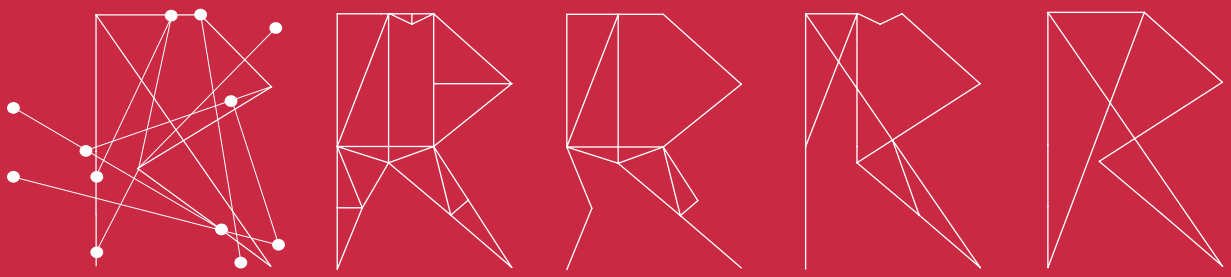

Innovation in Practice

The 2015 Harvard Journal of Real Estate

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The HSREC is a Harvard-wide student organization representing the University's real estate clubs at Harvard College, Harvard Business School (HBS), Harvard Kennedy School (HKS), Harvard Law School (HLS), and the Harvard University Graduate School of Design (GSD). Fully supported by the REAI, HSREC embodies the ''One Harvard'' philosophy by connecting the wealth of talent across the University focused on real estate and the built environment. The HSREC expands the breadth and depth of Harvard's real estate education by organizing industry-leading guest speakers, conferences and career events, networking mixers and mentoring opportunities, special courses, and international treks.

The International Advisory Board (IAB) and Alumni Advisory Board (AAB)

Comprised of both Harvard-affiliated and non-affiliated industry leaders who support the REAI's programs and research initiatives, the IAB meets twice each year in Cambridge. The IAB's primary mission is to provide guidance for the REAI's research agenda and to advise faculty on critical global real estate issues, providing a vital connection between the REAI's academic focus and contemporary industry trends. The AAB meets twice yearly, once in conjunction with REAI's Spring Workshop, and again in the Fall. Comprised of Harvard alumni engaged in real estate practice, the AAB is committed to furthering the REAI's mission through educational events and programs for students and alumni, student mentoring and career advising, and by creating an alumni and student network to foster professional growth and advancement.

Innovation in Practice

In real estate, 'innovation' can be precarious. The industry typically standardizes the spectrum of the built environment into defined asset classes and product types, often confined by conventional financing and public policy. To many, the prospect of 'innovation' invites undue peril. Why subject the already risk-prone process of building or operating real estate to additional uncertainty?

Others see 'innovation' as the impetus of creating economic value. Beyond real estate, 'innovation' is a cornerstone of the modern economy and holds both cultural and practical implications. Many herald changing trends in the demand for real estate as a new generation takes hold, often pairing the 'innovation economy' with the 'disruptive economy.' Innovation is by its own definition unsettling; it can invoke a fundamental questioning of norms, disruptive of established principle in the pursuit of unique value. Yet not all novel ideas last forever, and only time will distinguish whether an innovative concept is fleeting or substantive.

If real estate follows a basis of standardization, and innovation is naturally disruptive, what is innovation in real estate? What is the conflict between real estate and innovation, and how is it challenged, overcome, or resolved? What is the value of innovation in the design and development of the built environment, and how does one find it?

The 2015 Harvard Journal of Real Estate takes aim at those questions. This year's Journal features 11 authors from programs across Harvard University, each with distinct approaches to the various facets of the real estate industry. The authors investigate a range of subjects under the umbrella of innovative practice, including opportunistic investment strategies, creative financing mechanisms, progressive public policy, and case studies in unique approaches to real estate development. Following each article is a review written by an invited academic or leading practitioner with a background in the same topic.

The real estate industry faces new frontiers, and its evolution will require many voices. Collectively, these authors investigate the value of innovation in practice, inviting both new ideas and opportunities for further discourse.

Brian Vargo
Executive Editor

Bing Wang, DDes

Bing Wang, DDes is Associate Professor in Practice of Real Estate and the Built Environment at the Harvard University Graduate School of Design (GSD) and an internationally recognized figure in the interdisciplinary fields of design and real estate. She is Director / Area Coordinator for the Master in Design Studies Real Estate and the Built Environment concentration at the GSD and a faculty co-chair for the Real Estate Management: Design, Finance and Leadership program, a joint program between the GSD and Harvard Business School. She is also a faculty co-chair for the Advanced Real Estate Development program at the GSD. Her academic research focuses on the interplays between formal representations of the built environment and its underlying capital forces, social structure and economic engines. That approach is reinforced by her multidisciplinary professional practice. She worked as an investment consultant at Lehman Brothers and is one of the founding principals of KaiLong REI and YongYou Investments LLCs, private equity companies based in Shanghai, focusing on investments in real estate industry and equity investments in media production companies respectively. Her design firm, HyperBina Design Group, has undertaken design projects of both architectural and urban scales throughout the world.

Interview: A Pedagogic Approach to Innovation

Innovation is a complex subject in real estate development. The industry relies on standards governing underwriting, asset classification, financing conventions, etc. The call to 'Innovation' naturally involves disruption or evolution of normative practices. As the leader of real estate pedagogy at Harvard and a practicing professional, how do you negotiate these contrasting perspectives?

BW: This is the central question. These dipolar forces – normative practices versus disruptive innovation – coexist in industries undergoing change. Industry standards are important as they define the boundaries for consistency of practice and quality control. However, mechanical or rote adherence to industry practices typically brings only average or conventional solutions, leading to eventual stagnation and decline. Thus, it is essential that we encourage fresh and novel thinking as well as the constant negotiation between the two forces so that we might find inspiration in between.

Pedagogically speaking, we start with the goal of ensuring that our real estate students first learn and understand the norms and methods of industry practice. Only when students are confident and truly own the foundational standards and the underlying linkages, will they be able to develop strong points of view to critically challenge the industry's status quo, and to take risks in advocating new approaches to adjust and improve it with experiences, in-depth understanding and creativity. We encourage nudging, if not breaking through all at once, the boundaries and comfort zones of practice, as advocacy and innovation ultimately drive the field's growth and transformation. This risk-taking, disruptive leadership is consistent with the core principles of the GSD real estate program (MDes REBE).

How do you think a pedagogic approach can best foster the persistent creativity necessary for innovation, particularly within the established domain of real estate?

BW: First, the real estate program is housed within a design school. The program embraces an in-depth understanding of building form and structure anatomy as well as the overall urban context, thereby empowering students with new perspectives and a more holistic outlook for value creation and economic thinking throughout the cycle of design, development, construction, and investment. As a consequence, students are better prepared to navigate the economic, physical, environmental, and societal as well as political connections to complex built projects.

Secondly, as the competitive thrust for creativity in the formation of the built environment has become the new frontier for real estate profession, how we incorporate design thinking and more importantly creativity in strategies and actions in enduring real estate process, will differentiate our platform as the leading program.

Real estate is a domain that encompasses many fields – urban planning, finance, architecture, etc. Innovation in the field thus requires a comprehensive understanding of several overlapping or competing factors. How do you think the academic environment of real estate education can negotiate that complexity?

BW: Most real estate programs focus one-dimensionally on tactical skills training. While professional skills are essential, the GSD program addresses the central importance of educating, guiding and nurturing thought leaders for the industry and for the discipline. Rising beyond the commodification of buildings and the built environment, which is often viewed as the visible outcome of the operation of real estate, we seek to elevate students' ability to conceptualize real estate commercial activities with a deeper understanding of their impact on the larger built context and humanity. This encourages student's capacity to abstract insightful and multi-dimensional linkages between real estate and its other adjacent disciplines.

Our graduates will be proficient in real estate financial skills and will be trained to find, and more importantly, create value at the intersection of design, development, and finance. Equally important, as our graduates engage other professionals in the design, development, construction, and financing of the built environment, they will have the confidence to thoughtfully lead and leverage the intellectual discourse and dialogue on matters that affect their initiatives, projects, and the industry's future direction.

This publication addresses global issues in the contemporary practice of real estate. The interchange of ideas, methods, and case studies is integral to the concept of innovation and essential to the evolution of the industry. Given its importance, how can real estate education best connect to that global network?

BW: Global leadership is a cornerstone of our academic focus. For the past 15 years, field studies (now called Global Leadership courses) have taken students around the world with the opportunity to be immersed in real projects. With sponsors from China, India, Germany, England, the Netherlands, United States and elsewhere, the program benefits from real time connections to the larger global platform, and is placed at the forefront of new industry practice, modes of experimentation and developments. The program has an unmatched position to pioneer and lead new explorations globally in real estate development, design, capital markets, investments practice, as well as real estate education.

What role do you think innovation plays in leading the real estate industry, and how can a pedagogical approach to the field lay the foundation for leadership?

BW: Real estate at almost any scale and in any location today confronts a complex array of constituent interests, not the least of which includes urban planning authorities, surrounding community and environmental forces, as well as the financial markets, investors, and actual users. These competing forces make it increasingly demanding to optimize what by nature is a capital intensive exercise (both human capital and financial capital) with long lead times for conceptualization, design, planning, fund raising, approvals, construction, branding and leasing, and property management. Against these challenges, success will favor those with the ability to re-imagine conventional and timeworn solutions by embracing innovative and novel thinking at every level of design and production.

For example, in the design and approval process, how does one can create an aesthetically satisfying physical environment and building typology that anticipates new evolutionary urban relationships, with flexibility in function and organization, while addressing people's changing balance for work and leisure? How should this community-relevant creation be engineered and executed to capitalize on (or even invent) new and forward-looking technology that will deliver sustainable energy and operating costs while improving construction quality and financial risks? Or, to extend capital values, how does one configure, stage, and orchestrate the project and its economics to tap the largest pool of funding or the latest capital markets securitization?

To address the need for innovative thinking and leadership, whether in real estate academia or practice, we present students with an integrated, holistic learning program that emphasizes a foundational approach to process and to hands-on studio and field work, so that students understand the different aspects of the built industry and the complex linkages among different elements of design, production and funding. We teach analytical tools and we stretch problem solving through design thinking, insisting where possible on unconventional innovation in fabrication, materiality, construction, user engagement, and performance as well as in the pursuit of the enduring aesthetic, environmental, and social value of the built environment.

Alexander Akel

Alexander Akel is a Masters in Design Studies candidate at Harvard University's Graduate School of Design concentrating in Real Estate and the Built Environment. Last summer, he was an analyst at MetLife Real Estate Investors in their equity group located in Washington, DC. During his undergraduate career, he worked for a South Florida based developer that specializes in master planned single-family and active adult communities. Alexander's attraction to the institutional single-family rental market stems from his interests in both residential real estate and the institutional mindset to real estate investing. He holds a Bachelors of Business Administration from The George Washington University School of Business where he concentrated in finance and international business.

The Long-Term Viability of Institutional Single-Family Rentals

The ownership and management of single-family homes for rent is one of the oldest real estate asset classes. Historically and presently dominated by mom-and-pop investors, the single-family rental market has institutionalized as a result of the events of The Great Recession and technological advancements. This article will address whether this innovative and nascent business model is a sustainable and long-term real estate asset class.

In October of 2002 at George Washington University, President George W. Bush addressed the topic of increasing minority homeownership. The goal was that by the end of the decade, the number of minority homeowners would increase by at least 5.5 million families. President Bush declared, "It is going to require a strong commitment from those of you involved in the housing industry."[1] From there, the story unraveled. The low interest rate environment spurred by the dot-com bubble urged investors to search for yield in risky places such as the housing market. Simultaneously, the torrential downpour of "free money" and homeownership driven public policy encouraged American consumers to pursue the romanticized American Dream in the form of subprime mortgages. Financial innovations such as credit default swaps and collateralized debt obligations increased systemic risk by allowing more investors to join in on the fun.

Overleveraged homeowners could not make due on their mortgage payments, triggering a domino effect on the U.S. economy. Mortgage defaults skyrocketed, causing the financial innovations of collateralized debt obligations and credit default swaps to fail alongside the institutions that invested in them. The market was flooded with hundreds of thousands of homes at prices well below replacement cost. Enticed by what many deemed to be a once in a lifetime opportunity, investors pounced on short sales, real estate owned (REO), and market listings. Within a few months, spawned from the doldrums of the housing crash, the institutional single-family rental (SFR) market was born.

The Competitive Landscape

The ownership and management of SFR is not a new business. Theoretically a $1.5 trillion opportunity, the SFR business is historically a mom-and-pop market even with today's institutional presence. There are currently over fourteen million single-family homes rented, approximately 12.3% of the total occupied housing stock (Exhibit 1).[2] Since 2007, the number of homes for rent has increased by over 2 million. What is new is the foray of institutional investors in this space. During the past three to five years, the largest institutional investors purchased over 172,000 homes for $28 billion (Exhibit 2). Institutional investors only own 1.2% of all SFRs. The institutional SFR space is dominated by large private companies such as The Blackstone Group's Invitation Homes, the country's largest private landlord with over 45,000 homes, and public REITs such as American Homes 4 Rent (AMH) and Starwood Waypoint Residential (SWAY). According to Rick Sharga, CEO of Auctioncom, the investment strategy is simple: "Buy the property at less-than-market value, rent it for a few years while the market recovers, and then sell it at a high profit margin when home prices appreciate."[3] In order to achieve targeted rents, owner-operators have contributed substantially to capital expenditures (10% to 20% of purchase price). Given the small market share of institutional investors, it is difficult to distinguish between David and Goliath within the SFR market.

The sudden emergence of institutionally owned SFR portfolios embodies innovation at its core through the creation of a new real estate asset class. An understanding of this innovation lies in the distinctions between the institutional and mom-and-pop business models of SFR. The first distinction is portfolio size. According to data from RealtyTrac, 51% of SFR investors own only one property while only 4% own more than 250 properties.[2] Typically, an institutionally owned portfolio is categorized as 1,000 or more homes. The second difference is source of capital. Smaller investors use their own savings, equity from friends and family, or community bank financing, while institutional investors deploy capital from pension funds, foreign investors, high net-worth families and individuals, money-center banks, as well as the private debt and public equity markets. For the first time ever, large-scale investors have access to the SFR market thanks

Exhibit 1: Single Family Rentals, Not a New Asset Class. Source: KBW Research.

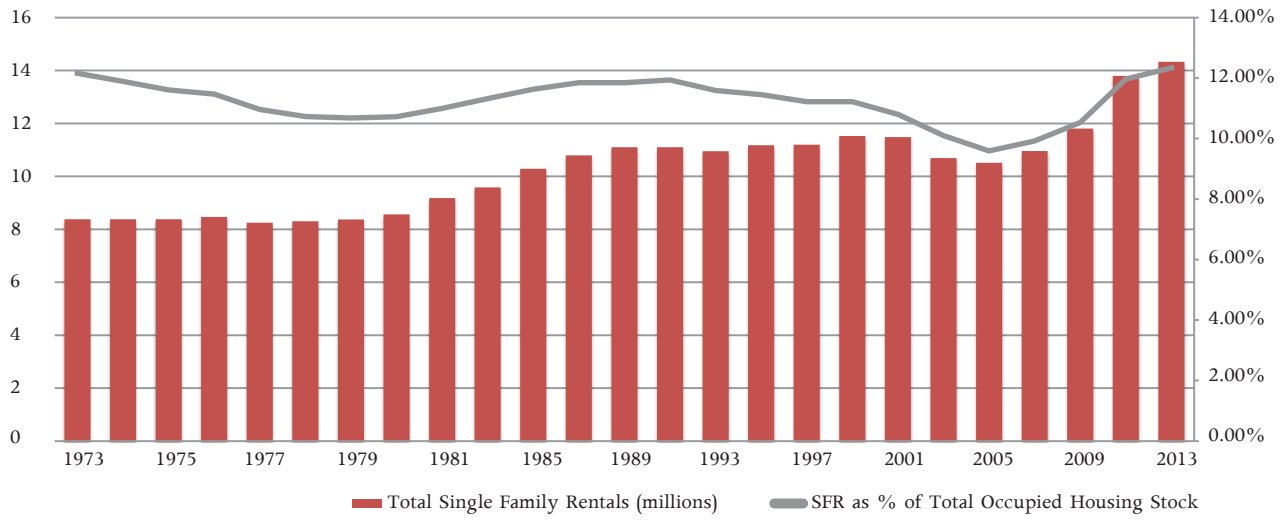
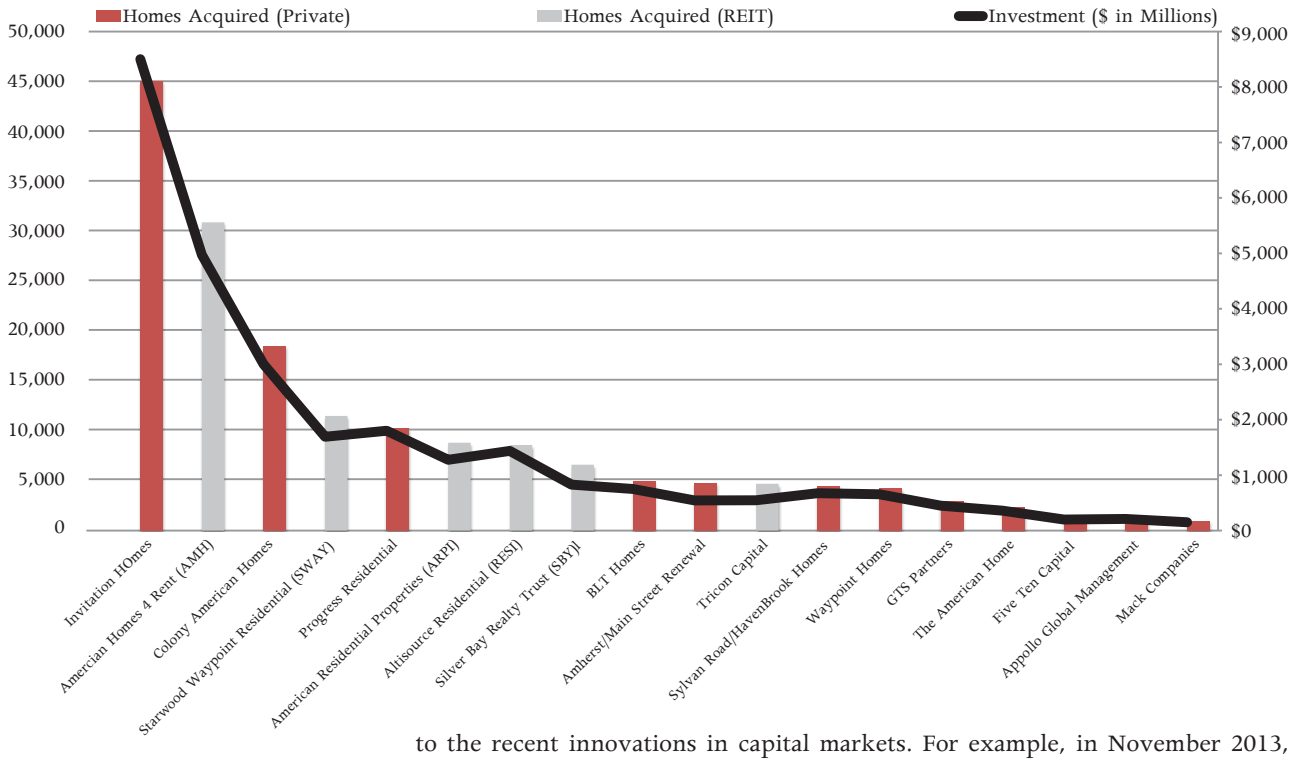


Exhibit 2: Institutional Ownership of Single-Family Rentals: 172,000 Homes for $28 Billion.



to the recent innovations in capital markets. For example, in November 2013, the first fixed-income securitization of SFR, Blackstone's IH 2013-SFR1, came to market. The third differentiator is geographic diversification. While small investors tend to be monogamous, institutions play across state boundaries in multiple markets. The fourth and final distinction is that institutional owner-operators have the ability to create a branded product. David Singelyn, CEO of American Homes 4 Rent, the largest publicly traded real estate investment trust (REIT) with over 30,000 homes, declared: "We provide something that a mom-and-pop cannot. We are a known commodity. Tenants know that we are going to be in the business long-term."[4] The institutional ownership and management of thousands of homes scattered across dozens of markets is a new chapter in the SFR market.

Technological improvements in the form of cloud computing and in-house software allowed the largest SFR players to quickly leave an impression on the market. Singelyn emphasized this point by stating: "Technology is very important to the success of a large scale corporation. It is the reason we have the ability to institutionalize the asset class that has assets that are not concentrated in one location."[4] Cursed by soaring transactional and operational risks, the asset class sprouted with the help of technological innovations that assist with pinpointing ideal properties for acquisition and managing a portfolio of scattered assets.

The recent innovations in SFR do not end there. Historically, mom-and-pop investors obtained leverage from Government-Sponsored Enterprises (GSEs) such as Freddie Mac and Fannie Mae through home loans and small banks. Approximately 50%-75% of SFRs are unencumbered by debt. Capitalizing on this gap, Wall Street recently developed new loan products for small and large SFR investors. Another $1.5 trillion theoretical opportunity, Blackstone's B2R Finance and Colony Capital's Colony American Finance, along with FirstKey Lending are providing debt liquidity to finance future acquisitions. The SFR revolution is not over. The eventual goal is to bring an unprecedented multi-borrower fixed-income securitization to market, a potential reality in 2015.

Is Institutional Single-Family Rental a Long-Term Sustainable Real Estate Asset Class?

The institutional ownership and management of SFR is not a sustainable long-term business model for several reasons. First, over the past three years, the availability of attractively priced opportunities has quickly eroded. The events of 2007-2008 that served as the catalyst for institutional SFR have fizzled, triggering a domino effect on the institutional SFR market. Second, the lack of opportunities will result in insufficient risk-adjusted returns relative to core multi-family in gateway markets. Third, institutional SFR operators will be unable to drive long-term rent growth amidst the recently high home price appreciation. This breeds a "high-quality" problem or severe capitalization rate compression. This is a great threat to publicly traded REITs in particular as it affects their ability to effectively raise capital. Fourth, the result of these three events will culminate in the shrinkage of long-term capital formation in the private equity, public equity, and private debt markets.

The days of unlevered internal rates of returns in the low teens are gone, while the underlying risks still remain. Within the next five to seven years, private equity and independent investors along with their capital sources such as pension funds and family offices will completely retreat as the number of opportunities dwindles. In response to the decreased appetite in SFR, private equity investors will redeploy their capital to multi-family located in gateway markets where there is a greater opportunity to drive long-term cash flow growth. Today, the lens of capital formation for the public equity markets is already closing. All of the publicly traded SFR REITs are faced with the uphill task of driving funds from operations (FFO) growth while combatting the looming "high-quality" problem. Furthermore, a dearth of acquisitions has altered the rules of the game from aggregation to consolidation; hindering future IPOs as the biggest firms continue to get bigger. This article predicts that institutional SFR will become a niche REIT asset class with approximately two to three companies. Finally, the absence of private equity investors and scarce number of public REITs along with rising interest rates will lessen the supply of private debt. On the demand side, a combination of higher interest rates and lower risk-adjusted returns relative to multi-family CMBS will push debt investors away from fixed-income SFR. It took a short three years to build the institutional SFR empire. It could take a second for it to vanish.

The Erosion of Attractively Priced Opportunities

The investment thesis is deeply rooted in the financial theory of mean reversion. In the context of home prices, the theory suggests that after periods of swift appreciation or depreciation, annual home price growth will eventually revert to its long-term average. Data from S&P/Case-Shiller Home Price Index for twelve Metropolitan Statistical Areas (MSAs) displays this phenomenon (Exhibit 3). Between 2007 and 2011, home prices depreciated between 35% and 75% in the Sun Belt region of the US, specifically the Sand States of Arizona, California, Florida, and Nevada. Between 2012 and 2014, several markets in these states experienced home price appreciation of at least 30%, an annual average of 10%. For perspective, the mean annual home price appreciation figure for

the twelve MSAs was 3.3%, almost equal to the long-term national average of 3.5%. Throughout the last fourteen years, average annual home price appreciation was within 150 basis points of the long-term average just twice: in 2006 and 2014. The mean reversion of home prices across the country, shrinkage in shadow inventory and recent shift of gigantic SFR investors from aggregation to consolidation indicate that the original investment proposition is rapidly fading.

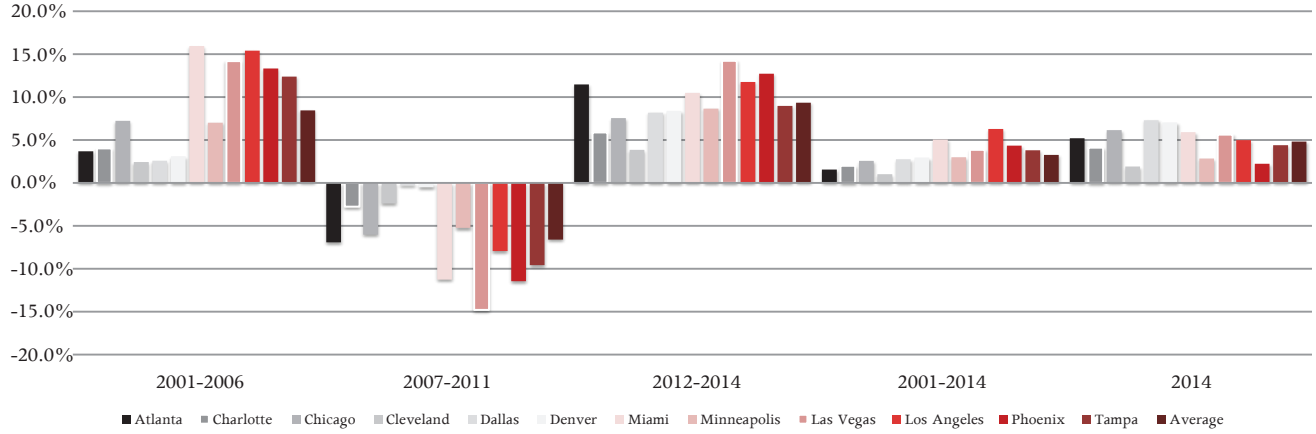
The swift rise in prices has encouraged investors to either sell their portfolio or invest in secondary and tertiary markets. Recent purchases from investors fell to 12%, the lowest level since the beginning of 2010.[2] In 2012 and 2013, investors shifted their attention from the Sun Belt to the Rust Belt markets of Pittsburgh, Indianapolis, Chicago, Columbus, Cleveland, and Kansas City. As of early 2015, home price appreciation in some Rust Belt markets such as Cleveland has reverted to its long-term mean. As a result, some investors are looking to drive cash flow growth instead of primarily targeting appreciation. At the IMN Single-Family Rental Conference in Scottsdale, Michael Cook, Vice President at GTIS Partners, a real estate private equity firm with 3,000 homes, indicated that although secondary and tertiary markets provide moderate annual appreciation between 2% and 4%, current cash flow opportunities still exist.[5] Instead the focus has shifted to drive unlevered yields, ranging from 5% to 7%. Cook elaborated, acknowledging that the homeruns that originally attracted investors to the space are long gone.

Foreclosures, REOs, and shadow inventory opportunities were the focal point of the early feeding frenzy but have drastically dropped off in recent years. Distressed transactions as percentage of existing home sales peaked at 50% in 2009. In 2013, the figure was 16.5% and today it is 10% indicating that quantity of distressed inventory is gradually shrinking. Foreclosure filings are also down with monthly filings at around 120,000 compared to the high of 367,000 in March 2010.[5] Michigan, Illinois, Ohio, Wisconsin, and Indiana boast some of the country's highest REO inventory levels, explaining why investors have shifted their interest to the Midwest. As of July 2014, the shadow supply of delinquent and foreclosed loans was 3.7 million. If listed inventory and seriously delinquent loans are included, the total potential additional supply is 8.2 million homes.[5] The prediction is that investors will maintain moderate interest in 2015 and 2016 but beyond that remains unclear.

The recent shift from aggregation to consolidation is a glaring hint that the "go-go days" of institutional SFR are behind us. Forced to grow or go to achieve economies of scale, behemoth owner-operators are providing small to mid-tier investors with attractive exit opportunities if sellers leave some home price appreciation on the table. "Now we will sweep up everybody over the next two years who got stuck, who say I have home price appreciation, which they do. They bought right, but now they are stuck," mentioned Tom Barack, CEO of Colony Capital.[6] Last year, American Homes 4 Rent acquired 1,300 homes from Beazer Pre-Owned Rental Homes for $263 million and 900 homes from Ellington Housing for $126 million. The dawn of the consolidation period signifies the beginning of the end of the golden age for acquiring homes.

Although the outlook for the next two years is still fairly attractive, the long-term prospective is bleak. The capacity to apply the original investment thesis behind institutional SFR is quickly diminishing. Home prices will revert to their historical average and the supply of attractively priced opportunities will continue to diminish. The absence of the elements that created the perfect storm for the business model will impede the long-term growth of institutional SFR.

Exhibit 3: Annual Home Price Appreciation Displays Long-Term Mean Reversion.



Insufficient Returns for a Transactional and Operational Headache

The institutional ownership and management of SFR is riddled with risks. The potential formation of a housing bubble or another housing market crash gives investors nightmares. However, an economic collapse or the development of frothy pricing can affect all real estate asset classes. The inherent attributes of institutional SFR exacerbate the transactional and operational risks relative to core multi-family located in gateway markets.

Imagine aggregating 1,000 multi-family units and single-family homes. Under the assumption that each multi-family building possesses 200 units, only 5 separate transactions are needed. On the other hand, 1,000 separate transactions are required to acquire the same number of SFR units. Even with bulk purchases, each home requires its own proper due diligence to understand the necessary capital expenditures and title status. The ability to quickly sift through hundreds of thousands of homes across the country epitomizes the role of technology in enabling this type of innovation. Like the buy side, the disposition of SFRs is more challenging relative to multifamily. Most portfolios are geographically dispersed over several states but concentrated in several large MSAs, creating a skewed perception of diversification. For example, values could nosedive if several hundred homes from one market need to be liquidated. However, SFR does offer disposition flexibility. "Owners can sell their units to another landlord such as a private equity firm or REIT or sell them to individual buyers," proclaimed Dennis Cisterna, a managing director at FirstKey Lending.[7] Unsurprisingly, owner-occupiers have not been the major source of liquidity. Even if potential homeowners existed, the selling process could take months to sell just one home. Instead, the true source of liquidity has come from the largest SFR such as Invitation Homes and American Homes 4 Rent who are looking to consolidate. This liquidity ties directly to the ability of REITs to tap into the public markets. Private equity investors who wait to exit risk missing the window of opportunity that could close once the appetite of behemoth investors is satiated or the public equity markets shun SFR.

Operational Risk: "Hell of an Operation to Run"

Since day one, the ability to efficiently lease and maintain a large-scale portfolio of scattered homes was in question. Sam Zell, the Chicago billionaire and real estate investor, agreed:

> *"Operating a pool of rental homes that are not next door to each other is a challenge that nobody has ever dealt with yet…It is gonna be a hell of an operation to run."*[8]

He was right. Citing a report from Moody's, a global rating agency, the first risk is that individual SFR properties are geographically dispersed across multiple markets making property management an uphill battle.[9] The report states: "Every home has unique features, appliances, and building materials, making the renovation, maintenance, and marketing more demanding than typical multi-family properties." In comparison to multi-family, this dispersion also makes it difficult to maintain touching points with consumers, explained Jordan Kavana of Transcendent Investment Management, a private equity firm with $415 million

assets under management across the southeastern United States.[10] This issue has spurred the development of in-house property management capabilities among the largest SFR investors, in particular, the public REITs.

Second, the asset class has an unproven track record. The appropriate costs for turnover, repairs and maintenance, and long-term capital expenditures are unknown. It may sound surprising, but net operating income (NOI) margins of SFR REITs have penciled out to 61% compared to 63% to multi-family REITs. The narrow spread is primarily a result of SFR's lower turnover rate. The turnover rate for multi-family is 70% compared to 50% for SFR but there is a caveat. "Our turns cost more but people stay longer," stated Doug Brien of Starwood Waypoint Homes, the second largest public REIT.[11] It should also be noted that in addition to utilities, some SFR tenants pay for landscaping and pest control costs. With respect to capital expenditures, they are variable and generally higher than multi-family depending on the age and size of the home, and rentership of the tenant. Due to the infancy of the business model, most institutionally owned SFRs were rehabbed within the last three years, allowing firms to post attractive net cash flow (NCF) margins of approximately 57%. As the properties age, the expectation is that NCF margins will drop over the long-term, reducing the property's cash throw-off.

The uncertainty of actual turnover costs and long-term capital expenditures are the key operational challenges, while the disposition issues of SFR compound the illiquidity uncertainty faced by traditional real estate. Without a doubt, the inherent characteristics of SFR make it a riskier proposition compared to multi-family. Over the next five to seven years, the expectation is that forecasted returns for SFR will be higher than core gateway multi-family but not enough to warrant an attractive risk-adjusted return.

Two separate approaches were applied to forecast returns: a financial pro-forma and the value chain analysis. The former was utilized for institutional SFR only and the latter for commercial real estate products. A value chain analysis deciphers the underlying components driving returns. The value chain analysis utilizes the going-in capitalization rate, the change in the capitalization rate over the holding period, annual cash flow growth, and the impact of leverage to derive unlevered and levered returns with both speed and accuracy. Forecasts of capitalization rates for multi-family, office, retail, and industrial, in addition to rent growth and vacancy expectations across national gateway markets between 2015 and 2021 were pulled from CBRE Econometric Advisors. Boston, Chicago, Los Angeles, New York City, San Francisco, and Washington, D.C. were selected as the represented markets, as they tend to be the beneficiaries of long-term economic growth. Returns indicate that retail is expected to continue to dominate due to strong NOI and cash flow growth expectations with industrial, office, and multi-family in second, third, and fourth place respectively (Exhibit 4).

Exhibit 4: Forecasted Returns by Asset Class.

Hold Period	1	2	3	4	5	6	7	
Unlevered IRR (1)	2015	2016	2017	2018	2019	2020	2021	
Single Family Rental (2)	5.2%	5.8%	6.2%	6.5%	6.9%	7.3%	7.6%	7.2%
Multifamily	7.4%	7.5%	7.4%	6.2%	5.3%	5.6%	5.9%	5.6%
Office	8.7%	7.5%	7.5%	6.3%	5.4%	5.9%	6.2%	5.8%
Retail	11.4%	12.1%	12.7%	11.7%	10.9%	10.5%	10.3%	10.6%
Industrial	8.3%	8.4%	9.1%	8.3%	8.1%	8.6%	8.9%	8.5%
7-Yr BBB+ Corporate Bond	3.6%	4.6%	5.3%	5.5%	5.6%	5.5%	5.5%	5.5%
Spread (SFR & BBB+)	1.5%	1.2%	0.9%	1.0%	1.2%	1.8%	2.0%	1.7%
Spread (Multifamily & BBB+)	3.7%	2.9%	2.1%	0.7%	-0.4%	0.1%	0.4%	0.1%

1) Assumes asset purchase in December 2014 and sale at year end

2) Four months to renovate and lease units (returns calculated based on financial model)

An Illustrative Example

The exemplary model represents a portfolio of 3,000 SFRs across ten markets: Charlotte, Chicago, Columbus, Dallas, Indianapolis, Kansas City, Miami, Nashville, Pittsburgh, and Tampa. Base acquisition costs and monthly rents for each market were sourced directly from Zillow. Depending on the market, acquisition costs range from $125,000 to $190,000 per home, averaging to $148,000. Furthermore, the portfolio is 90% occupied at stabilization with monthly rents between $1,100 and $1,800 or an average of $1,300. The initial average capital expenditures per home are $16,650 resulting in a total average investment cost of $164,650.

For home price appreciation forecasts between 2015 and 2021, the forward-looking S&P/Case-Shiller 20-City Composite Home Price Index was used.[12] Home prices are expected to continue to hover at 3.8% until 2016. From 2016 to 2018, the average annual home price appreciation is forecasted to fall to 2.5% then increase to 5.54% between 2019 and 2021. Over the next seven years, the model assumes a 3.3% average annual home price appreciation, slightly below the historical average of 3.5%. The CAGR is 3.9%.

The major operating expenditure assumptions were pulled from the third quarter 2014 10-Q's of public REITs. The typical operating costs of SFRs are repairs and maintenance, homeowner association fees, property taxes, property management fees, insurance, turnover, and leasing and marketing. The stabilized NOI margin for the model is 59% compared to 61% for public SFR REITs. The slightly higher turnover costs in the model are responsible for the lower NOI margin. The only below the line expense is capital expenditure reserves of $1,020 per year for infrequent structural repairs such as a new roof or HVAC system. The resulting NCF margin is 52%. The pro-forma applies annual rent growth of 3% and expense growth of 2%.

The model assumes that the entire portfolio is purchased in December 2014 with a four-month period to renovate and lease the homes. The whole portfolio is sold at the end of the holding period in a bulk sale. Given the transactional risks of purchasing and disposing of a large number of assets, the model assumes the unlikely scenario of purchasing or selling 3,000 units at once.

Exhibit 4 shows the returns for SFR relative to other real estate asset classes, and a benchmark, the 7-year BBB+ corporate bond yield. Zooming in on SFR and multi-family returns for a five to seven year hold between 2019 and 2021, SFR is expected to outperform multi-family by a small margin, with an average unlevered IRR of 7.2% over this period, compared with 5.6% for multi-family. The brief history of institutional SFR makes it impossible to adequately quantify the risk of the expected returns. However, based on the qualitative discussion of the transactional and operational risks, the delta of only 1.6% is insufficient given SFR's inherent risks, value-add characteristics, and the model's exit assumption. In recent years, the unlevered IRRs of core multi-family located in gateway markets hovered between 5% and 7%, similar to the forecasted returns. First-movers in the SFR space with double-digit annual home price appreciation achieved unlevered returns in the low teens, an extremely attractive spread to core multi-family of approximately 4% to 7%. SFR has lost its initial flair as home price appreciation reverts closer to historical levels, impeding the investment thesis. The expectation is that smart capital will exit the investment and flock towards core multi-family to lock in slightly lower yet more attractive risk-adjusted yields.

High-Quality Problem

For institutional owner-operators with a long-term perspective, appreciation can be a double-edged sword. The annual double-digit appreciation experienced across the Sun Belt states between 2011 and 2013 was a once-in-a-lifetime opportunity. On the other hand, rapid appreciation without substantial NOI growth can result in severe capitalization rate compression to levels below other real estate investments. Exhibit 5 displays this phenomenon also known as a "high-quality" problem. As long as appreciation surpasses NOI growth, the capitalization rate will compress over the hold. From the perspective of a REIT investor, would they invest in SFR equities with assets at a 4.5% capitalization rate or core multi-family REITs at a 4.5% rate? This is a major problem for REITs as the public markets must be willing to value the assets at the low capitalization rates. If not, REITs will perpetually trade at a discount to net asset value (NAV). This may force REIT executives to liquidate the portfolio.[13]

The prospect of growing NOI over the long-term is clouded by historical stagnant wage growth relative to rent inflation. The Economic Policy Institute conducted a study indicating that wage growth has been sluggish for more than a decade. The study cites statistics from the Bureau of Labor such as the Employment Cost Index (ECI) that gauges compensation and wages for the private sector (Exhibit 6).[14] Between 2000 and 2007, compensation grew 5.5% and wages only 2.4% while inflation increased by 20.4% and rent by 27.6%. Annual wage growth of middle-class Americans was nonexistent during the economic boom and the period during and after the recession. Over the last twelve years, wage growth was nonexistent while rents grew by 3.4% annually. The increased demand for rental housing has created an upward motion on rents but the disconnect between wage and rent growth is unsustainable. According to a study by the Harvard Joint Center for Housing Studies, in Arizona, California, Florida, Georgia, Illinois, and Nevada, all states with some of the most institutional SFR activity, 50% of renters are housing cost burdened. These renters are paying more than 30% of their household income on housing.[15] SFR REITs are banking on their ability to drive funds from operations (FFO) growth to avoid the "high-quality" problem. Multi-family investors are also seeking the same rent bumps. Compared to SFR, these increases may be more attainable for newer developments located in gateway markets with higher median household incomes and more amenities than SFR. Without FFO growth, the "high-quality" issue will lead to the demise of several SFR REITs.

Exhibit 5: High Quality Problem Demonstration.

Holding Period	1	2	3	4
Purchase Price	100,000	100,000	100,000	100,000
Annual Home Price Appreciation	10.0%	10.0%	10.0%	10.0%
Current Value	110,000	121,000	133,100	146,410
In-Place NOI	6,000	6,000	6,000	6,000
Annual Growth Rate	3.0%	3.0%	3.0%	3.0%
Adjusted NOI	6,180	6,365	6,556	6,753
Going-In Cap Rate	6.0%	6.0%	6.0%	6.0%
Stabilized Cap Rate	5.6%	5.3%	4.9%	4.6%
Cap Rate Compression	0.4%	0.7%	1.1%	1.4%

Shrinking Lens of Capital Formation

Private equity firms categorize today's environment as constrained by opportunity, not capital. Pension funds are the largest private source of capital invested in SFR. The Alaskan Permanent Fund invested over $750 million in American Homes 4 Rent early on.[16] The California Public Employees Retirement System (CalPERS), the nation's largest public pension fund, invested $300 million in GI Partners, one of the lead investors in Waypoint Homes.[16] Additionally, the California State Teachers' Retirement System (CalSTRS) invested in SFR through The Blackstone Group's fund. Both CalPERS and CalSTRS view their investment as tactical and short-term, unlike their long-term multi-family portfolio. Others such as Prudential Real Estate and Allstate Insurance avoided the sector completely, citing the aforementioned transaction and operational risks. In recent months, a notable shift in the appetite of pension funds has occurred, pushing them away from SFR. The capability of raising capital has not changed. Filling in their shoes are foreign investors.

According to Cook of GTIS Partners, pension funds are "a little less excited because they are fully invested or partnered up. Today, they are re-upping with whoever they came to the dance with." Instead, Cook's firm has seen a growing interest from European and Middle Eastern investors.[5] Foreign investor interest has ballooned due to the "safe haven" perception of the U.S. market. With capital sitting on the sideline, the current challenge of fund managers is how to deploy it. Fund managers will avoid SFR, as the decrease in attractively priced homes will make it impossible to achieve their target "bogey." This is the primary reason why a majority of small institutional SFR investors have exited. Private sources of capital such as pension funds and foreign investors in search of a 6% to 7% unlevered yield will funnel capital to core multi-family, office, and retail.

Unlike private equity firms, public companies are constrained by capital, not opportunity. Today, there are five publicly traded SFR REITs. As of January 2015, the total market capitalization for the public SFR market is over $6.7 billion. Invitation Homes is likely the next company to tap into the public equity market sometime in 2015 or 2016, allowing Blackstone to finally exit its investment. The poor historical performance of SFR REITs and potential threat of a "high-quality" problem are the culprits of the capital constraint.

