

Integrated Investment Decision Report – SPINA 3 Redevelopment (Turin, Italy)

0. Executive Summary

The SPINA 3 Corso Principe Oddone project in Turin is a proposed mixed-use urban redevelopment of a 10.9 ha former railway site, governed by strict planning constraints and ambitious city regeneration goals. Three development concepts (Concept 1: Residential-Led, Concept 2: Balanced Mixed-Use, Concept 3: Innovation Campus & Housing) were evaluated against market conditions, financial feasibility (base-case financial model base case), and quantified risk (risk analysis analysis). All concepts fulfill zoning requirements – up to ~46,006 m² GFA with ≥40% housing use[1][2] – and deliver significant public benefits (new roads, ~5.7 ha parks) but each faces a substantial viability gap under current assumptions. Base-case financial outputs show negative Net Present Value (NPV) for all options (NPVs – €34 M to –€37 M) and sub-par Internal Rates of Return (IRR ≈ –17% to –22%). This is largely due to high development costs and mandated public works outweighing forecast revenues. Risk analysis confirms that, without interventions, there is a very low probability of achieving a positive return.

Concept 1 (Residential-Led) emerges as the “least unprofitable” and lowest-risk scenario, leveraging strong local housing demand – but still fails to break even financially[3]. Concept 2 (Balanced Urban Hub) offers the greatest economic impact (jobs, commerce) but carries the highest market risk (heavy reliance on office and retail uptake) and the worst financial outcome. Concept 3 (Innovation Campus) aligns with strategic goals (education, innovation) and could attract external funding (e.g. university or EU grants) to improve viability[4], but is contingent on securing an institutional partner. Given these findings, an immediate “Go” decision is not justified on a purely private investment basis. Instead, a conditional recommendation is put forward: Proceed with a predominantly residential-led redevelopment (Concept 1 baseline) only if critical viability enhancements are secured – such as public co-funding of infrastructure, land cost concessions, and/or pre-commitments from partners for the commercial components. These conditions could close the €30–40 M NPV gap and mitigate key risks. Absent such measures, the project should be restructured or delayed.

In summary, SPINA 3 holds transformative potential for Turin’s northern districts – adding much-needed housing, jobs, and public spaces – but requires a coordinated public-private effort to overcome its financial shortfall and risk profile. The following report details the analysis underpinning this conclusion, outlines comparative concept performance, and identifies the assumptions, risks, and actions required to move toward an investable project.

1. Investment Recommendation (Conditional)

Decision Stance: Defer a full commitment until viability improvements are in place. The recommended path is conditional progression with a residential-led mixed-use development akin to Concept 1, provided that external support and risk mitigations can be secured. If these conditions are met, the project could proceed in phases; if not, proceeding under current terms would likely destroy investor value.

- Preferred Concept (Provisionally): Concept 1 “Residential-Led Green Quarter”, as it best aligns with proven market demand (housing) and has the smallest financial shortfall. This concept should form the core of the plan, emphasizing ~60% of GFA in housing and only modest office/retail components[5][6]. It yields the highest (least negative) base-case NPV (≈–€34.5 M) and the lowest risk of the three, making it the soundest starting point. However, it is not financially feasible without enhancements – even Concept 1’s IRR is deeply below any acceptable hurdle (well below typical target return expectations; benchmark not evidenced in uploaded sources).
- Conditions for Proceeding: The project should only advance if key viability measures are secured:
- Public Sector Contributions: A significant portion of the public infrastructure and park costs (≈€10–15 M) should be subsidized by the city or state (e.g. via PNRR urban regeneration grants). Assumption (Added to close data gap): Land is provided by FS (the railway owner) at nominal cost under a public accord[3]. Justification: The feasibility study hints that favorable land terms and subsidies (“Torino Cambia” program) are expected to improve viability[3]. Impact: Each €10 M saved in upfront costs would improve project NPV by roughly the same amount, substantially closing the gap (e.g. a €11 M land cost waiver would reduce the –€34 M NPV deficit of Concept 1 by about one-third). Without such support, the private IRR remains unacceptable at roughly –17%.
- Pre-Leases/Partner Commitments: Secure anchor tenants or co-development partners for non-residential components before construction. For instance, confirm a government agency or tech company lease for the offices, or a university’s involvement for the “innovation campus” in Concept 3. This would de-risk future cash flows (ensuring occupancy) and could allow forward-selling those assets to investors. Example: An institutional partner in Concept 3 could bring capital or guarantees that effectively inject value (the analysis shows that if ~€10+ M of the innovation hub costs are externally funded, Concept 3’s NPV would improve from –€37 M to roughly –€27 M, nearing breakeven).
- Flex Design & Phasing: Commit to a phased development and flexible design approach that can adapt if market conditions change. Do not build the full

