Value Creation Through Strategic Repositioning: A Case Study of South Bank Tower

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ABSTRACT

Converting existing office properties into residential units offers an innovative method to unlock additional value for real estate in the Central Business District (CBD) of certain major cities. Today, however, this form of adaptive reuse is not considered to be a distinct product category. It is instead viewed as a collection of one-off instances of success driven by exceptional circumstances and unique donor buildings. This thesis will identify key commonalities to value creation that make the approach both replicable and transferable. The following analysis will demonstrate that successful office to residential conversion is not a unicorn within the built environment, but rather a viable strategy to see and find value where others do not.

Although, a number of factors have combined to make adaptive reuse a highly profitable activity, there are three main elements that underpin the equation: demand, design, and flexibility. Firstly, the change in usage is the result of current trends causing a shift in the Highest and Best Use (HBU) for those structures. Further driving the emergence of office to residential conversion is innovation in building designs. Office layouts have evolved over time from traditional forms with individual work spaces into open floorplan arrangements. Simultaneously, residential layouts have moved away from standard designs towards including an interior extra bedroom or den. The key to driving value from a conversion is for the finished product to be perceived by the market as new supply.

Finally, the flexibility to change product type and extend the existing structure increases profits beyond normal levels. Increased net square footage acts as a multiplier to increase the value created through residential conversion and design innovation. Adding net square footage typically occurs in three forms: maximization of site coverage, increased efficiency, and incremental floor count. As a result, it is no longer mandatory to demolish the old in order to make way for the new. Converting space from class B office to class A luxury residential offers a method to add incremental value to previously built real estate by leveraging these essential elements.

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Chapter 1: Introduction: Value Creation Through Strategic Repositioning

Converting existing office properties into residential units offers an innovative method to unlock additional value for real estate in the Central Business District (CBD) of certain major cities. Today, however, this form of adaptive reuse is not considered to be a distinct product category. It is instead viewed as a collection of one-off instances of success driven by exceptional circumstances and unique donor buildings. This thesis will identify key commonalities to value creation that make the approach both replicable and transferable. The following analysis will demonstrate that successful office to residential conversion is not a unicorn within the built environment, but rather a viable strategy to see and find value where others do not.

Although, a number of factors have combined to make adaptive reuse a highly profitable activity, there are three main elements that underpin the equation: demand, design, and flexibility. Firstly, the change in usage is the result of current trends causing a shift in the Highest and Best Use (HBU) for those structures. Over time, demand for residential property and willingness to pay higher rents has evolved from being solely determined by distance to the CBD and commuting costs. Today, distance to amenities has become a key determinant for willingness to pay higher rents. Moreover, colocation of amenities, employment and housing is highly valuable in and of itself. The so called Live/Work/Play (LWP) ethos has flourished in recent years, reversing the previous trend of suburbanization. The Alonso Model, which illustrates supply and demand dynamics in the context of rental prices and distance to CBD or amenities, provides useful insight into this occurrence. Market conditions must be correct to trigger a change in usage based on demand.

Further driving the emergence of office to residential conversions is innovation in building designs. Office layouts have evolved over time from traditional forms with individual work spaces into open floorplan arrangements. Larger floor plates have replaced the more compact structures built during the 1950-70’s. Simultaneously, residential layouts have moved away from standard designs towards including an interior extra bedroom or den. Higher ceiling heights allow for deeper rooms while still maintaining adequate natural light penetration. As a result, not only have the older building with individual offices become undesirable for corporate tenants in the CBD, especially new economy businesses, but the residential units being constructed are increasingly using less traditional floorplans.
The combination of these two phenomena has ushered in a new path for converting existing spaces from older office floor plates into modern residential unit layouts.

As a result, a key value driver of successful office to residential conversion is design innovation. Innovation such as converting to green building provides a dual source of value. It imparts tangible value upon sale and overtime due to its impact on operating expenses and livability. Approximately 17% incremental value for retrofitted buildings (D. M. Geltner, Moser, & Van de Minne, 2017) and between 6-31% for new construction (Chegut, Eichholtz, & Kok, 2015). Moreover, green status helps to reposition the building as an entirely new offering, thereby capturing the additional value available as class A residential. The key to driving value from a conversion is for the finished product to be perceived by the market as new supply. Robotics is another emerging form of innovation that achieves similar results.

Finally, the flexibility to change product type and extend the existing structure increases profits beyond normal levels. Increased net square footage acts as a multiplier to increase the value created through residential conversion and design innovation. Modern construction techniques combined with over-engineered original structures now allow for new possibilities to extend the original design. This facilitates added amenities, ceiling heights and views previously not available. In order to overcome the economic hurdles of time and cost to reposition an existing building and update the design, the developer needs to upsize the project in order to magnify the contribution of new benefits. Additional net square footage creates a scale effect that enhances the value creation and return generation to provide the necessary pay-off for undertaking the time and financial risk associated with such a project.

Adding net square footage typically occurs in three forms: maximization of site coverage, increased efficiency, and incremental floor count. First, converting an existing structure with as-of-rights site usage allows the developer to maintain older more advantageous site coverage ratios and less onerous setback requirements. Second, the ability to increase the efficiency of interior usage adds to the net value creating space. Finally, the flexibility to extend vertically the main structure and podium of a donor building alters the total size of the development project. Increasingly, due to the growing scarcity of developable airspace, floor expansion is also occurring underground. Regardless of form, the ability to add more net square footage is the final variable in the economic equation that results in a profitable project. As a result, it is no longer mandatory to demolish the old in order to make way for the new.
Converting space from class B office to class A luxury residential offers a method to add incremental value to previously built real estate by leveraging these essential elements.
Chapter 2: Critical Capabilities and Skills

Real estate markets today are characterized by sufficient liquidity and efficiency that true competitive advantage is required to unlock value not available to competitors. What is the combination of capabilities that a developer must possess in-house or have ready access to in order to undertake adaptive reuse? Are there special differentiated skills required to succeed and, if so, which ones are critical? Successful office to residential conversions of this type involve a number of decisive steps from inception to disposition. Each phase necessitates certain key skills, contains specific risks, and provides opportunities for negotiation around public benefits. The main steps are as follows:

Step 1: Identify suitable donor building in appropriate location
- Skill: local market knowledge of evolution in demand across product types
- Skill: technical expertise to make upfront architectural and engineering assessment
- Risk: developer is sole investor with 100% equity exposure because no partner yet
- Opportunity: repeat players leverage existing relationships to assess rapidly at low cost

Step 2: Acquire land and existing structure at acceptable price given current use
- Skill: experience in acquiring underperforming assets and terminating leases
- Risk: ability to raise debt and achieve price based on current use and condition

Step 3: Create reimaged design based on new uses and additional square footage
- Skill: design innovation and construction techniques
- Risk: no planning approval given yet
- Opportunity: include publicly accessible space as part of expansion plan

Step 4: Achieve planning approval for repositioning and expansion
- Skill: ability to engage and work cooperatively with planning process
- Risk: partial approval of expansion that limits key elements of program
- Opportunity: work with local authorities to achieve a win/win design expansion
Step 5: Add Joint Venture partner to invest additional equity
- Skill: leverage proven track record for execution to attract desirable co-investor
- Opportunity: reduce equity exposure and improve ROI

Step 6: Undertake construction to update and extend structure
- Skill: management of time and cost of construction project delivery
- Risk: time and cost overrun caused by design innovation

Step 7: Oversee marketing and completion of new development
- Skill: successfully positioning property as new residential product
- Risk: viewed as “rehab” of outdated office structure

Step 8: Exit investment via sale at new HBU market price
- Skill: market timing and knowledge to identify best buyer
- Risk: market downturn or impact of other exogenous events

The eight steps outlined above for a typical adaptive reuse process necessitate a wide range of skills and knowledge in order to mitigate the risks inherent in each of the specific phases. Therefore, successful execution depends heavily upon the ability first to build and then leverage a solid base of experience. A key barrier to entry is the lack of capability and track-record essential for successful execution. As a result, newcomers to adaptive reuse face an uphill challenge navigating the multi-phased process.

Supply of Suitable Buildings
How easy is it to find a workable donor building for adaptive reuse? There is an increasingly limited supply of undeveloped vacant land parcels adjacent to the CBD. However, many older urban centers have an ample supply of 1950-70’s class B office space. The cost, regulation, and time required to demolish an existing building is onerous. In reality, there are very few competing uses for older class B buildings in their current form. Residential is now the new HBU in these areas. Zoning has often restricted conversion to date because it is deemed a change in use which consequently necessitates fresh approvals. Limits on percent office stock in business districts exist in many mature urban areas. Historic designation can require the preservation of facades. Furthermore, demand has also limited the
number of conversions to date. As a result, in many areas there still can be found sufficient supply of stock as donor buildings that are physically suitable for adaptive reuse.

That said, it is hard to find viable donor buildings in a mature city like London today, because most are too small to work from an economic perspective. The reality of the debt markets is that institutional lenders do not want to write small loans. It is only worthwhile for a bank to make a loan above certain minimum threshold to maintain profitability. As a result, a developer must spend a minimum of £40M-£150M to purchase a building in class B or C condition in order to secure the necessary financing needed to enhance project returns using leverage. This size of acquisition results in a project of £200M-£600M range for sale once completed.

**Use of Debt in the Capital Structure**

Due to the risky nature of office to residential conversion, traditional financing with bank loans is not readily available. However, without planning approval at the time of acquiring the donor building, partners are equally hard to find. As a result, a developer must have access to sufficient equity in order to purchase an existing structure with only 50% leverage on offer. From there, additional layers of debt can be carefully added as certain milestones are achieved. The resulting gearing and equity partnerships result in enhanced returns to the developer, but also create real execution risk throughout the entire process. The assembly of a typical capital stack is outlined below:

**Stage 1:** At the time of acquisition, no income is being generated with no tenants occupying the space, so the loan is written off of the land value with banks only offering to give 50% leverage.

