

WHITE PAPER

REAL ESTATE 2036

The Transition: Why the Real Estate Industry Underestimates the
Scale of Its Own Disruption

*A thesis paper on the real estate industry in the decade of artificial
intelligence*

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Preface

This paper advances a thesis that almost no one in the real estate industry currently holds: that artificial intelligence will not improve this industry but transform it, on a scale comparable to what is currently being said about software, media, consulting, or the automotive industry. The industry itself mostly sees things differently. It understands AI as a tool: as better service-charge accounting, as faster floor-plan design, as a lucrative new asset class called the data center. A leading US study on what AI will do to space demand weights the substitution scenario — the case in which AI replaces human labor at scale — at five percent.¹ Five percent. This paper is an attempt to direct the other ninety-five percent of attention to the question: what happens if the industry is wrong?

The core of the argument fits into three sentences. A building is capitalized human labor: the office is capitalized office work, the apartment capitalized wage income, the hotel capitalized service, the retail property capitalized consumption out of earned income. If artificial intelligence reprices human labor — and that is precisely its economic essence — then, with a time lag, it also reprices real estate; lease terms, valuation methodologies, and the industry's proverbial inertia delay this transmission, but they do not repeal it. The real estate industry is not a spectator of the AI disruption. It is its derivative.

Why 2036? Because the real estate industry adapts more slowly than almost any other major industry — that is not polemic but the finding of its own digitalization studies (Chapter 1). What sweeps through knowledge-intensive services (so-called knowledge work) from 2024 to 2028 reaches real estate through its users, its operators, its financiers, and its own professions in the years thereafter — and already in parallel. Ten years is not a dramaturgical device but a realistic transmission time: roughly two lease cycles, one valuation cycle, one refinancing wave.

Why Germany, and why not only Germany? This paper takes the German real estate industry as its case study, and deliberately so: Germany is the world's third-largest economy after the United States and China, and it is at the same time arguably the hardest test case for the thesis — export-dependent, aging, heavily regulated, with real estate assets of some 20 trillion euros and a real estate industry that carries roughly one fifth of economic output. But the disruption this paper describes knows no national borders. "Real estate is local" remains true for location, regulation, and ownership structure; the repricing of labor that this paper describes as the driver is not. In every country it runs through the same three conduits — the incomes of users, the cost calculations of operators, and the benchmarks of the capital markets — and at least the third is fully global. The core question for every reader outside Germany is therefore: if this transmission runs in country X, would your market in country Y be insulated from it? This paper's answer: only to a very limited degree, and Chapter 17 draws the international map, with the regional modifiers that change the amplitude but not the direction. This paper is written as a German contribution to an international debate, not as

German navel-gazing. Moreover, Germany ranks among the countries with the highest "AI adoption," so we find ourselves, as it were, in a live field experiment.⁶⁴

On the intellectual honesty this paper has made its rule: where this paper advances a thesis, it names the counter-thesis; the latter gets its own, unprotected appearance in Chapter 19. Where the data are not robust, this is disclosed. And above all: this paper is a scenario, not a forecast. It describes not what will come, but what can come if developments observable today continue.

No one knows the future; everything may turn out differently. The value of a scenario lies not in its probability of occurrence but in the question it puts to the reader: how much of my portfolio, my business model, my location strategy rests on assumptions that may not survive this decade? Part I of this paper is fully documented present. Part II is a thought experiment labeled as such. The dividing line is marked.

Data cutoff: All market data, studies, and press reports were retrieved and verified between July and August 2026; reference dates are stated in the text and in the annex. Single-source figures that could not be independently confirmed are flagged as such.

PART I: THE EVIDENCE (as of August 2026, fully documented)

1 · The Illusion of Disruption Immunity

There is a story the real estate industry tells about itself, and it goes like this: buildings cannot be digitized away. People will always need to live, work, shop, and spend the night. Software did not abolish location, e-commerce changed retail but not the logistics warehouse, and whatever artificial intelligence brings, it will streamline processes, cut service charges, optimize floor plans, and — with the data center — even hand the industry a new gold rush. Real estate, so the story goes, is the disruption-proof asset: concrete beats bits.

The numbers with which this narrative reassures itself are remarkable. Cushman & Wakefield, one of the world's largest real estate services firms, calculated in May 2026 that AI would *add* a net 330 million square feet to US commercial real estate demand by 2035 — more logistics, more office, more residential, more retail. Four scenarios were weighted: base case 50 percent, productivity boom 15 percent, AI disappointment 25 percent, and the displacement scenario (in the original: "Dystopic/Displacement"), in which AI replaces human labor at scale, at 5 percent.¹ The ULI/PwC report "Emerging Trends in Real Estate Europe 2026" reports that 75 percent of European industry players now deploy AI in their real estate activities, up from 51 percent the year before² — though what is asked there is how AI *helps* the business, not what it does to the tenants. The ZIA/EY digitalization study 2025 found: 90 percent of German real estate companies consider AI the key technology of the next five years, and 62 percent invest one to five percent of their revenue in it.³ JLL sums up the industry consensus in a sentence phrased like a sedative: "AI redesigns jobs, not cuts them."⁴

One must read this self-assurance against the industry's adoption history. The 2025 ZIA/EY study was the *tenth* of its kind; a decade of digitalization studies documents a decade of announcement. The RICS report on AI in construction (September 2025, more than 2,200 respondents worldwide) showed that 45 percent of organizations still have no AI implementation whatsoever and less than one percent have achieved a fully scaled application.⁵ Real estate is historically the industry that adopts technology last; this has been much lamented, rarely disputed, and is, incidentally, rationally explicable: long cycles, large lot sizes, fragmented ownership structure, regulatory density. In itself, that is not necessarily a problem.

Only: from "we adapt slowly" it does not follow that "it will not affect us." What follows is the opposite — the disruption comes from outside, through the users, and the industry will only notice it in its cash flows once it is long underway. An industry that took ten years to adopt the cloud holds no free pass from a technology whose capabilities double in monthly rhythms. It merely has a longer fuse, and at the end of a long fuse the blow does not land more softly — it lands later.

That a real estate industry should overlook the second-order effects of its own situation would not be historically new. Retail considered e-commerce a niche topic until prime high-street locations lost their valuation basis. The office considered working from home a pandemic episode until vacancy rates in US metropolises hit double digits. In both cases the error lay not in the observation — both developments were visible for years — but in the weighting. Those five percent.

2 · What Is at Stake: The Anatomy of the Industry

To gauge what a repricing of real estate would mean, one must call to mind the sheer scale of the industry — and its internal structure.

According to calculations by gif and IW for the ZIA, the German real estate industry generates around 730 billion euros of gross value added per year, just under 20 percent of total economic value added. More than 870,000 companies — a good one in four German companies — are attributable to it, along with around 3.5 million employees subject to social insurance contributions, roughly one in ten. Germany's real estate assets including land are valued at around 20.1 trillion euros; outstanding construction loans exceed 2.1 trillion euros.⁶ Real estate is at once the largest asset of private households, the largest collateral in the banking system, and — via real estate transfer, property, and trade taxes — a load-bearing pillar of public finance. Whoever claims that one fifth of the economy is "unaffected" by a repricing of the factor labor is claiming something remarkable.

Since the 1990s, the structure of the industry has been describable through an organizing framework that the formative academics of real estate research — Prof. Dr. Karl-Werner Schulte together with Prof. Dr. Stefan Bone-Winkel and Prof. Dr. Wolfgang Schäfers — coined with the "Haus der Immobilienökonomie" (House of Real Estate Economics), which to this day carries the standard work of German real estate teaching:⁷ Under the roof of real estate economics lie the management aspects, subdivided into strategy-related (portfolio management, CREM, PREM), function-specific (real estate analysis, valuation, finance, investment, marketing), and phase-oriented aspects (project development, construction project management, facilities management); the whole is borne by two pillars, the institutional aspects (project developers, investors, construction firms, financial institutions, service providers, users) and the typological aspects (commercial, residential, industrial, special-purpose properties); the foundation is formed by the interdisciplinary aspects — economics, law, urban planning, architecture, and engineering — on the basis of business administration. This house is the floor plan of this paper, and it is at the same time its provocation:

In Part II we will walk through it room by room and ask which of its building blocks will, in 2036, likely still look — or no longer look — the way they do today. The answer, to anticipate it: the typological foundations remain standing; but in the roof of the management aspects and in the pillar of the institutions — where the industry itself works — little stays as it is. Figure 1 anticipates the result and translates the framework into a new image, the Real Estate AI Tower: two towers,

one bridge, a shared foundation, shaded by the degree of disruption that this paper's scenario assigns to the individual building blocks by 2036.

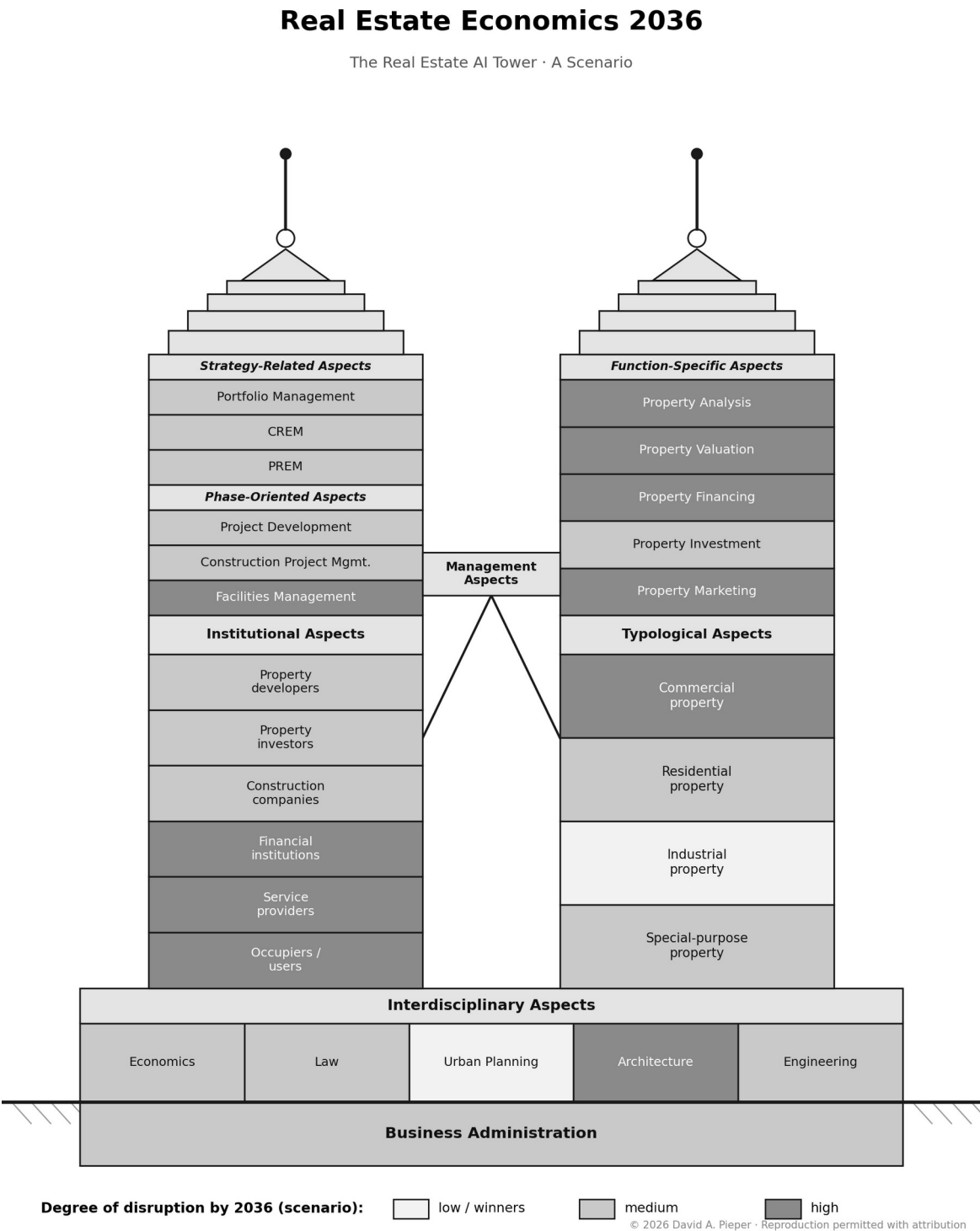


Figure 1: Real estate economics 2036, the Real Estate AI Tower, a scenario. Author's own illustration based on Schulte/Bone-Winkel/Schäfers,

"Immobilienökonomie I," 5th ed.; grayscale = degree of disruption by 2036 in the author's assessment (scenario, not forecast). © 2026 David A. Pieper; reproduction permitted with attribution.

3 · The Body of Evidence: It Has Already Begun

This paper would have to be more speculative if the transmission it describes were still ahead. But it has already begun. One only has to look in the right places, and the right place is not the real estate statistics but the labor-market statistics of real estate users.

The management cull. In the summer of 2026, the Handelsblatt documented in a major investigation what it called "the end of the manager as a mass profession."⁸ The numbers behind it are individually verifiable and, in their accumulation, without precedent: Volkswagen internally announced the elimination of more than 5,000 management positions by the end of the decade — with around 21,500 managers worldwide, nearly one post in four; more than 1,000 AI applications are already running within the group. Bayer has reduced the number of its management positions from 17,000 to a good 5,000 since 2023, minus roughly 70 percent, and halved its hierarchy levels from eleven or twelve to six or seven. Deutsche Bahn is cutting around 30 percent of positions in group headquarters, more than 1,000 employees, and 21 of 43 leadership posts below the executive board. Lufthansa is shedding 4,000 administrative positions, Ergo around 1,000 clerical processing jobs whose tasks AI is taking over. Siemens, in its transformation into a "One Tech Company," is letting hundreds of executive titles lapse worldwide. Even ASML — Europe's most valuable company, record results, share price soaring — is cutting 1,700 jobs, predominantly in management and administration, with the remarkable justification that it is about complexity, not the business.

The aggregates confirm the individual cases. By June 2026, the Bundesagentur für Arbeit (Federal Employment Agency) counted an average of around 85,000 unemployed executives, 45 percent more than in 2022/23; 209,000 executives were unemployed at least once within twelve months. In a Civey survey for the Handelsblatt in July 2026, 40 percent of executives polled reported that their company had cut middle-management positions within the past year. The outplacement consultancy von Rundstedt, which has accompanied such transitions for decades, puts it thus: "German business has never seen a reduction in middle management like this." And the Central Europe head of Boston Consulting Group, Michael Brigl, supplies the number worth remembering for Part II: "With AI, ten management layers can become four."⁸

Note who is being cut here: not assembly-line labor, but the country's best-paid salaried jobs — coordination, reporting, information relay, forecasting; according to the analysis of the compensation consultancy Mercer, precisely the task profile that AI systems can take over today. Those affected, according to von Rundstedt, are above all well-paid professionals and executives over 50 without client contact in corporate headquarters. That is, in the language of this paper: the buyer

stratum for the condominium above 800,000 euros, the tenant stratum for corporate headquarters space, the clientele of the commuter-belt single-family home. Labor-market research (IAB, Prof. Dr. Enzo Weber) records what distinguishes this crisis from 2009 and from Covid: "In the past, executives were largely spared in crisis situations."⁸

And the industry itself? The real estate industry is not a spectator of this cull but part of the statistics — only quieter and more poorly documented. The chronicle of the trade press reads as a series: Interhyp, Germany's largest residential mortgage broker, is cutting around 160 jobs in a second round in 2026, roughly one in ten, after pre-tax profit had fallen from a peak of 107 to 23 million euros; Hamburg Commercial Bank is cutting 190 jobs and exiting international real estate finance; Deutsche Finance reports headcount reductions "of a significant magnitude"; McMakler and Homeday have laid off staff in several waves since 2022; and the number of jobs that vanished with the developer insolvencies from Signa to Euroboden has simply never been added up by anyone — a data gap that is itself a finding.⁵⁶ The industry's recruiters confirm the pattern: Cobalt Recruitment in June 2026 describes a labor market that is "re-sorting itself: more candidates for fewer leadership positions," with markedly longer hiring processes and persistently weak demand for classic project developers; according to Robert Walters, only 68 percent of companies still plan salary increases at all, the room for maneuver being "largely exhausted."⁵⁶ Chapter 14 works through these professions systematically; here the finding suffices: the management cull has already reached the industry this paper addresses.

The parallel industry. The German automotive industry, the country's largest industrial user of real estate, has lost around 111,000 jobs since 2019, of which some 50,000 in 2025 alone; Destatis reported minus 48,700 employees year-on-year at the end of the third quarter of 2025.⁹ Volkswagen has agreed to cut around 35,000 positions by 2030, Bosch 22,000 in Germany (focus: Mobility), ZF 14,000, Continental more than 10,000, Porsche most recently further thousands in Stuttgart and Weissach. Here several disruptions interlock — the powertrain transition, the China shock, and AI — and their real estate impact is already measurable (more on that shortly).

The update, as of mid-2026 — for the curve is steepening: Porsche agrees with its works council in August 2026 on a further 5,000 cuts, together with the program from early 2025 almost 7,000 positions, after a 91 percent collapse in profit; BMW, the last remaining manufacturer without a job-cut program, announces around 8,000 positions by the end of 2027; focus: administration and development in Germany. At Mercedes-Benz, some 5,500 employees have accepted the severance program within twelve months; at Volkswagen, more than 37,000 employees have signed termination or partial-retirement agreements, around 27,000 have actually left by the end of 2026, and the executive board is publicly examining scenarios for up to 50,000 further positions in the indirect functions (planning status, not agreed). Bosch has raised the cuts in its mobility division to a cumulative total of around 22,000 positions, the largest in company

history; ZF (up to 14,000), Continental (more than 10,000), and Schaeffler (4,700) are running in parallel. The aggregates: in 2025 the auto industry lost around 50,000 positions according to EY analysis, six percent in a single year, falling to the lowest level in 14 years; since 2019, by VDA's count, some 100,000 jobs have disappeared, and the association expects a further 125,000 by 2035.⁵⁷ Read these figures for what they are to this paper: the largest source of office, housing, and trade-tax demand in Germany's B-cities is shrinking not cyclically but structurally — and faster than any real estate planning.

The China shock. The second pincer comes from outside, and since the summer of 2026 it has an official name: "We are experiencing a China Shock 2.0," says BDI chief executive Tanja Gönner; it strikes "not just individual sectors but industry massively across the board," through raw-material dependencies, a markedly undervalued currency, and state-induced overcapacities flooding the EU single market, coupled with China's declared ambition to become world market leader in the key technologies.⁴⁵ The numbers behind this are supplied by the CER study "China Shock 2.0: The Cost of Germany's Complacency" (Tordoir/Setser, May 2026): the decline in German net exports has reduced economic output by around three percent of GDP since the end of 2023; German auto exports to China fell 66 percent between 2022 and 2025; of the 1.1 million German jobs that hung on Chinese demand in 2021, more than 400,000 have already been lost by the authors' estimate; China subsidizes its industry by around 800 billion dollars a year according to IMF estimates — more than Germany's entire subsidy envelope — and in automotive manufacturing alone has built capacity for 55 million vehicles annually.⁴⁵ Affected, according to CER, are autos, mechanical engineering, chemicals, aviation, and steel — precisely the sectors of Germany's world market leaders, hidden champions, and Mittelstand firms, with Baden-Württemberg as the epicenter; China scholars such as Prof. Dr. Sebastian Heilmann have warned for years that China is systematically and quietly taking over the leadership positions of Western key industries. The mechanism is no accident and not dumping alone: China is the world's most efficient process automator — no country brings industrial goods to market faster, cheaper, and at this scale, underpinned by raw materials, energy build-out, enormous technical human capital, and a will to lead.

For this paper, the China shock is no digression, for two reasons. First, it runs through the same transmission channel as AI: the export industry is tenant, employer, housing demander, and trade-tax payer of Germany's industrial cities; every lost export job acts on the real estate market exactly like an AI job loss, and both shocks hit the same locations, from Stuttgart via Schweinfurt to Wolfsburg. Second, the two shocks are not additive but multiplicatively intertwined: should China reach parity with the United States in artificial intelligence — and much suggests it will — its manufacturing power is compounded once more: more models, more patents, more energy, more efficient factories, up to and including humanoid robotics at volumes of one million units per year.¹⁹ A bloc formation emerges with two complete technology stacks, the American and the Chinese, while Europe tries to build a third. (Thoughts of insulation and tariffs included.)

The author's judgment, flagged as such: whoever returns from Shanghai to Berlin believes they have traveled back a century in time. Without a profound structural reform, almost brutal in its severity, with a targeted future agenda, Europe will become a sales market in this bloc formation; and such a reform is unlikely, because inertia rather than hunger for the future lies over most European societies — with exceptions, perhaps, such as Poland, Switzerland, Spain, or, of necessity, Ukraine. This judgment does not stand alone; the evidence is now supplied by the EU itself: Mario Draghi's competitiveness report puts Europe's investment gap at 750 to 800 billion euros a year, notes that only four of the world's fifty most valuable technology companies are European, and warns of the "slow agony"; a year later, by independent count, eleven percent of its 383 recommendations had been implemented. For Germany, the ifo Institute puts the cost of bureaucracy at 146 billion euros of forgone economic output per year (3.4 percent of GDP), and McKinsey counts around 325,000 positions that companies had to create in just three years for compliance and documentation alone; Poland, over the same period in which Germany stagnated, grew by around 18 percent in real terms.⁵⁹ The scenario in Part II therefore assumes no reform turnaround; whoever considers one more likely should read Part II as what happens without it.