office quota upfront. Instead, phase offices/retail after housing, and include design provisions to convert or repurpose space if needed (e.g. design office buildings so they could be converted to residential or institutional use if leasing falters[7]). This conditional strategy means Phase 1 proceeds primarily with housing and essential infrastructure; later phases are subject to achieving pre-sales or leases (see Section 9).

- **Proceed/No-Go Criteria:** Establish clear “go/no-go” checkpoints. After Phase 1 (or prior to major vertical construction beyond housing), re-evaluate market uptake and funding: if apartment sales are sluggish or no office tenant is secured, pause before Phase 2. Conversely, if pre-sale rates and lease commitments meet targets, proceed to the next phase. This conditional phasing limits exposure if assumptions don’t materialize. Overall, no concept should proceed as a single-shot 46,000 m² project without these safety nets in place.
- **Alternative Actions if Conditions Fail:** If the above conditions cannot be met, the recommendation would shift to restructuring or forgoing the project in its current scope. Options might include redesigning the masterplan to reduce costs (e.g. scale down public space obligations via negotiation), seeking additional public grants (beyond PNRR, e.g. EU Just Transition funds), or postponing the project until market values appreciably rise. At present, a “No-Go” is the default absent interventions, as all concepts show negative returns under base assumptions.

Conclusion: Invest only if public-private risk sharing is achieved. With city support and pre-committed tenants, a phased Concept 1 (with elements of Concept 3 if partner-funded) becomes tenable – offering a new affordable neighborhood with manageable risk. Without such support, the rational investor stance is to not proceed at this time, as the project would erode capital ($NPV < 0$). This nuanced recommendation balances the project’s strong strategic merits (urban regeneration, social benefits) with its financial realities, advising conditional advancement rather than outright acceptance or rejection.

2. Project Context & Constraints

Site & Zoning: The SPINA 3 site (Zona Urbanistica di Trasformazione 4.13/2) is a large brownfield tract of 109,183 m² in the San Donato–Aurora area of Turin[8]. Formerly railway lands (owned by Ferrovie dello Stato, FS Group), it is designated an Urban Transformation Zone under the city’s Master Plan[9], meaning redevelopment is encouraged but subject to a detailed executive plan (Piano Esecutivo Convenzionato) or similar negotiated permit[10]. Key regulatory constraints and requirements include:

- **Buildable Area:** Total new construction is capped at 46,006 m² Gross Floor Area (GFA)[11], yielding an average floor-area ratio ~0.42 m² GFA/m² land. This limit defines the project's maximum development capacity.
- **Land-Use Mix:** A mixed-use program is mandatory. At least 40% of GFA must be residential (housing) and ≤40% may be tertiary (office/R&D), with ≤20% for retail/commercial uses[12][13]. These quotas ensure no single use dominates – reflecting city policy for a “balanced functional mix”[14].
Compliance: All three concepts were designed to meet these thresholds (details in Section 4).
- **Public Space Obligations:** Roughly 52% of the site (~56,649 m²) must be dedicated to public uses (parks, plazas, facilities)[15]. This is an exceptionally high public space ratio, driven by urban planning standards (LR 56/77) and the need to provide new green/recreational areas for the district[16]. In practice, the developer must construct ~5.7 ha of public parks and amenities on-site and then turn them over to the city. This obligation represents a major cost with no direct revenue, weighing heavily on project economics.
- **New Infrastructure:** The plan requires extending two public streets – Via Dronero and Via Ceva – through the site to break up the superblock and connect to Corso P. Oddone[17]. These road extensions (with sidewalks, lighting, etc.) must be built to city standards by the project. They improve site permeability but add significant upfront cost and consume land. Additionally, utility networks must be installed. (Note: An on-site energy district heating substation is likely needed, given the area's teleriscaldamento network[18].)
- **Building Regulations:** Building height is limited to 5 floors on certain edges and 7 floors elsewhere on the site[19]. No high-rises are allowed; the massing must remain mid-rise, so achieving the GFA requires spread-out footprints. Standard setback rules (~10 m between facing residential facades) and parking requirements (~1 space per 80–100 m² GFA of residential, per Italy's Tognoli law) apply[20][21]. We assumed ~1 parking space per unit and proportionate office parking, mostly in underground garages (feasible given soil conditions), to ensure compliance[22][21].
- **Planning Process:** Because of the transformation zoning, a negotiated development agreement (convenzionato) is required[10]. This implies a lengthier approval timeline and legally binding commitments to deliver public benefits. The development agreement will lock in the public contributions (roads, open space, possibly some affordable housing quotas) and phasing milestones. We expect at least ~12 months for plan approval

