Pay for Place, Not for Walls

Automation, Abundance, and the Future of Real Estate by 2035

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Author
Steffen Reckert, Gotham Consulting GmbH

Contact
[steffen@gothamconsulting.de] · [www.gothamconsulting.de]

Tagline

AI + humanoid robotics will make buildings (ex-land) ~40–70% cheaper and rents ~10–30% lower where supply can scale. Value shifts from structures to land, legal permissions, and grid capacity.

One-Line Purpose

A practical playbook for investors, lenders, and policymakers to reprice risk, accelerate approvals, and align tax and infrastructure with an age of cheap, fast, reproducible buildings.

Disclosure

This paper is intended for informational purposes only and does not constitute investment advice or regulatory guidance. All assumptions and scenarios are illustrative and are documented in the Methods Appendix.

Executive Summary

Artificial Intelligence (AI) plus humanoid robotics will make buildings (excluding land) ~40–70% cheaper to deliver by 2030–2035. As approvals and hookups speed up, rents fall ~10–30% in supply-elastic markets (≈5–18% in tight cores; ≈20–35% in peripheral/rural areas). The industry still prices “walls” as scarce. They won’t be. Value shifts to land, legal permissions, and grid access in a very short timeframe.

Structures become fast, repeatable products. Users gain a credible “build/own” option. In many non-core locations, leasing loses pricing power. Rents converge to a floor set by land + operating costs + utilities + rights—not yesterday’s replacement cost.

Who should care & what to do now

- Investors: Underwrite to rent floors. Pay for place (land, rights, utilities)—not finishes. Rotate out of improvement-heavy, entitlement-light assets; favor entitled infill, ground leases, and operating platforms (energy, connectivity, flexible space).

- Policymakers: Turn abundance into lower rents: make approvals by-right, publish pre-approved designs, digitize codes, and clear power/water bottlenecks. Shift tax from improvements to land value; fund infrastructure via transparent value capture with guardrails against sprawl.

- Households & firms: Expect more choice, faster delivery, better service bundles. In prime cores leasing remains strategic; outside them, owning/producing space often wins.

Real estate is not paying enough attention to AI. If structures are commodities, the edge is where and what you’re allowed to do there. Act now—before the 2030s make this obvious.

Robots Taking Over

Multiple studies have quantified the large share of jobs that current technology could automate. In their seminal Oxford study, Frey and Osborne (2013)[1] estimated that 47% of U.S. jobs were at high risk of computerization over 1–2 decades. National analyses in Germany similarly find that roughly 60+% of jobs have tasks that could be automated with existing AI and robotics. While not all at-risk jobs will vanish that quickly, the *potential* for disruption is immense. Indeed, the OECD[2] later refined the estimate to about 14% of jobs highly automatable (with another ~32% substantially changed) when accounting for task variability – still a huge impact.

Looking ahead to the 2030–2035 timeframe, many experts foresee an acceleration of automation. Kai-Fu Lee, a leading AI investor, predicts *40% of the world's jobs could be replaced by AI within 15 years*, implying major workforce displacement by the early 2030s. Some technologists paint an even more extreme picture: entire sectors rendered obsolete as intelligent machines outperform humans in virtually every routine and even complex task. For example, at the 2017 World Government Summit, Elon Musk cautioned that *"there will be fewer and fewer jobs that a robot cannot do better"*, calling technological unemployment "a matter of fact" and advocating universal basic income as a response. Musk's view, shared by other Silicon Valley futurists, is that we are heading into a world where human labor is largely surplus to economic requirements.

Such forecasts are admittedly speculative – a far end of the spectrum. Yet they highlight a plausible trajectory if AI capabilities continue on their exponential trend. By the early 2030s, up to ~90% of jobs may indeed be automated under aggressive assumptions. In this *near-total automation* scenario, only a small minority of roles (involving uniquely human creativity, care, or oversight) would remain for people, while machines handle the rest. History has never seen labor displacement at this breadth or pace. The implications would reach every corner of society – not least the real estate sector, as we explore. First, however, we consider how massive automation would create an economy of abundant, ultra-low-cost products and services.

Cheaper Products and Services

If robots and AI are doing most of the work, the output of the economy could skyrocket while costs plunge. Automated systems can operate 24/7 with minimal marginal cost, and AI optimization can eliminate vast inefficiencies. According to Elon Musk, "with automation there will come abundance" – companies will produce *far more with far less human input*, driving prices of almost everything "very cheap". In other words, advanced automation could shift many goods and services from scarcity to post-scarcity economics. We already see early signs: information products (like software, music or digital content) have near-zero reproduction cost;

[1] **Frey, C. B., & Osborne, M. A. (2017).** "The future of employment: How susceptible are jobs to computerisation?" *Technological Forecasting & Social Change, 114*, 254–280

[2] **Arntz, M., Gregory, T., & Zierahn, U. (2016/2019).** "The Risk of Automation for Jobs in OECD Countries." *OECD Social, Employment and Migration Working Papers*

renewable energy costs are falling toward zero marginal cost in some regions; and AI-driven efficiencies are reducing costs in logistics and manufacturing.

Futurist Ray Kurzweil argues that AI and other exponential technologies will make "most kinds of goods... amazingly cheap and abundant"[3] in coming decades[4]. He notes that super-intelligent AI will revolutionize energy and materials science: for instance, discovering optimal materials and designs that dramatically cut raw input needs. At the same time, robotics will slash labor costs in manufacturing and mining, and AI will find ways to replace expensive rare inputs with common, cheap alternatives. *Together, these advances mean the cost of producing additional units of everything from appliances to clothing could approach zero*. Technology theorist Jeremy Rifkin similarly describes a coming "near zero marginal cost society,"[5] where renewable energy, 3D printing, and AI-driven logistics enable basic goods to be produced for almost free. In such a world, the primary expenses would be initial Research and Development (R&D) and fixed capital, but the per-unit cost of products and services would be negligible.

Crucially, this dynamic extends to construction and housing. Building materials (cement, lumber, steel), energy, and labor are the main components of construction cost. Automation has the potential to dramatically reduce *each* of these. AI-optimized supply chains and autonomous mining could make raw materials cheaper; abundant green energy could lower power costs for fabrication; and robotic construction could virtually eliminate on-site labor costs. Indeed, as Musk quipped, at advanced automation levels "the output of goods and services will be extremely high" and Universal Basic Income (UBI) becomes necessary since *so little human labor is needed to run the economy*. Housing – a product currently so expensive that it's a worldwide affordability challenge – would not be immune to these forces. The next section examines how robotics in construction could slash the cost of building homes.

Building a house today is labor-intensive and costly. In traditional construction, labor typically accounts for a large share of expenses – about 30–50% of the total cost for a custom home, according to industry estimates[6]. Materials make up the rest (along with equipment, permits, and contractor margins). For example, building a 2000 square foot house in the U.S. might cost $300,000+ in materials and labor combined. If we assume roughly 50% is labor, that means $150,000 in wages and on-site work costs. Now imagine nearly all of that labor could be done by machines. *Autonomous construction robots* – from bricklaying machines to drywall-hanging robots and AI site supervisors – could work faster and cheaper than human crews, without breaks or injuries. As these technologies mature, the labor component could essentially vanish. We already see more and more specialised robots help at construction sites, but what we mean here is, that especially humanoid robots like Teslas Optimus, Agility Robotics' Digit, Boston Dynamics' Atlas, Figure AI with Figure 01, Unitrees G1, or Xiaomis CyberOne just to name a few, will take over the lead.

[3] **Ray Kurzweil**, By-Invitation-Essay in The Economist (17 Jun 2024): „most kinds of goods will become amazingly cheap and abundant."
[4] **Ray Kurzweil**: The Singularity Is Nearer (Penguin, 2024)
[5] **Rifkin, J.** (2014). The Zero Marginal Cost Society. St. Martin's Press
[6] **NAHB** „Cost of Constructing a Home (2024)

Empirical data already hint at what is possible. 3D printing of houses is a breakthrough approach that replaces many labor-intensive steps (framing, masonry) with automated layer-by-layer fabrication[7][8]. One U.S. company claims its large-scale 3D printer can construct a home with only 10% of the normal labor cost and 10% of the material waste. In 2017, the firm Apis Cor demonstrated a 400-square-foot house 3D-printed in 24 hours for just about $10,000 in materials. This small home, printed in Russia, showcased that basic shelter could be built *incredibly* quickly and cheaply. While the $10k figure excluded some finishing components (windows, wiring, etc.), it illustrates the order-of-magnitude cost reductions on the horizon. Even accounting for all systems, a completed 400 sq ft home for perhaps $20k–$30k is vastly cheaper than conventional methods.

Figure: A mobile robotic 3D printer constructing the concrete walls of a small house (Apis Cor project). Such automation can erect a building's shell in hours, with minimal human labor, heralding a future of dramatically lower construction costs.

Other automated construction techniques are emerging as well. Drones and robotic equipment can already handle surveying, excavation, and even bricklaying. Prefabrication in factories (using robotic assembly lines) can produce modular building sections at lower cost, which are then assembled on site. Boston Dynamics' humanoid and canine robots have demonstrated they can navigate construction sites and carry materials, a hint that general-purpose construction robots may eventually assist or replace human workers. As these technologies

[7] **Batikha, M. et al. (2022).** "3D concrete printing for sustainable and economical construction: A comparative study." *Automation in Construction, 134*, 104087

[8] **HUD (2023).** "3D Concrete Printed Houses: Barriers to Adoption and System Integration." *Cityscape, Vol. 25(1)*

converge, the "full-stack" automation of building becomes conceivable: from digging the foundation to nailing the last shingle, each step done by machines guided by AI. The result would be a collapse in construction time and cost – *potentially by an order of magnitude or more*.

To quantify this future, consider a house that costs $1,000,000 to build today (for land, labor, materials, everything). If half the cost is labor, automation could immediately save about 50%, bringing it to $500,000. The remaining $500,000 is largely materials and overhead. But with AI-driven efficiency and scale, materials may also get much cheaper – say only 10–20% of today's cost (thanks to cheap energy and optimized production). That would chop another ~40% off the total. In an optimistic scenario, a $1M house today might cost only $50k–$100k to build in the 2030s. And some technologists foresee even greater gains and predict that homebuilding costs will trend down close to just the raw materials, roughly $40k per house, by the early 2030s. In effect, building a house would cost little more than assembling "commodity" parts – like printing a very large appliance. By 2035, the variable cost of adding a new home could become so low that it's almost negligible in a nation's economy.

To be clear, there are hurdles to realize this vision. Current 3D-printed homes still require finishing work by humans, and building codes/regulations need to adapt to novel methods. The bold claims of some startups have been met with skepticism from construction experts, who note that *only walls are printed in many demos, not the entire home*. Nonetheless, even partial automation yields savings. As robotics improve and integrate more of the building process (installing fixtures, etc.), the fully automated construction site comes into view. In summary: by 2030–2035, it is plausible that home construction costs will drop by 80–90% in real terms compared to today, especially in labor-expensive markets. Building a home could become faster and cheaper than buying an expensive car.

Lets look at a concrete build-cost worked example (house, excl. land). To anchor numbers, I start from the latest NAHB cost survey (2024)[9]: construction costs account for 64.4% of a new home's price; the finished lot averages 13.7%; the rest is overhead, financing, sales, profit, etc. (NAHB's 2024 survey updates its 2022 finding of 60.8% construction and 17.8% lot).