**Stage 2:** Step up in value occurs when planning permission is granted, which takes about 1 year, so total loan size can be increased at same percent debt.

**Stage 3:** Construction can be financed because lenders will now offer 60% Loan to Cost (LTC) including the value of the land. As a result, 100% of the construction cost can be covered using debt.

Typically, developers create a 3 stages of capital structure minimum in a deal such as this, but more tiers are possible if desired.
Stage 4: Ability to raise more debt once the occupancy permit is achieved, due to the step up in value that occurs at that milestone.

Stage 5: Additional lending is available to create a stabilized capital structure once the property is fully sold or let.

Construction times for new buildings are considerably faster than adaptive reuse projects which directly impacts the economics of using debt financing. On average, building new is 1 year faster than redeveloping an existing structure. Therefore, the difference in time ultimately impacts the project’s Internal Rate of Return (IRR) and the cost of debt due to the greater tenure involved. In addition, there is also less market risk, due to a faster exit which reduces future uncertainty. Downturns will happen in all real estate markets. It is not a question of if, but when and how severely. Therefore, the key is to reduce the likelihood of downturn risk, in the form of economic shocks or exogenous shocks, by limiting the time frame as much as possible and minimizing the cost of debt.

In order to undertake office to residential conversion of an existing building, the developer must obtain planning permission post purchase. Therefore, good value can be extracted from a successful project due to the inherent uncertainty. Similarly, undertaking the project where it is difficult to obtain the necessary approvals, can maximize the value available. This type of regulatory hurdle restricts the number of entrants and further enhances the returns. Of course, there is one key assumption that often goes unsaid: that the developer is skilled at gaining approval for such projects in that locale. Talent, local knowledge, and directly applicable experience are critical. The key barrier to entry is the perceived risky nature of the project. This is evidenced by the fact that there is huge demand to invest from Joint Venture (JV) partners looking to take a 50-90% stake, but only once planning permission is achieved. As a result, there is less competition and more attractive returns available on the original deal. Selling down their stake helps the IRR of the original investor by reducing their equity investment. The investor who comes in on day one is able to extract the maximum value.

Demand for LWP and Modern Residential Floor Plans
Why are office to residential conversions desirable and feasible today? And equally as important, why have they not proliferated before? The recent trend of populations moving back into city for Live/Work/Play is increasing demand for residential product in the CBD. Couple with this change in
locational demand is a desire for non-traditional residential configurations such as duplex and loft condos. To be successful, office product needs exact colocation for the synergies and other benefits of agglomeration to be realized. In addition, low demand for class B office space due to new trends in office layouts and models, such as co-working, is further exacerbating the disequilibrium. As a result, certain locations near the CBD are experiencing a shift in HBU from office to residential, driving a repositioning of the market to achieve a new balance of supply and demand.

The market is prevented from reaching equilibrium for three reasons. First, regulation often inhibits this type of repositioning. Whether via explicit targets for uses, such as percentages of office use, or implicit zoning areas, planning has played an important role in determining urban land uses. Second, the time, skill, and capital required to convert existing structures requires a new breed of innovative investor. Adaptive reuse is not new development, nor is it pure acquisitions either. Third, there is uncertainty forecasting demand upon completion. The combined risks involved make traditional financing difficult to obtain. Therefore, pricing disparities still persist in markets today. As a result, the ability to execute using the key skills and capabilities is even more important for successfully office to residential conversions than with other forms of real estate development. Experience, be it with regulators, investors, or market cycles, is a must to exploit the value available.
South Bank Tower is the 2015 redevelopment of an outdated 1972 office tower on Stamford Street in Southwark, London. South Bank Tower exemplifies a successfully executed office to residential conversion, but does it demonstrates all three elements of success: Market demand? Design innovation? Physical flexibility? Ideally situated on the banks of the Thames river across from Blackfriars and St. Paul’s Cathedral, the building was originally designed by Richard Seifert (1910-2001), the famous Swiss-British architect. Seifert is primarily known for Tower 42, formerly the NatWest
Tower, and Centrepoint Tower, both build in London during the 1960’s-1970’s (Wright, 2015). His modern take on architectural style at the time resulted in substantial office towers that pushed the limit on height and made a statement through their robust presence. These structures have proven well suited to modern redevelopment in recent years. Moreover, given Seifert’s prolific impact on the London built environment, there has been an effort to preserve his more enduring legacy through his towers. Luxury residential units were converted from class B office space previously known as King’s Reach Tower, the former headquarters of IPC Media. In repositioning the property, a new exterior skin was installed and it was retrofitted as a green building, updating it to BREEAM excellent rating and received the 2016 BREEAM Awards Shortlist for Residential (BREEAM, 2016).

The repositioning was ultimately undertaken by the developer CIT Group from London, in partnership with Jadwa Investment of Saudi Arabia (CIT, 2016). CIT purchased the building from a receiver, as previous owner had encountered financial difficulty. Kohn Pedersen Fox (KPF) were chosen as the architects and AKT II was the structural engineer used by CIT. Mace Group was hired as the contractor for the redevelopment and expansion.

The project added 11 floors on top of the existing tower to reach 42 stories in total. There is a structural limit to extending vertically on top of an existing building. Older office product that was built in the time of heavy paper based use is designed to accommodate high loads. Modern residential floor loads are considerably less and therefore can go higher. In the original tower construction, the precast fin system is structural, as well as the concrete core. 11-floor extension is entirely supported through the core with steel cantilevered trellises directing 100% of the load back to the concrete structure (Mace Group, 2016). CIT had to preserve the office square footage under planning permission. They also were required to put a public path through between the tower and the retail space in the podium to provide open street level access (Greater London Authority, 2017). The core of the tower sits on a massive supporting slab which in turn sits on massively over engineered pilings. The piles span the Waterloo & City Line of the London Underground which runs directly beneath the tower itself (AKT II, 2016). As a result, South Bank Tower dug a two-level basement in the courtyard with one level for parking with 24 spaces and one level for physical plant. The change in tenant type and thus people traffic reduced the need for central mechanicals such as lifts and multiple stairwells. Elevators were reduced in number from 8 to now 3. Similarly, stairwells were reduced from 2 to now just 1. This allowed a reduction in the concrete core by 50%, in order to rationalize the floor plates (Mace Group, 2017). Expanded amenities
now being offered necessitated the increase in the lower podium from 6 to 9 stories. The final outcome is a dramatically different product that results in a stunning transformation (Silva, 2014).

South Bank Tower - Today

In its finished form, the South Bank Tower now offers 719,000 sf with 191 new residential units directly across the river from the CBD. The residential space in the tower totals 277,000 sf with an average of 1,450 sf per unit. Located in the podium is 72,000 sf of new retail. The 370,000 sf of preserved office space now occupies the bottom 9 floors of the tower as well as the balance of the podium (Kohn Pedersen Fox Associates, 2016).
With 33 municipalities in London, South Bank Tower sits at the intersection of 4 boroughs: Westminster to the north, The City of London to the north, Lambeth to the west, and Southwark (City of Westminster & Davis, 2014). Explicit Plot Ratio limits, the British term for FAR, were abolished long ago. Developers often rely on other planning permission precedence to extend up, such as the neighboring buildings on the South Bank. In London, the owner has the right to remove an existing building. No planning permission is required to raze a structure, except in the case a Heritage building. Importantly, however, there is no guarantee a developer can build an equally big building given the need to get planning permission as a new development. Therefore, the key is to keep the structure and reclad the building, making recycling of an existing structure advantageous. Moreover, since planning gain is only paid on the amount of additional square footage added, it is preferable to retain as much of the original Gross Floor Area (GFA) as possible in order to reduce the cost.

The London market currently suffers from a lack of residential and office space. However, good residential property is approximately 8x more profitable than good office development. The Central Government is disempowering the planning system to favor the development community at the moment. The British planning system is reactive, not proactive, in nature. It is a Common Law based system which does not employ code based legislation. For example, there is no FAR limit. Development is built on precedence, not strict parameters. In contrast, NYC is as-of-right building development in essence (Appraisers and Planners Inc, Wald, & Locatell, 2016). London is also for the most part not master planned. Zoning and master planning are pre-planning, therefore very slow and rigid in nature.

In London, a developer has the right to propose any design. Heritage view corridors and flight paths, to City Airport in the east and Heathrow in the west, effectively create a 300-meter height limit. The Mayor for London can call in an application to review based on Transportation or Infrastructure concerns. The National Government has the power to call in a major application as well. If a local authority refuses an application, the Mayor can call it in to review and ignore or override the decision. If it is refused again, the developer can appeal to the National Government.

Planning approval is an increasingly complicated process, so as a result is hard to succeed as a one-off endeavor. Payments to the community are a key component of benefits provided. Today it is not just affordable residency that is targeted. Now affordable office is required to ensure the nature of the community is preserved. Benefits are required by the local authority, but cannot be so onerous as to
impact the viability of a project. Typical categories include, street scape/sidewalk improvements, public access to roof decks, cash payments, road improvements, and National Health Service (NHS) doctor’s offices. The inclusion of sole use GP Surgery space ensures access to local care under the Government provided national health service. Permanent Job creation is also commonly sought. The result is a mix and match approach where the developer does not cover every category for all deals. Because it is a negotiation between the local authority and the developer, an experienced developer will have greater ability to successfully navigate the process and focus the process on the key benefits required to mitigate their expansion plans.