once a proposal is submitted (an optimistic assumption considering bureaucratic complexity).

- Other Constraints: A historic building on-site may require preservation and adaptive reuse[23] – our concepts propose integrating it as a civic or cultural facility. Environmental considerations (proximity to the Dora Riparia river and any soil contamination from past industrial use) will need to be addressed; no show-stoppers are known, but soil remediation could add cost if contaminants are found (this risk is noted in Section 6). The site’s location in the Dora floodplain is mitigated by recent park renaturalization upstream, but detailed studies are needed (a data gap for future analysis).

Strategic Context: The SPINA 3 project is part of a broader urban revitalization effort in northern Turin. It sits adjacent to Parco Dora (a large post-industrial park) and near the emerging Environment Park tech campus, positioning it to contribute to an “innovation district” vision. Crucially, new transport investments are underway: the Dora railway station (serving the Turin-Ceres line and future city airport link) and a planned tram Line 12 will significantly boost public transit connectivity by the early 2030s[24]. The project timing aims to capitalize on these improvements, as better transit should increase the site’s attractiveness for both residents and businesses[24][25].

City policymakers are keen on SPINA 3’s redevelopment to address housing shortages and stimulate the local economy. The surrounding borough (Circoscrizione 4) has seen little new construction in decades and suffers from pockets of socio-economic fragility (lower-income population, some derelict lands). The City’s Torino Cambia program, backed by Italy’s PNRR recovery funds, specifically targets such areas for regeneration incentives[26]. This could mean public funding for infrastructure or tax breaks to improve project feasibility (we assume some level of support in concept, but none is guaranteed in base financials).

In summary, SPINA 3’s development must navigate a complex constraint environment: significant mandated public contributions, use-mix rules, and procedural hurdles – but it also enjoys strong policy support and a strategic opportunity to create a new urban quarter. The concepts devised (Section 4) explicitly respect these constraints while trying to maximize the site’s potential within them[27][28]. The next sections discuss market conditions that inform the development program, followed by the concept options and their performance.

3. Market Analysis & Demand Drivers (2025)

Residential Market: Demand for housing in Turin, especially affordable, is solid. The SPINA 3 area (San Donato/Aurora) is characterized by lower-average incomes (≈€23.8k/year, ~15% below city average) and a multicultural population[29], with relatively old housing stock. Vacancy rates in the nearby San Donato district are

low, indicating pent-up demand for new quality housing[24]. Recent market data (2024) for OMI Zone D9 “Spina 3 – Periferica” – which covers our site – show new apartment prices around €1,600–2,000/m², up to ~€2,300/m² for higher-end finishes[3]. This is below the Turin city average (~€2,200/m² for new homes[30]) due to the area’s peripheral image, but prices have been rising modestly (a few % YoY) as regeneration interest grows[25]. Absorption of new units has been encouraging: for example, a recent residential project in a nearby district reportedly sold >70% of its ~100 units within one year[31], showing quick sales at the ~€2,200/m² price point. In Barriera di Milano (another peripheral area), new apartments at ~€1,800/m² have been selling ~50 units/year[31], suggesting that in our location 80–100 units/year is a realistic absorption if priced around €2,000/m². Our concepts plan roughly 200–300 units total, phased to avoid flooding the market (e.g. ~100 units delivered, sold, then another 100) – which aligns with these absorption figures[32][33]. We also note a trend for larger unit preference post-COVID (people seeking slightly bigger homes), which our unit mix accounts for with a good proportion of 2-3 bedroom units (see Section 4, Concept 1 mix)[34].

