The State of Multifamily Tech

November 2020
Executive Summary

There are few markets in the world that have faced as much upheaval as a result of COVID-19 than real estate. But unlike commercial office and retail, which are experiencing growing distress, urban multifamily housing is positioned a bit differently in a pandemic.

For the first time in nearly a century, every human being in the US (and most of the world) has been confined to their living quarters for work and well, everything else. Tenants are now more dependent than ever on the comfort, safety, and utility of their home.

As an investor in urban multifamily assets, the reliance on a quality place to live appears to set a nice floor from a risk perspective. But that floor could still be much lower from where we are now with urban exodus and a lurking risk of mass default. REIT prices of apartment owners have reflected that risk. The fix? Technology (and leverage) of course.

In this report, we make a case for how technology can create a more resilient business model for multifamily assets now and into the future.
# Industry Overview

## QUICK FACTS

<table>
<thead>
<tr>
<th>Size Scale / Unit of Measurement</th>
<th># of Apartment Units</th>
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<tbody>
<tr>
<td>Key Stakeholders</td>
<td>Owners, Developers, Property Operators/Managers</td>
</tr>
<tr>
<td>Largest U.S. Commercial Asset Class</td>
<td>17,541,000 sq. ft. (Millions)</td>
</tr>
<tr>
<td>Publicly Traded REITS</td>
<td>Equity Residential, Avalon Bay, UDR</td>
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<tr>
<td>Tech Incumbents</td>
<td>Yardi, RealPage, CoStar, Core Logic, Appfolio</td>
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<tr>
<td>Tech Sectors</td>
<td>Portfolio / Asset Management, Property Management Systems, Resident Experience, Investment Data, Smart IoT, Facilities Management,</td>
</tr>
<tr>
<td>Types of Multifamily Buildings</td>
<td>Class A (luxury), Class B, Class C</td>
</tr>
<tr>
<td>Unit AUM of Owner / Managers</td>
<td>S &lt;5K, M 5-15k, L 15-30k, XL 30k +</td>
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Multifamily vs. Other CRE Assets

- **Hospitality**: $1.9T *Represents 2,625 (MN) sq. ft.*
- **Retail**: $2.4T *Represents 13,846 (MN) sq. ft.*
- **Office**: $2.5T *Represents 11,266 (MN) sq. ft.*
- **Multifamily**: $2.9T *Represents 17,541 (MN) sq. ft.*

*Source: National Association of Real Estate Investment Trusts
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The “Invincible” RE Asset

A period of great urbanization has given rise to a significant growth period in multifamily development and transactions. For the last decade multifamily was considered “invincible” by real estate investors. Park your money here as a safe investment.

But alas, COVID-19 has introduced uncertainty into the market for the first time in years.

Unprecedented levels of unemployment threaten rent collection, building hygiene and safety is a liability and now the central concern of residents, and urban flight risk is real as residents reexamine their living needs with no office commute and no ability to interact with classic amenities in their city.
Signals of Widespread Change

• **Stagnating Financials**: Multifamily vacancy rates are expected to remain elevated for the foreseeable future. On top of that, rent growth is declining due to the pandemic and its economic impacts. Property acquisition activity has slowed due to difficulty of completing diligence.

• **Property Hygiene and Safety** needs have shifted drastically and quickly: Due to COVID-19, properties are challenged to create a safe, clean, and functioning environment for their residents while limiting in-person interaction. And this is not just a "nice to have" — it is a requirement.

• **Shifting Resident Demand and Needs**: Due to both increasing supply in the multifamily market and COVID-19 causing renters to rethink what they want out of their home, property managers must reprioritize amenities and resident satisfaction more than ever before.

• **Convergence of Hospitality, Online Listing Companies, Co-Living and Multifamily**: There is a crisis to innovate in the multifamily sector as it faces threats from horizontal competition like hospitality brands (Marriot, Airbnb), online listing platforms, and new business models (co-living).

• **Urban Flight Risk + WFH Trend**: COVID-19 may be a moment in time, but its intersection with the broader trend of cloud-based work and a shift-away from the Office, there is real risk of people leaving city centers.
AVB, EQR, and UDR REITS are roughly down 20% on average since Jan 1, 2020.
Urban Flight Risk

COVID-19 is an accelerant. Work from home is the fuel.
1. **Underwriting / Capital.** Now is not the best time to be raising money for CRE and there’s evidence that capital markets have tightened. However, for those with cash on their balance sheets, they are likely to lean heavily on data platforms to give them unique insights and an information edge.