In reality, local authorities are very short on money. Development is one way to achieve income. Fees generated are relatively small, but progress can be made through public gains including public spaces, public transport, affordable housing, and jobs training. Two main mechanisms exist today in London. Section 106 is a mechanism for achieving agreement between the Government and developers. So-called planning gain can ameliorate the impact of the development on the community. That said, a project should still be approvable in its own right. The second method is via Community Infrastructure Levy (CIL) (Greater London Authority, 2017). The CIL is considered to a be less abusive than planning gain. It is purely money from developers for improvement to public infrastructure such as electricity supply, telephones, and transport. The CIL is levied in advance and is not negotiable later. It does not cover affordable housing or jobs training. Therefore, a developer will typically pay the compulsory CIL upfront as required, and then fight the Section 106 at the end of the process. The aim is to ultimately reduce the Section 106 contribution to zero.

Retail has become a profitable ground level use in Southwark due to higher foot traffic and to provide residential convenience. Lower floors are generally poor for residential due to diminished views and noise or privacy concerns. The HBU for the ground level is retail. The Local Authority needs to show that it is improving an area through redevelopment and public benefit is the key method. CIL money goes almost entirely for transport. Therefore, nothing is left for true community benefit.

In the case of King’s Reach Tower, the original structure had been conceived as a taller building, which was only reduced in height at the final moment due to planning pressures. The developer was making the area more beautiful by solving public nuisance of blight and more as originally conceived with historical restoration. As a result, the developer received support from the neighborhood for more
height. KPF analyzed height and size before the project was undertaken. Two constraints had to be satisfied. First, rights of light provide that if a window has been in existence for more than 20 years, the owner would be eligible for compensation or in the extreme injunction. Second, for residential, a certain minimum of light for living is preserved. The key is sky view not sunlight vs. shadow.

Sight lines also must be protected and maintained in London. In this case it was not St. Paul’s Cathedral, but the view from Duck Island Bridge in St. James Park towards Whitehall that could not be obstructed. A 6-floor vertical expansion did not create a problem. With South Bank Tower, the developer was able to go from 6 to 11 floors because the enhanced structure was still obscured behind an existing building in that key sight line. The neighboring building, One Blackfriars aka The Vase, had appealed height restrictions and won in a highly politicized process to stand 535 feet tall with a total of 52 stories (Gye, 2015). South Bank Tower benefitted from the height achieved adjacent to it and conveniently hid in its shadow. As a result, opportunity for design enhancement was achieved by fulfilling the original architectural vision of the tower and creating a new edifice that delivered the intended grandeur and presence.

In the end South Bank Tower has successfully satisfied all three elements including demand, design, and flexibility. Market demand for luxury residential units in London had eclipsed office rents for class B space to an enormous extent providing an uplift in value. Design innovation provided the ability to transform the underlying structure and reclad the exterior to create a stunning new offering distinct from its old incarnation (Silva, 2014). Physical flexibility provided by the original structure allowed for the preservation of the total gross office space, while providing an addition of sufficient net square footage to transform South Bank Tower into the new luxury residential development it is today (The Resident, 2015).
Chapter 4: New Highest and Best Use in the Central Business District

What are the underlying drivers of demand that create the necessary conditions for successful office to residential repositioning? The disparity between market levels for class B office vs. high-end luxury residential has caused a rethinking of traditional norms in and around the city center. The Alonso Model offers a clear framework to analyze the impact to rents of shifts in HBU. The traditional equilibrium and usage scenario for the monocentric city model were determined by a downward sloping demand curve for both office and residential intersecting with an upward sloping supply curve. In reality, the demand curve is made up of two separate (but overlapping) curves: one for office and one for residential. Local zoning regulations in the CBD restrict the type and scale of use causing the two demand curves to take on the same form (see Figure 1 below).

Figure 1: Traditional equilibrium and usage model

However, with the advent of Live/Work/Play and the new urbanism, the demand curve of high-end residential is no longer flat (see Figure 2 below). The shift to a curved shape causes residential demand to become the highest and best use over a greater area as the distance to amenities displaces distance to CBD as the key value determinant. In some cases, zoning rules have been updated to reflect the change.
Finally, the demand curve has shifted up today as the desirability of the CBD continues to grow (see Figure 3 below). The resulting change is appetite for residential property causes properties in the CBD to have a new HBU due to the proximity to key amenities. The increase in demand has caused residential use to shift inwards closer to the city center, thereby increasing rents in a supply constrained area.
What was once a fading office location on the “wrong side of the river” is now a residential hot spot with a walkable commute on a bridge over the Thames to arrive at work in the City (Lowndes & Lingard, 2015). Previously considered “too far” from banking center, with the opening of the Tate Modern and the Millennium Bridge, the south bank is now an ideal area to live (see map below).

**Proximity to the CBD and Key Amenities**

Soon, the proposed Garden Bridge will link Temple to the South Bank Center, adding another direct connection and an unmatched new green amenity (Hall, 2014). The value of office agglomeration with headquarters situated directly next door is being eclipsed by residential access to amenities.
Design Feasibility through Evolution of Floor Plans

How can this type of adaptive reuse be achieved physically to produce a spatially pleasing and functional result? The answer is that many older office floor plates are able to be reconfigured for contemporary residential use more easily than commonly believed. Conventional wisdom dictates that most residential floor plates are between 60-65 feet deep while office are approximately 110-140 feet and thus are incompatible. The reality is that numerous office buildings constructed from 1950-70’s are suitable for conversion to modern residential layouts. Many office floor plates with 100 ft depth or less are reconfigurable into residential units. New residential buildings constructed today often have 90 ft double loaded corridor configurations by design to maximize site coverage and efficiency (Gensler, 2017). One bedroom or two bedroom layouts with interior den or guest bedroom are typical plan types and very desirable. The inclusion of a den, also known as a windowless interior bedroom, makes use of greater floor plate depth and lack of direct light penetration to add value to the development. Such layouts lend themselves to conversions as well. Therefore, not only unconventional design layouts, but also typical modern configurations are possible in adaptive reuse of office stock. In addition, the ability to rationalize and reduced concrete core by up to 50% liberates key floor areas to reconfigure lobby layout and allow for more creative of nesting of units. Many frequently found office archetypes with traditional 20-foot column grids lend themselves quite readily to reformatting as residential living space.
Example of Wedge Office Floor Plate Conversion

For example, South Bank Tower with 277,000 sf of residential and 42 stories is approximately 8,200 sf per floor or approximately 90 ft x 90 ft.
The new residential units there range from studios to duplex penthouse lofts. Externally the goal was to achieve a homogeneous visual design, not new construction placed on top of old (Mann, 2015). Internally the goal was to maximize the variation in the units' fit-out and sophistication of product across the height of the tower in order to maximize the choice and ultimately financial returns. All activity was around the core, so no new load was placed on the columns. KPF added more doors to the office core to locate bathrooms inside and craned in German prefabricated bathroom units through the core shaft (Kohn Pedersen Fox Associates, 2016). Since they do not require outside light penetration, they work to rationalize the floor layouts in a configuration that makes sense. Similarly, the partition walls intentionally stop 18 inches before the glass curtain wall. The space creates the feel of greater connectivity to the outside light and extends the penetration deeper into the units.
Create Option Value by Changing Product Type

Normally flexibility is thought of in terms of the ability to delay the start or phases of a new multi-year development project. However, real option value can be present in existing built real estate, especially office space. There are two main types of flexibility that can provide value by giving the owner the ability to change course based on market conditions and demand: Product Mix and Product Extension (D. Geltner & Neufville, 2017).

Product Mix flexibility provides an option to unlock hidden value in a property. The flexibility to switch from one product type (office) to another (residential) provides the freedom to reposition an asset according to the relative strength or weakness of the two markets. Initially the developer purchases an existing asset with an established market value. That value is clearly visible and readily determined by the market. The ideal donor property is class B office space with no tenant or a short remaining lease. Commercial property value is normally determined by the cash flow generated from a current tenant on a long-term lease. The ability to buy an asset with low occupancy and limited market appeal is key because of the low levels of Net Operating Income (NOI) at present. The new owner has the ability to stabilize asset as-is and reduce vacancy with tenant improvements and therefore is able to limit
downside risk. The option to change the product type and achieve higher rents through redevelopment, is the more valuable albeit riskier path.

Extension Flexibility offers an offensive option to create incremental profits by extending the existing structure vertically or horizontally. It is essentially up-zoning of a current structure with a prevailing Floor Area Ratio (FAR) and air-rights. Up-zoning has long been regarded as an essential element for the economic success of green-field development projects in heavily regulated urban areas. The concept can now be applied to the stock of prevailing real estate assets within a city regulatory regime.

The majority of types of flexibility are defensive in nature. In other words, these options allow the developer to delay or abandon a new project in order to avoid risk. Product Mix and Product Extension flexibility are both offensive options that grant the choice to proactively change course to pursue additional profits. This assumes that the developer is capable of doing multiple product types. As a result, office to residential conversion is able to unlock value that is already encapsulated in these properties, but not yet recognized by the broader market (D. Geltner & Neufville, 2017).

**Option Value in South Bank Tower**

(AKT II, 2016)
With South Bank Tower, the economics of the bid were such that two out of three uses had to work from the start: residential, office, or retail. One could fail initially and the project would still make sense economically. The building had residents living in the bottom $\frac{1}{3}$ of the tower while completing the office portion and the top of the tower was still under construction. The cash flow helped to reduce risk and the required amount of leverage. CIT sold risk of leasing office to Hermes to further reduce the financial risk (Hatcher, 2014). Speed versus size is always the tradeoff. Often referred to as “skillfully big,” building as a big as quickly deliverable is the key in adaptive reuse. KPF undertook at-risk work for before the bid by CIT was officially submitted. The upfront work is so critical to adaptive reuse that the philosophy is often “help us to win the bid and you’ve got the job.”