Office Market: Turin’s office market is currently soft but has niche opportunities. Modern office space demand is moderate and largely focused around established nodes (city center, Porta Susa, Lingotto). Our site is outside these cores, but adjacent to Environment Park (a tech-oriented business campus) which could generate spillover demand. At present, rents for new offices in peripheral Turin are around €90–100/m²/year (~€8–9/m²/month)[35], while construction costs (~€1,200–1,400/m²) are high relative to those rents, yielding cap rates ~8–9%[35]. Such high yields signal perceived risk – investors are cautious, typically requiring pre-leases or anchor tenants before funding new offices. Large speculative office developments are hard to justify absent confirmed occupants. That said, there are emerging catalysts: the new Dora station could make this location more attractive for back-office or budget-conscious tenants, especially if rents are cheaper than center city by ~30%. The city and Region also periodically decentralize offices (e.g. moving departments to cheaper areas); SPINA 3 could vie for such tenants with the right incentives. Our Concept 2 assumes we push the envelope with ~18,500 m² of offices (two mid-size office buildings)[6], which would create a major employment hub (~1,200 jobs on-site if fully occupied)[36]. Risk: Filling that much office space in this area is challenging – it roughly equals the “Corso Ferrucci” development (~15k m²) which itself tested market depth[37]. We assume office absorption of ~5,000 m²/year in a good scenario (so ~3–4 years to lease 18k m²)[38]. Any slower, and carrying costs mount. Office viability here likely depends on securing at least one anchor tenant (e.g. a public agency or an Environment Park partner) or positioning part of it as specialized space (labs, etc.) that may attract targeted users. The upside is that if successful, offices bring daytime activity and significant economic benefits (Concept 2’s appeal), but the downside is high vacancy risk – hence in Concept 2 and 3 we plan to phase offices (build one first, lease it while

waiting to start the second)[32][39], and in Concept 3 we tie offices to an institutional user to reduce risk.

Retail & Leisure Market: The site is not in a traditional retail corridor – currently it's isolated – so a large retail development (e.g. mall) is not viable (and exceeding 20% GFA retail is not allowed anyway). Instead, neighborhood-serving retail (~4,000–9,000 m²) is planned to cater to new residents and workers[6][40]. This includes a medium supermarket (~1,500–3,000 m²) and a mix of small shops, cafes, services, possibly a gym or a food hall in the more ambitious concept[41][42]. Rents for such retail are in the €120–170/m²/year range for new spaces in secondary locations[43]. These are decent but not high-profit when you consider fit-out costs and incentive periods. We view the retail component primarily as an amenity and placemaking element – necessary to avoid a dormitory feel and activate the public spaces in evenings[44][43] – rather than a big money-maker. To ensure the retail succeeds, it should be phased after there is a critical mass of residents on-site (and office workers, in Concept 2)[43]. We anticipate pre-leasing the supermarket early (anchor tenant like Esselunga/Coop which often sign long leases, providing stable income[45]) but only building out smaller retail in later phases once foot traffic is there[32][43]. We allocate up to the 20% GFA retail cap in Concept 2 (~9,000 m² including possibly a cinema or cultural market hall) to create a mini destination[41][45]; Concepts 1 and 3 stay around ~10% GFA in retail (basic local needs)[46][40].

Comparable Developments: Competing projects in Turin could affect SPINA 3's market positioning: - Ex-Westinghouse (near Porta Susa): a major mixed redevelopment with retail (including a shopping center and hotel) and public spaces. If realized soon, it could soak up some retail/leisure demand, but it's more central than our site. - Porta Susa/Spina 2 projects: high-profile office towers and mixed-use around the station. These target a different segment (prime offices, luxury residential) but do signal that institutional investors favor central locations. - Nearby residential projects: Other regeneration sites like Barriera di Milano (east of us) and Vanchiglia have new housing coming at similar price points (~€1,800–2,500/m²). Our project must differentiate itself – likely via the large park access and modern “green neighborhood” appeal, and (in Concept 3) an innovation theme.