The macro context: a country under strain. The AI disruption hits not a robust but a strained German economy. Gross domestic product shrank by 0.9 percent in 2023 and 0.5 percent in 2024; 2025 brought quasi-stagnation at +0.2 percent, exports fell for the third year in a row, construction investment for the fifth.³⁹ Corporate insolvencies reached their highest level since 2014 in 2025 with 24,064 cases (+10.3 percent); according to an IW survey, one in three companies plans job cuts in 2026.³⁹ And the population statistics have turned: net immigration fell 45 percent in 2025 to 235,000, the population shrank for the first time since 2010 (−110,000); the migration balance with the EU states is negative for the first time (−54,000), and German citizens have been leaving the country on a net basis for years — in 2025 with a record of almost 289,000 departures and a negative balance of 97,000, according to survey data around 70 percent of them university graduates, with tax burden, bureaucracy, and career prospects as the leading motives.⁴⁰ For real estate, this emigration is a double loss: today's tenants leave, and tomorrow's buyers leave. Whoever doubts this paper's transmission must explain why an industry whose demand base is already eroding before the AI acceleration should, of all things, pass its stress test unscathed.

The simplest allegory to close this section, because it is so often overlooked: real estate markets are, at their core, macro markets. German economic output in 2025 stands roughly 0.2 percent above its 2019 level in real terms — practically zero in six years — while the United States grew by 14 to 15 percent in real terms over the same period; nominally, German GDP did rise by a good 28 percent, but that is inflation, not performance, and productivity per hour is stagnating.⁵⁷ If an economy shrinks or stagnates, the derivative for its real estate industry as a whole cannot be positive: wages that do not grow in real terms carry no rents growing in real terms; tax revenues that do not grow out of performance carry no infrastructure; productivity that stands still carries no rising space

values. This can arrive with a lag and be lived off for a long time — and that is exactly what is happening: tax revenues, at just under 990 billion euros in 2025, are higher than ever, a quarter more than in 2019, and in 2027 the trillion mark falls; but that is no proof that the country is doing better — it is proof that the state is asking more of its citizens, with the second-highest tax wedge in the OECD (49.3 percent of the labor costs of a single average earner), while the substance is consumed further.⁵⁷ A real estate market can decouple from its economy for a while. Over a decade, it cannot.

The US leading indicator. In the United States, roughly two years ahead of Germany in AI adoption, non-farm employment unexpectedly shrank by 23,000 positions in July 2026 against an expected gain of 80,000; the financial sector lost 14,000 jobs, retail 19,000. The unemployment rate nevertheless *fell* to 4.1 percent, but for the wrong reason: the participation rate dropped to 61.4 percent, the lowest level since February 2021, minus 0.7 percentage points since the start of the year.¹⁰ People are leaving the labor market. Whether boomer retirements, migration policy, or incipient AI substitution — the official attribution is contested; the direction is not. Three further US data points belong in this series because they hit the hiring-gap thesis precisely: the New York Fed measures 5.7 percent unemployment among recent college graduates against around 4 percent in the overall market — the historical order in which the degree protects has inverted; Stanford researchers put the employment decline of the young in AI-exposed occupations at 16 percent; and the number of professional programmers in the United States is already lower today than in 1980 — in the native profession of the computer age.⁶⁰ Meta supplied the illustrative image in 2026: termination emails in the morning, deactivated access badges, justification: the company wants to become "AI-native."⁶⁰

Wolfsburg: the laboratory. Whoever wants to see how a job shock runs through a real estate market need not wait for 2036. Wolfsburg is demonstrating it: minus 4,601 jobs within one year (−3.9 percent), unemployment up 27 percent since March 2023, trade-tax revenues fallen from 250 to 150 million euros, rents nominally almost unchanged since 2022 (a decline in real terms), and the housing developer (family office) Sahle cancelled around 1,800 planned apartments in the Sonnenkamp development area.¹¹ An Interhyp/IW study from July 2026 attests that the auto crisis is already exerting measurably dampening effects on the housing markets of Wolfsburg, Ingolstadt, Schweinfurt, and Stuttgart.¹² That is not a forecast but reality already under discussion. That is the mechanism of this paper, in real time, in one city, triggered by a single industry. Part II merely asks: what if the pattern hits not one industry but the office economy as a whole? And one final framing belongs here: everything Wolfsburg has experienced so far dates from the time *before* the self-learning, self-improving AI currently at the center of research³⁸; it is the endgame of knowledge work and of the executive floors — and this endgame is still to come and is feared by many researchers more than the development of the atomic bomb was. That may sound dramatic, but for more than a few experts it is worse than it sounds. Nor is it a fringe position; it is the warning from the very center of the field: Geoffrey Hinton, whose foundational work on

neural networks was awarded the 2024 Nobel Prize in Physics, left his post at Google in 2023 expressly so that he could speak freely about the risks of his own technology, and has since put the probability of AI wiping out humanity at ten to twenty percent.⁶⁵ As early as May 2023, hundreds of leading AI researchers — alongside Hinton also Turing Award laureate Yoshua Bengio and the CEOs of OpenAI, Anthropic, and Google DeepMind — signed a statement that explicitly places mitigating the risk of extinction from AI on a par with pandemics and nuclear war.⁶⁶

Two qualifications, for honesty's sake. First: not every one of these cuts is "AI-caused" — cost crisis, weak demand, and restructuring pressure act together; Mercer calls AI an "accelerant, not the cause." For real estate the distinction is secondary: the space and purchasing-power effect is the same, and the accelerant is only at the beginning. Second: leadership research itself (Prof. Dr. Fabiola Gerpott, WHU) dates the real quake further ahead: "What we are seeing now are the foreshocks. The real earthquake comes only when AI itself takes over leadership tasks," with a time horizon of five to ten years.⁸ Five to ten years from 2026: that is the window 2031 to 2036. It is exactly the window of this paper — and, at the current pace of development, it might even prove conservative.

4 · The Transmission Mechanism: Five Channels

How does a shock that originates in the labor market arrive in real estate valuation? Through five channels, which are worth keeping apart because they run at different speeds and hit different asset classes.

C1, the user channel (demand side). Users' jobs and incomes determine space demand and rent-paying capacity. Fewer office employees means less office space demand; fewer top earners means less purchasing power for ownership; insecure incomes mean more cautious household formation. This channel is the slowest — leases run five to ten years — and the most powerful, for it hits the numerator of every income-capitalization calculation.

C2, the operator channel (supply side of the service). In operator-run real estate — hotels, care, hospitality, coworking, student housing — human labor is usually the largest cost block of the business model on the premises. Here AI and robotics change first the operator's margin, then the rent-carrying capacity, then the structure of supply. This channel works in real estate's favor as long as demand holds — it is the reason Part II is not monotonously bearish.

C3, the production channel. AI-assisted planning and construction robotics change the production function of building itself: costs, speed, skilled-labor requirements. Falling replacement costs are not good news for holders of standing assets: they lower the replacement-cost prop beneath every standing-stock valuation.

C4, the intermediation channel. Brokerage, property management, valuation, placement, tax advisory, legal work — the industry's own service layer lives essentially on information asymmetry and process complexity. Both are precisely

the terrain on which AI systems gain a foothold fastest. This channel hits not the property but the real estate *industry* — its 3.5 million employees, its business models, its fee schedules.

C5, the capital channel. Valuation methods, lending, fund liquidity, and the interest-rate regime translate all the foregoing effects into prices — with a lag, because appraised values trail transaction evidence, and non-linearly, because credit crunches and fund redemptions know thresholds. On interest rates the direction is open, and this paper treats it as an explicit switch: the AI investment boom can drive capital demand and thus rates (hyperscaler data-center capex reaches 660 to 690 billion dollars in 2026¹³); an AI-induced consumption and employment shock can just as well depress them. Part II carries both paths.

The point of the mechanism lies in the simultaneity: in income-capitalization logic, the numerator (C1, C2) is hit at the same time as the environment of the denominator (C5), while C3 shifts the replacement-cost reference and C4 the transaction-cost infrastructure. Individually, each channel is absorbable. This paper's thesis is not that any one of these channels acts dramatically. It is that all five are working in the same direction in the same decade — for the first time.

THE INTERFACE

Up to this point, everything is documented. Every number in Part I carries a source, every quotation a name, every reference date lies before August 11, 2026. **From here on, we speculate** — in a controlled, labeled way, and with the intention of being thought through, not believed. Fictional elements (headline boxes, scenario figures, the "Scenario Index" at the head of each chapter) are marked as such. Real figures keep their footnotes. Where the two touch, it is stated.

PART II: THE 2036 SCENARIO

5 · Rules of the Scenario

Every scenario is only as honest as its disclosed assumptions. This one rests on four.

Assumption A, capabilities: AI systems continue to develop along the trajectory observed since 2022: from assistance to agentic work, from single tasks to process chains. The scenario requires *no* superintelligence and no AGI definition. It suffices that the capabilities demonstrated in corporate pilots in 2026 roll out across the breadth of industries over ten years. Let the honest present-day brake be named, along with its slope: the Remote Labor Index, which pits AI agents against human freelancers on real projects, started in October 2025 at 2.5 percent of tasks completed; in July 2026 the best agent stands at 16.1 percent.¹⁴ The present is thus still far from the scenario — but it has more than sextupled within eight months. The argument is not the level but the slope. Whoever in 2016 had extrapolated from the state of language models to 2026 would have misjudged downward by orders of magnitude. Where the boundary runs today is described by MIT labor economist David Autor with a simple heuristic: tasks of about an hour's length AI completes successfully with high probability, tasks of eight hours or four weeks rather not, because long chains of interdependent steps demand context and judgment; what gets automated depends on the task bundle, and in many professions AI turns "expertise into an interchangeable commodity."⁶⁰ The range of prominent forecasts should likewise be noted, from Anthropic CEO Dario Amodei (up to 20 percent unemployment by 2030) to DeepMind founder Demis Hassabis ("ten times bigger and probably ten times faster than the Industrial Revolution"); this paper deliberately reckons with less.⁶⁰

Assumption B, adoption: Companies follow the cost curve, not the feuilleton debate. SoftBank calculates AI agents at a cost of around 230 euros per month for a performance equivalent set against a full-time human salary¹⁵ — such calculations may be marketing today; as soon as they are even approximately right, competition decides, not preference. The Citrini pattern applies: the most threatened companies will deploy AI most aggressively, because they cannot afford not to.¹⁶

Assumption C, geography: The scenario plays out in Germany, the most heavily regulated and at the same time most management-heavy large real estate market in Europe. Country particularities (US trailer parks, UK leasehold, Asian operator models) are carried along in footnotes; the mechanics are transferable, the timelines and buffers are not.

Assumption D, interest rates: Two paths are run in parallel. Path Z1 ("capex rate"): the AI investment boom keeps capital demand and long-term rates high. Path Z2 ("shock rate"): the employment and consumption effect dominates, rates fall. For real estate values, Z2 is friendlier in the short run — and more dangerous in the long run, because it merely masks the income question.

Each asset class is treated according to the same grid: *starting position 2026 (documented)* → *transmission channels* → *picture 2036* → *winners and losers* → *leading indicators*. At the head of each chapter runs the **Scenario Index**, two fictional but consistently extrapolated metrics: the office-employment index for Germany (2026 = 100) and Big 7 office vacancy (real starting value: 8.5 percent¹⁷). It is the counterpart to the compute marginal of the Europe 2031 paper: a single line from which the divergence can be read. Figure 2 summarizes the result of the following chapters in advance in one map: each asset class, positioned by the AI exposure of its users' incomes (horizontal) and the automatability of operations on the premises (vertical).

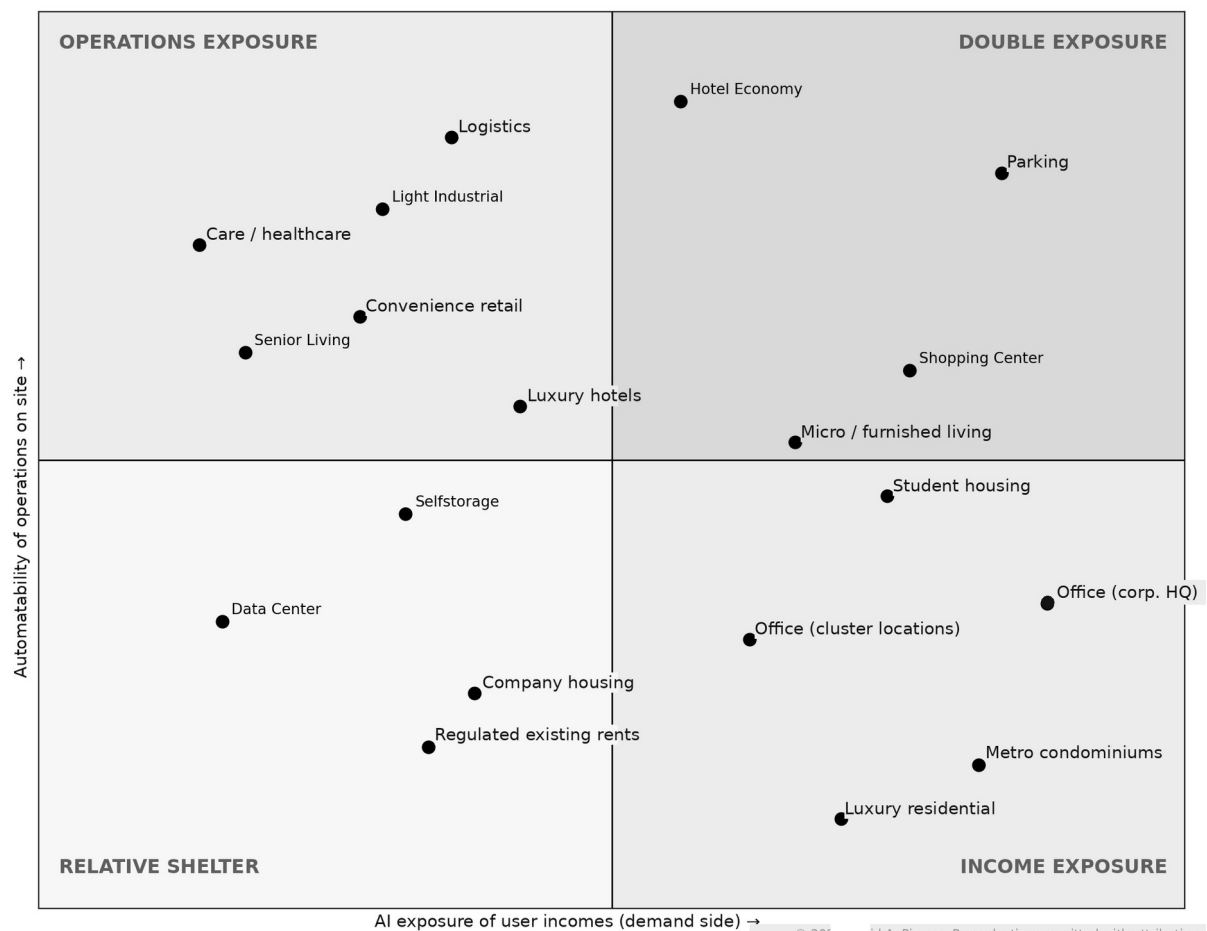


Figure 2: The Disruption Exposure Map 2036. Author's own illustration; positioning = the author's scenario assessment, not a measurement. Reading aid: top right, demand and operating risk cumulate (double exposure); bottom left lies relative shelter. © 2026 David A. Pieper; reproduction permitted with attribution.

Table 1 condenses the same assessment into the third and fourth dimensions: when does it hit the respective class, and in which direction does the arrow point in 2036? Everything that follows is the author's scenario assessment; the deep dives of Chapters 6 through 15 supply the reasoning.

Asset class / subtype	Exposure	Timeline	Direction 2036 (scenario)
Office: corporate HQ / campus	high	early (2026–2030)	sharply down, conversion stock
Office: AI/energy cluster locations	medium	early	divergent, winner locations up
Residential: metropolitan condominiums	high	mid (2029–2033)	down in real terms, buyer stratum eroding
Residential: luxury	low–medium	late (2033+)	sideways, wealth- rather than income-driven demand
Residential: regulated existing tenancies	low–medium	late	nominally stable, down in real terms, regulation tightens
Micro/furnished living	high	mid	down, demand base (young career entrants) breaks away
Student housing / boarding houses	high	mid	down, the hiring gap hits the young first
Company housing	medium	mid	split, renaissance as a retention instrument possible
Senior living / care	low	late	up, demographics beats AI, capacity trap remains
Hotel: economy	high (operations)	early	margins up, employment down, autonomous operation
Hotel: luxury	low–medium	late	up, the human factor becomes premium
Retail: shopping centers	high	early	down, agentic commerce decouples footfall
Retail: local convenience	low	late	sideways, basic needs remain physical
Logistics	medium	mid	space up, jobs down
Light industrial	medium	mid	up, reindustrialization + robotics
Data centers	reflexive winner	early	sharply up, with technology and credit risk
Parking	high	mid	sharply down, largest conversion stock
Self-storage	low	late	sideways to up, antifragile
Project development / construction	high	mid	systemic break from ~2032, real construction-cost deflation
Industry services (brokerage, valuation, management)	high	early	down, consolidation, the human factor as a niche

Table 1: Disruption matrix of asset classes and subtypes. Author's scenario assessment; exposure = combined demand and operating exposure, timeline = expected onset of tangible effects, direction = value and demand trend in the 2036 scenario. © 2026 David A. Pieper; reproduction permitted with attribution.

6 · Office: The Epicenter

Scenario Index 2036: office employment 84 (index, 2026 = 100) · Big 7 vacancy 14.8% (fictional)

Starting position 2026 (documented). The German office market is sending the signal of deceptive calm: vacancy in the Big 7 at 8.5 percent (8.5 million square

meters), trending upward; take-up in the first half of 2026 at 1.35 million square meters (–5 percent), but prime rents up 5 percent — Munich 62, Frankfurt 55, Berlin 48 euros.¹⁷ The industry reads this as post-Covid normalization: flight to quality, the periphery suffers, core/prime performs. The work-from-home share has stabilized at just under 25 percent of employees.¹⁸ What is missing from this reading: the market has digested the pandemic's demand shock, but it has not yet seen a single lease cycle of the management cull. VW, Bayer, Bahn, Lufthansa, Siemens — the reduction programs from Chapter 3 sit in the press releases in 2026, not yet in the space metrics. Leases are preserves: they preserve yesterday's demand.

Mechanics. The office market hangs on a single variable: the number of people for whom a desk is kept. The post-war history of the office is the history of that number's growth. The scenario turns the variable durably negative for the first time — and via the quietest conceivable choreography, not through waves of layoffs but through the hiring gap: companies do not backfill departing office workers, graduating cohorts find no entry (the Europe 2031 paper calls it the phase in which hardly anyone is laid off and yet the graduate labor market is the worst in living memory¹⁹). "Ten management layers become four" means, in space-market terms: for two lease cycles, less is leased at every renewal. No crash. A long staircase downward, over ten years.

[Fictional headline box, scenario]

Thomas Daily, April 3, 2031: "DAX corporation renews Frankfurt headquarters — with 45 percent less space. Landlord concedes 'structural re-measurement.'"

IZ, September 17, 2033: "Big 7 vacancy above 13 percent for the first time, conversion applications at record high — but only one in five office buildings deemed suitable for residential use."

Picture 2036. The office market of 2036 is not a dead market — it is a *split* one. On one side, the divergence winners: AI, defense, and energy clusters that absorb space; the real-world model is San Francisco, where AI firms have accounted for around 30 percent of leasing since 2025; CBRE calculated that their expansion could push the city's vacancy from its peak (35.8 percent in spring 2025) to below 18 percent — by mid-2026 it has already fallen by around five points²⁰. The city that exports the disruption worldwide imports the office demand. On the other side, the administrative HQ world: corporate headquarters and their satellites, middling locations, middling qualities, mid-sized cities. The corporate campus — Wolfsburg, Leverkusen, Walldorf as a type — proves to be the most vulnerable office form of all: monofunctional, one user, no alternative demand at the location. Between the two worlds lies a chasm that averages conceal. Two countercurrents deserve mention: first, AI growth itself takes space back (divergence, not doom). Second, a paradoxical prop is at work, which the project developer Gordon Gorski points out in 2026: housing is becoming so expensive that buyers can no longer afford the home office, "and drive to the office instead."²¹ The office as the outsourced living room of knowledge work: a niche, but a real one.

The forecast landscape (documented, as of mid-2026). The international research guild has since followed up, and its range is itself a finding. Newmark

presents the most deeply quantified projection to date: US office employment 2026 to 2030 up only 0.3 percent, a peacetime stagnation without recession that is without precedent, with vacancy scenarios of 19.5 to 23.5 percent and a displacement concentrated among 22-to-25-year-olds (minus 6 percent) — exactly this chapter's hiring gap.⁴¹ CBRE Investment Management considers the aggregate office effect through 2034 "negative but moderate," with sharp divergence between the metropolises.⁴¹ For Germany, surveyed HR decision-makers expect on average 27 percent less office space demand in the Big 7 by 2030 — an expectations survey, not a structural forecast, but remarkable as a sentiment datum.⁴¹ And at the ULI Asia Summit in 2025 fell the sentence that contains this chapter's corporate-campus thesis in half a sentence: there is no longer any point in "creating office space for 500 colleagues" when the organization of 2030 will be markedly smaller.⁴¹ The range from "moderate" to "minus 27 percent" is no contradiction of the scenario; it is the divergence, before it shows up in the data.