**Opportunity Costs of Speed of Execution and Market Conditions at Completion**

Because of the time delay involved in getting new product launched in the market, all forms of real estate development are subject to the risk of unknown market conditions upon completion. Adaptive reuse, because of its particular nature, also adds the opportunity cost of taking an existing product off the market in order to reposition and relaunch. In order to take advantage of the change in HBU, a developer must time the market in order to get the new product to market while the advantageous conditions still remain. As a result, the only client requirements that CIT imposed was a time constraint that the team should not sit on the project too long. Therefore, adaptive reuse was chosen based on the need to get to market quickly. For South Bank Tower, it was the correct approach, because if you knocked it down, you could not achieve greater coverage. Complex rights to light prevented new construction from succeeding. The first two bids kept the tower and knocked down the podium. The winning bid kept the podium and was the only one that proposed adaptive reuse with expansion. It was not a wholesale change from the pattern of built form with the tower in the same place and podium too. This achieved two important results. First, it limited the impact on neighbors. Second, it was at least one year faster than raze and rebuild which would involve cost of demolition and digging new basement. The developer was last to the party and first to complete with a second mover advantage on price per square foot and fastest path to market with a new building. The opportunity cost of taking the building offline was effectively zero because the old King’s Reach Tower had sat vacant for a number of years. The more important factor was getting to market before conditions changed. By choosing to convert rather than raze and rebuild, South Bank Tower came to market quickly enough to capture the value gain from the change in HBU.
Chapter 5: Additional Value Through Design Innovation

What causes the market to give a relaunched building a positive reception rewarding it with commensurate pricing, as opposed to a muted response with no associated uplift in value? As a rule, it in the built environment the opportunity to innovate through design allows the developer to capture additional profits. This can take many forms: reskinning the exterior of the structure, updating to green building status, integrating robotic parking systems, and creating new unit configurations such as duplexes and lofts. Design innovation ranges from cosmetic to structural elements. Regardless of the form employed, design innovation provides value via two mechanisms. First, it provides the level of form, function, and amenities that is demanded for a luxury residential product in the market today. It meets the market’s definition of what cutting edge luxury living today should be and thus the price per square foot that it commands at sale. Buyers have a clear set of features in mind for what constitutes luxury urban residential and design innovation helps to achieve that tier of value they expect to receive. This driver of value is consistent regardless of the buildings origins: new build or conversion. Second, it ensures the conversion is received as new product. One of the main challenges facing a developer looking to convert class B office to class A residential is erasing the stigma of the structure’s original function. In the case of industrial to residential conversions, architectural details that are remnants of the buildings past can actually add character and value. Exposed brick, steel columns, freight elevators and other features in many loft apartments enhance the cache.

With office to residential conversion of 1950-70’s structures, the building’s past is almost universally a hindrance that has the potential to negatively impact values. The key is to erase all notion of the building being a “rehab” project. Typically, a building will be renamed, reskinned, and reconfigured technologically. In this sense design innovation seeks to remove a potential cap of value from being labelled a rehab of outdate product. This stigma creates a negative impact to value. Design innovation simultaneously adds value by meeting the market demands for the new HBU and removes the negative value implications of the donor building’s origins. The first aspect is true regardless of development type: new or conversion. It is a tangible way to achieve outsized profits by offering cutting edge product that the highest tier of the market demands today. “I want to live in the top new LWP building in London.” The second is unique to conversion and addresses the perception of the building and the market’s willingness to accept the repositioning of uses. “I do not want to live it that old office building they just rehbabed in London.” It allows the developer to capture 100% of the value available for the
product tier in the market as opposed to a lower share due to perception related to the nature of the individual project.

South Bank Tower leverages environmental sustainability to create a differentiated offering (EVOENERGY, 2016). The key to driving value from the conversion is for the finished project to be perceived by the London market as new supply. The developer did their best to eradicate any reference to a building being a rehab of the King’s Reach Tower. The strategies employed with South Bank Tower included: new name, new use (i.e. office to residential), new look (i.e. reskin exterior), and new ecological positioning (i.e. green building). By updating and transforming the structure into a green building that achieved BREEAM excellent rating, the value of the redevelopment was further enhanced. Innovation can take many forms including green buildings, modular construction, and robotics. Regardless of the format, innovation allows for differentiation in the market and caters to the desires of high-end customers in London and their willingness to pay a premium (driven x design, 2016).

Projects considered purely cosmetic updates suffer from an impairment in value compared to new buildings. Thus, efforts that result in solidifying the projects positioning as a fresh offering protect the value increase achieved through the change in use. Complete repositioning by innovating within the product type to create a cutting-edge product based on today’s or even tomorrow’s standards provides a demonstrable increase in value. Innovation also proves critical in avoiding the rehab label which acts as a cap on the value increase for the property. A rehab project is viewed negatively in the market as a superficial refresh of an older structure. In order to unlock the full potential value available to a developer pursuing a new HBU, the offering has to be perceived by the market as a new product. The transformation has to be truly structural and permeate the core of the building. A key indicator of the extent of the redevelopment is the degree of innovation involved vs. simply updating to current standards. The cost of innovating, such as retro fitting an existing building to green status, must be weighed against the value increase from sales price due to the market willingness to pay for features (U.S. Green Building Council, 2015). The value uplift for green buildings can be as much as 17% for retrofitted buildings (D. M. Geltner et al., 2017) and 6-31% for new construction (Chegut et al., 2015). Because of the need to take the building offline in order to reposition and refit the structure to accommodate the new use, there is sufficient time and funds available to reap the profit available from differentiating the product. Today even BREAMM certification is becoming passé. Well Standards, based on the health of the people inside the building, are the new focus. Besides green technologies,
another main type of residential innovation includes the use of robotics such as autonomous parking technologies.

With South Bank Tower, the developer CIT was focused on speed to market, so the architects KPF were responsible for design innovations. For example, the green roof garden on top of the podium necessitated the physical plant hid within a minimally intrusive plant tower with vents on only 3 sides (Kohn Pedersen Fox Associates, 2016). Product and outcome has to be and feel uncompromised to ensure the value. The rebirth of a building can be leveraged to uncover its hidden beauty and to unlock additional profit as well (driven x design, 2016).
How can a developer introduce a mechanism to recoup the lost rental revenue and construction costs of an adaptive reuse project? The time and money involved with taking a building offline and undertaking substantial capital expenditures is punitive. The impact to cash flow and profitability must be more than offset to justify the risk and equity investment required. The solution is the flexibility to increase the net square footage of the project. Expansion of the saleable area acts as a multiplier to enhance the value created through residential conversion and design innovation.

The ability to add net square footage takes three main forms: maximization of site coverage, increased net efficiency, and incremental floor count. Firstly, converting an existing structure with as-of-rights site usage affords: more advantageous site coverage ratios and less onerous setback requirements. Secondly, increasing the efficiency of a building contributes directly to the net square footage before any external modifications are undertaken. Changes in use offer an opportunity to streamline common space and other noncontributing usages. Finally, physical extension of a building can be achieved by adding floors to the main structure and podium using modern techniques coupled with over-engineered 1950's-70's construction. Increasingly, due to the growing scarcity of developable airspace, floor expansion is occurring underground. In recent years in London, it is not at all uncommon to encounter basements of existing structures enlarged to depths of up to 6 floors, in order to provide greater square footage below grade. The subterraneous space is being used for enhanced amenities including pools, health clubs, and kitchen facilities beyond the traditional usage for garage parking. Regardless of form, the ability to add net square footage is the essential final element in the economic equation that results in a sufficiently profitable project.

A commonly used rule of thumb is that a 50% increase will provide sufficient square footage for additional saleable units and necessary amenities. However, it remains a rough estimate of the uplift required economically and ignores the relative impact of the other elements that add value. In reality, square footage increase is a range from approximately 20% up to 100% and directly impacts the purchase price that the developer is willing to pay. The upper bound is essentially 100% of the original GFA due to limits of structural capacity, cost, FAR permitting. In the extreme, if more FAR is available, the developer would just seek approval to raze the old structure and build new similar to the redevelopment of old parking garages in prime urban locations. Therefore, the upper end of the range
is truly bounded by the sheer physicality of adding GFA to an existing structure. Limitations exist to the number of floors that can be added on top of, or below, robust 1950’s-70’s construction. Limitations also exist to how much the site coverage can be expanded, given that the as of rights regulations are usually already more aggressive than the current code. The lower bound is a 0% increase, where no profit multiplier is created, but the project has less risk because it is pure as of rights in nature. However, the economic lower end of the range is determined by how little scale effect the developer needs to receive in order to ensure the profit generated from the deal still makes sense.

Why is this occurring now and not before? In order to economically overcome the time and cost of repositioning an existing building and innovating design, it is necessary to create new scale in order to multiply the impact of the benefits being provided. New construction techniques combined with a robust original structure now allows for new possibilities to expand the original design concept of a building. Many of these solutions were not physically feasible before. There now is the ability to extend up using lightweight steel trellis and to extend subterranean using modern excavating and reinforcing methods. This results in a product not previously achievable and allows for added amenities, ceiling heights and views heretofore not available in this location. Expansion completes the rebranding and solidifies the new identity and corresponding new value achieved. Additional square footage creates a multiplier effect that enhances the value creation and return generation to provide the necessary pay-off for undertaking the time and financial risk associated with such a project.

For South Bank Tower, AKT II was the structural engineer chosen for the rehab project. The original bid was based on a 6-floor extension. The developer later realized 11-floors were possible with no increase in foundation piles. A podium expansion to 9 floors from the original 6 was envisioned in both scenarios. Each decade of buildings has different common structural characteristics due to changes in the code. In London, pre-1974 concrete requirements were greater, so structures were extremely over engineered. Concrete continues to harden over time. Therefore, concrete poured in 1971 is approximately 25% stronger today in 2017 than the same concrete in 1972. This creates even more excess structural capacity to support greater vertical extension.
An amazingly inefficient office building was turned into an amazingly efficient residential tower. The design of South Bank Tower is essentially 4 individual towers sandwiched together. As a result, there was excess core space as previously constituted. This further highlights the obsolescence of older class B office space and the absence of alternate uses today. The solution for retrofitting was to locate the residential bathrooms inside the old office core. This was accomplished by removing superfluous stairs, toilets, and lifts. With adaptive reuse, the developer must gain net area to create value. Today South Bank Tower achieves 84% efficiency versus previously King's Reach Tower had only 64% efficiency as
office (Kohn Pedersen Fox Associates, 2016). Not gross new, but net new is the key. Therefore, efficiency is another way to unlock value.