Last year, the FTSE NAREIT Equity Apartment Index posted a total return of 31% compared to the S&P 500's 13.7%. For the same calendar year, American Homes 4 Rent, Silver Bay Realty, and American Residential Properties posted total returns of 6.8%, 2.6%, and 2.5% respectively (Exhibit 7). An investor looking for residential real estate exposure would be better off in the hands of multifamily. Companies like Equity Residential, AvalonBay Communities, UDR, and Camden Property Trust posted total returns between 32% and 42% for last year. These multi-family REITs have price to book values between 2.4 and 3.1 compared to the average 1.1 price to book value of SFR REITS. The poor performance of SFR REITs is a result of recent investments in the internalization of property management. However, SFR FFO forecasts are still not as attractive when compared to multi-family. Anthony Paolone, a REIT analyst with JPMorgan Chase & Co. agrees, stating: "One of the challenges now is the conventional apartment business is just so good, it is hard to get a real estate-dedicated investor to say, 'I am going to move away from apartment REITs and buy single-family rental guys.'"[17]

Amidst the fear of rising interest rates, the looming "high-quality" problem, and substandard performance, SFR REITs are experiencing growing pains. The public equity market is slowly starting to shun the asset class. These factors will make it challenging for SFR firms to issue new shares or go public. As a result, this paper predicts that SFR REITs will become a niche public equity asset class with one to two companies within the next five to seven years. Public equity investors looking for rental residential real estate exposure would be better served by multi-family REITs.

Exhibit 6: Rent Increases Continually Outpace Wage Growth.

	CPI-U Rent of Primary Residence	Inflation (CPI-U)	Compensation	Wages
	Index 1984=100	Index: 1984=100	Employment Cost Index Private Sector	
2000	183.9	172.2	100	100
2007	234.7	207.3	105.5	102.4
2012	260.4	229.6	105.5	101.8
Period Changes				
2000-07	27.6%	20.4%	5.5%	2.4%
2007-12	10.9%	10.8%	0.0%	-0.6%
2000-12	41.6%	33.3%	5.5%	1.8%
Recovery Years				
2009-10	0.2%	1.6%	0.3%	0.0%
2010-11	1.7%	3.2%	-1.0%	-1.5%
2011-12	2.7%	2.1%	-0.2%	-0.3%
Most Recent Trends				
2012-13	2.8%	1.5%	0.3%	0.3%

Source: Economic Policy Institute, Federal Reserve Bank of St. Louis, Bureau of Labor Statistics

In the beginning, the sole source of debt financing came from the JPMorgans and Deutsche Banks of the world in the form of billion dollar lines of credit. Between 2012 and 2013, money-center bankers lent almost $11 billion through floating rate credit facilities in the 3% to 4% range.[2] Investors understood that money-center bank debt alone would not legitimize the asset class. By November 2013, Blackstone brought IH 2013-SFR1, the first single-borrower SFR securitization, to market.

As of January 2015, there have been sixteen SFR fixed income securitizations helping institutional owner-operators raise $9 billion. Three are long-term fixed rate deals that mature in ten years. The rest are short-term (five years including extensions) floating rate bonds. Vishal Khanduja, Vice President and Portfolio Manager at Calvert Investment Management and owner of SFR paper, explained the demand for these securities. He commented: "The SFR deals are attractive due to the shifts in U.S. demographics, not so stellar global growth, anemic wage growth, and low interest rates, which have created a need for US dollar denominated income-based assets."[18] The low interest rate environment spurred demand for SFR bonds. Like the equity model, the SFR bonds do not provide proper risk-adjusted returns relative to multi-family CMBS.

A quick comparison between two fixed rate American Homes 4 Rent issuances (AMH 2014-SFR2 and AMH 2014-SFR3) and two recent Freddie Mac Multifamily K Series bonds (K-39 and K40) from September and November sheds some light on this (Exhibit 8). The Freddie Mac Multifamily K Certificates are regularly issued structured pass-through securities backed by recently originated multifamily mortgage loans.[19] Due to the riskier nature of SFR, the interest rate and debt service coverage ratio (DSCR) on Freddie Mac K-Series debt should always be equal or lower compared to SFR bonds. The AMH 2014-SFR2 Class A tranche and K-39 debt deals were priced at S+119 basis points and S+46 basis points in September 2014. S is denoted as the 10-year fixed-for-float LIBOR swap rate. K-39 has a DSCR of 1.64 compared to 1.62 for AMH 2014-SFR2. In November 2014, the AMH 2014-SFR3 Class A tranche and K-40 had interest rates of S+123 basis points and S+71 basis points, a major tightening in spreads in two months. The spread between the first pairing of securities was 0.73% compared to only 0.52% for the second grouping.

However, there are additional risks specific to SFR debt. To date, none of the sixteen bonds have been refinanced, a significant risk given that interest rates are expected to rise. Another risk is that the US government guarantees K-Series and not SFR debt. Furthermore, The Supreme Court of Nevada recently ruled in September 2014 in *SFR Investments Pool 1, LLC v. US Bank* that a homeowners association (HOA) lien is a "true super-priority lien and that a properly conducted foreclosure on the HOA lien extinguishes first deeds of trust".[20] In this case, the HOA lien was $6,000 compared to an $880,000 first mortgage. The ruling created shockwaves around the sector with bond investors calling for higher levels of cash reserves to combat HOA fees. He admits that not all investors share the same perspective. Khanduja believes that in today's low yield, low spread environment, his firm is getting compensated for the risk. Simultaneously, many money managers are avoiding SFR debt due to an insufficient premium over multi-family debt.

Compared to 2011, institutional investors have multiple options when choosing leverage. Money-center bank debt has become less prevalent as investors choose between balance sheet lenders and securitization. Private equity backed lenders such as Blackstone's B2R (Buy-to-Rent) Finance, Colony American Finance, and FirstKey Mortgage have revamped the SFR debt market with tailored loan products for entrepreneurial and institutional investors. In 2014 alone, they closed on over $1 billion in loans. The expectation is that 2015 will be another record-breaking year with another $6 to $8 billion in debt issuances and at least another $1 to $2 billion in balance sheet loans. The

Exhibit 7: SFR REIT Comp Sheet, Single-Family Rental and Multi-Family REIT Comparables

Company	Ticker	Price (2/13/15)	Price Target	Market Cap*	BookValue /Share	Price/Book Value	FFO Forecast 2015	FFO Forecast 2016	Dividend 2014	Dividend Yield	Price Yield	Total Return
SFR: Pure-Play												
American Homes 4 Rent	AMH	$16.6	$19.9	$3,510	$16.4	1.01	$1.0	$1.1	$0.2	1.2%	5.5%	6.8%
American Residential Prop	ARPI	$18.0	$21.6	$578	$17.8	1.01	$1.0	$1.3	$0.0	0.0%	2.6%	2.6%
Silver Bay Realty Trust	SBY	$15.7	$17.8	$585	$15.6	1.01	$0.6	$0.8	$0.2	1.0%	2.5%	3.5%
SFR: Non-Performing Loans												
Altisource Residential	RESI	$18.0	$23.8	$1,030	$23.0	0.78	$2.7	$2.0	$2.0	6.9%	-33.9%	-27.0%
Starwood Waypoint Resi	SWAY	$24.5	$33.4	$924	$28.5	0.86	$1.6	$2.2	$0.3	1.0%	-7.5%	-6.5%
Multi-Family												
Equity Residential	EQR	$78.8	$78.7	$28,000	$28.4	2.77	$3.4	$3.7	$2.0	3.8%	38.2%	42.0%
AvalonBay Communities	AVB	$170.8	$181.0	$22,000	$68.5	2.49	$7.4	--	$4.6	3.9%	38.0%	41.9%
UDR Inc	UDR	$32.5	$33.0	$8,000	$10.5	3.08	$1.6	$1.7	$1.0	4.5%	32.4%	36.9%
Camden Property Trust	CPT	$75.2	$83.4	$6,670	$31.8	2.37	$4.5	$4.6	$2.6	4.6%	28.1%	32.7%

**Data in Millions. Source: KBW Research, Yahoo Finance, 10-Qs*

decreased number of opportunities to purchase new inventory and a fall in demand from the private and public equity markets could choke the issuances of SFR debt. The clock is ticking, and if SFR companies cannot refinance their debt in the next few years, debt liquidity could completely dissipate. Investors looking for a safer proposition at slightly lower yields should focus on multi-family CMBS.

Round One: Homes, Round Two: Loans

The shrinking supply of appealing acquisition opportunities, the inherent transactional and operational risks and poor risk-adjusted returns relative to multi-family, and the inability to drive NOI growth are the detriments to the sustainability of the institutional SFR business. These factors will hinder the long-term development of capital around the sector. The institutional SFR business was created during the perfect storm of the housing crisis. In order for SFR investors to exit and generate profit from their one time trade, they had to convince investors that it was a long-term business.

The innovation of the institutional SFR business has left a lasting footprint on the housing market: a new set of tools for mom-and-pop investors. Previously unavailable technologies and services to assist with property management and malleable financing options are now at their fingertips. Wall Street has already shifted its attention to its new invention: blanket loans to small SFR investors. Unlike the first round of SFR, the debt model does not have a compact window of opportunity.

As the old adage goes, "Rome wasn't built in a day." In three years, institutional investors reinvented one of the oldest real estate businesses. In the beginning, the investment proposition was attractive on paper but inundated with roadblocks to implementation. Overall, the institutional foray into SFR was a successful experiment despite the daunting challenges. Over the last quarter of a century, Wall Street brought us mortgage-backed securities, collateralized debt obligations, and credit default swaps, all of which were innovations that transformed real estate as an industry. The brief institutional presence in the SFR market allowed investors to build upon the aforementioned inventions. Wall Street has a new formidable tool in its arsenal: the ability to build Rome in a matter of months and subsequently sell it in the blink of an eye.

Exhibit 8: SFR v. Freddie Mac Multi-Family Debt
American Homes 4 Rent & Freddie Mac K-Series Securitization Comparison

September 2014 Issuances		November 2014 Issuances	
AMH 2014-SFR2 Class A Rate	3.79%	AMH 2014-SFR3 Class A Interest Rate	3.68%
10 Year Fixed-for-Float LIBOR Swap Rate (9/14)	2.60%	10 Year Fixed-for-Float LIBOR Swap Rate (11/14)	2.45%
Spread	1.19%	Spread	1.23%
Loan to Value (LTV)	68.50%	Loan to Value (LTV)	66.30%
Debt Service Coverage Ratio (DSCR)	1.62	Debt Service Coverage Ratio (DSCR)	1.67
Freddie Mac K-39 WA Class A Rate*	3.06%	Freddie Mac K-40 WA Class A Rate*	3.16%
10 Year Fixed-for-Float LIBOR Swap Rate (9/14)	2.60%	10 Year Fixed-for-Float LIBOR Swap Rate (11/14)	2.45%
Spread	0.46%	Spread	0.71%
Loan to Value (LTV)	65.40%	Loan to Value (LTV)	68.20%
Debt Service Coverage Ratio (DSCR)	1.64	Debt Service Coverage Ratio (DSCR)	1.55
AMH & K-39 Interest Rate Spread	0.73%	AMH & K-40 Interest Rate Spread	0.52%

*Weighted Average of Class A-1 and A-2 Certificates (Both Rated AAA)

Source: Kroll Bond Ratings and Freddie Mac

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The author has done an impressive deep-dive into the Single Family Rental (SFR) business from a number of perspectives: demographic, financial, and operational. He clearly lays out the competitive advantages that institutional SFR firms have over their mom-and-pop competitors. These include portfolio size; access to capital; geographic diversity; branding potential (perhaps); and technology capabilities (for management efficiency and property target identification). He also outlines the major operational challenges faced by even the largest firms in the sector: inefficiencies in managing a scattered portfolio of single-family homes; one-of-a-kind, and, in some cases, older homes that have their own unique maintenance and capital improvement requirements; and tendencies toward less than "A" markets and locations.

A confluence of economic events during the Great Recession created a perfect storm that established the underpinnings for the formation of the Single Family Rental business as an institutional sector:

- *A flood of supply of foreclosed and distressed homes coming to market over a relatively short time-frame that significantly depressed home prices to, in many cases, well below replacement cost*
- *Dramatic dislocation in the job market that pushed millions of previously home-owning families to become renters and caused many others to defer home buying*
- *Technologically enabled high volumes of distressed loan and REO sales that created some efficiencies in amassing large portfolios of potentially rentable homes*

Now as the economy, and, somewhat more slowly, the housing market, have begun to recover, it appears that the SFR industry is no longer benefiting as much from an environment of abundant, low-priced homes to buy. Early in the recovery, these homes could be purchased well below replacement cost, thus providing a downside floor to their book value. Instead, the current dual headwinds

of (1) potentially increasing rates of ownership and (2) rising home prices that limit the opportunity to purchase houses at such advantageous prices, suggest that the total supply of potential rental units or customers to rent these homes could be shrinking. Based on this transition and other factors he outlines, the author believes that single family rentals as an institutional quality investment sector is heading toward a sunset in the not too distant future.

I do not agree with the author's conclusion that, when the dust settles, the industry will revert to its previous status as a mom-and-pop sector, whose small-scale participants will benefit from some of the innovations of the last several years, but will not attract the type of institutional investment to make it an appealing asset class at that level. I foresee future opportunity for continued industry evolution and institutional investment.

The author sees the exit planning of many of the initial institutional players as a sign of this. However, many to most of the large institutional capital players who first came into the own-to-rent market on a large scale during that period are recognized as foresighted risk takers. As pioneers, they seek outsized returns and have strong track records of creating value then harvesting their returns as a sector matures and stabilizes. They often exit as the market becomes more competitive and attracts more 'staid' institutional capital willing to accept lower yields in exchange for more dependable returns.

I see additional potential for growth and the ability to attract institutional quality investors to the sector. Here is why: There still appears to be a tremendous consolidation opportunity. Large companies can bring scale of marketing and management, lower priced capital, and other efficiencies to an industry that remains tremendously fragmented. A consolidation opportunity exists just considering the universe of current single-family rental homes in the U.S. The author estimates that there are over 14 million single-family homes rented, which represents approximately 12.3% of the total relevant occupied housing stock. He further estimates that 1.2% of these homes are under institutional ownership.

There is clearly a customer appeal for the product, which offers some of the benefits of a "home ownership" lifestyle to those who may never be able to afford to own, have become wary of owning, are in transition on their way to becoming homeowners, are relocating to a new market or, in preparation for retirement, want to stay in the suburbs but not remain homeowners. There are public policy reasons to support a solid single family rental industry as it clearly fills a niche between home ownership and apartment rentals. As the industry matures and cash flows become more predictable with a track record of measurable data, the asset class will become more appealing to investors seeking dependable returns.

Financial engineering is already creating additional ways to increase value for debt and equity investors in the sector. Credit agencies are rating various securities offerings. Banks are making company debt available in the form of corporate credit facilities, rather than just individual asset-specific loans, to the large firms in the sector. The securitization market has already accepted portfolio-based debt financings. With increasing comfort, the loan to value limits are being raised as debt pricing drops on these deals. Additional equity and equity-like products are available to the industry's largest players, which allow investors to benefit from both predictable cash flows and home price appreciation. Providing financing for house acquisitions is another avenue being explored by private equity firms. And creative structures such as UP-REITS may allow small scale SFR owners to exit the asset ownership business in a tax-efficient manner.

There are a variety of exit potentials for big players: public markets, selling individual homes and portfolios, and selling to current renters, among others. This provides some solid liquidity to the sector. Looking to the future, it is still unclear whether the current very low post-recession rate of home ownership reflects a permanent shift in Americans' appetite for, or ability to achieve, home ownership or is a temporary trough compared to historical home ownership levels. If the former proves true, the SFR market will benefit greatly. And the housing industry is notoriously cyclical, which suggests there will be future opportunities to purchase assets in scale when the industry hits a downturn. Given the scale of single family rentals in the U.S., the industry can evolve in many ways in the future. I can forsee:

- *Franchise systems where some of the largest companies become, essentially, booking and management agents divested of the hard assets.*
- *The potential for firms to develop whole communities of single family rental homes that will create efficiencies of management and ability to brand.*
- *With retirement looming for an aging population of Americans, some may choose to monetize the investment they have in their own homes by selling them and remaining renters in those very same homes or communities. Others may want to rent with compatible unrelated friends with whom they can age in place.*

In summary, given the potential scale of consolidation, the increasing predictability of income streams, and the many ways to make money in the SFR industry, I see a strong future for institutional players in the market.

Jasper Campshure

Jasper Campshure is currently completing his Master in Architecture thesis at the Harvard University Graduate School of Design. Prior to his studies at Harvard, he worked on the development of a real estate development and zoning analysis software application at SHoP Architects in New York. Prior to that he worked as a financial analyst and then as a development manager for Cayuga Capital Management, a New York-based private equity real estate investment firm focused on urban infill and adaptive reuse projects. He holds a BA from the University of Wisconsin-Madison, where he studied Spanish and business.

Taking the Long View with the 'Minimum': Designing for Change in New Buildings

In both finance and design, a building's lifespan is central to its value. However, the practices and mechanisms in both architecture and real estate can work against producing timelessness in buildings. How then can we produce buildings capable of long, economically productive lives?

There is an important discrepancy in the treatment of time in building professions between those that design buildings and those who initiate, develop, manage, or operate them. Whereas the goal of architecture is generally 'timelessness,' real estate tends toward short-term outcomes. In truth, the first of these rarely occurs in any good measure; despite the perceived permanence of architecture in the collective psyche, the fact is that many relatively new buildings are prematurely demolished. This trend will only continue as much poor quality post-war building stock reaches the end of its useful life. At the same time, the second of these characterizations about time is not self-evident. On the contrary, most real estate professionals also tend to think of real estate, the physical asset, as being very long-term. In reality, however, many of the most fundamental mechanisms and practices of much the real estate industry,[1] especially those parts involved in the production of new building, bias a short-term outlook. The result of this incongruence is that even given the cultural value of long-lasting buildings, the real estate industry and designers of buildings work against them actually occurring. What would it take to see a paradigm shift that enhances the long-term productivity of the built environment; wherein buildings perform better and for longer, from both an economic and environmental standpoint? This essay will investigate the possibility of such a new paradigm from both its real estate and design aspects, proposing a framework for conceptualizing the design and construction of buildings capable of long, economically productive lives.

Real Estate's Short-Term Bias[2]

As it is counterintuitive to contend that the real estate industry has a short-term bias with respect to the physical asset, this essay will discuss some of the subtle and not-so-subtle ways that the industry's norms and practices privilege short building life.

The notion of planned obsolescence is formalized in the treatment of real estate under federal tax law. This legal framework allows for the straight-line depreciation of residential rental real estate over 27.5 years, and other income-producing real estate over 39 years.[3] The general logic behind depreciation is that it allows real estate to be treated as capital equipment investment used in the operation of producing income, whether through making widgets or charging rent for housing. Non-residential assets depreciate over a longer period because, according to the Congressional logic, non-residential buildings lose their economic value more slowly than residential buildings.[4] Should an owner hold an asset longer than its respective period - regardless of the building's fitness - they will be losing a 3.6% or 2.5% write-off annually from their original cost basis. Other policies, such as New York City's 421a program, offer full or partial tax abatement for a set number of years, typically 10 to 25, after which the standing building becomes more expensive to own. These policies - for whatever good purposes they serve - economically disincentivize long-term holding and higher quality building construction. Though 39 years seems far from timelessness, these types of policies are in fact among the longest formalized in real estate.[5]

A more typical time horizon for real estate is much shorter still - five to ten years. Private equity funds, which constitute a predominant vehicle for new building production, particularly in the United States, are typically structured to fundraise, invest, and then dispose of their assets within such a period. In the common format of fee-based real estate development, the developer collects fees, often including acquisition, development, and asset management. For some developers, these fees are the only revenue they see; when the project is complete they are no longer linked to the project.[6] For others, base fees serve as liquidity to carry out a project, with a greater portion of their revenue coming from carried interest earned after an asset is stabilized and sold, refinanced, or otherwise generating income. This is meant to align the financial interests of the developer with those of their investors and does so quite well. However, in neither of these cases will either the developer or investor parties likely have any stake in the building for much more than a handful of years after stabilization. When we look at the aspect of commercial real estate debt, it too follows a similar timeframe, with term lengths rarely exceeding ten years and frequently less than five. There are logical reasons for each of the mechanisms to work the way they do. For the investor, it is just as difficult to know where the economy will be many years down the road as it is to forecast demand for the asset type and location. Short fund terms also allow - perhaps more so in theory than in practice - the managing member to "buy low and sell high" within the real estate cycle. For the lender, shorter terms reset an asset's debt in the current interest climate, while also providing them with more frequent revenue vis-à-vis origination fees. There are still more reasons, of course.

However, the consequence of this short-term bias means that far from timeless, the real estate industry treats its products as being essentially one transaction removed from disposable. In addition to financial reasons, there are legal and reputational motivations for making buildings that will perform in the short-term, but nothing within the industry promotes a building's ability to last for many years from the perspective of its construction or adaptability. When, along with the aforementioned norms, 5-8 years[7] is the average asset holding period, construction quality and building maintenance become subcritical, yet both erode the physical asset. Potential for different intensity and type of use are also considered to be less important. Given the industry's organization, owners have little interest in a building's value, use, or condition 25 years from the present. In strictly economic terms, anything more than making sure a building is in good saleable condition to the next owner essentially amounts to altruism. If this line of thinking doesn't immediately seem clear, it can quickly be put it to the test with multi-family housing, where the practice finds its maximum in the difference of quality between the condominium intended for immediate sale, and the rental built for long-term income generation. As consumers of residential real estate are not always known to be the best detectors of quality, it is no secret that if long-term holding by the developer is the goal, the rental property will have 'better bones' than those of the condominium (which may, not incidentally, 'look better'). Not to give anyone else too much credit, when the equation in real estate development is build, lease-up at the highest rates possible, take out construction debt, and then sell to a larger investor - as it often is - neither the tenant, nor the would-be buyer is likely spending too much time on quality of construction as part of their due diligence. Ultimately, the institutional investor's due diligence likely focuses primarily on one thing: NOI today, and maybe for the next several years, but not likely on the building's ability to produce income much further down the line.

Culturally, these illustrated practices are thought to be backward and shortsighted: bad for the user and bad

for the environment. The real estate investor, however, is simply acting logically when working within the contemporary norms of the industry. But this has less to do with real estate professionals and more to do with the set of logics underlying the industry. Even if it is an unintended outcome of what constitutes normatively sound economic decision-making for most of these practices, in the aggregate, they treat real estate - in its design, development, construction, financing, and often holding/trading - as a short-term asset. We arrive at the crux of the problem of the real estate industry's current treatment of time: its models and mechanisms have no real way of capturing any value beyond the holding period. When we begin to understand the ways in which its practices work on the production of building product, we see a picture of a real estate industry working against timelessness.

Designing for Longevity Through Adaptability

In the end, buildings are torn down and replaced for two reasons, either due to poor physical condition or because of their inability to economically adapt to a new use (or both). At the same time, because substantial renovation or adaptive reuse construction can be one-third the cost (or less) of new construction, it is typically more economical than new construction, even that of the highest LEED rating due to the embedded energy of the new building material.[8] This is echoed in the oft-repeated adage that "the most sustainable building is the one that is already built." How, then, do we go about designing and constructing buildings that will last a long time due to their construction and "adaptability"?

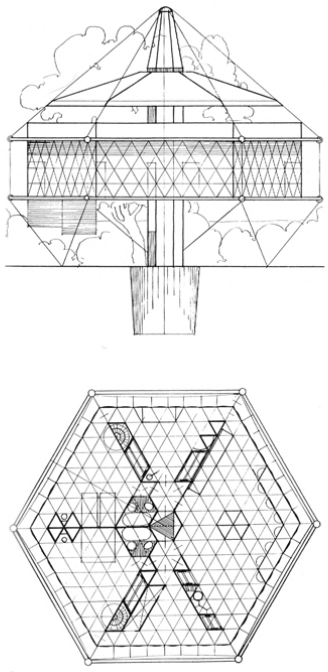

Figure 1: Fuller Dymaxion House

Figure 2: Fritz Haller

Figure 3: Habraken Heineken WOBO

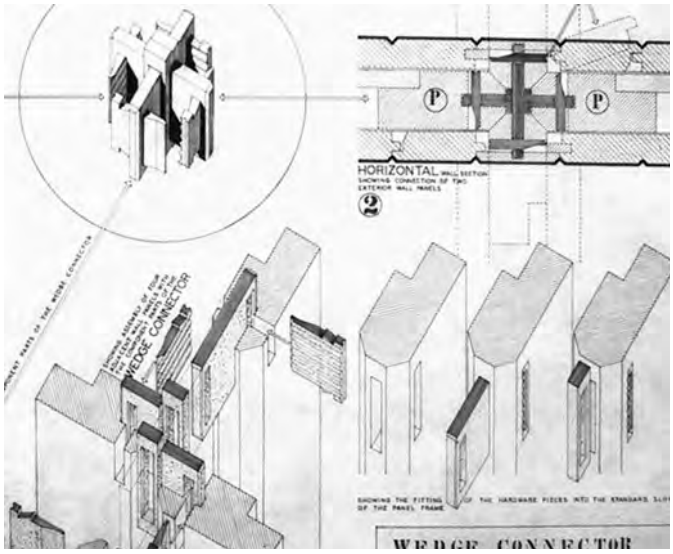

Figure 4: Gropius General Panel Corp

The ideal of timelessness is not new to architecture. Until the end of the 19th century, architectural design aligned with simple, solid buildings whose use rarely changed. The quest for timelessness in architectural modernism manifests instead through the idea of flexibility. Initially, in the works and writings of architects such as Le Corbusier and Mies van der Rohe, this came through the spatial flexibility offered by open floor plans. As the idea of flexibility (often tied in with attempts at prefabrication and mass production) evolved, architects important to "Modernism" such as Buckminster Fuller, Fritz Haller, John Habraken, and Walter Gropius developed proprietary designs (Figs. 1-4) proposed as innovations with the intent to change building construction by making it cheaper, faster, and more flexible. Instead, none of them were adopted in any meaningful way, making change far from simple and exceedingly difficult when components were highly specific or unavailable. The problem with each of these proposals - and generally the persistent attitude of architectural circles promising revolutionary change - is the reliance on technology, proprietary building products, and paradoxically rigid systems meant to produce flexibility.

On the other hand, there are many buildings that never promised to be amenable to change or offer long, economically productive lives, but have done just that. One older example is the typical SoHo loft building in New York City (Figs. 5-6). These were built mostly in the second half of the 19th century and often with 25'x100' or 50'x100' floor plates. Most began life as factories or storehouses and thus were built with thicker wall sections and floor plates than a typical residential building of the same size. Because of their industrial nature, these buildings have higher ceiling heights. Along with wider window expanses afforded by the cast iron facades that many have, these heights

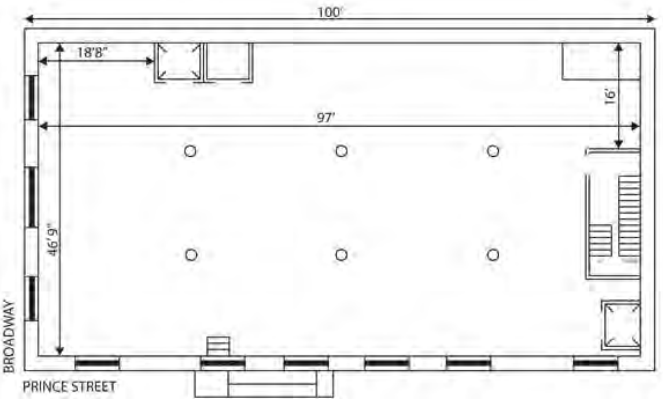

Figure 5: Typical SoHo Floor Plan

Figure 6: Gunter Building

Figure 7: Bois le Pretre, 1959

Figure 8: Bois le Pretre, 1990

Figure 9: Bois le Pretre, 2011

brought a lot of light into deep floor plates - a simple solution for pre-electrical buildings. These features have meant that rather than being torn down as the neighborhood character changed from factories and warehouses to artist studios in the 1960-80's, and now predominantly retail, offices, and residential apartments, the SoHo loft buildings are now 100 - 150 years old and seem to have the physical attributes and built-in flexibility to continue to last for long into the future. Indeed, part of the reason for the use changes in SoHo can be attributed precisely to the building type's ability to adapt to new functions.

A more specific and recent example is the Bois-le-Prêtre (Figs. 7-11), a fifteen-story rental housing tower completed in northern Paris in 1959 that in 2011 underwent a second substantial renovation under the direction of the architecture firm Lacaton & Vassal.[9] Originally slated for demolition, it was decided to instead renovate again after an earlier 1990 renovation left small windows that let little light into the apartments. The decidedly low-tech design called for little more than removing the non-load-bearing parts of the facade and enlarging the building by 10' in most places, creating much more desirable apartments by way of the new light-filled winter gardens - essentially a double-skin glass facade that is both structurally and thermally independent from the existing building. The result was a building with a new lease on life, fifty-percent reduction in direct energy costs (due to the winter garden's thermal buffering), all for one-third of the building's replacement cost. Furthermore, the building remained occupied during the renovation phase.[10] The renovation was possible because, like the SoHo loft building, the original Bois-le-Prêtre was barebones in its finishing and constructional logic, yet with well-located and redundant structural elements and circulation.

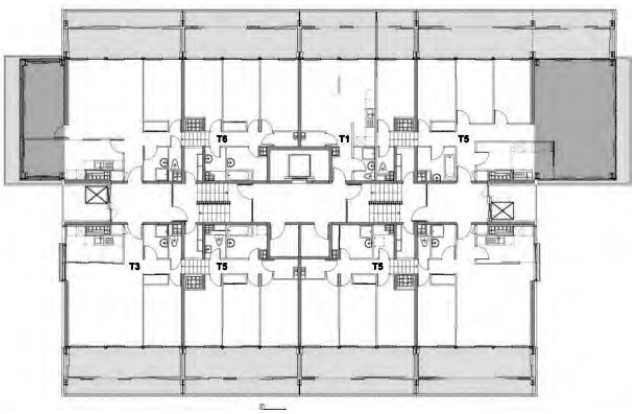

Figure 10: Bois le Pretre Plan

Figure 11: Bois le Pretre, Addition

The 'Minimum'

The takeaway is that one cannot reliably design for flexibility through technology, anticipating technological changes, or through the use of systems, but only through designing for the 'minimum.' When one looks at recent major changes to the way we use buildings, none of the introduction of HVAC systems, fluorescent lighting, telecom systems, or computers could have been anticipated by the architects of buildings immediately preceding any of those innovations. Nor could Griffin Thomas, the architect of the 1873 Gunter Building, have anticipated that the fur warehouse he designed in 1873 would a century later be high-end ground floor retail and residential apartments. Whether a building is flexible and adaptable to change is known only at the time of consideration to do something else with it. To propel itself forward (and compete with newer buildings in the future), the building needs to easily allow for change regardless of new products or technologies. Buildings that have proven to be adaptable tend to have a few things in common.

1) Uncomplicated floor plans and regularly spaced and generously sized windows.
2) Structural simplicity.
3) Structurally over-sized and well-constructed from simple, long-lasting materials.

Designing for change means designing buildings that are materially and structurally simple. It means considering as much - or more - what not to put in a building as what to include. It means determining precisely where to put the parts of the building that either won't likely change (such as vertical circulation and plumbing) or can easily adapt. It means designing for a building's first use that does not preclude changes in technology or type and intensity of use. It means a range of quality of construction: i.e. good quality construction (able to last a long time with low maintenance) on structure, and allowance for lower quality construction on other things, such as interior wall partitions. This way of building might seem to remove the architect from the equation. The contrary is true. It does, however, require architects to refocus their energies in a type of building designed and constructed with deliberate attention paid to its organization and layout, the location and quality of its structure, the location and integration of its systems (mechanical, electrical, plumbing, and telecom), and its material composition and finishes, each in a manner that is sufficient for the building's first use, but also one that anticipates its utility in both future times and future uses. This is not currently done as a general matter of architectural design.

None of this is rocket science and it has been done before. But it does represent a radical shift from the current norm. When we look at the material aspect of the building equation, we see that post-war, the construction industry has moved continually toward more complicated buildings, shepherded by a building products industry eager to offer specialty products that combine in a complicated fashion to produce today's buildings. Architecture firms now maintain physical libraries cataloging endless building products and staff people that are experts in single things such as curtain walls. The ostensibly cheap and certainly fast construction offered by this framework play to the short-term bias of the real estate industry. Despite the short-term economic benefit related to cheapness and speed of construction, the truth remains that as buildings have gotten more complicated, so have their problems. Complicated building assemblies are more susceptible to the elements, especially when not executed

perfectly, and can be difficult to repair and replace. Furthermore, they have historically proven to contain unknown toxins (lead, asbestos) and have led to unanticipated problems (sick building syndrome). This status quo is not the best way. When we remove unnecessarily complicated building products from buildings, it allows for more flexibility, often with less material waste.

The Economic Argument

An innovative solution cannot come merely from a sustainability argument (which is what is often proposed), but needs to be based in an economic argument that doesn't initially require an unrealistic restructuring of the financial norms of the real estate industry. The basic contention of such an argument would be that a building that is designed and constructed for a very long time, and therefore necessarily for many different uses, will have a greater net present value than a comparable building built according to current norms when using standard discounted cash flow valuation metrics.

A building designed and constructed according to the 'minimum' is not merely saving the substantial replacement cost every 30 to 50 years. Importantly, the building itself undergoes less frequent renovation due to a certain built-in flexibility that more easily allows for a variety of uses, and will have lower renovation costs given its lack of complicated material assemblies. Finally, greater spatial flexibility coupled by simpler and faster renovation will allow this building higher occupancy during periods of redevelopment. Taken together, these characteristics produce a material economic difference. Along what would be considered a very long timeline according current underwriting standards - say 100 years - the difference in lower costs from non-demolition, construction, and occupancy loss – one can project a positive economic value difference against the comparable 'standard' building.

Furthermore, this approach to building using tried-and-true materials mitigates the risk of currently unknown toxic or inferior materials that may have to be abated at a high cost in the future. An additional future economic upside could come from policy changes that incentivize adaptive reuse and older building operation and occupancy, something certainly in the realm of possibility if policy changes ever attempt to implement something like a 'triple bottom line.'[11]

The big leap: All of this assumes future hypothetical value, but to bring the discussion back into the purview of the short-term financial outlook of commercial real estate, which seeks to be paid now rather than later, the economic elephant in the room is that no investor holds real estate for 100 years, nor are they currently able to sell that future economic value. The ideal route to quantify an economic basis of longevity would be in the development and use of a series of metrics of 'adaptability,' wherein current owners and developers would be able to recognize those assumed differential future cash flows in the present. The adoption of such valuation metrics would be transformative for new building design, construction, financing, and operational and asset management.

Avenues for Instigating a Move to the Long-Term

In closing, it makes sense to speculate on how a move toward a built environment with physically enduring buildings amenable to changes in type and intensity of use might take place. This would first require a recognition of the various ways in which the professions involved in building design, development, financing, and management presently work against this occurring. The set of problems as to why this doesn't currently happen are systemic, but change needs to occur from individuals working in these disciplines.

After such recognition by individual professionals and firms, it could then translate into action from both the supply and demand sides of new building production. The architectural discipline has been largely complicit in real estate's tendency toward short-term view of buildings by focusing on building aspects that play into building construction, namely designing for highly specific building uses, but also by focusing on aesthetic beauty, especially in their formal and envelope aspects, a matter that is subject to constant change of opinion. The result is stylistic changes that do not pay off in the long run. When architects focus on designing buildings that might ostensibly seem simple but are actually quite complex in their consideration of time and multiple use, the economic advantages of such buildings can be part of the value proposition offered in competitions or to clients. Developers, for their part, can begin by building such buildings, and making the advantages known to potential investors, with the aim of causing them to alter their underwriting, and therefore, also the value thereby attributed. Consumer education could be part of this effort to segment the market through product differentiation, aimed as much at tenants in commercial real estate, as at buyers of residential real estate. On the demand side, core institutional investors need to begin demanding buildings capable of producing greater and less volatile returns for a longer period of time. This demand can come directly through new building development for which they will be the eventual long-term owners, and indirectly by making it of central importance to their due diligence, valuing these buildings at a different rate. Lenders can and should make similar demands and changes to their due diligence as a way to lower the risk profile (from future demolition or inability to adapt) of their underlying collateral. Above all, it asks each of the specific disciplines of design, construction, development, or lending and investment, to individually and collectively bridge their respective disciplinary knowledge gaps in construction quality and characteristics of adaptability, bringing each closer to the *thing* ("architecture," "building," "project," "collateral," and "asset") from which their respective disciplines alienate them.

What is offered here is primarily a way of re-conceptualizing the problem of low-quality building design and production fundamentally as a consideration of the treatment of time by various professions that come together to produce buildings. The solution proposed is a pragmatic design and construction methodology with immediate application, whose tools are already located within the conventional knowledge bases of the design, construction and development, and investment disciplines, and which can occur initially within existing financial mechanisms. By asking more (and paradoxically perhaps less), from the design and construction of new buildings with the principal measure of adaptability, this innovative reframing of the field aims to produce buildings capable of long, economically productive lives by realigning the treatment of time on the subject of buildings for both the design and real estate professions in a manner consistent with both their own and broader societal or cultural values.

Author's Notes:

1. This refers a whole set of practices carried out by professionals working in varied segments, especially those that interact directly with the design of the built environment, including those in construction, development, brokerage, and finance. It is worth noting that these practices operate in contrast to the interests of others in the industry, notably core investors seeking long-term income.

2. Without providing a definition of short-term, it would be useful to bear in mind that buildings can be built to last and remain equally useful for three, four, even five hundred years. In this sense, even 50 years is short-term.

3. With the exception of potential liability against construction defects, expiration of which vary according to building type, jurisdiction, and type of defect, but in the sense of this essay are relatively short (2-10 years).

4. Footnoted comment in memo from the Treasury to Congress on the Congress's decision-making, "The Committee Report on the 1993 bill that lengthened the life of structures to 39 years justified the increase as a way to match tax depreciation more closely to economic depreciation, although no supporting data or studies were cited," in U.S. Department of Treasury, Report to The Congress on Depreciation Recovery Periods and Methods (Washington DC: Department of the Treasury, 2000), 89, accessed February 14, 2015, http://www.treasury.gov/resource-center/tax-policy/documents/depreci8.pdf

5. A notable exception being ground leases, which, when employed, often carry 50 or 99 year terms.

6. With the exception of potential liability against construction defects, expiration of which vary according to building type, jurisdiction, and type of defect, but in the sense of this essay are relatively short (2-10 years).

7. Depending on property type and investment strategy, exceptions including industrial property and core investing. See "Illiquidity, Transaction Cost, and Optimal Holding Period for Real Estate: Theory and Application," Ping Cheng, Zhenguo Lin, and Yingchun Liu in Journal of Housing Economics (2010), Vol. 19, 109-118.

8. New construction with 30% lower energy use than the average existing comparable building nonetheless will take 10 to 80 years to overcome the negative environmental impacts of its construction, as estimated in "Executive Summary," The Greenest Building: Quantifying the Environmental Value of Building Reuse, National Trust for Historic Preservation, 2012, accessed February 7, 2015, http://www.preservationnation.org/information-center/sustainable-communities/green-lab/lca/The_Greenest_Building_Exec_Summary.pdf

9. Craig Buckley, "Never Demolish: Bois-le-Pretre Regrows in Paris," in Log, Vol. 24, 43-50.

10. Ibid.

11. The U.S. Green Building Council, which has historically favored new construction, has made some progress along these lines.

Alex Barrett

Alex Barrett founded his development company, Barrett Design LLC, in 2005 to combine real estate development and architecture under one roof to form a uniquely capable and versatile company. Today the firm is comprised of six full time staff in addition to Alex, five of whom have architecture degrees. The firm has a strategic partnership with Alex's wife Lindsay Barrett of Compass, who oversees the sales and marketing of the firm's completed condominium units. To date, the firm has focused on developing condominium properties, both ground up and rehabilitations, in the "Brownstone" neighborhoods of Brooklyn. The firm adds value to these properties through condominium conversion, expansion and/or rehabilitation, and resells them as individual condominium units. Since 2005, the firm has returned to its investors an average IRR of just over 38%. Prior to founding BDD, Mr. Barrett was Director of Design and Development at a boutique development firm in SoHo. Prior to that, he spent seven years practicing architecture in New York City, most recently at the firm of Beyer Blinder Belle. Mr. Barrett received his Master of Architecture degree from Yale University's School of Architecture in 1997, received a BA in Psychology-Based Human Relations from Connecticut College, and has studied real estate development and finance at New York University.

The author has chosen a laudable and challenging topic that has perplexed architects for decades – how one can design flexibility and adaptability into buildings – and hypothesizes that part of the problem may stem from the short-term investment horizons that are typical of the real estate industry. While the author does a good job framing the question, I believe his analysis is hampered by some overly broad generalizations and could benefit from deeper analysis and real-world examples.

Real Estate's Short-Term Bias

In this section the author discusses that various tax benefits – depreciation and abatements – that are applied to income producing real estate. While it is true that these tax benefits dis-incentivize holding a property after the benefits expire, I do not believe it proves that "the notion of planned obsolescence is formalized in the treatment of real estate under federal tax law." Similarly, the fact that most real estate private equity funds operate on five- to ten-year investment horizons does not mean, as the author states, "nothing within the industry promotes producing a building with the ability to last for years from either a construction or 'adaptable' point of view."

One can look to the commercial real estate market in Manhattan for some counterpoints. Some of the largest and most expensive real estate transactions over the last year have been midtown commercial office buildings built in the 1950's and 1960's. Private equity firms or family real estate offices have owned many such buildings for decades, in spite of the tax and financial incentives cited by the author. Furthermore, the fact that the value of these properties has risen steadily and sharply contradicts the author's contention that "the real estate industry treats its products as being essentially one transaction removed from disposable."

Construction quality is an important and complex subject. The author rightly points out that speculative development projects can sometimes lack financial incentives for developers to build to a high standard of quality, which is presumably more costly. The author goes on to posit that a developer's self interest would cause him to construct a higher quality rental building (assuming he intends to hold them), than an otherwise comparable condominium building where he intends to sell the units upon completion. In the New York City market, I would argue that the opposite is true. While there is not a direct correlation between construction cost and quality, it might nonetheless be instructive to compare average construction costs of rental buildings to that of condominium buildings. In my experience as a developer in the New York City market, I have found a consensus view that rental construction costs typically carry about a 10% discount to condominiums. Furthermore, an examination of the Manhattan residential condominium market would likely provide ample evidence that developers are not skimping on quality.

Designing for Longevity through Adaptability

In this section the author discusses the quest for "flexibility" in building design, citing the efforts of designers like Fuller and Gropius to develop building systems – a kit of building parts, really. While the author correctly points out that these efforts often involved proprietary and highly specific design components, I believe the primary goal was to design a universal system of parts that could be applied to a broad set of building sites and programs. I'm not sure that adaptability to future uses and occupancies was necessarily one of their goals. Here I think a deeper dive into one or two examples may be enlightening.