Postscript August 2026: the counter-study, and why it confirms rather than refutes the scenario. Just in time for this paper's completion, JLL, together with the MIT Sloan School and the MIT Center for Real Estate, delivers the most elaborate version of the reassurance to date: AI, it argues, transforms labor markets through three parallel developments — the augmentation of existing activities, the displacement of individual occupations, and the creation of new fields of work — but does "not necessarily lead to declining space demand"; the German companion piece tallies what the metropolises can set against this: just under 54 billion dollars of cumulative AI venture capital, Munich as Europe's number one (rank 11 worldwide) in AI research publications, Stuttgart with R&D spending of 5.9 percent of regional GDP, Berlin with 23 unicorns in five years.⁶³ Take the study seriously, and read it closely — in that order. It is to be taken seriously because its core finding — that AI acts as a "strong sorting mechanism" and precisely not as a uniform wave — is, word for word, the divergence thesis of this chapter: Munich and Berlin as candidates for the San Francisco pattern are exactly the divergence winners of the map in Chapter 17, and where AI capital takes space, this paper has never claimed otherwise. It is to be read closely for three reasons. First, the interest position: JLL earns from office leasing, and a house whose business model is space demand will not proclaim its repricing; that does not disqualify the data, but it calibrates the tone — and the same caution applies, mirror-image, to anyone who profits from the doom thesis. Second, the logic: "not necessarily declining space demand" is a statement about the aggregate, but the study's own systematics say something more precise. Its four-quadrant model contains the category "High Negative Disruption" — cities with a high back-office share and low sectoral mix, with a quantified space effect of minus 10 to minus 20 percent and the remarkable addendum: "Long leases delay impact" — long leases postpone the blow; that is, literally, this paper's preserves logic. The 54 billion dollars of venture capital concentrate on a handful of winner locations; the German B-cities, which by this very JLL grid belong in the loser quadrant, do not appear in the German companion piece. The aggregate reassures; the study's

own grid does not. Third, the sourcing within its own house: the same JLL research reports in 2026 that only 5 percent of real estate companies fully achieve their AI goals⁵⁰, and rests the job-creation pillar expressly on the Jevons paradox, whose limits of validity Chapter 19 (Objection 7) surveys. And in passing, the study delivers the divergence in a single number: US tech employment fell 1.5 percent in 2025/26 while the sector's office leasing increased — fewer people, more space, AI-driven. In short: the study has a point, and it is precisely the point of this paper — the split. It merely draws the friendlier headline from it, and its closing sentence could stand as the motto over Part I: the winners will be those who act before "the transaction numbers confirm what the labor market is already showing."

Leading indicators: take-up per office employee (not absolute); re-letting rate of expiring large leases; incentive share (rent-free periods) in prime deals; graduate hiring at law firms, audit firms, and banks as a 24-month lead on space demand. **Kill switch of the thesis:** if German office employment rises by a cumulative more than 4 percent by 2030, the epicenter chapter is falsified.

7 · Residential: The Double Shock

Residential is the largest, most political, and most heterogeneous asset class — and the only one that in the scenario is caught by two independent waves simultaneously: a demographic supply wave and a technological demand wave. Each on its own is a consensus topic. Their simultaneity is not.

The supply wave (documented). Just under one in three German owner-occupied homes — around 4.8 million houses and apartments — belongs to the boomer generation of the 1946 to 1964 birth cohorts; in Mecklenburg-Vorpommern and Saxony the share is almost 40 percent.²² By 2035, one in four residents of Germany will be 67 or older. The RWI has shown that the increased share of the elderly already dampened residential purchase prices by around 12 percent between 2008 and 2020, in the middle of the biggest price boom of the post-war era; HWWI/Postbank expect only +0.4 percent per year in real terms in the national average through 2035. The counter-position (Reiner Braun, empirica) belongs fairly on the table: 15 birth cohorts die off over 15 to 20 years, "small streams," no tsunami; more than 60 percent of older owners want to bequeath, not sell, so that only 160,000 to 240,000 properties from these cohorts come onto the market each year.²² In the normal scenario Braun is right: demographics alone does not tip a market. The point of this chapter is a different one. **The Demand Wave (Scenario).** Small streams are harmless only if buyers are standing on the opposite bank. The buyers of the Boomer holdings are the working members of the 1980-to-2000 birth cohorts, precisely the cohort whose income expectations the scenario reprices. The condominium above 800,000 euros in München is bought by dual-earner households on corporate and consulting salaries; the single-family house in the commuter belt by middle management. The BA statistics from Chapter 3 describe the beginning of the repricing of this stratum. Citrini has formulated for the US the core question that transfers verbatim to the German market: are prime mortgages still "money good" when the income behind them is

repriced? The loans were impeccable on the day of origination; the world changed after origination.¹⁶ Add household formation: if graduates find no entry into working life, they do not move into the micro-apartments of the metropolises but back in with their parents¹⁹ — the silent cancellation of hundreds of thousands of first households.

The 2036 Subtypes, a Map of the Dispersion (Scenario):

Regulated in-place rents: the relative winner. Politically protected, scarce, in the income shock even subject to additional demand (the ownership backlog); the price scissors of 2026, asking rents up 4.0 percent against purchase prices up 0.8, already display the mechanism.⁶² But: Chapter 18 shows the price of this protection, and Chapter 19 (Objection 8) its limits.

Metropolitan condominiums / luxury: the highest income beta. The luxury segment splits: AI-winner wealth carries the absolute top ("humans as a status good," see Hotels), while the upscale salaried segment beneath it loses its buyer base.

Student housing: the industry's most uncomfortable bet. Still an investor darling in 2026 (ULI/PwC lists it among the top niche sectors²), it hangs on a double assumption: that a degree continues to pay off and that it takes place on campus. If the graduate labor market breaks, solvent (international) student demand breaks with a lag.

Micro-living / furnished housing / boarding: near-term winner of flexibilization, medium-term coupled to project and secondment work — precisely the forms of work that agentic systems replace first.

Company housing: a renaissance with irony. Companies with scarce skilled labor in non-automatable roles (care, skilled trades, plant operations) use housing as a retention instrument; the company flat returns, but for the care worker, not for the engineer.

Senior living / assisted living: demographic tailwind, the operator channel lowers costs (Chapter 11), one of the few structural longs of this paper.

[Fictional headline box, scenario]

Handelsblatt, May 12, 2034: "Heirs without buyers: In three East German districts, inherited single-family houses sit on the market for an average of 14 months. Municipalities are debating demolition premiums."

Early indicators: loan-to-value ratios and income multiples of new residential loans; marketing periods of inherited properties in B and C locations; first-letting rates in the student segment; share of prospective buyers employed in "AI-exposed" occupations (the bank that measures this first holds an informational edge, Chapter 16). **Kill switch:** If real Big 7 apartment prices hold a cumulative gain of 10 percent through 2031 and the ownership rate of 30- to 40-year-olds remains stable, the double shock is refuted.

8 · Retail: The Second Wave After E-Commerce

Retail supposedly has its disruption behind it: e-commerce finished off the department stores, re-sorted the prime high-street pitches, and left retail parks and local convenience behind as resilient formats. The industry therefore treats retail as "shaken out but stabilized." The scenario sees two new waves.

Wave one: the income channel (K1). Consumption is income-concentrated: in the US, the top 20 percent of households account for roughly 65 percent of consumption; a 2 percent decline in white-collar employment there withdraws 3 to 4 percent of discretionary consumption.¹⁶ For Germany the concentration is flatter, but the direction is identical, and German inner-city retail in the fashion, food-service, and leisure categories hangs on the discretionary end. The consumption of corporate employees is the silent subsidy of the pedestrian zone: the lunchtime trade, the after-work trade, the Saturday stroll of high earners. Wolfsburg already shows the pattern in miniature.

Wave two: agentic commerce (scenario). The real structural shift is quieter. When shopping agents take over price comparison, ordering, and subscription management, consumption does not die — the *visibility economy* dies: the impulse purchase, the shop-window effect, the brand experience of the location. Floor space loses its advertising function to the agent. What remains are two polar categories: experience (what people *want* to leave the house for) and provisioning (discounters, local grocers, drugstores — the relative winners, because their customers buy least discretionarily and their logistics are most heavily automated). The mid-location shopping center, whose business model reads "paid visibility plus footfall," loses both.

Early indicators: inner-city footfall decoupling from revenue; share of agent-mediated transactions in online retail; lease terms in the textile segment. **Kill switch:** If real rents in prime pitches outside the top experience locations stabilize by 2032, this chapter overdraws.

9 · Logistics & Light Industrial: The Quiet Winner, with a Catch

Logistics is the consensus winner asset class of the scenario — rightly, but partly for the wrong reasons.

The correct rationale: Agentic commerce (Chapter 8) continues to shift revenue into the warehouse-to-delivery chain; Cushman & Wakefield project, for the US alone, nearly 300 million square feet of additional AI-driven industrial demand by 2035.¹ The automation of the warehouse itself — in the 2036 scenario broadly driverless, dark, dense — lowers labor's share of operating costs and *raises* the capacity to pay for the space.

The overlooked structural effect: Automation changes the logic of location. The warehouse of 2026 stands where workers live and Autobahnen intersect. The warehouse of 2036 stands where electricity is cheap and grid connection is available — the same logic as the data center, with the same bottlenecks (Chapter

12). Proximity to labor loses its locational value; proximity to energy gains it. For standing assets in labor-market-driven locations this is a quiet devaluation that nobody properly prices in 2026.

The Europe 2031 punchline, industrial space as acquisition target: The Brussels scenario has the largest German carmaker taken over in 2030 by a US AI corporation — not despite but *because of* its workforce and its halls: usable industrial floor space that can be converted to robotic production.¹⁹ One need not follow the scenario to retain the real-estate insight: the automotive crisis is generating Germany's largest mass of industrial space for repurposing since reunification — factory halls, logistics links, energy hookups, existing permits. In 2036, light industrial will be the asset class in which it is decided whether Germany becomes a production location of the robotics economy or merely its sales market.

Early indicators: electricity-price and grid-connection clauses in logistics leases; conversion applications for automotive plant sites; robot density per 10,000 m² of warehouse space. **Kill switch:** If logistics space demand lags GDP growth in 2028–2032, the winner thesis must be retired.

10 · Hotels & Operator-Run Real Estate: The Autonomous Building

Operator-run real estate is the special case of this paper: the only category in which AI *directly raises* the margin of the business model on the premises before it changes anything about demand. This chapter therefore opens not with a threat but with a business model.

The real-world hook. In Palo Alto, the startup Lita, founded by Batis Samadian, is developing an "AI-Powered Self-Operating Hotel System," by its own account the first autonomous hotel: an operating system meant to run check-in, concierge, coordination, and large parts of operations without conventional staff; the first opening is announced for San Francisco, with further locations to follow.²³ What is emerging here is not better hotel software but the prototype of a redefined operator property: a building whose service is delivered essentially by AI and, at the next stage, robotics. In the interest of honesty: no robust public figures on staff savings or on the company's capital providers exist to date; circulating orders of magnitude of 70 to 80 percent staff reduction are unverifiable. What can be verified is older and bigger: as early as 2017, the McKinsey automation study identified hospitality as the sector with the highest technical automation potential of any industry, around 73 percent of activities (not: of jobs).²⁴ Hospitality is not the exception to automation. It is its longest-deferred case — deferred because the robotics were missing and wages were low. Both change in this decade.

The Stock-Market Evidence (documented). The big brand groups are meanwhile enjoying some of their best years in decades, and that is no contradiction of the scenario but its confirmation: Marriott gained 37 percent on the stock market in 2025, with a record pipeline of 610,000 rooms; IHG grew operating profit by 13 percent, with the growth coming from units and fees, not

from prices.⁵² The asset-light fee model — the brand collects, the building belongs to others — is proving AI-resilient to AI-favored: agentic booking threatens the booking portals, not the brands, as Marriott's CEO pointedly calculates. And how deeply the rebuild is being thought through behind the scenes was stated publicly in 2026 by Accor CEO Sébastien Bazin, in a sentence that belongs in every industry discussion: "Probably a third, if not 40 percent, of all my corporate jobs will be replaced by AI."⁵² Note the asymmetry: it hits headquarters first, not the front desk — Chapter 14 in the hotel trade.

The Mechanics of the Bifurcated Decade (Scenario). Phase one (to ~2030): the margin gold rush. Autonomous and semi-autonomous operating concepts cut the staff-cost share, in hotels typically 30 to 40 percent of revenue, dramatically; lease payments rise, valuations of operator properties firm, capital pours into "AI-operated hospitality." Whoever owns the property is happy. Phase two (from ~2030): the capacity trap. What everyone can do, no one can price. Falling operating costs lower the barrier to entry, supply grows, the efficiency gain is passed through to the guest via the room rate — the DoorDash pattern from the Citrini paper: when the friction falls, the margin that rested on the friction falls.¹⁶ In parallel, business travel erodes a second time: the first erosion was called videoconferencing; the second is called agentic negotiation — when systems take over appointments, closings, and coordination, humans travel only where presence itself is the purpose.

The Human Premium. There remains the objection every hotelier raises immediately: people want to be served by people. It is to be taken seriously — as a *price segment*, not as a description of the market. In the 2036 scenario, human service is what the artisanal workshop is today: a luxury attribute with its own premium. The top end of hotellerie advertises with humans; the middle of the market can no longer afford humans, because price competition is set by autonomous operations. For conference hotels, boarding concepts, serviced apartments, and system catering, the same split runs along the same line.

[Fictional headline box, scenario]

AHGZ, February 2, 2033: "First German hotel group converts its three-star segment entirely to autonomous operation; works council speaks of a 'system decision,' 1,100 positions affected."

Early indicators: the first published profit-and-loss statement of an autonomous hotel (Lita or an imitator); staff-cost ratios in the chain hotel sector; lease multiples "AI-ready" vs. conventional; RevPAR dispersion between the human-premium and economy segments. **Kill switch:** If by 2030 not a single robustly profitable autonomous hotel P&L exists, the chapter shifts by one cycle.

11 · Healthcare & Social-Purpose Real Estate: The Demographic Anchor

If this paper knows one structural long, it is here. Healthcare real estate — nursing homes, assisted living, medical office buildings, MVZ space, rehabilitation — unites the two most robust curves of the scenario: demand is demographic (2035: one in four over 67²²) and thus largely decoupled from the AI labor market; and the

asset class's historical bottleneck, staffing, is exactly the problem the operator channel solves. The care sector that closes beds in 2026 for lack of skilled staff is, in the 2036 scenario, the sector in which robotic assistance, AI documentation, and monitoring channel scarce human attention to where it is irreplaceable. The staffing shortage transforms from growth brake into automation legitimacy: nowhere is the deployment of robots as socially consensual as where it displaces no one but fills a gap.

The catch is not operational but fiscal, and it leads straight into Chapter 18: care is paid for — and redistributed — out of social-insurance funds and taxes. A scenario that reprices the employment base also reprices the funding base of care. The asset class has secure demand and insecure payers. Its 2036 shape depends less on the technology than on the state's answer to the distribution question.

Early indicators: robotics and AI-documentation adoption rates in care facilities; the Länder's investment-cost rates; operator insolvency rates (already elevated 2024–2026) as an early warning of the funding squeeze.

12 · Data Centers & Energy Infrastructure: The Gold Rush

No chapter writes itself more easily; none is misunderstood more often. Yes: the data center is the asset class of the decade. JLL expects global capacity to double to around 200 gigawatts by 2030, \$1.2 trillion of newly created real-estate value and \$870 billion of additional debt-capital requirements; utilization stands near 97 percent.²⁵ Hyperscaler investment reaches the \$660 to 690 billion cited in Chapter 4 in 2026, and they are still climbing.¹³ Frankfurt, with 997 megawatts of operational capacity, is Europe's largest market at 4.6 percent vacancy, and new connections of 50 megawatts and above in the Rhein-Main region wait up to 13 years for grid access.²⁶ Germany grows from 1.3 to a planned more than 3 gigawatts by 2029; billion-euro projects in Lübbenau, Hamm, Frankfurt (Oder) are shifting the map to where the power is. The bottleneck of the asset class is neither capital nor demand — it is the electricity grid. Whoever talks about real-estate value creation in Germany in 2036 is talking about substations and grid connections.

Four honesties belong in every data-center euphoria. **First, concentration risk:** demand comes from a handful of tenants with identical business-model risk; the asset class is a levered play on the capital discipline of roughly five corporations (unless new strata of owners, e.g. from the Mittelstand or from industry, come on board); and that discipline is softening as we speak: the BIS documents the transition of AI capex financing "from cash flows to debt," with more than \$200 billion of private credit to AI firms and a projection of \$300 to 600 billion by 2030.⁴⁹ Add to this the much-criticized "circular deals": Nvidia, which most recently generated 54 percent of its revenue from just three large customers, takes equity stakes in the very cloud providers and AI labs that buy its chips, and underwrites their orders; Bloomberg puts this circular web of deals at more than 750 billion dollars. In August 2026 the company went a step further still: flanked by the CEOs of Goldman Sachs and BlackRock, Nvidia chief Jensen Huang announced plans to

mobilize 500 billion dollars of Wall Street capital for new AI data centers, up to 125 billion of it backstopped by Nvidia itself; the chip is to become a bankable commodity, and the first loans are already collateralized with the GPUs themselves. Critics from Michael Burry to Goldman analysts to Gartner ("round-tripping") warn of demand that finances itself; and chip expert Peter Fintl names the construction's open flank: "Nobody knows what the GPUs will be worth in a few years."⁶⁷ **Second, technology risk:** buildings built for the chip and cooling generation of 2026 can become functionally obsolete by 2033, long before they are technically written off. **Third, the reflexivity that holds this paper together:** the success of this asset class is the driver of the disruption in all the other chapters. Every leased megawatt accelerates the systems that reprice office tenants, retail consumption, and the industry's own occupational profiles. The real-estate industry celebrates building the machine that replaces its tenants — and calls it diversification. **Fourth, and already measurable in 2026, the social consensus:** resistance to data centers in the US has moved from anecdote to serious movement; in the first quarter of 2026 alone, more than 75 projects with roughly \$130 billion in volume were blocked or delayed, 833 citizens' initiatives across 49 states, 14 moratorium pushes, explicitly bipartisan; approval is tipping in real time, from two thirds of Americans (2025) to 36 percent (April 2026), with nearly three quarters wanting no data center in their neighborhood⁶⁰; capacity prices in the largest US grid region have increased tenfold, and the socialization of these electricity costs through household bills is becoming political dynamite.⁵³ Whoever holds grid connection therefore owns the real asset, and that explains the asset class's most remarkable side story: the Bitcoin miners have begun reinventing themselves as "neo-hyperscalers" — they no longer mine, they sell compute; IREN closed a \$9.7 billion cloud contract with Microsoft, Hut 8, TeraWulf, and Cipher contracted billion-dollar deals with Google backstop guarantees, Galaxy handed the first expansion stage of its former mining campus to CoreWeave; together, more than 2.5 gigawatts of already energized capacity, the fastest data-center pipeline in the world, because the bottleneck is not the building but the power connection.⁵³ The Citrini paper coined the image of "Ghost GDP" for this constellation: value creation that appears in the statistics but no longer circulates through wage accounts — a GPU cluster replaces ten thousand office jobs, and both sit in the same real-estate portfolio.¹⁶

Early indicators: pre-letting rates of new capacity; grid-connection waiting times; share of AI workloads (JLL: from 25 to 50 percent by 2030²⁵); first subleases of hyperscaler capacity as the warning signal of the capital-cycle turn.

13 · Special-Purpose Real Estate: The Margins as Early Indicators

Special-purpose properties are the industry's fine print — and, in the scenario, its early-warning system, because small, specialized uses show shocks faster than sluggish core markets.

Parking: the double blow. Fewer commuters (Chapter 6) and autonomous driving hit the same floor space; in the 2036 scenario the inner-city multi-story car park is

the most visible obsolescence of the cities — and at the same time the most interesting conversion mass (logistics micro-hubs, charging infrastructure, at best demolition). Whoever values car parks today on 30-year cash-flow assumptions is valuing a discontinued model with a perpetuity factor.

Education real estate: What is the campus worth when AI is the best tutor? In-person universities retain their research and socialization functions but lose their spatial legitimacy as lecture machines; private education providers with standard curricula are up first.

Public administration buildings: The state is Germany's largest office occupier and, in the scenario, automates last (civil-service law, questions of legitimacy), which makes it, in 2036, the last large-scale tenant of classic offices; a silent subsidy of B locations, limited to the duration of fiscal headroom (Chapter 18).

Self-storage: grows with every household downsizing and every upheaval — an antifragile segment of the scenario.

Churches and community-use spaces: have supplied the industry for decades with the blueprint for dignified obsolescence management; their conversion practice becomes a sought-after core competence. Country footnote: in the US, trailer parks and garage storage constitute entire asset classes of the lower income segment that *grow* in a displacement scenario; Germany does not (yet) know them — their emergence here would be a late, hard signal.

Early-indicator function: car-park revenues, course bookings at private education providers, and self-storage occupancy lead the core market by 12 to 24 months.

14 · The Value Chain Itself: The Industry Debates Its Buildings and Overlooks Its Offices

This is the most uncomfortable chapter, and let it be written without diplomatic damping: the sharpest disruption does not hit the property. It hits the real-estate *industry* — the 3.5 million people who make their living from brokering, managing, valuing, financing, and advising around the building. Since 2023 the industry has been conducting an AI debate about its *assets* and has not yet noticed that it itself consists in large part of exactly the class of activity that AI replaces first: farming information asymmetries, navigating complexity, processing documents. Citrini supplied the formula one could hang over every branch office in the industry: much of what we called relationships was friction with a friendly face.¹⁶

The review, occupation by occupation, each with the 2026 evidence that it has begun:

Brokers. The US scenario: buy-side commissions in the metropolises compressed from 2.5–3 percent to under 1 percent, with a growing share of transactions entirely without a buyer's broker.¹⁶ The German Courtage rests on the same two pillars, exclusive market access and process guidance, of which the first falls to data availability and the second to agents. What remains is the broker as

negotiating fiduciary for complex individual cases: a profession, but not a mass profession.

Valuers. In March 2026 the gif published a working paper on Automated Valuation Models; finding: AI models improve rent forecasts by more than 35 percent over classical regression; framing: the AVM is "support, not a replacement for the appraiser."²⁷ Read that sentence for what it is: the industry is currently standardizing its own substitution and reassuring itself with its professional code. The RICS is institutionalizing in parallel: from March 2026, responsible AI use is a binding professional standard for all members, the first global AI valuation guideline follows in 2026, and academia delivers the substitution evidence along with it — a peer-reviewed LLM-AVM cuts valuation error by around 24 percent.⁴⁸ In 2036 the residual monopoly of the human appraiser is the liability signature, valuable as long as the legislature requires it (Chapters 18/19).

Property Management / WEG-Verwaltung (condominium owners'-association administration). Service-charge statements, tenant communication, maintenance management, owners' meetings: the most complete use case for agentic systems in the entire industry. The property-manager shortage of 2026 becomes, like the care shortage, the legitimization of automation; unlike in care, hardly any human core remains afterward.