Overall, the market study suggests housing-led development is the low-hanging fruit here (robust demand, absorptions ~100 units/yr)[47]. Office and retail components, while adding mixed-use vitality, should be sized and timed carefully due to higher risk. There is a notable opportunity to tap institutional funds if an “innovation” angle is pursued – e.g. EU funding for research facilities, or university expansion money – which could subsidize part of Concept 3[4]. This could be a game-changer for viability beyond pure market metrics. Finally, the planned infrastructure upgrades (train, tram) in the area are expected to gradually lift property values by project completion[3], which we have not fully factored into base prices (we assumed modest price growth to ~€2,300/m² by later phases[3]). Any

stronger uptick would improve revenues. Nonetheless, our financial analysis remains cautious given current conditions – as detailed next.

4. Development Concepts Overview

Three concept alternatives (“archetypes”) were formulated to test different mixes and strategies within the site’s constraints and market context[48]. All concepts respect the hard rules (GFA limit, use mix quotas, public space) and use a phased approach (~3 phases over 6–7 years) to stage investments and absorption[32][49]. Key features of each concept are:

- Concept 1: “Residential-Led Green Quarter” – Community-centric housing focus.
 - Program: ~60% Residential ($\approx 27,600 \text{ m}^2$ GFA yielding ~300 apartments)[46][34], ~15% Office ($\approx 6,900 \text{ m}^2$ small business/coworking space)[50], ~10% Retail ($\approx 4,600 \text{ m}^2$ local shops including a $\approx 1,500 \text{ m}^2$ supermarket)[51], ~15% Civic/Other ($\approx 6,900 \text{ m}^2$ for community facilities like a public nursery, cultural center, or possibly some affordable housing units)[52][53].
 - Design: Mid-rise residential blocks (5–6 floors) arranged around generous green spaces and playgrounds. Emphasis on parks and a family-friendly environment. Includes an expansive central park and smaller plazas totaling the required ~5.6 ha public space. Buildings heights are kept ≤ 7 floors (compliant with limits[54]). A green promenade runs through the site. Parking mostly underground (~1 space/unit).
 - Phasing: 2 main phases: Phase 1 builds ~50–60% of the housing (≈ 150 units), the supermarket and some basic shops, plus a portion of the park and one of the new roads[55][56]. Phase 2 delivers the remaining housing (≈ 150 units) and the small office component (e.g. a flexible office building $\approx 7\text{k m}^2$) once the population is in place, along with the rest of the public spaces and second road. This staging ensures housing sale revenue comes early (reducing carry costs) and that commercial space isn’t built until there’s foot traffic (lowering lease-up risk).
 - Positioning: This concept is the simplest and lowest-risk: it exceeds the minimum housing (providing ~60%, well above 40% required[46]) and under-utilizes the office allowance (15% vs. 40% cap[50]), a deliberate choice given weak office demand. It creates a new residential community with ample green amenity – likely favorable in city approvals. Up to 20% of the units could be designated as affordable housing (e.g. “housing sociale”) which the City supports[52]. Pros: Easiest to absorb (homes have strong demand), lots of public green space (aligns with community needs), and lower complexity in construction. Cons: Lower yield – it doesn’t fully capitalize on the site’s commercial potential, so economic upside is limited. It also risks creating a mostly dormitory neighborhood (mitigated by including some offices and retail for daytime activity).