The author goes on to cite SoHo loft buildings as an example of a building type that has adapted well to changing uses: from manufacturing, to art studios, and finally residential use. It is true that the typical loft building in SoHo possess many features that make it suitable (even desirable) for multiple uses – high ceilings, open plans, and large windows. However, it is worth noting that the depth of these buildings – typically around 100' with almost all of the light and air provided at the street facade – produces very deep and dark floor plates, which is undesirable for residential use, and contrary to current building code requirements. The author includes a plan of a corner loft building with two exposures, while typical loft buldings in SoHo are attached on two sides. The longevity of these buildings is undoubtedly due to many variables: the architectural beauty of the buildings, neighborhood features such as desirable retail corridors, and proximity to transportation, not to mention the protections afforded by the Landmarks Preservation Commission, which have averted demolitions.

The Minimum

This is the substance of the author's thesis, and contains some good ideas about what makes a building adaptable to different uses in the future. However, I would take issue with a few point. For example, I would argue that it is very difficult to anticipate future plumbing and vertical circulation needs. To return to the SoHo loft building example, elevators were often located in one of the window bays, and plumbing was minimal if it existed at all. Today, these infrastructure components have largely been relocated as buildings have been converted to residential use or are otherwise rehabilitated, at minimal cost relative to building value. And while it is true that the building materials and assemblies have become increasingly complex, I think it is a broad generalization to conclude that they "leave a lot to go wrong [and] are more susceptible to the elements." Further analysis or supporting examples would be helpful here as well.

The Economic Argument

It is appealing to imagine the broader real estate industry placing a greater emphasis on building longevity and adaptability in order to reduce building obsolescence and replacement. The author is correct that such a shift in practice would reduce overall construction costs and have many environmental benefits. Groups such as the Urban Land Institute and the U.S. Green Building Council advocate similarly. However, the challenge of quantifying fairly abstract notions like "adaptability," assigning them a net present value, and then convincing the broader real estate community to adopt such metrics is an enormous task. The author does not present a convincing argument for why the real estate industry, which is typically concerned with property valuation over a five- to ten-year period (as demonstrated by the author), would accept such a change.

Avenues for Instigating a Move to the Long Term

I would agree that some in the architectural profession might be complicit in viewing buildings as short-term assets. However, I don't believe that "designing for highly specific building uses… [and] focusing on aesthetic beauty, especially in their formal and envelope aspects" are the best examples of this syndrome. First, architects are, at a most basic level, service professionals, with a mandate to design to the programmatic needs of their clients at the present moment. And second, I'm confident that Griffin Thomas, and Lacaton & Vassal were as interested in "aesthetic beauty" and the formal aspects of their building facades as most contemporary architects. Perhaps a discussion of the cultural and stylistic contexts within which architects work would add some depth to this discussion.

Marc Norman

Marc Norman is a Loeb Fellow at the Harvard University Graduate School of Design. Most recently, he served as the director of UPSTATE: A Center for Design, Research and Real Estate and a professor of practice at the Syracuse University School of Architecture. UPSTATE works in partnership with communities to foster innovative approaches to the making and remaking of cities to demonstrate how design, policy and finance can enrich our collective quality of life. Previously, he was a vice president at Deutsche Bank in its Community Development Finance Group. With a Master's degree in Urban Planning from UCLA, Mr. Norman has over 20 years of experience in the field of affordable housing development and finance.

Designing Affordability: Developing New Ecosystems for Equitable Housing Provision

In the United States, housing acts as both shelter and a means of wealth creation. In the 20th century, various fields conspired to create an ecosystem of housing provision through innovations in design, finance, policy, and construction. By examining past and present models through a case study approach, we can speculate on ways to design affordability to address our current crisis in affordable housing.

Calculating Minimum Income Required for Rental Subsidies		
Criteria	Assignment Assumptions	Total (Original Scenario)
Number of Units Constructed (Market Rate)	55	
Number of Units Constructed (Affordable Rate)	11	
Average Unit Size (Sq. Feet)	850	56,100
Development Cost per Sq. Foot	$ 275	$ 15,427,500
Average Monthly Rents (1 and 2 bedroom units)	$ 1,100	$ 145,200
Percentage of Area Median Income (AMI)	87%	
Average Monthly Rents (1 and 2 bedroom units)		
Market Rate	$ 2,200	$ 1,452,000
Vacancy Rate	10%	(159,720)
Monthly Operating Expense Per Unit	$ 600	$ 475,200
Net Operating Income	NOI	$ 962,280
Term of Developer Loan (Years)	25	25
Interest Rate	6.5%	6.5%
Supportable Loan (Present Value of NOI)	PV	$ 11,876,355.08

Calculating Maximum Loan to Developer		
Critera	Assumptions	Total
Total Construction Costs		$ 15,427,500
Maximum Loan (Loan to Value Method)	80%	$ 9,501,084
Maximum Loan (Debt Coverage Method)	125%	$ 9,501,084
Developer Equity	10%	$ 1,542,750
Other Equity	0%	$ 0
Other Debt / Subsidy	10%	$ 1,542,750
Maximum Funds Loan To Value Method w/ equity and other debt		$ 12,586,584
Maximum Funds Debt Coverage Method w/ equity and other debt		$ 12,586,584
Project cost is more / (less) than Funds from Equity and Lenders	INFEASIBLE	($2,840,916)

Figure 1: Income and expense budget for rental housing with adjustable assumptions.

In the real estate course I teach, the first exercise is a deceptively straightforward table given to the students with the simple instruction to "make a deal work." The rows have a number of categories: sources, uses, rents, expenses, interest rates, loan terms, and inflation factors.

Any variable can be changed and thus the deal can always be made to work. Construction costs too high? Lower the costs or raise the collected rents. Supportable mortgages for homebuyers too low? Lower the interest rates and lengthen the term. The last row crunches the data entered and returns either "feasible" or "infeasible."

The point of this assignment is to show how developers, policy makers, lenders and investors modify these variables to make deals work, and that we can use a version of this exercise to address the current crisis of housing affordability. By using the framework to examine key 20th century case studies, we can understand some of the ways that markets and policy have delivered affordable housing historically, as well as the issues in providing affordable units in our major housing markets. We can also use this tool to test contemporary innovations in housing provision and outline methods for making housing more affordable in the 21st century. Housing is our most pressing need. In the U.S., it has traditionally been a source of wealth creation in addition to shelter. In the 20th century, various fields conspired to create an ecosystem of housing provision through innovations in design, finance, policy and construction. The current issues in the U.S. housing market are multifaceted and vary from region to region. In some cases, it is a lack of available land or political will hindering the production of housing.[1] In other markets, stagnating incomes make it impossible to raise rents or sales prices sufficient to cover the cost of land, much less construction or total development costs. Decent, well-placed affordable housing is increasingly beyond the reach of lower and middle-income families, creating displacement and distress for a growing cohort of renters and owners.[2]

In light of the current and worsening housing

crisis, it is worth looking at the ecosystems that were formed to deal with earlier crises. In the fields of design, policy, and finance, we tend to celebrate the high design and high cost projects that happen to contain units meant for affordable households, or highly complex deals with complicated site conditions and a multitude of financing sources. Yet if our goal is to address a crisis in housing affordability, I believe it will be necessary to highlight and celebrate the models that can change the equation and create wealth and scale.

The precedents, performance measures, and make-up of these projects might not be found within the existing realm of affordable housing or even in the housing industry. I make a distinction between "affordable housing," an industry that, through policy and programs, creates public-private partnerships to provide housing for specific incomes, versus "housing affordability." While "housing affordability" might encompass affordable housing, it also engages the broader notion of units affordable to residents all along the income spectrum. Housing affordability might be provided by developers of all scales or just by virtue of the shape of a particular housing market. Policies, even without addressing design or construction, can have immediate and long lasting effects in the realm of housing affordability.

"Rent stabilization," for example, promoted housing affordability with the stroke of a pen, giving millions of families stability and predictability in their existing dwellings without regard to design or finance.[3] Policy combined with finance made possible the 30-year, self-amortizing mortgage that rippled through the economy, providing access to previously inaccessible housing markets previously by lowering the monthly costs for any income bracket. Software innovations and smart phone applications have now entered the fray, allowing services such as Airbnb to connect providers to users, transforming an increasing number of industries and reducing costs dramatically.[4] In various combinations, the innovations in construction, finance, design, and policy have reshaped lives.

This article focuses on some of the historic ways various fields have come together to address earlier crises in housing, creating millions of units and new systems for their provision. Looking forward, the article reflects on these lessons and surveys developments, policy innovations, and out-of-the-ordinary techniques to gain insights and strategies for addressing our current predicament in the United States. In this context, "Designing Affordability" entails learning the lessons from earlier eras to form a broader approach to affordability.

Levittown: The Ticky-Tacky Wealth Engine Brought to You by the FHA

In 1950, a family loads their car in Brooklyn, NY, and drives 29 miles east. On a street with scores of identical houses, they will pay approximately $60 per month, having put little to nothing into a down payment. This seemingly simple event, repeated millions of times all over the U.S., changed the face of the country and how we live.

While this family thought of their move as an individual decision, behind it was a complex combination of forces that came together to promote growth, produce profit, and alleviate housing pressures in the wake of World War II. The policy innovation was the use of Federal Housing Administration Mortgage Insurance, with its accompanying design and quality guidelines.[5] Add

to this the Servicemen's Readjustment Act of 1944–the GI Bill–which provided low interest loans for veterans, and a federal highway construction program to ease commutes. For the developers, the costs of buying farmland in a rural area were a small percentage of the total development costs. Fordist construction techniques, honed by Levitt and Sons through government contracts during the war, streamlined production, brought down construction costs, and made it possible to produce up to 50 houses per day.[6]

Figure 2: Levittown, New York, in 1948 (AP Photo/Levittown Public Library, File).
Figure 3: A Page from a 1950s brochure advertising house models in Levittown, New York, courtesy of W. W. Norton & Company, Inc.

Costs were reduced by negotiating for the removal of local requirements for basements, creating homes not much larger than New York City apartments, and using non-union labor. On the finance side, banks lined up to underwrite homebuyer end loans, which could then be bundled and sold in the secondary market. Applied to today's economic conditions and adjusted for inflation, Levittown would be affordable to a family under 65% of the median income for New York City, a percentage considered low income in today's parlance. These families with modest incomes could become owners, build equity, trade up, or collateralize other purchases like cars, higher education, and appliances.[7]

Looking at the changes in policy, finance and construction required by the Levitt and Sons' developments and the myriad other subdivisions that followed, we see an ecosystem that created opportunity, affordability, and scale. In my simple chart shown earlier, just about every variable shifted to create a pipeline for affordability and a virtuous cycle in which towns, developers, lenders, and investors benefitted.

Penn South: Workers United

While Levittown and its copycat developments produced units in the new suburbs, back in the city, a housing crisis raged. Housing construction could not keep up with the growing baby boom, nor could developers find enough land to produce the necessary units for workers to live close to their jobs. Demand created pressures on rents, which forced families to double up, move to lesser accommodations, or leave the city altogether. The ecosystem that conspired to produce millions of suburban homes with government backing on cheap land did not coalesce into solutions for cities.

For trade unions, which still had a substantial base and political clout, the solution was to get into the development game. Penn South, on 20 cleared acres in the Chelsea neighborhood of Manhattan, was completed in 1962 by the International Ladies' Garment Workers' Union (ILGWU) and the United Housing Foundation. Penn South provided 2,800 units to residents as limited equity cooperatives, with prices averaging $5,000 plus a monthly maintenance fee, which provided many of the benefits of ownership while also maintaining affordability of units over time.[8]

Policy made the development possible, specifically Title I of the U.S. Housing Act of 1949. The Act permitted federal loans "to assist local communities in eliminating their slums and blighted areas" and provided funds for clearing slum areas in order to free the land for reconstruction by private developers. Policy-makers wanted a "walk-to-work community," particularly for those people involved with the garment industry. This meant employed tenants, residents with moderate yet stable incomes, and a shared culture and common goals. ILGWU helped finance the building of Penn South, pledging $20 million when it was still in its early development. The rest of the funds for the project came from Dry Dock Savings Bank, Chemical Bank of New York Trust Company, and the New York State Teachers' Retirement System. A convergence of federal, state, and city agencies came together with private and nonprofit interests to set up a stabilizing mechanism in the heart of the city and a unique form of ownership that created community.

Figure 4: Penn South Cooperatives Aerial Photo courtesy of Google Earth 2014 and the author.

Through the Mitchell Lama program initiated by the New York State Legislature in 1955 to encourage and facilitate construction of rental and cooperative housing, the entire development received a 20-year real estate tax abatement as well as low interest financing. The policy came from a belief that the middle class played a central role in "saving" the city.[9]

In terms of design, Penn South is a standard "tower in the park" development with 10 buildings over 20 acres, providing 65% open space. While not nearly as dense as the neighborhood it replaced, density remains relatively high at 140 units per acre.

Unlike Levittown, Penn South's units are income-restricted and prevent profit taking upon sale. Each unit gets a vote in the resident governance system, and Penn South has consistently voted to keep its income restrictions and limit profit. This means that even in 2015, available units will sell for an average of $70,000, approximately 10% of the cost of units in the surrounding neighborhood. Over 260 other developments in New York State benefitted from Mitchell Lama-driven public-private partnerships, ultimately producing over 100,000 units of rental or cooperative housing.

Once again, almost all variables were changed to create a platform to scale high density, middle income housing for the long term. As we address the current crisis in affordability for low and middle income households, the big thinking, bold innovations, and public-private collaborations of the recent past can provide guidance in ways the architecturally ambitious, site specific, one-off developments cannot.[10] While both Levittown and Penn South provide models in the ways they address issues of affordability, it is also important to recognize their flaws. Levittown was notoriously exclusionary, with racial covenants in place well after the Supreme Court had found them unconstitutional.[11] Penn South was built over the ruins of a dense Puerto Rican community, displaced by the towers targeted toward union members of uniform race, class and political leanings. In their own ways, both developments were designed intentionally as isolated enclaves. In the case of Levittown, the development was removed from other uses and relentlessly residential; in the case of Penn South, the site was walled off and moated–via plantings–from the gritty, mixed use neighborhood it inhabited. The sites are period pieces, given the impossibility of assembling such large agglomerations of land. In our time, the paradigmatic shift away from large-scale interventions to more fine-grained, contextual solutions has created a great diversity of product but has not been able to match the scale and depth achieved from the 1940s through the 1970s.

The Tax Credit Universe: New Methods and Partners

With political and economic support for public housing waning and neo-liberal fiscal solutions ascendant, the 1986 Tax Reform Act changed the game, creating an ecosystem that enlisted new parties and a host of new industries to the field of affordable housing. Under the Low Income Housing Tax Credit Program (LIHTC), each state could craft a set of desires and let private developers compete for allocations. The twist was that rather than providing funds or partnering with private entities, the states and the federal government relinquished income tax revenue from private corporations that provided equity to low income housing developments. The government mandate shifted from "provide" to "incentivize" and "monitor."

Not only a new ecosystem but also a new industry was created to underwrite developments, find corporations with sufficient tax liability, syndicate the credits, and structure funds to diversify risk. Corporations such as Chevron, Clorox, or Bank of America became an integral part of the affordable housing industry.[12] Their partners were small non-profit developers and large-scale real

estate syndicates, as well as the lawyers and accountants necessary to complete these complex transactions. The ecosystem expanded from the usual suspects to the most conservative politicians and corporate titans. Large-scale slum clearance and tower blocks gave way to units that blended into the urban fabric, indistinguishable from market rate developments.

Unlike earlier attempts to address the housing crisis, developments were not recognizable as "social housing," and units were architecturally and geographically diverse. The credits in some cases provided funds for over 50% of the construction costs in addition to other soft costs and reserves, with the only requirement being the maintenance of affordability below 60% of the area median income (AMI). To date, the tax credit program has supported the construction of over 2.5 million rental units in the U.S.

In addition to the significant shift in the government's role, the program has also served to divorce family incomes from the cost of housing. LIHTCs have a time horizon for affordability–typically 30 years–which requires the constant provision of new affordable units, or the re-subsidization of current units at some point in the future. This is especially problematic in high-cost markets like California, where construction costs and market rents have continued to increase, but the AMI for the state has dropped 10% since 2007.

In a stagnating economy, this disconnect between affordable rents, market rate rents, and construction costs sets up a lottery system where the lucky few get housing, they cannot move out of unless they leave the neighborhood. Recent tax credit developments in high-cost cities have anywhere from 5,000 to 50,000 applications for each affordable development.[13] Thus, LIHTC housing can create a lucky, but static tenant hampered in creating wealth or gaining equity, while also ensuring that the turnover to other tenants in need will be slow to non-existent. While wildly successful and innovative, the annual allocations of LIHTCs are not sufficient to alleviate the housing crisis in the face of increasing demand.

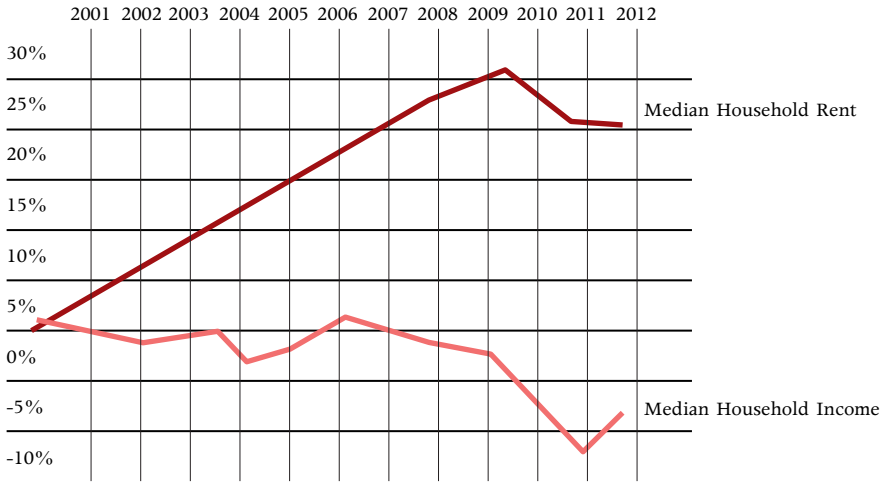

Figure 5: Median Rent in California 200 to 2012, Cumulative Percentage Since 2000.
Courtesy of the California Housing Partnership Corporation February 2014 http://www.chpc.net.
Data Source: US Census 2000, Census and Annual ACS Data beginning in 2005. Median rents from 2001-20014 estimated.

Defining New Ecosystems for Affordability

Given that the models for addressing affordability past and present are either no longer viable or not robust enough in the face of larger macro-economic forces, the question shifts to where innovative models, in place or under consideration, will reduce total development costs to supportable levels more in line with current incomes. Can we create new ecosystems that enlist design, policy, finance, and construction to stem the growing crisis? Are there developments, initiatives, or techniques that utilize technology in new ways or support vulnerable populations? Are there models outside our large cities, outside of the U.S., or outside of the current system for housing provision that while ad hoc, informal, or one-off, could be scaled or used as lessons for policy makers, developers and residents?

I would argue that designing a better approach to affordability requires pursuing a less formal path to growing an affordable inventory, redefining the real estate typology, and retooling the physical asset in a desirable, cost-efficient way. The case studies below suggest some possibilities.

Formal Informality in Rio de Janiero: Learning from Rocinha

In the U.S., informality is generally frowned upon and in most jurisdictions illegal,[14] mostly for good reason. Informal settlement commonly refers to structures on land with insecure tenure, or housing that does not connect to infrastructure or conform to codes in place. Fire and life safety codes were put in place in the early 20th century to address the disease and death that beset settlements lacking sufficient light, air, egress, or square footage. Technologically integrated systems now insure the comfort and safety once provided through physical interventions, creating new ways of working and living, freeing up formerly unusable space, and creating new development opportunities. Nonetheless, investigating new ecosystems for housing affordability in the U.S. should not neglect lessons from informal settlements or innovations from abroad that engage new technologies.

In the favelas of Brazil, a system of selling building rooftops over decades has produced a fully formed system of bottom up site selection, construction, and housing provision. Since the neighborhood of Rocinha in Zona Sul of Rio de Janiero was formed in the early 20th century, shacks have given way to homes built of sturdier materials–bricks and mortar. The population has grown to 300,000. Unable to build out, residents instead build up. Over decades, social pressure and neighborhood associations have developed a fully elaborated, highly formal system to address housing needs. The commodity in these settlements are roof rights rather than the land, as owners lack title. Roof rights provide the ability for new construction which then gives the roof owner rights as so on until structural integrity or height limits are reached. Duplicated throughout Rocinha and other communities, tens of thousands of homes are piled one on top of the other. Depending on location, view and height, roofs in Rocinha can sell for as high as $30,000.

Once roof rights are secured, banks lend for purchase and construction costs, in which a buyer can hire an engineer to gauge structural integrity and

then either enlist a mentor to assist with construction, fully contract out the job, or build the structure on his own. This provides flexibility in terms of costs and complexity. Once a unit is completed, the new roof can be offered for sale. Roof rights in Rocinha is a unique and circumstantial but an interesting informal system that creates flexibility, a suite of techniques for construction, and novel ways of acquiring sites for additions or new, separately owned housing.[15]

In the U.S., this type of codified informality would seem unrealistic. Nonetheless, interesting variations exist, and developers and entrepreneurs are experimenting with new ways of injecting innovation within and without current codes and norms. Outlined below are two examples of projects (on the East and West Coast of the U.S.) that are injecting elements of informality in housing provision, enabling opportunities for residents to create housing that matches their incomes and lifestyles while building wealth.

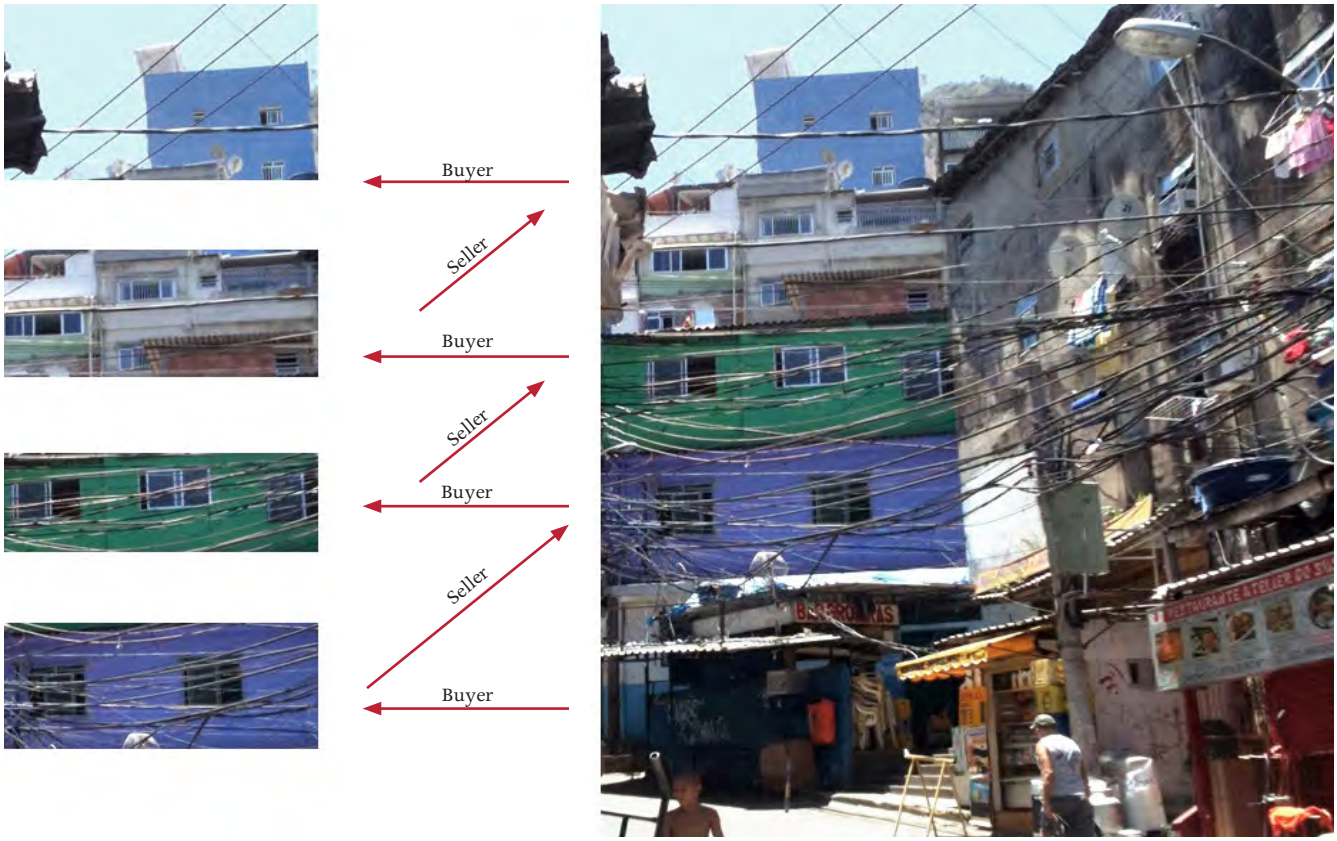

Figure 6: Typical street in Rocinha with built out roofs. Image courtesy of the author.

Brooklyn's Esquire Building: Building Out Just Enough

In 2002, approximately 55 homeowners closed on condominium units in Williamsburg, Brooklyn. Though the neighborhood is a white-hot real estate market currently, in 2002 it was lukewarm. The Esquire building, a turn of the century warehouse and office building for the Esquire Boot Polish Company, had sat vacant for almost 50 years. Stephanie Eisenberg, a local factory owner,

bought the 16-story building at auction from the City of New York in the 1980s. Since there were no comparable properties, lenders stayed away and the building remained vacant. Only able to obtain enough funds for a minimal build out, Eisenberg kept the concrete floors and ceilings, exposed brick walls and graffiti covered hallways. The work that was completed included enough electrical and plumbing along with new windows and doors to get the building to the point where it garnered a temporary certificate of occupancy from the city of New York. Remaining funds were spent on high efficiency boilers and the first residential geo-thermal loop system in Brooklyn. The semi-raw units sold well below market at approximately $200 per square foot, with the expectation that owners would then build out their units according to their desires and their financial capabilities. Given this flexibility, units ranged from bare-bones to opulent and remain so to this day. As residents built up equity, additional renovations were completed and a knowledge-sharing community also developed around renovation, construction techniques, and reliable service providers.

One typically associates incremental development of this type with developing countries and informal settlements. The most highlighted of these developments, the Quinta Monroy Houses in Iquique, Chile, designed by Alejandro Aravena of Elemental, could have been a precedent if Eisenberg had even heard of this project, mostly known among architects. Going back further to PREVI—Proyecto Experimental de Vivienda—an experimental district collectively designed by a generation of radical avant-garde architects in Lima, Peru, in the late 1960s–one can see echoes in the units of the Esquire. This points to the fact that while there have been pioneering attempts to reconcile the conflicting forces of informal growth and top-down planning, communities left to their own devices tend to make do with what we have. Justin McGuirk, in his book *Radical Cities: Across Latin America in Search of a New Architecture* states, "Instead of challenging the politics of a subsidy that is inadequate, he (Aravena) designed a creative solution."[16]

I would submit that Eisenberg, faced with similar circumstances but in regard to the private real estate market, created a community that offers lessons for U.S. housing markets. For purchasers at the Esquire, many of whom were under 30 years old and of moderate incomes, the building provided stability, community, and increasing equity in a neighborhood that would now be unaffordable to them. Current prices for comparable units in Williamsburg now sell at over $1,000 per square foot.[17] The initial investments in green technology, energy efficiency, and a collaborative approach to management created not only affordable homes and reduced operating costs but also community.

Figure 7: Typical unit at time of initial sale, Esquire Building.

Figure 8: Built out unit.

New Avenue Homes: Building Homes While Taking Land Out of the Equation

Kevin Casey saw a number of problems in the Bay Area housing market. Aging homeowners felt trapped in their houses, owing to skyrocketing real estate prices and the unintended consequences of Proposition 13, a property tax referendum from 1977.[18] Under the law, long time homeowners had their property taxes rolled back and future increases capped. However, buying a new home would mean bumping payments up to current tax rates. This "captivity" of the empty-nesters creates a condition whereby senior citizens are aging in place and younger singles and couples are priced out of the market due to low inventory, high rents, and a stock of mostly large single family homes. Casey created New Avenue Homes to address the problems of each demographic group.

Using the tools of social media, commercial finance, and efficient construction, New Avenue identifies jurisdictions that allow accessory dwelling units and matches existing homeowners to architects and contractors. At present, New Avenue serves as a kind of "OkCupid" or online dating, for owners, contractors and tenants, says Casey. For the owners, new options emerge, including the ability to live in a downsized unit without having to leave the neighborhood, collect rental income, provide accommodations to ageing parents, or house boomerang children. For younger people, there are now new, relatively affordable housing choices in prime neighborhoods.

Casey states, "The anthropologist in me believes that our homes and our communities should address our emotional and social needs." He notes that he "founded New Avenue to offer an alternative to the broken financial and home building industries that have lost touch with this mission (and also happened to create the biggest financial crisis since the Great Depression)." The key to New Avenue's formula for housing provision goes beyond just providing the accessory dwelling unit (ADU); it has developed a data-driven, standardized service delivery platform showing real-time invoicing and construction progress. In essence, each homeowner can become an affordable housing provider, innkeeper, cottage dweller, or any number of other possibilities, all while ensuring costs stay in line and completion dates are kept.[19]

This model alleviates the typical fears of homeowners by allowing them to coordinate with architects and general contractors, track milestones, and keep the budget in line. With more than 100 structures completed, New Avenue has helped build custom accessory dwellings, taken land costs out of the equation, and provided opportunity to existing residents as well as a younger cohort in search of affordable options near vibrant city centers.

Looking forward, New Avenue sees its role as a one-stop shop. With scale and willing financial partners, New Avenue could move to a system where, under a long-term contract, it would build the accessory unit, provide property management, and pay out dividends to the homeowner over an amortization period, after which the owner would control the unit.

Figure 9 (Left): Completed accessory dwelling unit.
Figure 10 (Right): Floor plan for unit in Berkeley, CA. Image Courtesy of New Avenue Homes.

Historical, Political, Social and Financial Mash-Ups

Given the multifaceted issues facing low-income households, the only thing that is clear is that there is not one answer to solving the housing crisis. Each family has a distinct situation and a story. Each market has its particular complexities. Each time period has its particular issues. The answers could rely on a combination of strategies capitalizing on current trends, lessons from the past, and augmentation of present programs. These case studies can generate new scenarios to be tested, taking the positive aspects of various examples for further development. This might involve expanding the LIHTC program to allow not just corporations but also individual tax payers with tax liabilities to claim credits and direct equity toward affordable housing, thus democratizing the process of housing investment while also creating additional supply. Another scenario might revise FHA guidelines to allow for certain kinds of incremental development that would lower upfront costs, to provide the opportunity for lower income families to gain entry to desirable housing markets and build equity. Expanding on the New Avenue model, technology might be harnessed to find ways to create "disruption" in the affordable housing industry, drawing on lessons from the services that match users with providers and service industries. This could ameliorate bloated costs and lengthy project schedules, often inflated because of powerful cartels and syndicates in the building trades. Taking additional lessons from New Avenue and Rocinha, we might test revised codes that allow for accessory dwelling units in single-family neighborhoods and rooftop structures in low-rise commercial districts, reducing or removing land costs from the equation. To ensure ongoing affordability, these new housing units could be structured as limited equity cooperatives. In large metropolitan areas we have significant disconnects between incomes and required rents, existing supply and increasing demand, and the requirements of special needs populations and available housing. It is thus necessary to thinking about solutions as ecosystems in which various elements combine to create holistic, scalable solutions. This framework for addressing challenges is a more difficult path than applying a single fix, but it may be more effective. In all cases, we come back to the deceptively simple introductory table and find ways to "make a deal work." We continue to answer the questions: How do we lower land or construction costs? How do we lengthen loan terms, reduce interest rates, or modify operating costs? By incorporating innovations in policy, finance, construction, and design we can identify possibilities that can scale up to become an array of models for addressing the crisis. This may entail a less formal path to growing an affordable inventory, redefining housing typologies, and retooling our physical assets in a desirable, cost-efficient way. One way to start is to begin playing with that spreadsheet and Designing Affordability.

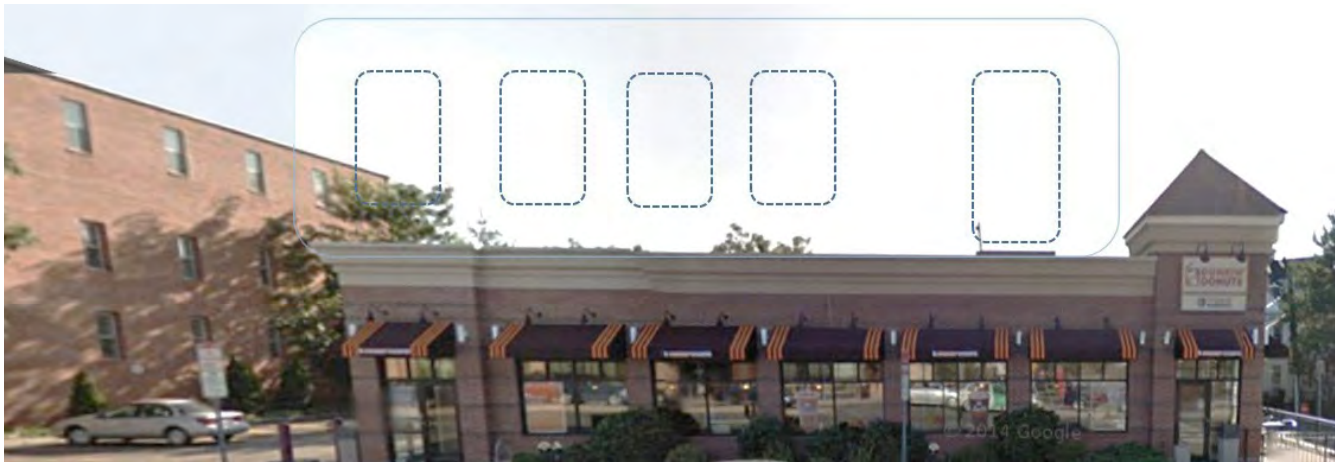

Figure 11: One story commercial building on Massachusetts Avenue, Cambridge, MA. Courtesy of google maps and the author.

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2. Joint Center for Housing Studies of Harvard University (2014). State of the Nation's Housing Report. The report illuminates the complexities and paradoxes of the current crisis. Across most of the U.S., housing prices rose on average by 10% from 2013 to 2014 at the same time interest rates started to climb. In our current economic climate, incomes are falling, specifically among potential 1st time home buyers. From 2007 -2012, median household incomes dropped over 7%. This cohort is also burdened with student loan debt at unprecedented rates; 16% of 25-34 year olds holding debt exceeding $50,000. For the population as a whole more than 35% of households are cost burdened meaning more than 30% of income is dedicated to housing costs. If renters are separated out this percentage rises to 50%.

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7. In a comparative analysis of relative affordability, sales prices for an average Levittown home in 1950 were $8,490. With a 30 year mortgage at 8.2%, the annual income required for purchase would have been $2,547. Adjusted for inflation that equates to an annual income of approximately $57,800 or slightly above 65% of current area median income for New York City.

8. A limited equity cooperative can be defined as a housing cooperative in which low income eligible members purchase shares at below market prices and are subject to limitations on the amount of equity or profit they can receive on the re-sale of their units.

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13. Mireya Navarro (January 29, 2015). "Long Lines, and Odds, for New York's Subsidized Housing Lotteries. New York Times.

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16. Justin McGurlick (2014). Radical Cities: Across Latin America in Search of a New Architecture. Verso Books, p. 44-48.

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19. Figures cited by Kevin Casey, Executive Director, New Avenue Homes. In formulating the business plan for New Avenue Casey included the facts that 55% of US homes have just 1 or 2 people living in them and most homes are not adaptable for those who are aging-in-place. His surveys have shown that up to 30% of the 1,500,000 single family home owners in the San Francisco Bay Area want to reinvent their home for sharing. He finds that optimizing existing land and homes as much as 50% less expensive than subsidized "affordable" housing with an average Total Development Cost of $235,000 equating to a Monthly Payment $1,300 New 2 Bedroom Home.

Nancy Kwak

Nancy Kwak is an assistant professor of history, urban studies, and planning at UC San Diego. She studies the evolution of the built environment, focusing on the role that planners, architects, and policymakers play in creating neighborhoods and communities. Nancy earned her BA in History from UC Berkeley and her MA and PhD in History from Columbia University. She has published a book and various articles and book chapters on global housing aid, most notably "A World of Homeowners: American Power and the Politics of Housing Aid" (University of Chicago Press, 2015), "Public housing is never part of a successful urban development strategy," in Nicholas Bloom and Lawrence Vale, eds., "Public Housing Myths: Beyond Victims and Villains" (Cornell University Press, 2013), and "International influences on the creation of a national landscape in Singapore 1945-2000," in Shane Ewen and Pierre-Yves Saunier, eds., "The Other Global City: Transnational Connections and Urban Problems in the Modern Age" (London: Palgrave, 2008).

Few countries have thus far succeeded in cutting the Gordian knot of housing affordability. While technological advances have opened up new possibilities for construction and design, and innovative financial instruments continue to reveal new frontiers for global housing investment, families on every continent still contend with inadequate shelter. In the United States, various programs and initiatives have emerged to deal with successive housing crises, yet all have thus far failed to fully address the issue of affordability. The question today, then, remains the same as in 1945, 1962, or 1986: how can we make housing more affordable for more people? Or, how can innovations in financing, design, production, and distribution produce better outcomes for all stakeholders?

Marc Norman begins his answer to these difficult questions by detailing what he calls "ecosystems… formed to deal with earlier crises." Three historical attempts at affordable housing are examined: a mass homeownership program (Levittown), cooperative housing (Penn South), and low-income rental assistance (Low Income Housing Tax Credit program) are scrutinized for possible lessons. In choosing these examples, Norman surveys a commendably broad array of tenure types, although he chooses not to interrogate the relationship between tenure type and affordability. Instead, Levittown is praised for creating opportunity, affordability, and scale, as is Penn South for its successes in public-private collaboration and large-scale construction. "Serious flaws" are observed in both, although no flaw is portrayed as powerful enough to erase the basic

accomplishments of Levittown and Penn South as experiments in large-scale affordable housing. I would disagree slightly with this characterization. In fact, racial exclusion played a key role in setting popular perceptions of property value, and the Levitts' deliberate policy of segregation was based on a business decision to recruit white homeowners who had little interest in integrated housing investment. At Penn South as in many other urban redevelopment sites, the bulldozer approach could not have been applied to a more affluent or politically powerful community. These "flaws" were essential to the successful enactment of these affordable housing programs – not merely scratches on the surface of otherwise commendable programs.

Overall, however, Norman has a weighty point to make, and one that is clearly articulated in the second half of the paper. Planners, he argues, should think about housing solutions as ecosystems, rather than as one-size-fits-all solutions or as "fine-grained, contextual" work that can never achieve the scale and scope of large-scale programs. This is a compelling call for coherence without counterproductive uniformity: instead of seeing micro efforts as disparate local programs disconnected from one another, Norman's ecosystems focus attention on how macro-policies might better facilitate highly local solutions. Municipal codes might be revised to permit rooftop construction, for instance. FHA guidelines might allow incremental development.

This is an interesting approach to housing innovation, and one that permits both the possibility of learning from the Global South (surely an understudied realm in real estate programs), and the recognition of complex formal housing systems in the US. In addition to Norman's description of the sale of roof rights in Rocinha, Rio de Janeiro, or the Quinta Monroy Houses in Iquique, Chile, a host of other similarly incremental, self-help oriented, and more flexible housing innovations come to mind: in 1954, for instance, the UN devised an innovative roof-loan scheme in which the Ghanaian government provided long-term loans for roofs, doors, and windows. Besides streamlining construction practices by requiring borrowers to meet government determined standards as a precondition for loan approval, the roof-loan scheme also helped install a whole network of government offices to administer the loans. Other examples abound, with many taking on global proportions, as in the case of the Landcrete earth block makers, where local and national governments subsidized the block maker and the technical assistance to teach families to do voluntary auto-construction at low cost in the 1950s and 60s. Questions about housing affordability inevitably involve questions of housing quality as well, and beginning in the 1970s the World Bank actively pursued slum upgrading (improving housing quality on site) instead of relocation and resettlement (removing informal dwellers and rehousing them in new locations) as a more effective way to bring decent shelter within reach. By the Bank's logic, housing affordability meant little unless paired with structural integrity, access to basic services including clean water and electricity, and community.

One could easily see how some of these historic programs might offer more creative, thoughtful approaches to current domestic affordable housing programs. The wealth of such examples illustrates just how long and varied the evolution of ideas about self-help and incremental housing has been. Perhaps the clearest lesson from this preliminary discussion of specific cases is that many affordable housing programs have been attempted in the past, and that these invaluable experiences should be more thoroughly mined for their complex lessons. Careful research should not only reveal the potential for current-day policy adaptations, but also complicate simple prescriptions by uncovering intrinsic costs and potentially undesirable outcomes.

Eli Sokol

Eli Sokol is a candidate in the Master in Design Studies program at the Harvard University Graduate School of Design, concentrating in Real Estate and the Built Environment. Prior to his studies at Harvard, he worked as a job captain at Manhattan architecture firm Montroy Andersen DeMarco, where he engaged on a variety of large scale design projects. Eli also worked as a construction manager at Danconia Interiors, overseeing residential and commercial interior projects throughout New York City, including a Midtown co-working office and a Brooklyn-based fashion photography studio. He graduated cum laude from Washington University in St. Louis with a Bachelor of Arts in Architecture with minors in Business and American Culture Studies.

Fixed-Floating Development: Charting a New Course for Water-Based Real Estate

Climate change, land scarcity, and advancements in building technology are changing the conversation about water-based real estate. Through a critical analysis of a fixed-floating home development in Amsterdam, both the practicality and tremendous potential of water-based real estate is made evident. A subsequent review of the existing water-based development process pinpoints critical public and private components whose refinement will yield greater opportunities for the real estate community and coastal cities at large.

Historically, water drives urban development. Proponents of geographic determinism argue that the fate of entire civilizations rested upon proximity or access to this critical resource, offering sustenance, industry, and beauty. Yet with recent trends in global climate change, advancements in building technology, and decreasing availability of land, a new conversation about water and development has emerged. As carbon emissions remain largely unchecked, an impressive roster of cities face serious challenges from projected sea level rise. Hundreds of millions of people worldwide reside in low-lying coastal areas and trillions of dollars in building assets stand in harm's way.