South Bank Tower Floor Plans Levels 20-29

There exists a clear trade-off between purchase price and additional net square footage. If the developer has a target level of return required for a project with a certain level of risk, it becomes a tradeoff between achievable expansion and acquisition price they are willing to pay. The greater the ability to add GFA, either by modern construction techniques or by planning approval, the higher the maximum willingness to pay. The corollary is true as well. The higher the asking price for the land, the greater the required increase in square footage to make the project pencil out financially. Ultimately, the amount of profit earned by the developer is at risk throughout this lengthy and uncertain process.
This can be seen by the willingness of JV partners to invest in such deals only after planning approval is achieved. At that point added net square footage is assured, so profitability becomes less of an unknown. The lower the percent increase of space, the more aggressive the developer must be and the narrower the margin for error. Eventually outsized profits will be bid away by paying higher upfront prices for class B buildings. If, however, the acquisition price is already set based on current usage, the ability to increase net square footage allows the developer to maximize profits.

Given the aggressive nature of this type of repositioning, there are clear risks inherent in the conversion from class B office to class A residential in the CBD. Firstly, the developer is looking to purchase a blighted class B office building with little or no long-term leases in place (1) as the sole equity investor and (2) without planning approval to change use or add square footage. Each of these conditions are simultaneously a source of profit, but also a source of undiversified risk. The removal of these risks would necessitate a higher initial purchase price. Class B office space fully occupied with signed 7-year lease contracts is by definition more valuable than an empty building of the same type. Similarly, when purchasing such a property, adding a joint venture partner to the capital stack will help to diversify the equity sources and reduce their capital at risk in the event of a loss. Most importantly, the absence of planning approval means that the ability of the developer to achieve the strategy is unproven from a regulatory perspective both in terms of new HBU and the required upsizing to make it profitable. If the property had planning approval in place at the time of sale to the developer, the purchase price would be significantly higher, already reflecting that value.

The two exit routes at this stage of the process are either by (1) fully leasing and reselling the property based on its current use, or (2) selling the land plus structure to another developer who is more self-assured of success. Is a new purchaser the greater fool or a more talented developer? The greater the unknowns, the greater the potential profit, but the greater the downside risk as well. Experience and ability to work cooperatively with local planning authorities are key. On average, it takes one year to get planning approval and one year plus for construction. As a result, another source of risk is the length of time involved. The market at time of acquisition is known and determines the price paid for the land plus existing office structure and the assumptions used for forecasting the price at sale of residential units. Two forms of price risk are present in this type of repositioning. First, there is the risk of a downturn occurring during the ensuing years between acquisition and sale. The longer the time offline, the greater the risk of negative market movement. Second, there is basis risk inherent in the relative
prices across the two product types. Office and residential rents are not 100% correlated and do not move in tandem, especially given the change in demand occurring within the residential sector.

Beyond Live/Work/Play, another salient trend impacting pricing is the maximization of zoning rules. As sophistication of computer models increases, available air-rights and FAR more broadly are becoming highly sought-after commodities (York, 2016). As of rights development increasingly offers the path of least resistance to create a development within a tightly regulated jurisdiction. Therefore, purchasing existing air-rights can be the best, and often the only path to “up-zoning” in today’s market.

**Decision Framework for Purchasing vs. Extending Existing Air-Rights**

1. Will current zoning allow for a new building of the desired height? 42 stories?
2. Are there sufficient remaining air-rights given regulations to buy the required height?
3. What is the cost differential of buying an existing structure vs. building new?
4. What are the economic implications of extending from 31 to 42 stories? Negotiation of public benefits vs. purchase of additional air-rights?

South Bank Tower was able to supplement 11 new floors on top of the 31 current to reach 42 stories. The concrete core was reduced by 50% and a new steel structure was installed to extend the structure above. Expanded amenities necessitated increasing lower podium from 6 to 9 stories as well. All of this was accomplished as a modification of the existing structure, as opposed to starting the development of a new tower on an empty plot of land. The addition of net square footage, gained through both efficiency and physical extension, multiplied the value gain of the office to residential conversion. Of all the elements in this type of adaptive reuse, added net square footage most readily provides the required return to justify the risk involved in the project. However, other local factors such as speed market and rent differentials may prove to be more impactful in specific situations.
Chapter 7: Interplay of Factors Contributing to Value

Philosophically, adaptive reuse is about identifying and realizing value where others do not see the full opportunity available in the market. Awareness of non-traditional opportunities for value is tied to the understanding of the particular inputs that are involved. What are the factors that contribute to the value equation and how do they interact to determine the amount of profit available in a given project? Economically, it is determined by seven key factors:

1. Purchase Price of Donor Building
2. Cost of Construction
3. Cost of Time Delay to Reposition
4. Value Increase from Repositioning
5. Value Increase from Design Innovation
6. Additional Gross Square Footage by Physical Expansion
7. Additional Net Square Footage via Increased Efficiency

These elements combine to form the underlying equation that determines the profit a developer will achieve from a specific project. The seven variables ultimately can be distilled down into 3 key impacts to the economics and bottom-line profitability of the project. Feasibility depends on getting the interplay of these factors to pencil out favorably.

1. Investment Costs
   - Purchase Price of Donor Building
   - Cost of Construction
   - Cost of Time Delay to Reposition
2. Value Gains
   - Repositioning
   - Design Innovation
3. Additional Net Square Footage
   - Expanded Gross Floor Area
   - Increased Internal Net Efficiency
By exploring the range of values for each input, an approximate set of guard rails can be determined for office to residential adaptive reuse projects.

**Purchase Price**
- Min: Value of Unbuilt Land (i.e. no structure value)
- Max: Value of New HBU (i.e. zero profit)

**Construction Cost**
- Min: 0% (i.e. recalibrate to market rent)
- Max: 500% of Purchase Price (i.e. cheaper to build new)

**Time Cost**
- Min: 0 Years (i.e. no delay)
- Max: 5 Years (i.e. same as new construction and permitting)

**Value Repositioning**
- Min: 0% (i.e. none)
- Max: 800% (i.e. London market today Peter Rees)

**Value Innovation**
- Min: 0% (i.e. no monetary gain)
- Max: 30% (i.e. green building)

**Added Gross Floor Area**
- Min: -50% (i.e. loss of FAR by changing usage)
- Max: 100% (i.e. physical limit)

**Increased Efficiency**
- Min: 0% (i.e. no gain in efficiency)
- Max: 30% (i.e. from 64% to 84%)

The minimums and maximums of each factor reflect current market realities. At one extreme, no incremental value is ascribed or no action is taken. At the other extreme, the no residual profit is
available from reuse (vs. build new) or a physical limit exists. In reality, a developer will never knowingly
enter into a value destroying deal (i.e. negative NPV), so the logical limit to the complete equation is
investment costs cannot exceed total value gains multiplied by added square footage. That will result in
zero profit, so the actual equation will include a required level of return appropriate for the risk
involved. All types of costs associated with investment contribute to the basis the developer ultimately
has in the property.

The key to adaptive reuse is to find innovative ways to take old product and extract new value. It is
essential to look at real estate from a diverse and innovative perspective. Adaptive reuse is bound at
one end by no value being offered in the market for changing use and at the other end by costs so high
that building new is more advantageous.

\[
\text{Total Investment Cost} = \text{Purchase Price} + \text{Cost of Construction} + \text{Cost of Time Delay}
\]

\[
\text{Total Gain} = (\text{Value Gain of Reposition} \times \text{Value Gain of Innovation}) \times (1 + \% \text{Added Net Square Footage})
\]

\[
\text{Total Profit} = \text{Total Gain in Value} - \text{Total Investment Cost}
\]

Costs are essentially interchangeable within the investment bucket. The tradeoff between purchase
price and construction costs is essentially one for one, and as such does not specifically matter in the
overall profitability equation. What does matter is the ratio of total cost to total value gain. Similarly,
for value gain, the increase from design innovation can be made up for with value gain of repositioning
or by square footage. Each of the three can be substituted for one another in varying proportions.

Just as a rationale actor will look to maximize profit and not undertake NPV negative projects, a
developer will look to maximize FAR without incurring disproportionate costs. Zoning and physical limits
dictate the maximum achievable values and a developer will seek to reach those levels. It is also the
most uncertain variable when the donor building is purchased without planning approval. Subsequent
engineering tests or city meetings could render the extension moot. As a result, a developer is able to
use extension to rectify a financial equation that otherwise would not pencil out. In London, the cost of
construction combined with the value increase of repositioning is not sufficiently profitable to justify
undertaking the project. However, by adding more square footage, the project now works. Extension
allows a developer to do adaptive reuse in locations that were previously unprofitable. This change in mindset has created a shift in the type and location of donor buildings that are successful by today's standards.

Sources of Value from Strategic Repositioning

Upzoning through physical extension of square footage provides a meaningful way to rebalance the economics equation of adaptive reuse that would otherwise have been unfavorable due the relative impacts of cost vs. achievable rents. Under normal conditions, developers look to maximize FAR taking into account the incremental costs of building higher in extreme cases, such as the cost of construction and elevators in pencil towers in Manhattan. What is novel here is the application of FAR considerations normally applied to new construction, but in this case, being also used for adaptive reuse.