Financing brokerage and loan processing. Ergo is cutting around 1,000 processing positions in 2026 because AI takes over applications, analyses, and claims settlement⁸ — the blueprint for mortgage-finance distribution and the back offices of the real-estate banks.

Project management, transaction advisory, research. Data-room analysis, due-diligence reports, market reports: piloted already in 2026, commodity by 2036. It is an irony of this paper that it was itself researched with AI support — the author is aware of the self-reference.

Real-estate journalism and communications. Standard reporting (deal announcements, market figures) is automatable; contextualization, investigation, and networks are not. The industry's media landscape consolidates around fewer, deeper voices.

Field Notes from Practice (2025/26). Through a family-office community the author accompanies real-estate transactions between families and sees the intermediary side of the market from the inside; what follows is anecdotal evidence and is flagged as such, but it aligns with what the aggregates suggest. First: a broker die-off has begun; in many places there is open desperation, and the pressure comes from both sides. On the supply side, asking prices must frequently be corrected downward (the IfW Kiel confirms the finding in August 2026: asking prices in listings are "again more frequently being adjusted downward"⁵⁵); in individual cases they have fallen below the financing bank's Beleihungswert (mortgage lending value — the conservative value a bank deems recoverable in a forced sale), which means: properties fail to find buyers even at the minimum value a bank sets as auctionable in a crisis. Financing has become an extreme

bottleneck across asset classes, locations, and borrower types, and many report the subjective sense that the banks simply do not want to lend at all. Entire segments of the industry, such as the project developers, feel effectively cut off from traditional debt capital.⁶⁸ On the demand side, the portal economy is tipping: the price of a listing and its benefit, valid buyer leads, are no longer in balance; many brokers simply place no more advertisements; in Switzerland the same conflict already led in 2026 to an open broker boycott of the leading portals.⁴⁴ Second, the quiet self-help: in WhatsApp groups, brokers offer one another properties off-market for fee-splitting or chained deals before they even work their own client files — the main thing is that some closing materializes at all. Those who are financially set are working on professional reorientation. Third, the industry's own labor market: good positions have become rare; whoever applies increasingly competes with software. A professional exposé, three years ago a working-student or junior task, is today produced by a language model in minutes; machine valuation was covered above. These people also no longer commute to the office, no longer consume in the city center, and are searching in adjacent industries — the transmission channels from Chapter 4 run through every one of these biographies. And fourth, on the author's own account and without mercy: in the author's organization, AI agents today perform work for which nearly ten employees were engaged in the past, from design, through CRM, to research. One can dismiss these observations as cyclical (Chapter 19, Objection 6, takes exactly that seriously). The aggregates speak a similar language: the ZIA-IW real-estate sentiment index plunged 17.5 points to -2 in the second quarter of 2026, expectations for the residential segment stand at -22.9 ; real-estate insolvencies rose to 554 cases in the first quarter of 2026 (+13.5 percent quarter-on-quarter).⁴²

The arithmetic check on the order of magnitude: of the roughly 3.5 million people employed in the German real-estate industry⁶, the majority work not on the construction site but at desks — in brokerage, administration, financing, advisory. If even half of these desk activities become substitutable within ten years, the industry loses more jobs than the entire German automotive industry still has today. This calculation is rough, and it stands here so that someone refutes it. In the scenario, Expo Real 2036 will be smaller than that of 2026 — not because there were fewer properties, but because fewer people stand in between as intermediaries.

[Fictional headline box, scenario]

IZ, October 8, 2035: "Professional association reports halving of active residential brokers since 2028. President: 'The profession is becoming a manufactory.'"

Early indicators: AVM share of Beleihungswert appraisals; commission rates in the Big 7; employment figures in the property-management sector; job-posting volume for "Immobilienkaufmann/-frau" (the German certified real-estate agent apprenticeship occupation) as the hardest single indicator. **Kill switch:** If social-insurance-registered employment in real-estate service occupations keeps growing through 2031, this chapter errs on tempo — then re-examine it in 2034.

15 · Development & Construction: When Construction-Cost Inflation Ends

In the house of real-estate economics, development is the royal discipline, and it rests on an assumption so old that no one recognizes it as an assumption anymore: building gets more expensive every year. Construction-cost inflation is the tacit foundation of every standing-asset valuation ("new build cannot be cheaper"), every rent forecast ("scarcity persists"), and every subsidy policy. The scenario challenges precisely this assumption.

The Building Blocks (documented). Gordon Gorski, head of one of the largest German developers, formulates two sentences in 2026 whose implications are underestimated: "We will see more AI that will take over the complete planning process" — floor plans, building services; the architect is left with facade and urban design. And: "Given the exponential development of AI and robotics, we will see robots on construction sites within the next three to five years."²¹ Prefabrication and timber hybrid are already cutting construction times from 24–30 to 15 months. Construction robotics is tiny in 2026, under 0.03 percent of global construction spending, but its venture capital more than doubled in 2025: \$1.36 billion after only three quarters, against a good 600 million for the full year 2024²⁸; and the robotics cost curve is being set not in Europe but in China, where humanoid robots are reaching the ten-thousand-euro threshold.¹⁹ The planning process, the permitting procedure, and construction execution are three stacks of documents, coordination, and repetitive physics — two of them are software, one is becoming it.

The Systemic Consequence (Scenario). If the production function turns — AI planning, serial prefabrication, construction robotics, a dissolved skilled-labor bottleneck — then around 2032, for the first time in generations, the real price of new construction falls. That sounds like good news, and macroeconomically it is. For the real-estate economy it is a system break: new build becomes cheaper than existing stock. The replacement-cost prop under every standing-asset valuation gives way; the old building suddenly competes with a product that comes into being faster, energetically better, and cheaper. The winners are developers who master building as an industrial process, and the public sector, whose housing targets become computable for the first time. The losers are the standing-stock owner, whose asset loses its scarcity rent, and the skilled trades of the classic mold, whose labor shortage inverts into its opposite within a decade. Small-lot development is consolidated by platforms; the developer of 2036 is a systems integrator between AI planning, production line, and permitting interface. The bottleneck that remains is not one of production: it is building land, permits, and grid connection — in other words, politics (Chapter 18). Gorski's complaint about 16 Landesbauordnungen (state building codes)²¹ reads in the scenario as the real obstacle to modernization: the machine can build; the administration must allow it. How deep this obstacle sits is described in August 2026 by Martin Herrenknecht, whose machines bore through the Alps, from four decades of practice: "Germany is still planning itself to death" — state treaties on European rail corridors are

broken, a superfluous line upgrade for four billion euros yields four minutes of travel-time gain — and his conclusion could stand as the motto over this chapter: "The money is there. What we lack is the courage to question the familiar and to try the new."⁵⁵

Early indicators: construction-cost index in real terms vs. CPI (the turn is *the* indicator); share of serially manufactured housing units; robot density on large construction sites; planning lead times. **Kill switch:** If real construction costs keep rising through 2032, the scarcity rent stays intact and this chapter remains theory.

16 · Capital Markets & Financing: The Valuation Lag as Systemic Risk

Real-estate crises rarely originate in the property; they originate in the time between reality and book value. The 2036 scenario has its most dangerous spot exactly there.

Starting Position 2026 (documented). German real-estate financing is already under pre-tension: the BF quarterly barometer of real-estate lenders fell from −9.74 to −25.97 in the second quarter of 2026, lending appetite "very restricted"; 80 percent of surveyed institutions report deteriorated sentiment, around 70 percent expect rising rates; almost the only thing still being financed is residential, and even there ticket sizes are shrinking from 50 to 10–15 million euros.²⁹ The immediate trigger of the slump was geopolitical, the energy-price shock of the US-Iran war, but a spark ignites only dry wood: the lenders' structural caution has existed since 2023. Prof. Dr. Steffen Sebastian (IREBS) names the vicious circle: without loans no project completions, without completions no relief. Prof. Dr. Tobias Just points at the same time to the 2026 concentration of very short-term refinancings in the commercial stock — and to a double face of AI in the capital market: it can reduce valuation uncertainty and irrationality, but co-directional algorithms create a new systemic risk, the flash-crash analogy for a market hitherto protected by its own inertia.³⁰

The German Cascade (Scenario). The US has its vulnerable spot in the private-credit complex; Citrini works through how software defaults eat their way through direct-lending books and insurance balance sheets.¹⁶ The German equivalent has three links. **Link one: the appraised value.** German valuations smooth by construction — sustainable income value, comparable rents, long intervals. In stable markets that is a virtue; in the transmission scenario it becomes organized reality delay: the values of 2031 mirror the leases of 2026. How wide the gap can grow, MSCI has measured for the US: appraisals most recently averaged 6.8 percent above subsequently achieved sale prices, and in CBD office an appraisal decline of 43 percent stood against a transaction decline of 51 percent.⁴⁸ **Link two: the open-ended real-estate funds.** Their construction, daily unit prices on the basis of sluggish appraised values, statutory redemption notice periods, works as long as inflows and outflows stay in balance; it is procyclical the moment a revaluation narrative reaches investors. **Link three: the Pfandbrief (the**

German covered bond), insurers, Versorgungswerke (the professional pension schemes). The Pfandbrief has survived every crisis since 1900 and is no designed breaking point, but the Beleihungswerte beneath it rest on borrowers' income assumptions, and the real-estate allocations of the retirement systems were built up in the zero-rate era, carried at values that still face the transmission test or are passing through it painfully right now. None of this is 2008. It is slower, more German, more appraiser-driven — and for exactly that reason invisible for longer.

The investor question poses itself anew and quantitatively in 2036: who are the buyers? The Boomer generation of private landlords is exiting (Chapter 7), the Versorgungswerke are overweight, foreign capital prices in the political risk from Chapter 18. How real that repricing is, the record of 2026 shows: in the years before the rate turn, foreign capital accounted for roughly half of Germany's commercial transaction volume; in 2023/24 its share fell to 35 to 37 percent, the lowest level in more than a decade — and that on a market that had itself shrunk by around 70 percent.⁶⁹ The federal government has recognized the problem and, following the model of "Choose France," is convening Germany's first Investor Summit in Berlin on October 19–20, 2026.⁶⁹ The same autumn, however, becomes a stress test for investors: a few weeks before the summit, Saxony-Anhalt, Mecklenburg-Vorpommern, and Berlin go to the polls — with the AfD polling as by far the strongest party in both territorial states, and with a Left Party leading in Berlin that has declared the socialization of large housing portfolios a condition for any coalition.⁶⁹ International capital responds with a fine but consequential distinction. Where the state guarantees, it queues up: infrastructure with a federal guarantee is, economically, a bond in disguise — a government security with an illiquidity premium — and for grids, rail, and energy, international houses from KKR to Macquarie to I Squared are pushing into the German market, drawn by the 500-billion-euro special fund.⁷⁰ Where the state regulates instead of guaranteeing — in the broad real estate industry — interest has eroded noticeably in recent years. And in private wealth a third movement is under way, quiet and without a press release: wealthy families are shifting capital out of Germany. Henley & Partners projected, for 2025 and for the first time, a net outflow of around 400 millionaires from Germany; enquiries from German citizens about investment migration rose by a further 16 percent between late 2025 and early 2026; and 60 percent of family offices worldwide plan, according to UBS, the largest reallocation of their strategic asset allocation since records began — explicitly including reduced real estate.⁷¹ In the family-office community in which the author moves, the direction of that reallocation is no secret: to the USA, to Poland, Copenhagen, Spain, or Dubai, while new German commitments are put on hold; billions are leaving the country without a single headline. That is anecdotal evidence and flagged as such — but it is consistent with the aggregates. The Berlin socialization debate takes this logic to its end point: expropriation is being seriously pursued there today — referendum, expert commission, framework law (Chapter 18) — and entirely *without* AI; the trigger is ordinary housing scarcity.⁴³ What happens when the AI shock of this paper genuinely poses the distribution

question and states reach for precisely these instruments is the real investor question: a market that normalizes such interventions before the stress even arrives has answered "who are the buyers?" for international capital all by itself. And hovering above the question is a fiscal risk that would hit real assets twice: the Vermögensteuer (Germany's net wealth tax). It has only been suspended since 1997, not abolished; in March 2026 a motion for its reinstatement lay before the Bundestag (one percent, rising to five, twelve percent at the top), the SPD keeps the option open, and the valuation question on which the Bundesverfassungsgericht let the tax fail in 1995 was, of all things, real-estate valuation.⁵⁸ A state caught in the pincer of Chapter 18 will reopen this file, and were it to strike, it would strike first the wealth that cannot move: the land register. The scenario's answer: capital is available, it merely demands a different risk premium. The cap-rate spread between "income-robust" and "income-exposed" assets, barely measurable in 2026, is the industry's most important metric of 2036. And on the credit side the direction of sight reverses: the bank of 2026 values the property and takes the income as given; the bank of 2036 values the income, more precisely: its AI exposure, and takes the property as a derivative on it. Institutions that begin in 2028 to map the occupational clusters of their borrowers by automation exposure will have the better books in 2033.

Ghost GDP and the Betongold Corrosion. Yuval Noah Harari has captured the condition this chapter calculates through in a single sentence: "It is the moment when capitalism and humanity separate from each other."⁶¹ Chapter 12 introduced the image of Ghost GDP, value creation without wage-account circulation. One must think this image through to the end, for it has a wealth side, and for Germany it is brutal. If the returns of the AI economy accrue to the few companies that control the stack, then whoever owns them participates in them, and no one else. The concentration is measurable: the seven big technology stocks account for around 34 percent of S&P 500 market capitalization in 2026; in the US, the top ten percent of households hold 93 percent of equity wealth.⁴⁷ And now set the German balance sheet against it: 19.9 percent of Germans aged 14 and over own equities or funds, versus 62 percent of adults in the US; of German households' financial wealth, around 9.5 trillion euros, roughly 37 percent sits in cash and deposits, the only aggregate certain to lose in real terms; more than half of gross wealth is tied up in real estate; and the home-ownership rate of 44 to 47 percent is at the same time the lowest in the EU — in Europe only Switzerland lies below it.⁴⁷ Germany thus holds its savings almost entirely in the two asset classes this scenario tests hardest, real estate (revaluation) and nominal wealth (inflation), and holds as weak a stake in the asset class collecting the AI profits as scarcely any other industrial nation. To its credit: with the "Frühstart-Rente" (early-start pension — a state-seeded equity savings scheme for children), cabinet consideration in August 2026, ten euros of state contribution monthly for six- to eighteen-year-olds, launching in 2027 with retroactive credit from 2026, Germany for the first time acquires a 401(k)-like instrument, and in principle that is the right answer to precisely this imbalance. But the dose is homeopathic: at most 1,440 euros of state capital per child, while US retirement assets have reached \$49 trillion, a good 14 trillion of it

in 401(k)-type plans; the debt-financed "Generationenkapital" (generational capital — the previous government's credit-funded pension equity reserve) is not being continued, and the funded-capital pillar of the statutory pension planned for 2028, two percent of gross salary, mandatory and funded in equal parts, into an equity pension, is still at the planning stage.^{58 60} The conceptual benchmark was formulated by the investor Nicolas Berggruen: "universal basic capital," participation of all in productive capital on the model of Singapore's sovereign funds and Australia's superannuation (twelve percent of gross wages, invested globally) — "Give people shares in their economy."⁶⁰ Measured against that, the German entry is right, late, and small all at once; before substantial national wealth arises along this path, the date lies far beyond 2036. The same imbalance runs through the professional level: German and DACH family offices report a real-estate allocation of more than 50 percent in a 2025 survey, while the global UBS average stands at eleven percent (the range across studies is wide and disclosed in the annex); the Versorgungswerke have in many cases exhausted their regulatory 25 percent real-estate quota, since 2020 at least 18 of them have booked extraordinary write-downs totaling more than two billion euros — some of which still stem from the turmoil of the zero-rate era — and BaFin lists the real-estate correction as a focus risk.⁴⁷ The rotation has begun: in 2026 MSCI registers declining institutional target allocations to real estate for the first time in 13 years; 60 percent see infrastructure and private credit as direct competition for the same capital.⁴⁹ What that competition will look like can already be read: Martin Herrenknecht calls for rail bonds with a federal guarantee, "insurers, large investors, and pension funds love such assets" — exactly the capital that today sits in the 25 percent real-estate quota.⁵⁵

From this follows perhaps the most uncomfortable thesis of this paper, and it will provoke resistance: "Betongold" (concrete gold — the German idiom for real estate as an unassailable store of value) is no law of nature but a convention from an era in which labor was scarce and expensive and its incomes flowed into floor space. Whoever holds neither a direct nor an indirect stake in the AI stack over the coming decade — which includes the energy and compute infrastructure — faces historically low real returns; that applies to the saver with the overnight-deposit account as much as to the family office with the 50 percent real-estate allocation and the Versorgungswerk at its investment limit. The evidence since the rate turn can already be told in both readings: nominally, the housing market, after the decline of around ten percent from the peak of the second quarter of 2022 (multi-family above 20, office around 20 percent), found its way in 2025/26 into a stabilization with mild recovery; in real terms, however, after inflation, German real estate has lost around a fifth of its value since 2022, and the nominal "recovery" of one to two percent per year continues to run below inflation — the real erosion is thus in its fifth year, only more quietly — and barely discussed or even noticed publicly.⁴⁷

The cyclical reading says: a rate shock, it will be digested. The structural reading this paper puts up for examination says: here, concealed by the rate argument, the revaluation of an asset class has already begun — an asset class whose valuation

foundation, capitalized labor income, is starting to erode. And because inheritances, lending limits, Pfandbrief cover pools, bank balance sheets, and the collateral chain of the entire credit system hang on this foundation (Chapter 2), the Betongold corrosion is no niche problem of the real-estate industry but the German edition of the Ghost GDP question: a country can grow in the statistics and become poorer doing so if its wealth is parked in the wrong asset class. Kill switch here too: if the real residential property price index returns above its 2022 peak by 2030, the corrosion thesis was wrong and the rate argument sufficed.

The Stock Market as Early Indicator: Listed Real Estate (documented, as of August 2026). There is one place where the future of real estate is already traded daily, and the industry looks there astonishingly seldom: the stock exchange. Alternative direct holdings and the private-equity vehicle live off smoothing — appraised values, quarterly reports, deliberate valuation blindness as a business model; whoever takes smoothed book values for stability, however, mistakes blindness for calm. The listed real-estate companies do not have that privilege: they are priced daily, in Funds from Operations (FFO, the operating cash result before valuation effects, the lead metric of the REIT and listed real-estate world) and in the discount to net asset value. Exactly that makes them the most valuable early indicator of this paper. The picture in August 2026: the European real-estate sector trades 27 to 29 percent below net asset value (historical average: 17); the largest discount of any sector sits, of all places, on residential — minus 48 percent.⁵¹ Vonovia trades around 54 percent below reported EPRA net asset value and 64 percent below its 2020 share-price high, LEG at minus 62, Aroundtown at minus 73 percent; the P/FFO multiples of the German landlords stand at 8 to 9 against around 15 in the US.⁵¹ And the same market simultaneously awards a premium for strategy: TAG Immobilien, which has diversified consistently into Poland since 2020 (after the latest portfolio acquisition around 9,000 rental units, Polish letting result more than doubled in 2026), trades at only a 34 percent discount, the smallest of the group; the capital market measurably pays for the exit from German concentration risk.⁵¹

In the interest of honesty, and it is decisive here: these discounts are first and foremost a child of the rate turn. When rates jumped from around zero-one to three-four percent in 2022, an entire sector had to be revalued, levered landlords first; German residential equities have since traded de facto as levered Bund duration with a policy overlay — every yield surge and every rent-law debate hits the share prices within weeks. Nothing in the share-price losses since 2022 is demonstrably an AI effect, and this paper expressly does not claim it is. Its thesis is a different one: beneath the interest-rate plate, a second tectonic plate is shifting, slower and quieter — the repricing of the labor from which the rents flow — and the stock exchange will be the first place where the grinding becomes measurable. Striking already today is what the market does *not* explain: the equity discounts are widening while the appraised values of the very same portfolios have been rising again since 2025; the market is pricing something that is not in the appraisals. Striking, too, is what is missing: the author knows of no study that systematically analyzes European real-estate equities for the AI exposure of their

tenants and earnings; this paper undertakes, in all modesty, a first attempt — and gladly accepts pointers to overlooked predecessors.