- Concept 2: “Balanced Urban Hub” – Dynamic mixed-use center maximizing allowable non-residential uses.
 - Program: ~40% Residential (~18,500 m² GFA ≈ 200 units)[57], ~40% Tertiary/Office (~18,500 m² GFA of offices/R&D labs)[6], ~20% Commercial (~9,000 m² GFA retail/entertainment)[5]. This concept maxes out the non-residential zoning caps: it meets exactly the 40% housing minimum and uses the full 40% office and 20% retail allowance[58]. The idea is to create a true mixed-use sub-center – a new urban node active day and night.
 - Design: A more urban, dense layout with a central plaza and surrounding 7-story buildings. Two office buildings (~9k m² each, ~7 floors) front onto Corso Oddone as gateway elements[59]. Residential buildings (5–6 floors) occupy the quieter interior and along Via Ceva. A large multi-level mixed-use complex sits at the heart (e.g. ground-floor supermarket or food hall, upper-floor public library or community center, with a rooftop sports court) anchoring the central piazza[60]. Retail lines the main new street (Via Dronero extension), envisioning an “open-air high street” through the site[28]. This includes possibly a small cinema, gym, or event space to draw visitors from the broader area[41][45]. Despite higher intensity, the plan still provides ~5.6 ha of public space by concentrating green areas along the site’s perimeter and riverfront and a sizable hardscaped plaza for events[61][62]. Shared underground parking is integrated under the plaza for efficiency (serving offices by day, residents by night)[63].
 - Phasing: 3 phases: Phase 1 (Years 1–3) – Kick-start with one office building (~9k m²), one residential block (~100 units), and the central retail complex (at least the supermarket portion), plus initial infrastructure (open Via Ceva, partial Via Dronero)[32]. This provides an immediate mix of uses so the area isn’t a construction zone with only housing. Phase 2 (Years 4–6) – Build the second office building (another ~9k m²) and the remaining ~100 residential units, completing Via Dronero and the park spaces[64]. Phase 3 (~Year 6+) – Finish any remaining retail fit-outs (small shops) and adjust the tenant mix once a population is established[64][33]. Phasing is explicitly geared to not flood the market with offices at once – one office is leased while the second comes online a couple years later[33].
 - Positioning: This concept is market-ambitious and impact-driven. It creates ~1,200 new jobs on-site if offices fill up[65], and a retail destination for the district (e.g. finally giving this area a full-service supermarket and leisure options)[45]. It aligns with the city’s vision of vibrant mixité (no dormitory here – there’d be daytime office population and nighttime residents)[65][66]. Pros: Maximizes economic output, diversifies income streams (sales from housing plus rental from offices/retail if held or sale to investors), and could transform the neighborhood’s image. Cons: Highest execution risk – success hinges on significant office tenant demand and retail attraction, which are uncertain. Financially, it’s the costliest (more complex buildings, two large offices) and the slowest to recoup investment (much capital tied up before

returns). If offices or retail underperform, the project could struggle (e.g. an empty office block would be a major drag). We identified mitigation strategies like partnering with the public sector (e.g. moving a government department here, branding part of it as “Environment Park 2” to leverage the adjacent tech hub)[67], but the risk remains that Concept 2 is a high-stakes bet on market uptake.

- Concept 3: “Innovation Campus & Housing” – Blended scheme with an institutional anchor and housing.
 - Program: ~50% Residential (~23,000 m² GFA ≈ 250 units, including potential student housing)[68][69], ~30% Tertiary/Office (~13,800 m², but envisioned more as innovation/education space than pure corporate offices)[68], ~10% Retail (~4,600 m² local retail/cafés)[40], ~10% “Special” use (~4,600 m² earmarked for a branch campus or research facility)[68][70]. The “special” component is effectively an institutional use that could count under tertiary or public-service zoning categories. The mix sits between Concepts 1 and 2 in commercial intensity, but introduces a unique element: an academic or R&D campus presence. For example, this could be a satellite campus of Politecnico di Torino or an incubator hub co-run with a research institute[68][71].
 - Design: A campus-style layout splitting the site into two synergistic zones – a northern “innovation campus precinct” and a southern residential area[72]. The campus zone might feature a couple of 6–7 story contemporary buildings (with high-tech design, e.g. solar panels, green façades) clustered around courtyards for collaboration[72]. This could include labs, classrooms, co-working and a conference center. The residential zone (5-story buildings) occupies the other half, providing a normal neighborhood feel. A central linear park/promenade connects the two zones, designed to encourage mingling of students, researchers, and residents[73]. Public spaces here might be more thematic (e.g. science discovery playgrounds, outdoor exhibit areas) to reinforce the innovation identity[73]. Retail is kept modest – a few cafés (one oriented to campus, one in the residential area), a bookstore or maker-space, and everyday services[74][75]. Overall, this concept has a greener, campus-like atmosphere (more open lawns, less hardscape than Concept 2). Security needs for the institution are balanced with public openness (minimizing any fenced-off areas)[76].
 - Phasing: 3 phases: Phase 1 (Years 1–3) – Prioritize building the core Innovation Campus facility (e.g. a ~7,000–10,000 m² signature building for the anchor institution) along with ~100 housing units and initial public realm improvements[49]. The rationale: if an institutional partner is on board, they will want their facility early; concurrently delivering some housing sets the mixed-use tone and provides cash inflow. Phase 2 (Years 4–5) – Construct the remaining housing (~150 units) and perhaps a secondary office/lab building (e.g. an incubator or corporate R&D center that complements the

campus)[77]. Possibly also deliver a dedicated student housing building in this phase (if not part of phase 1). Phase 3 (~Year 5–6) – Complete any special features like a cultural center or museum (if part of the plan) and finalize the retail and amenities once the population is established[77]. By Phase 3, the idea is the site is fully activated with both residents and daily users from the institution.