Sources of value from strategic repositioning vary by geography and by underlying approach. In London, as exemplified by the South Bank Tower, the value gain of repositioning from office to residential is not enough to offset the purchase price and the large construction costs. However, the additional net square footage provides the necessary gain in value to lift the entire project into profitability. Two classic models of adaptive reuse that succeed with physical extension are the Lower Cost strategy and
the Larger Gain strategy. The Lower Cost approach is grounded in the philosophy of purchasing an existing structure and incurring minimal costs to change use in order to benefit from the value gain of a new HBU. Improvements are purely cosmetic in nature. Construction costs must be kept as low as possible in order to maximize profitability and thus this approach requires a donor building in need of very little rehab. In contrast, the Larger Gain approach is focused on monetizing an outsized disparity in HBU despite the need to undertake more substantial modification in order to change use. In this case, the donor building may require a larger degree of retrofitting to change from office to residential, but the increased costs are justified by the larger profit potential of the new use.

The underlying mechanics of repositioning are such that costs are additive whereas value gains act as a multiplier. As a result, value gains have the potential to be the more powerful effect depending on the relative quantum involved. Costs increase in an almost linear fashion, but profits have the potential to increase exponentially. If the developer employs the correct approach, this equation can be maximized to their advantage vis-à-vis project profitability compared to other activities. In one scenario, there is no incremental value to be had, so adaptive reuse does not occur because there is no profit available to the new owner to offset the investment required. In another scenario, the value is obvious and accessible to all, and has accordingly been already priced in by the market. Similarly, no adaptive reuse occurs now because the prior owner captures all of the profit and transfers none of it to the developer/new owner. In the extremes, there is old HBU, so no reason for reposition or expansion vs. new HBU that is widely recognized and where all extra value already price away.

The sweet spot is to use barrier(s) to entry such as capital, skill, planning approval, time to exploit the middle ground scenarios where there is still outsize Schumpeterian profit to be earned. Hong Kong provides a curious case because of current zoning regulations. The Plot Ratio for office is greater than for residential (15 vs. 10) which functionally results in subtracting square footage by changing use in an existing structure. As a result, the relatively high purchase price and high cost of construction cannot be overcome by the extreme residential values and are in fact made worse by zoning. Boston offers a more hopeful potential scenario whereby high costs could be offset by three factors if combined in sufficient scale. Value uplifts from HBU, design innovation such as green technology, and additional square footage have the potential to provide enough value required to make an adaptive reuse project profitable to undertake.
Chapter 8: Contemporary Example of 20 Broad Street in NYC Re-Envisioned

Beyond London, other examples of successful office to residential conversion are occurring in southern Manhattan. As recently as 2 years ago, 20 Broad Street in New York City was a drab 1950’s era office building located next to the New York Stock Exchange. It was converted to class A luxury residential space to capture rising condo values driven by the new wave of urbanism in lower Manhattan.

The existing structure was purchased by MetroLoft for $185M in October 2015 from Vornado Realty Trust. Construction costs are estimated to be approximately $100M. The deal was financed with $125M of debt and $45M of preferred equity. The single office tenant which occupied 400,000 SF agreed to an early termination of its lease which was already set to end in 2106. As a result, the building provided an ideal canvas to take offline and transform.
20 Broad Street started as a 27-story 443,260 sf existing structure and an additional 6 stories and 38,098 sf were added as part of the repositioning project. The height of the building increased to 417 feet. The finished project will also include 72,000 sf of retail space over five floors, two above ground and three below grade. The basic building is a classic rectangular slab configuration with approximately 16,400 sf per floor which is conducive to redesign with smaller unit sizes. The final product will have 521 units averaging 795 sf in size with 200 studios, plus 1-3 bedroom units.

Example: Slab Office Floor Plate Archetype

(Gensler, 2017)

The adaptive reuse of 20 Broad Street incorporates all three of the key elements: demand, design and flexibility. However, the relative importance and mix of contribution is different than with South Bank Tower. The gain in gross additional square footage is only approximately 18%, while increases in
efficiency remain unclear. However, design innovation allows for new retail on 5 floors which transforms the 3 subterranean floors into valuable space. Also included is a pool, health club, and other amenities on the 33-floor. The flexibility to include different uses diversifies the revenue sources and hedges against market risk upon exit. 20 Broad Street is another example of a successful repositioning from office to residential beyond South Bank Tower. However, the key was not a large increase in square footage, but the flexibility to add another product type.

20 Broad Street - Present

(The true keys to value for 20 Broad Street are the change in HBU and the speed of completion. MetroLoft clearly seeks to benefit by getting to market quickly with new residential product to capture the current strength in residential prices. Net additional square footage is still valuable, but not the key driver of profitability in this instance. All three elements remain critical to success, however exact blend is dependent on the ability to execute within the constraints of local market conditions. Previous successful office to residential conversions in the Financial District by MetroLoft include 17 John Street, 20 Exchange Place, and 180 Water Street. Lower Manhattan has come to exemplify the trend of new urbanism and the value captured by developers through well executed adaptive reuse.)
New Development in Lower Manhattan

(area developments)

(Robert K. Futterman & Associates, 2016)
Chapter 9: Key Lessons on Adaptive Reuse

What are the correct conditions under which office to residential conversions have the ability to create substantial added value? Clearly such adaptive reuse cannot occur successfully everywhere and at all times. This phenomenon is currently restricted to certain major urban markets with limited land space, high rents well above replacement cost, and burgeoning Live/Work/Play ethos. To start with, the foundational requirement is a supply constrained urban center of established major city. The absence of available land coupled with mature regulations and zoning rules results in a market where uses are substitutes not incremental additions. A lack of green field sites causes a developer to convert or raze standing structures in order to build space for a meet demand for a specific use.

In certain major urban centers, class A residential rents have become higher than class B office rents due to shifting demand. A current deterministic factor for rents residential rents is access to amenities. This is restacking the hierarchy of HBUs in the center of the city. The value of agglomeration as it relates to office space is being eclipsed by demand to live near it all.

The ability to utilize existing structures through innovative redesign is another key factor. 1950-70’s office floor plates are adaptable to contemporary residential layouts with interior features such as a den or a private staircase. The architecture firm Gensler recently created a series of designs that clearly show the ability to retrofit certain COB archetypes. The study is based on common office floor shapes found in the metropolitan Washington D.C. CBD between Pennsylvania Avenue and K Street. While not all office product is suitable to conversion, there are sufficient types that do meet the required feasibility. In addition, older office stock is not readily convertible to new open office layouts. Low ceiling heights and denser column grids inhibit the update of older buildings to meet the specifications of the office market today. As a result, there are not many alternate uses for many class B office structures. As the demand for class B spaces fades, the two most viable options become demolition or conversion to residential (Kendall, 2003).

Finally, the exercise of real option value to turn flexibility into tangible value realization results in returns not normally found in the market. Innovations in construction techniques are a key gating factor to achieving this extra profit. For example, in the case of the South Bank Tower, a cutting edge 11 story steel frame was cantilevered on top of the existing 31 story concrete structure (Trimble, 2015).
ability to utilize new construction and engineering advances to distribute load and reduce weight will
determine the universe of eligible building supply for updating in this way. Moreover, the higher rents
garnered by luxury residential units must be sufficiently in excess of not only the rents available for
office space but also the incremental cost to fit-out and expand the structure as well.

Office to Residential conversion in CBD offers an exciting possibility to achieve Schumpeterian profits.
Most importantly, it is a concept that can be replicated and exported to other markets worldwide as the
conditions and demand become ready to take this next step in the evolution of uses.

**Critical Value Drivers**

There are three key drivers of value common to successful office to residential conversions:
repositioning from class B office to class A residential (demand for new HBU), retrofitting as green
building (design innovation), and 50% scale multiplier (additional net square footage). All three factors
are interrelated and work in concert to unlock the full potential value available in the CBDs of certain
major urban areas. However, of these elements, the added net square footage is the most critical for
achieving successful economics of the project. It is worthy of note that with both South Bank and 20
Broad the original purchaser / developer sold out to the ultimate developer due to financial distress.
The new owner then successfully completed the repositioning, but on a more ambitious scale by
negotiating with local authorities for additional square footage. In both cases, the new players were
able to achieve their targeted square footage increases by adding more floors on top of the existing
core, although to different degrees. The criteria for a good donor building includes the ability to achieve
efficiency gains as well. Increased net square footage can be realized both through physical expansion
and internal efficiency. The very nature of office to residential conversion lends itself to both forms of
net gains.

**Market Conditions Upon Exit**

It should not be forgotten that timing is everything in real estate and especially so in development. The
success of the South Bank Tower could not be replicated in the same way in London today. The key to
realizing the value from office to residential conversions is ensuring the local market conditions upon
exit are relatively favorable to support the strategic repositioning. The typical plan assumed in most
cases is that the demand for luxury condos will be sufficient to provide a profitable exit scenario. In the
case of South Bank Tower, the market in London was sufficiently robust for luxury condos in 2015.
Similarly, for 20 Broad Street, the market in NYC in early 2017 was very strong for luxury condo sales. However, alternate contingencies are key. If South Bank Tower were to reach completion today, the developers would find a condo market moribund due to a recent increase in the stamp tax that was just enacted. The move to a 12% Stamp Tax was designed to raise income for the Government, but has drastically slowed the sale of “buy-to-live” market of owner occupiers. It has not impacted the “buy-to-leave” market of passive investors as completely because 12% is just part of the cost structure for the “piles of safety deposit boxes” in London. There is a wave of investor from countries with great wealth, but great instability such as Russia, China, and the Middle East. The “buy-to-rent” market has been impacted because it reduces the profitability of rental investment properties, similarly the “buy-to-airbnb” market as well. Although the City of London is one of 33 boroughs, the planning constraints are similar throughout. Currently London suffers from a problem similar to NYC. As a result, it is not a typical property boom because it is not based on suitability or physical characteristics.