Figure 3 shows why this stage is so instructive for the Betongold question, in the only currency that counts: real, after inflation. Since the end of 2021, the Nasdaq, S&P 500, and DAX have fully digested the 2022 rate shock and stand 35 to 41 percent higher in real terms; the German residential property market stands around 21 percent lower in real terms, and its curve has been a flatline since 2024 — the nominal "recovery" merely offsets inflation, nothing more.⁵⁴ Four and a half years, one test, two answers: the productive, AI-bearing asset class has recovered from the rate shock; capitalized labor so far has not. That does not prove the corrosion thesis — it is exactly the pattern the thesis would lead one to expect at the outset. And the curve extends itself on the very day these lines appear: on August 10, 2026, the vdp reported for the second quarter the first quarter-on-quarter decline in the overall index since the recovery began (−0.1 percent); residential gained 1.9 percent nominally year-on-year, once again remaining below the inflation rate — the Handelsblatt headline reads "Nervousness in the property market is rising."⁵⁵

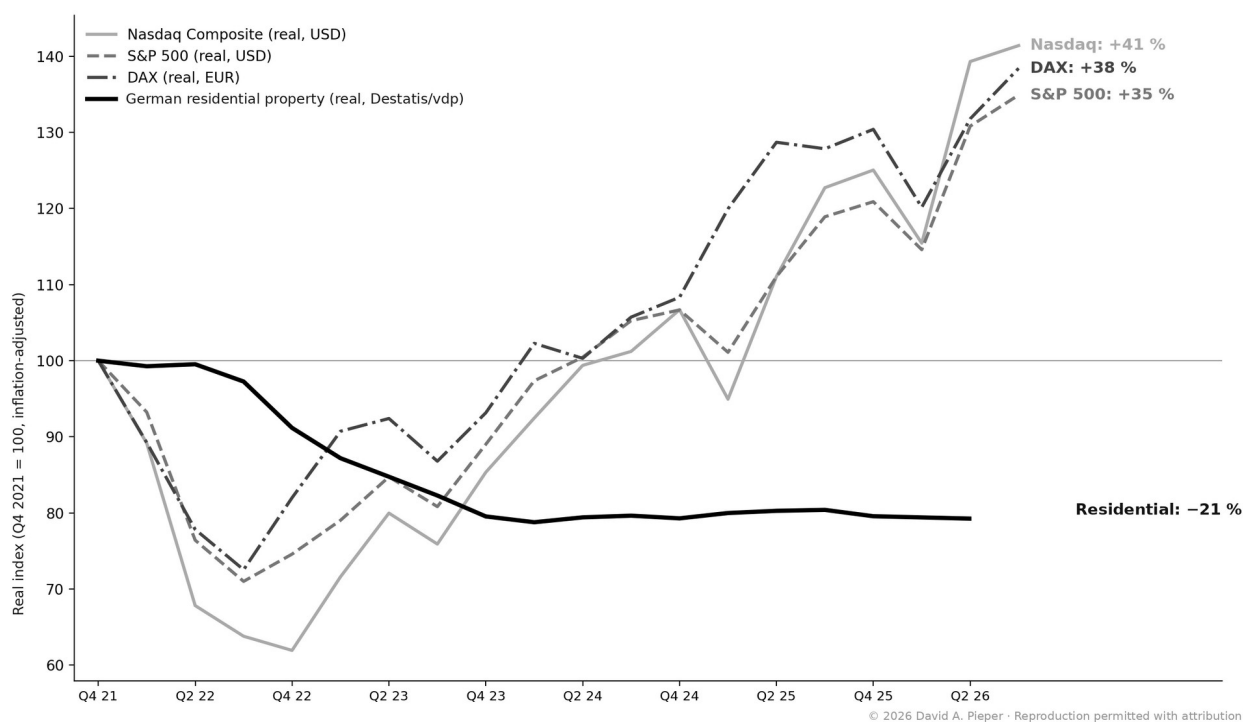


Figure 3: Real performance since the rate turn (Q4 2021 = 100, inflation-adjusted). Residential property: Destatis house price index (Q2 2026 extrapolated with vdp data); equity indices: month-end closing prices; DAX as a performance index including dividends, S&P 500 and Nasdaq as price indices excluding dividends (their real returns are thus understated); deflated with the VPI (Germany) and the CPI-U (USA) respectively, 2025/26 values partly provisional. Own calculation, data as of August 8, 2026. © 2026 David A. Pieper; reproduction permitted with attribution.

The global view confirms the divergence reading. US REIT sector returns tell the AI story in three acts: data-center REITs plus 25 percent (2024), minus 14 percent (2025, the Equinix capex shock), and plus 36 percent year-to-date in 2026. The equity market prices the AI cycles roughly two quarters ahead of the fundamentals, and it is already debating whether these vehicles are even still real estate or infrastructure.⁵² Office REITs sit under an explicit "AI scare trade" — SL Green, for example, minus 50 percent since November 2024, even though US office markets showed positive net absorption in 2025 for the first time since 2019; here the market prices the AI thesis *against* the current fundamentals.⁵² And Prologis, the world's largest logistics company, is demonstrating how an asset class reinvents itself before others do it: a 10-gigawatt data-center target, a 5.8-gigawatt secured power pipeline, review of its own land bank for conversion, and in August 2026 the agreed SEGRO takeover for around \$19 billion with the official rationale that logistics, energy, and digital infrastructure are converging.⁵² The recommendation to the readership is therefore meant practically: whoever wants to know whether the theses of this paper hold does not have to wait for the appraisals of 2031. They watch the NAV discounts of the residential companies, the P/FFO spread between Europe and the US, the relative performance of office versus data-center REITs, and the conversion announcements of the logistics players — priced daily, freely viewable, incorruptible.

Table 2 condenses the findings:

Name	Share price since rate turn (12/2021)	Valuation (08/2026)	Finding for the scenario
Vonovia	-57%	~-54% to NAV, -64% from high	rates + regulation priced; AI exposure of the tenant base unpriced
LEG Immobilien	-57%	~-62% to NAV	as Vonovia; AFFO declining despite rent growth
TAG Immobilien	-44%	~-34% to NAV	Poland premium: market pays for diversification out of Germany
Aroundtown	-59%	~-73% to NAV	office/hotel mix; largest discount, recovery from the low underway
Prologis	-17%	near record share price 2026	self-disruption: logistics becomes an energy/DC platform (SEGRO deal)
Equinix	+23%	DC sector: 2025 -14%, 2026 +36%	AI cycle priced ~2 quarters ahead; more infrastructure than real estate
SL Green (US office)	-21%	"AI scare trade"	market prices AI thesis against current fundamentals
Simon Property	+40%	record FFO 2025	physical retail so far no AI loser
Marriott	+114%	record pipeline of 610,000 rooms	asset-light fee model AI-resilient to AI-favored
IHG	+142% (ADR, USD)	pipeline = 33% of the estate	ditto; growth from units and fees, not prices
Hilton	+104%	record pipeline of 520,500 rooms	ditto; unit growth +6.7% with RevPAR near zero

Table 2: Listed real estate as an early-indicator dashboard. Price column: December 31, 2021 to August 7/8, 2026, excluding dividends (IHG as ADR in US dollars); all other figures as of August 7/8, 2026, rounded; sources and individual values in footnote ^{51/52}. © 2026 David A. Pieper; reproduction permitted with attribution. Not an investment recommendation; the dashboard serves to test the thesis, not to select securities.

Early indicators: Spread between transaction prices and appraised values (NAV discounts of listed vehicles as a real-time proxy); fund flows of open-ended real estate funds; BaFin requirements on income stress tests; mentions of "AI exposure" in credit guidelines.

Kill switch: If the NAV discount on shares of German buy-and-hold landlords remains below 15 percent through 2030, the capital market does not see the scenario — that would be a serious counterargument.

17 · Cities & Regions: The Map of Divergence

"The German real estate market" is, in 2036, a statistical fiction. JLL/MIT research already shows, for the USA in 2026, four diverging market trajectories depending on the AI exposure of the local economy³¹; the scenario transfers that divergence onto the German map.

The vulnerable: Cities whose economies rest on administration and automotive. Wolfsburg and Ingolstadt are the prototypes (monostructure, company-housing legacy, dependence on the Gewerbesteuer, the municipal trade tax); Stuttgart, a Top 7 location, is the big case — corporate headquarters, a supplier hinterland, a housing market built on engineering and industrial salaries. The Interhyp/IW findings of 2026¹² are the first few centimeters of this path. For the USA, Brookings shows the punchline of the new geography: for the first time, an automation wave hits the high-skill metropolises hardest (San José: 43 percent of employment exposed), not the Rust Belt; translated, this means the German loser candidates are not just the car cities but also the most expensive knowledge hubs.⁵⁰ The banking data are already drawing the map: in the vdp index for the second quarter of 2026, Stuttgart, at +0.7 percent year-on-year and -0.2 percent quarter-on-quarter, is the weakest of the seven metropolises, Hamburg, at +3.8 percent, the strongest — a spread of three points within a single year, exactly along the exposure logic of this chapter.⁵⁵ The mechanics run through municipal finances into the second round: trade tax falls (Wolfsburg: from €250 million to €150 million, already played out in real terms¹¹), services and infrastructure follow, locational attractiveness declines, the devaluation reinforces itself — the German edition of the American urban doom loop, slowed by the municipal fiscal equalization system (kommunaler Finanzausgleich), but not suspended.

The winners: München and Berlin as AI, research, and capital clusters (Berlin ranks fourth in Europe in the ULI/PwC 2026 ranking²); data center and energy regions — Lausitz, the Rhein-Ruhr periphery, Frankfurt (Oder) — experience, in the scenario, an industrialization of the second kind, in which the location factor "substation" beats the location factor "university." **The special case:** Frankfurt, the divided city: the banking towers house the most automatable industry in the republic, the urban fringe the largest data center cluster in Europe²⁶. Frankfurt is this paper as a skyline.

East-West irony: East German regions whose real estate markets are hit hardest by boomer demographics (cohort homeownership rates of up to 39.7 percent²²) simultaneously win the energy-location lottery. Cottbus 2036 — a shrinking housing market next to a booming gigawatt campus — is the double image of the decade.

Overall, this repricing of locations also offers many opportunities — and it will produce new winners and losers.

The world map: winners, losers, transferability. The same divergence logic runs across the map of nations, and here the paper deliberately changes altitude for one section. The finding is an amplifier effect: AI cements the power structure of those who own it. The Stanford AI Index 2026 shows a duopoly — the USA with 50 and China with 30 of the defining models of 2025, with the performance gap between frontier models shrunk to 2.7 percent; behind that, US dominance in capital (\$285.9 billion in private AI investment against \$12.4 billion in China) and in infrastructure (over 5,400 data centers, more than ten times any other country),

while China leads in patents and publications and, as described in Chapter 3, dominates manufacturing.⁴⁶

At the same time, states are rising that by the classical reading played in the third or fourth league on account of their size and are becoming powers of a distinct kind in the AI age: Israel (high tech: roughly one sixth to one fifth of GDP, 57 percent of exports), South Korea (robot density: 1,220 per 10,000 manufacturing employees, first in the world; memory), Taiwan (quasi-monopoly on the fabrication of leading AI chips), Singapore, and the Gulf states, which are buying themselves compute sovereignty with projects such as Stargate UAE (first gigawatt stage under construction) and Saudi Arabia's HUMAIN.⁴⁶

The second league of the classical economies, by contrast, is on probation: Germany (Chapter 3), Japan (29.4 percent of the population over 65, but with the robotics answer inside its own industrial stack), and India, which is likely to overtake Germany in nominal terms around 2027/28 and is at the same time the purest laboratory of this paper: its IT and outsourcing sector (\$283 billion in revenue, 5.8 million employees) is the most AI-exposed large industry in the world, and it carries the Indian office market — Global Capability Centers account for 45 percent of office space demand in the seven largest cities, in Bengaluru for around 70 percent; when TCS cut more than 12,000 jobs in 2025 in the course of an AI restructuring, that was the first mass headline of the transmission this paper describes.⁴⁶ Anyone who wants to know whether this paper's thesis holds should watch Bengaluru alongside Stuttgart; it is the office market with the most direct AI exposure in the world. Europe as a whole, finally, is the map's most critical experiment — the attempt to build a third way between two complete technology stacks, with regulatory power but without a compute and model base of its own at comparable depth; that is no longer a minority opinion but, since the Draghi report with its €800 billion gap and its 11 percent implementation record, the EU's own documented self-diagnosis.⁵⁹ Harari narrows Europe's options to two: becoming a "submissive vassal of the USA" or an independent actor — "it is not yet too late," but only "a few years" remain; and he names the fiscal punchline this paper calculates through in Chapter 18: "If the basis for taxation disappears, Europe cannot even maintain its existing social systems."⁶¹

And transferability? The findings of this paper are not German findings with German validity; they are — so the thesis — global mechanics with local modifiers. Four modifiers shift the expression, not the direction: demographics (the care and aging chapter applies to Germany, Japan, China, and the USA; for sub-Saharan Africa, with a median age of around 19 and an urban population doubling from about 700 million to 1.4 billion by 2050, the housing question is a question of quantity, not of aging⁴⁶); regulatory density (Chapter 18 scales with it); the homeownership rate (the higher it is, the more directly the labor market shock becomes a wealth shock to the middle class); and capital market integration (REITs, global valuation benchmarks, and cap rate arbitrage export repricings faster than any local market peculiarity can stop them). The isolation hope — "that is a problem of country X" — has a miserable track record in the history of real

estate cycles; 2008 began as an American subprime detail. A transmission grid does not end at borders; it merely has handover points there.

Early indicators: Increases in Gewerbesteuer multipliers (Hebesätze) in car cities (a fiscal stress signal); net migration balances of 25-to-35-year-olds; municipal cash-advance borrowing (Kassenkredite); office take-up Stuttgart vs. München as a divergence pair; internationally: GCC net absorption in Bengaluru and hiring figures of the Indian IT service providers as a global early indicator.

18 · The State: Regulation, Redistribution, and Housing as a Promise

No country negotiates the distributional consequences of AI as inescapably through real estate as Germany. Three facts frame the field: the Staatsquote (government spending as a share of GDP) stands at roughly 49.5 percent³² — the state is a half partner in the economy. Real estate is regulated four times over: the federal level (tenancy law, subsidies), the Länder (federal states: building codes, Grunderwerbsteuer, the real estate transfer tax), the municipalities (planning, tax multipliers), plus the EU level (taxonomy, buildings directive). And it is at the same time a load-bearing tax base: real estate transfer, property, and trade taxes finance the Länder and the municipalities. In the housing market, the state is referee, player, and chief beneficiary in one.

The scenario's mechanics are a pincer. On one side, the revenue base erodes: wage tax and social contributions hang on precisely the employment the scenario reprices; the US long-run line — labor share from 64 percent (1974) to 56 percent (2024)¹⁶ — shows the direction before any AI acceleration. On the other side, spending needs grow: transfers, retraining, care (Chapter 11), municipal support (Chapter 17), and immigration integration. A state caught in this pincer reaches, with historical reliability, for the instrument that costs nothing and works immediately: price regulation of what it cannot pay for, and tax increases — and, as some even fear, capital controls. The escalation ladder in housing is pre-drawn, and every rung already has its precursor in the statute book or a party platform in 2026: a tightened Mietpreisbremse (rent brake capping rents on new leases) → Kappungsgrenzen (statutory caps on rent increases) in the existing stock → eviction moratoria for those affected by "AI structural change" → at the top of the ladder, the "Wohngarantie" (housing guarantee) as a social-policy promise. One may consider this ladder wrong; one should not consider it unlikely that it will be climbed — the Mietendeckel (Berlin's rent freeze) precedent exists, and the political pressure of the scenario exceeds that of 2019 many times over. Tax increases are, moreover, more likely than tax cuts, which in turn drives more emigration and, in the long run, lower state revenues. Here is the marginal note: hardly any country has Wegzugsbesteuerung (exit taxation) rules as strict as Germany's; if they did not exist, the country would — so the author's thesis — be considerably poorer in entrepreneurs, high potentials, and investors. The finding can be documented with legal precision: § 6 Außensteuergesetz (Section 6 of the German Foreign Tax Act) taxes the unrealized gains of shareholdings in

corporations from one percent upward upon departure — since the ATAD reform of 2022 payable in principle immediately even on moves within the EU, and since 2025 extended to investment fund and ETF holdings above €500,000; wealth has become more mobile, and tax law has bolted the exits.⁵⁸ The fisc knows this and keeps tightening the thumbscrews.

The debate has arrived — just not yet where votes are cast. In August 2026, *Der Spiegel* asks on its cover "Mehr Marx wagen?" ("Dare more Marx?") and works through the "new AI capitalism" in its cover story: MIT economist David Autor warns that democracy is "very hard to sustain in a world in which most people no longer have anything to give"; Thomas Piketty calls AI "the greatest attempt at a gigantic appropriation" and demands, for billionaires, up to 90 percent income tax and 20 percent wealth tax, payable in company shares; the solution spectrum ranges from Bernie Sanders' partial nationalization through Donald Trump's "small stakes" for the public and Sam Altman's robot tax to Elon Musk's basic income and Berggruen's capital participation (Chapter 16).⁶⁰ In New York, neo-Luddites proclaim the "Summer of Ludd," a Molotov cocktail was thrown at Altman's villa in April, and the US security agencies warn internally of "anti-technology violent extremism."⁶⁰ Harari prophesies a "power struggle between tech companies and governments."⁶¹ Hold this enumeration next to the finding from the Berlin laboratory: the systemic debate is running on the front pages while it does not yet appear even as a keyword in housing policy election platforms. It is precisely in this gap between feuilleton and statute book that the real estate industry will feel the distribution question first.

The basic income debate is no longer a utopia discussion but redistribution policy in preparation (documented). Elon Musk has been propagating a "Universal High Income" since April 2026 as the answer to AI unemployment³³; Sam Altman, after the UBI study he financed himself, has moved away from the classic basic income and advocates participation models in AI value creation³⁴; and in Germany, Digital Minister Wildberger, CDU, declared in March 2026 that a basic income could at most be part of the solution in the event of AI-driven job losses — coupled with a sentence that makes one sit up, coming from this quarter: "The era in which industry was a jobs machine is coming to an end."³⁵ When such sentences fall from this side, the question is no longer *whether* but *how* redistribution happens, and the real estate economics follow-up question is: will housing become part of the transfer? A basic income is, through the lens of this paper, a state-guaranteed rent payment stream — the largest conceivable support for the housing market *and* the largest conceivable legitimation for capping its prices. Both at once.

The investor question, posed without an answer. The scenario ends in a trilemma that this paper does not resolve, because it cannot be resolved in 2026: the state needs private investors for housing construction; the investors need reliable rents and returns; politics needs affordable rents for an income-insecure electorate. Two of the three are always achievable. In 2036, the capital markets will price daily which two those currently are — that is the true meaning of the

"regulation premium" embedded in the cap rate spread from Chapter 16. And above it all stands the scenario's fundamental fiscal question, the hardest in the entire paper: who pays for a welfare state with a 50 percent Staatsquote when the gainful employment that carries it structurally shrinks? Taxing AI value creation — compute, profits, data use — is the obvious answer and at the same time a locational risk in the competition between systems; the Europe 2031 paper works through what happens if Europe misses this balance.¹⁹

The Berlin laboratory (documented). One need not justify the escalation ladder theoretically; one can look to Berlin. Ahead of the Abgeordnetenhauswahl (Berlin state parliament election) on September 20, 2026, Die Linke leads the polls at around 20 percent as the strongest party; the Vergesellschaftung (socialization, i.e. transfer into public ownership) of more than 200,000 apartments held by large corporations is the declared coalition condition of its federal party leadership.⁴³ The prehistory: the referendum "Deutsche Wohnen & Co enteignen" ("Expropriate Deutsche Wohnen & Co") won 59.1 percent of valid votes in 2021; the Senate's expert commission concluded by majority in 2023 that socialization under Artikel 15 Grundgesetz (Article 15 of the Basic Law, which permits transferring land and means of production into common ownership) would be constitutionally possible, compensation below market value included; in March 2026 the Abgeordnetenhaus passed a Vergesellschaftungsrahmengesetz (framework socialization act) whose entry into force was delayed by two years; the initiative is preparing a second, this time legally binding referendum; and the SPD, in its draft platform, demands a "legally secure Mietendeckel on the basis" of the same Article 15.⁴³ All this is happening in a market whose median asking rent stagnated at €15.80 in 2025 (+0.1 percent after two years of increases above 16 percent p.a.) and whose market-active vacancy stands at 0.3 percent.⁴³ And now the finding that belongs in this chapter's logic: in the housing policy chapters of the Berlin election platforms, artificial intelligence does not appear; checked in full text for the SPD, the Greens, the Left Party, the AfD, and the FDP, and for the CDU on the basis of its published positions (the BSW platform was not retrievable). Where AI appears at all — for the SPD (digitalizing the building authorities), the FDP (its own tech-location chapter), and the AfD (administration, data protection) — it is a business-location and administration topic; the Greens and the Left do not mention it at all, and in the housing-policy context it appears in not a single platform.⁴³ Berlin conducts the distribution debate — about gentrification, displacement, and the fundamental right to housing, which already stands in the Berlin state constitution anyway — with yesterday's conflicts; the factor that will determine the solvency of Berlin's tenants over the next decade, the repricing of their work, appears in no platform. It will yet land on the feet of every active politician in this city; and the answer Berlin then gives will be the blueprint for the federal level. If the escalation ladder already reaches socialization without an AI shock, where does it end with one?

[Fictional headline box, scenario]

FAZ, January 23, 2035: "Coalition agrees on 'Wohnsicherungsgesetz' (Housing Security Act): protection from termination for those affected by AI structural change, rent adjustments tied to a transfer index. ZIA: 'The end of privately financed rental housing construction.'"

Early indicators: Wording on "AI structural change" in state election platforms; motions to tighten tenancy law with AI justifications; expansions of municipal pre-emption rights (Vorkaufsrechte); emergence of a compute/automation tax debate in the Bundestag. **Kill switch:** If the housing cost burden ratio remains stable and employment robust, the escalation ladder loses its foundation — regulation follows hardship, not ideology.

PART III: PERSPECTIVE

19 · The Counterthesis

A thesis paper that does not present its counterthesis at full strength is incomplete. Here are the eight strongest objections to this paper — not as straw men, but as well as we are able to formulate them.

Objection 1: "AI replaces tasks, not occupations — there will be no mass unemployment." Economic labor market research, exemplified by Prof. Dr. Alicia von Schenk, holder of the Würzburg chair for the Economics of AI, counters with the task-based approach: AI automates bundles of tasks, occupations reconfigure themselves, labor demand shifts rather than disappears; "We are not going to get mass unemployment."³⁶ Every previous technology wave has created employment on a net basis. *The paper's answer:* The task-based approach is the best available theory, and it carries further than those who cite it realize: von Schenk herself concedes that AI is "by now extremely good even at management processes such as strategic decision-making" and that AI as CEO fails "for the time being on questions of responsibility and liability rather than on the technology."³⁶ Liability questions are conventions; conventions hold for decades or fall within a single legislative term. And for real estate: the *reconfiguration* alone — fewer layers, fewer hires, different space — suffices for the transmission. The paper does not need mass unemployment. It only needs fewer desks.

Objection 2: "The present refutes you — agents still fail at more than 80 percent of real work." The Remote Labor Index is the strongest available empirical evidence: even the best AI agent, as of July 2026, completes only 16.1 percent of real freelance projects at professional quality; McKinsey finds a "wide gap between hype and operational reality," with agents scaling beyond 10 percent in no corporate function.¹⁴ *Answer:* Both correct — but read the time series, not the level: the same index stood at 2.5 percent at its launch in October 2025; the slope, not the level, is the argument (Chapter 5). Anyone deriving reassurance from today's level should repeat the exercise with the state of image generation in 2021. Should the capability curve flatten — that is possible — the scenario shifts; it does not disappear, for the systems already in real existence in 2026 are enough to carry the management downsizing of Chapter 3.