To get a proper sense of the threat to coastal cities posed by global climate change, consider some well-publicized estimates: the *2014 National Climate Assessment* estimates global sea levels to rise between one and four feet by the end of the century, placing five million U.S. residents in a precarious situation. Half of Americans live in coastal counties, whereas half of the world's population will live within 100 kilometers from the coast by 2050. Sea level rise will not slow for centuries, as oceans take considerable time to respond to thermal conditions at the earth's surface. In other words, coastal communities face a clear and sustained threat to their long-term viability.

Most assuredly, the costs of inaction are much higher than those associated with prevention and hazard mitigation. By 2100, cumulative global economic costs tied to the response to sea level rise may be as high as $325 billion. Couple these sobering statistics with the fact that socioeconomically disadvantaged groups are disproportionately prone to displacement from sea level rise, and it becomes quite difficult to grasp the enormity of the undertaking needed to meet this global challenge.

Even in the absence of such threats, tremendous opportunities await the global development community. As the amount of developable prime coastal and urban land decreases, building on or above bodies of water may emerge as a pragmatic and even attractive strategy for the real estate industry. Independent of traditional water-related projects such as land infill, barges, or pier construction, there exists an opportunity to develop directly on water by creating flexible built environments that may be most adaptable to future landscape changes. This strain of water-based building, henceforth referred to as "Fixed-Floating Development," (FFD), shall be defined as any habitable floating construct that retains adaptive, flexible connections to man-made elements fixed to a seabed or lakebed. Building technology solutions have already rendered FFDs a pragmatic solution to growing cities constrained by a lack of land. As coastlines begin to relinquish their role as a physical terminus for the built environment, cities have the potential to redefine what urban dwellers consider habitable space. Moreover, such a fundamental reconsideration of developable urban boundaries can reframe the challenge of providing sufficient affordable housing in the great number of cities where a scarcity of such properties threatens an already fragile economic equilibrium.

Living Above the Surface

Several historical examples evidence the tremendous potential that emerges when water and real estate interact. Consider Venice, surely one of the first places that come to mind. Famed for its unique arrangement of sinuous canals, network of pedestrian bridges, and beautiful patchwork of buildings, Venice has long stood as an affirmative demonstration of living with water. Venice's beauty and novelty has captured the imagination of visitors and residents for centuries. Cassiodorus, a fifth century Roman statesmen and writer who served as secretary to Roman Emperor Theodoric the Great, famously wrote to maritime Tribunes after his initial visit to Venice, exclaiming with great enthusiasm:

> *"There lie your houses, built like sea-birds' nests, half on sea and half on land, or, as it were, like the Cyclades spread over the surface of the water; made not by Nature but created by the industry of man. For the solidity of the earth is secured only by wattle-work; and yet you fear not to place so frail a barrier between yourselves and the sea." (Brown, 1893, 13)*

Venice is remarkable in its enduring and mesmerizing appeal. A series of small sandy marshes was transformed over centuries into a grand and oft-imitated civilization built atop a foundation of countless regionally sourced wooden stakes. Though rising sea levels threaten the long-term viability of Venice, the city's ancient construction methods are not without merit. At once an example of construction ingenuity and now perhaps a cautionary tale, the city offers a reminder that future water-based developments ought to take an adaptive approach in the face of inevitable changes to the natural environment.

Another intriguing case is found at Hong Kong's Aberdeen Harbor

Exhibit 1: Jacopo De' Barbari's woodcut map of Venice in 1500, considered the first bird's eye view of any city. Image Credit: British Museum.

Exhibit 2: Sampans abut the crowded coastline of Hong Kong's Aberdeen Harbor in 1946. Image Credit: Hedda Morrison, Harvard College Library.

floating village. A major fishing port since the 19th century, the floating village has gained fame for its 600 'sampans,' or live-aboard boats, which today house approximately 6,000 people. This figure pales in comparison to the estimated 150,000 boat dwellers that once called the harbor home at its peak in 1963. Though the development of nearby modern fisheries during the latter half of the 20th century precipitated the decline of the Aberdeen floating village, the area remains a prominent tourist attraction. Today, 19th and 20th century sampans rub shoulders with contemporary boats and flashy yachts. Most residents who still reside on boats in the fishing village are known as Tanka, an ancient ethnic subgroup of Southern China known for their historical predilection to living on boats or in coastal areas. The Tanka's nomadic and nautical tendencies are largely responsible for shaping the informal and impermanent qualities of Aberdeen's once vast floating community.

Aberdeen's floating village captures a particularly successful large-scale live-work condition. Forgoing the basic infrastructure and amenities accustomed to by those living on land, residents of Aberdeen's boating community maintain a remarkable level of self-sustainability. Residents simply cluster a number of small durable boats above a vast volume of natural resources. In turn, the floating village underscores the relatively unsophisticated amount of infrastructure and activity needed to generate and sustain a water-based living environment.

Building on water has modern applications as well. Notable architecture firm Perkins + Will recently proposed an 86,000 square foot multi-family housing building in the Charlestown neighborhood of Boston. The building proposes to float along the banks of the Mystic River. Powered by solar and tidal energy, the 'Floatyard' will rise and fall nearly 10 feet over the course of tide cycles while mooring columns anchor the building. Though the proposal is yet to receive approval, its prominence suggests that contemporary FFDs are no longer a fringe interest of the real estate industry. Rather, the opportunity to develop on water is an increasingly desirable and likely necessary solution for the long-term sustainability of urban environments.

Exhibit 3: Aerial View of Ijburg Development. Image Source: Google Earth.

Amsterdam Ijburg Project

In the 21st century, perhaps the most successful FFD has been 2011's Ijburg Waterbuurt West Project, the first large-scale complex of floating homes in the Netherlands. Ijburg's complex planning, financing, design, and construction processes may serve as a critical lens through which interested developers and building professionals may better grasp the current process for initiating new FFD projects.

Located east of central Amsterdam - a city well versed in the challenges of building with water - Ijburg's Waterbuurt development site is part of a man-made and municipally designated experimental area known as Steigereiland. Without the presence of a ringdike - a common element in traditional reclamation projects - water permeates the boundaries of Steigereiland. Narrow, man-made islands form a roughly square-shaped plot of water. Two triangles of development occupy this square, divided by an overhead power line and its 50-meter right of way. The eastern triangle is populated by privately commissioned homes exempt from major design regulations, whereas the western triangle is a master-planned series of floating homes built with more municipal oversight.

The development of this experimental site was made possible by VINEX, a Dutch 10-year housing program that sought to address Amsterdam's housing shortage by constructing dense, high-quality neighborhoods that are well connected to jobs and public transport. A goal of 30% affordable housing underscores the VINEX strategy. From 1996-2005, VINEX produced 90 'urban extensions,' increasing the Netherland's housing stock by nearly 8% with 455,000

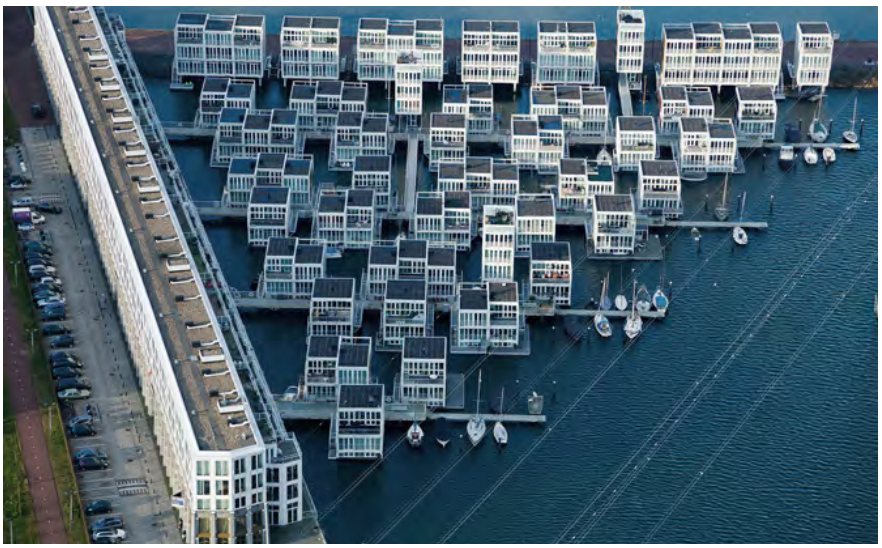

Exhibit 4: Bird's Eye view of Waterbuurt West floating homes, Quay Building, and Dike Residences. Image Source: Bowcrest.

new homes. VINEX emphasizes local public responsibility for the development of new housing, encouraging the government to provide initial seed capital for land decontamination and new infrastructure. Beyond this, proposed housing schemes are self-funded and responsive to municipal master plans and request for proposals.

Following a design competition for the western triangle site that emphasized high building density and affordable rental homes, developer Monteflore Vastgoed, housing corporation Eigen Haard, and architects Marlies Rohmer and Dok Architecten formed a collaborative syndicate. The ensuing development process sheds considerable insight into the challenges and opportunities presented by FFDs.

A significant hurdle in the early stages of the development was the acquisition of the water-based site, then owned by the National Land Holding organization. Despite its administrative nature, the National Land Holding group was incentivized to maximize potential income on their eventual sale to the local municipality. The two parties did reach a compromise, although the local municipality came close to paying a price for the seabed that may have rendered the development unfeasible. This site acquisition was preceeded by the creation of a public-private partnership that sought to provide key infrastructure and programming for the site. This partnership effectively tied in future developers, guaranteeing that they would also be responsible for the financing of social infrastructure and schools.

Today, the Waterbuurt area has a density of 100 houses per hectare, comparable to the well-known historic Jordaan area in central Amsterdam. 93 floating homes are supplemented by 17 dike residences built on more traditional sub-surface piles. The units are a mix of for-sale and rental properties, and 72 more floating homes will be added to the mix in the coming years. The Kadegebouw, known as the Quay Building, is a traditional low-rise residential building constructed on a platform above the solid ground flanking the edge of the Steigereiland. Car parking and garbage services are housed at ground level.

The 93 floating homes are oriented along a series of linked jetties, a complex pedestrian circulation system accessible by foot. The jetties create a unique public sphere, effectively acting as both street and sidewalk for residents of the Waterbuurt development. Spaced to satisfy fire department

Exhibit 5: Perspective from a jetty in Waterbuurt West

Exhibit 6: Home moving into place. Image Credit: Arthur van der Vegt.

requirements, the aluminum walkways are constructed atop a base of floating concrete. Built with non-slippery, low-maintenance materials, the jetties seek to provide a mental transition into the maritime world. Beneath the jetties, an elaborate network of cables and pipes for gas, electricity, drinking water, fire sequestration, sewage, and telecommunications run from a land connection to each respective home. Space for maintenance work is allocated, and meter boxes monitoring utility usage are located conveniently at building entrances. Internally, each home supplies gas for heating and cooking. The homes have a maximum depth of 1.5 meters in order to provide enough space between their respective foundations and the seabed. To avoid issues of immobility due to mud buildup, municipal service members periodically dredge sludge from the water beneath the Waterbuurt homes.

Homes are built in groups or float alone, and are organized to maximize the amount of uninterrupted water views. All of the floating homes were constructed at a dry dock off-site, where they are built atop a concrete foundation, or caisson. These caissons ultimately exist below the water's surface, allowing residents to occupy a sub-surface space. The opportunity to build off-site marks one potential advantage of FFD construction, as the assembly of property is not subject to weather conditions or other site disturbances. Upon completion of dry dock construction, the builder tows homes to their final site. As a result, the potential size of homes is governed by the clearances of locks they must traverse.

After arriving to the site, two mooring poles anchor the homes in a diagonal configuration offering maximum stability. A sliding connection to the mooring pools permits homes to stay in place as they rise and fall with changing water levels, thus fulfilling the basic parameters of a Fixed-Floating Development. Ultimately, construction costs per square meter do not differ significantly from that of typical Dutch housing. The floating homes were 10% more expensive to build than similar land-based counterparts, with total construction costs for the nearly 115,000 s.f. project amounting to approximately $14.1 million euros (excluding taxes). These figures translate roughly to construction costs of $165 U.S. dollars per s.f. Significant construction advantages include the absence of structural piles and freedom from weather influences. Nonetheless, the homes require an additional transportation cost and their size is ultimately limited by the difficulty of constructing large-scale floating buildings and transporting them to the site.

Exhibit 7: Boats and homes adjacent to one another. Image Credit: Primabeeld / Marcel van der Burg.

Financial & Legal Implications

In 2008, the Waterbuurt housing stock's entry into the marketplace coincided with the collapse of Lehman Brothers and the ensuing economic downturn. Nevertheless, the pre-registration period for the homes had brisk sales and an efficient lease-up rate. Financial, legal, and municipal regulations were of paramount importance to the Waterbuurt development and will certainly play a major role in at least the initial phases of similar projects in the future. In particular, three legal systems directly shape the future of FFD: administrative law, fiscal law, and private law. There is no guarantee that these systems act in accordance.

A topic of debate with major financial and legal implications centers on the classification of FFDs, which developers are eager to declare as immovable property. Whereas traditional immovable property is fixed to the ground, floating homes may theoretically be moved, though this is not intended. This classification limits financial and regulatory risk, and its legitimacy is bolstered by the presence of mooring. While homes may rise and fall with the tide, they cannot leave their designated spot.

An immovable property designation allows municipalities to generate zoning plans, regulate housing density and execution, and administrate architectural and visual standards. From a fiscal law standpoint, owners or renters of FFD residences may deduct mortgage interest from their income tax. Residents are also eager for FFD homes to be deemed immoveable, as this classification grants greater legal status in issues of maintenance, rent, and contract termination.

Exhibit 8: Evening in Waterbuurt West. Image Credit: George Steinmetz.

Immediate Steps & Long Term Possibilities

Relationships between owners, renters, and financial institutions fall under the umbrella of private law. Because banks are unfamiliar with FFD and its unique risks, the question of mortgage collateral is of paramount importance. As an alternative to traditional mortgages, some banks offer ship mortgages with interest rates that tend to be higher and longer terms. Some banks have offered mortgages comparable to that of traditional homes yet assembled in two parts: the first includes the plot as collateral while the second part acts as a ship mortgage for the home itself. This requires FFDs to be recorded in the land register as both immovable property and as a moveable ship.

The complicated and nuanced relationships between FFDs and financial, legal, and municipal parties emphasize the importance of redefining key regulations across numerous industries in a consistent and coordinated fashion. Should FFD projects gain considerable traction in the coming years, revisions to relevant financial and legal systems will be necessary.

The long-term viability of Fixed-Floating Developments is most subject to financial feasibility and a relatively clear process of site acquisition, entitlements, and development. With respect to the former, it is reasonable to expect construction costs to eventually fall in line with traditional land-based building once a certain economics of scale takes hold and methods of production are refined. Moreover, as FFD products become more commonplace, increased familiarity between institutional lenders, insurers, and developers may yield a more streamlined and formal building process that could in turn encourage more competitors to enter the marketplace.

The growth of FFD is unsurprisingly contingent on the availability of water-based sites in close proximity to employment centers, schools, and transportation options. The Amsterdam Ijburg development benefits from adjacency to a public streetcar line with quick and direct access to the city's central train station. In the likely absence of ample parking for some future development sites, connectivity to traditional city infrastructure will be critical.

With respect to the process of site acquisition and political approval, the onus lies with local, state, and federal governments to establish formal procedures for acquisition of water-based sites and generate directed zoning and building code legislation. Relevant public institutions must attempt to align interests to the greatest degree possible in order to avoid unnecessary hang-ups and costs in the initial project stages that may disincentivize private developers or ultimately harm the financial appeal of a site.

At a more granular level, municipalities must also determine which coast-adjacent water-based sites should be made available for purchase (or lease), as well as those that must remain undeveloped due to environmental concerns, neighborhood opposition, or pre-existing riparian rights. Important considerations include identifying the proper size of a sellable water-based sites as well as setting optimal parcel boundaries. This process will require significant community input and will likely be divisive at sites in close proximity to densely populated or valuable land, such as potential seabed plots along the Hudson or East River fronting Manhattan.

Where multiple landowners front a potential water-based site, municipalities must establish a framework to either preserve or revise riparian rights in a manner that reconciles existing local property laws with the potential public benefits of new Fixed-Floating Development. Other possible considerations may include the disruption of water-based transport right-of-ways with significant economic implications or substantial changes to land-based traffic patterns. In densely populated coastal cities with scarce undeveloped land, FFD projects have the distinct opportunity to alleviate issues of housing shortage and affordability. Further down the road, such projects may have the opportunity to include a greater complexity of programming.

With the field now understood, the question remains: how will Fixed-Floating Development grow? Leading city planners can take the initiative to free up water-based sites for experimental new construction. Tax credits and exemptions can help stimulate development. Though such processes will likely vary across cities and countries, these represent logical first steps to introducing FFD to the public. Future projects would be wise to foster a strong connection with the urban fabric on land, setting a strong precedent that Fixed-Floating Developments are an extension of the city rather than 'an appendage,' a term discouraged by the Netherlands Architecture Institute (NAI). Innovative FFD projects have already proven to be successful across the Netherlands and in few select cities globally. Issues of practicality appear to stem less from concerns of demand than they do about the ease of building and financing projects. If governments, financiers, and insurers are up to the collective task of rewriting the rulebook on water-based real estate, Fixed-Floating Development stands to be a promising new growth sector and pillar of innovative development in the years to come.

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Thaddeus Pawlowski

As an urban designer for the NYC Department of City Planning in the mid-2000s, Thaddeus Pawlowski was concerned by regulations and building practices that inhibited building for greater resilience, as well as by the underdeveloped links among design, economics, and policy. Even before Hurricane Sandy, he had begun to anticipate and plan for the increased threat of coastal storms and rising sea levels. His knowledge of emergency operations, zoning and urban design uniquely situated him to be an architect of the city's recovery as planning advisor in the NYC Mayor's Office of Housing Recovery Operations. Pawlowski initiated the 2008 "What if New York City…" design competition that is credited with shifting the storm response focus from evacuation and shelter to adaptation to predictable threats. He collaborated on a playbook for deploying post-disaster temporary housing in a way that facilitated consensus-based comprehensive planning. Months before Hurricane Sandy, he convened 80 respected architects to develop urban design principles for the flood zone and specific zoning changes for greater resilience, recommendations that were adopted after the storm. Working with Architecture for Humanity and Enterprise Community Partners, Pawlowski organized The Sandy Design Help Desk, which is offering property owners in flood zones personalized guidance in understanding their resilience options.

Eli Sokol's article imagines the tremendous opportunity of building over water in the future. History agrees. Much of our cities have already been built over water; approximately one third of Boston is built over what was once water. Manhattan's centuries of expansion only paused in the 1980s after a federal judge found that developers did not sufficiently disclose how the area between and under piers provided essential habitat for striped bass. That decision scuttled Westway, a decade-long dream to bury the West Side Highway under a park and a mixed-use neighborhood. It is not just the fish that have given building over water a bad rap. In most land expansion projects, the land was filled and buildings were built only up to the level of the observed high tide. With sea level rise and the threat of more frequent and devastating coastal storms, these areas are the highest risk and will have to be protected, adapted or abandoned in the future. Mayor Bloomberg's post Sandy master plan proposed extending Lower Manhattan to provide a flood protection, which would also happen to be a convenient place to site a few new skyscrapers. The urge to push beyond the edge takes many forms but remains unceasing.

The Dutch suburb cited in this article also comes cloaked in the holy cloth of climate resilience, but it is different from the historic pattern of building over water in one critical way: It floats. How important is it that it floats? Apparently, it is important enough that divers dredge under the houses on a regular basis.

Floating would seem to afford several advantages. As sea level rises, the houses will also presumably rise accordingly. One would hope that the city to which they are connected also rises, but that is for another article perhaps. I suppose these houses would also rise to accommodate flooding, although I would like to know more about how they would act in a hurricane with storm surge and wave action. The Dutch example is contained on all sides by a levee, but could floating houses also work in a coastal harbor or open water where they would be exposed to more hydrodynamic forces? Would it even work if it were exposed to daily tidal ranges of several feet?

There also seem to be many disadvantages. Sokol points out that there is slight increase in cost per square foot than land-based counterparts. It would be interesting to have a more detailed cost comparison that factors in infrastructure. Does the infrastructure to support the floating homes also have a significant premium due the necessary waterproofing and flexibility, and would this subsidy outweigh the benefits? One clear disadvantage to the floating projects unmentioned here is that there is presumably a limit to density. There may be many instances where the investment in infrastructure could not be justified for this level of density.

Sokol also notes the complexity and confusion in financing and regulating these properties. I would think that some creative developers would consider this an advantage. If the site is under pubic jurisdiction, one would hope that there would be a significant public benefit built into the project. Even if it privately held, the public use rights to the water should be compensated, just as Massachusetts Article 93 already requires all properties sea-ward of the historic high tide to have a public component. I do not know if the Dutch have any similar law, but it would appear not from the very exclusive nature of the urban design of this project.

Clearly, any site that would be converted from open water to habitable structure should be done so according to a plan that considers the adjacent uses, public space, transportation, ecology, etcetera. I say clearly, although one could see why the NAI might have warned about these gangly appendages after seeing this simplistic, marina-inspired building arrangement.

Most importantly, what does the striped bass have to say about this? Is there a way to make these this sort of development more ecologically responsible than our current pattern of land-making? This will be a critical question in making this housing palatable to the regulators who are concerned with water.

I am not aware of any jurisdiction in the United States where fixed floating houses would currently be allowed as of right. Wetland regulations would seem to prohibit in most cases. The National Flood Insurance Program will not currently insure houses over water, which would make them impossible to finance. Sokol points that there would likely be significant community opposition both to changing these laws or approving individual projects.

Despite these issues, I am confident there are floating homes in our future, because we are running out of land in the cities where people most want to live. I hope they will be well planned and designed better than what we see in this example. I think there could be some serious design benefits to floating structures in terms of coastal ecology and adaptability to sea level rise, but profit will likely be the motive for this development as at it has always been in building out into the water.

Jane Philbrick

Jane Philbrick is an artist and Master in Design Studies candidate at the Graduate School of Design. In 2012, Jane founded re-wire, an artist-driven redevelopment initiative of the former Gilbert & Bennett Manufacturing Co. industrial campus in Georgetown, Connecticut. Re-wire is funded by the Connecticut State Department of Economic and Community Development with the Connecticut Trust for Historic Preservation and fiscal sponsorship provided by Artspire, a program of the New York Foundation for the Arts. Prior to re-wire, Jane was Visiting Lecturer and Director of Program for the C:Art MFA, Valand School of Fine Arts, University of Gothenburg. She is a former fellow at the Center for Advanced Visual Studies, Massachusetts Institute of Technology, and the MacDowell Colony. Recent exhibitions include Pratt Manhattan Gallery, New York; MASS MoCA, North Adams; The Andy Warhol Museum, Pittsburgh; The Museum of Sketches (Sweden); Wanås Foundation (Sweden).

The Artist Developer

Artists create value as agents of urban renewal, a by-product of their pursuit of affordable live/work space. The financial impact of art and artists in the built environment is difficult to evaluate and therefore bank on. When government and leading private foundations invest in community-based arts, what is the take-away? If actual value is being produced, how might these non-profit and informal initiatives be capitalized and scaled up for broader impact? If artist-driven place-making offers tangible market benefits – fostering more distinctive and desirable communities in which people want to live and invest, could entrepreneurial teams of artists and developers go mainstream?

Artists typically operate in the built environment through discrete commissions, private and corporate patronage, or publicly sponsored programs such as "Percent for Art" that earmarks a portion of new construction budgets to fund original, site-specific artworks. Artists are also recognized as catalytic agents of urban renewal, a by-product of their pursuit of affordable live/work space. The success of this phenomenon, qualified by the accelerating and exclusive process of gentrification that ensues, motivates top-down intervention by government and philanthropies to foster copycat revitalizations through institutionalized economic development strategies partnering art and culture, broadly labeled "place-making." These are not trivial undertakings in scope or ambition. Funded by a consortium of leading foundations and individual donors, the nation's premier not-for-profit "place-making" organization is ArtPlace America. Since its founding in 2011, ArtPlace has developed 189 projects by artists and arts organizations of diverse disciplines, with grant awards ranging from $50,000 to $500,000 for a total investment of $56.8 million.

These two production streams – site-specific artworks that animate the built environment and community-based revitalization – demonstrate the real-world impact of artists in real estate development. Given this impact, scaling up the artist's role to a strategic level seems a natural but nonetheless provocative proposition.

Defining the Artist Developer

To confront the definition of what an 'artist-developer' could be, first consider a few misconceptions. Chief among those is that art has only superficial or decorative value. Think again. From an investment vantage, witness the near-record heights of the global art market, $66 billion in 2014. Swiss bank UBS began collecting art fifty years ago; its current holdings exceed 35,000 works. Friedhelm Hütte, curator of Deutsche Bank Art, the world's largest corporate art collection, opaquely appraises the collection at a "three-figure million amount." Artists create not only investment-grade assets but also provide companies a means of branding themselves with distinction in the global marketplace through acquisition of their work. Insurance behemoth Progressive purports that its collection, one of the foremost corporate collections in the country, inspires its employees to "think creatively." Private collectors founding their own museums enjoy significant tax benefits deducting acquisitions and operating expenses in exchange for public amenities of limited-access viewing and educational programming. Across institutional and private sectors, art is an asset class with leverage for financial gain.

While the art market offers quantifiable valuations, the financial impact of art and artists operating in the built environment is more difficult to evaluate and therefore bank on. When government and leading private foundations invest in community-based arts, what is the take-away? If actual value is being produced through non-market channels of private and government subsidies and the discreet wiles of individual artists colonizing cheap real estate, how might these non-profit and informal initiatives be capitalized and scaled up for broader impact? In conventional marketplace development, trial-and-error prototyping constitutes research and development, or R&D. If the prototype of boutique place-making offers tangible market benefits – fostering more distinctive and desirable communities in which people want to live and invest – could entrepreneurial teams of artists and developers go mainstream?

The chestnut "artists are rewarded by their work" is true but not sufficient. Artists are by necessity financially canny and alert to opportunity. A much-revered "star-tist" coolly applies a price-per square-inch metric to valuing his work – the more "real estate" covering the wall, the higher the painting's cost to a collector. Artists Christo and his late wife Jeanne Claude marshaled a $21-million budget to realize the 2005 Central Park installation, "The Gates," generating an estimated $254 million for the NYC economy. Gimlet eye to the bottom line of secondary sales that can exponentially amplify return, American star-tist Jeff Koons retains a stake of all future sales of his work. Upending convention, Koons inverts on-spec production by pre-selling work yet to be made. Rather than the artist making work he/she hopes will sell, a collector buys work he/she hopes will be made. For a Koons' collector, this could be years. With a supply-restricted asset, tight inventory, and sustained demand, it's a market sweet spot, with scales tipped to the producer.

Business acumen in the art world is a prerequisite, and not just at the top echelons of high earning, high net-worth practitioners. Producing unfunded work on conventional spec takes invention, discipline, salesmanship, sheer will power, and appetite. Artists have incentive to perform and to produce. Are there blowouts, underperformers? Dear reader, people who live in glass houses shouldn't throw stones.

The term 'artist-developer' is not a contradiction. It is a term falling within the overlapping domains of fields typically organized laterally. Their combined application, however, provides unique leverage, and an approach that is not without precedent. This synergy between real estate development and artist-driven models of community revitalization has fostered 'place-making' that truly impacts the built environment with real value.

Two Case Studies: Rick Lowe & Theaster Gates

Houston-based artist Rick Lowe is a 2014 Fellow of the MacArthur Foundation, popularly known as the "genius grant." Chicago artist Theaster Gates, Jr., holds two degrees in urban planning and works closely with local community, Mayor Rahm Emanuel, and the city in efforts to revitalize Chicago's South Side. Gates was named a Fellow of United States Artists in 2012, and received the inaugural Vera List Center for Art and Politics award in 2013. Both Lowe and Gates recognize that their community-based, built environment practices defy conventional definitions of the artist and expectations of artworks.

Originally trained as a painter, Lowe founded Project Row Houses (PRH) in 1993 with a group of artists to transform a run-down streetscape of twenty-two shotgun row houses – narrow, rectangular houses dating from the Civil War era to the 1930s, common to the American South – in Houston's largely African-American Third Ward. PRH anchored a community long in decline by integrating social programming to support young mothers, who take up temporary residence in the renovated row houses, with art and cultural programming, including youth art education and exhibition and studio space for emerging and established artists. Remediation of the houses was a collaborative community project, with initial funding provided by the Elizabeth Firestone Graham Foundation and the National Endowment of the Arts, and corporate sponsorship from Chevron.

While the spare restoration of the modest row houses is aesthetically pleasing, Lowe's intervention as an artist exceeds typical art categories of object or image. His medium is the community as a whole: brick and mortar (clapboard for PRH) and residents. Assata Richards, one of the first young mothers at PRH, explains:

> *"I had heard Rick was an artist when I got there, but I thought, what kind of art does he do? Then I realized we were his art. We came into these houses, and they did something to us. This became a place of transformation. That's what art does. It transforms you. And Rick also treated us like artists. He would ask, 'What's your vision for yourself?' You understood that you were supposed to be making something new, and that something was yourself."*

In 1997, PRH was awarded a silver medal Rudy Bruner Prize for Urban Excellence. The City of Houston Council followed with a grant of $975,000 in 2006. As of 2009, PRH expanded to include 40 shotgun houses. New low-income housing was added to the campus, as well as organic gardening. PRH engages a wide range of collaborations with local residents, visiting artists, architects, planners, and clergy, with Lowe providing ongoing guidance and planning. During 2013, PRH's income totaled $1,419,994, underscoring the viability of socially oriented built environment practice. Lowe has new community-based

Image: Carrie Mae Weems, "Project Row Houses (from "The Museum Series")" (2006–present), digital chromogenic print, 72 × 60 inches. Courtesy of the artist and Jack Shainman Gallery, New York.

Image: Round Monuments Education House. Credit: Project Row Houses.

Image: Theaster Gates, Dorchester Projects. Credit: post-ism.com.

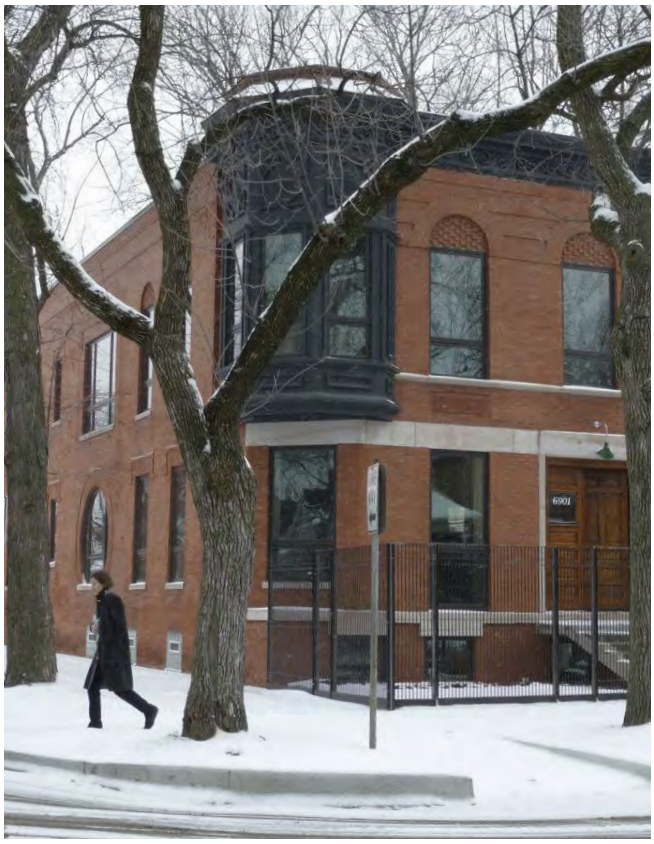

Image: Theaster Gates, Black Cinema House. Credit: Julia Foulkes.

projects developing in Los Angeles, New Orleans, and North Dallas.

Artist Theaster Gates' "monopoly board" portfolio of investments on Chicago's blighted South Side is formidable. Between 2006 and 2011, Gates amassed an inventory that includes seven residential buildings, six apartment buildings, and one abandoned housing development with 32 mixed-income apartments. In 2012-13, he followed with two more acquisitions, both commercial properties: the 25,000-square-foot former Anheuser Busch distribution plant, which he renovated into a capacious studio; and the Stony Island State Savings Bank, a stately marble-columned, neo-classical civic building designed in 1923 by local architect William Gibbons Uffendell. Gates staved off demolition of the long-abandoned bank by furnishing a valid redevelopment strategy to Mayor Emanuel that renovates the historic structure as a culture and community meet-up hub. Gates' Rebuild Foundation, established in 2011, supports community-based cultural and creative entrepreneurial programming for Dorchester Projects, the Chicago initiative for which he is best known, with expanded operations in Omaha and St. Louis.

Gates is also the force behind the Arts Incubator, a renovated 1920s commercial building that opened to the public in March 2013 as part of the University of Chicago's Arts + Public Life initiative, where Gates is director as well as professor in the Department of Visual Arts. The Arts Incubator offers artist residencies, arts education, exhibitions, performances, and lectures. An abandoned neighboring building pegged for repurposing is under lease from the University for conversion to commercial space. Gates is currently developing a million-dollar public art installation for the South Side's Ninety-fifth Street subway station.

Image: Theaster Gates, Black Cinema House during renovation. Credit: Rebuild Foundation and Dorchester Projects.

Image: Theaster Gates, Black Cinema House before renovation. Credit: ArtPlace America.

The cluster of rehabilitated buildings that make up Dorchester Projects began with a former candy store the artist purchased for $130,000 in 2006 to renovate for studio space. He acquired the building next door, dubbed Archive House, in 2008 for $16,000, which he refit to house his massive collection of 14,000 books on art and architecture, acquired when a local bookshop closed down, and 60,000 glass slides salvaged from the University of Chicago's art history department. The original candy store studio was rehabbed to hold his collection of 8,000 vinyl records, and rechristened Listening House. Gates picked up the building across the street and renovated the ground floor into the Black Cinema House, screening movies from the city's archives of black film, and offering courses on filmmaking for local school children. The Houses host dinners, performances, and community gatherings for people to meet, exchange ideas, and network. Dorchester Projects has four renovated houses for artist residences and six apartments, leased at under-market rents. Construction is hired locally, and resident artists give back by assisting with events, leading tours, teaching workshops, and sharing skills. "I'm kind of creating an ecology of opportunity," explained Gates to *The New York Times* in 2013.

These artists-developers are masters of community-building, turning blight into productivity through their vision and thoughtful investment in human and community capital. From there, their projects grow organically. The value proposition is obvious, but sometimes understated in conventional real estate development. If their approach can facilitate authentic 'place-making,' where else is this model most needed?

A New Frontier?

The artist-developer is by nature an innovator and there are segments of conventional real estate that are in desperate need for just that. One of the most stale and underperforming is the prototypical American suburb. In the 2012 Urban Land Institute Report "Shifting Suburbs," the organization marked a departure from twentieth-century urban planning:

> *"…market preferences have been shifting. Signs point to an increasing appetite – especially among generation Y – for higher-density living patterns… The signs point to a continued change – and a continued need for innovation – in the suburbs."*

In his seminal 1979 essay, "Toward a Theory of Gentrification: A Back to the City Movement by Capital, Not People," radical geographer Neil Smith cites research highlighting the quest for "socially distinctive communities" as a critical force in urban renewal. As economies of post-industrialization shifted from production-based to consumption-driven, a premium evolved for non-commodity housing and building inventory. The public prizes historic city centers offering walkable streetscapes that are hybrid, storied, and diverse. Given the artist's well-documented ability to revitalize and recolonize urban America in the lead up to the twenty-first century, maybe it is time for the artist-developer to take a visionary approach in the other direction, towards suburbia.

The declining quality of suburban life is matched by a decline in investment value. "For real-estate investors, the difference between suburban and downtown markets is stark," contends Anton Troianovski for *The Wall Street Journal*. "Downtown office buildings are sparking bidding wars especially in major cities like New York and Washington D.C. Meantime, many suburban office parks continue to languish on bank balance sheets, attracting few buyers."

Determining how to become competitive in this challenging market and how to create great communities offers opportunity for new partnerships across disciplines. *The Economist* states that, "The great urbanization is actually the great suburbanization." Population growth will exceed capacity in the city core; peripheral expansion is inevitable. Twenty-first-century suburban development needs to strategize beyond opportunistically proliferating single-family housing without amenities.

Art and artists have proven ability to produce and sustain the social connectivity that creates resilient and prosperous community. Robert Elmes, executive director of Galapagos Art Space, argues, "The arts are already in the real estate business – they just aren't being rewarded for it." Speculating on "buzz" or "cool" does not sustain vibrant community; the conventional developer needs new game.

This could be the next frontier, where the artist-developer scales up operations and adds the most value. Artists Lowe and Gates, by example, create and perform community through their place-specific and sustained practice in the built environment. Partnerships with artists in real estate development to make great communities is good business, and "good business," artist Andy Warhol famously stated, cinching the deal, "is the best art."

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Toby Bozzuto

As President of The Bozzuto Group, Toby Bozzuto is responsible for the day-to-day direction of the company and leads its 1,900 employees. Bozzuto has more than 5,000 rental units in the pipeline or under construction throughout the Mid-Atlantic and Northeast regions ranging from urban high-rise properties to affordable housing. Toby joined The Bozzuto Group in 2001 and in 2007 was named Partner. He previously worked with J.P. Morgan Chase's Real Estate Debt Group and was also a financial analyst with Columbia National Real Estate Finance. He serves on the Maryland Health & Higher Education Facilities Authority, the National Advisory Board for the ULI Terwilliger Center for Housing, the Board of Trustees for the Kennedy Krieger Institute, the Board of Trustees for The Gilman School, the Buildings & Grounds Committee for Maryland Institute College of Art, and is a member of the Urban Land Institute. Toby is also part of the Young Presidents' Organization, a group that aims to develop better leaders through idea exchange. He serves as a regular guest lecturer for the Harvard University GSD, the Johns Hopkins Carey School of Business, and Georgetown University. Toby was named as the Maryland Building Industry Association's 2014 Developer of the Year, one of The Daily Record's 2014 "Most Influential Marylanders," as Commercial Property Executive's 2013 "Rising Leader," as well as to the Baltimore Business Journal's "40 Under 40" list. Toby holds a Bachelor of Arts degree from Colgate University and a Master of Science degree in Real Estate Development from New York University.

I have long believed that there is a very special nexus at the confluence of great design and commerce. The very best projects that my company has developed are ones in which we have worked with talented architects, interior designers, landscape architects, and artisans. I consider them all "artists" and find that there is a special alchemy that results when their skills collide. The resulting projects have the propensity to resonate on an emotional level with our customers. In turn, my company is able to charge rents that command a premium over the market in exchange for the extraordinary experience we provide our customers. Therefore, I agree with the author's overriding thesis that when the work of artists combines with that of developers, the result can be incredibly positive both financially and socially.

The author's notion that the special qualities that artists bring to the table could ultimately translate into a value proposition are spot on. I especially agree with the author's statement that artists are often recognized as "catalytic agents of urban renewal." It is a wonderful notion that an artist, whose career is dependent on the creation of something in a particular medium, can in turn have a meaningful and substantive impact upon an urban environment. It is as if the art that they are creating has a greater power than just the art itself.

We only need to recall what happened to the manufacturing neighborhood of Soho in New York City once artists discovered the inherent benefits of the huge industrial windows streaming in light, as well as the extra-tall ceiling heights. Just a few blocks north, the art of music had an enormous effect on Greenwich Village, ultimately delighting Jane Jacobs and many others. The "Village" continues to be the archetypal model for mixed-use developments to this day. To the west, the neighborhood of Chelsea is blessed with numerous galleries, restaurants, and nightlife at street level. As if that was not enough, the neighborhood is embraced by the architectural triumph of the High Line snaking its way up the west side, magnifying land value wherever its tendrils touch.

Where my thought process begins to diverge from the author however is the concept that the artists themselves should become the developer. While I do share her view that

"scaling up the artist's role seems a natural but nonetheless provocative proposition" is exciting, I am unclear as to how exactly the author hopes this can be accomplished. In my mind, a developer plays the role that is not dissimilar to that of a conductor of a beautiful orchestra. A good conductor (or developer in this example) has the ability to pull together an extraordinarily talented team, and through leadership and vision, can get them to play together beautifully. The developer therefore can practice their "art," while the musicians can excel in their craft. Without each other, there is no music.

The author seems to be issuing a rallying cry for the artists themselves to become developers. Reading between the lines, I sense that she is saying, "Artists - you have done so much, yet others are capitalizing on your success!" While perhaps she is right, I believe instead that the marriage of artist and developer results in a far more potent combination than if the artist became the developers themselves.

The author spends a good amount of time in her article ascribing metrics to the business of art and the subsequent creation of value. These examples are appreciated, as so often those in the artistic community have difficulty translating the value-proposition of their craft into terms that an economist could quantify. It is admittedly very difficult to extrapolate what value joy, design, passion, or happiness adds to a consumer's mindset. Yet, I maintain that these qualities are directly responsible for the creation of value. While I often attribute the success of our projects to those qualities that potentially delight our customer, it is quite possible that other more practical considerations came into play in their housing decision such as location, proximity to their work place, or the neighborhood itself. For example, did you buy your iPhone because it is truly a beautiful design, or because of all of the things that it can do for you? I am guessing a little bit of both. Attempting to extrapolate what portion of your purchase was based on form versus function is obviously difficult.

As such, we can appreciate the author's difficulty in quantifying the fiscal impact the artist has upon the built environment. In perhaps her most modest moment, she acknowledges that "while the art market offers quantifiable valuations, the financial impact of art and artists operating in the built environment is more difficult to evaluate and therefore bank on." I applaud her for her honesty. Indeed, it is extraordinarily difficult to pick apart and name the qualities of a successful neighborhood once it is established. Imagine eating a delicious soup, and trying to reverse engineer what ingredients made it delicious. It is the entirety of the urban experience that grows organically over time that makes it special. No one catalyst per se deserves total attribution for an urban success story.

The author began to add some real meat to her thesis through the fascinating description of the work performed by Rick Lowe and Theaster Gates. This work was unfamiliar to me, and I very much appreciated and understood the power of creative thinkers in the development arena. I maintain however that these two terrific examples are more outliers than the norm. Instead, I believe that there are and will be far more examples of incredible projects that marry the artist and developer, versus the artist being the developer themselves. Admittedly, these examples do beautifully illustrate the magnifying power of creative thinking. I would very much like to hear the author's thoughts on how a model like those of Lowe and Gates might be replicated?

I have witnessed the transformative power of the arts in my own developments. At our Monroe Street Market project in Washington, D.C., the ground floor of one of our buildings is leased at a significant discount to 27 artists. The 27 unique studios are used as the artist's primary workspace, and subsequently retail space. We dub this portion of our project the "Arts Walk" and it adds tremendous vitality and authenticity to the development. Examples like this show the positive results when artists and developers work together. I encourage the author to contemplate other possible applications, and would look forward to learning of the results.