2. **Acquisitions.** Opportunistic buyers are looking for great deals, however, it’s very difficult to get a transaction done at the moment. Due diligence requires onsite presence and the spreads of prices are too high due to market volatility.

3. **Construction and Development.** Construction of new multifamily properties that were already in pre-construction will continue, but there’s an expected slowdown of new construction.

4. **Leasing & Property Management.** The lifeblood of revenue collection. Expect an increase of investment in tools to help produce more revenue during a slow period of inbound resident interest as well as the reduction of property staff.

5. **Asset Management / Repositioning.** Improving the health standard of the building is nonnegotiable. CapEX expenditures to enhance health and safety are expected, as well as investments to reposition amenities offered to residents.

6. **Sale / Disposition.** As investors seek liquidity in a downturn, dispositions will occur. Keep in mind, opportunistic buyers are sharks looking for sharp discounts and sellers remember the high prices of 6 months prior, so there’s little activity for now.
Modern Challenges & Solutions Through Tech

The modern day challenges facing multifamily owner / operators.
Finding Leverage in Uncertainty

While multifamily tech as a vertical is nascent and lacks historical data, the case for seeing a rise in technology adoption during a downturn is straightforward: technology gives you leverage to curb inefficiencies, reduce labor costs through automation, eliminate needless risks, and improve customer satisfaction through experience and convenience.

With increased risk around rent collection, new leases, and customer experience, it has become essential for Asset Managers to look at their balance sheets and reexamine their existing technology stacks. Are they optimized? What monetary value they are providing (ROI)? How do we improve this stack to reduce expense and find safety in higher margins and renter loyalty?

When you start to hypothesize which technologies will see the biggest uptick of future action and which will experience a drawback, it is important to look at the opportunities creating the highest leverage for owners/operators: higher margins, reduced labor, and customer loyalty.
The Three Layers of Multifamily Tech

The modern property has become one that demands a careful and intentional balance of software, physical architecture, and human capital.

1) **Software:** the back-end management systems powering automation and scale for properties

2) **Physical architecture:** The physical building itself, which includes floorplans, facilities, access systems, and more.

3) **Human Capital:** How PMs, staff, and residents interact and use technology on site.

Now more than ever, properties need a leader that is responsible for harmonizing these three dimensions to accommodate shifting paradigms.

“Human capital not only means building the right teams to manage the hyperlocal considerations of deploying technology across individual properties, but also establishing partnerships with local service providers in said communities to facilitate the provision of wellness, convenience, and connectivity to tenants.”

- Everett Lynn, Founder and CEO, Amenify
Multifamily Tech Hierarchy of Needs

- Building/Resident Health
- Resident Experience / Engagement
- New Lease Automation
- Property Management Optimization
- Data Science for New Sites
Challenge: Ensure Building Health & Hygiene And Eliminate the Need for In-Apartment Visits

Technology Opportunity: Contactless Entry, Automated Facilities, Smart IoT Apartments
**Challenge:** Safety & Security of the building with increasing traffic (gig workers, food/grocery delivery, package delivery)

**Technology Opportunity:** Invest in a Property OS or service provider that can provide a “trust layer” through software (with no additional labor or marginal cost)
Challenge: Increasing resident retention and building stronger brand loyalty

Technology Opportunity: Invest big in resident experience and leverage incentives that actually move the needle
Challenge: Finding new ways to monetize the most valuable demographic in the U.S.

Technology Opportunity: Tech companies can offer meaningful revenue share and help you unlock ancillary revenue from third party brands
**Challenge:** Full end-to-end digitization requires three complex layers of integration: 1) building architecture 2) software 3) human capital

**Technology Opportunity:** Point solutions rolled into a more comprehensive, end-to-end solution that serves the owner, architect, manager, resident, and all the parties in between.
**Challenge:** Supporting dozens of point solutions & integrations

**Technology Opportunity:** Find a middleware provider, hire a CTO + software team, and choose a PMS with friendly and open APIs
Challenge: Find profitable development opportunities in new markets

Technology Opportunity: Clean up existing data and layer on alternative data and location intelligence tools
# Multifamily Tech By Sector

