing a new growth, and its mill buildings are reaching maximum occupancy. More adaptive reuse projects are being planned, such as in the recently completed Hamilton Canal District.<sup>179</sup>

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<sup>175</sup> City of Lowell, “FY 2019 Proposed Budget,” (municipal budget, Lowell, MA, 2018), 23.

<sup>176</sup> City of Lowell, “FY 2019 Proposed Budget,” (municipal budget, Lowell, MA, 2018), 20.

<sup>177</sup> *Ibid*, 21.

<sup>178</sup> *Ibid*, 24.

<sup>179</sup> Elizabeth Dobbins, “Hamilton Canal tops building projects in Lowell’s future,” *The Lowell Sun*, last modified March 31, 2019, accessed April 10, 2019, [http://www.lowellsun.com/business/ci\\_32546755/hamilton-canal-tops-building-projects-lowells-future](http://www.lowellsun.com/business/ci_32546755/hamilton-canal-tops-building-projects-lowells-future)

## Chapter Seven

### Conclusion

The question that this research sought to answer was how cities apply adaptive reuse strategies and use them to foster local economic development, and both Turin and Lowell, though having priorities, have displayed positive outcomes thus far. Furthermore, the personal contribution made was that of a detailed, rich portrait of these two cities in a comparative perspective. Turin, more than anything else, shows positive trends in the tourism sector, especially since its creative economy initiative was part of the platform for the bid to host the 2006 Olympic Games. Additionally, the city was elected as a World Design Capital by UNESCO in 2008, and has since hosted a number of design conferences that draw international participants, including the View Conference and Fest, Torino City of Design Event, and Operae – Independent Design Festival.<sup>180</sup> Lastly, as the creative economy continues to grow, so does the market for hybrid offices that provide space for technology development and socialization. Two of the four transformed industrial structures in Turin that were observed for this thesis were adaptively reused to cater to this growing sector of technology within the local economy.

Likewise, economic development within Lowell has improved in recent years. The city has a growing tax base, much of which is funded through residential property taxes paid by the private real estate developers who have invested in the mill buildings and have turned them into luxury apartments and condominiums. Due to this increased

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<sup>180</sup> "Torino," UNESCO, accessed April 10, 2019, <https://en.unesco.org/creative-cities/torino>

residential population in the downtown core, with more disposable income than existing residents, commercial vacancy downtown is decreasing. Lastly, the local university, the University of Massachusetts Lowell, is growing in enrollment, which provides the university with extra funds to make capital improvements to the university such as department expansion and renovation. The new innovation hub at UMass Lowell has produced a new population of technological developers, who perform active research and development at the University. As they continue to rent space in the labs and offices provided by the University, their presence will continue to drive local economic growth.

Though this research was able to appropriately demonstrate that adaptive reuse has fostered the local economies, it is important to acknowledge the limitations of the study. It is difficult to estimate exactly how much adaptive reuse alone contributed to the growth of certain sectors within the economy, as such information would have to be recorded in municipal documents. With that said, while access to municipal reports for the City of Lowell was easily granted through a basic internet search, and the documents themselves were readable, the same cannot be said for Turin. Based on an internet search performed in Italian, a similar type of document, known in English as the Popular Financial Report, was analyzed. This document, however, did not contain the same information that was displayed in the report produced by the City of Lowell. Therefore, statistics for economic growth had to be gathered through a collection of other reports as well.

The primary suggestion that would allow for the collection of more statistical information is to spend more time abroad. In doing such, researchers can gain increased access to municipal documents, and furthermore have the ability to arrange in-person meetings with local officials who can aid in digesting the information, particularly in the

instance that the researcher does not have a working professional proficiency in the Italian language. Prospects for additional future research could additionally include the development of the Hamilton Canal District in Lowell, which has not yet reached full completion. This project in particular is more akin to the transformation that happened in Turin, as it was focused on cultural branding. Lastly, formal interviews with other academics and professionals can be conducted, especially with those who have firsthand knowledge of at least some, if not all of the structural transformations being analyzed.

However, enough succinct research was performed that allows for the recommendation of certain policies. First and foremost, all former industrial cities worldwide should be encouraged to engage in adaptive reuse strategies, particularly those which embrace the concept of mixed-use spaces, such as in the Lingotto building in Turin. In applying adaptive reuse strategies, however, the primary focus of a city should not be to make an international presence for itself. Whereas that was the case for the City of Turin, whose municipal economy had to strive for a creative solution to combat economic depression brought on by industrial decline, this solution should not be viewed as a one-size-fits-all, as not every city needs to focus on its creative economy in order to thrive. Rather, cities should focus on adaptively reusing vacant or abandoned spaces for the benefit of their community, and should employ the marketing of other assets to increase the attractiveness of these potential development opportunities. Such assets could include institutions such a local university, natural and recreational resources, and proximity to a larger metropolitan area. Lowell's proximity to Boston offers more affordable housing opportunities for commuters and lower rents for office and retail spaces. Spaces should be prioritized based on their proximity to the downtown core, the level of environmental

contamination, – if any – and architectural form. Applying adaptive reuse strategies is a form of infill development, which builds a more connected downtown and provides linkages among other neighborhoods. Thus, commercial and social activity will inherently increase, and ultimately, such activities will continue to foster and sustain local economic development.

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