The author next makes a very interesting supposition: that the suburb is devoid of innovation and by extension, creativity. The implication is that the influx of artistic and creative thinkers would inject some desperately needed life into cookie-cutter development. In turn, "great communities" would proliferate. She describes, "Art and artists have proven ability to produce and sustain the social connectivity that creates resilient and prosperous community." This point needs more exploration, and perhaps if allowed a longer format the author would have opportunity to explain further. While I admire the passion and thinking behind the author's thesis that the arts could create better suburban communities, I find myself focused on much less ideological thinking regrettably. As a father of three children under ten years old, I am more concerned about where they will be educated versus how authentic my neighborhood is. It is perhaps an unfortunate reality that the suburbs therefore become a reflection of convenience and familial priority rather than the fulfillment of creative desires. The suburbs appear to be a Maslowian Hierarchy of Needs in the form of a built environment, with self-actualization relegated to distant memories of the single life and downtown living.

It is easy to admire the author's passion on this subject matter, and exciting to contemplate the effect that the artist could ultimately have upon the built environment. I believe with every fiber of my being that projects that are designed thoughtfully, creatively, and passionately will ultimately yield superior results over their less-inspired competitors. Thus, an "artistic" influence would be extremely beneficial to the development of new projects. However, the path to get to the end game of authentic, emotionally resonant projects is winding and varied. Ultimately, the more that artists and developers work together, the more likely this enigmatic magic will happen.

Kilian Toms

Kilian Toms is a second-year MBA student at the Harvard Business School and an executive board member of the HBS Real Estate Club. Before starting business school, Toms worked at Landmark Partners as a real estate private equity associate. Prior to that, he worked in investment banking at J.P. Morgan in New York City, where he covered real estate, gaming, and lodging clients. This past summer, Toms had internships with Goldman Sachs and CBO Capital Partners, a West African growth private equity fund. At CBO, he focused on real estate and real estate services transactions. Toms received a BS from Florida A&M University in 2008, where he graduated summa cum laude. Kilian is originally from St. Louis, MO and is pursuing a career in real estate private equity. He has a passion for Emerging Domestic Markets, and he is exploring avenues to be a part of the revitalization efforts in these cities.

Opportunistic Investment in Emerging Domestic Markets

The United States is going through a period of major demographic shifts. Emerging Domestic Markets can present interesting investment opportunities for those who choose to take a long-term view on the economic recovery of some of our nation's largest cities. Opportunities are abundant for the risk takers, and the innovative are those who see opportunities and uses that others do not recognize. These cities will benefit from an engaged millennial population that remains energized to help revitalize the city.

According to the United States Census Bureau's latest projection, racial minority groups will outnumber non-Hispanic whites by 2042.[1] The U.S. is experiencing a period of major demographic shifts, driven by a sustained influx of immigrants, intermarriage, and higher birth rates among minorities in the past few years. For instance, between 1960 and 2010, the percentages of Americans identifying themselves as Black, Hispanic, Asian, or "other" increased from just 15 percent of the population to 36 percent of the population.[2] These demographic shifts, combined with improvements in access to higher education and greater purchasing power among minorities, have created a separate asset class identified as "emerging domestic markets" (EDM). EDMs offer a variety of new and attractive investment opportunities. Historically, markets in this asset class are underserved and thus are not destinations for investment by mass-market, institutional capital players. There will continue to be opportunities for investors targeting this asset class to achieve attractive returns by taking advantage of the market's capital inefficiencies, tax subsidies, and the growing demand for investments catered to this space. So, what does an emerging domestic market look like?

As the birthplace of the American car industry, Detroit, MI once boasted the highest median income and homeownership rate in the country. At its peak, Detroit reached a population of over 1.8 million people (as tracked by the 1950 census). Fast-forward 65 years, Detroit now appears to be a city devastated by destruction. The population has decreased with each subsequent census recording, and currently the city is home to just over 680,000 people, equating to an approximate 60% decrease. At the height of the recession, Detroit's unemployment rate was approximately 29%, and has only decreased due to the aforementioned rapid decrease in population. These declines in population led to another major concern in this Metropolitan Statistical Area (MSA): urban abandonment. Almost a third of Detroit's physical area is abandoned. Visiting certain parts of Detroit is like visiting a war torn, forgotten city. Many parts of this former economic powerhouse are desolate stretches of land, full of run-down, vacant houses. Dilapidated structures, empty apartment buildings, and factories consume the landscape. Further exacerbating these issues, on July 18, 2013, the city filed for bankruptcy.

Image: Eastern Market District. Source: Alex S. MacLean, NYT.

Image: Abandoned homes, Detroit. Source: Steve Neavling.

Since 2011, investors have spent billions of dollars on the Detroit metro area. Most of this capital has come in the form of private investment from high net worth individuals. High volume institutional capital has been largely sidelined. This situation poses a series of questions. What are these investors thinking? Detroit locals and expats are the driving force behind these investments. Do they know something that the institutional world does not know? As mentioned by the leaders of the "Opportunity Detroit" initiative, opportunity only comes to those in the game. From a bird's eye view, Detroit is a tale of two cities: one vibrant downtown, and everything else. The only way to get the real pulse of what is going on is to visit. This past December, the author took a trip to Detroit and met with some of the leading minds that are driving the Detroit revitalization efforts: institutions, city politicians, and business owners. One notable leader is the CEO of Quicken Loans, Dan Gilbert. These individuals represent a motivated group of people that are working to help Detroit create a story that connects to the passions of its residents. Detroit's revitalization could be instrumental in leading the charge for a new group of entrepreneurs who are thinking of innovative ways to make a difference, and creating a new class of investments targeting similar markets.

Despite its storied downturn, Detroit is gaining traction as an emerging domestic market. Insiders and outsiders alike are interested in investing in a city that is poised for a re-emergence. Specifically, commercial real estate property values and yields are becoming economically viable for private investors. Dan Gilbert and his portfolio of companies, including his real estate private equity firm, Bedrock Real Estate Services, are vocal supporters of the revitalization of Detroit and have made investments in over 120 companies and own over 60 office buildings in the downtown Detroit/Woodward Avenue corridor.[3] Is this what innovation in Real Estate looks like? Though there are community issues that the city needs to address, Detroit is in a position to reward investors who choose to take a long-term view on the economic recovery of one of our nation's largest cities.

A Case to be Made for Detroit Real Estate: Top-Down, Long-Term Drivers

For investors to consider emerging domestic markets, top-down, long-term economic drivers must be compelling. The investment rationale for real estate investing in Detroit anchors around five key, long-term property demand drivers: changing demographics, investment capital flows, employment growth, natural advantages, and motivated public and private sectors. If these drivers continue to power Detroit's recovery, a natural balance of supply and demand can follow.

1. Changing Demographics

According to the most recent U.S. Department of Housing and Urban Development research, the Detroit metropolitan area has grown by an average of only 2,600 people per year since 2010, which is entirely a result of net natural increases (resident births minus resident deaths), as net migration remains negative. However, out-migration from the MSA is decreasing. Specifically, the City of Detroit reported a population loss of 23,750 people, or 2.8 percent annually, from 2000 through 2010. Between 2010 and July 2013, the City reported slower annual population decline of 10,050 people, or 1.4 percent annually.[4] (Southeast Michigan Council of Governments) If Detroit is able to preserve its current population, attract new people through job creation, and encourage a higher rate of household formation, real estate development will benefit from the increase in spending, demand, and urbanization.

The urban core of Detroit is benefitting from renewed energy from its current residents. Millennials from in and around the area want to live in an urban environment. According to the Detroit Regional Chamber of Commerce, nearly 40 percent of recent graduates from Michigan's public universities have moved outside of the state. About 38 percent of those who left Michigan moved to Illinois, California, and New York. However, there is a recent trend of renewed inward migration. Millennials are attracted to Detroit's revitalization and are now moving in. Erin Patten, a soon-to-be graduate from Harvard University with a dual degree from the Kennedy School of Government and Harvard Business School, plans to move to Detroit after graduation because the city offers entrepreneurial opportunities in partnership with an existing local ecosystem of talent. Within Detroit, she sees "America's ability to compete at a global level in its core industries with better technology, more skilled labor, and a higher degree of passion."

As evidenced by her fervor, there is now a population who are engaged to be a part of the solution. For example, the Quicken family of companies has grown from three thousand employees to thirteen thousand employees, growth that would not have been possible in the suburbs. Those employees now work downtown and over 2,200 live in the downtown area. This demonstrates that there must be a subset of the MSA that extends beyond young professionals to include other professionals, such as adults in their mid-30s to mid-50s who work downtown, spend time downtown, or are interested in urban living as they transition to an "empty nest."

2. Capital Flows

Investments in labor and infrastructure often act as an important stimulus for economic growth through higher productivity and labor income. To date, capital sources include both local and national investors that provide equity and debt to both the private and public sectors. High capital flows will be a driver of occupier demand. Specifically, the corridor along Woodward Avenue shows signs of being the main employment center outside of the downtown area. In July 2014, construction began on M-1 RAIL, a 3.3-mile streetcar system funded primarily through private and foundation dollars. Investors include Quicken Loans founder, Dan Gilbert, and many other Detroit business leaders, corporations and organizations including: government foundations, Roger Penske, Peter Karmanos (founder of Compuware), and Mike Ilitch (owner of the Detroit Red Wings and founder of Little Caesars Pizza). The M-1 RAIL will link Detroit's riverfront to the central business district, Midtown, and educational, cultural, entertainment and medical institutions along Woodward Avenue to the New Center and North End neighborhoods. According to the M-1 RAIL partnership, the Woodward Avenue corridor provides a direct link to over 135,000 jobs and 36,000 residents.[5] For continued job growth, cities need modern infrastructure to act as a catalyst. The M-1 RAIL project can act as a catalyst given its strategic design. This is a great step forward for mass transit in Detroit, a city deeply committed to its car culture. Previously, Detroit was the only major U.S. city without a regional transit system. The M-1 RAIL and similar investments will serve as the first wave of capital flows. By anticipating future capital flows, regional trends, growth rates of industry, and investments in strategic locations, these projects are likely to drive increases in productivity growth and consequently, occupier demand.

In effect, these investors are creating their own "Detroit" within Downtown Detroit. The innovation and rebranding of Detroit is interconnected, as investors are proactively and thoughtfully tackling the city's major issues. For example, Rock Venture employs a security team that keeps the downtown area safe and integrates seamlessly into the broader police force. Interestingly, these private investors are serving as the catalysts and sources of capital for planned infrastructure projects. Normally a job for the public sector, the private sector is leading the charge. This leadership is driving productivity, property values, and real estate performance. The majority of these investments were underwritten on a basis "beyond the spreadsheet" whereby decisions are made based on fundamentals and intuition (where financial returns were not the primary driver of executing a transaction). Broadly, these investors have generated financial returns that have exceeded expectations, on deals that may not have been appealing to the typical underwriter. Even with the large swaths of capital invested in the city thus far, there is much more capital assumed to be on the sidelines. Deal volume, velocity, and returns are currently not favoring large pockets of institutional capital. Detroit needs patient capital. The issues present in the city need much more than a quick fix.

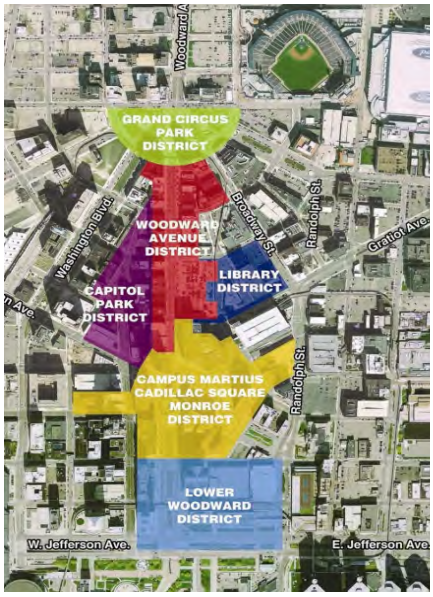
3. Employment Growth

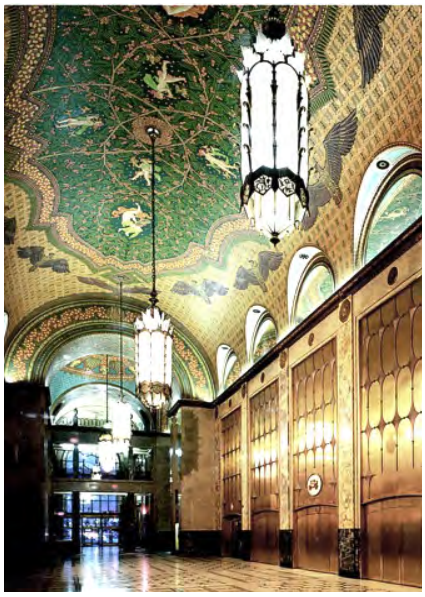
Detroit's ability to increase employment could be a key driver to the city's future profile. As previously mentioned, increasing the population will be key, but more importantly, increasing the ratio of jobs to residents will contribute to the financial stability of the city while creating economic opportunity for its residents (according to the Detroit future city initiative, only 5 of the top 100 cities have fewer jobs per resident than Detroit).[6] There has been a positive trend in this regard as Detroit's economy is beginning to change and its economic plan is to become much more diverse. Though there is much work to be done, there is a pervasive idea of the four "pillars" of employment, which now account for well over half of Detroit's employment base including: educational and medical employment ("Eds and Meds"), digital and creative jobs, industrial employment (both traditional and new technologies, large-scale and artisanal, manufacture and processes), and local entrepreneurship.

According to the U.S. Bureau of Labor Statistics, unemployment has fallen in the Detroit MSA from 18.2% in July 2009, to 8.1% in October 2014, though unemployment in the city is 15.1%.[7] Total nonfarm employment for the Detroit MSA gained approximately 4,700 jobs over the year ended September 2014. During this same period, the national job count increased 2 percent. Regional Commissioner Charlene Peiffer noted that the increase in Detroit area employment followed a gain of 32,000 (1.7 percent) in the previous 12-month period that ended in September 2013.

4. Natural Advantages

Proximity to naturally advantageous locations can be an important competitive advantage for Detroit. This is related not only to distribution demand and transportation costs but also in presenting synergistic benefits. Detroit's physical transformation intends to create additional job opportunities and tap the incredible potential inherent in the very problem that has plagued the city: miles of vacant and underused spaces. Two emerging industries for Detroit have potential in this context: urban food production and CDER (construction/demolition/engineering/repurposing). Both of these emerging industries build on Detroit's existing strengths. When coupled with Detroit's strong TDL (transportation, distribution, and logistics) economy, these industries could provide thousands of new jobs and entrepreneurial opportunities for Detroiters of all backgrounds and skill levels. Interestingly, Detroit





Left Image: Detroit Woodward Ave. Neighborhood. Source: Motor City Mapping. Middle/Right Image: The Guardian Building. Source: Getty Images.

has a skilled workforce, managers with operations experience, and broad design and engineering expertise among its residents. With proactive and coordinated investment, Detroit can remain an innovative hub for production. It bears noting that unions will eventually have to factor into this analysis, as they have been part of the fabric of this city for ages. But for the time being, the city will have to focus on the high-level aspects of the plan first.

Another of Detroit's natural advantages is a stunning collection of pre-depression era commercial architecture. Once deemed the "Paris of the Midwest," Detroit's downtown architecture remains an appealing aspect of the city. Though developers will need to address significantly outdated or vacant buildings, the majority of buildings will not need significant restructuring. In spite of high renovation costs, capitalizing on waterfront locations, dense neighborhoods, and exposing the historical beauty of the city (once vacancy/blight is taken care of), should assist in bolstering additional demand and contribute to creating diverse product offerings that will be instrumental to the recovery of the city.

5. Alignment Between the Public and Private Sectors

Public services may continue to see major investment and focus from the public sector as the city re-emerges out of bankruptcy. According to the city's ten-year restructuring plan, nine essential public services (including public safety, streetlights, parks and recreation, trash collection, tax collection, information technology systems, water and sewage, and blight removal) will attract over $1 billion of capital through a variety of sources, including private donations, federal grants, bank lending, and state funding.[8] Detroit's speedy course through bankruptcy, the largest municipal bankruptcy by debt and largest city by population, is remarkable. Additionally, the new government administration has inherited a city at its bottom and are correspondingly motivated to have an impact on its trajectory. These steps should start to increase business confidence in the city. Over the next investment cycle, a more stable and trustworthy government and motivated administration should reduce risk pricing (lower the discount rate) and encourage new investment from institutional capital.

Barriers to Innovation: Investment Considerations & Challenges

Detroit will have to address major challenges with its revitalization efforts. A number of issues have emerged, such as: workforce training and employment opportunities for Detroiters, tax policies, and the need to translate the city's available land and buildings into affordable, usable spaces for economic expansion and growth. This will require an immediate coordinated plan between public and private sector leadership.

1. Concern: Long-Term Sustainability

It was mentioned in the Detroit Future City Economic Growth framework that "Detroit's economic growth must be based on fairness and equity. Detroit's diversifying economy should be developed toward job growth for a variety of skill demands and business types." The growth in the employment opportunities in downtown Detroit, and inward migration has not represented the demographic profile of the more than 700,000 people in the Detroit metropolitan statistical area – primarily since African Americans currently make up 82% of the population of Detroit (U.S. Census).[7] Upon further inquiry and research, the following statistics[6] were most compelling:

- *Commuters hold approximately 70% of Detroit jobs.*

- *Over 21% of Detroiters do not have access to a private vehicle. The city lacks the necessary public transportation to connect employment zones with the neighborhood residents. According to the U.S. Department of State, approximately 95% of American households have access to a private car.*

- *Detroiters experience high poverty rates at every level of education. Notably, 20% of two-year degree holders live in poverty. Approximately 68% of Detroiters without a high school diploma are unemployed or do not participate in the labor force.*

In order for Detroit's revitalization to be sustainable, there has to be an equitable share of opportunities for the people of the city (currently the city has a quota where at least 30% of a city work contract has to be fulfilled by companies based in Detroit). Sustainability occurs when Detroit is able figure out a way to improve employment options, increase wages, and reduce commuting time for those who already hold jobs; which should lead to better safety, increase utilization of the city's services, and higher absorption of the planned apartment stock in the area. According to Detroit Future City's research, over 60% of Detroiters who hold jobs commute to the suburbs. Of these, 40% make less than $1,250 per month or less than $15,000 per year. As a result, 25% of the Detroit working population faces long commutes for low wages. Workforce education and training is therefore essential for residents to advance in their current jobs or to find higher paying employment. This advancement will be essential to the city's recovery.[6]

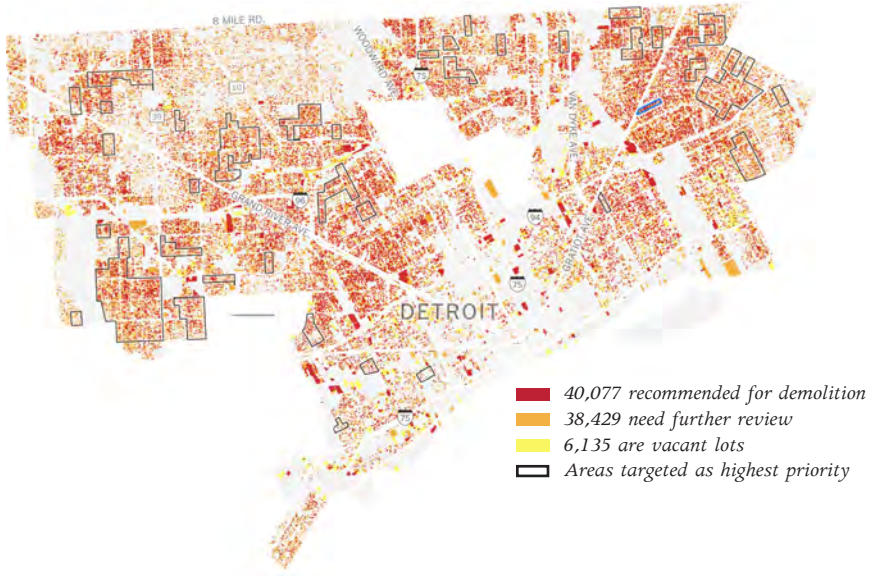
According to the PNC Financial Services group, Detroit's income growth should remain positive in 2015, though somewhat slowed because of a weaker labor market over 2014. Median household income has caught up with the national average after enduring a dramatic fall during the recession. However, there is still much work ahead on this front since pre-recession median income was nearly 4% higher than the nation's.

Additionally, for the city of Detroit to be viable over the long term, public services need to be a high priority. There has also been positive work done with key parts of the city's public service. Contractors have rewired and installed more than 25,000 new LED light fixtures and poles to this point, and hope to install 65,000 new lights by the end of 2015. This new announcement comes as more and more cities have started adopting LED lights. For example, Los Angeles retrofitted 140,000 streetlights with LED bulbs last year. New York's LED project expects to be the largest of its kind in the United States when completed with 250,000 LED lights. The city privatized waste management and now Detroiters receive weekly trash pickup, bi-weekly bulk removal, and bi-weekly curbside recycling. The city's response times are improving through the delivery of an additional 100 new police squad cars and 23 new ambulances (a boost to a city fleet that is old and prone to breakdowns).[7] However, according to Jim Ketai, CEO of Bedrock Real Estate Services, the cornerstones of the revitalization efforts will revolve around schools and safety. Currently, there are only three public schools in the area to service over 700,000 students. The city is placing a big bet on charter schools, whose results have been notoriously average. Detroit's low quality of schools is a major reason for the city's poor labor outcomes. It will continue to be an issue until the city steps in, takes ownership of this situation, and pushes the issue forward to get a tangible outcome.

2. Urban Sprawl and Neighborhood Revitalization

The most visible sign of the city's decline is its troubled, abandoned housing stock. The city estimates that there are 78,000 vacant or blighted homes in Detroit.[8] There are approximately 1,000 blighted homes demolished per month. Even with widespread sprawl, the plan for revitalization begins downtown. The city, in conjunction with city planning consultants TerreMark Partners and Gibbs Planning Group, have delineated six districts as areas for near term development. The committee selected these districts based upon multiple factors, with the goal being to build a connected community that will support itself through multiple uses. Currently, Detroit's neighborhoods lack the basic elements of place, such as grocery stores, neighborhood signage, public landscaping, or transportation infrastructure. The planned uses for these new communities address those needs, and entail retail goods, food and beverage offerings, cultural experiences, housing, parking, and employment opportunities.

Figure: A task force surveys 377,602 properties and finds 84,641 (22%) to be blighted. Source: The New York Times.



With all the activity going on downtown, the question remains: What does greater Detroit need to become? There are thoughts that the city could condense the 140-mile urban area to 70 miles of densely populated area and leave the remaining 70 miles as harvested trees. That is one idea, but the point is that the city needs to conclude what the highest and best use of Detroit's land will be. The current plan seems to revolve around fixing downtown's issues first, acknowledging its role as the epicenter of the broader community, and branching out from there. Detroit Future City also mentions:

> *"Unlike in many U.S. cities, Detroit does not currently suffer from residential encroachment on job producing land or face supply limitations that preclude growth in industrial sectors. However, the character, configuration, and spatial patterns of vacancy and neglect on formerly job-producing land represent a significant challenge to economic development in the city."*[6]

Will people buy homes in these neighborhoods? Housing market conditions in the Detroit metropolitan area are currently soft but improving. According to the U.S. Department of Housing and Urban Development,

> *"The current estimated sales vacancy rate is 2.1 percent, down from 2.5 percent in April 2010. The economic recovery during the past 4 years led to an increase in new and existing home sales and prices in the metropolitan area."*

Additionally, foreclosures have declined, and the percentage of home loans that were 90 or more days delinquent, in foreclosure, or transitioned into REO (Real Estate Owned) has been less than the national average since September 2012 (Black Knight Financial Services, Inc.). According to the same U.S. HUD report, new home sales (including single-family homes, townhomes, and condominiums) averaged 2,650 during 2013, up nearly 36 percent from 2012, and the average new home sales price was $286,900, a gain of 15 percent from 2012. Existing home sales (including single-family homes, townhomes, and condominiums) averaged $80,400 during 2013, or 5 percent more than during 2012, and the average sales price for existing homes was $151,100, up 13 percent from 2012.

3. Tax Policies

The individual and corporate tax system in Detroit is in need of restructuring. Tax foreclosure in Detroit is a critical issue. Today, 100,000 homes are under tax foreclosure and only 50,000 of those homes have occupants. Assuming an average household size of two people, there are upwards of 100,000 people whom the city could evict this year. Approximately 75% of the tax parcels in the city are behind on tax payments. On December 18th, the city scored several legislative victories. Lawmakers gave final approval to help financially stressed Detroiters pay off overdue tax bills and avoid foreclosure. New legislation will now allow county treasurers to reduce the interest rate penalties for delinquent property tax bills from 18 percent to 6 percent and forgive a portion of a homeowner's unpaid taxes by capping bills at 25 percent of a home's fair market value.[9]

The City's income tax is 2.5% for residents and 1.25% for non-residents. For comparison, Chicago's income tax is 0% for both, which may further discourage some from moving into the Detroit. Accordingly, the city has been a notoriously expensive and unfriendly environment for business entrepreneurship, as evidenced by its high income and property taxes. One train of thought suggests that the city should simply reduce taxes in order to achieve higher collection rates, rather than allow large portions of the tax revenue to go uncollected. In order to catalyze the business environment and encourage the entrepreneurial community to move into the city, there will have to be progress made on restructuring the tax system.

Conclusion

The revitalization of Detroit is in phase two of a multi-phase plan, which will require execution over a long time horizon, longer than the typical hold period of traditional institutional capital. The rationale mentioned above supports an investment in the Detroit real estate market and those characteristics also extend to other domestic emerging markets; changing demographics, investment capital flows, employment growth, natural advantages, and motivated public and private sectors. However, the risks associated with an investment in these markets are real, and it will take a coordinated effort among all stakeholders in order to create a stable investment environment for outside capital.

Although this analysis presents more questions than answers, this is a realistic picture of what innovation looks like. Opportunities are abundant for risk takers and innovators who can see what others do not recognize. These cities will benefit from an engaged millennial population that remains energized to help revitalize the city, hoping to contribute and generate both financial and non-financial social returns. There are significant opportunities for investors and entrepreneurs to be a part of the growth in markets like Detroit. Approaching the built environment with an entrepreneurial mindset can unveil the opportunity to create long-term social and economic value, an opportunity that only comes to those in the game.

Author Notes:
Reviewed for content by Professor Nori Gerrardo Lietz.

1 Racial minority groups include Americans who identify themselves as Americans who identify themselves as Hispanic, African American, Asian, American Indian, Native Hawaiian, and Pacific Islander.

2 "The Next America." Pew Research Center. N.p., 10 Apr. 2014. Web. 05 Mar. 2015.

3 "Bedrock Real Estate Services | Contact | Company | Comments." Bedrock Real Estate Services | Contact | Company | Comments. N.p., n.d. Web. 05 Mar. 2015.

4 HUD, "PD&R Housing Market Profiles - Detroit-Warren-Dearborn, Michigan," Feb. 2014.

5 "History of M-1 Rail - M-1 Rail." M1 Rail. N.p., n.d. Web. 05 Mar. 2015.

6 Detroit Future City, "The Economic Growth Element: The equitable City," 2012.

7 <http://harvard.policymap.com.ezp-prod1.hul.harvard.edu/reports.> Calculations presented were performed by staff at The Reinvestment Fund and are based on public and proprietary data sources that have been licensed for use in PolicyMap.

8 "9 Ways Detroit Is Changing after Bankruptcy." Detroit Free Press. N.p., n.d. Web. 05 Mar. 2015.

9 "Detroit Scores Tax Foreclosure Victories." Detroit News. N.p., n.d. Web. 05 Mar. 2015.

10 "Defining Blight in Detroit." The New York Times. The New York Times, 26 May 2014. Web. 05 Mar. 2015.

Christine Rohrbeck

Christine Rohrbeck is a Principal for The Baupost Group, LLC, a Boston-based investment management firm with more than $28 billion under management. At Baupost, she evaluates private real estate acquisitions, including distressed debt secured by real estate. Christine began her investing career with Morgan Stanley Real Estate. She has also worked for various local real estate developers in California and Boston. Christine graduated from Harvard College and received her MBA from Harvard Business School.

Kilian Toms has done a noteworthy review of the merits and challenges of investing in real estate in Detroit, an "emerging domestic market." Long-term drivers such as slowing outmigration, investments in infrastructure and public services, employment growth, and beautiful historic architecture have enticed local investors such as Dan Gilbert to become vocal proponents the city's revitalization. Detroit nevertheless faces a number of investment challenges – namely long-term growth, urban sprawl, blight, and relatively high taxes.

The author correctly points out that institutional capital has not been an active participant in Detroit's revitalization. Real Capital Analytics, in its 2014 review of Detroit, reports that only 5% of capital flows came from institutional sources. Toms credits "deal volume, velocity, and returns" as challenges. While I agree with his observations, I would expand and add other structural impediments to investment by institutional equity capital – specifically, investment duration, deal size, and mandate.

Today, investors in Detroit are taking a long-term view on the city's economic recovery. This can be a valid investment strategy for capital with a flexible mandate. However, much of the institutional equity capital for real estate has traditionally been raised in closed end investment vehicles, which have a defined fund life. These funds have a limited period of time during which new investments may be made, and a limited period of time during which investments must be harvested. A long duration investment, without an identifiable catalyst for value creation and liquidity, proves challenging.

Similarly, the structure of institutional capital means that small deal size can be problematic. As institutional equity capital consolidates into fewer billion-dollar vehicles, many institutional capital sources have minimum deal size requirements, measured in terms of dollars invested or profit potential. These minimum requirements serve two purposes – to ensure that an individual investment can have an appropriate impact on fund level returns (the ability to "move the needle" without outsized concentration risk), and to ensure that an individual transaction can support the associated fixed costs. As the saying goes, "It takes as much time and effort to monitor a $1 million investment, as it does a $100 million investment." While the preceding statement is clearly an oversimplification of the issue, there is no denying the fixed cost of legal, accounting, reporting and compliance work to support any individual investment. In Detroit's depressed real estate market, deal size is small relative to other major U.S. cities. According to Real Capital Analytics, the 2014 average price of office in Detroit was $68 per square foot, significantly below the U.S. average of $237 per square foot. In top tier cities, prices can far surpass the national average, allowing institutional investors to deploy significant amounts of capital. For example, the recent sale of 1095 Ave of the Americas, in New York City, topped $1,875 per square foot.

Toms also suggests that some investors in Detroit have looked "beyond the spreadsheet," where financial returns were not the primary driver of an investment. While there are institutional funds with flexible mandates that go beyond pure dollars and cents (for example, funds with a social mandate), most traditional institutional funds are tasked with earning healthy risk-adjusted returns for their clients. For many, financial returns are the primary driver of an investment. What does this mean exactly? A financially driven investor in real estate will look to purchase an existing asset such that its stabilized unlevered return on total cost, supported by market rents and occupancies, will exceed prevailing cap rates. Similarly, in the absence of subsidies or pre-leasing, a financially driven investor will pursue new development only when real estate values climb enough above replacement cost to allow a market-rate profit margin.

To attract traditional institutional capital, Detroit must inspire confidence that investors can consistently deploy significant amounts capital, at healthy risk-adjusted returns, for appropriate durations. While a challenge, this is not an impossible task. Nashville is a notable example of a city that has "emerged" from its past reputation as a sleepy Southern town, to a thriving city that attracts the attention of institutional capital. According to data collected by Real Capital Analytics, private capital represented up to 60% to 80% of the Nashville office buyers by dollar volume in the early to mid-2000s. By contrast, for 2015 year to date, 89% of Nashville office sales were executed by institutional capital, up from 25% in 2014, and 7% in 2013.

How can Detroit better position itself to attract institutional capital? The author correctly identifies employment growth as a key driver of real estate demand. Jobs cause companies to lease office space to accommodate workers. Incomes allow people to rent apartments or purchase single family housing. Disposable income drives retail sales. And the more diverse the spectrum of employment opportunities, the better the cushion when any single industry falls into a period of decline.

Nashville has led the nation in job growth in recent years. Sectors as diverse as healthcare, financial services, manufacturing, and entertainment (of course) are thriving, thanks in no small part to a business-friendly climate. Tennessee has no state income tax and Nashville has been generous in offering tax breaks and credits to companies looking to relocate. For example, Nashville Mayor Karl Dean's administration recently announced an offer of up to $50 million in city incentives to lure Bridgestone Americas' corporate headquarters, along with 1,700 jobs, to a new 30-story office tower that would help transform Nashville's SoBro neighborhood. The move would make the tire maker one of the largest private employers in Nashville.

With respect to employment growth, Detroit's public and private sectors appear to be aligned. The city currently lacks public transportation to connect employment zones with the neighborhood residents, but private sector solutions – such as the privately funded M1 rail system – are emerging. But as the author highlights, Detroit needs to address its tax policies. Currently, large amounts of tax revenue go uncollected under a high burden. If Detroit is not collecting its tax revenue anyway, perhaps the city should consider selectively alleviating the tax burden, and allowing the positive externalities – such as jobs – to accrue to the city's population. Nashville once again is an interesting case study. In exchange for 1,700 jobs, the proposed Bridgestone deal reportedly includes 100 percent abatement of real property tax payments for 20 years.

While institutional capital has not been an active participant in Detroit's revitalization, private investors and local business leaders have seized opportunities to lay the groundwork. As the author points out, opportunity only comes to those in the game. Looking to the future, Detroit's revitalization could open the door for traditional institutional capital.

Andrew Howard

Andrew Howard, AICP, is an urban planner based in Dallas, Texas and cofounder of the Better Block project. His 14 years in transportation and land development planning and design have given him a valuable perspective on urban and regional challenges. As a 2014-2015 Loeb Fellow at the Harvard University Graduate School of Design, Andrew concentrates on developing strategies for new citizen-leaders to bring about organizational and cultural change in their communities.

The Disruptive City

Layers of bureaucracy, lengthy public hearings, and contentious debate often mire the process of urban planning. The result is an outcome far removed from the authentic input of public sentiment. Is there an alternative route that would empower the public with more agency? Tactical urbanism takes a more direct approach to how people can directly shape their city – one block at a time.

21st Century American cities are in crisis. Thirty years ago, the populations of inner cities from Los Angeles to Boston were in decline as city managers and mayors struggled with suburban sprawl and inner city blight. Real estate professionals questioned the relevance of the city.

Today, many parts of the U.S. seem to be facing almost the opposite problem. Fueled by an abundance of private capital, speculative development, and foreign investment, planning departments are abuzz with proposals for block-length condominiums and larger developments. Many of these developments are little more than safe-deposit boxes in the sky. They replace homes with investment units to be sold but never inhabited. As massive projects replace small shops and cafes with block-length facades of corporate icons, the city becomes stale.

Though private capital may shape our cities and local authorities struggle with budget cuts and ill-equipped staff, new approaches and solutions can emerge. Central to these is the need for a much greater role of the public in real estate and city building. Public involvement in real estate decisions is not a new idea. Since the early 1960's, it has been a legal requirement for municipalities to inform and hold public hearings on local plans and zoning ordinance changes. Nevertheless, the monotony of public notices in newspapers and dull public meetings has become a routine part of the development process and, as such, deeply disheartening to the general public.

Graduates from urban planning and design programs today face a public outreach process that positions them in libraries and town hall meetings with a pile of unfilled surveys. Given the paralysis of analysis and babble in planning, the meaningless catchphrases and fairytale renderings crafted by developers promising "affordable, sustainable, elegant homes," and the suspicion that city council will do as it pleases, it is little wonder that ordinary citizens do not actively participate in the built environment. With more and more development by corporations and faceless conglomerates using legal appeals to overturn decisions and conditions, the public is entirely disengaged from the process of city building.

Yet, people do still care about the cities they live in. The recent John and James L. Knight Foundation Cities Challenge Grant is evidence that people not only care about cities, but they want to take direct action to make them better. The grant was open to anyone with ideas for the 26 Knight communities scattered across the US. Over 7,000 entries came in with ideas ranging from activating vacant buildings to putting urban data to better use.

The planning process of the past only presented itself when binary issues, such as massive zoning changes, new highways, or loss of local icons, became imminent. Now the public needs to question the rules of the 20th century and translate their ideas for community into policy and action.

A Disruption is Sparked

In April of 2010, a group of friends worked over the course of a weekend to spiff up a blighted block of commercial buildings in the Oak Cliff neighborhood of Dallas, TX. It was an experiment to lure people out of their living rooms and into public life so that they would engage in a conversation about the kind of community they wanted to live in. To do this, the community took an auto-dominated street and added the first bicycle lanes in Dallas, created outdoor seating, and narrowed the street to make it safer. This was all done with a group of regular people, a simple cross section of the city's populace. A patent lawyer in the group identified the city land use codes that were holding back public life from blooming, like restrictions on café seating, shade awnings, flowers in the right of way, or crowds on the sidewalk. I took up the city's outdated street design standards that reinforced automobile priority and demonstrated how complete streets could integrate with urban design qualities. Others filled vacant storefronts with business concepts that the community had been asking for such as coffee shops, a children's art studio, or a gift shop. The group's solution was to approach the problem with fresh eyes and to expose the rules for exactly what they were. Together over a weekend, we pinned copies of the ordinances on walls and invited our city leaders and staff to see what the outdated laws inhibited and how a place could be activated when it was focused on people's needs.

The result was dramatic. City officials took notice and started the long process of changing the ordinances that reduce public life. One million dollars in the city budget was redirected toward making the weekend improvements permanent. The vacant buildings were leased, and in one case, the temporary pop-up shop remained and has now expanded.

Image: The first Better Block in April 2010.

Image: A list of land use ordinances being broken.

Even more amazing is what the short project spurred in the individuals that participated. That patent lawyer that pasted the ordinances on the walls around the Better Block is now a councilmember. Another is on the board of the local economic development committee and two others joined forces to start a business. Countless others that participated in the event are now civic champions, taking on projects to better the city in many different fields.

The weekend experiment illustrated that city building is not by necessity stale. It does not need to be a process run by city staff and experts. City building is a culture. This kind of conversation about the future of the city cannot take place in city hall or a library meeting room. It must take place in the streets and those streets must be for people. For too many places in America there is no such venue, and many places actually make having such a conversation impossible. The first Better Block inspired the revitalization of one neighborhood in Dallas, but the concept quickly expanded to other cities worldwide.

Disruption Goes Viral

Better Block is part of an emerging and disruptive movement in urban planning and real estate development. Urban planner Mike Lydon categorizes the concept as an element of "Tactical Urbanism:"

> *"Tactical Urbanism is a city, organizational, and/or citizen-led approach to neighborhood building using short-term, low-cost, and scalable interventions intended to catalyze long-term change."* [1]

For example, Parking Day was one of the first projects of this sort. An annual event in September, communities across the country convert single parking spaces into "people places" in the form of mini-parks, performances stages, or whatever your mind can imagine in an eight by twenty foot space. The idea of the project was to bring attention to the need for more open, green and community-focused spaces in cities. Similarly, Better Block is an open-source community action project that seeks to highlight barriers in the real estate and planning process for neighborhood revitalization and growth. Short-term actions like chalk painted bike lanes or pop-up shops ultimately seek long-term policy changes that make it easier for such features to become permanent.

Better Block is not trademarked nor funded by a major foundation; rather, it spread virally through YouTube videos, news stories, a simple web page on how to build a Better Block, and eventually a TEDx Talk. The founders deliberately kept the idea open-source, enabling others to use the approach and build a body of knowledge of how regular people can build or revitalize cities if given the opportunity. There are now over eighty Better Block projects worldwide, the majority starting with the impetus of everyday citizens. To date, an estimated 300,000 people have taken part in a Better Block. After a long period of stagnation, people are beginning to take a more active role in urban development.

Successful cities require constant public discourse in tandem with innovative developers that are bold enough to undertake both small and large projects. Cities will always need planners and city managers that are not afraid to loosen rules for an ever-evolving economy and culture. In that capacity, the concept of tactical urbanism applies to traditional planning and design process in two major ways:

"Expanding public outreach"
Municipalities, organizations, and/or property owners seek to widen and increase public involvement opportunities during a formal planning process by working directly with citizens to build out a project in real-time.

"Test before You Invest"
Governments/property owners have long-term plans but want to first test out designs or possible uses so that feedback, data, and information may be gathered before more substantial resources are committed.

These two applications bring more people into the conversation about the city, making for smarter decisions about infrastructure on a wider scale. The value of disruption to the typical city building process is just beginning to be realized.

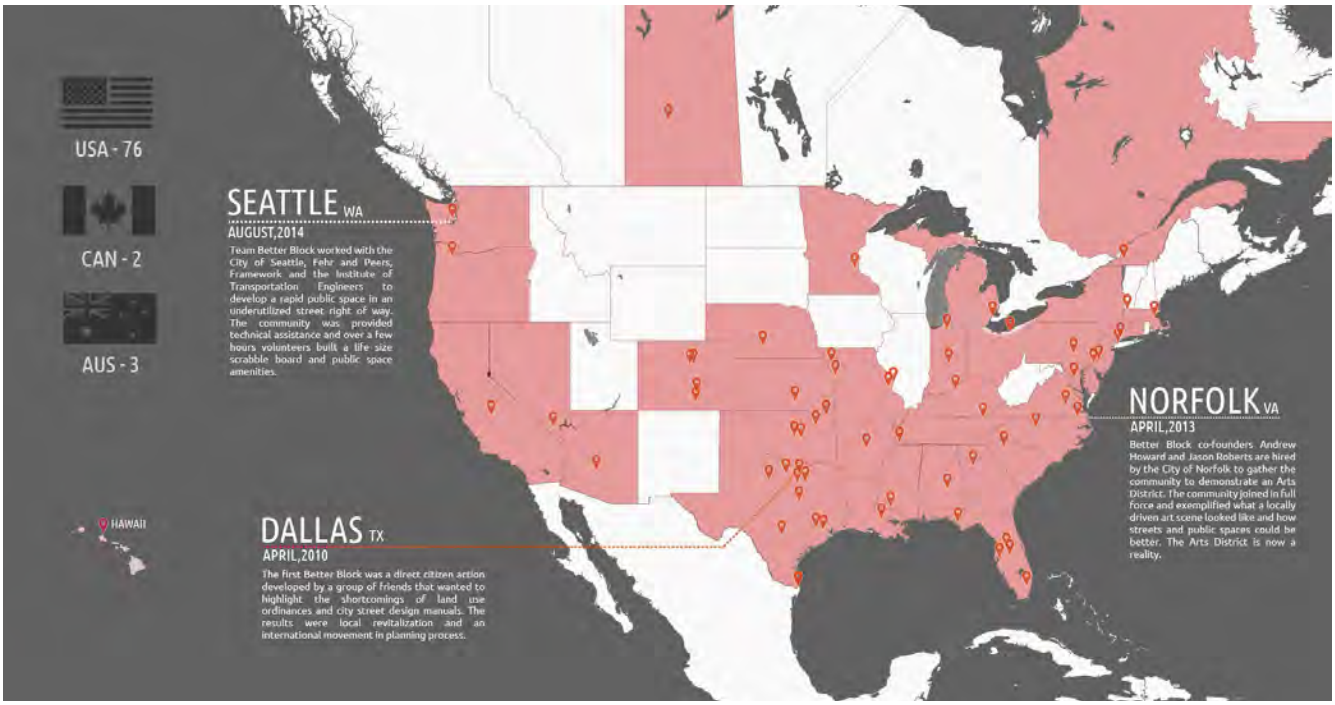


Image: Better Blocks Around the World.