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<tr>
<th>Sector</th>
<th>Description</th>
<th>Incumbents</th>
<th>Disruptors</th>
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<tbody>
<tr>
<td><strong>FinTech</strong></td>
<td>Payments/financing solutions software for leasing</td>
<td>Existing PMS/Rent Café</td>
<td>Domuso, Savvy (Shadow), Jetty</td>
</tr>
<tr>
<td><strong>Asset Management Platforms</strong></td>
<td>Software platforms that help manage existing assets and full suite of portfolios</td>
<td>Yardi, VTS, Real Page, Appfolio, Entrata</td>
<td>TBD (rise of new PMS systems)</td>
</tr>
<tr>
<td><strong>Property Management/Leasing</strong></td>
<td>Property management and leasing point solutions focused on driving automation</td>
<td>Resman, HappyCo., Sightplan</td>
<td>Leasera, Avail</td>
</tr>
<tr>
<td><strong>Access, Building/Facilities IoT, Energy Management</strong></td>
<td>Access Control, Building IoT, and Energy Management solutions that are focused on integrating tech into physical architecture</td>
<td>Enertiv, Butterfly MX, Latch, Wegwise</td>
<td>Embue (Shadow), Zerv (Shadow), Kairos (Shadow)</td>
</tr>
<tr>
<td><strong>Resident Experience / Property OS</strong></td>
<td>Applications and staffing providers that provide central operating systems or booking platforms for resident services</td>
<td>Hello Alfred, Valet Living</td>
<td>Amenify (Shadow), Stake (Shadow), Spruce, Rise</td>
</tr>
<tr>
<td><strong>Investment Data &amp; Intelligence</strong></td>
<td>Traditional and Alternative data sources that offer data-driven intelligence to MF investors and developers</td>
<td>CoStar, Core Logic</td>
<td>Local Logic (Shadow), Cherre, Reonomy</td>
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Sector Trends Pt. 1

1. **Data Science for Site Selection / Asset Repositioning.** Investors with dry powder are likely to lean on data platforms in the near term to give them an edge on investment comps, area demographic information, qualitative location intelligence data, trend analysis, and growth potential over time.

*Companies like Local Logic (Shadow Ventures port. co), Cherre, Skyline AI, and Renonomy are serving this market.*

2. **Contactless Access Control & Keyless Entry.** Choke points like building entry points, door handles, stair doors, and elevators have been included as major risk factors for COVID transmission. Going contactless allows residents, guests, and vendors the ability to avoid touching choke points creating a safer environment.

*Companies like ButterflyMX, Latch, Zerv (Shadow Labs), and Homebase.ai are serving this market.*

3. **Healthy Buildings / Smart Apartment IoT Solutions.** The cost of entering the apartment has gone way up. Residents would prefer no physical maintenance presence, thus paving the way for acceleration for IoT solutions, building automation, and facility management tools. Smart IoT solutions like Kairos that detect and mitigate water leaks before they become catastrophic, HVAC / environmental sensor companies like qLair that can analyze air quality and flow, space occupancy sensors that monitor movement, or platforms that bundle smart IoT solutions are likely to emerge as essential solutions with the core value prop being keeping residents safe and eliminating the need for increased traffic in a space.

*Companies like Kairos (Shadow portfolio company), PointCentral, Enertiv, IOTAS, Honest Networks, SmartRent, Acquicore, Wynd, qLair (Shadow Labs), Homebase.ai, Vergesense, and PassiveLogic are serving this market.*
4. **Virtual Design and Construction Tools.** Keep in mind that construction is an essential business. New multifamily properties that were already in pre-construction will continue construction for the foreseeable future. To meet demand in a pandemic, however, expect general contractors to leverage tech that allows the project team visibility into the jobsite from afar (drones, photogrammetry, laser scanning), IoT wearables (tracking labor, productivity, and safety), data and analytics, and other project management and collaboration tools that accelerate remote management of a jobsite will see increased adoption.

*Companies like Openspace, Reconstruct, Avvir, Briq, DroneDeploy, Briq, Aren (Shadow Ventures port. co), and Procore are serving this market.*

5. **New Lease Automation.** The lifeblood of a property is rent so it’s likely there will be major investment here. New lease statistics have already shown significant decline over previous years. Property managers will need to drive renter comfort with signing a lease sight unseen (e.g. AR/VR tours). Additionally, other automated marketing services like chatbots, better websites, and e-signature tools that can lead customers through an online buyer journey will become increasingly important.