Objection 3: "There is nothing to see in the European office data — on the contrary." Savills finds no AI-driven decline in European office employment through 2026; Oxford Economics forecasts plus 4 percent over ten years; AI firms are expanding in Amsterdam, London, Paris, and München; JLL's executive survey expects, by majority, workforce *growth*.³⁷ In August 2026 the JLL/MIT study arrives, complete with German location data — the strongest version of this objection to date; Chapter 6 takes it apart in detail and finds its own divergence thesis within it.⁶³ The NBER firm survey reinforces the objection: 69 percent of US firms use AI, but with no measurable employment effect so far, and executives' expectations stand at just minus 0.7 percent over three years; according to JLL,

moreover, only 5 percent of real estate companies fully achieve their AI goals.⁵⁰ *Answer:* This is the strongest objection, and it deserves a precise reply: First, these data measure the stock, not the inflow — the hiring gap among graduates is the early indicator, and it is exactly there that the US data (participation rate, career entrants) show the first cracks.¹⁰ Second, "nothing to see so far" is the standard observation of every transmission with canned-goods logic: in the summer of 2007 there was nothing to see in the German real estate data either. Third, the paper does not dispute at all that AI firms take space — divergence is its thesis, not collapse (Chapter 6). Should, however, European office employment still be growing in 2029 *and* graduate hiring have normalized, the epicenter chapter would have to be revised; the kill switch is in the text.

Objection 4: "Betongold ('concrete gold,' the German byword for real estate as a safe store of value) has survived everything, and demographics are a creek, not a tsunami." Real estate has survived world wars, hyperinflation, interest rate shocks, and every technology since its emergence; Dr. Reiner Braun (empirica) shows that the boomer holdings will come to market stretched over decades; more than 60 percent intend to bequeath anyway.²² *Answer:* Both are correct, and both are arguments about *one* wave. This paper's thesis is simultaneity (Chapter 7): the creek is harmless as long as buyers stand on the other bank; the repricing of buyer incomes is the point, not the mortality table. And "Betongold survives everything" is a statement about the asset class, not about its valuation: Japanese residential real estate also still exists — at prices that, across the country, remain below their 1991 level to this day; even new-build condominiums in greater Tokyo needed roughly three decades to return to bubble-era levels.

Objection 5: "Germany has a special buffer: the demographic labor shortage." By 2036 the boomers will have left the labor market; depending on the calculation, Germany is short millions of workers. AI first fills a gap before it displaces anyone — automation here is location rescue, not threat; the IAB finding of an "Erneuerungskrise" (renewal crisis) rather than a mass crisis supports this.⁸ *Answer:* This is the best German objection, and it is half right: it holds for care, the skilled trades, and plant operation — Chapters 11 and 15 factor it in. It does not hold for the office economy, because the shortage and the surplus lie in different occupations: what is missing are care workers and electricians, not staff officers, management posts, and coordinators. The labor shortage softens the macroeconomic drama; it rescues neither office space demand nor administrative occupations. For real estate, what counts is the occupational structure, not the aggregate.

Objection 6: "Seen it all before — this is the cycle, not the disruption." Weak phases are part of this industry's DNA. Around the turn of the millennium, Berlin developers paid 10 to 15 percent in internal commissions (Innenprovision) just to get their apartments sold at all; after the Lehman collapse, financing stood still for months — and both passed, like every cycle before. The pressure of 2026, too, has tangible cyclical causes: the interest rate shock, construction costs,

geopolitics. Whence the certainty that something different is beginning this time? *Answer:* There is no certainty, and that is precisely the most honest answer in this paper: cycle and structural break cannot be reliably distinguished in real time, which is why Chapter 21 delegates the distinction to measurable indicators. But three features do not fit the cycle pattern. First, the downturn hits, for the first time, the executive floors and graduate professions — precisely the buyer and tenant stratum that cushioned every earlier real estate cycle on the way down and that earlier crises largely spared (Chapter 3).⁸ Second, the classic cycle engine is not firing: the interest rate shock of 2022 is four years old, the usual recovery mechanics would be overdue — instead, conditions in the labor market of the users are worsening. Third, this time there exists a documented, priced substitution path for labor itself — the €230 per human equivalent from Chapter 5¹⁵ — which simply did not exist in 2001 and 2009. It remains possible that the two coincide: an ordinary cycle into whose trough the disruption moves in. That would be no comfort. It would be the most dangerous variant, because the industry will keep taking every structural deterioration for the business cycle until the distinction has become academic.

Objection 7: "The Jevons paradox: efficiency creates demand, not vacancy."

When the economist William Stanley Jevons observed in 1865 that more efficient steam engines did not reduce coal consumption but multiplied it, he formulated the paradox that today serves as the strongest macroeconomic counterargument to this paper: if AI radically cheapens cognitive work, demand for it rises — new business models, new firms, new jobs, new space. Microsoft CEO Satya Nadella elevated it to industry credo after the DeepSeek moment of January 2025 ("Jevons paradox strikes again!"), and the Cushman & Wakefield base scenario from Chapter 1, with its 330 million additional square feet, is at its core nothing other than this paradox in real estate form.⁶² *Answer:* The paradox is real, but the debate systematically applies it to the wrong resource. Jevons' logic applies to the input that becomes cheaper, and that is machine intelligence itself: demand for it is indeed exploding, and Chapter 12 is the real estate form of precisely that explosion. For human labor, by contrast, the paradox holds only under the condition the Stanford economist Erik Brynjolfsson has named: demand for the end product must be price-elastic, as with air travel after the jet revolution, which in the end employed more pilots.⁶² Where it is not, the effect reverses; the textbook example is agriculture, whose productivity multiplied while its employment share fell from around 40 to under 2 percent, because nobody eats proportionally more.⁶² The core question is therefore not *whether* Jevons applies but *to which activities*: does a company consume more administration, more coordination, more case processing when these become cheaper? Administration is a cost item, not a consumption good; its demand is as inelastic as the demand for calories. And even where the paradox does hold and new value creation emerges, it says nothing about whether the increment is produced by people at desks or by the agents whose price list Chapter 5 documents; the horses of 1900 famously did not benefit from the Jevons effect of ever-cheaper transport. For space, then, the divergence

thesis of Chapter 6 stands: Jevons fills data centers and some AI cluster offices. It does not fill the floors of case processing.

Objection 8: "The income shock supports the rental market, for whoever cannot buy, rents." When incomes fall or become uncertain, homeownership is postponed, not housing itself: households remain renters, rental demand rises, and the largest sub-market of the German real estate industry would be not merely immune to the scenario but its beneficiary. The 2026 data already support the objection: the IW housing index measures second-quarter asking rents at plus 4.0 percent year-on-year against purchase prices at just plus 0.8 percent; the for-sale supply has nearly doubled since early 2022, while the rental supply in the major cities sits roughly 12 percent below it.⁶² *Answer:* The objection is correct — it does cushion the residential shock, and the paper partly makes it its own: Chapter 7 explicitly lists the regulated in-place rent as a relative winner; the ownership backlog is a component of the double-shock picture, not its refutation. But the buffer has three limits. First, the cascade: rents are paid out of the same incomes the scenario reprices; the backlog supports demand for affordable existing stock while solvency erodes at the upper end — the divergence thus runs straight through the middle of the rental market, new-build first occupancy against existing stock, prime location against periphery. Second, household formation: the retreat to the parental home and the cancelled first households from Chapter 7 hit rental demand first, not ownership demand; a rental market can profit from the ownership backlog and shrink at its household base at the same time. Third, politics: the better the rental market stands in relative terms, the more surely it draws the regulatory cascade of Chapter 18 onto itself; the relative winner is at the same time the preferred target of the escalation ladder. A stable cash flow with a capped upside and growing political risk is a bond with a sold call option, not a growth asset. That is exactly how the scenario prices it, and it claims nothing more.

What would falsify this paper as a whole, in one line: office employment stable or growing through 2030 with normalized graduate hiring, real construction cost inflation, stable brokerage commissions, and an AVM-free valuation practice. If that combination occurs, the industry was rightly calm, and this paper was a useful false alarm that merely prompted reflection.

20 · Probable, Possible, Speculative

A scenario without a confidence sort invites cherry-picking, in both directions. Hence the core theses of this paper, sorted by the robustness of their foundations. The bands are deliberately coarse (ten-percentage-point logic).

High conviction (already observable at its core): The removal of management layers continues and reaches space demand with a lease lag (Chapters 3, 6). The industry's intermediation occupations come under structural pressure; AVM standardization and commission compression are underway (Chapter 14). Data centers remain the dominant growth asset class, with grid connection as the bottleneck (Chapter 12). Regional divergence increases (Chapter 17).

Medium conviction (plausible extrapolation, considerable uncertainty):

The residential double shock — boomer supply meets an income-insecure buyer generation — noticeably dampens price formation outside the winner clusters (Chapter 7). Operator real estate passes through the two-part decade of margin gold rush and capacity trap (Chapter 10). The regulatory spiral in housing tightens as soon as labor market stress becomes politically visible (Chapter 18). The valuation lag produces a liquidity episode in at least one fund vehicle (Chapter 16).

Low conviction (genuine speculation, intended as such): Real construction cost deflation from ~2032 (Chapter 15, contingent on the construction robotics curve, which is tiny in 2026). The autonomous hotel as the market standard of the economy segment (Chapter 10). The "Wohngarantie" as law (Chapter 18). Agentic commerce as the dominant retail channel (Chapter 8).

On the overall weighting: the industry (Cushman) gives the substitution scenario the aforementioned 5 percent.¹ This paper does not argue that it deserves 95 percent. It argues that a scenario whose early stage is already measurable in the labor market data of 2026 cannot be a 5 percent footnote, and that an industry with a 20 percent share of the economy should calibrate its stress tests not to the mode but to the tail risk. Whoever calibrates their portfolio to the 5 percent weight has not risk management but a hope with a decimal place — and is not taking the possible future disruption seriously, or has not yet thought it through adequately.

21 · Twelve Early Indicators

Theses are cheap; falsifiable theses are work. Twelve measurable sample indicators against which this paper can be checked in real time, each with source, threshold, and direction. They replace the usual scenario noncommittal with a dashboard that can be built and verified.

1. BA executive unemployment (Bundesagentur, annually): baseline avg. 85,000 (2025/26). Above 110,000 by 2028 = acceleration; below 70,000 = all clear.

2. Graduate hiring at law firms, audit firms, banks (association statistics): two consecutive cohorts at -20 percent = the hiring gap is here.

3. Office take-up per office employee, Big 7 (JLL/Destatis, own ratio): if the ratio falls three years in a row, the staircase is heading down.

4. Re-letting rate of expiring large leases >10,000 m²: below 70 percent of prior space = structural re-sizing.

5. AVM share of mortgage lending value appraisals (gif/vdp): above 50 percent for standard residential properties = the appraiser substitution is complete.

6. First audited P&L of an autonomous hotel (Lita or successor): profitable before 2030 = Chapter 10 on track; nonexistent in 2030 = shift by one cycle.

7. Real construction cost index vs. CPI (Destatis): two years of construction costs below inflation = the production function is turning.

8. NAV discounts of listed German buy-and-hold landlords (baseline 08/2026: Vonovia ~-54, LEG ~-62 percent): persistently above 30 percent = the capital market is pricing the scenario; below 15 percent = it rejects it.

9. Fund flows of open-ended real estate funds (BVI, monthly): six consecutive months of net outflows = the link-two risk from Chapter 16 is activating.

10. Actual trade tax receipts of the cities Stuttgart, Wolfsburg, Ingolstadt (municipal statistics): cumulative -25 percent versus 2023 = the regional doom loop has begun.

11. NAV discount of the European residential segment (EPRA, monthly; baseline 01/2026: -48 percent): if it widens while appraised values rise, the market is pricing a substance thesis beyond interest rates; if it closes below -20 percent, it was just the interest rate record after all.

12. Relative performance of office REITs vs. data center REITs (FTSE Nareit, daily): the cleanest daily market price of this paper's core thesis; three years of sustained divergence = the divergence has become consensus.

Reading rule: no single indicator carries the scenario. Six of twelve in the thesis direction by 2029 = the transmission is running faster than consensus. Two or fewer = this paper was too early, or wrong. The author will provide an annual update of these early indicators.

22 · Twelve Theses

In closing, the distillation: twelve theses, each falsifiable, each with its chapter. They are formulated as an offer for discussion, not as certainties.

Thesis 1: Real estate is the transistor of the AI disruption, not its spectator. Every property capitalizes human labor; when labor is repriced, the property is repriced with a lag. Leases and appraised values stretch the transmission; they do not prevent it (Chapter 4).

Thesis 2: The industry's low-contact service occupations erode first, peu à peu and without an announcement bang. Real estate marketing, exposé preparation, research, standard valuation, and mortgage advisory live not on human contact but on information processing; that is exactly what AI is built for. The decline is already underway — through unfilled vacancies, not mass layoffs (Chapter 14).

Thesis 3: In the AI age, personal contact becomes a premium good, and that re-sorts the industry. Everything that can be digitized will be digitized; what becomes valuable is what cannot be digitized: presence, trust, the handshake, liability. Morpheus in "The Matrix," famously, offers no comfort but rather: "All I'm offering is the truth" — the real against the perfect simulation. That is why the tradesman keeps his boom, that is why the broker remains irreplaceable

in the investment and luxury segments, where only interpersonal complexity carries A and B all the way to the notary, and that is why the intermediary falls where his personal relevance was never essential (Chapters 10, 14, 15).

Thesis 4: The office is the epicenter, but as divergence, not as collapse. Space demand splits along the question of whether the tenant derives income from AI or loses it to AI; the average becomes the most useless number in the industry (Chapters 6, 17).

Thesis 5: The housing market experiences a double shock of boomer supply and an income-insecure buyer generation. The risk is not the mortality table but the question of who stands on the other bank when the holdings come to market (Chapter 7).

Thesis 6: The Betongold credo will be damaged this decade — by real, not nominal, numbers. Property values can continue to rise nominally in places, and in 2026 they do; in real terms, after inflation, German real estate has been losing value since 2022 — in total, roughly one fifth. If that continues, millions of households, family offices, and Versorgungswerke (professional pension funds) will experience a real diminution of wealth that does not appear on any bank statement and is therefore noticed late — its full significance realized even later (Chapter 16).

Thesis 7: Ghost GDP has a wealth side: whoever holds no stake in the AI stack faces a decade of historically low real returns. The stack also includes energy, grids, and compute infrastructure. Germany — with the lowest shareholder base, the highest cash ratio, and the heaviest real estate weighting among the industrial nations — is positioned almost archetypally wrong (Chapters 12, 16).

Thesis 8: Without a productivity turnaround, Germany is not among the winner nations of this decade. The economy has barely grown since 2019; the productivity of the AI economy is currently being created elsewhere, and AI accelerates this divergence because it compounds the strengths of those already leading. Individuals will continue to earn very well; the aggregate stagnates or shrinks. The two levers that could change this: a radically fast AI adoption by its own industry, or an independent European AI stack including supply chains (Chapters 3, 17).

Thesis 9: The strongest counterargument deserves to be taken seriously: Germany has always reinvented itself. The Harvard economists Carmen Reinhart and Kenneth Rogoff rightly described "this time is different" as the four most expensive words in financial history; whoever bets on the demise of a thousand-year economic nation has, historically, almost always lost. Both can be true at once: the country reinvents itself, and the real estate industry is nonetheless repriced along the way. This disruption, however, carries one feature that earlier cycles lacked: a documented, priced substitution path for labor itself (Chapter 19).

Thesis 10: The data center is the industry's gold rush and self-contradiction in one. Every leased megawatt accelerates the systems that reprice the tenants of every other asset class; the industry is building the machine that replaces its customers, and booking it as diversification (Chapter 12).

Thesis 11: The distribution question lands on the desk of every active politician, and real estate is its first arena. Berlin is already taking the debate all the way to socialization, still entirely without an AI rationale; add labor market stress, and the rent question becomes the system question. Societies worldwide must find an answer to the repricing of labor, and they will rehearse it first on housing (Chapter 18).

Thesis 12: This paper wants to be refutable — that is what distinguishes a scenario from an ideology. Twelve early indicators and the chapters' kill switches name what would make the theses fail; whoever wants to argue against this paper in 2030 will find the yardstick in the text (Chapters 19, 21).

23 · What Is to Be Done

This paper is not a requiem, and the real estate industry is not the victim of this story — provided it acts while the transmission is still sitting in the cans. Four addressees, three consequences each, with no claim to completeness:

Owners and investors. First: grid the portfolio along this paper's two axes — AI exposure of user incomes, automatability of operations — and write tomorrow's cap rate spread into your own acquisition models today. Second: understand lease maturities as an options book; long leases with income-exposed tenants are not security but a sold option on their business model. Third: price convertibility; the adaptable building is the only structural hedge this industry knows. Audit locations for future viability and investability — and sell out of the others without lament once the structural break is there.

Developers. First: attack the production function before others do — whoever can build serially, AI-planned and robot-assisted, in 2028 will, in the scenario, own the margin of the entire chain in 2033. Second: build conversion competence as a line of business; in the scenario, the conversion mass from offices, parking, and industrial is the largest project pipeline of the 2030s. Third: rethink the operator; the margin of the future lies in autonomous operation, not in the shell.

Lenders. First: capture borrowers' income exposure systematically — the bank that grids occupational clusters by automation risk holds the information edge of the decade. Second: manage the valuation lag actively instead of sitting it out; internal shadow valuations based on transaction evidence are cheaper than the later write-down. Third: one's own house first — Chapter 14 applies to loan processing in full.

Policymakers. First: flexicurity instead of the prohibition reflex. The Danish model (wage insurance, retraining, mobility) protects people rather than headcount plans and is the only known answer that addresses structural change

and social peace at once.¹⁹ Euan Blair, whose company Multiverse retraines workforces for the AI era, puts the urgency this way in August 2026: "Jobs will be displaced. I consider that inevitable. (...) We cannot afford, especially in Europe, to sleepwalk into an unemployment crisis," and his productivity finding belongs alongside it: too much invested in technology, too little in the people who use it.⁵⁵ Second: bring the administrative side of building up to the speed of the production side — a Bundesbauordnung (federal building code), digital permitting, a fast track for conversion and grid connection; if the machine can build, the public office must not be the bottleneck. Third: settle the distribution question offensively before the street settles it; a real estate industry carrying 20 percent of value creation has an existential interest in a social contract that keeps its tenants solvent and its regulation predictable.

And a fifth address, on its own behalf: **the industry as a profession.** The most honest consequence of Chapter 14 is not defense but a head start. Whoever automates their own processes first finances the transformation of their workforce out of the efficiency gains; whoever waits will have it done for them by a competitor. The industry has a good answer to the question "What do we still need you for?": ownership needs stewardship, cities need shapers, capital needs judgment. But it must prove this answer, not assert it.

24 · Limits of This Paper

This paper has blind spots, and it is more honest to name them itself than to have them held up against it. Beyond that, it naturally extends an open invitation to critical discussion.

First: **It extrapolates a technology whose limits nobody knows** — in both directions. If the capability curve flattens, Part II decays into a finger exercise; if it accelerates toward self-improving systems, as the labs themselves consider possible³⁸, this paper is still too cautious.

Second: **The German real estate impact data do not yet exist.** The paper infers space and price effects from labor market data; this chain is economically well founded, but empirically documented so far only in Wolfsburg, not across the board. Single-source figures are flagged; some (VDA projections, individual corporate disclosures) could not be independently confirmed.

Third: **The two-interest-rate problem is not solved, merely disclosed.** What is meant is the open question of where the AI economy will push interest rates — and there are two opposing, equally plausible answers (Chapter 5, Assumption D). Path Z1, the "capex rate": the AI investment boom absorbs so much capital that long-term rates stay high; then initial yields remain under pressure and valuations stay low. Path Z2, the "shock rate": the employment and consumption effect dominates, central banks cut, rates fall; then real estate values initially rise again — but on rents whose income base is eroding. Falling rates would thus be the short-term rescue and the long-term trap, because they merely paper over the real question, the one about users' incomes. The two paths lead to markedly different

price pictures; which one materializes, in what order and with what weight, this paper cannot know — and it therefore deliberately does not weight them.

Fourth: **The political reaction function is the greatest unknown;** Chapter 18 describes an escalation ladder, not a legislative forecast — democracies have often responded more intelligently than scenarios gave them credit for.

Fifth: **The author is biased** — as an investor, advisor, and part of the real estate industry who trades disruption theses professionally, and as a real estate economist who loves the industry he writes about here. Both at once is, one hopes, the most productive form of bias.

The closing word belongs to the function of this text. When the Citrini paper startled the capital markets in February 2026, its value lay not in being proven right, but in the fact that afterwards no one could claim not to have known the question.¹⁶

The real estate industry has now read its question: How much of your portfolio rests on the price of human labor? It would be gratifying if, in 2036, this paper were regarded as an overcautious finger exercise. It would be negligent to bet on that. The canary is still alive. But it sits in a shaft in which, very quietly, a great deal of rock is beginning to move — and the industry that built the shaft is debating the lighting.

Annex · Sources and Evidence

All sources retrieved and verified August 1–10, 2026. Organized by thematic block. Single-source figures without independent confirmation are flagged in the text and here as [1Q].

A · Scenario References and Method

¹ Cushman & Wakefield (08.05.2026): "AI to Add 330 Million Square Feet of CRE Demand Over Next Decade", scenario weights: Baseline 50%, Productivity Boom 15%, "AI Bust (Moderate Recession)" 25%, "Dystopic/Displacement" 5% (translations in the main text by the author); Industrial +298.5 million sq ft. businesswire.com/news/home/20260508305955

¹⁶ CitriniResearch & Alap Shah (22.02.2026): "The 2028 Global Intelligence Crisis, A Thought Exercise in Financial History, from the Future". Substack. Therein: the intermediation thesis, broker commission compression 2.5–3% → <1%, the \$13 trillion mortgage market, top-20% share of consumption ~65%, labor share 64% (1974) → 56% (2024), "Ghost GDP". Reception history documented inter alia in Waas (2026), see fn. 14.