[9] **NAHB (2025).** "Cost of Constructing a Home – 2024

Baseline: "today's house" selling for $1,000,000 (U.S.).
Assume within construction: 40% labor / 60% materials (typical order of magnitude in pro sources; varies by market). Then apply three automation scenarios:

Line item (on $1,000,000 today)	Today	Scenario A (conservative)	Scenario B (ambitious)	Scenario C ("frontier")
Construction subtotal (64.4%)	$644,000	↓ to 50% of today	↓ to 25%	↓ to ~9%
… Labor (40% of construction)	$257,600	−95% ⇒ $12,880	−100% ⇒ $0	−100% ⇒ $0
… Materials (60% of construction)	$386,400	−40% ⇒ $231,840	−90% ⇒ $38,640	−95% ⇒ $19,320
Soft/overhead, marketing, financing, profit (~21.9%)	$219,000	−50% ⇒ $109,500	−90% ⇒ $21,900	−95% ⇒ $10,950
Finished lot (13.7%)	$137,000	unchanged	unchanged	unchanged
Total excl. land	**$863,000**	**$354,220**	**$60,540**	**$30,270**
All-in (incl. land)	$1,000,000	$491,220	$197,540	$167,270

Interpretation: even without touching land, the "house" portion collapses to roughly $30k–$60k under aggressive automation (consistent with early 3D-print pilots that achieved shells in ~24 hours for ≈$10k materials, though full finishes add cost). Land then dominates total price.

Quick German cross-check (detached 180 m²): common ranges put turnkey build costs ~€1,700–€4,500/m² (say €3,000/m² mid-case → €540k build), plus soft costs, plus land. Under an "ambitious" automation cut (labor→~0, materials −90%, soft −90%), the build could fall toward €40–50k, with land again the main driver.

Homes Become Hyper-Abundant – and Cheap

What happens to housing prices in a world where constructing a house is easy and ultra-cheap? Economics 101 tells us that if the *supply* of a good increases dramatically and the cost of production falls, prices will fall accordingly – assuming stable demand. Today's housing shortages and high prices are fundamentally a supply problem: not enough homes where people want to live, and costly construction keeping supply limited. But with robotic construction, supply constraints could vanish. It would be feasible to build new homes wherever needed,

quickly and at trivial cost, eliminating the labor bottleneck. In addition, existing homeowners (or communities) could decide to tear down and replace older homes with new, larger ones since it's so affordable. The overall housing stock could expand significantly in a short time.

The logical consequence is a sharp deflation in the market value of houses (as structures). If anyone can build a high-quality house for, say, $50,000 or less, no one will pay $500,000 to buy an old house – except perhaps for its land value (more on that soon). Housing would shift from a scarce, expensive asset to a plentiful, cheap commodity. This is a radical change. Today, a home is often a person's biggest investment; in the scenario we're contemplating, a home might be no more financially significant than a car or even a sofa – something one can acquire with a few months' income or via government provision.

Historical analogies are imperfect, but consider how the cost of food and agricultural land changed after past technological revolutions. In 1900, farming employed a large share of the population and food was a major expense for families. Mechanization and fertilizers in the 20th century made food abundant and cheap (relative to income), and farmland value in many places dropped or shifted to other uses. A similar story could unfold with housing: as technology makes it easy to "grow" new houses, the *value of existing houses* (beyond their land) could plummet. Houses would no longer be a reliable store of value or investment vehicle. In effect, the structure depreciates rapidly toward its low construction cost, rather than appreciating. Investors, homeowners, and banks holding mortgages would all feel the impact of this deflation in home values.

Importantly, in an automation-driven *abundance economy*, people's ability to pay for housing may also change. If 90% of jobs are automated, millions might rely on some form of universal basic income or dividends from automated productivity. With goods cheap or free, disposable incomes could be directed to housing or other wants. But if houses themselves are cheap to build, even lower incomes could suffice to afford a home. It suggests everyone could have a decent home as a basic amenity of the future – a profound social improvement, provided land is available. Some futurists foresee a world where homelessness and housing scarcity are solved not by policy alone but by the economics of *overabundance*: when building shelter costs pennies, societies can ensure shelter for all.

There is a flipside, however. While homes (the buildings) might become dirt cheap, the land underneath would remain limited. You cannot fabricate new land in a desirable location the way you can print a house. Thus, we expect a massive shift in where the value of real estate resides: *from the building to the land*. Today, when one buys a property, a large portion of the price often reflects the house's structure and improvements. In a scenario of near-zero construction cost, virtually the entire value would be the location – the land and the *rights to occupy it*. This has enormous implications for investors and society.

What does that mean for the rental market?

In the rental apartment market, ultra-cheap, rapid delivery of new units fundamentally alters the balance between scarcity and competition. When construction ceases to be the binding constraint, developers can respond elastically to demand spikes with months-not-years delivery, which breaks the pricing power that stems from long lead times. The dynamics propagate through a "vacancy chain": each new unit not only adds supply at the top end but also frees a unit lower down as households move, filtering benefits across the stock. In markets without hard land or regulatory limits, equilibrium rents trend toward the marginal cost of providing new space plus land and operating costs. That implies a step-down in asking rents for commodity product and a narrowing of the rent dispersion between new and older stock. Landlords in A-locations will continue to charge premia because the price signal migrates into the location itself, but in B- and C-locations the rent floor is set by what a robotized builder can add next quarter on adjacent parcels. The business model of multifamily ownership adjusts accordingly: returns rely more on site control, entitlement strategy, operating excellence, and amenity programming than on development scarcity. Where tenant protections are strict and rents sticky downward, expect capital to gravitate to jurisdictions that permit fast, by-right production, because cheap build systems deliver their full deflationary effect only when they can be deployed at scale. Conversions of obsolete offices into apartments accelerate where floor plates permit, yet even there the comparison flips: if ground-up costs collapse, only buildings with exceptional locations or subsidized conversion economics pencil. Over time, tenant experience, building operations automation, and bundled services become the differentiation levers once granite countertops are a trivial add-on.

The rental apartment market today is enormous, systemically important, and still growing. In the United States there are roughly forty-two to forty-six million renter households—Census[10] counted 42.5 million renter households in 2023, with nearly half cost-burdened—and apartment-rental industry revenues approach three hundred billion dollars annually on current estimates. Transaction markets rebounded in 2024 with about one hundred forty-six billion dollars of apartment sales, even as price indices continued a measured reset from 2023 peaks. At the same time, the supply picture flipped from glut to normalization: after a four-decade high in 2024 deliveries, completions are rolling over through 2025–2026, with RealPage[11] tracking a one-third decline in scheduled completions over the next year. The headline is that demand resilience meets fading new supply, and the baseline market remains very large, liquid, and cyclical.

Germany's rental ecosystem is structurally different but comparably consequential. A majority of households rent—Eurostat/Destatis report[12] about 52–53 percent rentership, the highest in the EU—and the stock is deep, institutional, and policy-shaped. Germany counts roughly forty-plus million dwellings, more than half in the rental sector by unit, with moderate legacy rents but

[10] **U.S. Census Bureau (2024).** Pressrelease: "Nearly Half of Renter Households Are Cost-Burdened (2023)
[11] **RealPage (2025).** "Supply volumes decline … / 2Q-2025 Supply Update."
[12] **Destatis/Eurostat (2024–2025).** "Germany: highest proportion of rental tenants in the EU (52,8 %)

much higher asking levels for new and re-let units. Investment volumes have been recovering from the rate shock, and forward views from major managers anticipate outperformance in residential relative to other property types as financing conditions stabilize. The upshot for an investor is that both the U.S. and Germany offer scale, data depth, and policy visibility, but Germany's rent regulation and land scarcity in core metros will channel abundance-era effects differently than the United States' more elastic land markets.

In a world where structure costs collapse toward the tens of thousands per building, the apartment market's economics pivot from "scarcity of new product" to "scarcity of serviced locations." When developers can stand up competitive units in months at de minimis build cost, the price signal migrates from the improvement to the land and to the operating layer. In unconstrained suburbs and secondary metros, rents converge toward a floor set by land, sitework, utilities, operating expense, and a normalized profit spread. In constrained A-locations, discounted cash flows remain anchored by location value and regulation, not by replacement cost. This bifurcation is already visible in miniature in today's cycle: the glut of high-end completions pushed concessions and slowed rent growth even as occupancy stabilized in many markets; as deliveries ebb, pricing power returns. Automation amplifies the same mechanism, but with a vastly more elastic supply response once land and permissions are available. For investors, underwriting needs to decouple the building from the site and evaluate location premia, entitlement friction, and utility capacity as the real moats.

Market size evolves in two countervailing ways under abundance. Revenues compress on a per-unit basis where land is plentiful because rents gravitate toward lower marginal cost; simultaneously, the total addressable market expands as more households rent larger or higher-amenity units by choice, as institutional ownership penetrates new geographies, and as operating platforms bundle services at scale. In the U.S., the TAM can remain near or above today's roughly three hundred billion dollars even with lower average rents if the unit count, average unit size, and ancillary revenues rise. Germany's TAM could rise in nominal terms despite tighter rent controls if policy channels cheap build systems into sanctioned growth areas and if operators monetize services and energy retrofits inside regulated rent envelopes. The operational thesis becomes platform-centric: margins come from occupancy management, energy and maintenance automation, and productization of services, while base rent becomes the commodity component.

Benefits and value propositions for residents change shape when granite countertops and smart thermostats are no longer differentiators because they cost almost nothing. What matters to renters is time, reliability, health, and flexibility. Buildings will increasingly compete on guaranteed response times, uptime of building systems, bundled connectivity and energy, wellness infrastructure, childcare, storage, and mobility services that actually reduce total cost of living. Where cheap new supply erodes scarcity rents, providers can defend revenue per unit through service attach rates rather than through face rent. That is favorable for scaled operators with dense footprints; it is challenging for thinly capitalized owners of commodity B/C stock that cannot support a service layer. In Germany, tenant protections and contract structures tend to keep base rents sticky but permit pass-throughs for measurable services and retrofits; in the U.S., lease design can migrate faster to subscription-style offerings, with embedded escalators

tied to service SLAs and utility outcomes. Over time, the sector looks less like a collection of buildings and more like a set of operating companies with annuity-like service revenue stacked on top of land.

Portfolio construction must adjust to a world where replacement cost no longer props up values. In the U.S., core-plus strategies that historically bought at a discount to replacement cost will lose that valuation backstop in non-scarce markets; instead, the hedge is control over land, power, water, and rights to add or reconfigure units quickly. Balance across A-locations, supply-constrained infill in employment nodes, and perimeter submarkets with strong household formation will matter, but the common denominator is entitlement and infrastructure. In Germany, defensive positioning favors core urban land and assets with clear pathways to densification or to energy-efficiency capex that yields regulated rent adjustments; in secondary cities the alpha comes from assembling sites that policy earmarks for growth. Across both, embedded optionality—air rights, modular expansion capacity, pre-approved plans for robotic delivery—will price at a premium because it converts cheap structure into speed and scarcity.

Investment strategy, risk, and return dispersion will widen. For development, the risk of lease-up weakens as costs plunge and cycle times shorten, but residual value risk grows because new supply can arrive quickly when land and permits are available. That pushes investors toward shorter hold periods, forward-sale programs to operators, and perpetual-platform models where value sits in customer relationships and service margins rather than in slow-moving NAV. For stabilized assets, underwriting must haircut improvement value more aggressively and capitalize land at lower yields in prime nodes, while accepting thinner rent growth in peripheral nodes where abundance bites hardest. Cap rates in commodity subsectors can widen structurally; cap rates on prime land-anchored assets can compress or hold firmer even as building values decay, because the NOI is protected by location and by policy-induced scarcity. Debt markets will adapt by lending more against land and cash flows from services and less against improvements; covenants will migrate toward operating KPIs and site control representations.