Future Application of an Alternate Value Model

Today an efficient strategy is to create rental apartments that can (1) take advantage of the current market appetite for lease as opposed to own and (2) result in a stable cash flow generating asset that is very attractive acquisition for insurance companies and pensions seeking long-term yield producing investments. As a result, the same three elements of value creation for adaptive reuse still apply, only the substance and target of the exit have changed. Rental provides an alternate source of demand on two fronts. First, in terms of occupancy, rental provides a larger potential tenant pool. Many high-end condo buildings have restrictions on renting units. Second, in terms of sale, rental creates an operating asset that is attractive for purchase by institutional real estate investors. Due to the nature of the project, switching between condo and rental outcomes can be done with very little cost or impact. This is yet another form of real option intrinsic to the strategy that provides a defensive ability to switch type in order to avoid potential loss. In London today, the market for residential units in excess of £1M is stagnant, with few to no properties transacting due to the increase in stamp tax. The change in policy was designed to discourage non-domiciled property investors from purchasing in London and seems to have achieved the desired effect.

Therefore, rental apartments, as opposed to condo sales, offer an alternative form of exit for developers of residential conversions. A fully leased residential building creates stable cash flow stream generation similar to commercial properties. Known in London as PRS (Private Rental Sector) or BTR (Build to Rent),
it is quickly becoming the hottest new area for investment. In addition, green technology installed in many residential conversions lowers ongoing operating expenses and provides increased long-term value for buy and hold investors. The value proposition opens a new class of potential buyers once stabilized: the investment arms of pensions and insurance companies. Pension funds, such as L&G, have become a key buyer in the market today and now even build their own properties using Fee Developers to perform the work. Pensions and insurance companies want to create higher yielding cash flow streams in a low yield market environment.

Despite the new demand to purchase rental properties, the economics is still more compelling to sell as condos. Yield is typically sold at triple net 5% cap rate to pension funds. That figure can grow to 7% cap rate with inflation over time. However, with condos in London selling at 2%-3% cap rate on an implied basis, there is still a meaningful economic gap that will have to be overcome. The key question for the future is will pension funds pay net 3% cap rates? It remains to be seen if the market will move there over time. The current cooling of the condo market could help bring both parties together for a mutually beneficial solution.
South Bank Tower offers clear learnings in value creation. The three main concepts of office to residential conversion, demand for new HBU, incremental value through innovation, and expansion of net square footage are transferable to other markets. But what conditions need to exist to undertake this type of adaptive reuse successfully in different geographies? Regional cities, such as those in Britain outside of London, have often declare themselves to be “open for business” as a way to encourage new development and investment. The reality can be quite different especially when it comes to the ease of the planning process. What also stops adaptive reuse is the combination of rent levels that are not sufficiently strong and ample supply of available land. The result is a situation similar to Houston with lots of new tall buildings. Supply is elastic, so the rents do not move and revenue generation remains flat. However, on the cost side of the equation, the inputs are the same across England with construction costs fairly constant. Further compounding the problem is that cap rates are higher in regional cities which limits the economics of sale at exit. Similar dynamics are present in multiple cities internationally as the same underlying trends shift the equilibrium of supply and demand. Key factors include limitations on FAR, blight in the CBD, existing cash-cows, historic preservation, and ability to raze an existing high-rise.

**Hong Kong as a Potential Market**

The Hong Kong market is now reaching the point that analogous types of redevelopment opportunities could appear. The former British colony presents an interesting and potentially attractive location. Due to the structural characteristics of land auctions and limited availability of green field sites, the ability to develop new construction is highly limited. There is also an aging supply of class B office space. To date, land reclamation has been the primary tool for dealing with the impediment of existing class B structures with prime locations. Infill of the harbor has allowed the erection of new class A space to emerge offering the best views and able to block the existing supply without fear of objections. Just as trees do not grow to the sky, the limit of land reclamations seems to finally have been reached. The city has reached the end of creating more dirt as a solution to providing available plots and hiding blighted outdated office stock. Coupled with that, the decline of financial services is creating less demand for older office space. Given the declining business environment and rising house prices, the time for office to residential conversion may be at hand. However, adaptive reuse faces many significant barriers. The reality in Hong Kong is that developers with raze old structures and replace them with new
developments. The nostalgia of historic preservation has yet to full take hold and the sky’s the limit on FAR and height. Moreover, the existing stock generally fall into the category of cash-cows, so the financial penalty of taking them offline for multiple years during construction makes repositioning unprofitable. Currently, there are little or no barriers to razing large structures even in the CBD. Most importantly, current zoning based on usage allows for a Plot Ratio of 15 for office buildings, but only a Plot Ratio of 10 for residential buildings in the Central neighborhood in Victoria. This regulatory impediment means that residential is not the HBU by volume, even if it were to be on a per square foot basis. In effect conversion to residential would result in a contraction of square footage as opposed to an expansion. As a result, Hong Kong will continue to reflect the reality that it is always cheaper to build new, at least until restrictions governing the market change.

**Boston as a Potential Market**

Boston today faces its own set of opportunities and challenges in regards to office to residential conversions. Most urban centers are facing a dearth of housing, both affordable and luxury in the CBD with no obvious mechanism to release the pressure of demand while simultaneously stemming the rise in prices. Office to residential conversion has been raised as one possible answer to this catch-22. Will it work in Boston? Success is not assured, but there is true value to be unlocked if done correctly. Boston is more similar to New York and London than Hong Kong because of the historical context of its existing stock and its approach to FAR expansion. Typically for this to happen, there must exist a wide discrepancy between value of the building as office versus its relative basis in a redevelopment. Boston office space is so highly valued that it makes it harder to pencil out.

Conversion of commercial buildings is considered a Change of Use under the building code. As a result, the developer has to bring the donor building up to current code, though historic exemptions are possible. This can be a real barrier, especially if the building is in a seismic zone, as is the case with most of the west coast. It is less of an issue in Boston. A full seismic upgrade is a huge cost comparable in certain cases to the cost of the original structure. As a result, the developer is getting zero value from the original structure, so new construction is better than adaptive reuse.

**Example of The Eddy, East Boston Waterfront**

The project was originally approved for 9 existing stories plus an additional 7 more on top and conversion of the existing warehouse into residential units. Core samples were taken out of the
columns and beams to assess the concrete’s capacity to bear vertical load. Gerding Edlen purchased the building with those approvals in place. However, additional tests by their own structural engineers revealed very different results. As a result, the new team had to core the entire building and test it again.

It is harder to run columns to build up on industrial or office, than residential. In general, it is costly to do significant additions to an existing structure. Moreover, it is hard to do from an approval perspective in Boston. Limiting factors there are the supply of good candidate buildings, the cost to break leases, and the market cost for construction. If there is not a plentiful supply of empty buildings and it is an expensive market for construction, then the cost to convert will be high. If the cost to reclad is also high, the economics are almost the same as building on bare dirt, because the value captured it so low. However, the time, complexity, and financing risk or adaptive reuse is much higher.

If the developer can successfully reuse the structure, there is an opportunity to save money. Vertical expansion means that at a minimum the developer must extend or install new bank of elevators to access those floors, upgrade heating and cooling (use green to be most cost effective), and upgrade lights. In an existing 9 story building with 100 units, a portion of the value is the views. On average the condos are worth approximately $2,000 per square foot. An additional 7 stories will add height and therefore better views. The average value then rises to $2,500 per square foot. There is a clear floor premium as the units go higher. The Eddy looked to maximize this and explicitly celebrate the differences between the old and new portions of the structure. The original 9 floors had exposed concrete and high ceilings reflecting the industrial usage. The new 7 floors were steel structure with lower ceilings and soffits to enhance the look.

Physical attributes such as floor plate size and shape, floor to floor height, façade composition (i.e. curtain walls vs. precast with small windows), and parking (i.e. none vs. too much) are critical. Design innovation is valuable, but not necessarily directly measurable depending on the market. People are attracted to technology. Therefore, design innovation impacts buyer preferences. It helps to sell units and reduces the time spent vacant although it is unclear if it increases price per square foot. There is added value from the perception of being leading edge, environmental consciousness, lowering operating costs. The result is due to all three combined, not one attribute in isolation.
Before contemplating adaptive reuse, a developer needs to understand the building’s value as currently configured for its original use. In many cities, the underlying value as office is so high, that there is little savings versus buying dirt and building new to create residential units. In addition, the developer may have to pay to get remaining tenants out and may also have to pay huge costs to upgrade the building. By carefully comparing current and future examples of each value driver, the potential value will be uncovered and can be unlocked.
Chapter 11: Conclusions and Final Thoughts

In theory, it should always be easier to build a new structure on an empty lot than to convert an existing building to capture value based on current demand. New build requires less construction time, fewer structural risks, and is simpler to finance. The reality, however, depends heavily on the availability of centrally located plots of unbuilt land. Bare dirt is increasingly a rarity in today’s world. In addition, developers also need to obtain permission for 100% new FAR which runs counter to most current trends in urban planning and zoning regulations. It is also increasingly difficult to raze a significant structure given the physical and historical impediments to tearing down an old building in the CBD. Moreover, once a structure has been completely demolished, does the developer automatically have the right to build an equivalent structure in its place? Or is it now the same approvals process faced with a bare patch of dirt? Adaptive reuse offers a potential solution to overcome these challenges. To undertake successful office to residential conversion, a developer needs a suitable donor building of sufficient scale and an ability to get planning approval for a change in use.

Advances in construction techniques and engineering assessments have allowed more aggressive augmentation of older structures. The ability to both reposition and raise rents to the current HBU are keys to unlocking value. More important is the flexibility to add greater net square footage and multiple uses. The additional saleable space provides increased scale to magnify the value provided by the conversion of the existing structure. Broadening the tenant base to more than one use diversifies the revenue streams and hedges against market weakness in one category upon completion.