– Positioning: Concept 3 is strategic partnership-driven. Its success is highly contingent on securing a major stakeholder (university, research institute, etc.) to occupy the innovation component[78][79]. If that happens, it brings prestige, potentially funding, and guaranteed activity to the site – effectively differentiating SPINA 3 as an “innovation district” rather than just another housing project[80][81]. The presence of an educational anchor could also qualify the project for special grants (e.g. EU innovation labs funding, or Italy’s research facility funds)[4], which is one of the few ways to inject outside capital and improve financial viability beyond market sales. Pros: If the institutional partner is secured, much of the leasing risk for tertiary space disappears (they take a chunk of space or all), and they might co-invest in construction. The concept still delivers ~250 housing units (providing revenue and meeting social needs) and enough retail for daily needs without oversupply. It also aligns strongly with city objectives of fostering innovation and youth engagement, possibly making the city more willing to support the project (political goodwill, faster approvals, maybe even financial support). Cons: It’s contingent – if no partner materializes, this concept falls apart. We’d then have to revert to a different use for that ~14k m² (essentially becoming more like a smaller-scale Concept 2 with speculative offices, which is not ideal). So it carries a risk of a “hole” if the campus idea fails[82]. Also, designing for a specific institution can be complex (e.g. labs cost more per m² than standard offices, and if the partner backs out, those bespoke facilities might not suit other users). Financially, in our base case we did not assume any external funding from the institution (treating it like a tenant), so the base financials of Concept 3 end up similar to Concept 2 in weakness. But the upside potential with Concept 3 is that if the partner does contribute capital or long-term leases, it significantly de-risks the project (see Section 6 on risk).

In all concepts, regulatory compliance was confirmed: each meets the ≥40% residential requirement and stays within 40% office, 20% retail caps[12][13]; each dedicates the needed 56,600 m² to public use[15]; and building heights in concepts are max 7 stories (permitted)[19]. Table 1 below summarizes the three concepts’ quantitative program for comparison:

Table 1. Concept Program Summary (GFA = Gross Floor Area)

Metric	Concept 1: Residential-Led	Concept 2: Balanced Hub	Concept 3: Innovation Campus
Total GFA (m²)	46,000 m ² ^[57] (100%)	46,000 m ² ^[57] (100%)	46,000 m ² ^[68] (100%)
Residential GFA (% of total)	~27,600 m ² (60%) ^[34]	~18,400 m ² (40%) ^[57]	~23,000 m ² (50%) ^[68]
– Approx. number of units	~300 units ^[34]	~200 units ^[6]	~250 units ^{<sup>1</sup>} ^[69]
Office/Institution al GFA (%)	~6,900 m ² (15%) ^[50]	~18,500 m ² (40%) ^[6]	~13,800 m ² (30%) ^[68]
– Type/Focus	Small business/coworki ng	Two multi- tenant office bldgs	Innovation hub (labs, educational)
Retail/Commerci al GFA (%)	~4,600 m ² (10%) ^[51]	~9,000 m ² (20%) ^[5]	~4,600 m ² (10%) ^[40]
– Notable retail	Supermarket ~1,500 m ² ^[51]	Supermarket + high-street retail, cinema/gym ^[41]	Cafés, bookstore, convenience shops ^[74]
Civic/Special GFA (%)	~6,900 m ² (15%) ^[53]	(included in above uses)	~4,600 m ² (10%) special (campus facility) ^[70]
Public Space Provided	≈56,649 m ² (central park + local gardens)	≈56,649 m ² (central plaza + parks)	≈56,649 m ² (campus green + park)
Phasing Approach	2 phases (Housing > Office)	3 phases (Mix early, offices staggered)	3 phases (Campus + housing first)
Key Risk	Housing market downturn	Office/retail demand shortfall	No institutional partner materializes

^¹Concept 3's ~250 units could include ~150 standard apartments + a student residence (~100 beds ≈ 2,000 m² GFA)^[69].