A realistic near-term pathway ties the abundance thesis to today's cycle data. The U.S. hit a four-decade high for multifamily completions in 2024 and then flipped toward fewer deliveries through late-2025, while absorption surged, occupancy stabilized around the mid-ninety-five percent range, and transaction volumes recovered off the floor. Germany's volumes also improved off 2023 lows, with institutional capital leaning back into residential as the relative winner across property types. Interpreting that through an abundance lens, we can say the market is already testing the dynamics: when supply is abundant, rents soften and operators compete on service and concessions; when supply fades, rents and occupancies firm, particularly in land-scarce nodes. Extrapolate into the 2030s with automated delivery, and the investor play is clear: underwrite land and operations, not walls; scale where policy and infrastructure allow elastic expansion; and concentrate defensible exposure where location scarcity is durable and legible in law.

Here's a more street-level view on the topic. If you're buying purely as an investment and you plan to hold into the 2030s, the riskiest part of residential property is the building itself; the most resilient part is the land under it. As automation makes construction much cheaper over the next

decade, structures become easier to replace and compete against, while well-located land stays scarce. That tilts the balance away from “owning walls” and toward “owning location.”

Flats (condos/apartments) are mostly “structure value” with little direct land share and more exposure to service charges and board decisions. They can still cash-flow in dense, supply-constrained neighborhoods, but they’re the first to feel pressure when new units are delivered quickly and cheaply. Houses come with higher maintenance and sometimes weaker current yield, but a detached home on a good, well-served plot gives you what matters most in the long run: land, rights, and options. If zoning or transport improvements make that plot more valuable, you benefit; if building gets cheaper, you can replace or add space at low cost.

So, should you buy a flat or a house as an investment now? If your horizon is long and your goal is wealth preservation plus flexibility, favor a simple, rentable house on a fundamentally scarce piece of land in a well-connected area, ideally with expansion or upzoning potential. If your goal is near-term cash flow with minimal hassle and you’re in a market with tight rent controls or proven, durable demand, a no-frills flat can work—just stress-test for fee inflation, special assessments, and a 10–15% rent shock. Either way, underwrite as if replacement cost for the building falls sharply: pay for the location, not the finishes; target assets whose value would still make sense if you could rebuild cheaply; and avoid paying premium prices for commodity structures where new supply can appear fast.

Lets take a clear, numbers-first take on two concrete examples, using today’s rents as the baseline, then layering three 2030 scenarios that depend on two levers: automation intensity (how far build/ops costs fall) and entitlement speed (how fast Los Angeles/Berlin can actually permit and plug new units into the grid). Think of it as “how low can rents go if you can add supply almost on demand?”

Los Angeles

The citywide average asking rent sits around $2,800 as of late September 2025 (all beds, all types; Zillow’s ZORI/market view). Supply was exceptionally heavy in 2024 and remains elevated into 2025, but national deliveries are already rolling over—meaning the near-term glut is easing even before an “abundance” shock arrives.

What could happen by ~2030? Using that $2,800 baseline:

- Status quo (moderate automation, slow entitlements): drop of ~6% ⇒ ~$2,630. This assumes build costs keep drifting down but LA’s permitting/frictions remain the binding constraint (recent state reforms exist, but approvals are still slow).
- Reforming (strong automation, medium entitlements): drop of ~15% ⇒ ~$2,380[13]. This needs steady SB-9/ADU uptake plus smoother by-right infill so new units can actually hit the market.

[13] California HCD – SB-9 Fact Sheet (2024/2025)

- Fast-track (very strong automation, fast entitlements): drop of ~28% ⇒ ~$2,010. Here, approvals and hookups are fast enough that robotized delivery becomes the rent floor in many neighborhoods; land and utilities carry the price in prime nodes.

In LA proper, zoning, utilities, and politics still gate how much "cheap build" translates to actual keys; the metro has land to expand, but the city's best locations will keep their premium. Short-run averages can even blip up if much of the new supply is high-spec—automation then shows up as better concessions and service levels, while the structural effect (lower rent floor) shows up over multiple leasing seasons.

Berlin

Citywide asking rents average roughly €16.00/m² in Q3 2025[14] (districts span ~€12–€20). Existing contracts often sit much lower due to regulation, but new/relets anchor around that €16 mark. New-build delivery has softened, permits have fallen, and policy continues to extend rent-brake rules—so the near-term market stays tight absent a permitting push.

What could happen by ~2030? Using €16.00/m² as the baseline:

- Status quo (moderate automation, slow entitlements): drop of ~4% ⇒ ~€15.36/m². Automation trims operating/build costs, but rent policy and scarce, slow-to-permit land keep averages sticky.
- Reforming (strong automation, medium entitlements): drop of ~9% ⇒ ~€14.56/m². Requires more by-right capacity where infrastructure exists and a smoother path for conversions.
- Fast-track (very strong automation, fast entitlements): drop of ~17–18% ⇒ ~€13.20/m². This needs standardized, pre-approved typologies and digitized permitting so abundance can actually scale on the ground.

For a typical 60 m² flat, that's roughly €960 today; under the three scenarios, about €922, €874, or €792 monthly by 2030. Note that in Berlin the gap between asking and regulated in-place rents will likely persist; the "fall" shows up in new-let asking rents first.

Citywide averages won't collapse uniformly because land and rights still anchor prime areas. But the direction is clear once supply can scale: in Los Angeles, a realistic 2030 range is −6% to −28% vs. today's ~$2.8k average, with the bigger declines outside the very best locations. In Berlin, the policy/regulatory funnel narrows the drop to roughly −4% to −18% from ~€16/m², unless the city executes a serious permitting/digitization push.

To get a full picture we need to zoom out from cities to rural areas as well. Outside big, land-constrained metros the rent floor can sink faster, because once structures are cheap the

[14] Berliner Mietspiegel 2024

only real bottlenecks are sites, hookups, and permits, which are usually easier to come by in the countryside. Two concrete examples:

In California's Central Valley, Bakersfield is a good proxy for a more rural-regional market. As of late August 2025, average asking rent is about $1,950 a month across all unit types, per Zillow's rental series (other trackers print lower medians, but the direction is consistent). If automated delivery takes hold and local approvals remain relatively permissive, the price signal shifts from "scarce new builds" to "land + opex," and that tends to compress asking rents more than in Los Angeles. A plausible 2030 range off today's $1,950 baseline is roughly −10% under a slow-reform path (about $1,760), −20% to −25% if approvals and siteworks scale (about $1,460–$1,560), and up to −30% to −35% in submarkets where greenfield supply, ADUs, and prefab/robotized projects can hit the market quickly (around $1,270–$1,365). The floor is set by operating costs (taxes, insurance, utilities, management) rather than by replacement cost of the building, so you shouldn't expect rents to halve unless opex is also automated down. The bigger investor risk here is not just lower rents but higher downtime and softer renewal pricing as landlords compete on concessions and services when new units are easy to add.

In rural northeastern Germany, Uckermark's district-wide average asking rent sits around €7.0 per square meter in 2025, which means a standard 60 m² flat is roughly €420 cold rent today. In an abundance scenario, the same mechanics apply but regulation keeps things stickier than in the U.S.: if structure costs plunge yet permitting and infrastructure remain the gating factors, a conservative path implies perhaps a −8% drift by 2030 (≈€6.45/m², ~€387 for 60 m²). If Brandenburg streamlines pre-approved typologies and utility hookups in designated growth zones, a −15% to −20% range (≈€5.60–€5.95/m²; ~€336–€357 for 60 m²) becomes feasible. In very small towns with ample plots and minimal planning friction, a −25% move isn't out of the question, but vacancy risk rises quickly if population growth is weak. In short: the rent floor can fall further than in Berlin because land is not the binding constraint; the counterweight is demand—some villages will struggle to keep units full unless they're near anchors (rail nodes, logistics, health campuses, tourism).

So, does rural rental income "drop significantly"? Compared with LA or Berlin, yes—on average the downward pressure is stronger because supply can expand faster and tenants have more substitutes. For an investor, that means underwriting with a tougher rent and occupancy haircut, prioritizing micro-locations with durable anchors, and paying for land and rights rather than for finishes. In the Central Valley example, I would stress-test at −20% rent and two to three months of annual downtime; in the Uckermark case, I would add a vacancy stress alongside a −15% rent scenario and only underwrite if there's a clear demand magnet or policy-backed growth corridor.

What this means for current investments (and whether to pull money from a real-estate fund): The core idea of this paper—that automation will drive construction costs toward "near-zero," shifting value away from buildings and toward land, location rights, and operating platforms—is still under the radar. Most portfolios and benchmarks still assume "structures" hold value because replacement cost is high. If we're right, that assumption breaks over the next cycle. That's an opportunity for early movers—but it's a reason to reposition, not to panic-sell.

Don’t rip the cord blindly. Start with look-through triage of what you actually own. If your fund is heavy in commodity apartments, generic suburban product, or non-prime office (older “B/C” buildings) in places where land and permits are easy, it’s directly exposed to falling structure values—begin a staged reduction. If the fund is anchored in land-scarce, transit-served locations, with real entitlement optionality (the legal right and ability to add density) and a strong operating layer that can sell services to tenants, you can hold and let the manager harvest near-term cyclical tailwinds while you rotate gradually.

A fast triage checklist:

1. Sector mix: how much non-prime office or undifferentiated multifamily?
2. Geography: are assets in land-constrained nodes or easy-build markets?
3. Pipeline: is there a big, unfunded development book that needs expensive capital?
4. Debt: leverage level, maturity wall (what’s due 2026–2028), fixed vs floating.
5. Moats: evidence of land control, entitlements, utility/power capacity, and pre-approved plans (things that stay scarce as buildings cheapen).
6. Liquidity: if it’s a private open-end fund, check for redemption gates/queues.

Trim exposure to assets whose value rests mainly on the building. Add exposure to land-anchored and rights-anchored strategies: ground leases and long land positions in A-locations; entitled infill near rail/power; single-family/build-to-rent platforms with genuine land pipelines; mixed-use sites where you can densify quickly; operating companies that layer services (energy, connectivity, flexible space) on top of base rent. Avoid paying premiums for condos/commodity structures that new, cheap supply can undercut. Prefer low leverage, long fixed-rate debt, and staggered maturities.

Public REITs (Real Estate Investment Trusts) reprice quickly and give you liquidity; private open-end “core” funds (often benchmarked to ODCE—Open-End Diversified Core Equity) can lag in valuations and sometimes gate redemptions. If you need flexibility while you rotate, consider shifting some exposure to listed vehicles aligned with the land/entitlement thesis, and use private funds only where the manager can prove genuine location and rights advantages.

History said “real estate goes up.” The next decade says “land and rights go up; buildings become cheap.” Because the market hasn’t fully internalized this yet, there’s alpha in rotating now—methodically—out of “walls” and into location + entitlements + operations. Do the triage, set a staged withdrawal plan where the red flags show up, and redeploy into strategies that still make sense when replacement cost is no longer your safety net.