*Companies serving this market are atHUM (Shadow Labs), BetterBot.ai, Verdocs (Shadow Labs), Knock (Shadow Labs), Savvy (Shadow Labs) and Realnyc are serving this market.*

6. **Virtual Amenity Experiences, Property Operating Systems, and Loyalty Programs** In order to retain residents and attract new ones, properties will need to rethink their amenity offerings as many physical amenity offerings have become irrelevant. The areas of focus for many properties will be the primary concerns of their residents: fitness / wellness, mental health, virtual work tools, grocery delivery, and social engagement with their neighbors.

*Companies like Amenify, HQO, Bixby, Hello Alfred, Stake are serving this market. In addition, several non-multifamily specific companies like Peloton, House Party, and Headspace serve this market.*
Multifamily Post-COVID Tech Trends

COVID-19 Impact

Pre-COVID Traction

- Space “Health” Sensors
- Contact Tracing / Proximity Alert
- HVAC / Building Automation
- Contactless Access Control
- Virtual Construction Tools
- Resident Relations
- Virtual Experiences
- Resident Finance
- Property Management Systems
- Short Term Rentals
- Retail as-a-Service
- Co-Living
- Hospitality Services
- On-Site Amenity Development
- iBuying
- Smart Apartment / IoT
- Virtual Leasing Tools
Startup Barriers To Entry

• Low margins / business model challenges
• Slow adoption
• Getting scale with physical architecture (Atoms vs. Bits)
• Regional dynamics with owners/operators are difficult to navigate
• Go-to-market confusion (Do I target REITs vs. small owners?)
• Industry fragmentation & long tail customer acquisition
• Too many stakeholders involved
• Recurring revenue is usually NOT truly recurring
• PMS integration barriers (many property managers won’t play with you if you can’t integrate. And the PMS incumbents rule Mulitfamily Tech and are historically do not play nicely with startups)
The Crystal Ball: Our Multifamily Tech Predictions

- Amenity Services Providers or Property “operating systems” become the needed trust layer/gatekeeper (and thus, control all activity on a property including e-commerce and spending).
- Automated and virtual leasing tools continue to increase in popularity and majority of renters sign apartments sight unseen.
- Property operating systems will continue to “get smarter” and offer more and more functionality, removing the need for on site staffing.
- iBuying enters multifamily as machine learning /artificial intelligence tech improves and further disintermediation occurs.
- Big multifamily tech platforms and data providers pivot to becoming owners/operators.
- Branding of multifamily property companies begins to occur through investment in loyalty and incentive programs to build the “brand” for multifamily firms.
- Building / IoT products that reduce risk and create arbitrage scenarios for insurers get accelerated adoption.
- As more point solutions come to market, middleware (or ease of integration) becomes important.
- Smart apartment solutions run into regulatory issues with privacy concerns from residents.
- Amenity services and property “operating systems” will continue to be indirect competition, until there are winners. Then they move horizontal and compete directly.
- Closed property management systems that don’t allow for easy integrations get displaced.
- “Friendly” PMS systems that redistribute value back to residents and PMs challenge closed incumbent players.
- COVID-19 further accelerates ESG movement and energy management investment.
Past Investment Highlights in MF Tech
Amenify is a turnkey solution for amenity services in multifamily communities. They provide core amenities like apartment cleaning, dog walking, spa services, personal fitness, and community events at zero additional cost to the property company.

**Team**
- Everett Lynn, Co-Founder and CEO
- Phil Matsuhashi, Co-Founder and VP Sales

**Problem and Market**
There is a well-documented “Amenity War” happening in the multifamily industry – property companies are battling over which new tech product will drive greater occupancy and higher retention. Consumers (apartment residents) expect greater convenience and better amenity options. Amenify satisfies both the property company (through superior resident experience and zero cost of service) and consumer (through a marketplace of qualified, local service providers).

**Product**
As a product, Amenify is a booking platform for local in-home service providers serving apartment renters in multifamily communities. Amenify creates value by partnering with (a) institutional Apartment Operators for resident engagement, (b) modifying service offerings to capitalize on density, and (c) fulfilling via their curated network of Provider Companies. They provide properties with actionable data on resident spending and property performance (like total activated residents, number of bookings, and recurring bookings) so properties can manage assets proactively and confidently.

