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State of the Market 40: Housing goes high-tech

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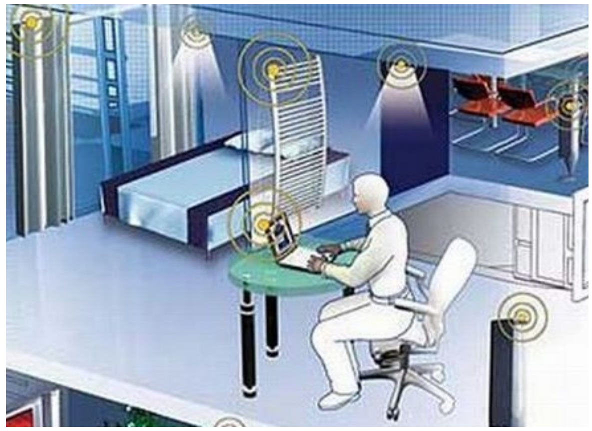
Technology is remaking not only the physical configurations of homes and apartments but also their use, value, and role in our society. The transformation is happening day by day, so rapidly and in so many small and large ways, that we can scarcely see the comprehensive housing revolution taking place all around us.

The transformation could and should happen faster and smarter, especially in multifamily rental housing, but is being retarded by two intangible challenges:

- Complications of the ownership structure, with control and economics fragmented and often poorly aligned with optionality.
- Financing restrictions, limitations, and lack of invention and promulgation of suitable financial products.

As technology enables Americans to live closer to each other than ever before, in structures that are progressively more complicated and downright smarter than ever before, we're unthinkingly picking up technological bits like gewgaws, unaware of the larger possibilities and how, if we get in front of where technology is leading housing, they could make multifamily residential apartments deliver better value for residents, and higher value for owners.

As a supplement to this *State of the Market*, we're appending a recent article from my Tax Credit Advisor *Guru Is In* column, *Looking for Energy Savings Under the Street Lamp*, summarizing Recap's important study on energy performance data and its relation to Capital Needs Assessments and energy conservation lending.



"Home ... computer ... which is which?"

Here's how.

Bigger share-of-day spent at home

Out of 24 hours in a day, how many do you spend at home? Chances are it's more than it was fifteen years ago. Work used to obligate us to commute; now we can telecommute. Entertainment meant "going to the theater," now the theater comes to our home cocoon. As for shopping, Add-to-Cart is now a mouse click, not a station wagon trip.

As time is spent, money is spent with it. More of the residents' share-of-wallet is expended at home, and that concentration of economic activity in the home creates business opportunities, most of which flow through the owner or the owner's property management company:

- ***Scale and buying power***. Efficiency in buying products means cheaper prices for those products.
- ***Product offering complexity***. A single homeowner may not be able to afford 100 cable channels. A bulk-buying residential property can.
- ***Shifting consumption choices***. Shifting the locus of economic consumption explains why cable TV and broadband fees are rising even as movie theater receipts are dropping.
- ***Data collection***. Customer-preference data collected from many people of a

roughly similar demography and precisely similar geography create huge potential for customized services. What Google and Amazon seek to do individually, multifamily properties can do en masse.

- ***Targeted marketing***. The more one knows about one's customers, the better one can improve advertising so that it is delivering genuine value – helping people reduce their search costs to find good and services they actually want, at prices they will actually pay.
- ***Reinvented amenity packages***. Instead of self-reported 'satisfaction surveys' that measure only what people claim they do or want, tracking actual usage (laundry room, exercise equipment) will pinpoint the amenities that add actual value, not just impressions.

All these suggest natural business lines, legitimate opportunities to bring services in-house or on a white-label basis, and potentially to strengthen residents' economic cocooning by making life in the apartment easier and more convenient than life in the hurly-burly – which breeds customer loyalty, lower turnover, and higher same-store rents.

Smart apartments mean better lives *and* higher values for owners

Technology, particularly when applied at scale and in networks, is creating more and more opportunities to enhance resident life quality. Aside from the obvious things like free wi-fi everywhere in the complex, consider just a few of the innovations that can make your apartment your friend:

- Lights, thermostats, and appliances that know when you're away, when you’re awake, and when you're sleeping, and adjust illumination, temperature, and activity accordingly.
- Networking your appliances to your office computer or handheld so that, if you left for vacation with the water running in the sink, you can remotely turn it off.
- Better materials (fabrics, adhesives, surfaces) that are lighter, longer-lived, better insulated, greener, and hence lower maintenance and operating costs.
- Smart meters that interact with variable-pricing utilities so that (say) dishwashers or icemakers run when power demand is lower.
- Smarter equipment that advises the owner when its performance is degrading, when it's time for a tuneup or a part replacement, or when its batteries are stolen by kids looking to run their video games.
- Refrigerators coupled with RFIDs or smart tags that help track eating habits (and potentially send information to your doctor) and let you know when food might be in danger of spoiling.
- Webcams that let you watch your children or your elderly parents while you're at the office or in transit, or enable basic doctor checkups without leaving the house. This opens up the possibility of customizing some apartments or whole properties that focus on particular customer-segment needs.
- Elderly-friendly components like sensor-based doors that open and close themselves in time with an elderly gait, or house videophones that show the caller, including name and particulars, so that elderly people with aphasia don't close themselves off from the world for fear of embarrassment.
- Carpet technology that can detect when someone has fallen and send an automatic alert.