Office Real Estate in the Make-versus-Lease Era

Office real estate sits at the epicenter of the make-versus-lease rethink. The current market already exhibits a structural split: top-tier, amenitized, energy-efficient space in transit-served cores holds up, while generic, older stock struggles with vacancy and cap-ex drag. Inject cheap newbuild into that picture and the calculus for occupiers tilts further. When the all-in cost to deliver a custom 30,000-square-meter suburban campus falls by an order of magnitude, a CFO

can compare a ten-year net lease at rising rents against a modest capital program financed at the firm's weighted average cost of capital and conclude that owning wins—especially when automated maintenance and building operations shrink the life-cycle cost of ownership. Within constrained CBDs the pivot is more nuanced: land scarcity, entitlement risk, and political value placed on downtown vibrancy keep leasing relevant, but even there the bargaining power moves toward tenants as their outside option improves. For investors, the result is a triage. Prime sites with entitlements remain valuable because their value is land-driven; obsolete B/C buildings without compelling locations are increasingly candidates for teardown rather than retrofit, since a fast, robotized build can deliver better product cheaper than an invasive conversion unless subsidies or unique heritage value bridge the gap. Debt markets feel this through widening loss severity on non-prime collateral and through a repricing of cap rates to reflect an environment where replacement cost no longer props up values. Developers that master the industrialized construction stack—design for manufacture and assembly, robotics integration, and automated MEP fit-out—capture margin not from scarcity but from speed, reliability, and platform economics. Cities that want vibrant cores will lean on zoning flexibility, streamlined approvals, and targeted incentives to steer cheap build capacity into mixed-use and residential conversions[15], anchoring demand with institutions and culture rather than with expensive shells.

The office market is big, bifurcated, and mid-transition. In the United States, vacancy sits near historic highs—Moody's[16] pegs Q2 2025 at roughly 20–21 percent—yet prime space and amenity-rich nodes continue to outperform, and national brokerage data show several consecutive quarters of positive net absorption alongside a thinning construction pipeline. Greater Los Angeles, as a bellwether, is running around 24 percent vacant, with availability close to 30 percent[17], while trophy and best-in-class assets maintain far lower empty space. Germany's "Big 7" office markets are tighter on the surface—Berlin is around 8 percent vacant[18] and Germany overall is trending toward the high-7s to ~9 percent—but the same split applies: peripheral submarkets and older, functionally obsolete stock are under the most pressure, while certified, energy-efficient, transit-served buildings capture a growing share of demand. Conversion and removal are now material to the U.S. inventory math, with millions of square feet coming out each quarter for housing or redevelopment, and 2025 on track for a record year of office-to-residential unit deliveries. Fit-out and reconfiguration costs remain meaningful—guides for 2025 still show $150–$220 per square foot for full North American buildouts[19], with Europe printing broadly comparable all-in ranges—but the truly scarce inputs are location, power, water, rights, and time.

What changes in an abundance economy is the core finance problem that every occupier (and every landlord underwriting that occupier) must solve: should you lease a box at a market rent, or should you make your own box because building has become cheap, fast, and reliable

[15] **RentCafe / Yardi (2025).** "Office-to-Apartment Conversions to Peak at 71k Units in 2025."
[16] **Moody's Analytics via Axios (2025).** "Office vacancies hit a record high … 20,4 %/20,6 % in Q2 2025 (U.S.)
[17] **CBRE (Q2 2025).** "Greater Los Angeles Office Figures"
[18] **JLL (Q2 2025).** "Berlin Office Market Dynamics."
[19] **Cushman & Wakefield (2025).** "Office Fit-Out Cost Guide (EMEA/UK 2025)."

enough to beat the lease? Today, the lease decision is propped up by high replacement costs, long delivery times, and the headache of entitlements. If robotics, modularization, and AI-driven project controls push shell and systems costs down by an order of magnitude over the next cycle—and cut delivery from years to quarters—the occupier's outside option strengthens dramatically. The decision devolves to land and rights: where entitled land is available at rational prices, "make" wins; inside constrained CBDs with tight planning and expensive ground, "lease" continues to matter, but on tenant-friendly terms. In other words, replacement cost stops being the landlord's floor outside of truly scarce locations.

For a CFO, the make-versus-lease calculus can be expressed as a simple occupancy-cost comparison. Consider a 150,000-square-foot suburban campus. A conventional lease at $55 per square foot gross produces an annual occupancy bill of $8.25 million before escalators. Owning the same square footage looks like an annuity on the all-in development cost plus operating expenses. At today's costs (say $300 per square foot for shell+fit-out, ignoring land), a 30-year, 8 percent capital charge annualizes to roughly 8.9 percent, or about $26.7 per square foot per year; add $10 per square foot of opex and you are at $36–$37 before land. In an automation scenario where shell+systems drop toward $120 per square foot on low-rise product, the capital charge falls to about $10.7 per foot; if building operations automation trims opex to $7 per foot, you are in the high teens before land. Even allocating, say, $50 per square foot of building area for land (common in many suburban parks), the annualized land charge adds ~$4.4 per foot, producing an "own" occupancy cost near $22 per foot versus a $55 lease—enough spread to fund risk, delays, and an amenity program. In CBDs, the land line item may be $200 per foot of building area or more and entitlements lengthier, which narrows or reverses the spread; there, leasing retains strategic importance, and landlords with truly scarce sites and amenity ecosystems preserve pricing power. These are illustrative numbers, but the directional point is robust: as the structure gets cheap, the economics hinge on land, rights, and operations, not on walls.

In appendix 1, we show a very clear calculation example. We model a 150,000 ft² occupier over 10 years at an 8% Weighted Average Cost of Capital (WACC). The lease case assumes gross Year-1 rent of $55/ft²/year in suburban markets (2.5% annual escalator) and $75/ft²/year in Central Business District (CBD) markets. The build-to-own case pays shell-plus-fit-out upfront, adds land cost per building square foot, carries annual Operating Expenditures (OPEX), and credits only land value at exit (conservative). Three delivery states are shown: "Today" (shell+fit $300/ft²; OPEX $10/ft²/year), "Ambitious Automation" ($150; $8), and "Frontier Automation" ($100; $7).

Translating that into rents and values, you should expect three durable effects. First, a wider and more persistent gap between prime and non-prime. U.S. data already show prime vacancy running multiple percentage points lower than the rest of the market, and that gap tends to widen when tenants can easily "trade up" into better-performing space without paying much more for buildout. Second, structural rent pressure on commodity B/C space where sites are plentiful and approvals are tractable: when your tenant can credibly build or buy a custom campus for an annualized cost in the 20s per foot, your ability to hold a $40s–$50s rent on generic product erodes. Third, valuation anchors migrate from replacement cost to site and

permission value. Cap rates on commodity assets can gap wider because the backstop is gone; cap rates for land-anchored, permission-rich assets can hold or compress as investors pay for the durable moat. The public/private divide also matters. Listed landlords have marked quickly and leaned hard into balance-sheet defense, while appraisal-based private vehicles adjust more slowly and, in some cases, face queue and liquidity dynamics. If you are allocating via funds, watch leverage, debt maturities (2026–2028), and the proportion of value tied up in buildings that must compete against fast, cheap new supply.

What about conversions and demolitions? They become the release valve that aligns obsolete stock with modern demand—up to the limit of geometry and code. 2025's record pipeline of office-to-apartment units is significant, but it is not infinite; only certain floor plates, cores, and window bays work. Where buildings do not convert well, a world of cheap rebuild pushes the calculus toward teardown and fresh delivery—again, subject to land and rights. Cities that want vibrant cores will have to steer this process, fast-tracking mixed-use conversions where feasible and, elsewhere, incentivizing new product that leans into energy performance, fresh-air volumes, end-of-trip facilities, and shared amenities. Occupiers are voting with their feet already—news flow shows numerous blue-chip tenants vacating older downtown addresses for newer, amenitized space—and the abundance era accelerates that sorting.

For portfolio construction, shift your lens from "buildings" to "systems." The assets that compound are those that lock in the scarce inputs: irreplaceable dirt in transit-served, amenity-rich nodes; air rights and zoning capacity that can be exercised; reliable power and water; and digitally pre-approved typologies that convert rights into square feet quickly. A ground-lease platform tied to prime urban land, or a land bank around university/healthcare/AI clusters, has more structural resilience than a portfolio of undifferentiated mid-1990s suburban boxes—even if the latter screens "cheap" versus yesterday's replacement cost. In Germany, where planning is tighter and prime land is scarcer, the same logic pushes you toward inner-ring, rail-served submarkets with densification pathways and toward buildings already at high energy-performance standards that users increasingly require. In the U.S., where suburban land and entitlements are more available in many metros, the "make" option will bite harder; hedge that by owning the places people actually want to be and by underwriting tenant experience and services as revenue, not cost centers.

The investment playbook that falls out of this is simple to state and hard to execute. Underwrite your office exposure as if replacement cost keeps falling and project cycle times keep shrinking. Pay for location, permissions, and operating moats; assume structures are commodities. In practical terms: overweight land-anchored downtown sites with strong multimodal access and policy support; own entitled, power-ready campus sites in tech/biomed corridors; back platforms that have industrialized fit-out and building operations so they can monetize services (energy, connectivity, hospitality, flex suites) on top of base rent; and be highly selective with "value-add" plans that rely on expensive retrofits of deep, obsolete floor plates. Finance with low leverage, long, laddered debt; treat 2026–2028 maturities as a risk that should be solved proactively; and prefer managers who can prove entitlement velocity and cost certainty rather than promising cap-ex heavy repositionings. If you must own commodity suburban, demand a price that

assumes rents in the low-to-mid 20s per foot gross are the new competition—because for many occupiers, they will be when building gets cheap.

Banks in an Abundance Economy — Credit, Collateral, and Control

For banks, the headline change is simple but profound: as automated construction drives structure costs down and cycle times down, the old “replacement-cost backstop” under real estate collateral weakens. Value concentrates in what cannot be mass-produced quickly—land, legally enforceable rights to build or change use, and dependable access to power, water, and data. Credit models, appraisals, covenants, and workout playbooks that still treat walls as durable wealth will deliver higher loss-given-default and noisier valuations; institutions that pivot their underwriting to land and rights will see more stable recoveries and better share.

The first step is collateral truth-telling. Appraisals should decompose every pledge into land, improvements, entitlement status, and utility capacity, with that split carried through the legal documents. Loan-to-value limits and monitoring then apply not just to the whole but explicitly to the land component, while the improvement component is treated more like equipment—useful, but with faster economic depreciation in markets where a fresh building can be produced quickly and cheaply. Banks should give positive credit to assets that bank hard rights—zoning headroom, pre-approved typologies, executed utility letters—and apply heavier discounts to assets that require discretionary approvals or uncertain interconnects. Marking discipline must also change: where improvement share is high, require more frequent re-marks and trigger reappraisals when rights slip, utility timelines extend, or codes shift.

Underwriting should size loans to the rent floor, not to yesterday’s market rent or replacement cost. In elastic markets, a credible competitor can deliver space at a cost anchored by land, operating expenses, and a thinner capital charge; debt service coverage ratios and exit underwriting should reflect that competitive floor. Covenants need to move beyond Debt Service Coverage Ratio (DSCR) and Loan-to-Value (LTV) alone. Entitlement milestones, utility interconnect milestones, and conversion feasibility should sit alongside financial tests so that problems surface early and borrowers can pivot to an alternative use or, if necessary, to teardown without punitive consent cycles. Operating and resilience capital expenditure should be modeled as recurring rather than one-off, and sponsor assessment should tilt toward proven entitlement velocity, partnerships with industrialized delivery platforms, and strength in day-two operations and service revenues.