**Traction**
In less than two years in business, Amenify has already found adoption across hundreds of multifamily properties -- and thousands of residents are paid users of their product, a remarkable stat in a slow to adopt space. They are now live in over 15 markets in the U.S.

**Social Proof**
In 2018, CRETech named Amenify winner of the Operations and Administration category. They are backed by several of the largest apartment ownership groups in the country. RET Ventures, a well connected player in the space, is their lead investor. Amenify has offices in San Francisco and Denver and are institutionally backed by the top multifamily operators in the country.
Local Logic

Montreal, Quebec

Local Logic is a real estate AI company that uses geospatial and user-generated data to quantify the built world for investment / development decisions.

Team
- Vincent-Charles Hodder, CEO & Co-founder
- Gabriel Damant-Sirois, CPO & Co-founder
- Amanda Levin, COO
- Pierre Calzadilla, VP Growth

Traction
- $1.76 ARR (CAD), Experiencing avg. 12% MoM growth since 2017
- 80% of people searching for homes in Canada interact with Local Logic tools at some point in their real estate buying journey.
- 30+ Customers including: Zillow, Redfin, Realtor.Ca, ReMax, Ivanhoe Cambridge

Market Problem
Whether you’re buying your first home or investing in a $100M project, quantifying the location value of a city or neighborhood – think its history/character, nearby parks/cafes/schools, AKA its development potential – has never been feasible.

Innovative Solution
Local Logic is the leader in quantifying location-based real-estate insights. They are experts in extracting third party data and capturing billions of proprietary location data points through APIs with some of the largest brokerage portals in the world (Zillow, Redfin, Realtor.ca). This access to propriety consumer data allows them to build models for real estate investors / developers saving them time, optimizing their investments, and enabling them to uncover hidden investment opportunities that others can't see.

Case for Investment
Evolving consumer home buying expectations have forced retail brokerages (Zillow/Redfin/ReMax) into a digital “Lead War.” By helping brokerages navigate this Lead War through their SDK product, LL is getting paid to build a valuable and massive data moat consisting of 20BN+ unique location-based data points per year. Because LL’s data set is unique, robust, and important, there is an opportunity to become the category winner in the real estate data space. These location datasets can also be repurposed and sold to multiple verticals – developers, investors, municipalities, transit – (build it once, sell it more than twice)
Kairos
Atlanta, GA

Kairos is a PropTech company that has created a patented water control system built for multifamily leveraging IoT to proactively monitor water leaks, anomalies, temperature, and humidity.

Team
• Dean Fung-a-Wing, CEO and Co-Founder
• Seth Taylor, CTO and Co-Founder

Market Problem
Water damage is costly to multifamily property owners. Insurance deductibles for water have increased by 300% in the last 5 years. Indirectly, resident satisfaction and displacement affect the bottom line. Beyond multifamily, no property owner is immune from water leaks, with 14,000+ people experiencing a water emergency each day in the US. 13% of water use is waste – a costly problem for owners.

Innovative Solution
Kairos has created a smart water system tailor built for multifamily, consisting of: a smart water meter/shut off, patented leak detection membrane sensors, and a base station that services hundreds of apartments without the need for WiFi or wired power in each unit. This system is cheaper, easier to install and maintain, and more effective for multifamily than the competition.

Business Fundamentals
Revenue: Early revenue from pilots and beta customers.
Key Products: Leak membrane sensor, smart water meter, multi-unit gateway, web and mobile management app.
Competitive advantage: Advanced and patented leak sensor technology; complete system with the ability to use edge processing to shut off water system to a unit in case of a leak; ability to cost effectively service multi-unit (either residential or commercial) property managers and owners.
Gross margin: Greater than 55% at scale with current go-to-market plan.

Case for Investment
Defensible technology: the core leak detection sensor has an active US patent and is significantly more effective than competitors being able to detect just a drop of water over a large area. Built from the ground up for ease of use/installation/maintenance in multifamily. Good hardware and software margins at scale for a hardware company (greater than 55%)/ Coachable founding team who has shown to be capable and excited about building a scalable business. Exit opportunities are abundant, including: established hardware companies, home services companies, insurance, big tech, and Series C+ startups.
Investing in startups that bring innovation to the built environment.

Thoughts on Multifamily Tech?
Contact: Nick Durham, ndurham@shadow.vc