All these changes can make homes and apartments more personal, more accommodating, and therefore enhance productivity, health and well-being, lifestyle and aging-in-place independence.

They also, not incidentally, enhance marketing appeal, boost NOI, and add value for owners.

Non-technological challenges: installation, operation, and financing

Technological advance in residential property is both inescapable and desirable – yet the pace of innovation is being retarded by four stubborn non-technological factors:

1. **Physicality**. You can't make apartment future-proof, but you can make them future-resilient. Though most technology comes in gadgetry that is portable, to be effective in apartments it must be fixed in place to a building skeleton or structural envelope that is decades old. Roofs or structural walls are difficult to puncture, and if punctured are no longer airtight or watertight. Installation can be difficult, especially of systems that require wiring from an infrastructure grid (e.g. broadband cables) to a building node and thence to individual units in the building.

   Where the world is going. As every builder or home improver knows, the best time to run networks in a building is during construction or substantial renovation, when the envelope is opened. Though we can't anticipate the shape of new technology and hence what new cables, cords, or tubes will be needed. What we want is a network of empty internal conduits, say 3-5" in diameter, running throughout the building's floors, ceilings, and walls (both internal and external). Think of it as technology's ready-to-use HOV lane.

   What to do now. Any time you open up a building, put in these conduits; it'll be a one-time cost in structural adaptability that will pay for itself in facilitating the addition of leading-edge new technologies and significantly extend building-component useful lives.

2. **Privacy concerns**. As our society becomes more technological and electric, what we've gained in connectivity and knowledge we've lost in real privacy, and these concerns spill out unexpectedly and emotionallty. We want our iPhone to find us wherever we are, yet become irate at its uploading our whereabouts. Do you mind?

   Where the world is going. Discreet automated electronic observation (let's not call it 'surveillance,' shall we?) is inevitable – actually, it's here now, you just haven't noticed. Count how many hidden cameras you pass in a day: commuting, in stores, office lobbies, ARMs, or even your desk Webcam.) With a big enough database, and enough computing power, someone can pretty much read your whole life.

   What to do now. Even as the technology revolution has overrun the bastions of privacy, the law fights a rearguard action, embedding into American jurisprudence a 'right to privacy' that is mostly self-delusion. So, be authority-active: review every contract or lease and rewrite it to allow the owner or manager to capture data and to upload it for commercial use (with as many or as few restrictions as required). Grab as much aggregate data as possible while privacy-protecting its sources as much as possible. And always be selling your residents that better data means better homes (safer buildings, faster maintenance response, customized offerings) at lower cost to them.

3. **Economic misalignment**. If the property is a wellspring of cash flows, then many people have their buckets out: the municipality first for its real estate taxes, the mortgagee with its debt service, the owners (divided into general and limited partners). Along the line vendors (including utility companies) and service providers (including the property management company) dip their ladles here and there.

   Though everybody drinks from the money hose, not everybody has the same influence over its flow. When it comes to operations, most capital structures are well balanced between control and economics, because they were negotiated for that stable case.

When new unforeseeable opportunities arise, optionality and incentives are frequently misaligned. That throws up both unexpected benefits and unexpected costs.

Where the world is going. In the Before Time, rising markets and loose credit tolerated misaligned incentives because everybody was willing to share unexpected upside. In the New Normal, falling markets and tight credit force parties into tension with one another. Misaligned incentives eventually crumple under financial pressure, but this is seldom smooth or pleasant.

What to do now. Rethink structure of property management fee. Where is it written on stone tablets that property management gets rewarded solely on Effective Gross Income (EGI), not Net Operating Income (NOI)? The former may be maximized while the latter is not, especially when cost-saving technology is involved. Rethink intra-partner sharing arrangements, particularly as they relate to new improvements, systems, or revenue opportunities. Get clarity, either via interpretation or by contractual agreement, on how technological-upgrading opportunities can be pursued, decided, or financed.

4. **Financing obstacles**. The financing documents are chains forged in development and worn in operations. Real property is encumbered by the mortgage; chattel (personal property) may not be covered, particularly if the chattel is newly installed. One can add new capital assets to a property and fix them in place (think satellite dishes or solar panels) without necessarily catching them in the mortgage; and one can write equipment leases or similar arrangements between an outside entity (even an affiliate) and the property. If the equipment fails to perform, deteriorates, is damaged or is vandalized or stolen, the inter-creditor arrangements can become complicated.

Where the world is going. There *ought* to be ways to consolidate the financing – say, if the GSEs offered a combination first-second where the second loan portion were expandable based on improvements with an underwritable payback – but right now there are none. As to when there might be, on this your crystal ball is probably as good as mine.

What to do now. When conditions allow, refinance your current loan to create funding for technological upgrades. Meanwhile, go get an energy audit or green CNA, and start collecting your current utilities' performance data. Build an evidentiary trail that renovations will boost NOI. You'll need that data to get the money you need.

Conclusion

We're not yet appreciating the revolutionary nature of rapid evolutionary change. The technological home is already here, we just don't realize it.

The future will be won by those who stop thinking of an apartment as a box for the residents' electronics and start thinking of it as a computer people live in.