Construction and development lending remains critical, but the risk map changes. Automation reduces on-site labor risk and weather exposure, yet increases vendor, certification, and code-equivalence risk. Draws should be tied to independent quality assurance of modular systems, printed shells, and robotic Mechanical, Electrical, and Plumbing (MEP) work, with vendor performance guarantees and escrowed warranty reserves for first-of-type deployments. No major advances should occur until firm power and water are documented, or backed by

contractual utility commitments; in practice, grid readiness becomes a condition precedent akin to land title. Schedules need buffers for system certification and logistics rather than for labor hours alone, and exits should be pre-documented so that an office that won't lease can convert to residential or education without restarting approvals from zero.

On the household side, mortgage risk also shifts. Detached homes on scarce plots carry higher land share and better recovery characteristics than condominiums with thin land content and exposure to owners' association assessments. Automated valuation models should be refit to separate land from structure and to recognize when local replacement costs are collapsing. In catastrophe-exposed regions, underwriting should focus on total occupancy cost, including insurance and resilience capex, with debt-to-income caps that reflect insurance volatility. Product menus can evolve toward land-forward lending—secured lines against plots with build-to-order draw features—priced for higher prepayment and rebuild optionality when construction is easy.

For commercial mortgage books, segmentation by scarcity and exit optionality is decisive. In non-prime office, assume your tenant's outside option is to "make" at an annualized occupancy cost in the low-to-mid twenties per square foot when land is available; that is the real competition for your rent line. In prime central districts, the moat is land and ecosystem rather than capex-heavy retrofits that will compete poorly with cheap rebuilds; underwrite to that moat and be unwilling to finance expensive repositionings that lack a rights-or-location edge. In multifamily, commodity suburban assets should be underwritten to lower rent floors and higher downtime unless the sponsor controls land and entitlements that create a defensible position. Expanding ground-lease and land-backed lending makes sense in this regime: structure senior claims on land value with improvements sitting in mezzanine or equity where appropriate. For conversions, banks should pre-clear legal and technical hurdles and provide flexibility to swing proceeds between retrofit and rebuild as economics dictate.

Securitization and covered funding need to recognize the same reality. Commercial mortgage pools heavy in improvement value and light on rights warrant higher modeled severities and tighter structural protections; servicers should be mandated and funded to pursue conversion or teardown outcomes rather than to preserve obsolete shells. Residential pools should adjust severity and prepayment behavior where rebuild economics accelerate mobility and should treat insurance availability as a trigger for servicer advances. In covered bond frameworks that lean on mortgage lending value, eligibility criteria should codify a minimum land share and dial back where improvement value dominates. Across formats, disclosure should include the land/structure split, entitlement status, grid access, and insurance conditions so investors can price risk rather than guess it.

Accounting and capital frameworks also need an abundance lens. Expected credit loss models under Current Expected Credit Loss (CECL) or International Financial Reporting Standard (IFRS) 9 should include structural scenarios with faster depreciation of improvements, lower rent floors in elastic markets, and longer re-tenanting times for non-prime assets. Supervisory stress tests should add an "abundance shock" with rent declines, improvement haircuts, insurance spikes, and conversion delays. Basel slotting for specialized lending can reward assets with

strong rights and capacity while recognizing higher Loss Given Default (LGD) where land share is low. Provision overlays should key off real-time signals—permit times, industrial power prices, interconnect queues, vendor defect rates—rather than broad macro proxies alone.

Funding and interest-rate risk will show second-order effects. Faster project ramps change the cadence of construction draws, so asset–liability management needs more flexible terming and contingent liquidity. As rent growth compresses in elastic markets, valuation beta to rates rises for non-prime books, and hedging should reflect that sensitivity. Owner-occupier rebuild dynamics can shift prepayment speeds and deposit flows; those dynamics should be embedded in interest-rate risk in the banking book models rather than inferred after the fact.

All of this requires a different data and operating stack. Banks should build a geospatial collateral system that fuses parcel-level land values, entitlement layers, permit times, utility capacity maps, climate risk, and insurance availability into a single underwriting view. A live registry of certified industrialized systems, approved vendors, and defect histories helps risk-weight construction credits. Early-warning dashboards should track permit cycle times, the share of automated delivery, industrial power prices, interconnect queues, rent-floor convergence, and insurer withdrawals. Workout playbooks should be pre-baked for conversion or teardown outcomes so special servicing is fast and measured rather than improvisational.

For governance, the agenda over the next six to twelve months is clear. Credit policy should be rewritten to require land-structure splits and to insert entitlement and utility covenants into core documents. Sector appetites should be re-tiered away from commodity improvements in elastic markets and toward land-anchored urban sites and assets with certified conversion paths. Risk models should embed abundance scenarios and size DSCR to rent floors. Banks benefit from standing up a utilities-and-entitlements desk to standardize diligence and unblock critical path items, from refreshing the product shelf to include land-secured and conversion-friendly loans, from auditing insurance resilience across collateral, and from training appraisers and credit officers in industrialized construction, code equivalence, and rights valuation.

The bottom line is that real estate credit is no longer a bet that buildings last and get dearer. It is a bet on where you are, what you are allowed to do there, and how quickly you can switch uses when demand changes. Banks that align collateral, covenants, capital, and data with that reality will post lower severities, faster workouts, and steadier earnings through the next cycle; banks that cling to the old replacement-cost worldview will learn that cheap walls can make for very expensive mistakes.

Lets look into what happens to two real-world style banks if building costs crash and rents follow, and what that means for their investors.

In the United States, imagine a property-heavy regional lender much like New York Community Bancorp (NYCB): lots of apartment and office loans, many written when “replacement cost” was a safety net and rent growth looked steady. Now apply our abundance scenario. If new space can be built cheaply and quickly, average rents in elastic submarkets step down. Suppose a typical multifamily/office mix sees Net Operating Income (NOI) fall 15–30 percent by the early

2030s while operating costs do not fall in lockstep. The Debt Service Coverage Ratio (DSCR)—NOI divided by annual debt service—compresses from, say, 1.40× to near 1.10–1.20×. That does not always trigger immediate default (many U.S. loans are interest-only for a period), but it breaks refinancing math at maturity: lenders often require at least 1.25× DSCR, so the new maximum loan size shrinks even if interest rates are unchanged[20]. At the same time, appraisals are marked lower[21] because the "replacement cost floor" has evaporated. The Loan-to-Value (LTV) ratio—loan amount divided by collateral value—jumps, covenants get tripped, and the bank has to choose between extensions, partial paydowns, or taking the keys. Loss Given Default (LGD)—the percentage loss after workout—rises on commodity buildings because the walls are easy to replace; only the site and the rights to use it anchor value. For shareholders, this shows up as higher provisions, lumpier earnings, pressure on dividends, and a greater risk of dilutive capital raises to protect regulatory ratios. For bondholders, spreads widen and sub-debt looks riskier. Depositors are generally insulated by insurance, but funding can get more expensive, and weaker lenders can be merged. If the bank changes course now—underwriting to a rent floor set by land and operating costs, sizing loans to the land component (for example, an explicit LTV on land), and hard-wiring covenants around permits and utility hookups—it can still make money on real estate. If it doesn't, it enters a long grind of low returns and sporadic losses as 2026–2030 maturities hit under a lower-rent world.

In Germany, picture a Pfandbrief (covered-bond) lender like Deutsche Pfandbriefbank: concentrated in commercial real estate across Europe, funded with Mortgage Lending Value (the conservative "Beleihungswert") that is meant to be more stable than market value. The same abundance mechanics apply but flow through the system differently. If rents for commodity space fall 10–20 percent in the big-seven office and residential markets while energy, insurance, and municipal charges remain sticky, cash flows thin out. Mortgage Lending Value is slower to move than market value, but over time it is pulled down by lower sustainable income. That means tighter headroom in cover pools, more overcollateralization tied up in the Pfandbrief, and less flexibility elsewhere on the balance sheet. For equity investors, the result is subdued return on equity while provisions rise and legacy U.S. or non-prime office exposures are worked down. For Pfandbrief investors, the structure is designed to protect you—conservative valuation, mandatory overcollateralization, ongoing supervision—but primary spreads can stay wider for issuers whose collateral is heavy on improvements with weak location rights. If the bank adapts—tilting new lending toward land-anchored urban sites, making entitlements and grid access the core of collateral, and financing conversions or teardowns rather than throwing good money after bad retrofits—it can preserve credit quality and funding access. If it doesn't, investor patience is tested by a multi-year earnings drag and occasional marks in the cover pool, even if outright bond losses remain unlikely.

And let's also quickly talk about long-term financing. That is the sting in the tail. Long terms do not save you if the refinance "exit" assumes yesterday's rent and today's rent is lower. In both countries, many loans have bullet or balloon features: when they roll, the new loan is sized to the current NOI and to a minimum DSCR. A 20 percent drop in NOI plus a small rise in required

[20] **Federal Reserve Board (Apr. 2025).** *Financial Stability Report*.
[21] **FDIC** – Risk Review 2025

yield can easily force a 25–35 percent cut in the loan amount. Unless the borrower brings cash, the bank extends, restructures, or takes collateral at a time when the LTV is already higher because values fell. That is how a slow-moving problem becomes a capital and earnings problem for lenders who do not adjust.

Are we on the cusp of a new banking crisis? Based on the mechanics above, this looks more like a grinder than a sudden break. U.S. deposit insurance and stronger capital, and Germany's Pfandbrief safeguards, make a 2008-style cascade unlikely. But for property-centric banks that refuse to pivot—from "we lend against walls" to "we lend against land, rights, and grid capacity"—the next five to seven years will feel like a rolling mini-crisis: recurring provisions, awkward refinancings, higher funding costs, and underperformance versus peers who changed. For their investors the implication is simple. Equity that backs a legacy book heavy in commodity buildings and light on land and rights will likely deliver low, volatile returns; equity in lenders that re-underwrite to the new rent floors and rotate into land-anchored credit should compound again once the book is cleaned. Senior covered-bond investors in Germany will probably be fine but should expect spread dispersion; unsecured bondholders in the U.S. should price extra cushion for lenders that are slow to adapt.

A Regulatory Roadmap for an Abundance Era

This chapter translates the thesis—structures get cheap, land and rights become the moat—into a practical playbook for governments and a screening framework for investors. The aim is to accelerate the safe diffusion of automation while shifting revenue systems from taxing replaceable "walls" to capturing location value. Read it as both a roadmap for city and national policymakers and a due-diligence guide for capital allocating across jurisdictions.

Policy north star

Treat buildings as rapidly reproducible products and locations as scarce infrastructure. That means clearing the path for industrialized delivery (factory/off-site + on-site robotics), standardizing approvals, wiring sites with power/water/data capacity, and realigning taxes and fees from improvements to land and location value. Wherever law and infrastructure make that possible, rents will converge toward "land + opex" floors; where they do not, scarcity premia persist. Investors should therefore overweight places that adopt these reforms first.

Land, tax, and value capture

Realign the fiscal base toward land and rights while removing friction from structure replacement. Replace or rebalance property taxation so that the burden sits on the unimproved site value rather than on improvements; split-rate models (higher rate on land, lower on structures) preserve incentives to replace obsolete buildings and are politically easier to phase in. Pair this with robust land-value capture so that public actions—upzoning, transit, grid upgrades—fund themselves: betterment levies when entitlements rise, special assessment

districts around new stations, and tax-increment frameworks that ring-fence a share of uplift for infrastructure. Recalibrate development charges: reduce or waive fees that penalize industrialized methods and structure replacement; shift to transparent, formula-based contributions tied to incremental land rights and network capacity. For investors, these moves are green lights: they protect the economics of frequent renewal and anchor returns in site value rather than in fragile replacement-cost narratives.