¹⁹ Juijn, D. / van Baarsen, S. / Dada, J. / Negele, M. / Stelling, L. / Fox, P. / Petropoulos, A. / Bakker, M.; text: T. Chivers (2026): „Europe 2031, Was auf dem Spiel steht, wenn wir die KI-Revolution verschlafen" [Europe 2031: What is at stake if we sleep through the AI revolution]. Arq Foundation, Brussels. europe2031.ai/de, therein: the hiring-gap choreography, the automaker takeover scenario, the flexicurity recommendation, mortgage defaults on variable-rate loans.

B · Real Estate Industry: Structure, Market, Institutions

² PwC/ULI (04.11.2025): "Emerging Trends in Real Estate Europe 2026", 75% AI adoption (prior year 51%); city ranking (Berlin in 4th place); top niches: data centres, energy infrastructure, student housing. [pwc.com](https://www.pwc.com)

³ ZIA/EY-Parthenon (09/2025): „Digitalisierungsstudie 2025" (10th edition), 90% see AI as a key technology; 62% invest 1–5% of revenue. [zia-deutschland.de](https://www.zia-deutschland.de)

⁴ JLL (14.07.2026): "Future of Work Survey 2026", "AI redesigns jobs, not cuts them"; 78% expect significant AI influence on portfolio strategy.

⁵ RICS (12.09.2025): "Artificial Intelligence in Construction Report 2025", 2,200+ respondents; 45% without any AI implementation, <1% with fully scaled application, ~12% regular use in individual processes. [rics.org](https://www.rics.org)

⁶ ZIA: „Bedeutung der Immobilienbranche" [The significance of the real estate industry] (gif/IW calculations, Frühjahrsgutachten [spring report] 2025), ~€730 billion gross value added (~20%), >870,000 companies, ~3.5 million employees subject to social insurance, real estate assets ~€20.1 trillion, construction loans >€2.1 trillion. [zia-deutschland.de](https://www.zia-deutschland.de)

⁷ Schulte, K.-W. (founding ed.) / Bone-Winkel, S. / Schäfers, W. (eds.): „Immobilienökonomie I, Betriebswirtschaftliche Grundlagen" [Real Estate Economics I: Business Fundamentals], 5th ed., De Gruyter Oldenbourg, the "Haus der Immobilienökonomie" [house of real estate economics].

¹⁷ JLL (14.07.2026): German office market overview Q2 2026, Big 7 vacancy 8.5% (8.5 million m²), H1 take-up 1.35 million m² (−5%), prime rents Munich €62 / Frankfurt €55 / Berlin €48 per m². jll.de

¹⁸ ifo (02.03.2026): home office share stable at ~25%; Destatis (04/2026): 25% of the employed in 2025.

²⁰ CBRE (22.05.2025): "AI: The Next Catalyst for Office Space Demand", SF: >5 million sq ft of AI leasing in 5 years, up to 16 million sq ft by 2030; vacancy path from the Q1 2025 peak of 35.8% → ~17.9%. Actual development: vacancy down by ~5 pp by mid-2026 (The Real Deal, 01.07.2026). JLL/MIT (21.07.2026): AI firms ~30% of SF leasing since 2025.

²⁵ JLL (01/2026): "Global Data Center Outlook 2026", ~200 GW by 2030, \$1.2 trillion in real estate value, \$870 billion in new debt, occupancy ~97%, AI workloads 25% → 50%.

²⁶ JLL: „Die neue Geografie des deutschen Rechenzentrumsmarktes" [The new geography of the German data center market], Frankfurt 997 MW operational, vacancy 4.6%, grid connection ≥50 MW takes up to 13 years; Germany ~1.3 → 3.3 GW (2029); projects in Lübbenau (€11 billion), Lippetal-Hamm (€4 billion), Frankfurt/Oder (€3.5 billion).

²⁷ gif e.V. (03.03.2026): working paper „Nutzen und Grenzen von automatisierten Bewertungsmodellen (AVM) in der Immobilienwirtschaft" [Benefits and limits of automated valuation models (AVMs) in the real estate industry], AI models improve rent forecasts by >35% vs. classical regression [1Q]; "support, not a replacement for the appraiser". gif-ev.com

²⁹ BF-Direkt/HRI quarterly barometer Q2 2026 (Handelsblatt, 03.07.2026), −9.74 → −25.97; immediate trigger: the energy price shock of the US-Iran war; 80% report deteriorating sentiment; ~70% expect higher interest rates; residential financing preferred by >90%, tickets of €10–15 million instead of €50 million; assessments by Prof. S. Sebastian (University of Regensburg/IREBS).

³⁰ Just, T. (01.06.2026): „KI löst gerade eine Revolution in den Arbeitswelten aus" [AI is currently triggering a revolution in the world of work], interview, Bund Institutioneller Investoren, the ~30% office-job studies; AI reduces irrationality and increases transaction certainty; systemic risk of uniformly aligned algorithms; concentration of short-term CRE refinancings in 2026. institutionelle-investoren.org

³¹ JLL / MIT Center for Real Estate & MIT Sloan (21.07.2026): "AI driving deep divergence across real estate markets", four market trajectories; US tech

employment –1.5% in early 2026; >1 million new AI jobs 2023–2025; 5% of 2025 job cuts with AI as the primary reason.

C • Labor Market and Management

⁸ Handelsblatt (07.08.2026): „Können die weg? Das Ende des Managers als Massenberuf" [Can they go? The end of the manager as a mass profession], VW >5,000 leadership positions / ~21,500 managers / >1,000 AI applications; Bayer 17,000 → 5,000 leadership positions, hierarchy 11–12 → 6–7 layers; DB ~30% of group management (>1,000), 21/43 executive posts; Lufthansa 4,000; Ergo ~1,000; ASML 1,700; Federal Employment Agency (BA): avg. ~85,000 unemployed executives (+45% since 2022/23), 209,000 inflows in 12 months; Civey: 40% of companies; quotes from Gerpott (WHU), Brigl (BCG), Anderson (Mercer), Weber (IAB), von Rundstedt.

⁹ Destatis (11/2025): –48,700 automotive industry employees YoY (Q3 2025); 2026 sector overviews: ~111,000 since 2019 [1Q]; VW ~35,000 by 2030; Bosch 22,000 (Mobility); ZF 14,000; Continental >10,000.

¹⁰ BLS, Employment Situation July 2026 (bls.gov) / Handelsblatt (07.08.2026): „US-Arbeitsmarkt schrumpft im Juli überraschend" [US labor market unexpectedly shrinks in July], nonfarm payrolls –23,000 (consensus +80,000); financial sector –14,000, retail –19,000; unemployment rate 4.1%; participation rate 61.4%, lowest level since February 2021 (–0.7 pp since January 2026).

¹⁴ Center for AI Safety / Scale AI: "Remote Labor Index" (remotelabor.ai; labs.scale.com/leaderboard/rli), initial reading Oct. 2025: 2.5% of real freelance projects delivered at professional quality; as of 02.07.2026: best agent 16.1%. McKinsey "State of AI": 39% experimenting with agents, 23% scaling selectively, no business function >10%. On the academic reception of the Citrini paper and the agent debate in labor law: Waas, B. (2026): "The Rise of AI (Agents): Could Artificial Intelligence Eventually Destroy the Workplace?", Working Paper, Goethe-Universität Frankfurt (lecture at WU Vienna, 09.03.2026; on file with the author).

¹⁵ SoftBank/M. Son: target of 1 billion AI agents across the group; calculation ~40 yen/agent/month, 1,000 agents per replaced job (≈€230/month per human equivalent). Coverage inter alia by heise online: "Softbank: 1,000 AI agents replace 1 job".

D • Housing and Demographics

²² Handelsblatt (07.08.2026): „Werden Häuser durch die Baby-Boomer bald günstiger?" [Will the baby boomers soon make houses cheaper?], Jacasa: 4.8 million boomer-owned homes (~every third one), Mecklenburg-Vorpommern 39.7% / Saxony 39.5%; Destatis: by 2035 one in four aged ≥67; RWI (2022): the elderly share dampened purchase prices by ~12% over 2008–2020; HWWI/Postbank: real +0.4% p.a. through 2035; Braun (empirica): "small streams", >60% bequeath, 160,000–240,000 properties/year; living space 49.5 m² per capita (end of 2025).

¹¹ Immowelt (11.06.2026): Wolfsburg, rents 2022–2026 +3.7% (€7.74 → €8.03 per m²), most recently declining; –4,601 jobs (Sep 24–Sep 25, –3.9%); unemployed +27% since March 2023; trade tax €250 → €150 million; Sahle: ~1,800 apartments cancelled.

¹² Interhyp/IW (28.07.2026, via Handelsblatt): the auto crisis dampens the housing markets of Wolfsburg, Ingolstadt, Schweinfurt, Stuttgart.

E • Construction, Operators, PropTech

²¹ Handelsblatt (05.08.2026): interview/profile of G. Gorski (Bayerische Hausbau Development), "AI takes over the entire planning process"; "robots on the construction site in three to five years"; prefabrication 24–30 → 15 months; the home-office paradox; 16 state building codes.

²³ litahotel.com (retrieved 08/2026): "LITA OS, AI-Powered Self-Operating Hotel System"; San Francisco opening announced. No public information on backers or staffing metrics; orders of magnitude of staff reduction not verifiable [1Q].

²⁴ McKinsey Global Institute (2017): "A Future That Works", Accommodation & Food Services: ~73% of activities (working time) technically automatable; MGI update (11/2025): ~57% of US working hours automatable across industries.

²⁸ Zacua Ventures (03/2026): "Construction Robotics Report 2026", market <0.03% of global construction spending; VC funding Q1–Q3 2025: \$1.36 billion, more than double the full year 2024 (~\$612 million).

F • Capital Markets, State, Politics

¹³ Industry aggregation of hyperscaler capex 2026: \$660–690 billion (Amazon ~\$200 billion, Alphabet \$175–185 billion, Microsoft \$120 billion+, Meta \$115–135 billion, Oracle ~\$50 billion); estimate range up to \$725 billion depending on scope.

³² Destatis (04/2025): government spending ratio 2024: 49.5%. (A 2025 figure of ~50.3% is circulating, not officially confirmed [1Q].)

³³ Musk, E. (17.04.2026, X): "Universal High Income ... best way to deal with unemployment caused by AI"; coverage Washington Times 17.04.2026, Bloomberg 05.06.2026.

³⁴ Altman, S.: departure from classic UBI following the OpenResearch study (Altman's personal contribution \$14 million; 3,000 participants, of whom 1,000 received \$1,000/month over 3 years); preference for equity-based models ("collective ownership"). The Atlantic / Yahoo Finance 2026.

³⁵ Wildberger, K. (21.03.2026, ZDFheute): basic income in the event of AI-driven job losses "only as part of the solution"; verbatim: "The era in which industry was a jobs machine is coming to an end."

G • Macro Context Germany, Berlin, Industry Sentiment

³⁹ Destatis: GDP 2025 +0.2% (PM 017, 15.01.2026; 2023: -0.9%, 2024: -0.5%; exports down for the third consecutive year, construction investment for the fifth); corporate insolvencies 2025: 24,064 (+10.3%, highest level since 2014; PM 085, 13.03.2026); IW Köln: one in three companies plans job cuts in 2026 (iwkoeln.de).

⁴⁰ Destatis: migration statistics 2025 (PM 184, 01.06.2026): net immigration +235,000 (2024: +430,000); EU balance -54,000 (markedly negative for the first time); German citizens: 288,579 departures (a record), balance -97,000 (2024: -81,000). Population at end-2025: 83.5 million, -110,000 (PM 203, 16.06.2026; birth deficit -352,000). Share of academics among emigrants ~70%: GERPS study / IW Köln, cited per dpa coverage 07/2026 [1Q].

⁴² ZIA/IW real estate sentiment index Q2 2026: -2 points (-17.5 vs. Q1), 12-month expectation -11.4, residential segment -22.9; survey of ~1,200 executives (Haufe, 06/2026). Falkensteg insolvency report: Q1 2026, 554 real estate insolvencies (+13.5% vs. Q4 2025), driven by the refinancing of expiring low-rate loans (Haufe).

⁴³ Berlin: election date 20.09.2026; polling as of 05.08.2026: Die Linke ~20%, strongest party (dawum.de poll trend). Housing platforms: Entwicklungsstadt election check (04.08.2026), SPD draft platform (parteitag.spd.berlin), the Greens' platform ch. 3, ZDFheute (09.08.2026, incl. the coalition condition of socialization; Linke lead candidate E. Eralp). Referendum of 26.09.2021: 59.1% of valid votes (1,035,950 yes votes). Expert Commission on Socialization, final report June 2023: socialization under Art. 15 of the Basic Law constitutional in principle, compensation below market value permissible (minority vote 3 of 13). Socialization framework act (Vergesellschaftungsrahmengesetz): passed March 2026, entry into force +2 years. Rents: CBRE/Berlin Hyp Wohnmarktreport Berlin 2026 (03/2026): median asking rent €15.80/m² (+0.1%), market-active vacancy 0.3%. AI absent from the housing chapters: full-text review (as of 08/2026) of the SPD, Green, Left, AfD, and FDP platforms. Findings: SPD mentions AI only for digitalizing the building authorities; FDP has its own AI/location chapter; AfD treats AI only as an administration and data-protection topic; Greens and Left without any AI reference. CDU: full text not available at the time of review, assessed on the basis of published positions and press reports; BSW: platform not retrievable. In no housing-policy chapter does AI appear.

⁴⁴ NZZ (2026): boycott call by Swiss brokers against Homegate/ImmoScout24 (SMG Group) over listing price increases. The transfer of the portal and broker observations to Germany rests on the author's own market observation (family office community) and is flagged as anecdotal evidence.

⁴⁵ "China Shock 2.0": Handelsblatt/dpa (02.08.2026): interview with T. Gönner (BDI), verbatim quotes therefrom; first China shock: WTO accession 2001. CER, Centre for European Reform: Tordoir, S. / Setser, B. (May 2026): "China Shock 2.0: The Cost of Germany's Complacency", advance analysis Handelsblatt: net export effect ~-3% of GDP since end-2023; auto exports to China -66% (2022-2025); 1.1 million China-dependent jobs (2021), >400,000 lost; IMF estimate ~\$800 billion

p.a. in Chinese industrial subsidies; vehicle capacity ~55 million/year. Alongside: YouGov/IG BCE (08/2026): 44% of industrial employees report increased strain, production 59% vs. administration 37%.

⁴⁶ The international map: Stanford AI Index 2026 (hai.stanford.edu): 50 vs. 30 notable models (USA/China, 2025), performance gap between top models 2.7%, private AI investment \$285.9 billion (USA) vs. \$12.4 billion (China), >5,400 US data centers. IFR World Robotics 2025: South Korea 1,220 robots per 10,000 manufacturing employees (rank 1; Singapore 818, Germany 449). TSMC: ~72% foundry market share (Counterpoint, Q3 2025); quasi-monopoly in leading AI chips (AI Index 2026). Israel Innovation Authority (2025): high tech 17% of GDP (2024), 57% of exports (H1 2025). India: Nasscom FY2025: \$282.6 billion revenue, \$224.4 billion exports, 5.8 million employees; ANAROCK H1 2026: GCC share 45% of gross office absorption in the top 7, Bengaluru ~70%; TCS cutting >12,000 positions (07/2025, Reuters et al.); GDP overtaking Germany ~2027/28 (IMF/Morgan Stanley). Gulf: Stargate UAE (1 GW planned, first 200 MW phase Q3 2026); HUMAIN/PIF (target ~1.9 GW by 2030). Demographics: Japan 65+ at 29.4% (09/2025, official); Sub-Saharan Africa median age ~19 (UN WPP); Africa's urban population ~700 million → 1.4 billion by 2050 (OECD/AfDB 2025). Germany rank 3 nominal: ~\$4.7–5.1 trillion depending on the source (IMF WEO; IW 02/2026).

⁴⁷ Wealth structure: Deutsches Aktieninstitut (01/2026): 14.1 million equity savers in 2025 = 19.9% of the population aged 14+; Gallup (2025): 62% of US adults; Fed data: the top 10% of US households hold 93% of equity wealth (Q3 2023). Bundesbank financial accounts (Q1 2026): financial assets ~€9.5 trillion, ~37% cash/deposits [secondary compilation]. Real estate + building land ~54% of gross wealth (sectoral balance sheet, as of 2018; order of magnitude stable). Homeownership rate: ~44% (2022 census) or ~47% (Eurostat concept), the lowest in the EU; only Switzerland (~36%) below. Family offices: Kingstone FO Real Estate Report 2025 (n=32 DACH, real-estate-affine commissioning party): real estate allocation 56.5%, equities 19.4%; UBS Global Family Office Report 2025 (n=317, global): real estate 11%; the spread is disclosed as a source conflict. Professional pension schemes (Versorgungswerke): the 25% quota under the investment ordinance widely exhausted (dpn); Handelsblatt (12/2024) et al.: pharmacists' pension scheme Schleswig-Holstein >€50 million write-down; at least 18 pension schemes >€2 billion in extraordinary write-downs since 2020 [secondary source, individual figures from annual reports]; BaFin focus risk 2025. Prices since the rate turnaround: peak Q2 2022 (Destatis/vdp); residential nominal approx. -9 to -12% through 2024 (multi-family -21.6%), office cumulative ~-20% (vdp); real loss ~-18 to -20% (rough estimate, flagged); Q1 2026: +1.4% yoy (Destatis), +2.2% (vdp), below inflation. Mag 7 ~34% of S&P 500 market capitalization (07/2026, Forbes). Open-ended real estate funds: „Gut 14 Milliarden Euro verbrannt" [a good €14 billion burned] (Handelsblatt, 08/2026).

⁴¹ Office forecasts 2026: Newmark (06.04.2026): "AI and the Future of Office: Quantifying Workforce Change and Space Demand through 2030" (nmrk.com): US

office employment 2026-2030 +0.3%; vacancy scenarios 19.5/21.5/23.5%; displacement concentrated among 22-25-year-olds (−6%). CBRE Investment Management (05.02.2026): "Gen AI's Impact on U.S. Employment and Office Space": aggregate effect through 2034 "negative, but moderate", strong metro divergence. GSG Berlin / Trend Research (09.02.2026, n=502 HR decision-makers, via Haufe): expected office space reduction avg. −27% by 2030 (Big 7; expectations survey). ULI Urban Land (07.07.2025): "From Bricks to Brains" ("no point in creating office space for 500 coworkers anymore").

⁴⁸ Valuation/AVM international: RICS: "Responsible Use of AI in Surveying Practice" (Professional Standard, binding from 03/2026) and "Artificial Intelligence in Real Estate Valuation" (Global Practice Guidance, published 2026). Faxvaag et al. (2025): "Incorporating Large Language Models in Automated Real Estate Valuation", Journal of Real Estate Research (25.11.2025): RMSE −24.3%, MAPE −15.3% (n=9,842, Oslo). MSCI/J. Costello (13.12.2024): "The Risks of Appraisal Uncertainties in Private Real Estate": US appraisals on average 6.8% above subsequent sale prices; CBD office appraisal −43% vs. transaction index −51%.

⁴⁹ BIS Bulletin No. 120 (07.01.2026, Aldasoro/Doerr/Rees): "Financing the AI boom: from cash flows to debt": AI capex ~1% of US GDP; private credit to AI firms >\$200 billion, projected at \$300-600 billion by 2030. MSCI (07.01.2026): "Real Assets in Focus: Trends to Watch for 2026": real estate target allocations declining for the first time in 13 years; 60% see infrastructure/private credit as direct competition.

⁵⁰ NBER Working Paper 34836 (02/2026, Yotzov/Barrero/Bloom/Davis et al.): "Firm Data on AI": 69% of firms use AI, so far ~zero employment effect; executive expectation −0.7% over 3 years. JLL Tech Survey (10/2025): ~90% piloting AI, 5% achieve all their goals. Brookings (19.02.2025, Muro/Kinder et al.): "The geography of generative AI's workforce impacts": highest exposure in high-skill metros (San José 43%).

⁵¹ Listed real estate Europe (prices/NAV as of 07.08.2026, own discount calculations): Vonovia H1 2026 (EQS, 05.08.2026): EPRA NTA €46.22/share vs. price ~€21 (~−54%); 2020 price high ~€59 (−64%); LTV 46.0%; steering metric since 2024 Adjusted EBT instead of FFO. LEG (Q2 report, 04.08.2026): EPRA NTA €139.04 vs. price ~€53 (~−62%); AFFO H1 −12.7%; Handelsblatt (04.08.2026): „LEG-Mieten steigen, doch die Gewinne fallen" [LEG rents rise, yet profits fall]. TAG (Q1 presentation 12.05.2026; Resi4Rent acquisition of 5,300 units): EPRA NTA €21.08 vs. price ~€13.9 (~−34%); Poland rental EBITDA 2026e +146%; ROBYG IPO Warsaw 06/2026. Aroundtown (Q1 2026, 27.05.2026): NTA €8.0 vs. price ~€2.2 (~−73%); FFO I guidance raised. Sector: Morgan Stanley European Property Chartbook (08/2026): NAV discount −29% vs. −17% historically; EPRA Monthly Report (01/2026): Developed Europe −26.9%, residential segment −48.4%. P/FFO: own calculation on guidance basis (LEG ~8x, Vonovia ~9x via Adj. EBT, TAG ~12x, AT1 ~8.5x) vs. USA avg. 14.9x (2nd Market Capital "State of REITs", 07/2026).