The Value of Disruption

A recent survey asked Better Block project leaders in seven cities how their efforts advanced revitalization. While responses varied, all reported positive outcomes within days of the project's realization. With higher potential revenue and elevated interest in these areas, investors are following with their checkbooks, a promising sign of development. Within days after Better Block in Norfolk, VA, Patrick McGill of CBRE announced that a 15,000 square foot building that had been on the market for years sold for $1.1 million to a stage company. In the four years after the Memphis Better Block, which attracted an estimated 13,000 people in its debut, approximately $10 million has been invested in neighboring parcels.

Every respondent indicated that a new business had opened or a new lease had been signed on their block since the project. They cited a diverse array of businesses including restaurants, fitness centers, yoga studios, art galleries, a dance collective, bike shops, bakeries, micro-breweries, stationary shops, and in the case of Baton Rouge, LA, a compact housing development.

Half of the respondents indicated that economic development was their primary goal. They were successful, as 100% of the projects surveyed revealed overall increased sales revenue. Some businesses in St. Joseph, MO, Brownsville, TX, and Norfolk, VA reported the highest sales numbers they had seen since they opened, while 80% reported increased sales revenue even after the project.

Perhaps most importantly, 71% of these projects have helped change, or are in the process of changing, city ordinances that allow for more complete streets and revitalization of blighted areas. The survey revealed cities that combined top-down city support with bottom-up civic engagement and rapidly catalyzed real estate investment. For example, Norfolk, VA's city council unanimously passed a zoning overlay that loosened restrictive zoning on small developments, adopted a food truck ordinance, and made parking spaces available for conversion into parklets, which resulted in both outside investors and locals taking on real estate ventures.

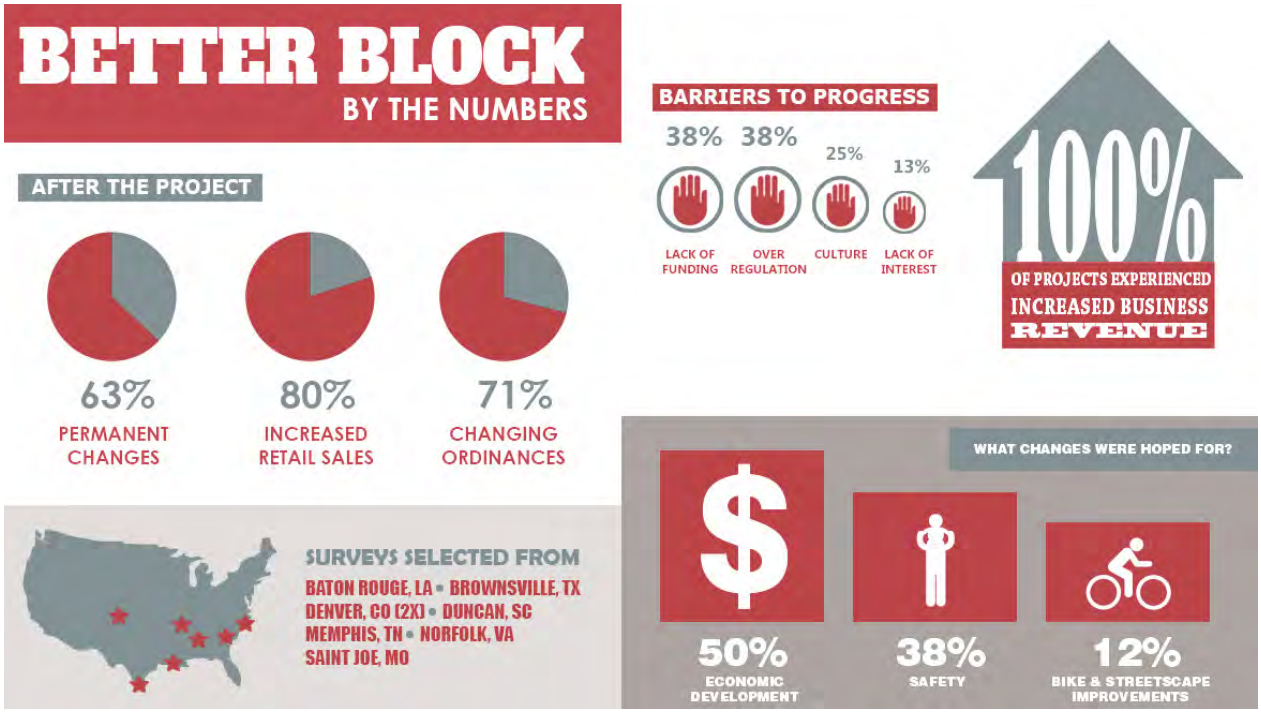


Image: Better Block by the Numbers.

Case Studies in Disruption

In April 2013, the City of Norfolk and residents organized a "rapid revitalization" project on Granby Street in the city's proposed downtown arts district, the first of four planned projects in the city. The efforts use temporary collaborative place-making tools to coalesce the community and change citizens' and City officials' sense of possibilities for physical planning. During the weekend-long event, residents created temporary spaces, piloted small businesses, and forged important connections. The weekend also led to the City's adoption of permanent zoning changes. In the two years since the Better Block, the area has witnessed over ten million dollars in land transactions and improvements, the approval of a complete street plan, the launch of five new businesses, and the creation of a new public space.

The Better Block approach begins with a preliminary site walk with community members. The second project walk, in August, drew about 50 people, followed by a series of community meetings with the City and a self-selected core group leading up to the implementation event. The April Better Block event focused on transforming downtown's Granby Street into the commercial spine of a new Arts District. The implementation weekend drew over one hundred and thirty volunteers, including families, artists, DIYers, architects, cycle advocates, and Norfolkians from all walks of life who joined together to create three pop-up shops, a Dutch bicycle intersection, a giant public plaza, 80 feet of parklets, and countless amazing pieces of art.

A low budget for interventions is a hallmark of Better Block projects. Tools, materials, and street furniture are borrowed, donated, or improvised. "Borrowing," the Better Block founders assert, "builds ownership and trust within the community." Organizers solicit in-kind donations in the form of art, landscaping, and construction materials from residents, local businesses, and organizations. What little actual funding is required, including fees for the consultants, usually comes from a mix of sources, though in Norfolk,VA the effort was largely funded by the city. Most recently, the National Association of Realtors, John and James L. Knight Foundation and People for Bikes have been

Image: Norfolk, VA Better Block, April 2013 - The New "Public Meeting."

Image: A pop-up plaza built by locals in Norfolk, VA.

Image: Citizens participate directly in the process of building.

major sponsors. The strong power of connection created when people work together physically cannot be duplicated in a public meeting at city hall.

The Better Block model also tests small businesses on a temporary basis. In Norfolk, the pop-up businesses ranged from a maker space to a beer garden. This strategy gives would-be entrepreneurs a low-commitment way to test business models while providing the greater community with a vision of what the block would be like with commercial activity. It is like speed dating for entrepreneurs, investors and the city, to get to know each other, try out the ideas, and hopefully fall in love with the concept.

Following the Granby Street event, resistance to land use and zoning changes subsided and the City Council unanimously approved additional uses that would encourage a viable Arts District, including art studios, breweries, flea markets, farmers markets, used merchandise stores, and commercial recreation centers. Frank Duke, Norfolk City Planner, says of the effort: "The first Better Block awakened the City officials and previously hesitant neighborhoods on the market potential for an Arts District in this downtown area." Within several weeks, officials authorized artisan food trucks and design consultants working with the City developed a streetscape plan and began feasibility studies to examine narrowing driving lanes to provide more on-street parking and wider sidewalks. The project to date has resulted in over $2.2 million in real estate transactions as well as the opening of five new businesses originally piloted during that weekend.

Alchemy NFK, one of the pop-up businesses that is now permanent, faced an almost impossible zoning battle to stay open after the Better Block. Occupying a building that was originally an auto parts store and was last used as a furniture outlet, Alchemy NFK sought to be ground zero for the Arts District. Breaking all zoning categories, the group had aspirations to be a co-working office, maker-space, micro-retail, coffee shop, bar, and entertainment venue in the 20,000 square foot space. The Planning and Building Director detailed the changes needed to the building and requested a planning commission meeting for the group. Dozens of letters arrived from supporters:

> *"The neighborhood league first opposed the formation of an Arts District, after the Better Block I received a letter of support from them."*
>
> *Frank Duke, City of Norfolk Planning Director*

The Planning Commission meeting had an incredible public presence, and staff hustled to find a "work around" to the zoning and building ordinances to rectify the mix of uses. Ultimately, they redefined the business as a "beer-serving flea market" and awarded a zoning variance. The struggle was not over, however, as the building needed costly repairs and the founders had already invested all their savings. Turning to the community again for support, they successfully raised over $25,000 on the crowdfunding platform Kickstarter.

Just months after the project, small business owners marveled at the changes in the area. One merchant noted seeing a runner jogging alone on the street past dark, which "you never would have seen" in months prior. The city initially planned to incentivize development after the weekend, but to date no measures have needed to be implemented. The market was proven with young creatives, and now investors are making plans alongside long-time owners and new start-ups like Alchemy NFK.

This project demonstrated the importance of the process. Urban planners, designers, and architects will be more like guides for the design process of the future. By fashioning boutique approaches to civic engagement, they engender authenticity reflective of local culture.

21st Century Process for Disruption

Revitalization and reinvestment in transitional real estate markets is changing from the model of plan, incentivize, and build to a process of community build, measure, learn, and make permanent. This is inviting more people into the real estate process and creating innovation in development forms, uses, and ownership that we are just now understanding. The unraveling of a century of restrictive land use practices, exclusionary financing practices, and general lack of knowledge of what people want from the city is now becoming front-page news. More and more people now strive to build the community of their dreams.

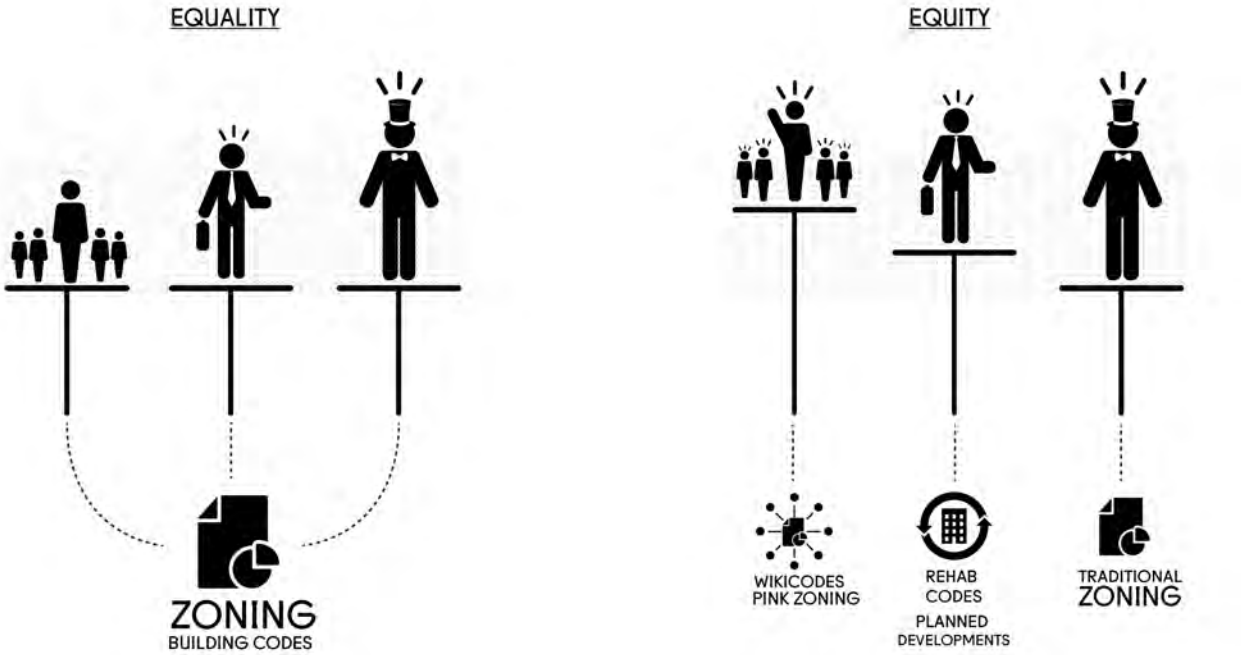
Less successful projects have resulted when the process of tactical urbanism is not fully followed. Seeking instant gratification, people want to jump to the event and focus on the picture of revitalization. I made this mistake early on. Focusing on the "before and after" pictures, the amenities on the block, and the function of the space, the team would load a truck full of street and place-making materials and show up in a town like the circus. Ready to demonstrate the power of place-making, the block was transformed overnight and community invited to view. Sure, it looked great for the day and even resulted in people asking for it to be permanent. Yet, as soon as we loaded the truck back up, the lack of energy was palpable. No one was empowered to continue the fight to make changes permanent.

Recalling the first Better Block, which was almost called the Perfect Block, the resounding essence was how the community came together, borrowed from one another, built things, struggled, managed, and innovated to stitch a place together. That innovation was missing when Team Better Block hit the road for projects that were generated from the top down. Now, the team shows up with a bullhorn and clipboard and works with "doers" in the local community through a series of workshops to guide the community on best practices from past projects while allowing them to innovate in their own way. With this process firmly in hand, it could inspire changes to the pedagogy of real estate, economic development, urban design, and planning.

For real estate and economic development departments, this process translates to less need for incentives. Development today is habitually subsidized, largely because over-regulation has reduced the first organic phase of revitalization. If the City of Norfolk would not have found a work-around to the zoning barriers for Alchemy NFK, it is likely they would have waited years and had to subsidize a developer to reconfigure the 20,000 square foot property into a site for a corporate chain store to occupy. Detroit is also a model for restoring the organic pattern of revitalization. With young people in-migrating and a reduction in red tape due to an absent building inspection and zoning department, new middle class and first-time developers are taking route without subsidy and finding success. Allowing room for innovation not only allows the public to take part in planning, but also helps level the distribution of wealth in cities.

Loosening zoning and building ordinances does not mean less work for planners, designers, and architects. Tactical urbanism still requires a keen eye focused on the need for equity in the development process. The regulation tools developed in the future will focus on finding workarounds to codes and regulations, as well as identifying ways in which people can "contract out" of certain restrictions, creating "Pink Zones" that lessen the red tape.

For too long, the development process created blanket zoning and uniformity in its quest for universal equality. Savvy developers with deep pockets can pay lawyers and designers to manipulate the code and find ways around it. But the reality is that all things are not equal. The need for equity, rather than equality, in zoning and building codes is long overdue, and this generation



of planners will continue to create new tools to reimagine them. Examples include creating codes that write themselves using an online wiki page, or documenting workarounds for small and first-time developers that pioneer new markets.

In design education and other fields focused on the built environment, students should be exposed to cooperative strategies to achieve common and productive outcomes. The curriculum at the Harvard University Graduate School of Design and many other architecture and design programs around the country is firmly based on the atelier or studio tradition, in which students learn in small groups around an individual master: an artistic-creative rather than a research-scientific tradition. The process of "build, measure, learn" that is now common practice in technology, arts, and sciences, is disrupting the current urban planning process and finding its way into pedagogy. Tactical Urbanism is being taught in courses at the Boston Architectural College, Florida Atlantic University, and Georgia Tech, and has even found its way into textbooks in Denmark and Germany. The lesson for the education system is that we can no longer inculcate all of the manifold skills a planner or designer needs. They go far beyond planning and architecture into a score of specialties, ranging from land economics to sustainable development. Design education and other fields focused on the built environment should expose students to cooperative strategies that achieve common and productive outcomes.

The current state of real estate presents a special version of the dilemma that George Orwell described in Charles Dickens: How can you improve human nature until you have changed the system? And what is the use of changing the system before you have improved human nature? The fact is that we will need to do both in parallel. The temporary nature of Better Block and other Tactical Urbanism interventions allows people to experience change gradually, ease into new habits of walking and buying local, foster scientific method in the iterative design of the built environment, and learn how people use space and place. We can both rebuild the civic engagement system and re-educate city-building professionals to work together to deliver a better world. The 21st Century should expect nothing less.

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Baye Adofo-Wilson

Deputy Mayor/Director of Economic and Housing Development, Baye Adofo-Wilson is leading the City of Newark's efforts to redevelop Newark's neighborhood commercial corridors, expand small business opportunities, build more mixed-income housing, and increase access to Newark's Riverfront. As the Director of EHD, Mr. Adofo-Wilson manages the departments of housing, property management, economics, small business, planning, and the office of sustainability. Mr. Adofo-Wilson is also currently an Urban Design Critic at Harvard's Graduate School of Design. Mr. Adofo-Wilson was a member of the 2013-2014 Loeb Fellow class, during which he examined strategies and opportunities for reimagining and rebuilding low-income communities using sustainability, culture, and local living economies as a model to spur economic development and increase local participation. Before Harvard, Mr. Adofo-Wilson co-founded of the Lincoln Park/Coast Cultural District, an organization redeveloping the Lincoln Park neighborhood in the City of Newark. He led a comprehensive effort to transform a low-income Newark neighborhood into a sustainable cultural district that included affordable housing and mixed-use developments, urban agriculture, music programming, historic restoration, and workforce development projects. Baye was the New Jersey Director & Senior Fellow of Community Development of the Regional Plan Association, the nation's oldest private, non-profit regional planning association, where he worked on policy issues such as housing, economic development, transportation, arts and culture, and the environment.

Andrew Howard's article, *Disruptive City*, highlights the multifaceted ways in which inspired activists are reimagining their blocks with minimal resources, ideas, and an engaged citizenry. The "Better Block" model, which Andrew Howard and friends started in 2010 to design a "blighted block of commercial buildings" in Dallas, serves as an international prototype for creating 21st century local leadership, engaging municipal officials, and establishing a new, community-oriented culture. What makes the Better Block model brave is the disregard for restraining local land use laws.

The Better Block model's tactics are new and refreshing, but residents working together to improve their neighborhood is well-established. Linking the Better Block model to the long-standing tradition of community organizing, neighborhood, and block associations would have been a stronger article than claiming city disruption. In that theoretical space, the Better Block model is an evolutionary leap, bridging antiquated strategies with new tactics yet still rooted in historical community concerns about the health, well-being, and economy of neighborhoods.

A fundamental argument of Andrew Howard's piece is that you can ignite a blighted commercial block by using creative, pop-up stores, "chalk painted bike lanes," and an engaged citizenry "that understands what good design is." The notion that a great way to jumpstart the redevelopment of a block by showing people what the block can look like, using temporary materials, paint, and elbow grease is brilliant. This affordable process allows the imagination to touch reality. So many community-led projects never materialize because the residents have a hard time visualizing what their neighborhood would be like other than what has been, or, maybe worst, what it currently is. Providing residents, stakeholders, municipal officials, and potential investors with a better-looking block, even if it is temporary, provides confidence and direction. This idea alone makes the Better Block project a significant advancement in urban design and why the model is growing worldwide.

Andrew Howard's argument that "city building is…a culture" is accurate. Rebuilding cities will not happen in city halls or library meeting rooms. These activities will take place outside, under the sun, the rain and the stars, and in communities where residents are doing their own drawing, their own plans, without some bureaucrat or consultant doing all of the work for them. This argument further elaborates why the Better Block model is important and deserving of replication in struggling communities around the world—Howard understands that there is a cultural and educational shift needed in city planning. That shift requires that the local culture be included in the redevelopment process. It is also incumbent upon urban planning and urban design programs to teach students to incorporate non-traditional, "guerrilla tactics" if they want to increase their chances of professional success.

An added bonus of the Better Block initiative for Dallas was the community leadership that emerged. Out of the first Better Block project, a city council person was born, two people on the local economic development committee, and real estate developers. This maturation of key organizers speaks to the ingenuity and success of the project. The disregard for archaic, local land use laws that stalled redevelopment, combined with the sheer artistry of the project, created an environment where risk-takers became respected leaders.

However, there is a long historical tradition of urban residents working together to improve their neighborhoods with block associations, neighborhood watch groups, community development organizations, tax incentive programs, ad hoc committees, and auxiliaries. Depending on the needs, the ideas and the generation, strategies were developed and projects implemented. Those projects include, but are not limited to, affordable housing, new market tax credits, music festivals, police athletic leagues, and even dance groups.

The Better Block model is an innovative urban design tactic, but it is not a departure from the history of resident-led programs and projects which have been the building blocks of communities. Moreover, even though the Better Block model may be disruptive of local land use laws by ignoring the outdated ones that hamper neighborhood commercial development, placing the Better Block model on the continuum of models empowering residents, changing neighborhoods, and breathing life into dying places would have showcased its richness. But for YouTube clips, I would have not appreciated the Better Block model, which would have been a shame given how important this movement is to contemporary urban planning and design.

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Wendy W. Fok

Wendy W. Fok is a winner of the inaugural Digital Kluge Fellowship awarded by the Library of Congress (2014/15), the ADC (Art Director's Club) Young Guns 11 Award (2013), AIA (American Institute of Architects) Dallas "Express Yourself" Women in Architecture Award (2013), Hong Kong Young Design Talent Award (2009), and selected designer of the Perspective 40 under 40 Award (2011). Fok has a Master of Architecture and Certification of Urban Policy/Planning from Princeton University and a Bachelor of Arts in Architecture with a Concentration in Economics (Statistics) from Barnard College, Columbia University. She is completing her Doctor of Design at the Harvard University Graduate School of Design, with collaborating department the Harvard Law School. Currently, Fok is contracted as a guest-editor of an upcoming AD (Architectural Design) Journal, published by Wiley, titled "Digital Property: Open-Sourced Architecture," with co-editor Professor Antoine Picon, slated for a 2016 release.

Crowdsourcing the Built Environment

The voice of "the crowd" holds meaning like never before. The advent of network technologies and digital platforms invite the public to participate in the process of collective creation. "Crowdsourcing" is more than an abstract idea. Already it has informed the creation of two signature public projects in New York, and it promises to change the way the public can interact with the design of the built environment. What effect will this new media have on the way cities evolve?

In 2006, Time Magazine named "You" (the crowd) the "Person of the Year."[1] The title acknowledged the infinite potential of the thousands and millions of "you" who now direct media and financing within the new digital democracy. These citizens of the digital innovation age have created new platforms, such as those seen in the early beta developments of Kickstarter, Twitter, Wikipedia, and Facebook. This form of open innovation and new media has proven valuable within the fields of consumer goods. Accepted by most industries, such "crowdsourcing" can also be used to innovate within the built environment, and the real estate industry is primed to benefit from its emergence.

A glimpse into three innovative projects and case studies that explore the avenue of crowdsourcing demonstrates the impact of new media in the production of real estate. A first example is the LowLine, "a plan to use innovative solar technology to illuminate an historic trolley terminal on the Lower East Side of New York City. Our vision is a stunning underground park, providing a beautiful respite and a cultural attraction in one of the world's most dense, exciting urban environments."[2] A second project is the +Pool,[3] an initiative to bring a floating swimming pool to the East River, on the Manhattan and/or Brooklyn banks of New York City. A third and final example is the Atlantic Yards Project, a public and private mixed-use development. These three case studies break with the traditional model of public participation within the development process through the engagement of new media.

As a whole, this article reveals how new technologies and business strategies are transforming not only business processes, but also the way products and services are created and marketed. For real estate development in particular, this innovation is altering organizational strategies for gathering private and public support and shifting the dynamics of competition for traditional design practices and real estate developments alike. In this context, crowdsourcing can provide awareness and support to a development, shorten the project timeline, and reduce project costs through raising capital.

The Participatory Process

Many observers and authors have noted the role of online platforms in aggregating resources across geographies. Villarroel (2013) notes that online platforms have provoked rapid congregation of distributed resources held by individuals who are geographically dispersed throughout the world.[4] Benkler (2009) emphasizes that peer production is the most significant organizational innovation that has emerged from Internet-mediated social practice.[5] The phenomenon most often associated with peer production, however, is crowdsourcing or crowdfunding (Howe, 2006).[6]

Wired writer Jeff Howe coined the term "crowdsourcing" in 2006. Organizationally, the basis of crowdsourcing combines three core characteristics: decentralization of problem conception and execution of solutions, harnessing of diverse motivations, and separation of governance and management from property and contract (Benkler, 2009). Open innovation, on the other hand, is derived from two forms: a self-organized and self-motivated collaborative activity to achieve a common goal, or an organizational strategy to broaden innovation boundaries while retaining to internal research and development (R&D) agendas (Huff, Möslein, Reichwald, 2013).[7] The word "crowd" is misleading within the term "crowdsourcing," as the success of these projects rarely relies on a general crowd but instead on invited participation from engaged members of the public (Owens, 2013)[8] and at many times, through mediated and precise "communication costs." (Villarroel, 2013).[9]

Crowdfunding is a very broad term that ranges in basis from donation to debt or equity positions in a project. This article considers crowdfunding in relation to platforms such as Kickstarter and Indigogo in the boundary of donation-based endeavors, which remains apart from the realm of real estate investment. The LowLine and +Pool used Kickstarter as a donation-based fund-raising platform to raise awareness of their design projects, exhibiting the crux of peer innovation. These projects embody an entrepreneurial spirit and belief breathing life to unbuilt and unforeseeable design projects for the built environment. They imply that direct input from the public network can inform the built environment. Beyond the smoke and mirrors, the larger question still lingers—what are the implications of this new form of public participation for urban development?

In an interview with Dan Barasch, co-founder and Executive Director of the LowLine, Barasch sees crowd participation within a design project as a form of both monetary and ideation support for a project, as it substantiates the design concept by further establishing a public stake and recognition for a project. His view is that "in essence, crowd funding (and sourcing) does two things for an early stage start up: it financially supports an effort, and it signals support for the idea itself."

Image: The LowLine. Image courtesy of Curbed NY, Vox Media Inc.

The LowLine

The LowLine project highlights several competitive advantages of the peer innovation model. Peer innovation has resulted from the public's natural inclination to open social media distribution about the project, including fan-fare and blog-o-sphere writing about the project digitally. For the LowLine, this is exemplified by the success of the project's Kickstarter campaign and support from established institutions and foundations, such as at the Friends of the Highline:

> *The LowLine has been crowd-funded from the very start of the project. Initially we received our first round of seed funding via over 3,000 individual backers on Kickstarter, leading to a record-setting $150,000. Since that time, we have diversified our funding streams with significant contributions from corporate, foundation, and public sources. But that initial Kickstarter success proved to be an important signal to larger and more institutional funders that our project was gaining in momentum and support."*
>
> *Dan Barasch, Executive Co-Director of the LowLine*

Public interest in the project gained significant momentum by engaging the crowd in the public relations of the underused and abandoned city-owned trolley terminal, set to become the LowLine. Additionally, the process increased funding streams through unconventional methods and direct partnerships with internationally renowned engineering and construction teams. Without peer and open innovation backing, a typical non-profit project such as the LowLine would traditionally confront numerous institutional challenges to access public funding, compromising the speed and time of development. Instead, during the launch of the project in 2008, the LowLine team was able to work on the design, research and development, and funding streams in order to launch their first prototype and install it on-site by 2011-2012.

The +Pool

The +Pool was motivated and ideated around the same time as the Lowline. Located in New York, the +Pool claims to become the "world's first water-filtering, floating pool." Regardless of whether this claim will become a reality or not, peer contribution opportunities have been successful, made possible through the team's creative efforts towards fostering community and online social media awareness of the project. The "tile by tile" option for reserving a name, or "spot" mounted on the "+" feature of pool served as public motivation of over 4,700 backers for the project. The contribution by these backers was threefold, serving to fund the project research and development, provide awareness and support of the project, and most importantly, contribute to a project that has low design cost for the individual contributors. The +Pool provides an excellent example of speed and cost advantage, in which online platforms provided an innovative medium through which to garner the recognition and support of crowdsourced peer production.

Image: +Pool. Image courtesy of Dong-Ping Wong of PlayLab / Family.

"The +Pool was ideated in 2010, with a Kickstarter campaign in 2011. It's still relatively nascent to see what kind of impact crowdsourcing and crowdfunding has on larger projects on actually building a project, such as ours; however, our team feels that by crowdsourcing the project, it has expedited the process of "client education", which usually takes a lot of time, in the traditional project scheme. This project was enabled through the public announcement through new media that allowed a faster inclination of awareness and has the potential of creating value for the public quicker, to shape the life of the project. On a support level, and funding level, it makes sense."

Archie Coates, Co-Founder of +Pool and Family

In the case of the +Pool, the public image of the design project gained a sizeable foundation of public interest. This served to engage companies like Google, who have privately partnered with the +Pool team to partially fund private initiatives such as their online water monitoring system currently active through the +Pool website, powered by open sourced resources. These types of privately funded endeavors are seeds of larger return on investments as open innovation begins to engage the larger and broader public and create further opportunities for private investment.

Atlantic Yards

Crowdsourcing has significant competitive advantage overall, including market advantage, quality advantage, speed advantage, and cost advantage. An additional organizational advantage in the first two case studies is content advantage, described by Villarroel:

> *"Crowdsourcing is a new way of thinking about work that requires new rules of engagement. This open approach requires that work be accessible to occasional contributors, offering a win-win exchange, therefore, fostering an informal yet durable relationship."* [10]

Conventionally, larger urban developments often lack the organizational motivation provided by the private sector, as many larger projects are impacted by bureaucratic ties that tend to limit the success of a collaborative process by the public, unlike the case of crowdfunding. As Arana Hankin, the former director of the Atlantic Yards Project at New York State's economic development agency, Empire State Development, pointedly states, "…unless the public sector attempts to deliver innovative projects or they have the ability to guarantee a high return on investment, which they do not at this point, I do not see government using crowdsourcing to fund public real estate projects." Her viewpoint underscores the challenging nature of public projects within real estate and many public sector urban developments.

Under construction since 2011, the Atlantic Yards Project has progressed slowly and fitfully. Atlantic Yards, rebranded as Pacific Park in Brooklyn, is a project that covers the Atlantic terminal urban renewal area. The project is a mixed-use commercial and residential development project, consisting of seventeen high-rise buildings that are under construction. The most recently completed parcel of the development includes the Barclays Center sports arena, which opened in September 2012. Original talk of the public redevelopment began in the late 1950s and continued into the 1960s, and was published in the June 24, 1968 New York Times' article, "Renewal Raises Brooklyn Hopes." [11]

Image: Atlantic Yards (aka: Pacific Park Brooklyn).
Image courtesy of the Bermingham Equipment Foundation.

According to Arana Hankin, "public private real estate projects are necessarily developed at a large scale, and typically are not driven by community interest, or innovation, but by business interest." The agency of crowdsourcing is limited, therefore, in mediating the relationship between public authorities and citizen participation. However, if financial and business gains could be justified through community contribution and support, crowdsourcing for community interest and input on a project could be an option for expediting the speed of isolated real estate opportunities and further the marketing value.

> *"There are a number of new online platforms that have given a broader segment of the population the ability to impact the built environment, either through small scale investment opportunities, capitalizing on their current assets, or by supporting community planning projects. IOBY (In Our Backyard), was created in Brooklyn in response to residents' frustration with large-scale planning projects. The organization has celebrated success primarily because they are tackling projects that are too small for government to initiate, and the overwhelming feeling shared by many residents is that innovative projects are not being delivered by government.*
>
> *"Public private real estate projects are necessarily developed at a large scale, and typically are not driven by community interest, or innovation, but by business interest. These projects are immensely complex and multilayered, and not easy to execute. Nonetheless, there could be opportunities for government to solicit financial support from residents through crowdsourcing on isolated components of these projects such as public space, public art, or public programming."*
>
> *Arana Hankin, Former Director of The Atlantic Yards Project*

Crowdsourcing the built environment has the potential to create an online platform for collaboration and exchange of knowledge that can help improve organizational performance and advantage, grow a project's bottom line, and open up new opportunities for community participation in public and private development. However, crowdsourcing as a mainstay of civic engagement for public agencies will have its setbacks:

> *"As someone who worked in politics and government for over 10 years, I would find this an extremely hard sell. Government continues to be criticized for too heavily subsidizing public private real estate deals, not to mention the developers who are awarded these projects consistently are the largest grossing real estate firms in the city. Many segments of the population believe that public amenities should be funded by either government and/or the private sector." (Arana Hankin)*

Case Study Conclusion

Innovation and its technologies within our ever-changing means of producing real estate and architectural design have enabled the exploration of crowdsourcing as a form of organizational strategy. Crowdsourcing is quickly outperforming traditional organizations and emerging into the mainstream of the built environment. It is therefore critical for real estate developers to understand how to manage strategies for crowdsourcing.

Projects like the Lowline and the +Pool are just a few examples of localized projects that are diffused and popularized through the support of international communities. This is facilitated through crowdsourcing and enabled by limited communication costs and low design costs. These collaborations reach a global scale to cultivate international recognition of peer-produced resolutions for regional or local challenges and as a result, can create unprecedented value. By employing new media, developers can expedite project delivery by addressing stakeholder concerns earlier in the process and thereby reduce development costs. With increased attention to conflict mitigation, crowdsourcing could facilitate the creation of a better built environment imagined by developers, designers, and the community.

As indicated by Dong-Ping Wong and Archie Coats of +Pool, and Barasch of the LowLine, peer production through social media and online contributions has gained traction in the urban development field. The increased transparency between the public and governmental agencies may sometimes hinder the process of potential project realizations, due to the lack of guidance and quality control of social media distribution. For some projects, the prosperity of new media distribution networks comes with a cost.

Crowdsourcing as a strategic organizational tactic for the use within architecture and real estate is most functionally advantageous through applied instances where cost reduction, rather than distributed exploration of a resource and opportunity space, is the core function of a system (Benkler, 2009).[12] This type of organizational strategy optimizes and gathers independent contractors and the public into a singular forum, within a controlled vacuum and task-based scenario, but does not affect governance or ownership, as their participation is usually in a fixed method, beyond "hedonic gains."[13] These examples include: payments (i.e. Kickstarter for LowLine), novelty (i.e. +Pool tiles), or as public forum (i.e. community public hearings for The Atlantic Yards).

A repeated debate since the early recognition of open innovation is fundamental concern over the relationship between the creator, the contributor, and the creation. The question remains as to how the intellectual property of crowdsourced projects can retain its authority and ownership within the value-generating potential. As much as the crowd participates in supporting a project in digital format, it is valuable to understand that the crowd does not take ownership or authorship in the determined physical property of the designed good—whether it be an underground park, a water-filtration pool in the middle of the Hudson, or potentially a future crowd-voted design of stadium such as the Barclay Center. These variables lie in a spectrum from trading "strong" intellectual property goods (e.g. patented products), to "weak" intellectual property goods (e.g. open source), (Chesbrough, 2003). The public lays no claim to the monetary gains of what the designer generates, even in spite of public contribution in thought and process.

An additional concern for most public relations and marketing teams is to manage the public's role in the phrasing or framing of the project. It can be argued that the "public knows best," and that public community hearings for public or private developments should allow community members to speak their views and be heard by city officials. Many argue that this model developed when the digital age was less technologically networked and connected, functioning out of necessity, lack of alternative media, as well as the desire to engage on a personal level.

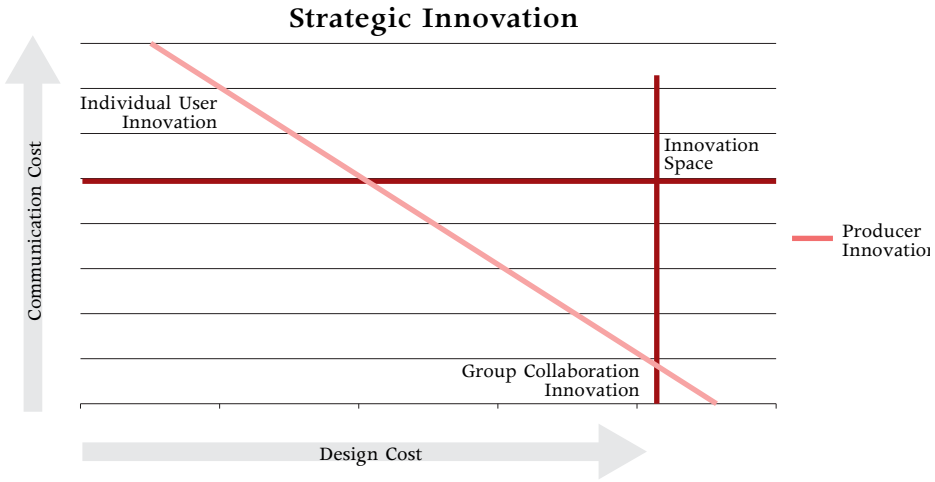

Figure: Strategic Innovation: Base model describing the innovation space of group vs. individual innovation. Source: Adapted from Baldwin, von Hippel (2009), and Villarroel (2013)

New Age Implications of the Networked Society

Crowdsourced projects are created through cultural motivation, where their basis in "design costs" is balanced by the benefit of "communication costs" given the crowdsourcing medium. These details are reflected in the image above, which diagrams the "producer squeeze problem," meaning that the higher the communication costs, the lower the design costs, based on Moore's Law[14] [10]. For there to be a business opportunity, the product complexity must exceed what the individuals and groups alone must achieve (Villarroel, 2013). There is an interesting phenomenon on the balance of a "design cost" based on a "design product" vs. "communication cost" discussion that emerges out of a crowdsourced project. While the way online self-organization works is fascinating, the various issues of closed firms versus open practices and how it operates are still of high concern to traditional operators.

Open innovation projects allow individual users and the public to become the primary source of value contributors within projects, through monetary or creative support. These types of modular collective problem solving projects, such as the Lowline and the +Pool, demonstrate a new paradigm of large projects, in which new communication methods engage the public in design and development more tangibly and powerfully. Crowdsourcing also opens up opportunities for project funding and enables organizations to take on the problem-solving role themselves (Lakhani, 2013).

Crowdsourcing is an approach that calls for strategic and organizational excellence to embrace new methods and capitalize on new opportunities (Villarroel, Gorbatai, 2011a, b). Traditional firms and real estate developers that work in strong cultures of internalized research and development structures could feel threatened by the high threshold of open innovation disclosure, limited privacy, and the appropriability of intellectual property. However, these same firms have the ability to benefit from various digital media companies that have adapted successfully to crowdsourced, peer production, and open innovation models that reach out to the public domain for information commons licensing. Ultimately, as in all innovation cycles, crowdsourcing is dependent on sharing, openness, and public participation. In the coming years, this sharing has great potential to contribute to a more transparent, effective, and lucrative urban development process overall.

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Molly Turner

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Who is the Crowd? New collaborative technologies are disrupting industries around the globe, and urban life may be the final frontier. The author argues that two new models of collaboration—crowdsourcing and crowdfunding—have the possibility to disrupt real estate development. I ask how these models might impact the residents that live in the very cities that are being disrupted.

I have argued in the past that when new technologies are applied to urban development, it can lead to genius strokes of ingenuity or unknowingly repeating the mistakes of our urbanist past.[1] Indeed, crowdsourced urbanism presents both opportunities and challenges.

Cities are complex organisms to build and manage, which is why several professions specialize in building and managing them. Urban planners, for example, are tasked with weighing the opportunities and challenges of development. Their responsibilities to the public are outline in The American Institute of Certified Planners Code of Ethics, which includes provisions such as:

> *"We shall have special concern for the long-range consequences of present actions.*
>
> *"We shall give people the opportunity to have a meaningful impact on the development of plans and programs that may affect them. Participation should be broad enough to include those who lack formal organization or influence.*
>
> *"We shall seek social justice by working to expand choice and opportunity for all persons, recognizing a special responsibility to plan for the needs of the disadvantaged and to promote racial and economic integration. We shall urge the alteration of policies, institutions, and decisions that oppose such needs."* [2]

When total or partial control of urban development is devolved to the public, the professionals are no longer responsible for the process or outcome. Therefore, I ask: Does the crowd represent the public? Can it create inclusive processes and outcomes? Can crowdsourcing entirely or even partially supplant traditional planning processes? I will outline the potential opportunities and challenges of such devolution of control and examine what role the crowd might best play as we build cities together.

Opportunities

Crowdsourced urbanism brings a whole new meaning to the concept of public participation. Almost every urban development process in the United States has a required public participation component, though they notoriously lack meaningful and sustained engagement. Using new technologies to source ideas and funding from the public can completely transform that public's engagement with the project. This

could result in a much more personal connection to the urban environment and possibly lead to better stewardship of it. New technologies have made collaboration online significantly easier. We can co-create documents, share images, and communicate across time zones. We can create online communities around particular locations, interests or experiences. Crowdsourcing leverages these technologies to increase collaboration and community building in the real world by bringing residents together offline to gather in, or even to create, public spaces.

As the world rapidly urbanizes, cities need to adapt to new residents and new demands. Traditional urban development processes simply cannot keep up with the pace of change. Furthermore, as new technologies make life and work more efficient, residents have begun to expect immediate gratification. They can become frustrated with their lack of control over the extremely slow-moving and bureaucratic development process, which may lead residents to turn to the incremental and responsive projects that crowdsourcing enables.

Finally, crowdsourcing can provide the kinds of public amenities that the public sector cannot, whether because of budgetary limitations, lack of will or simply lack of creativity. It can allow the public to literally create a city of its own design. Residents can create public art, bike lanes, underground parks or water-filtering floating pools—all amenities the public sector might view as non-necessary, but that can make a city a truly wonderful place to live.

Challenges

Building cities takes a long time, longer than most residents' attention spans last. It also takes a lot of money, more than most city governments themselves can afford. Crowdsourcing can certainly play a small role in the funding and processes of urban development, but it could never take the place of federal subsidies or long-term plans. It might be best suited to idea generation at the beginning of the process, community participation in the middle, or beautification and stewardship at the end.

Crowdsourcing's biggest strength and weakness is its ability to respond to consumer demands. There is a great risk that trendy projects could be supported at the expense of necessary ones. The author's first two case studies exemplify this: residents are much more likely to support an underground park that reminds them of Batman or a pool with nifty new technology than to support the necessary upgrading of hidden infrastructure. The crowd does not have a broad knowledge of what the city needs and therefore cannot make decisions about where its energy and resources would best be spent.

Similarly, crowdsourcing is likely to work in populous and popular cities like New York City, but not in low-density and little known cities like Peoria. The author mentioned that some of the supporters for the Lowline and +Pool lived abroad. It's unlikely that a public pool in Peoria would inspire someone from Paris to contribute to a Kickstarter campaign. Crowdsourcing risks exacerbating existing inequalities, funneling even more attention and resources to already privileged areas. Let us acknowledge that crowdsourcing relies on an engaged populace that is Internet literate and has money and time to spare. Clearly the crowd is not going to be representative of an entire city's population; therefore its preferences are not going to reflect significant social or cultural differences throughout the city. The crowd will likely support projects its members can interact with on a regular basis in the neighborhoods where they live, further neglecting already marginalized neighborhoods.