Zoning, entitlements, and permitting

Codify “by-right” pathways and make speed the default. Standardize typologies for industrialized delivery—mid-rise modular, printed shells, repeatable cores—and publish pattern books with pre-approved details so code review becomes a checklist, not a design negotiation. Move plan intake to digital twins/BIM and machine-readable codes; enforce statutory clocks with real consequences (fee rebates, deemed-approved rules) when agencies miss service levels. Collapse discretionary steps by expanding by-right envelopes near transit and utilities, abolishing parking minimums, and adopting form-based codes that regulate outcomes (height, massing, energy performance) rather than methods. Introduce “silence-is-consent” rules for minor works and standardized alterations. For conversions (office-to-residential), issue a companion code with clear equivalencies for egress, light, acoustics, and façade retrofits; pre-screen parcels by floor-plate depth, bay spacing, and envelope to make eligibility obvious. Investors should track the three metrics that matter most: median permit time, share of by-right approvals, and the percentage of applications processed end-to-end digitally. Where those are improving, supply elasticity—and thus rent compression—will arrive on schedule.

Utilities, power, and site readiness

Abundance fails without electrons, water, and fiber. Create a one-stop “utility window” with binding service-level agreements for connections and upgrades. Publish live capacity maps (feeders, substations, pressure zones) and queue dashboards; allow developers to fund standardized upgrade kits against fee credits. Encourage site-level microgrids (PV + storage), standardized interconnection packages, and pre-approved trenching corridors to cut lead times. Treat utility readiness as part of “land value”: a plot with firmed capacity and a clean interconnect path is a different asset than one without. Investors should price “grid-ready” status like a zoning bonus and discount jurisdictions with opaque queues.

Codes and liability for automated builds

Shift codes from prescriptive recipes to performance outcomes. Create a certification regime for industrialized systems (modules, printed structural walls, robotic MEP installation) with third-party QA/QC so that repeated use across sites is routine. Provide legal safe harbors and warranty frameworks that assign responsibility cleanly across software, machines, and installers; require escrowed warranty reserves or insurance backstops for first-of-type systems, then lower them as track records emerge. This reduces headline risk and accelerates lender

comfort. Investors should favor platforms with certified systems, audited factories, and performance guarantees that survive contractor turnover.

Transport, access, and minimum viable density

Cheap houses without access are fiscal traps. Align land release with an automated transit stack: on-demand electric shuttles feeding trunk bus/rail, priced curbs, and safe active-mobility corridors. Set minimum density envelopes around hubs (floor-area ratios, lot coverage) and adopt mobility-as-a-service subscriptions that bundle transit with housing, so low-density growth remains serviceable as operations automate. Where these elements show up, larger footprints do not automatically blow out municipal budgets—and investors can underwrite dispersion without betting against the city's balance sheet.

Climate, resilience, and insurance

A structure that is cheap to rebuild is not a substitute for a bad site. Embed climate-risk pricing into approvals (flood, heat, wind) and let insurance premia and resilience requirements reflect true risk. Reward low-embodied-carbon systems (cement substitutes, timber/composites) and high operational performance with expedited review and impact-fee discounts[22]; publish resilience playbooks so investors can quantify capex to protect NOI. Red-flag jurisdictions where insurance availability is collapsing or where resilience mandates are unpredictable; green-flag places with transparent hazard maps, stable underwriting, and fast resilient-retrofit lanes.

Procurement and public-private delivery

Let the public sector de-risk the learning curve. Pre-procure modular/industrialized frameworks at the state or city level with performance specs (energy, acoustics, IAQ, accessibility), not brand lock-ins; open those contracts to private and non-profit developers. Stand up "rapid housing" and "rapid conversion" units to push pilots through, document cost/time wins, and update codes. Offer density bonuses, tax abatements, or ground-rent rebates for projects that use certified industrialized methods and deliver affordability or key-worker housing. Investors should read these frameworks as signals: if the city can deliver quickly on its own land, private timelines will follow.

Workforce and political economy

De-risk politics with a credible transition plan. Fund reskilling at community colleges for factory assembly, robotics maintenance, digital permitting, building operations, and energy management. Require local assembly content at reasonable thresholds when granting expedited approvals. Tie "automation dividends" to visible public goods—parks, schools, transit—financed from land-value capture. The point is not to slow automation but to make its

[22] **Chatham House Report** „Making Concrete Change"

benefits legible to voters; that is how reforms survive election cycles and how investors get policy durability.

What this does to risk and return

These reforms flatten construction and entitlement risk, shorten cycle times, and make revenue more predictable. They also compress scarcity premia on commodity structures and shift value into land, rights, and operating excellence. For equity, that means lower development risk premia but also lower long-run rent growth in unconstrained submarkets; returns re-center on land selection, entitlement velocity, and platform margins from services (energy, connectivity, hospitality, flex). For debt, it means better construction completion probabilities and more stable DSCRs when assets sit on grid-ready, by-right sites—but it also argues for underwriting less value to improvements over long tails. The jurisdictions that embrace this roadmap will see faster delivery, lower rents, and stronger fiscal resilience; they will also attract the cheapest capital. Those that do not will keep today's scarcity rents for a while, but at the cost of fiscal stress and future obsolescence risk.

The Rising Importance of Land Value

If houses can be built for "next to nothing," owning a house per se will no longer be a status symbol or investment; owning land will. Land is the truly scarce factor – "they're not making any more of it," as the saying goes. We can imagine a future where the phrase "real estate" essentially means *land*, because the buildings are cheap and interchangeable. The market would capitalize desirability (location, proximity, environment) into land prices, while treating structures as easily replaceable. In economic terms, land rent – the value accruing to location – would capture most of what people are willing to pay for housing.

Empirical data already show land's share of home value tends to rise when housing supply increases. For instance, as construction methods improve and more units are built, the cost of structures goes down relative to the cost of well-located plots. One online discussion of future real estate put it succinctly: as robotic construction drives building costs down to raw material levels (tens of thousands of dollars per house), "the price of the land will begin to appreciate rapidly." In other words, any savings in construction may translate into higher land prices (at least in popular areas) because people will bid up the limited number of prime locations. *Landowners*, not homebuilders, could reap much of the value from the new technology.

For investors, this suggests a strategic shift: invest in land, not buildings. A plot of land in a high-demand location could be incredibly lucrative in a future where everyone can afford to construct a large home on it. Conversely, owning an old house (especially in an area with ample space to build new) could be a liability – its resale value might collapse once buyers realize they can build a brand-new custom home for a few pennies on the dollar. The traditional real estate strategy of flipping houses or renting out homes might yield poor returns; instead, leasing or developing land could be the main way to profit. We might even see a surge in land investment funds or land cooperatives, as stakeholders recognize the shifting value proposition.

From a policy perspective, this raises some challenging questions. If land becomes the primary source of real estate value, issues of land ownership and distribution come to the fore. Land inequality could become even more pronounced if the wealthy acquire large tracts in anticipation of this trend. On the other hand, some economists have long advocated a land value tax – taxing the unimproved value of land – as a fair way to redistribute the gains from land scarcity. In a world where structures add little value, a land value tax might gain traction as a means for society to benefit from technological housing gains (and to prevent speculative land bubbles). Governments may also need to regulate land development to avoid uncontrolled sprawl, since ultra-cheap building could otherwise lead to reckless use of land (people might erect enormous mansions or multiple homes, consuming more land area per person).

For the public purse, the shift from costly structures to cheap, replaceable shells moves the tax base from improvements to land. In the United States, local governments that have leaned heavily on property taxes tied to assessed improvements would see an erosion of that slice as structures depreciate toward their near-zero replacement cost. The stable anchor becomes the site value. A pragmatic transition is to rebalance toward split-rate or land-value-dominant assessments, so that rising location value is captured while the incentive to replace or upcycle obsolete buildings is preserved. Value capture around rezonings and transit investments becomes more important because the growth in public-created locational value is where the money is. States can smooth volatility by diversifying toward broad consumption bases and usage pricing for infrastructure whose operating costs also fall as labor is automated. Germany confronts a similar logic under different institutions: as cheap structures depress the justification for taxing improvements, municipal funding models perform better when the Grundsteuer is firmly land-centric and when planning gains are routinely harvested to finance enabling infrastructure. Across both systems, the transition needs guardrails for debt service on legacy tax bases, clarity on assessment methods that cleanly separate land from structure, and phased-in schedules that avoid fiscal cliff effects for school districts and cities.

Another dynamic to consider is location preferences in a post-work society. If jobs no longer dictate where people live (because work is automated or remote), demand for land might spread out from today's urban centers. Some individuals might choose spacious rural or suburban plots if they can build palatial homes for cheap, potentially reducing pressure on city land. Others may still cluster in cities for cultural and social reasons, keeping urban land extremely valuable. It is unclear which force will dominate. We might get *both*: thriving cities (for those who crave urban life and amenities) and also development of currently sparse areas as housing costs cease to be a barrier. In either case, the intrinsic qualities of land – climate, scenery, proximity to attractions or community – will determine its value, since building a comfortable home on it is trivial.

Bigger Homes and Changing Desires

One likely consequence of near-zero construction costs is that people will simply build bigger and more elaborate homes. When cost is no object, why settle for a 3-bedroom, 2-bath house? If you can build a mansion for the same price that a modest house used to cost, many will do

so. As the question posed: if you originally budgeted $1 million for a house but now it only costs $10,000 to erect that house, you might decide to build a house 100× larger (spending the same $1 million and getting a 1,800 m² villa instead of a 180 m² home). While 1,800 m² (nearly 20,000 ft²) per family sounds extreme, in a world of abundance it could become feasible. Historically, as societies become wealthier, average home size tends to increase – for example, in the U.S., new homes have grown from about 1,500 ft² in 1970 to over 2,300 ft² today as incomes rose. If building costs approach zero, the only limits to home size would be space and maintenance.

This trend would put further pressure on land. Larger homes need larger lots (or taller structures). If everyone desires a sprawling estate, land consumption per household would surge. This could clash with environmental and sustainability goals, as natural land gets gobbled up. It might lead to new regulations on lot sizes, or a cultural shift favoring efficient design despite low cost. Alternatively, advanced architectural tech (like building upward or underground) could allow mega-homes without huge surface footprints. But regardless, the psychology of housing demand will evolve: homes will not be constrained by cost, only by imagination, zoning, and personal needs. We might see fantastical dwellings – futuristic architectures, personalized designs – proliferate when automation frees us from traditional building constraints. The *amenities* inside homes would also scale up: home theaters, indoor gardens, private gyms and pools could be commonplace when adding extra rooms or features is so cheap.

From a market standpoint, this means today's definition of "luxury real estate" would be upended. Currently, mansions and premium finishes carry a high price tag; in the future, high-end materials might also be cheaply synthesized (e.g. AI-created composite materials mimicking marble or rare wood at low cost). Luxury might be defined more by location and exclusive land (e.g. a private island or a hilltop view) than by the house itself, since even a middle-class person could afford a palace in principle. Real estate investors and developers would need to shift focus: rather than selling expensive construction, they may sell experiences or communities – things that remain scarce – or unique locations.

There is also a scenario in which housing becomes so abundant and cheap that it's no longer seen primarily as an investment at all, but purely as consumption (a place to live). In that case, *the commodification of housing could actually decrease*. If everyone can own a home easily, the rental market might shrink (why rent when you can build your own virtually for free?). Real estate could cease to be a speculative asset class for individuals. Society might even choose to de-commodify housing: governments could provide automated-built homes to all citizens as a public service, the way we build public schools or libraries, ensuring baseline shelter. The politics of housing would drastically change when it's technically easy to give everyone a home. Debates might shift from "how do we finance and build affordable housing?" to "how do we allocate land and prevent overbuilding?" – a reversal of current challenges.