⁵² Global listed (as of 08/2026): Prologis: 10 GW DC target (DCD, 02/2025), 5.8 GW power pipeline (Q2 2026), land bank evaluation ~\$15-60 billion potential (Bisnow, 10/2025); SEGRO takeover of ~\$18.8 billion agreed (PR Newswire/Bloomberg, 03./04.08.2026), rationale "logistics, energy and digital infrastructure". FTSE Nareit sector returns: Data Center +25.2% (2024), -14.0% (2025), +36.0% YTD (06.08.2026); Equinix analyst day shock 06/2025 (AFFO guidance lowered, -9.6% one-day loss, -16% YTD 07/2025), Q2 2026: AFFO/share +18%, guidance raised. Office: Bisnow (18.02.2026) "AI scare trade": SL Green -50% since 11/2024; 2025 first positive US net absorption since 2019 (+12.5 million sq ft). Simon Property: record FFO 2025, occupancy 96.0% (Q1 2026). Hotels: Marriott FY2025 (stock +37% in 2025, pipeline 610,000 rooms, NUG +4.3%); IHG FY2025 (operating profit +13%, system growth +4.7%); Accor CEO S. Bazin (NYU IHIF, 06/2026, via Hotel Dive): "Probably a third, if not 40% of all my jobs under corporate, will be replaced by AI."

⁵³ Data center counterforces and the miner pivot: Data Center Watch: report 06/2025 (\$64 billion blocked/delayed, 05/2024-03/2025); Q1 2026 update: >75 projects / ~\$130 billion within three months, 833 groups in 49 states, 300+ state bills, 14 moratorium initiatives (see also Fortune 16.06.2026, Forbes 22.07.2026). PJM capacity auction: \$28.92 → \$329.17/MW-day (a factor of >10; IEEFA), Dec. 2025 at the price cap with the first capacity shortfall in PJM history. Miners: IREN/Microsoft \$9.7 billion AI cloud deal (03.11.2025, GlobeNewswire; stock +261% in 2025, thereafter ~-50% drawdown); Hut 8/Fluidstack \$7 billion with Google backstop; TeraWulf 510 MW HPC contracted; Cipher/AWS 300 MW (~\$5.5 billion); Galaxy Helios: 133 MW handed over to CoreWeave (10.07.2026), >1.6 GW approved; Core Scientific/CoreWeave takeover rejected by shareholders (10/2025). Cumulatively >2.5 GW of ex-mining capacity for AI hosting.

⁵⁴ Figure 3, method: residential: Destatis house price index (2025=100), quarterly series Q4 2021-Q1 2026, Q2 2026 extrapolated with the vdp rate (+0.3% qoq); peak-to-trough Q2 2022-Q1 2024: -12.9%. Equities: monthly closing prices (EODHD): DAX (performance index, incl. dividends), S&P 500 and Nasdaq Composite (price indices excl. dividends; real returns thereby understated by ~1-2 points p.a.). Deflation: German CPI (Destatis; December anchors 2021-2025, June 2026 +2.3%, July +2.8% yoy), CPI-U USA (BLS; values from end-2025 extrapolated approximately, flagged). Result (Q4 2021 to 08/2026, real): Nasdaq +44%, DAX +39%, S&P 500 +38%, German residential -21%. Own calculation; rounded.

⁵⁵ Same-day evidence 10.08.2026 (Handelsblatt): Herz, C.: „Dreht der Kaufmarkt? Was neue Daten der Banken verraten" [Is the buying market turning? What new bank data reveal]: vdp real estate price index Q2 2026 (>700 institutions): total +1.3% yoy, -0.1% qoq; residential +1.9% yoy, +0.3% qoq; multi-family +1.6% yoy (weakest segment); top 7: Hamburg +3.8%, Stuttgart +0.7% yoy / -0.2% qoq; IfW Kiel (J. Zdrzalek): asking prices "more frequently adjusted downward again". Buchenau, M.-W.: interview with M. Herrenknecht: „Deutschland plant sich noch zu Tode" [Germany is planning itself to death]; breach of the state treaty on the

Brenner/Gotthard feeder lines; €4 billion for 4 minutes of travel time savings (Offenburg); "The money is there. What we lack is the courage ..."; rail bonds with federal guarantee for insurers/pension funds. Holzki, L.: interview with E. Blair (Multiverse, \$500 million funding): "Anyone who says we need not worry about job losses from AI is naive. (...) Jobs will be displaced."; "sleepwalking into an unemployment crisis"; productivity finding: too much invested in technology, too little in people.

H · AI Research and Dissenting Voices

³⁶ Handelsblatt (02/2026, verified 21.07.2026): profile of A. von Schenk (University of Würzburg, Chair of Economics of AI and Human Behavior), task-based approach; "We are not going to get mass unemployment"; AI "extremely good even at management processes such as strategic decision-making"; AI-as-CEO fails "for now on questions of responsibility and liability rather than on the technology".

³⁷ Savills: "Spotlight: Impact of AI on European offices" (2025; secondary analysis 05/2026), no AI-driven decline in office employment so far; Oxford Economics: +4% office employment over 10 years; expansions by Databricks (Amsterdam), OpenAI (London), Anthropic (Paris/Munich). [Original report not freely accessible; figures from a secondary source.]

³⁸ Handelsblatt (08.08.2026): „Ist sich selbst verbessernde KI die letzte Menschheitserfindung?" [Is self-improving AI humanity's final invention?], Neolabs (inter alia Recursive Superintelligence: >€0.5 billion funding, valuation >€4 billion [1Q]); Sakana AI "The AI Scientist" (Nature, 03/2026); warnings by Clark/Favaro (Anthropic).

Note on method: this paper was researched and edited with AI assistance; all core claims, judgments, and errors are the author's. The self-reference is intentional — it is the smallest exhibit of the thesis.

J · Additions v0.11

⁵⁶ Labor market of the real estate industry: Interhyp: ~160 positions (~10%) in 2026 (finanz-szene.de, 07.05.2026; pre-tax profit €107 → €23 million), previously ~100 positions in 2022 (Börsen-Zeitung); HCOB: –190 (IZ, 21.08.2025); Deutsche Finance: cuts "of significant magnitude" (IZ, 02.10.2025); McMakler: three waves of layoffs since 2022, Homeday: "drastic headcount reduction" (IZ, 04.08.2022/31.05.2024); IZ job-cut chronicle (iz.de). Cumulative job tally of developer insolvencies: non-existent (data gap, flagged). Cobalt Recruitment (29.06.2026): „Arbeitsmarkt in der Immobilienbranche sortiert sich neu: mehr Kandidaten für weniger Führungspositionen" [the real estate labor market is re-sorting: more candidates for fewer leadership positions]. Robert Walters salary study 2026 (PM 20.11.2025): 68% plan increases (prior year 75%), "leeway largely exhausted" (across industries).

⁵⁷ Auto update mid-2026: Porsche +5,000 (agreement 08/2026; 2025 profit –91% to €310 million; Börsen-Zeitung/finanzen.net); BMW ~8,000 by end-2027 (~€1 billion in severance; heise/ingenieur.de); Mercedes: ~5,500 program acceptances

04/2025-03/2026 (Business Insider); VW: >37,000 signed contracts, ~27,000 departures by end-2026; scenarios under review of up to 50,000 more [planning status] (ZDF, 13.07.2026); Bosch cumulative ~22,000 in Mobility (ZDF/Handelsblatt); ZF up to 14,000, Continental >10,000, Schaeffler 4,700. EY (03/2026): 2025 approx. -50,000 to ~725,000 (-6.2%, a 14-year low; suppliers -23% since 2019); VDA (13.05.2026): ~100,000 cut since 2019, a further ~125,000 expected by 2035. Macro: real GDP 2019→2025 $\approx$ +0.2% (Destatis rates, revised; own cumulation), nominal ~€3,473 → ~€4,470 billion (+29%); USA real $\approx$ +14-15% (BEA); productivity per hour 2025 +0.4%. Tax revenue: €799.3 billion (2019) → €989.8 billion (2025, a record; Destatis), 170th tax estimate: €1,033 billion (2027); OECD Taxing Wages 2026: tax wedge for singles 49.3%, OECD rank 2 behind Belgium.

⁵⁸ Fiscal policy: Frühstart-Rente (early-start pension): BMF ministerial draft 07/2026, cabinet consideration planned for 12.08.2026; €10/month (ages 6-18), start 01.01.2027, retroactive from 2026, max. €1,440 in state capital per child, top-up contributions up to €6,840/year (BMF FAQ). Generationenkapital (generational capital fund; €12 billion p.a., target €200 billion): not continued under the government in office from 2025 [secondary sources]. USA: ICI Q4 2025: retirement assets \$49.1 trillion, of which 401(k) \$10.1 trillion, DC total \$14.2 trillion. Wealth tax: suspended since 01.01.1997 (Federal Constitutional Court, 22.06.1995, 2 BvL 37/91: valuation/equality problem, core issue: standardized real estate values); Bundestag debate 06.03.2026, motion Drs. 21/4029 (1-5%, 12% above €1 billion), referred to the Finance Committee; revenue estimates €10-25 billion/year (DIW). Exit taxation: Section 6 AStG as amended by the ATADUMsG (from 2022: immediately due, installments over 7 years, including EU relocations); JStG 2024: extension to investment fund/ETF holdings >€500,000 or $\geq$ 1% from 01.01.2025.

⁵⁹ Europe evidence: Draghi, M. (09/2024): "The Future of European Competitiveness": investment gap of €750-800 billion/year, 4 of the top 50 tech companies European, "slow agony". EPIC Draghi Observatory (05/2026): 43 of 383 recommendations fully implemented (11.2%). ifo/IHK München (11/2024): bureaucracy costs €146 billion/year (3.4% of GDP). McKinsey (19.01.2026): „Bürokratie rückbauen" [Dismantling bureaucracy]: ~325,000 compliance positions in three years, ~€64 billion/year in direct costs. Poland: real GDP 2019→2025 $\approx$ +18% (Eurostat rates, own cumulation); 2025: +3.6%, sixth-largest EU economy (Euronews, 09.08.2026).

⁶⁰ Der Spiegel 33/2026 (Book, S. / Abé, N., 08.08.2026): „Der neue KI-Kapitalismus" [The new AI capitalism] (cover: „Mehr Marx wagen?" [Daring more Marx?]). Therein: Meta's "AI-native" dismissals; Amodei: up to 20% unemployment by 2030; Khosla: "80% of all jobs" from 2030; Goldman Sachs (2023): 300 million automatable full-time positions; IMF (2024): 40% of all jobs affected, 60% in advanced economies; the Hassabis quote; NY Fed: graduate unemployment 5.7% vs. ~4% overall; Stanford: -16% employment of Gen Z in AI-exposed occupations; US programmers below the 1980 level; D. Autor (MIT): task-length heuristic,

"expertise as an interchangeable commodity", the democracy quote; Piketty: "the greatest attempt at a gigantic appropriation", the 90%/20% proposal; Berggruen: "universal basic capital", Singapore/Australia (superannuation 12%); German capital stock pillar from 2028 (2% of gross pay, split equally, planned); US data center approval: ~66% (2025) → 36% (04/2026), ~75% opposition in the immediate neighborhood; neo-Luddites/"Summer of Ludd"; Molotov cocktail at the Altman villa (04/2026); official warning of "anti-technology violent extremism"; wealth data: Musk \$725.9 billion, Nvidia ~\$5 trillion market capitalization, Anthropic ~\$0.97 trillion (Forbes/LSEG, as of 07-08/2026).

⁶¹ Der Spiegel 33/2026 (Abé, N., 06.08.2026): SPIEGEL conversation with Yuval Noah Harari: „Es ist der Moment, in dem der Kapitalismus und die Menschheit sich voneinander trennen" [It is the moment at which capitalism and humanity part ways]. Therein: "This time we are creating agents, not tools"; "power struggle between tech companies and governments"; Europe as a "submissive vassal" or an independent actor ("only a few years remain"); "If the basis for taxation disappears, Europe cannot even sustain its existing welfare systems"; AI agents as "perfect bureaucrats"; the trillion-dollar superintelligence bet as an "ideological, indeed almost religious decision".

⁶² The Jevons debate: Nadella, S. (27.01.2025, X): "Jevons paradox strikes again! As AI gets more efficient and accessible, we will see its use skyrocket ..."; NPR Planet Money (04.02.2025): "Why the AI world is suddenly obsessed with Jevons paradox", therein Brynjolfsson, E.: three conditions (productivity, prices, elastic demand), the pilots example; the agriculture counterexample (~40% employment share around 1900 → <2%); Fortune (27.01.2025): contextualization of the Nadella quote. Rental market: IW housing index Q2/2026 (Sagner, P. / Voigtländer, M., IW Köln, 08/2026): asking rents +4.0% yoy, +1.3% qoq; purchase prices for condominiums and single-/two-family homes +0.8% each; purchase supply nearly doubled since Q1 2022, rental supply in major cities ~12% below early 2022. iwkoeln.de

⁶³ JLL Research (07/2026): "Where AI is changing jobs and what it means for real estate" (Wang, Y. / McAuley, M. / Ryan, P. / Lewis, S. / Littman, D. / Schiada, A.), based on the JLL 2026 Future of Work Survey; market exposure analysis in a research partnership with the MIT Sloan School of Management and the MIT Center for Real Estate (Bao, R. et al.; data basis Lightcast, US BLS, OEWS). Four trajectories with quantified space impact: "High Negative Disruption" -10 to -20% ("Long leases delay impact; sublease, downsizing and valuation pressure emerge"), "Low Disruption Augmentation" -5 to +5%, "High Offsetting Disruption" (>5% losses and >5% gains in parallel, example San Francisco), "AI Boom Upside" (>+5%); highest asset risk: "Standard Quality" space and "Business park - Legacy Quality" (back office, support, administration); US tech employment 2025-2026 -1.5% alongside rising office leasing by the sector; closing line: "...not those who wait for transaction numbers to confirm what the labor market is already showing." Therein: three parallel labor market effects (Role Augmentation, Selective Displacement, Job Creation); "AI is not producing a

uniform outcome. It is a strong sorting mechanism"; 60% of companies plan workforce expansion over 3-5 years; San Francisco: ~30% of leasing since 2025 by AI firms ("High Offsetting Disruption"); the job creation rationale is grounded explicitly in the Jevons paradox. Germany spin-off (08/2026, reported per Thomas Daily, 11.08.2026): cumulative AI venture capital in German metros just under USD 54 billion; Munich rank 1 in Europe / rank 11 worldwide for AI research publications; Stuttgart R&D spending 5.9% of regional GDP; Berlin 23 unicorns in five years; core message: AI is reshaping labor markets lastingly, "but not necessarily" with declining space demand. jll.com [Germany figures 1Q]

⁶⁴ Microsoft AI Economy Institute / Microsoft Research: "Global AI Adoption in 2025 — A Widening Digital Divide" (AI Diffusion Report, 01/2026): Germany with a generative-AI user share of 28.6% of the population in H2 2025 (H1/2025: 26.5%) in the global top group (rank ~20 of more than 150 economies tracked), ahead of the USA (28.3%) and well above the global average (16.3%). Metric: share of people who used a generative AI product during the reporting period (adjusted Microsoft telemetry). microsoft.com/research

⁶⁵ G. Hinton: Nobel Prize in Physics 2024 (jointly with J. Hopfield) for foundational discoveries enabling machine learning with artificial neural networks (nobelprize.org); departure from Google: New York Times, May 1, 2023 (leaving "so that he could freely speak out about the risks of A.I."); risk estimate of a 10-20% probability of extinction: i.a. BBC Radio 4 (12/2024) and subsequent interviews 2025/2026.

⁶⁶ Center for AI Safety: "Statement on AI Risk" (May 30, 2023): "Mitigating the risk of extinction from AI should be a global priority alongside other societal-scale risks such as pandemics and nuclear war." Signatories include G. Hinton, Y. Bengio, D. Hassabis (Google DeepMind), S. Altman (OpenAI), D. Amodei (Anthropic), and hundreds of other AI researchers. safe.ai

⁶⁷ Handelsblatt (August 11, 2026): "Nvidia macht Kunden zu Abhängigen" [Nvidia makes its customers dependent] (Hofer, J. / Holtermann, F. / Kölling, M.): announcement with D. Solomon (Goldman Sachs) and L. Fink (BlackRock) to mobilize \$500bn of Wall Street capital for AI data centers, up to \$125bn of it backstopped by Nvidia; Bloomberg (07/2026): new round of AI deals totaling >\$750bn; 2026 examples: CoreWeave (\$2bn equity, ~9% stake), IREN (\$3.4bn compute offtake + \$2.1bn equity option), Nebius (\$2bn, 9.3%; additionally a \$775m syndicated loan collateralized i.a. with Nvidia GPUs), Naver (\$1bn), Safe Superintelligence (\$5bn); 54% of quarterly revenue from three unnamed large customers; critics: M. Burry, Goldman Sachs research, E. Zitron, M. Bryson (Wedbush), A. Chandrasekaran (Gartner): even "the mere appearance of round-tripping" has historically rarely ended well; P. Fintl (Capgemini): "Nobody knows what the GPUs will be worth in a few years"; Huang on the circularity charge (01/2026, re CoreWeave): "ridiculous"; credit default swaps on Nvidia debt recently up 0.14-0.82 percentage points p.a.

⁶⁸ Financing bottleneck, evidence: Bundesbank, Bank Lending Survey Germany (07/2025): credit standards for commercial real estate tightened more since 2022 than in any other segment. BF.direkt, BF.Quartalsbarometer (Q3/2023, record low): 80.4% of surveyed lenders report more restrictive lending; only hesitant recovery since. bulwiengesa (2025): construction starts in project development down as much as -85% from peak. Falkensteg: major real estate/construction insolvencies doubled from 33 (2023) to 66 (2024), still elevated at 56 in 2025, main driver refinancing. Debt funding gap: CBRE ~€77bn (Europe), AEW €86bn (Europe, largest country share Germany at ~19%), HIH: maturity peak 2026. For fairness: vdp new lending recovered in 2025 (+15.7% year-on-year), albeit from a very low base; the "bottleneck" finding describes the level, not the direction.

⁶⁹ Foreign share: BNP Paribas Real Estate (cited per Deutsche Wirtschafts-Nachrichten, 2024): foreign investors' share of commercial transaction volume 37% in 2023, 35% in Q1/2024 (lowest since 2013; ~50% in peak years); total commercial transaction volume ~-70% vs. 2020/21. Investor Summit: WirtschaftsWoche (08/2026): "Investorengipfel in Berlin"; October 19-20, 2026, ESMT Berlin, hosted by Chancellor F. Merz, investment envoy M. Blessing (ex-Commerzbank), modeled on "Choose France"; predecessor initiative "Made for Germany" (2025: 105 companies, ~€735bn pledged; targets missed per WiWo analysis 08/2026). Election dates/polls (as of 08/2026, dawum.de polling average): Saxony-Anhalt September 6, 2026 (AfD up to 42%), Mecklenburg-Vorpommern September 20, 2026 (AfD ~36%), Berlin September 20, 2026 (Left Party ~20%, strongest party; cf. fn. 43).

⁷⁰ Infrastructure capital: special fund for infrastructure and climate neutrality, €500bn over 12 years (constitutional amendment 03/2025). Handelsblatt (May 30, 2025): I Squared Capital opens a Munich office, at least €500m for German energy, transport, and digital infrastructure (G. Bhandari: Germany "allowed itself a 20-year pause in renewing its infrastructure"); KKR and Macquarie with long-standing German infrastructure engagements (i.a. the 2024 Encavis takeover and Thyssengas/Open Grid Europe, respectively). The juxtaposition "state-guaranteed infrastructure vs. the broad real estate industry" is the author's interpretation.

⁷¹ Henley & Partners, Private Wealth Migration Report 2025: net outflow of ~400 millionaires projected for Germany; Report 2026: Germany classified as a "Competitive Jurisdiction Under Pressure" (Wealth Mobility Score 69.7), enquiries from German citizens +16% (Q4/2025-Q1/2026). UBS Global Family Office Report 2026 (05/2026): 60% of family offices plan to change their strategic asset allocation within 12 months (the highest level since records began), including reduced real estate quotas. The naming of specific destination countries/cities (USA, Poland, Copenhagen, Spain, Dubai) rests on the author's own observation within the family-office community and is anecdotal evidence.

I · Literature Sweep (as of 09.08.2026): Archives Reviewed and Blank Spots

For this paper, the publication archives of the following institutions were systematically searched for AI/disruption content 2024-2026: gif e.V. (incl. ZIÖ),

IREBS (Standpunkte, monograph series), EBS REMI, IMMOEBS, vdp, ZIA, Bundesbank, BaFin, ifo, IW, DIW, empirica, bulwiengesa; internationally RICS, ULI, EPRA, INREV, MSCI, NAR, Newmark, CBRE/CBRE IM, JLL, Cushman & Wakefield, MIT CRE; academically ERES, ARES, AsRES, PRRES, LaRES, AfRES, VOGON (NL, Real Estate Research Quarterly), JRER, JPIF, NBER, BIS, IMF, Brookings. The relevant findings are incorporated in the footnotes of this annex.

Equally instructive is what is missing — the field's blank spots: (1) No refereed German-language research exists on the transmission AI → occupier income → rent/price; the ZIÖ has the topic only at the call-for-papers stage. (2) The vdp has not addressed AI in the mortgage lending value and credit process at association level since 2020. (3) EPRA maintains no research on AI and REIT valuation, INREV none on AI and the valuation lag. (4) ERES (2026 conference) and VOGON have no AI focus; the US academic association ARES is ahead, with a dedicated AI seminar and prize papers. (5) Regulators and associations consistently frame AI as a process, model, or cyber risk — nowhere as a demand shock for space. The core model of this paper thus occupies, to the best of the author's knowledge, unoccupied terrain; corrections from readers are expressly welcome.

About the Author

David A. Pieper is an entrepreneur and the founder of one of the largest family office communities, in which leading entrepreneurial families and their investment companies organize themselves. His work focuses on the intersection of family offices, real estate, and capital markets; he holds an MBA and an LL.M. in Private Wealth Management. The observations described in this paper stem from managing the portfolio of his own group and community, not from a mandate or distribution context. The daily exchange with owner families shapes this paper's perspective.

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