Why are there not more developers undertaking office to residential conversions? Two main reasons: upfront risk and exit uncertainty. The developer must purchase an existing asset, take its cash flow generation off line, and then incur construction costs on top, all without approvals yet in hand. The time and uncertainty to get planning permission acts as a key upfront barrier to entry. It stops other players from mimicking the strategy, while simultaneously provides willing JV partners to enhance the return (IRR) once approval is granted. Successful exit then depends upon strong market conditions a number of years out in the future, which adds another element of uncertainty. Condo sales are the main driver, but a rising rental market could provide an attractive alternate exit strategy. What remains to be seen is who will be the ultimate owners of these high value rental properties? Will it be the developers who shift along the value chain to occupy a new position in the market? Will it be the JV partners who buy
into the project after planning permission has been granted? Or will pensions become willing to accept a 3% yield on an asset that provides a new opportunity for long term cash flow streams?

Achieving efficiency and economies of scale are key to including adaptive reuse as part of a portfolio of real estate deals. Successful developers need to create an eco-system of network efficiencies by using the same advisors over and over again. Therefore, the developer can get upfront work from architects and lawyers without delays and large costs. For a developer that does a sizeable volume of adaptive reuse deals, adaptive reuse typically accounts for at least 20-30% of a portfolio, but not more than 40% of total activity. This is compared to deals with more in-place revenue which account for 40-60% of total activity. Assets with in-place income generation are less risky for those looking to enhance existing cash flow streams by optimizing rent levels or vacancy as the value add improvement. In contrast, adaptive reuse necessitates an empty building and construction costs. The remainder of the portfolio would be other more traditional private equity style acquisition deals involving real estate. For example, data centers, co-working, and pubs which are all operating businesses with heavy real estate components.

Will office to residential conversions become common place in the future? Is it a mainstream product type in the making? This is unlikely due to the specialized skills, experience, and risk involved in the successful execution of a project. However, far from being a unicorn, office to residential conversion as a form of adaptive reuse do create significant value if the right elements are present: demand, design, and flexibility. As this thesis has shown, profitable execution relies upon a complex set of conditions that affect these factors to determine if a project is a homerun, breakeven, or a complete bust. The model, successfully demonstrated in London with South Bank Tower, can be replicated and transferred to unlock value systematically. The recipe for success requires all components to be present in varying degrees and constitutes a clear framework that can be followed, as opposed to a lucky series of events. However, given the unique combination of skills required, office to residential conversion will become a powerful source of value for those developers that can overcome the barriers to entry. Moreover, success does not only depend on achieving a series of quantitative metrics for profitability, it also depends on employing the qualitative skills to negotiate with local councils to address public needs through more ambitious redevelopment. Only then is the full value creation from office to residential conversion realized.
Appendix I: Cube Office Floor Plate Archetype

EXISTING “CUBE” OFFICE BUILDING

EXISTING ELEVATORS
EXISTING OFFICE FLOOR PLATE

EXISTING 20' COLUMN GRID

ARCHETYPE STRATEGIES: CUBE

CONVERSION TO RESIDENTIAL

NEW STAIRS
EXISTING ELEVATORS
NEW 1 BEDROOM PENTHOUSE UNIT
EXISTING 20' COLUMN GRID
PENTHOUSE SETBACK

NEW SWITCHBACK STAIRS
EXISTING ELEVATORS
NEW 1 BEDROOM EXISTING 20' COLUMN GRID
NEW STUDIO OR 1 BEDROOM UNIT

(Gensler, 2017)
Appendix II: EL Office Floor Plate Archetype

EXISTING "EL" OFFICE BUILDING

EXISTING MECHANICAL
EXISTING REST ROOMS
EXISTING STAIR
EXISTING ELEVATORS

EXISTING OFFICE FLOOR PLATE

EXISTING 20' COLUMN GRID

CONVERSION TO RESIDENTIAL

NEW STAIRS
EXISTING ELEVATORS
REPURPOSED MECHANICAL SPACE TO STORAGE UNITS
NEW STUDIO UNIT
NEW STUDIO OR 1 BEDROOM UNIT

EXISTING 20' COLUMN GRID
NEW 1 BEDROOM CORNER UNIT

ARCHETYPE STRATEGIES: EL

Buildings that wrap the corner of the block with a narrow face size of less than 30’ corresponding to residential planning depths. ELs are neutral to conversion.

(Gensler, 2017)
Appendix III: Example of 33 Broadwick Street, Soho, London

The original donor building was commanding rents of only £40 per square foot compared to a typical market levels of £80 per square foot for class A product. The 50% reduction in rent was due to the condition and offerings of the structure in the context of today’s new product. The building was owned by a pension fund that did not want to develop the property due to cost and capability. Brockton Capital purchased the building with the intention to update and relaunch it into the market at current standards (Brockton Capital, 2017). Based on highest and best use for the location, the decision was made to keep the building as office space, but new net square footage was added as part of the redevelopment. The expansion allowed for a ground floor retail component featuring Itsu Sushi and Veggie Pret a Manger restaurants, while maintaining and enhancing the office offering. Design innovation facilitates the successful repositioning of the building as new product and unlocking of the associated value uplift.

“Cut & Carve” is more expensive than building new, but there are many reasons why a developer cannot simply knock down an existing building. As a result, the ability to up-zone has long been a necessary prerequisite for urban redevelopment. London is fighting comprehensive FAR expansion by only allowing certain designated areas to add FAR selectively. As a result, the optimal strategy is to find an older building with better FAR or site coverage. The intention is to keep the existing structure with its as of rights massing and then add floors via negotiation with the local council. Modern site coverage ratios are more onerous and require more green space. Therefore, the key is to remain grandfathered into the prevailing regulations at the time of original construction. Only then can additional square footage be added in today’s onerous regulatory environment.
Appendix IV: Example of 56 Curzon Street, Mayfair London

Situated on a one acre site, the structure was built in the 1930’s as a hotel and had evolved over the years to become occupied by 2/3 services apartments under a single owner and 1/3 residential condos with individual ownership. Brockton Capital was able to purchase the entire building with the goal to convert it to 100% residential (Brockton Capital, 2017). The decision was made to knock down old structure after getting permission to build a new building with similar dimensions in its place. In order to make the economics of the development pencil out, the project required an increase in square footage, but a reduction in the number of units in total. Originally there was an average of 500 sf per unit, and now it became 32 units an average of 2,340 sf. The reconfiguration was accomplished through adding 4 additional floors and fattened the L-shape footprint by reducing the courtyard resulting in approximately 75,000 sf. The resulting structure was only 1 floor higher (to equal the height of the majority of neighboring buildings at 8 stories), but 3 floors were added below grade (going from 1 to now 4 in total). Because all neighboring buildings were taller, increasing the number of floors was a negotiated solution rather than a demand to approve new height (City of Westminster, 2013). The result is a 50% increase in square footage from 8 floors to 12 floors total. While not a true case of adaptive reuse due to the demolition and reconstruction involved, the economic principals driving value are the same. The project clearly exhibits the same 3 keys elements to success: meeting current demand, design innovation, and physical expansion.
Appendix V: Example of The Post Building, Tottenham Court, London

The Post Building is an interesting example of adaptive reuse as an industrial to residential conversion. The original structure, a Royal Mail postal sorting facility, was built to withstand the impact of letter bombs and therefore was significantly over-engineered compared to standard buildings of the same size and period (Buildington, 2017). The building was already 8 stories, with the top 4 floors set back in a wedding cake style design when Brockton Capital purchased it as a donor structure for redevelopment (London Planning News, 2017). The first step was to remove and replace the top 4 floors in order to increase square footage and ceiling heights. Now, the building has 8 higher floors with the improved top 4 floors matching the lower floor plates, flush with the outer boundaries (Brockton Capital & OXFORD, 2018). In Zone 1 London today, dirt is extremely expensive and unbuilt land is exceedingly rare. Therefore, a developer needs to find an existing building that is outdated and considered blighted in the context of the surrounding fabric. The key is that the structure looks like a problem from street level that could negatively impact the surroundings as a visual eyesore. Therefore, the structure has a natural limit to its value as currently constituted. In actuality, it is only a temporary limit to value once a developer gets planning permission and is able to rehabilitate the site. The developer needs to add approximately 50% more net square footage to make the redevelopment work and for the profit to be compelling. The ultimate goal is to reset the entire building to all premium space based on the highest available rent reflecting the current HBU. Expanding the net square footage provides additional revenue upon sale to offset the construction costs required to successfully reposition the building as new product. The completed project will be occupied by McKinsey and Company as their new London headquarters (Buildington, 2017). They wanted to relocated to a more central place that reflects the nature their business going forward, not the traditional neighborhoods with an image tied to the past.
Appendix VI: Central London Locus Map

(Google, 2017)
Appendix VII: List of Industry and Subject-Matter Experts Interviewed

**Increased Net Square Footage**

Stephen Riddell, Managing Director CIT London

Jason Blank, Managing Director Brockton Capital

Kairos Shen, Lecturer MIT Center for Real Estate, former Chief Planner of the Boston Redevelopment Authority

**Office to Residential Conversion in the CBD**

Peter Rees, former Chief Planner for the City of London

William Talley, Senior Design Manager Gensler

Young Park, President Berkeley Investments

Keith Bedell-Pearce, Senior Independent Director of F&C REIT

Professor Albert Saiz, Daniel Rose Associate Professor of Urban Economics and Real Estate, MIT Department of Urban Studies and Center for Real Estate

**Value Creation through Innovation**

John Bushell, Principal Kohn Pedersen Fox London

Kelly Saito, Managing Partner Gerding Edlen

Professor David Geltner, George Macomber Professor of Real Estate Finance, MIT Department of Urban Studies & Planning and Center for Real Estate
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