Dispersion, Mobility, and the Automated Transit Stack

Cheaper houses induce bigger houses, and bigger houses induce dispersion. When the marginal euro spent on structure buys outsized comfort, many households trade proximity for

space, especially where land is plentiful. That pushes up vehicle-kilometers traveled unless mobility systems adapt. Fortunately, transport operations are themselves labor-intensive today, so autonomy shifts the cost curve for buses, shuttles, and demand-responsive services. The efficient pattern in low-density geographies becomes a hub-and-spoke network of automated feeders connecting to higher-capacity corridors, with frequencies tuned by algorithms rather than headcount constraints. Cities that embrace this quickly can support a larger footprint with acceptable travel times and lower subsidies per passenger-kilometer. Those that do not will find sprawl fiscally painful, because fixed-route transit designed for pre-automation costs will be misaligned with new settlement patterns. Policy will matter: minimum density thresholds around stations, curb pricing and utility pricing that internalize the externalities of very large homes, and streamlined rights-of-way for automated fleets keep the transport system financially and environmentally sane while allowing households to express their preference for space. We will not dive into this topic further as this would need a full paper on its own.

From Listings to Land—The Future of Brokerage

The real-estate agent's craft evolves from matching people to boxes toward unlocking location and permissions. When buyers can generate high-fidelity digital twins, simulate sun paths, energy loads, and interior flows, and order a house the way one orders a car, the informational rent of listing access and basic guidance vanishes. What remains valuable is a bundle of advisory skills: assembling and optioning parcels; navigating zoning, environmental review, heritage overlays, and utility connections; structuring ground leases and air-rights deals; underwriting office-to-residential conversions; and orchestrating public-private arrangements that capture planning gains for both community and client. Fee models likely unbundle: lower, transparent transaction fees for commodity trades and premium retainers or success-based fees for entitlements, complex assemblages, and cross-border site strategies. Agents who invest in geospatial analytics, permitting workflows, and stakeholder engagement become indispensable even as the act of "finding a house" becomes trivial. In short, the center of gravity shifts from sales to strategy, from listings to land.

Counterfactuals — What Could Break (or Delay) the Thesis

This chapter pressure-tests the core claim that cheap, automated construction shifts value from buildings to land and compresses rents outside land-scarce nodes. We lay out concrete failure modes, the mechanisms by which they would blunt or reverse our outcomes, threshold values that would meaningfully alter the trajectory, leading indicators to watch, and practical mitigations for investors and policymakers.

1) Slower-than-expected robotics and site automation

Mechanism: If on-site labor cannot be substituted at scale, the labor wedge in construction remains large and cycle times stay long.
Thresholds to watch: median on-site labor hours per dwelling falls by <40% by 2030; fewer than ~10–15% of new homes use any form of robotic printing/placement/automated finishing;

general-purpose construction robots remain pilot-only.
Early indicators: unitized/DFMA adoption rates; share of projects delivered with autonomous equipment; warranty/defect rates for automated builds.
Mitigation: shift thesis weight from “on-site robots” to “factory prefabrication + standardized typologies”; underwrite only where industrialized off-site is permitted and logistically viable.

2) Materials and supply-chain bottlenecks (cement, aggregates, steel, timber, chips)

Mechanism: Even if labor collapses, materials may become the binding constraint—prices and delivery times prevent costs from approaching our low ranges.
Thresholds: global cement or rebar indices >+40% real vs. 2024 baseline for ≥3 years; lead times >6–9 months for critical components (HVAC, switchgear); construction logistics costs >10% of total.
Signals: persistent port congestion, export controls, sanctions, or carbon pricing shocks on clinker and steel.
Mitigation: favor structural systems that can substitute materials (light-gauge steel ↔ engineered timber ↔ 3D-printed composites), and back platforms with multi-sourcing and inventory buffers.

3) Energy price and grid constraints

Mechanism: Automated fabrication is energy-intensive; high power costs and long interconnection queues raise both build and operating costs.
Thresholds: levelized electricity cost (industrial) >€100/MWh in target regions for ≥5 years; grid interconnection lead times >24 months for new neighborhoods; transformer shortages unresolved.
Signals: utility queue backlogs, curtailment rates, lengthening feeder-upgrade timelines.
Mitigation: prioritize sites with firmed power (on-site PV + storage), microgrids, and proven interconnect capacity; partner with utilities early; price in grid upgrades as quasi-land cost.

4) Entitlement and code inertia (NIMBY, heritage, seismic/fire codes)

Mechanism: If approvals still take years, abundance cannot hit the ground. Building codes that lag new methods force costly “dual compliance” or constrain typologies.
Thresholds: median time-to-permit >9–12 months; <20% of jurisdictions offering pre-approved automated/industrialized templates by 2030; legal defeat of by-right upzoning.
Signals: litigation rates on infill; adoption of pattern books and digital permitting; conversion fast-track hit rates.
Mitigation: invest in jurisdictions with by-right regimes and digital permits; avoid assets reliant on variance-heavy plans; overweight land tied to specific, already-approved templates.

5) Interest-rate and credit shocks

Mechanism: High real rates raise capital charges, eroding the advantage of “make” over “lease” and slowing new supply. Credit tightness also delays platform scaling.
Thresholds: real corporate borrowing costs >3% for ≥3 years; development spreads (exit cap –

cost of capital) <150 bps; construction loan advance rates <50%.
Signals: bank construction lending standards, CMBS/covered bond issuance, cap-rate/rate beta.
Mitigation: back low-leverage, long-dated fixed debt; sequence projects with forward-sales; keep dry powder to buy entitled land during credit air-pockets.

6) Demand shortfalls (demography, migration, work patterns)

Mechanism: If household formation stagnates and office attendance structurally rebounds in CBDs, the pressure to add housing outside cores weakens.
Thresholds: household formation <0.5% CAGR for 5 years; effective office utilization >80% of 2019 levels in top CBDs; negative net migration in target regions.
Signals: lease badge-swipe series, school enrollment, immigration policy shifts.
Mitigation: favor regions with structural in-migration, universities/healthcare anchors, or policy-backed growth corridors; prefer mixed-use that can flex between residential/office/hospitality.

7) Insurance, climate, and resilience costs

Mechanism: Disaster risk and rising insurance premia become the dominant operating line item, keeping rents high even if structures are cheap and depressing land in exposed zones.
Thresholds: catastrophe-exposed counties where insurance + hardening >12–15% of gross potential rent; lenders impose red-lining on high-risk tracts.
Signals: insurer withdrawals, premium step-ups, hardening capex mandates.
Mitigation: screen climate-adjusted yields; require site-level resilience plans; differentiate between rebuildable cheap structures and non-insurable locations.

8) Cultural/consumer preference for “heritage” and status goods

Mechanism: If affluent demand shifts to pre-war or iconic stock, scarcity premia persist for old buildings regardless of cheap new build.
Thresholds: price premia for heritage stock >40% and widening; low take-up of new typologies in luxury segments.
Signals: resale spreads, time-on-market by vintage, luxury absorption.
Mitigation: treat heritage as a separate asset class; don’t extrapolate deflation in commodity structures to architecturally scarce segments.

9) Legal liability and warranty overhang

Mechanism: Early automated builds face defect litigation and recalls; insurers and lenders price in uncertainty, slowing adoption.
Thresholds: defect claim rates >2–3× conventional builds; warranty reserves >5% of project cost; blanket exclusions by major insurers.
Signals: court dockets, insurer policy language, manufacturer recall data.
Mitigation: invest behind mature platforms with proven QA/QC, third-party certification, and performance guarantees; avoid first-gen tech without track record.

10) Policy backlash against automation

Mechanism: “Robot taxes,” protectionist procurement, or local labor minimums blunt cost declines and slow diffusion.
Thresholds: mandatory local-labor requirements that add >15–20% to project cost; taxation of automated processes equivalent to >200 bps on project IRR.
Signals: ballot initiatives, union agreements, procurement rules.
Mitigation: align with public objectives—workforce transition programs, local assembly, affordability covenants—in exchange for by-right approvals and expedited permits.

Decision thresholds that would change our conclusions

If any of the following persist into the early 2030s, assume a slower or partial version of our thesis:

- Time-to-keys (permit to occupancy) remains >12–15 months in most target jurisdictions.
- Shell + systems costs for low-rise residential fail to break below ~$120–$150 per ft² (≈€1,300–€1,600 per m²) all-in by 2030, or per-unit build cost (ex land) stays >$100k/€100k for typical units.
- Industrial electricity prices average >€100/MWh and grid interconnects take >24 months.
- Real borrowing costs stay >3% and development spreads compress <150 bps for multiple years.
- Insurance + resilience costs exceed ~12–15% of gross rent in broad geographies, not just edge cases.
- Share of automated/industrialized delivery in new housing remains <15% by 2030.

If, conversely, we observe: median permit times <6 months; automated/industrialized delivery share >30%; shell + systems trend toward $80–$120 per ft²; grid interconnects <12 months; and real borrowing costs normalize around 1–2%—the abundance dynamics and the migration of value to land and rights likely accelerate relative to our base case.

What to monitor (and how to react)

- Adoption: quarterly share of projects using industrialized/automated methods; cycle time from permit to occupancy. If adoption stalls, overweight land in already-scarce cores and deprioritize peripheral abundance plays.
- Inputs: cement/steel indices, utility interconnect queues, transformer lead times, industrial power prices. Tight inputs → temper rent-deflation assumptions and extend hold periods.
- Policy: by-right upzoning, pattern books, digital permitting, conversion fast-tracks. Green lights here → raise your supply elasticity in models and lower rent floors accordingly.
- Finance: bank construction lending standards, CMBS/covered bond spreads, REIT capex pipelines. Tight credit → slower diffusion → favor prime land and high-quality cash-flowing assets.

- Risk: insurance quotes and exclusion trends; climate-adjusted yield spreads. If risk premia rise broadly, treat resilience as a revenue-protecting capex, not as optional.

Investor and policy mitigations in one page

Investors: pay for location and rights, not walls; buy sites with pre-approved templates and firm power/water; keep leverage low with laddered maturities; build optionality (conversion rights, air rights) into every asset; and avoid paying 20th-century “replacement cost” premia for commodity buildings. Policymakers: unlock permitting speed, adopt pattern books for industrialized delivery, align taxes to land value over improvements, and clear the grid bottlenecks that turn abundance on paper into scarcity on the ground.

Conclusion

This paper argues a simple shift with far-reaching consequences: Artificial Intelligence in combination with robots will significantly reduce building time and cost in a very sshort timeframe. As automation and industrialized construction drive the marginal cost of buildings toward trivial levels, value in real estate migrates from what stands on a parcel to where it stands and what you are allowed and able to do there. Our modeling shows that when delivery becomes fast and cheap, rents in elastic markets converge toward a floor set by land, operating costs, utilities, and rights—not by replacement cost. The result is a persistent wedge between locations that are scarce in law and infrastructure and those that are not, between permissioned, grid-ready sites and commodity addresses that can be outbuilt.

For households and firms, abundance changes the decision calculus. When structures are inexpensive and cycle times are short, owning or producing your own space often beats leasing in unconstrained submarkets; in central business districts with expensive land and slow entitlements, leasing remains strategic, but the negotiating power tilts toward users. For investors, the durable assets are not “walls” but site control, entitlements, and operating moats—the ability to densify, to switch use quickly, and to monetize services (energy, connectivity, hospitality, flexible space) on top of base rent. Portfolios overweight land-anchored, permission-rich assets compound; portfolios concentrated in commodity improvements face rent compression, higher downtime, and more capex just to stand still.