For this reason, the makeup of the crowd is perhaps the most important criterion for whether relying on it will be successful. Urban planners have learned, through various iterations of public participation, that overly relying on the wisdom of the crowd is risky. Even if the crowd was representative of the city's diverse population, its best intentions may not lead to the most just outcome. Again, ordinary residents likely do not have comprehensive knowledge of the city's greatest needs and therefore may not allocate their time and resources effectively or fairly.

My final point may seem obvious, but as the United States adapts increasingly to neoliberalism, it is a necessary one to make: the private sector and the crowd cannot and should not replace the government. Public parks, transportation, schools, and sewers require extraordinary resources and oversight that the public sector is best positioned to manage. The public sector has the responsibility to look out for "the interests of the disadvantaged" and "those who lack formal organization or influence."[3] The crowd, by definition, does not include those residents and very likely cannot look out for their best interests. Additionally, the public sector, if funded properly, can build infrastructure that the crowd can only dream of. Crowdfunding will never be able to replace tax funding.

We live together in cities because it's more efficient and productive to co-locate and collaborate. Today, enthusiastic urban dwellers have begun to harness new technologies to collaborate and make their cities better together. While these new tools may save costs for developers and local government, beautify neighborhoods and enliven public spaces, the question remains: can they sufficiently serve the public interest? As we careen down the inevitable path of urban innovation, let's take stock of who the crowd is serving—and who it's not.

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The Innovation District Brand: An Economic Development Model

The trend of branding economic development as "innovation districts" is a millennial construct brought forth by stakeholders seeking to revive the built environment. While "innovation districts" are a popular term, they have roots in the long-standing tradition of clustering new businesses in proximity to universities and other anchor institutions.

Innovation districts are arguably the epicenters of big ideas. The term typically refers to designated clusters of commercial or corporate centers. Preferable to suburban research parks, business clusters located in urban downtowns offer accessibility in ways that the peripheral suburban model cannot. In order to quantify the impact of innovation on place -making, I will consider the history of a particular invention or innovation and compare property valuation before and after the brand emerged. For example, a significant portion of South Boston's Waterfront, now Boston's Innovation District, provides some answers.

Modern innovation districts derive from a lineage of clustering in many cities. Boston provides the ideal case study given its legacy and centrality within a historically inventive region. From this perspective emerge several salient factors relevant to the viable economic development model today, all based on an understanding that current developments build upon the successes of numerous cases in other cities. Determining a successful cluster is purely relational, namely between entrepreneurs and universities. As the business of innovation has expanded, innovation districts have become campuses themselves, often aligned with urban core development and dependent upon anchor institutions. The millennial trend of repopulating central business districts over suburban sprawl is advantageous. Essentially, urban centers are ripe opportunities for innovation to proliferate, and property valuation in South Boston since 2005 makes that point clear.

What makes cities ideal for innovation districts and not suburbs? In reality, the current trend of innovation in cities is not a fad, but rather a reconstitution of the inherent value of proximity that city centers offer. Cities like Boston offer opportunities for exchange near downtown and provide infrastructure to connect business centers with the outside world. However, unlike formerly predominant suburban models, the current branding of economic development as "innovative" comes across as a deliberate attempt to stir up interest in once forgotten neighborhoods and creates value for urban cores based on excitement for aspirational lifestyles. It is important to credit the visionary leadership of developers, city leaders, and other stakeholders for bringing forth opportunities to rebuild economies based on innovative businesses. Over time, Boston cemented its reputation for invention and innovation far in advance of modern innovation branding, generations before becoming the fourth largest "cyber city" in the US in 2006 (American Electronics Association). The city also ranked fourth in the US with 191,690 total high-tech jobs in 2008 and ranked as the number one Digital City in both 2010 and 2013.

The quest for knowledge creation in Boston is neither novel nor inventive, especially given the culture of ingenuity ingrained in the DNA of New England by British colonials that still resonates today. Between the late 17th to early 20th century, inventions ranging from electronics to pharmaceuticals sparked global demand and cemented Boston's reputation as rich terrain for commercial activity and technical innovation. As a result, Boston began to attract competing firms, sole proprietors, and academic anchor institutions, namely Boston University, Harvard, and MIT. These institutions were centrally located and thus innovation grew outward from campuses. At the same time, the first known incubators in Boston did not just appear out of the ether, but instead "grew out of the large number of mathematical, optical, clock, and electrical instrument makers in Boston before the Civil War" (Manning, 2005). What was then the machine shop is now parallel to "incubators" like South Boston's District Hall. The clustering concept helped inventors cultivate ideas and thus helped landowners expand their footprint and create rent demand. From this, other service economies grew, like law offices, patent drafting, marketing, and distribution, often next door to each other.

"Vision without execution is just a hallucination," exclaimed Walter Isaacson during a CBS Sunday Morning Broadcast that aired October 12, 2014. Isaacson illuminated the traits of inventors, and he pointed to collaboration among geniuses as the source of real innovation. Could this statement also apply to economic development? The trait of invention is new knowledge, and innovation is a systematic approach that makes inventions work better. Thus, innovation districts must evoke both new knowledge and novel systems. Clustering helps businesses through competitive advantage and knowledge sharing, while helping cities maintain stable tax bases and employment. On the other hand, innovation districts did not appear from the ether. Historically, few inventors worked alone. Instead, they clustered, like Thomas Edison at his West Orange laboratory, or Steve Jobs in his parents' garage alongside Steve Wozniak. In that same way, Boston's Innovation District was born, and much credit is due to Mayor Tom Menino, Global Investors, and other active stakeholders for creating what is now one of the hottest sites for new development (Figure 1). My aim is to examine how the social and economic good provided by innovation increased property values and generated rapid returns on investment.

Figure 1: Boston Innovation District.
Source: www.seaportinnovationdistrict.com

Figure 2: Factory 63 Seaport Luxury. Source: Encore Realty.

At a glance, "innovation districts" are fashionable tech hubs characterized by green buildings, computers, copious outdoor space, high rents, and short commutes. Yet long before their branding as economic development models, businesses clustered near the epicenter of invention for capital gain, especially in Boston. This is the basic economic theory of efficiency through conglomeration. Fast forward to the 21st century, the difference between past clusters and the new trend is the Information Age and short-term returns on investment. Extrinsic market forces in the Information Age have increased businesses' ability to innovate and market on a global scale, instantaneously. Whether or not society needs a particular invention, market demand for creative potential drives valuation, triggered by access to aspirational lifestyles (a settlement pattern favorable to budding entrepreneurs and investors). In Boston's Innovation District, the residential-heavy tenant mix reflects the trend of lifestyle as an equally important priority as invention or innovation itself. The Innovation District development strategy comprises a mix of "70 percent residential and 30 percent commercial, whereas the Financial District is 95 percent commercial and Back Bay is probably 50/50." (Acitelli, 2014: 1)

Katz and Wagner (2014) assert that today's innovation districts are "Geographic areas where leading-edge anchor institutions and companies cluster and connect with start-ups, business incubators, and accelerators." In Figure 2, "innovation district properties are also physically compact, transit-accessible, and technically-wired and offer mixed-use housing, office, and retail." (Katz and Wagner 2014, 1),

In the first known example of an "innovation" branding trend for economic development, 22@ Barcelona exemplifies the potential for underutilized industrial zones to become vibrant mixed-use innovation districts, combining public funding with local and regional entrepreneurism. The scale of 22@ Barcelona includes 495 acres of total planning area, 8,600 dwellings (of which 4,000 are state-subsidized), 28 acres of green space, and 130,000 new jobs generated. The lessons from this strategic concentration of intensive knowledge based activities translated well for Boston. While realizing Boston's own needs to redevelop South Boston along the Waterfront, Mayor Menino's Office of New Urban Mechanics identified several blighted properties and surface parking lots with proximity to hospitals, universities, and other businesses, granting the city space for expansion unlike anywhere else in the city.

An important fundament of innovation district branding is place-making. Place-making emphasizes "location preferences of people and firms and, in the process, [reconceives] the very link between economies reshaping, place-making and social networking." (Katz and Wagner, 2014) Though trendy, this development approach is not a fad, as businesses seek strategic positioning along global supply chains. Within the Innovation District, Seaport Square will develop 6,000 to 7,000 apartments, and the issue of rent affordability remains crucial. The Seaport Square Master Plan, only a small portion of the overall Innovation District, outlines a 23-acre development that as of 2005 contained only 7.7 million square feet of buildings. Projections for 2050 indicate the development will spill over across the Fort Point Channel to become 19 million square feet, including office, residential, hospitality, and retail. This land is important because the district lies at a "crossroads" where Boston's Inner Harbor and the Fort Point Channel converge. Seaport Square becomes the gateway between Boston and the rest of the world. In fact, it is "accessible by various means of transportation, surrounded by programs that are commercial catalysts and cultural attractors, strategically located on the access routes to amenities of versatile character" (Seaport Square Master Plan, 2010). The rapid pace of development has created high rent demand in units that are unaffordable to most Boston residents. In the case of the former shoe factory at 63 Melcher Street (Factory 63), all 38 units were

Figure 3: 2005 Seaport Square Master Plan. Source: Kohn Pederson Fox Associates.

leased within a week, among which are studios, 1-bedrooms, and 2-bedrooms (some called innovation units) ranging $2,400 to $4,300 per month. Such high rents reflect "pent-up demand for rental housing in the city and there has been a pent-up demand for rental housing for well over a decade." (Acitelli, 2014)

It is not only the prospect of innovation and small business incubation driving property valuation at Seaport Square. Rather, a firm commitment to smart growth between municipal government, developers, and potential residents has driven development. The approved plan morphed since its 2005 inception (Figure 3). Consider the tenant mix from 1999-2009 towards 2050.

Figure 4: Seaport Square Master Plan Tenant Mix 1999-2050.
Source: Richard McGuiness, South Boston Waterfront, The Architect's Newspaper.

*1999/2009 Use	*1999-2009 Area (square feet)
Office	2.6 million
Residential	1,000 units
Hotel	1,750 rooms
Civic and Cultural	2.2 million

*2005 Proposed Use	*2005 Proposed Area (square feet)
Residential	2.8 million at 70% market rate
Retail	1.25 million
Office and Life Science	1.15 million
Hotel	860,000
Civic and Cultural	250,000

*2050 Proposed Use	*2050 Proposed Area (square feet)
Office	6 million
Residential	6,000 units
Hotel	5,000 rooms
Retail	2 million

Figure 5: Plan, elevation, and urban context of 63 Melcher Street. Source: Richard McGuiness.

The emphasis on residential property mimicked the City of Boston's Assessments for Fiscal Year 2006, in which the overall mix of properties in the city were 67.8% residential, 26.8% commercial, 4.5% personal, and 0.9% industrial (Property Tax Facts and Figures, 2006: 4). However, the burgeoning innovation economy lures tenants willing to live in smaller dwellings proximal to both work and play. The "distance equals death" motto resonates throughout the Seaport Square Master Plan document. The plan emphasizes lifestyle, technology, and proximity, because "a community that fosters innovation is economically prosperous, environmentally aware, technically advanced and culturally rich." (Seaport Square Master Plan: 2010, 29).

Key streets border the proposed Seaport Square development, including Seaport Boulevard / Northern Avenue (to the north), East Service Road (east), Congress Street (south), and attractive anchor institutions such as the Institute for Contemporary Art (ICA) and the Boston Convention Center. In some cases, property value within the proposed Seaport Square has increased astronomically over the last decade, propelled by development approval granted to the Boston Redevelopment Authority (BRA) for the 20-block, $3 billion mixed-use Seaport Square development in 2010. For instance, according to the BRA, property listed between Seaport Boulevard and Northern Avenue facing the Fort Point Channel at 66 Sleeper Street, a 16,973 square foot parcel (Parcel 0602640010, Class 300 - Commercial/Hotel) listed for $900,000 in 2005 and its 2015 assessed value increased ten-fold to $9,941,600.

In addition, property at 55 Thomson Place (parcel 0202640060), adjacent to the Silver Line (MBTA) Courthouse station was valued modestly at $250,000 in 2006, yet its potential as a hotel on "Parcel K" of the master plan across from a proposed public park has inflated its assessed value to $27,134,500, more than one hundred times the previous land value. Though speculation is contributing to higher valuation in this location, the appreciations of completed projects are palpable. For instance, the District Hall built in 2012 as a start-up incubator/centerpiece of the Innovation District was once off-site parking for Logan Airport. However, as an "innovative" property, its assessed building value of $13,095,498 in 2014 exceeded the $3,529,383 land value by a factor of four. In the same manner, the aforementioned property at 63 Melcher (Figure 5) increased its 2013 value ($2,104,600) by four times to a 2015 assessed value of $8,821,000. These examples illustrate that gains for developers investing in Seaport Square through commercial and residential rental income and condominium conversions yield massive profits, and potentially more once the remaining parcels in the master plan are completed.

The South Boston Waterfront owes much of its physical existence to centuries of coastal infill to the Shawmut Peninsula and other tidal wetlands to form the modern Boston metropolis. The land now constituting the Innovation District is unsurprisingly more valuable and productive as built space when compared to wetland. Centuries later, the area within the District known as

the Seaport has become valued as a canvas for mixed-use development. The importance lies in the coupling of innovation businesses with strategic combinations of speculative development and public sector funding and regulation. Thus, the Seaport Square development combines restaurants and other businesses to support more than 100 innovation businesses, ranging from green-tech to social media, architectural design, biotech, and others (Figure 6).

One method enabling economic development in the Innovation District is tax increment financing. Tax increment financing (TIF) earmarks public financing for infrastructure and other community improvement projects. Under the Massachusetts Executive Office of Housing and Economic Development "TIF Plan," such projects are of high value and effectively align state, local, and private owners' interests. The first such "TIF zone" within the Innovation District encompassed Fan Pier, a "TIF-only project" facing the Inner Harbor. In this case, the prospect of the innovation space drew inventors and startups much like former machine shops of yore. One such example is a property now home to Vertex Pharmaceuticals, a publicly traded global biotech company that received FDA approval for a new drug to treat hepatitis C. Vertex will house its Massachusetts based workforce in the zone, which will increase in size by 40% while it "aims to discover, develop and commercialize innovative therapies for people with serious diseases." (Campisano, 2013).

In sum, Boston approved a $12 million TIF to cover relocation expenses for Vertex through the Commonwealth's I-Cubed (Infrastructure Investment Incentive) program in order to spur win-win development for the Innovation District. The 1.07 million square foot Vertex Project occupies two parcels at Fifty Northern Avenue and 11 Fan Pier, part of the first TIF zone in the District. The checkered development past did not prohibit the project from moving forward, even though the Vertex project proposal began in 2002, was amended in 2007, approved by the BRA in 2008, given the go-ahead by Mayor Menino in 2010, and culminated with the TIF in 2013. According to a memo prepared in 2011 by Brenda McKenzie, Director of Economic Development, and Frank Tocci, Deputy Director for Financial Services, the Vertex Project includes office and research laboratory (558,533 square feet), and retail (29,684 square feet) on Parcel A (50 Northern Avenue). In addition, the adjacent Parcel B contains three levels of underground parking, offices, research laboratory space (520,218 square feet), daycare space (12,000 square feet), and other retail uses (13,000 square feet). Overall, the project has "been a catalyst for

Figure 6: "A Growing Mix of Innovation Businesses." Source: Office of Urban Mechanics.

significant development and investment at the Fan Pier Project (Campisano, 2013)" and I-Cubed, which functions as follows, quenched shaky market conditions coupled with a lack of financing:

> *"To provide State Infrastructure Development Assistance to the Massachusetts Development Finance Agency to secure and pay the debt service payable on and with respect to bonds issued by Mass Development to finance costs of public infrastructure improvements that are part of economic development projects approved by the [I-Cubed] program."*
>
> *Heather Campisano, Boston Redevelopment Authority*

Because of public sector bolstering, the projected redevelopment of Fan Pier (Parcel 0602671025) is valued at $65,960,800. In addition, through Vertex's growth, Boston's economy will retain 1,241 permanent jobs and create approximately 500 new jobs by 2015. More important is the manner in which developers Fan Pier Development LLC reinforce canons of the master plan. The developers urge healthy living and active public life, partially through open space easements that helped create the Public Green, Fan Pier Park, and completion of the Harborwalk.

Measuring success in Boston's Innovation District becomes evident in the numbers. The innovation district brand is a lucrative economic development model that underscores the influence of high demand for aspirational lifestyle, as proximity and property valuation are inextricably linked. Though speculation around innovation is no guarantee, continued investments are yielding high rates of return, indicating a promising future for "innovation-based" development.

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Philip Wharton

Philip Wharton recently joined RXR Realty as EVP overseeing all residential development activity at the firm. RXR is a leading investor, developer, and operator of commercial and residential property, based in New York. Prior to joining RXR, Wharton headed up development activity at Brookfield Office Properties (now part of Brookfield Property Group) and had a senior role at AvalonBay Communities (NYSE:AVB), where he sourced and executed multifamily projects in New York City and Westchester County. Prior to joining AvalonBay, Mr. Wharton held senior roles at LCOR, Lend Lease and Lincoln Property Company, working extensively on major office and residential projects. Altogether, Mr. Wharton has accrued an impressive 30-year career in real estate development and investment. Mr. Wharton holds a BA from Harvard College and an MBA from the Wharton School of Business at the University of Pennsylvania.

In "The Innovation District Brand: An economic development model," the author describes the background and the implications of the innovation district model, outlining the elements of the innovation district, its historical roots, and the successful example of an innovation district in downtown Boston. In doing so, the author identifies some key factors that need to be in place for an innovation district to be successful, both as home to innovative companies and as a model for economic development of urban centers.

The first section of the article describes the concept of the innovation district as a form of clustering that has many historical antecedents. Boston, in particular, has been the home of innovation since the 17th century, and its machine shops, for example, were areas of innovation that benefited from knowledge sharing and proximity. Additional business services – law, marketing, etc. – grow up adjacent to these clusters, to service the needs of the businesses. Also important for Boston were the "anchor institutions" like Harvard and MIT, which were natural sources for ideas and ambitious entrepreneurs long before innovation districts became a named phenomenon.

The next section outlines some of the key elements of today's innovation districts, some of which differ from those of the past. Networks of computers, common and green spaces, and nearby retail amenities are common to these districts. Nearby residential options and proximity to transportation are also important to a successful innovation district. This emphasis on "lifestyle" is a relatively new element, where an enjoyable life beyond work is as important as successful business innovation. One doubts whether this was the case for the workers in the machine shops of the past. The author points to Barcelona as an early example of the modern form of innovation district – an area called 22@ Barcelona that contains 495 acres, 28 acres of green space, 8,600 dwelling units – and is apparently successful.

The final section of the article delves into Boston's Innovation District to support the author's case for this phenomenon as a model for economic development. The district is located in a previously low-value neighborhood that, through a combination of public and private effort, was transformed into a master planned area of housing, office, retail and hospitality uses. The public sector contributed through infrastructure financed by tax increment financing (TIF). The district has yielded innovative companies – the author cites Vertex Pharmaceuticals – that have generated jobs for Boston residents. It has also raised property values – as demonstrated by the increase in assessed values for specific properties located within the district's boundaries.

The author has identified an important phenomenon, one that has significance for politicians, city planners as well as for developers, investors and others seeking to attract innovation and jobs to their communities. There is certainly historic precedent for the idea of clustering and conglomeration, so in a sense innovation districts are nothing new. It might have been useful to identify attempts at innovation districts that have not been successful and make an attempt to explain where they differed from Boston's successful example.

Additionally, a more thorough description of Boston's project would probably have been possible from available public sources. Examples of companies other than Vertex and statistics on job creation would have made the success more concrete. The use of property sales rather than tax assessments to demonstrate value creation would have improved the case being made for economic development. The description of the TIF program for public improvements could have been fleshed out with more specifics. (The author doesn't explain that tax increment financing works by allocating the increase in property taxes towards the servicing of bonds issued for infrastructure work.) It would have been helpful to show a site plan of the district, indicating the mix of uses, proximity to transportation, etc., which would have buttressed the author's points.

In general, the article covers an important topic and identifies some of the key elements that make up innovation districts. While more concrete details on the district would have helped support the author's statements, the article highlights the success of Boston's Innovation District and shows the key elements of that success, which has the potential to bring job creation and economic development to other urban centers.

Richard Peiser, PhD

Richard Peiser, PhD has been the Michael D. Spear Professor of Real Estate Development at the Graduate School of Design since 1998. He is also Director of the university-wide Real Estate Academic Initiative created in 2003. He was previously on the faculty at the University of Southern California (1986-1998) as associate professor of urban planning and development, director of the Lusk Center for Real Estate Development, and Academic Director of the Master of Real Estate Development Program that he founded in 1986. His courses: Real Estate Finance and Development, Field Studies in Real Estate, Planning and Urban Design, and Advanced Real Estate Development and Finance offer basic and advanced-level study of real estate at the GSD. He also directs the school's activities in advanced education for senior real estate executives, notably the six-week Advanced Management Development Program in Real Estate. His primary research has focused on developing an understanding of the response of real estate developers to the marketplace and to the institutional environment in which they operate, particularly in the areas of urban redevelopment, affordable housing, and suburban sprawl. Professor Peiser received a BA from Yale University, an MBA from Harvard Business School, and a PhD from the University of Cambridge.

Vaughn Horn argues that innovation districts are not new – they have existed in various forms in Boston since the time of George Washington's Revolutionary War headquarters – but today they are driven by branding more than by innovation. Boston has been a major center of innovation from the beginning of the nation's history, anchored by the academic institutions and its abundance of scientists and innovators throughout the industrial revolution. His article is strongest in its discussion of the history of innovation and its traditional roots in Boston. However, his explanation of what makes modern Innovation Districts unique, why they work, and what makes the Seaport District special is unconvincing. In particular, he stresses their role for revitalizing obsolete industrial areas as well as the importance of 'sense of place' and the tax increment financing district (TIF) for bringing the Seaport District to fruition, but does not explain what the district delivers or why it is successful or not.

Horn uses Katz and Wagner's definition of Innovation Districts as places where anchor institutions and companies cluster to connect with start-ups, business incubators, and accelerators.[1] He does not really explain what innovation districts offer, what their economic rationale is, or whether they add real value. Katz and Wagner make a compelling case that innovation districts are effective places for innovation. They are to be found in a number of cities in the United States, almost all clustered around academic institutions or major medical centers. Evidence of their success is not only the number of start-up and high tech firms that are calling them home but also the higher rents and occupancy rates they are getting compared to other office and industrial districts in the same cities.

Horn's article would be stronger if he explained in greater detail what makes Innovation Districts function and why they have proliferated. He glosses over their very real economic strengths, especially the presence of venture capitalists and legal advisors. However, his argument that they are primarily about branding makes an important point. He states, "I disagree with Katz and Wagner's assertion that innovation districts are a new trend given the history of invention, clustering, entrepreneurism, knowledge spill over, and lifestyle, rather the branding of such activity, as a marketing tool certainly is a millennial phenomenon. In fact, the footprint of physical and networking assets on which modern innovation zones exist is due to similar practices in the 17th century."

The article is weakest in its discussion of the Seaport District as an exemplar of the modern innovation district. Mayor Menino branded the part of South Boston as the Innovation District in part as a means to give the redevelopment area adjacent to downtown a new identity. Horn skips over the long torturous history of redeveloping South Boston, which finally came into its own in the 2000s, some 20 years after redevelopment efforts began. Nor does he mention that it has become wildly successful in terms of attracting blue-blood companies such as the law firm of Goodwin Proctor, whose move to South Boston is emblematic of the fact that some of Boston's most historic firms are relocating from the traditional heart of downtown Boston at Congress and State Street to the Seaport District.

Horn credits the TIF district for enabling economic development in the Seaport District by providing funds for Vertex to move its headquarters there. While the TIF certainly provides helpful economic support to the Seaport District's finances, the district's current success is a combination of many factors including the fact that it has the largest undeveloped land area on the waterfront with the best location of any major development area in Boston.

A major attraction of Innovation Districts in general is their appeal to high-tech firms that hire millennials and the 24 hour lifestyle the districts offer. While it is still in the early stages of development, the Seaport District is predominantly residential but also includes a large amount of retail as well as culture and entertainment activities. Whether it will achieve its potential as a 'great place' depends on design and implementation of buildings that have yet to be realized.

In summary, Horn does not present much evidence to support his argument that innovation districts are simply branding independent of invention because he does not evaluate either their economic output or creativity. They are not like company towns built around single great inventions; indeed, they are places that, if successful, become magnets for start-up firms, new ideas, and companies that bring them to market. I wish he had included more examples of innovation districts around the country, including those that have a longer history than the Seaport District and less unique location. But they are certainly worthy of study and assessment using more objective metrics of success or failure, as well as deeper understanding of the factors that enable innovation districts – if they do – to foster more innovation. Only then can one determine whether or not they are only a new form of branding, or rather a new form of urban development that truly delivers greater innovation.

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Daniela Leon

Daniela Leon is a Master in Architecture candidate at the Harvard University Graduate School of Design. Most recently, she worked with Alloy LLC in Brooklyn on the development proposal for Pier 6 in Brooklyn Bridge Park as well as Alloy's market expansion into Florida with 8050 Vero Beach. Prior to her graduate studies, she worked at UNStudio, Amsterdam on a number of international projects. She also conducted research on past and emerging global work trends with the UnFinished Work Studio at Harvard. She previously worked with Kohn Pedersen Fox Associates (New York), regionalArchitects (Toronto), and OneArchitecture (Amsterdam). She holds a Bachelor of Architectural Studies from the University of Waterloo.

Adding Value Through Practice: The Developer Architect

The practice of the developer-architect offers an innovative platform for real estate development. Through the study of 55 Pearl Street by Alloy Development, this article analyzes the developer-architect model, investigating how an expanded set of roles can create added value in the built environment.

When discussing innovation in real estate, one must consider the nature of *practice* itself. The intent of this paper is not to propose a new financial model or a new building typology in real estate development, but rather a platform for practice. A practice brings together organizational, financial, and technical factors as a complete system within real estate. Therefore, we should consider innovation in real estate development at its most fundamental level, the level of practice.

Given the general context and prevalence of innovation within business, the pursuit of added value through restructuring or reorganizing conventional processes is commonplace. This reorganization offers optimization and establishes a relationship between investment and the end product. Businesses are structured around the promise of product delivery and utilize a range of skills that are contingent on achieving the end goal. A company then assembles the organizational, financial, and technical skills necessary for project delivery spanning multiple spectrums of work within the practice. This raises the point of vertical integration, which brings the consumer closer to the process of creation and offers value to both parties. The end goal of the "innovative" practice is thus to generate an *added-value* in a process that would otherwise be unrealized.

The developer-architect business model addresses two spectrums of work, both development and architecture, within a singular model of practice. The conflation of practices establishes a direct relationship between investment and product. By having control over both development and design spectrums in project delivery, the developer-architect establishes a direct investment in not only the product but also in its design and creation.

> *"The ability to synthesize and orchestrate - in areas as design and innovation, consultancy, technology and other cultural spheres - lends itself to meaningful apply one's unique capabilities and beliefs in pursuit of one's own 'project.' Strategies of structuring practice - with all its facets - then becomes an instrument for growth, both economical and intellectual."*
>
> *- Florian Idenburg*
> *Associate Professor in Practice of Architecture at Harvard, Founding Partner, SO-IL*

Though not a new model of practice, the developer-architect is one that is uncommon in standard real estate and design practices. As this model works between two separate spectrums of work, it introduces an expanded value set to a project's trajectory. The mediation between these competing and often disparate interests establishes a new system of working, where each development decision is a design decision and each design decision is a development decision. Analysis of this model provides an alternate way of looking at a practice structure, embedded within the project. By following one developer-architect's project through its conception, organization, and execution, one can evaluate the advantages and disadvantages of this practice model and where the supposed added-value lies.

Image: Perspective of 55 Pearl Street. Source: Alloy, LLC.

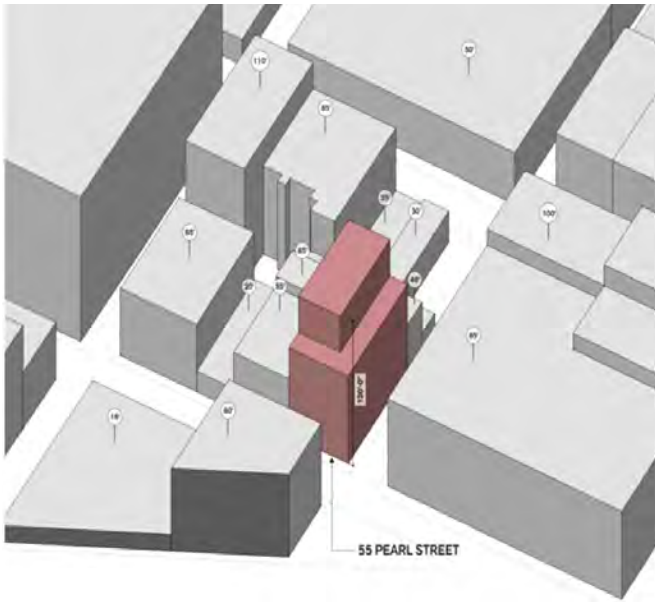


Figure: Maximum Zoning Envelope. Source: Alloy, LLC.

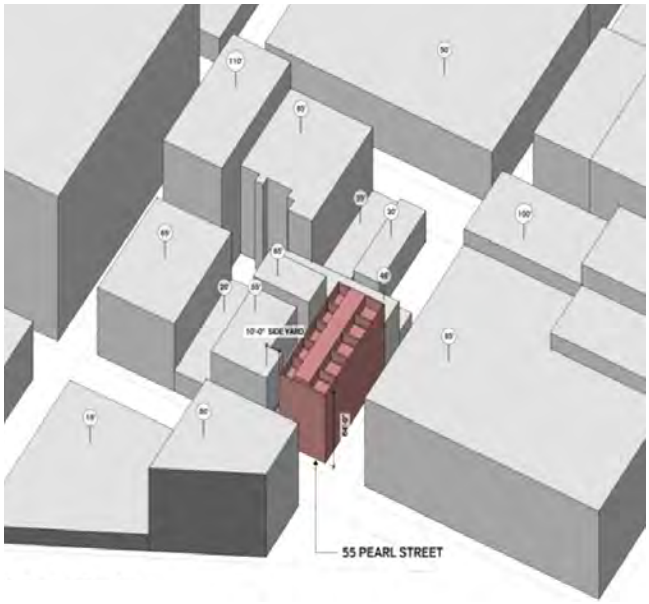


Figure: Built Envelope. Source: Alloy, LLC.

For the purposes of this analysis, we will consider the growing real estate market in Brooklyn, New York. Situated in Dumbo, a new development of five six-story townhouses are set for completion during spring 2015. 55 Pearl Street, marketed as Dumbo Townhouses, is an 18,000 square foot development located at the corner of Water and Pearl Street in Dumbo. This area has been subject to recent development, with the near completion of Brooklyn Bridge Park as well as the conversion of some of New York's oldest warehouses into a residential and mixed-use neighborhood. Over the past five years, the area has also been the location of work for one developer-architect, Alloy Development. Alloy is a fourteen-person development, architecture, construction, and brokerage company, where each discipline is a separate enterprise that makes up Alloy as a whole. The company functions as one office where the employees, all trained architects, work across disciplines throughout a project's lifespan. The structure of Alloy spans the spectrum of investment and product development within one practice. The company sets a precedent for a firm that is invested in both development and design. 185 Plymouth Street recently won "best design award for multi-family housing" by Architects News Paper. By situating the practice within the expanded value set of the developer-architect, Alloy is able to view the project scope as a complete closed system. This system enables a positive feedback loop between each project phase. 55 Pearl Street sets a precedent for how the developer-architect's practice influences project development. This model entails vertical integration of firm structure, a resulting contraction of time, and an indirect value generated in the end product.

55 Pearl Street establishes a framework for analysis of the developer-architect model, in which the firm engages in both development and the production of the real estate asset itself. Originally occupied by a one-story parking garage, the 50-foot by 90-foot site falls within Dumbo's historic landmark district. The designated landmark site has a floor-area-ratio of 9.3 (42,000 gross square feet), greater than double that of the final development of 18,000 square feet. The proposal for five townhouses distributes the volume between six floors, setting a 40-foot deep building with a 10-foot deep rear terrace. The ground floor occupies 100 percent site coverage and is allocated to private parking and townhouse entrances.

Though these metrics are not particularly unique, a practice that enables a conflated model for project delivery creates real added value. Of primary benefit is the compression of the project's timeline and efficiency due to Alloy's vertical integration. The initial decision to pursue less development rather than the maximum zoning envelope is driven by a desire to design for landmark planning approval. This is also supported by the cost savings of construction. In the early development and design stages the decision not to excavate the property was twofold. Primarily, this decision corresponded to the site's landmark status approval and saved three months of construction time later in the project. The construction period is also an example of the efficiency in the practice's organization, as direct communication between architect and general contractor creates a flexible project structure where sub-consultant bidding can happen parallel to early phases of construction. The flexible bidding schedule thus allows construction to start earlier while assessing sub-consultant bids for trades later in the construction process. This organizational model allows each project phase to expedite time as the firm can coordinate and make decisions faster. The process is not only more efficient, but the internal rate of return (IRR) improves given the compressed scale of time.

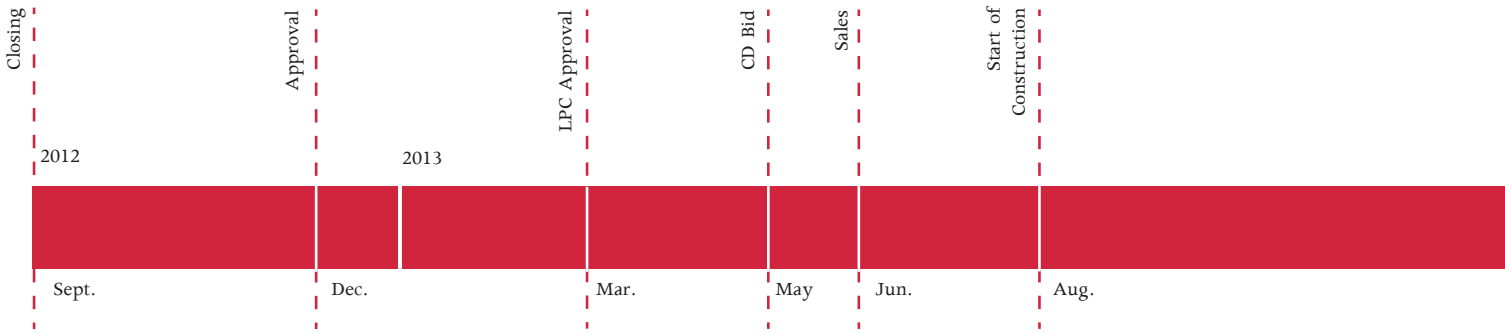


Figure: Timeline of 55 Pearl Street's development.

55 Pearl Street was delivered with an IRR of 49% for all equity and an equity multiple of 2.7. In the timeline of the project's development, Alloy negotiated a contract and sale agreement within weeks and began typical programming and development studies in advance of closing. The project acquisition closed in September 2012 and was filed for approval in December 2012. 55 Pearl was granted Landmark Planning Committee approval in March 2013. In a total of nine months the team was ready to begin construction, submitting the construction document set for bidding in May 2013 and beginning construction in August 2013. Through analysis of this timeline it is clear that pre-development and construction phases were most optimized, saving time on the cap ends of the project's lifespan.

The size of the developer-architect's firm is also a factor in the project's delivery mechanism. The ability to communicate efficiently with a smaller number of parties establishes a positive feedback loop within the company during the development and building process. The structure allows the firm to do more with less, therefore maintaining a small firm size is a key component of the process. Throughout each phase of the project, the developer-architect expands and contracts the team size to adjust fluidly to the needs of the project. This organization of practice enables flexibility in timing and scheduling of each phase, subsequently saving on in-house costs, resources, and employee expenditure. In the case of 55 Pearl Street, the project team ranged from six employees in acquisition, three employees during

pre-development and due diligence, and six employees during the completion of the bid set. Alloy Construction is currently leading the project construction with a team of six employees, including a general contractor and site supervisor. The practice size also has an effect on the project type the firm takes on. In Alloy's case, this translates to smaller or mid-size residential projects. The ability to understand the capacity of resources disposable to the firm and maintain control in each phase becomes crucial. This is clear especially during construction documentation and shop drawings, which are not done by an architect of record but rather completed by the team of architects in-house. Furthermore, by having control of the product the topic of quality comes into play.

Vertical integration saves on time, but also has an impact on quality. In Alloy's case, the combined skillset of the developer and architect allows Alloy to have quality control over their product, which they argue makes for a better product. Typically, the architect does not complete the full scope of construction and shop documentation but rather passes it off to specific contractors, this brings up the notion of means and methods in project delivery. As Alloy is also their own construction company, the architect takes a direct authorship role in implementing a project's detailing. By directly engaging in the complete production of the built

work, Alloy, operating as the architect, has a better understanding of their built work when compared to the typical mode of practice. The firm can directly see the success and failures of the work they put out into the market, creating a valuable feedback loop to improve the general product and market knowledge of the firm. Combining the skillsets of the developer and architect enables the practice to handle both the financial and technical sides of the work scope, thus placing value in the end product.

The identity and image branding of the project is defined through its facade. By implementing a tight building envelope system, the design addresses environmental factors such a noise pollution from the nearby Manhattan Bridge and reduces energy use for heating and cooling. Due to the building's landmark status, the facade was developed from the surrounding warehouse facade proportions and typology. A high tensile, concrete, ductile facade was chosen, setting a dense meter for the building skin that holds varied window openings behind it. This design choice of investing $300,000 per townhouse in order to achieve the desired identity for the project was a development risk, but one the company took because of the belief in the value the design decision would bring, both from the time savings value in entitlement and from the ultimate market value to the consumer.

Figure: Townhouse Unit Floor Plans. Source: Alloy, LLC.

This direct authorship role is a unique opportunity for branding. A product holds an inherent brand value. Alloy capitalizes on the brand of its product by acting as brokers. This is probably the least common model among other developer-architects and design-build practices. Alloy makes the case that "we see the value in our work and the market recognizes that also," therefore establishing the grounds to take on the added risk of selling their product. This not only provides the financial benefit of selling the developed property directly, but also creates brand value for the product and the company. If the practice is willing to invest, design, build, and then sell the product they are putting out into the market, it establishes confidence in their work and its success in the marketplace. Though market success and failure has many other factors that come into play, this emphasizes the importance and potential value of establishing a practice that invests in the complete spectrum of development and design. Committing to the product creates, at the very least, the perception of stability and confidence in that product. The consumer recognizes this and responds to it in the marketplace. 55 Pearl Street, as an example, sold between $4.1 and $4.8 million per unit, above the broker's and Alloy's projected sell rate in pre-development of $3 million dollars per unit. We can expand on this by acknowledging that the typology of the townhouse is a novel product in the Dumbo market. The ability to recognize a market gap in an area that is concentrated largely on condominiums is crucial to market success. Introducing a new typology, one that is common and desired in the Brooklyn and New York City context, is an advantage for sales in addition to meeting as well as creating demand in the market.

In June 2014, marketing and sales began for the Dumbo Townhouses. Partnering with Brooklyn United, Alloy established the graphic identity and branding for the project through in-house renderings completed by the design team. The entire sales process lasted a total of six months, selling out only a few months into construction. As an architecture firm, Alloy believes in the value of the end product and the quality of design they are putting into the market. In sales, it is rare that the developer will act as the broker selling their product directly to the consumer. Alloy, acting as their own broker, establishes a one-to-one relationship between developer, architect, and broker. In most cases, the buyer does not speak directly with the designer or builder of the project. However, Alloy sells their work as the project's architect. This allows them to learn from what the buyer wants, with direct translation and understanding of the market demand.

"We use the term value then, as a way to talk about quality."

AJ Pires, Executive Vice President of Alloy

In relating directly to the market, design drives the value of Alloy's work and product differentiation. Although design is subjective, it is at the center of the objective practice of marketing real estate. With this in mind, the developer-architect engages two methods of value creation: one, enhanced development metrics through increased efficiency, and two, design enabled by that efficiency. To fail to acknowledge design and therefore aesthetics in the discourse is leaving out a crucial portion of the real estate discipline: the built environment. Without this, the profession is merely held to the standard of land as a commodity, with building and designing understood to increase the overall value.

Image: Rendering of living area, looking towards Pearl Street. Source: Alloy, LLC.

Figure: Section. Source: Alloy, LLC.

The process of 'design-thinking' is at the base of an architect's training. The driving force behind Alloy's decision-making across all aspects of their business is design. The only distinction is their financial capacity and ability to take on the risk that comes with development. A crucial point is how the developer-architect mediates between two contradicting professions and how the natural conflicting interests between these two industries is conflated into one practice. Development and design bring together disparate perspectives on profit margins and aesthetics. By choosing to engage in both development and design, the skill set of the architect will come into play in both the product and the practice. The subjective design process of the architect is at the core of a more objective practice that the developer-architect chooses to take on.

In line with the paradigm of 'design-thinking,' the practice of the developer-architect is not linear. Each component of the practice (development, design, building, and brokerage) informs and influences the other. The innovation lies within a re-framing of the conceptual point of practice to acknowledge the gain from this extensive interchange. By investing in the end product, it not only informs the rest of the process, but also attempts to improve or make it better than it would otherwise be. The developer-architect practice model more comprehensively engages with the other individual disciplines and industries within the full building spectrum.

If innovation in real estate development is stagnant, the practice of the developer-architect offers precedent for added-value. By restructuring the practice itself, the developer-architect establishes an alternative framework that is more encompassing of the factors that shape the built environment. This model of practice brings those factors – financial, physical, and aesthetic - under direct authorship. The innovation of the developer-architect then is in the ability to utilize these seemingly discreet elements to improve the work flow and subsequent end product of built real estate through an integrated and innovative practice. It is in the mutual interchange of these elements that enables a potential for an alternative outcome within real estate development and the generation of an added-value from this process, thereby a framework for innovation in real estate through practice.

Yong Kim

Yong is a Design Associate and urban designer at HyperBina Design Group focusing on formulating resilient design and development strategies for urban environments. Prior to joining HyperBina, Yong worked for urban design, landscape architecture, and architecture offices in the Unites States and Korea, where his urban design projects have been internationally recognized through publications and awards including the ASLA and AIA National Honor Awards. His urban design experiences include design collaborations on the MoMA Rising Currents Exhibition for Lower Manhattan, the Gowanus Canal Sponge Park master plan, and the winning entry for YUL-MTL: Moving Landscapes International Ideas Competition for Montreal, Canada. Yong received his Master of Architecture in Urban Design degree from Harvard University Graduate School of Design and his BArch and BFA degrees from Rhode Island School of Design.