For banks, the abundance era retires the old comfort of “replacement-cost backstops.” Credit quality hinges on land share, rights, and grid access, not on yesterday’s appraisal of a shell. Lenders that underwrite to rent floors, cap loan-to-value on land as a separate covenant, and pre-clear conversion paths will see steadier recoveries. Those that keep treating improvements as durable wealth will discover that cheap walls make for expensive mistakes at refinancing walls in 2026–2030 and beyond.

For policymakers, the roadmap is clear and actionable. If you want abundance to show up as lower rents rather than as frustration, you must speed by-right approvals, publish pattern books for industrialized typologies, digitize codes, and clear the power and water bottlenecks that

silently gate supply. Tax systems should tilt toward land value and transparent value capture, not penalize replacement and renewal. Do this well and you get faster delivery, a healthier fiscal base, and better climate outcomes per square meter; do it poorly and you preserve scarcity rents for a time—at the cost of rising social pressure and stranded stock.

None of this is deterministic. We mapped counterfactuals that could slow or localize the thesis: sluggish adoption of robotics, stubborn materials costs, tight grids, legal inertia, high real interest rates, climate-driven insurance shocks. That is why we set measurable thresholds—permit times, industrial power prices, interconnection queues, adoption rates for industrialized delivery, vacancy and concession trends, conversion hit rates—so readers can track, in real time, whether their market is on the fast or the slow path.

The ethical and distributional stakes are high. Abundance can unlock space, comfort, and resilience for many more people—but only if we pair it with minimum-viable density, modern transit, and carbon-aware building systems. It can also shift wealth toward landholders unless we design fair value-capture and safety nets that share gains from public action and technology with renters and non-owners. Our fiscal sketches show that it is possible to finance this transition from the uplift that better rights and infrastructure create.

What to do now? Treat structure value as contestable and location value as foundational. Buy or lend where the law and the network make scarcity real. Underwrite as if replacement costs keep falling and project cycle times keep shrinking. Replace replacement-cost narratives with rent-floor math. Demand evidence—faster permits, pre-approved designs, firmed utility capacity—before you pay yesterday's prices. And keep a dashboard: the signals we propose are the early warnings that separate compounding strategies from stranded ones.

The market has not priced this shift at all. That is the opening. The next decade will not reward who owns the most walls; it will reward who controls the best places, the strongest rights, and the fastest paths from permission to product.

Abbreviations:

Banking & Finance

- Debt Service Coverage Ratio (DSCR): Net operating income divided by debt service; coverage of interest and amortization.
- Loan-to-Value (LTV): Loan amount as a percentage of collateral value.
- Loan-to-Value (Land Component) (LTV_land): LTV calculated on land value only (excluding improvements).
- Loss Given Default (LGD): Percentage loss after collateral recovery in a default.
- Expected Credit Loss (ECL): Probability-weighted loss estimate over a loan's life.
- Current Expected Credit Loss (CECL): U.S. GAAP standard for lifetime ECL measurement.
- International Financial Reporting Standard 9 (IFRS 9): Global accounting standard for classification, measurement, and impairment (includes ECL).
- Basel slotting: Regulatory "slotting" categories for specialized lending with prescribed risk weights.
- Asset–Liability Management (ALM): Managing maturity and interest-rate profiles of assets and liabilities.
- Interest Rate Risk in the Banking Book (IRRBB): Interest-rate risk on non-trading positions.
- Weighted Average Cost of Capital (WACC): Blended cost of debt and equity.
- Net Present Value (NPV): Present value of cash inflows minus outflows.
- Capitalization Rate (Cap rate): Net operating income divided by price (yield proxy).
- Real Estate Investment Trust (REIT): Listed real-estate company with special tax treatment.
- Open-End Diversified Core Equity (ODCE): Common U.S. benchmark for open-end core real-estate funds.
- Commercial Mortgage-Backed Securities (CMBS): Bonds backed by pools of commercial mortgages.
- Residential Mortgage-Backed Securities (RMBS): Bonds backed by pools of residential mortgages.
- Pfandbrief: German covered bond backed by mortgages or public-sector loans under strict rules.
- Mortgage Lending Value (Beleihungswert): Conservative, sustainable collateral value used for Pfandbrief eligibility.

Real Estate, Planning & Policy

- Central Business District (CBD): Core downtown office submarket.
- Building Grades A/B/C: Quality tiers; B/C denotes older or functionally obsolete stock.
- Floor Area Ratio (FAR) / Gross Floor Area Ratio (GFZ): Ratio of total floor area to site area.
- Land Value Tax (LVT): Tax emphasizing land value rather than improvements.

- Transit-Oriented Development (TOD): Higher-density, mixed-use development around transit nodes.
- Accessory Dwelling Unit (ADU): Secondary dwelling on a primary residential lot.
- Service Level Agreement (SLA): Contracted performance/response standards for services.

Construction, Technology & Operations

- Building Information Modeling (BIM): Digital building model for design, permitting, and operations.
- Design for Manufacture and Assembly (DFMA): Productized building methods optimized for off-site fabrication and rapid assembly.
- Quality Assurance / Quality Control (QA/QC): Processes ensuring build quality and compliance.
- Mechanical, Electrical, and Plumbing (MEP): Building systems (HVAC, electrical, plumbing).
- Operating Expenditures (OPEX): Recurring operating costs.
- Capital Expenditures (CAPEX): Investment outlays for construction or major upgrades.
- Photovoltaics (PV): Solar electricity generation.
- Indoor Air Quality (IAQ): Air quality inside buildings, tied to health and comfort.
- Automated Valuation Model (AVM): Algorithmic property valuation tool.
- Discounted Cash Flow (DCF): Valuation method based on present value of expected cash flows.

Society & Macro

- Universal Basic Income (UBI): Unconditional, regular cash payment to all citizens.
- Not In My Back Yard (NIMBY): Local opposition to new development.

Appendix

Appendix 1 - Office — 10-year NPV Bridge [23]

The below table illustrates the case:

- The column “NPV Delta (Own–Lease) ($)” tells you which option is cheaper over 10 years after discounting all cash flows (Net Present Value, NPV).
- If the number is negative, owning/build-to-own is cheaper by that dollar amount vs. leasing.
- If the number is positive, leasing is cheaper by that dollar amount vs. owning.
- The bigger the number (in absolute terms), the stronger the financial case.

How to interpret the rows you see:

- Suburban + Ambitious/Frontier automation (low shell-plus-fit-out costs, modest land cost per building square foot): you’ll typically see a negative NPV Delta—owning wins, often by many millions—because cheap build + low land beats 10 years of rent escalations.
- CBD (Central Business District) + Today costs (high land per building square foot, expensive fit-out): you’ll usually see a positive NPV Delta—leasing wins—because land is pricey and you don’t recoup the big upfront outlay within 10 years.
- Edge cases: if your Weighted Average Cost of Capital (WACC) rises, or your annual rent escalator falls, leasing looks better; if your operating expenses (OPEX) drop with automation, or you secure land cheaply, owning looks better.

Two quick rules of thumb from the table and the decision diagram:

1. Cheap shell+fit-out + cheap land ⇒ own. Once shell+fit falls toward ~$150/ft² (or below) and land is ~$50 per building ft², owning tends to beat leasing.
2. Expensive land ⇒ lease (unless automation is extreme). At ~$200+ land per building ft² in CBDs, leasing usually stays cheaper unless build costs crash into the “frontier” range and you operate very efficiently.

One conservative note: in the model we credit only the land as residual value at year 10 (we assume the structure is worth zero). That biases against owning. If your building would still command resale value, owning’s NPV would improve further.

Bottom line: scan the NPV Delta column—negative = buy/build, positive = lease—and use the magnitude as your confidence bar. Then ask: can you realistically hit the shell+fit-out, land, and OPEX assumptions in your market? If yes, you’ve got your answer.

[23] Cushman & Wakefield Office Fit-Out Cost Guide 2025

Table 1 - Office — 10-year NPV Bridge (Lease vs Build-to-Own)[24] [25]

Location	Scenario	WACC	Lease Y1 rent ($/ft²/yr)	Lease escalator	Shell+Fit ($/ft²)	OPEX ($/ft²/yr)	Land ($ per bldg ft²)	NPV Lease 10y ($)	NPV Own 10y ($)	NPV Delta (Own-Lease) ($)
Suburban	Today	0.08	55.0	0.025	300.0	10.0	50.0	61.060.976,00	59.091.171,00	- 1.969.805,00
Suburban	Ambitious	0.08	55.0	0.025	150.0	8.0	50.0	61.060.976,00	34.578.147,00	- 26.482.830,00
Suburban	Frontier	0.08	55.0	0.025	100.0	7.0	50.0	61.060.976,00	26.071.634,00	- 34.989.342,00
CBD	Today	0.08	75.0	0.025	300.0	10.0	200.0	83.264.968,00	71.169.317,00	- 12.095.650,00
CBD	Ambitious	0.08	75.0	0.025	150.0	8.0	200.0	83.264.968,00	46.656.293,00	- 36.608.675,00
CBD	Frontier	0.08	75.0	0.025	100.0	7.0	200.0	83.264.968,00	38.149.781,00	- 45.115.187,00

[24] CBRE Greater Los Angeles Office Figures (Q2 2025, PDF)
[25] JLL Berlin Office (Q2 2025)

Under the assumptions we used, the Net Present Value (NPV) "Own–Lease" column is negative across our rows, which means build-to-own beats leasing in every base case we modeled. That happens because (i) ten years of rent is a very large cash outflow, (ii) automation pulls shell-plus-fit-out costs down, and (iii) you still have the land at the end (we even credited only the land as residual, not the building, which is conservative for owning).

That does not mean leasing is dead. It means that, with our specific inputs—Year-1 gross rents of $55/ft² (suburban) and $75/ft² (Central Business District), a 2.5% annual escalator, an 8% Weighted Average Cost of Capital (WACC), land at $50 and $200 per building ft², Operating Expenditures (OPEX) of $10/8/7 per ft²/year, and only land credited at exit—owning wins.

When would leasing still be viable?

- Very expensive land. In our "Today" (non-automated) suburban case, bumping land from $50 to roughly $75 per building ft² flips the result so leasing edges out owning (holding everything else constant). In the "Today" CBD case, you need land closer to $350+ per building ft² before leasing overtakes owning at a 10-year horizon. Under automation (shell+fit $150 or $100), the crossover pushes even further—owning wins unless land is *extremely* dear.
- Shorter commitment. A 5- to 7-year decision horizon materially helps leases, because you avoid a big upfront outlay and you benefit less from residual land value in year 10.
- Higher cost of capital. If your WACC is materially above 8% (say, 12%+), the present value of the upfront build drops less than the present value of the rent stream, narrowing or reversing the gap.
- Lease economics sweeter than we assumed. If your lease is net (not gross), comes with meaningful tenant-improvement (TI) allowances and free-rent periods, or escalates more slowly, the lease NPV falls and can become competitive.

- Execution risk on owning. Where entitlements, utilities, or delivery risk are high, the real-world "time to keys" can tilt you back toward leasing even if the static NPV looks close.

So, the takeaway is: with today's rent levels and a 10-year horizon, automation pushes many submarkets into "own beats lease." Leasing still makes sense in land-scarce, permit-tight locations, for shorter horizons, when your cost of capital is high, or when the lease package (net rent + TI + rent-free) is genuinely sharp.