Adding Value through Practice: The Developer-Architect by M.Arch student Daniela Leon addresses the fundamental yet compelling question on how to optimize value generation in real estate development through a developer-architect business platform. In Leon's article, two critical end results are presented as value creation: first, efficiency in the vertical integration of a real estate design/development firm's organizational structure and its reverberating impacts through asset delivery process; and second, the final real estate product's qualitative and tactile quality deriving from highly controlled internal design and construction collaboration.

The developer-architect platform proposed by Leon is a promising and innovative perspective on optimizing the fundamental processes of 'practice' through commonly utilized methods of value engineering of services, construction processes, construction materials, and interior finishes. The emphasis on innovation at the core of this practice platform can create a greater sense of personal and/or monetary investment toward a common goal to elevate the combinatory qualities of the current paradigm of real estate practice and product. This potential notion of proliferated investment is an important component to promoting innovation within the real estate field.

One of the great strengths to a developer-architect platform is its capacity to dominate and specialize in the niche or localized market through extensive market understanding, focused project scale, and utilization of integrated development and design process as a unified production and investment vehicle in enhancing the quality of architecture and its surrounding neighborhoods. The 55 Pearl Street project presented in the article by Leon is an example of a project which maximized the potentials of real estate development and acted as a catalyst in transforming an underutilized site into high quality residences.

One integral aspect that could be addressed in greater depth by Leon is risk management of this specific business platform. As a single entity responsible for the complete process of development, from conceptualization, financing, marketing, design, construction, and brokerage, this singular entity is charged with all financial and operational risks associated with realization of a development project, far beyond the professional risks associated with the practice of architecture. The efficiency resulting from a vertically integrated design/development team cannot compensate the risks this business model is associated with, especially in a volatile market or an economic downturn. Thus, one question that could be further explored is how an innovative practice platform can help reduce risks associated with real estate investment in varying market cycles and its delivery through a single, vertically integrated organization.

A strength to a larger development corporation is often its scale and its collaborative interactions among various industries' players. An internalized, vertical structure of a developer-architect platform may limit the potential opportunities within the practice of collaborative working process with many third-parties, even if it results in coordination inefficiencies at times. In addition, diverse, collaborative process among vested parties with varying interests may promote spontaneous innovation that may not be limited to the thoughts, processes, and trajectories of a single entity.

A potential weakness of a developer-architect platform formulated by small enterprises is the lack of economies of scale. Leon touches upon the developer-architect enterprise's nimble scale as a potential asset but this may also be a limitation to development of a greater scale or varied asset types.

The responsibility of promoting and implementing innovation in real estate may lie with commitment to achieve beyond the results from the mere metrics of efficiency. Efficiency may be a positive option to economic value creation but innovation toward improved built environment supported by the real estate industry is a greater value creation and moreover an additional measure of innovation.

In sum, Leon proposed the developer-architect platform as a holistic model for "practice" of real estate by entrepreneurial design enterprises with exponential value addition, not only to the real estate practice itself but also to the local community. The small enterprises' nimble scale, wealth of local market knowledge, and experiences enable the firms to lead local market development through its physical and financial value creation. The ultimate question may be posed as to how added value is measured in the combined practice of design and real estate. It can be measured partially by efficiency through optimized organization structure, but the ultimate meaningful value of real estate development is indeed the immeasurable impacts a real estate development contributes potentially to the multifaceted improvement of the physical, economic, and social aspects of the built environment.

Brian Vargo

Brian Vargo is a candidate for the Master in Design Studies degree with a concentration in real estate development at the Harvard University Graduate School of Design. His work focuses on the link between design and real estate finance, studying how both can inform the other to spark innovative strategies for practice. Prior to enrolling at Harvard, Brian worked as an architect in Scandinavia on a variety of international projects ranging in scale from buildings to master planning. While based in Copenhagen, he also worked in real estate development with H Projects, the developer of the "8 House," which won the 2011 Building of the Year at the World Architectural Festival. More recently, he worked in the nascent crowdfunding industry with RealtyShares, an online platform for real estate investment. Brian is originally from San Jose, California, and holds a Bachelor of Architecture degree magna cum laude from Cal Poly, San Luis Obispo.

Crowdfunding in Real Estate: Disruption or Evolution?

Crowdfunding is a buzzword. The term coins an innovative method of financing, but also the basis of popularizing a product at its conceptual stage to enable its delivery. For the first time, the idea is relevant to urban development. Crowdfunded real estate has finally come to legitimacy, and it can now be studied for what it delivers rather than what it promises. Is this the beginning of a disruptive mechanism that will 'democratize' the built environment?

1876 saw the greatest feat of civic 'crowdfunding' to date. A gift from France to celebrate the United States' centennial year, the Statue of Liberty lacked an essential element: a base on which to rest. The politician Joseph Pulitzer (of Pulitzer Prize fame) embarked on a visionary campaign using news media to raise funds publicly. The owner of a newspaper, *The New York World*, Pulitzer used his widespread circulation to solicit funds. Within a five month campaign, Pulitzer raised the $100,000 necessary to complete the base[1] (over $2,000,000 today when adjusted for inflation[2]). The campaign was funded by 160,000 donations, of which 75% were less than a dollar. Crowdfunding was born with an icon of a democratized built environment.

Now, "crowdfunding" is a buzzword widely credited for its innovative value, despite its historic roots. While the central principles of Pulitzer's crowdfunding – raising money through a public network – still resonate, the term's impact has grown exponentially in recent years. Rough estimates project that from 2009 to 2014, the worldwide funding volume of crowdfunding platforms grew from $500 million to $10 billion.[3] The crowdfunding mantra spreads from one industry to the next, spanning from donation-based endeavors (e.g. Kickstarter) to peer-to-peer lending mediums (e.g. Lending Club) and other investment platforms.

As it typically does, the real estate industry lags behind others in adopting this new technology. By March of 2014, Kickstarter alone had reached the $1 billion threshold with over 57,000 projects funded.[4] By comparison, the sum of online crowdfunding for real estate hovered near the $100 million mark.[5] The reason for crowdfunded real estate's slow growth is sometimes understated. As Kickstarter and other "reward-based" platforms solicit donations, a physical or financial return is not guaranteed. Those platforms offer a "reward," which often translates to a physical product made possible by the funding raised from the campaign. However, even if the project is fully funded, there is no guarantee of delivery. Either way, the platform takes a fee (roughly 5%) of the funds raised. Raising funds for an equity or debt position in a project is much more difficult because it is tantamount to the public sale of a security. Crowdfunding investment involves a smattering of securities laws, requiring a lengthy and prohibitively costly registration process with the Securities and Exchange Commission (SEC).

The 2012 Jumpstart Our Business Startups (JOBS) Act aimed to remedy the inefficiencies of that process by legitimizing equity-based, investment-grade crowdfunding. A landmark piece of legislation, the JOBS Act promised to create new avenues for raising funds that balanced the needs for speed and efficiency in crowdfunding with the SEC's chief responsibility of protecting consumers from fraud.

For real estate, many thought that the JOBS Act would offer increased access to investment opportunities, ultimately widening the base of capital available to fund real estate transactions. The traditionally labyrinthine process of real estate syndication could be superseded by reaching directly to a boundless pool of investors through the internet. For investors and sponsors alike, crowdfunding meant no longer relying on a middleman to idiosyncratically fund a real estate transaction. Rather than remaining subject to a handful of institutions or wealthy tycoons, the built environment could take shape with the input of hundreds or thousands of investors per project, each contributing a small share. Many hailed crowdfunding's democratizing impact on real estate development. Upon signing the JOBS Act among bipartisan support in April of 2012, President Obama summarized this hopeful outlook:

> *"Right now, you can only turn to a limited group of investors - including banks and wealthy individuals - to get funding… Because of this bill, start-ups and small business will now have access to a big, new pool of potential investors – namely, the American people. For the first time, ordinary Americans will be able to go online and invest in entrepreneurs that they believe in."* [6]

With those lofty aspirations, crowdfunding for equity in real estate transactions was born. Since then, the industry has established a short track record. Crowdfunding for real estate can now be judged on what it is rather than what it promised. Is crowdfunding the innovative mechanism of financing real estate as imagined? Has it democratized the built environment?

A Legal Primer

By far the greatest obstacle to crowdfunding for real estate is the SEC. While the JOBS Act promised swift change, only three elements of its seven point agenda are actually implemented after three years of its passing. Although the democratically elected congress created the JOBS Acts, the appointed leadership of the SEC actually translates the legislation into law. The process of translating political language to legal mechanisms is typically fraught with lengthy periods of internal development, public comments, and an arduous finalization process. The JOBS Act is particularly slow. While the final rules were first due from the SEC in December 2012, it took until September of 2013 to finalize only the first major component (Title II). Key components have been delayed several times, and the finalization of rules for the more significant Title III and Title IV are now expected in late 2015.

This exceptionally lengthy process is not without merit. The SEC's chief goal is to protect investors in the public domain from fraud. At issue is an existential rift between that mission and the implications of crowdfunding. For crowdfunding to succeed, the process requires public advertisement, a fast pace, and a wide reach. In its battle against fraudulent brokers, the SEC takes an opposite approach, generally banning public advertisement, subjecting offerings to a lengthy registration process, and deferring to state laws in addition to its own requirements.

In the eyes of the SEC, crowdfunding real estate translates to the public sale of securities – a potentially hazardous practice necessitating myriad protective measures. Omnipotent among these measures is the Securities Act of 1933. Now eight decades old, the act still governs the process of issuing new securities to protect buyers from fraud. The Securities Act first requires that issuers register public offerings with the SEC, a process that involves a thorough analysis of the company's financial records and the disclosure of detailed information regarding the company's management. Public registration takes several months (if not years) and can be drastically cost-prohibitive for small and medium scale capital formation.

The Securities Act also specifically bars the practice of advertising a specific security to the public. Bear in mind that the Act was penned in the 1930's, when hawkish brokers first garnered a reputation for swindling the unwary public out of their savings over the telephone, promising unreasonable returns on junk assets while still collecting a brokerage fee on the transaction. In response, the SEC explicitly bans public offerings from general solicitation, meaning that an investor must first have an established relationship with the issuer of a security before the issuer can make any mention of the security itself.

The SEC also defers to state laws (termed "Blue Sky Laws") governing the sale of securities in that state. Even offerings that may be exempt under federal law may still be subject to registration at the state level. As the conditions for registration vary from state to state, selling securities on a national level can translate to fifty more regulators beyond the SEC. This presents a costly barrier to implementing the high volume and frequency of offerings envisioned by crowdfunding platforms.

Given the concerns of the SEC and their lethargic implementation of the bulk of the JOBS Act, how has crowdfunding already emerged as a legitimate means of raising capital? By one year after the passage of Title II, 150 sponsors raised over $110 million spread over 190 offerings, despite the fact that the main 'crowdfunding' components of the JOBS Act (Title III & IV) have yet to be ratified by the SEC.[7] How then can crowdfunding firms navigate the SEC's requirements with tenable business models?

Figure: A timeline of key dates for Title III and IV of the JOBS Act.

2012	*April 5*	*Signed into law and goes to review with the SEC, with final rules due December 2012. Titles I, V, and VI are effective immediately*
	December 31	*SEC Chairwoman Mary Schapiro steps down. Elisse B. Walter acts as interim chair.*
2013	*January 23*	*Nomination of Mary Jo White as SEC Chairwoman.*
	February	*Reports surface of revised timeline for final rules stretching to fall of 2013.*
	July 10	*SEC approves lifting the general solicitation ban to pay the way for adoption of Title II.*
	September 23	*Title II goes into effect with establishment of Reg D Rule 506(c), allowing general solicitation to accredited investors.*
	October	*SEC releases proposed rules for Title III, with a 90 day commenting period to follow and a subsequent 30 day finalization period. This projects that Title III will come into law by May 2014.*
2014	*December*	*SEC revises due date for Title III to October 2015.*

Fundrise

In 2010, brothers Ben and Dan Miller sought to answer that very question. The operators of their own real estate development company, the two focused on urban infill projects in the Washington, D.C. area. Their proclivity for creative projects in emerging neighborhoods was at odds with conservative investors and institutions that prioritized conventional applications of capital. In Dan Miller's words, they came to the idea of crowdfunding circuitously:

> *"Institutional money is driven by factors relating to their own business model more than the actual deal. So we thought that instead of dealing with institutions, why don't we go to people locally and invite them to invest with us? You don't have to explain as much to someone who lives a few blocks away, and their inside knowledge can lead to a higher quality development, better tenancy, better architecture, etc. which ultimately translates to a better practice of real estate."*[8]

With those aspirations, Fundrise targeted a derelict property on the H Street Corridor of D.C., an area ripe for urban revitalization. They envisioned that the 5,000 square foot warehouse could become a vibrant marketplace for local vendors, anchored by two neighborhood eateries. Specifically, they imagined that locals would also see the potential of co-investing in the project's development through the company's website. At the time, their idea was completely untried and at direct odds with the prevailing SEC ideology. However, while the Securities Act generally forbids the direct solicitation of an unregistered offering to the public, there are a few finely tuned exemptions. Although not designed for crowdfunded real estate, Fundrise pioneered the use of one of those exemptions, Regulation A, to implement their vision.

Regulation A of the Securities Act exempts particular offerings from fully registering with the SEC from their onset, subject to additional criteria. The SEC limits the offering size to $5 million for any 12-month period, and does not preempt state securities law, effectively requiring that the issuer register an offering in each state in which it wishes to sell that security. Also known as a "mini public offering," the exemption permits a "test the waters" route to determine whether the market interest is sufficient to warrant the expense and time commitment of registration with the SEC. However, under current rules, any "test the waters" activity must cease while the issuer is undergoing the Regulation A qualification process, and the issuer cannot accept subscriptions for its securities until the SEC and each of the states has declared the offering "qualified." Following such qualification, the issuer may conduct the offering through general solicitation in those states.

It took 18 months of legal work and meetings with the SEC to satisfy those requirements. By 2012, Fundrise officially raised $325,000 online to facilitate their first offering. The platform offered 3,250 shares with a minimum investment of $100, and the average investment hovered near $2,000. The offering advertised an expected 8.4% return to investors and the property is currently making distributions. From the point of its launch, 1351 H Street proved that the crowdfunding model held water.

> *"People from all around the country started reaching out to us, asking to be able to use the software. That is when we switched from being our own real estate development company to a platform that brings capital to other sponsors." (Dan Miller)*

Figure: 1351 H Street before its renovation. Image courtesy of Fundrise.

Fundrise soon shifted from a technology-powered real estate company to a company specializing in the technology itself. The public profile of crowdfunding offered a greater insight into the built environment. The Millers argued that this would fundamentally shift the way the built environment takes shape.

> *"To improve the asset, you have to change the source of capital and how the building process works. Crowdfunding is not just about an x% yield, it's about providing more outlets to invest and having that capital change things. Crowdfunding will change what gets built: better architecture, better streetscape design, local tenancy or more public uses, etc." (Dan Miller)*

Perhaps Fundrise marks the incarnation of the idea that crowdfunding would "democratize" real estate, but its beginnings lead to broader questions regarding the feasibility of crowdfunding at a large scale. The legal fees alone for H Street amounted to $800,000.[9] The lengthy review process for SEC "pre-registration" required by Regulation A is a deterrent for sponsors and investors alike. Real estate acquisitions are undoubtedly dependent on speed and the ready availability of capital, making the time-consuming SEC review process far too costly when compared to traditional means of financing. Moreover, investors should rightfully expect interest bearing on their principle investment from the time of their promised contribution, not many months after the fact when the sponsor is first able to use the funds.

Fundrise now pre-funds qualified deals to alleviate that problem. If the crowd does not fully fund the offering, the firm maintains its own equity in the deal, and in any case, sponsors have immediate access to funds from the beginning. This is also advantageous for investors, who earn interest on applicable offerings when their investment is "bought" from Fundrise, regardless of the project's individual timeline. Investors do not transact on the actual real estate asset, but instead purchase a "Project Payment Dependent Note," a document that verifies distributions from Fundrise contingent on the performance of the offering.

Since 2012, Fundrise has acted as a service provider to like-minded real estate development companies. It offers a range of capital structures, including common equity, preferred equity, mezzanine debt, and senior secured debt, under the principle that crowdfunding can flexibly adapt to meet a sponsor's demand:

> *"This is a curated, vetted network of real estate companies from around the country that comes onto the platform to build projects, build a brand, raise capital, and connect with investors. We will help guide them on the rules for capital, the different financial structures, and the opportunities offered by crowdfunding for real estate." (Dan Miller)*

Since the iconic H Street redevelopment, Fundrise has expanded its domain to either compete directly with and/or complement conventional capital. Fundrise recently announced an offering in 3 World Trade Center for $2,000,000 in partnership with Silverstein Properties. The platform's laudable $100 minimum investments are now rare, and the typical minimum investment is $5,000. While formed with the intention of democratizing the investment process, Fundrise opened up more far-reaching opportunities for what crowdfunding could do in the process of raising capital. The firm's evolution highlights an important transition in the space for crowdfunding from ideological to practical, garnering both widespread attention and alternative models to the same end.

RealtyShares

Though RealtyShares is comparable to Fundrise in scale, the platform's structure entails a unique approach to crowdfunding or marketplace investing. While Fundrise began with the perspective of a development company reaching towards investors, RealtyShares had the vision of a comprehensive investment medium better enabling investors without backgrounds in real estate to access and invest in real estate offerings. Based in San Francisco and founded in mid-2013, RealtyShares positions itself as a financial technology company comparable to other platforms for alternatives investment like Lending Club or Prosper.

> *"Our investors are not always sophisticated real estate investors. They are trying to find a way to diversify their portfolio and put their money to work to earn a return that is comparable to other investments. As a marketplace, we provide them with access to investments and the data and tools to invest." (Nav Athwal)*[10]

To facilitate that vision, RealtyShares approaches SEC regulations with a concise, scalable strategy to make investing in real estate directly comparable to other modes of online investment. The platform organizes offerings around Regulation D, Rule 506(b), commonly known as the private placement exemption. A component of the 1933 Securities Act and a long-trusted ally of the investment industry, Regulation D Rule 506(b) can exempt an offering from full registration with the SEC, but disallows public advertisement of the security and stipulates extra conditions for its investor base. An investor in a Regulation D offering must be "accredited", a definition requiring a single income in excess of $200,000, a joint spousal income over $300,000, or the ownership of over $1,000,000 in property (single or spousal), not including a primary residence.[11] This limits Regulation D offerings to roughly 3% of the US population.[12]

However, Regulation D 506(b) offers significant benefits that improve the transactional efficiency of crowdfunded deals. While the offering's issuer files basic paperwork with the SEC, the Regulation D process is minimally invasive and takes a matter of hours rather than months. Offering sizes are also unlimited under Regulation D, and it allows for exemption from filing separately in accordance with state laws (as in Regulation A). Therefore, while the income requirements for "accredited investors" may be restrictive, the minimal transactional barriers and unlimited investment ceiling make offerings made under Regulation D easy to scale into a mainstream platform. In the eyes of RealtyShares CEO Nav Athwal, that efficiency is essential to facilitating the crowdfunding vision:

> *"One benefit of crowdfunding is expanded access to compelling real estate offerings, but the second is streamlined investing – something that you can do quickly and more efficiently with an online platform."*

RealtyShares facilitates the streamlined vision with a simple investment product. Rather than encourage a large variety in the type of real estate assets that populate the platform, RealtyShares follows what Athwal describes as a "thesis of simplicity" to meet investor demand. To date, approximately 80% of the platform's offerings have been residential, single-family homes, although the number of multifamily and industrial projects is also growing as the investor base broadens.

> *"We follow a thesis of simplicity. As such, we are a residential focused platform. By offering a consistent and easy to understand product, we are able to provide our investors with a simpler investment experience. The*

> *more complex your asset gets, the longer you have to spend looking at the underwriting, making sure you understand it. We want investors to make decisions within minutes or hours rather than days or weeks. As our platform matures, there will be plenty of opportunity for expanded product offerings." (Nav Athwal)*

From there, RealtyShares uses its online marketplace to scale and operate across a wide spread of locations and sponsors. The platform targets regions with strong macroeconomic trends (such as rising home prices or high rates of employment or job growth) in selecting the right kind of offerings to pursue. The overlap between keeping a transaction simple and the benefit of easily understood macroeconomic factors resonate with an investor far removed from the physical context or market in which the asset is located. Details of the physical asset, while important to the transaction, are less likely to convince generic investors of an offering's worth when held against those prevalent factors. Offerings become investment products more than idiosyncratic decisions to partake in the ownership of property.

Offerings made by the platform appeal to passive investors who are interested in the underlying diversification of their investments rather than yields on the outer edge of the risk-spectrum or special interest in boutique real estate development. The platform typically structures offerings as preferred equity, mezzanine equity, or collateralized debt, a strategy that limits the downside of an offering while providing monthly or quarterly distributions to quell investors skeptical of the crowdfunding space. Most of the offerings made have short (6-18 month) to mid-term (2-5 year) maturities to avoid liquidity concerns. When investors partake in an offering, they buy into shares of an individual LLC that in turn holds an equity or debt position in a property. Under this structure, the investor benefits from limited financial exposure while avoiding taxes and other liabilities at the entity level, but also has less control of the actual asset or management of a property.

The RealtyShares approach is comparable to peer-to-peer lending mediums like Lending Club and Prosper. The platform vets the deals and sets the pricing, and investors buy as much into the RealtyShares brand's worth as they do in the specific deal. Crowdfunding in this sense is about tapping into a breadth of investment opportunities that would otherwise be unattainable without modern technology. Moreover, it connects small to medium scale sponsors with another source of capital. The platform is the direct intermediary or marketplace between the two, curating the process and organizing optimal connections.

RealCrowd

The intermediary role of a crowdfunding platform can take more than one shape. While RealtyShares takes the role of hosting the transaction between parties, RealCrowd lets sponsors and investors connect directly. Begun in 2013 and based in Palo Alto, California, RealCrowd operates as a technology platform that lets real estate companies and investors freely interact:

> *"We provide a base layer of technology that every real estate company in the country can use to leverage how they raise capital. This is the technology platform that will enable and empower investors. From there, each will adapt. That is how crowdfunding can change this industry." (Adam Hooper)*[13]

RealCrowd CEO Adam Hooper compares the RealCrowd approach to the difference between eBay and opening an online pawnshop. In this analogy, opening a crowdfunding real estate company that operates as an investment manager would be like opening an online pawnshop. It may have a variety of goods and increase its business by incorporating an online function, but the value proposition of that enhanced technology is limited. It is still a traditional operating company with the same limitations of staff, volume, and various operating expenses, so it labors under the same conventional set of rules. Meanwhile, eBay offers a systemic change because it enables buyers and sellers to connect on its platform without taking on the burdens of operating each individual company. Infinite sellers can build their own store in eBay to reach the ideal audience of worldwide buyers. That is only possible through the internet, and it fundamentally changed how commerce works. In Hooper's eyes, if crowdfunding is to have a similarly disruptive effect on the market for capital, it must employ a comparable approach.

Hooper sees the opportunity of crowdfunding for real estate in both its improved technology and the ability of that system to access entire new pools of offerings that other means of raising capital cannot reach due to their inefficiency. He states:

> *"We noticed two things time and time again in the profession of real estate investment: First was the incredible inefficiency with which the traditional process of raising capital happens. Everything happens with a one-on-one, analog, brute force approach. Nothing has been done from the technology side to really innovate how that whole process works. Second was the lack of capital in sub-institutional sized properties. Institutions are not going to get involved unless they can put a minimum $10-15 million to work, preferably $25 million or more. We kept seeing high quality real estate deals from institutional quality sponsors requiring $8-10 million in capital that we couldn't find institutional capital for. This lack of institutional capital relegates those deals to the basic bread and butter syndication model (i.e. friends and family, the country club, road shows, etc…), which is the most inefficient way to raise capital possible."*

Offerings made on the platform range a broad spectrum running from office, retail, industrial, and multifamily assets, but also including mortgage funds, blind-pool funds, and semi-blind-pool funds. In Hooper's words, the firm follows the simple mandate of "finding the best real estate operating companies and giving them the tools to do their job better."

The RealCrowd approach is to be as minimally invasive as possible to reduce the transactional costs per offering and maximize the base of offerings facilitated by the platform. For example, rather than orchestrate a separate LLC or coordinate payment notes, RealCrowd offerings are direct ownership stakes in the asset itself, as directed by the sponsor. When investors have questions regarding offerings, they communicate through the platform with a direct connection to the sponsor, rather than RealCrowd acting as a middleman. RealCrowd takes no equity stake in the deals it lists, prioritizing a streamlined, efficient process. The RealCrowd approach is to be the leanest possible mechanism, which makes its role a broadcasting medium for sponsors to reach an expanded investor base. As such, RealCrowd directly advertises its offerings openly to the public. That is only possible given the ratification of Title II of the JOBS Act in September of 2013, which created a new exemption entitled Regulation D Rule 506c. The law has virtually identical requirements to the long-standing 506b exemption, but lifts the ban on general solicitation. For the first time, offerings could be marketed broadly without first establishing a relationship with investors. This is critical for what Hooper considers the most efficient mechanism for crowdfunding real estate transactions. For RealCrowd, that is where the value of "crowdfunding" lies.

	Public Solicitation	Investor Limits	Offering Limits
Regulation A	Yes	Same State as Offering	$ 5 million
Regulation D, 506b	No	Accredited Investors	Unlimited
Regulation D, 506c	Yes	Accredited Investors	Unlimited
Title III	Yes	Mild Wealth Limits	$ 1 million
Title IV (Regulation A+)	Yes	No Limits	$ 50 million

Figure: The legal implications of the JOBS Act compared to existing regulations.

The Wildcard?

Many still hope that the pending finalization of the JOBS Act will provide a more direct legal route to crowdfunding. To date, the significance of the JOBS Act is ironic. While it may have sparked the industry into life, the pending implementation of Title III and Title IV still leaves the actual 'crowdfunding' element of the Act on the sidelines. Although originally planned for implementation in 2014, the SEC recently further delayed their internal deadline for rulemaking to late 2015. Nevertheless, what sort of impact will the Act's eventual implementation imply?

Title III of the JOBS Act amends the original 1933 Securities Act to include an actual 'crowdfunding' exemption from public registration. Most significantly, Title III loosens the requirement of 'Accredited Investors' prerequisite to Regulation D offerings and opens two new avenues for potential investor qualification. For those with an annual income or net worth less than $100,000, the greater of $2,000 or 5% of annual income can be invested every year. For investors with an income or net worth over $100,000, that limit is set to 10% of annual income. A lower threshold for investor participation may be pertinent to expanding the base of potential users of crowdfunding mediums, but Title III also involves more rigorous reporting requirements that limit the efficiency of crowdfunded transactions.

Title III officially interposes a legal intermediary between the investor and security issuer, an element already loosely adopted in practice by existing crowdfunding platforms. However, this would also include a legal definition of a 'funding portal' along with far more stringent guidelines for auditing transactions and other considerations. This includes strict limitations on how the platform collects fees:

> *"A funding portal is defined as a crowdfunding intermediary that does not: (i) offer investment advice or recommendations; (ii) solicit purchases, sales, or offers to buy securities offered or displayed on its website or portal; (iii) compensate employees, agents, or others persons for such solicitation or based on the sale of securities displayed or referenced on its website or portal; (iv) hold, manage, possess, or otherwise handle investor funds or securities; or (v) engage in such other activities as the SEC, by rule, determines appropriate."* [14]

Those requirements are fundamentally restrictive and would make the Title III exemption far more difficult to use than the existing Regulation A and Regulation D exemptions. Title III also imposes a $1,000,000 limit on any offering and installs three tiers of auditing requirements based on the scale of the raise. In addition, investors must wait 30 days after registering with an intermediary to actually invest. Those factors make the process time and cost intensive, regardless of the expanded investor base.

> *"In their current form, the proposed rules in Title III are unworkable for this industry. Real estate is a capital intensive, quick-to-move asset class, so if you have to wait 30 days before you can actually close on an investor and you can only raise $1,000,000, you are quite limited in what you can do." (Nav Athwal)*

Title IV of the JOBS Act, entitled "Small Company Formation," is more promising. Nicknamed 'Regulation A+,' the title would amend the text of Regulation A to include another rule. This rule would raise the limit for a Regulation A+ offering to $50,000,000 (rather than $5,000,000) and, most significantly, would include a preemption for state registration. Rather than limiting an offering to investors at the state level, Title IV would mean that any SEC qualified offering would be available nationwide. Lastly, Regulation A+ would 'streamline' reporting requirements. Any promise to reform the arduously complex preregistration process of Regulation A would be welcome news to the industry, but the vague outline proposed by the SEC has yet to be fully detailed. Title IV would also require ongoing reporting requirements on behalf of the offering, a factor that would complicate the transactional efficiency of those platforms using the new regulation.

While it is unlikely that Title III of the JOBS Act will make a significant impact in crowdfunding real estate, Title IV could still offer benefits. In the meantime, platforms are not counting on the JOBS Act making their jobs much easier:

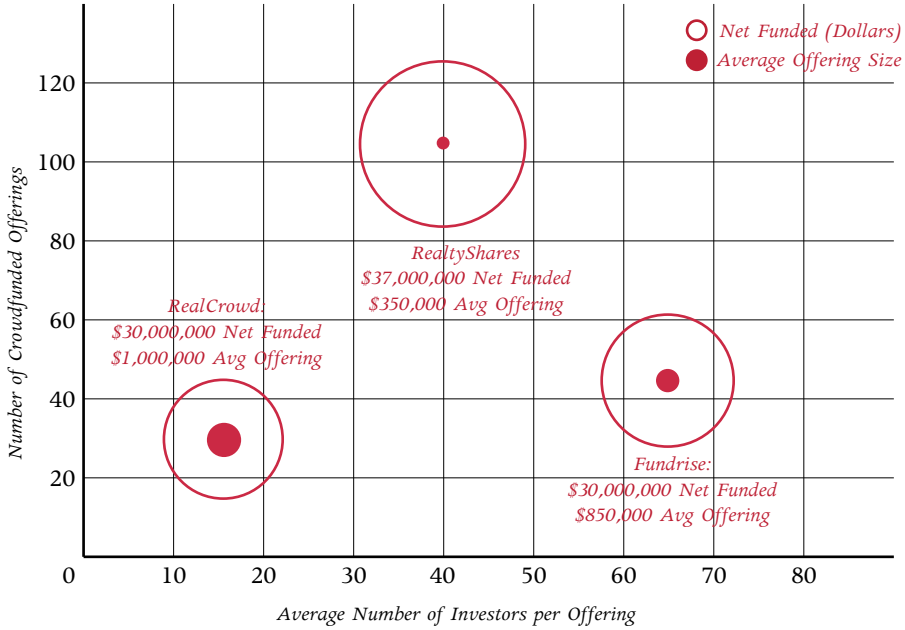
> *"I think the ultimate implementation and execution of Title III and Title IV might be a bit cumbersome for real estate. Right now we are pretty content playing in the space provided by the existing regulations." (Adam Hooper)*

The State of Crowdfunding

Given the labyrinthine legal considerations and complexity of building a new market for capital, there is no optimal definition of crowdfunding for real estate. Nor is there any one approach to defining what crowdfunding means for the industry. Nonetheless, for each of the platforms profiled here, growth is ongoing and exponential. Each separately projects at least $100,000,000 in net volume of funds raised in the coming year. Given their current pace, those goals are realistic. These three platforms lead an industry that is swelling rapidly. Rough estimates place the current net volume of investment through crowdfunding platforms to date near $300,000,000, although given their pace, the industry has likely far exceeded that figure by the publication of this issue.[15]

The underlying structure of crowdfunding platforms signifies that three components govern its future growth. The first is the size of the investor base, which is contingent upon both legal and marketplace considerations. Only a small percentage of the populace can currently partake in a crowdfunded offering given SEC policy. Regulation A is logistically burdensome, and only offers investment to those who reside in the state in which the offering is made. Regulation D restricts potential investors to the wealthiest echelon of Americans. Regardless of pending changes made by the JOBS Act, interest in crowdfunding platforms is also contingent on how real estate compares to other mediums of investment that the 'ordinary investor' may consider. Moreover, as in any real estate investment, only time will tell if returns broadcast from the onset of an offering come to fruition. In the meantime, a fluctuation in the general performance of real estate may dampen investor demand for crowdfunding services.

Figure: The net funded amount, average offering size, and investor count per offering.



Also critical is the growth of sponsor demand for crowdfunded capital. Platforms garner value in how they connect sponsors with a new investor base. Most also argue that their networked efficiency reduces the cost of raising capital when compared to other mediums – particularly for small to medium scale transactions. Nevertheless, demand will also inevitably follow macroeconomic cycles. In the first year of mainstream crowdfunded real estate from 2013-2014, general construction spending grew 7.2% across the US.[16] When the market inevitably contracts, it will test which platforms whether the storm. Moreover, the scale of funds raised via crowdfunding restricts sponsor interest. The median amount raised by most platforms is in the neighborhood of $1 million but rising. Lifting the ceiling for capital powered by crowdfunding will surely attract more sponsors to the space.

Thirdly, lowering the transactional costs associated with each offering is critical to scaling the industry indefinitely. The crowdfunding process still requires legal gymnastics both with the SEC and at the level of the actual asset's ownership. This is particularly problematic when you consider that crowdfunding implies a high number of investors per offering. Coordinating investors is logistically complex. For true 'crowdfunding' to succeed, there must be a net benefit to managing many small investors over a few large ones.

> *"This platform and this industry will only exist if someone can build the technology that makes it more efficient to manage a bigger pool of smaller investors than what people are currently doing today offline. If you can solve that problem to the point where it is no more work for an operating company to manage 50-75 investors online vs. the 4-5 you manage today offline, this industry will flourish." (Adam Hooper)*

If the investor base expands, sponsor demand grows, and transactional costs fall, crowdfunding will maintain its momentum. Dr. Richard Swart heads the Crowdfunding Research Program at UC Berkley, and contends that the ceiling for crowdfunded real estate still leaves plenty of room for the modern state of the industry. He argues:

> *"Modern technology can decrease transactional information cost, so in theory crowdfunding platforms can be more efficient at working at a large scale. As people build trust in platforms over time, there will be an explosion of capital. If the industry can both build trust and create efficient mechanisms to attract larger pools of capital, this can be a trillion dollar global industry. We are still very early on. This will start making sense five years from now."* [17]

Disruption or Evolution?

The ongoing growth of crowdfunded real estate is real. Another question entirely is whether crowdfunding delivers what many promised to real estate investment. In the 18 months since September 2013, when the first major component of the JOBS Act passed, it is now time to question whether the 'innovative' value of crowdfunding signifies a substantive change for the industry. Are these trends evident of a fundamental disruption in the market for real estate capital or simply the ongoing evolution of long-standing paradigms?

The typical crowdfunding process is essentially a hyper-efficient mode of traditional syndication. Online crowdfunding does not replace the viability of other sources of capital, but it does compete at certain scales. Better technology enables a greater reach for sponsors and investors alike. An online medium makes the practice vastly more time-efficient. In that sense, the crowdfunding process is simply an evolutionary step that builds from improvements in technology.

While some envisioned that crowdfunding could offer a change to the design of buildings, those perpetuated on most platforms are typically commonplace. RealCrowd and RealtyShares, for example, value reliable assets with consistent, predictable trends. Fundrise may be an outlier in that regard, although the vast majority of offerings made by the platform are also conventional assets. Almost no platforms operating in the space will sponsor ground up development given its elevated risk profile. If crowdfunding real estate was meant to invite more discussion to the crafting of the built environment, it has yet to follow through on that promise.

When held against the promise of 'democratizing' real estate investment, crowdfunding comes up short. Regardless of regulatory structure, the average minimum investment per platform still hovers at $5,000. The reality of the business model is simple – platforms have little incentive to go any lower. It costs money to increase the number of investors given the increased resources spent relaying information, attracting more participation, and coordinating each transaction. The simplest way to increase the volume of transactions while limiting cost is still to maintain investors with high net worth. While crowdfunding opens real estate investment to the public, not everyone can participate.

Nonetheless, crowdfunding for real estate is real, and its leaders are by every sense of the word innovators. Although the industry is yet undefined by any comprehensive regulatory body, platforms continue to grow. While crowdfunded real estate may not be exactly what was promised in 2012, it is already showing it could be something more.

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Bonnie Burgett

Bonnie Burgett is the Co-founder of Collective Capital, a tech-enabled real estate private equity firm recently founded to raise capital via the Internet for deals that have been analyzed and vetted by the company's proprietary algorithms. She has over 10 years of commercial real estate experience ranging from luxury-branded resort and mixed-use development to the disposition of non-performing CMBS mortgages and foreclosed commercial properties. Her knowledge of the real estate industry, crowdfunding, and technology allows her to seamlessly integrate all components of the business. Bonnie co-authored, "Democratizing Commercial Real Estate Investing: The Impact of the JOBS Act and Crowdfunding on the Commercial Real Estate Market," which was completed in August 2013, and she has continued to monitor and study the nascent real estate crowdfunding industry. Bonnie holds a BS in Finance from Boston College and a MS in Real Estate Development from MIT.

As Vargo points out, crowdfunding has historically played an important role in the United States, a place where democratization and crowd participation have been an important part of building. From the Statue of Liberty to the Bunker Hill Monument and The Salvation Army's Red Bucket Campaign at Christmas, myriad examples exist of the power of crowdfunding. In fact, the concept of raising funds in small increments from a large number of people is the fundamental basis for many financial platforms around the world—think about the basic idea of an IPO. But why is there a revitalization of the concept now? The Internet, social media, and the wake of a financial crisis have all given rise to change. Crowdfunding takes advantage of this change and has turned to the Internet to expand its reach. However, as this article points out, the current state of real estate crowdfunding is not "true" crowdfunding, and as a result is more evolutionary than disruptive or democratizing, but there are aspects of the industry that it will change for the better.

"Slow" and "arduous" can be used describe the two-sided investment market for real estate between those looking for capital and those seeking appropriate investment opportunities. Raising capital today for commercial real estate is essentially done in the same manner it was fifty years ago due to securities regulation and industry reliance on relationships. While crowdfunding for real estate is unable in its current version to extend the investment opportunity to everyone, it does expand the search ability for both sides. Vargo aptly summarizes this shift: "Crowdfunding in this sense is about tapping into a breadth of investment opportunities that would otherwise be unattainable without modern technology."

Although the article does not delve into how onerous the securities laws are or the complexity that prevents the true power of crowdfunding from taking place, it correctly supposes that although "crowdfunded real estate may not be exactly what was promised in 2013, it is already showing it could be something more." Interestingly, the advocates and authors of the JOBS Act, self-admittedly, did not consider real estate as a beneficiary of this law. The focus was on startups, yet real estate is the most likely to benefit from the JOBS Act and has already seen a tremendous amount of demand and growth. Only three of the more than seventy-

five real estate crowdfunding firms are reviewed; however the explosive growth supposes the promise that so many see in this method of raising capital, in addition to the low barriers to entry.

However, pure crowdfunding is not actually taking place, but rather online advertising and execution of private placements utilizing the Regulation D 506(c) exemption. In other words, this is just taking the private equity world to the Internet. Yet, this shift will change the commercial real estate industry. Real estate is time-consuming and slow, and to some degree inefficient, but the online ability to raise capital, despite the restriction to Accredited Investors, gives way to changing this process.

The Lending Club IPO success and huge growth in peer-to-peer (P2P) lending and crowdfunding provides proof of demand from retail investors for alterative investing options as well as the ability to play a role in the development of young businesses and personal success via lending. The story and social mission components of P2P lending and crowdfunding has historically played a crucial role; however, it's arguable that those aspects are secondary or not even a consideration in the investment realm.

Vargo finds that "[i]f crowdfunding real estate was meant to invite more discussion to the crafting of the built environment, it has yet to follow through on that promise." Most crowdfunding projects have a social component or mission to them that sparks engagement by the crowd, but securities just do not have the same appeal. Conversely, although yet to be proven in real estate, evidence suggests that the crowd plays a self-policing role in finding fraud or issues with an offering. In fact, I would argue that inability to fund a real estate project is evidence of a poor investment, which leads into discussing the investment products and sponsors themselves.

Vargo surmises, "Lifting the ceiling for capital powered by crowdfunding will surely attract more sponsors to the space." In fact, the crowdfunding and P2P space is slowly garnering interest from more sponsors and more "institutional" groups from both a capital-raising perspective and as an investment opportunity. Prosper, a P2P lending site, now attracts more hedge funds than peer lenders. As real estate crowdfunding in its current state becomes more commonplace, more well-known sponsors will offer their private placements on a portal, whether their own or another, and it won't be called "crowdfunding." Essentially, today's version of crowdfunding is just using online efficiencies to transact what has been done offline for decades.

Vargo asks, "It is time to question whether the 'innovative' value of crowdfunding is a marketing gimmick or a real change. Are the industry's trends evident of a fundamental disruption in the market for real estate capital or simply the ongoing evolution of long-standing paradigms?" I would argue that crowdfunding itself in this current state is NOT disruptive but purely an evolution. However, there are ripple effects such as data aggregation, efficiency, transparency, and speed of transactions that will ultimately change the industry even if not in an abruptly disruptive manner.

For example, there will be issues with the track records of sponsors and platforms having "skin in the game," or control of assets, and all this information will be in plain sight on the Internet for all investors to see. Similar to the stock markets, knowledge about sponsors and investments will become more readily available, and some predict a secondary trading market for these currently illiquid securities.

While the evolution of the industry is unsure, what is a given is the failure of an investment within the next three to five years that has been offered on one of these platforms. Retail investors don't necessarily understand the risk associated with these offerings. For example, "a "Project Payment Dependent Note," a document that verifies distributions from Fundrise contingent on the performance of the offering," is not the same as a first mortgage, and there is an underlying default risk that may not be fully comprehended by investors.

Unlike in peer-to-peer lending and Kickstarter projects, people investing via real estate crowdfunding platforms are making a sizable (although lower minimums than traditional private equity opportunities) and important investment, especially in a world where so few people have enough funds for retirement. As retirement plans shift to define contribution models, individuals have increasing responsibility to control their retirement accounts and thus expect a return.

However, as Vargo argues, we have yet to see crowdfunding in real estate or the democratization of securities investing extend to non-accredited investors. "To date, the significance of the JOBS Act is ironic. While it may have sparked the industry into life, the pending implementation of Title III and Title IV still leaves the actual 'crowdfunding' element of the act on the sidelines." And, unfortunately, the SEC may have just missed the opportunity to ride the concept's wave of popularity over the last few years. Its inability to pass rules and regulations for Titles III and IV has likely caused many to lose out on opportunity.

I'm not sure that there will ever be securities crowdfunding to the same extent that it has occurred via Kickstarter or Indiegogo in the reward/donation space. But I do believe that Regulation A+ could be something powerful. Even two years ago, with a vast unknown as to how the SEC would implement the law, it was evident that if done correctly this could create a middle tier opportunity to raise capital. Title IV is something to watch in 2015. Whether or not real estate crowdfunding proves to be disruptive, one thing is certain: using the Internet to raise funds for real estate is not going away.

Innovation in Practice

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