(Sources: Feasibility Study v1.0 concept descriptions^[46]^[5]^[68] and internal SSOT data tables. All concepts constrained to 46,006 m² total GFA^[11] and official mix limits^[12]^[13].)

Each concept reflects a different development strategy – from low-risk incremental growth (Concept 1) to bold economic catalyst (Concept 2) to strategic partnership model (Concept 3). The City’s objectives could be met by any, but the trade-offs in complexity and financial performance vary greatly, as the next sections on financial analysis (base-case financial model) and risk (risk analysis) will show.

5. Financial Analysis (Base-Case Feasibility)

Using a detailed pro-forma financial model (base-case financial model) for each concept, we evaluated project cash flows, profitability, and investment metrics over a ~10-year horizon (including construction and sell-out/lease-up periods). The model incorporates the phasing schedules, use-mix revenue assumptions, development costs, and financing structure as described below. All monetary values are in euros (€) at 2025 prices (no general inflation escalation applied in base case). A discount rate of 11% nominal was used for NPV calculations, reflecting a target return for a project of this risk profile (moderate/high risk urban redevelopment)[3]. Table 2 summarizes key output metrics for each concept:

Table 2. Base-Case Financial Metrics by Concept (base-case financial model Model)

KPI (Base Case)	Concept 1	Concept 2	Concept 3
Project NPV @ 11%	– €34.4 million	– €37.0 million	– €37.1 million
Project IRR (annual)	–17.3%	–19.8%	–22.4%
Profit on Cost	–34.5%	–42.8%	–42.1%
Profit Margin	–52.8%	–74.9%	–72.6%
Peak Cash Need (peak debt+equity)	€71.3 million	€75.5 million	€90.2 million

Note: All concepts are evaluated on a levered basis with 60% max Loan-to-Cost debt @ 6% interest (per model assumptions). NPV is total project free cash flow discounted at 11%. Negative NPV and IRR indicate value loss. “Profit on Cost” = NPV / Total Cost; “Profit Margin” = NPV / Total Revenue (both negative here). Equity IRRs are not meaningful (all concepts have no positive equity return; effectively equity is fully eroded, with calculated equity IRR ~ –100%).

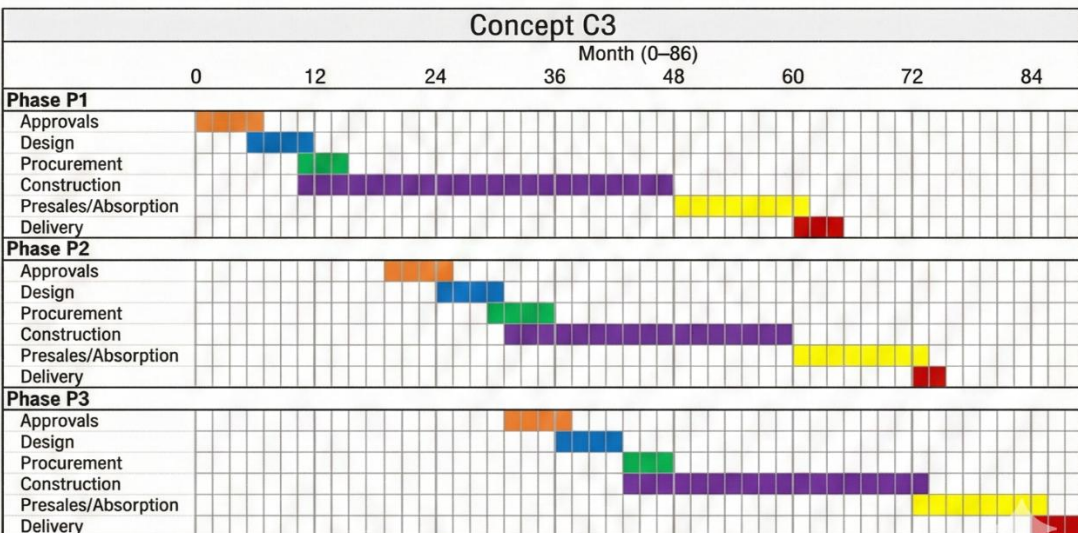
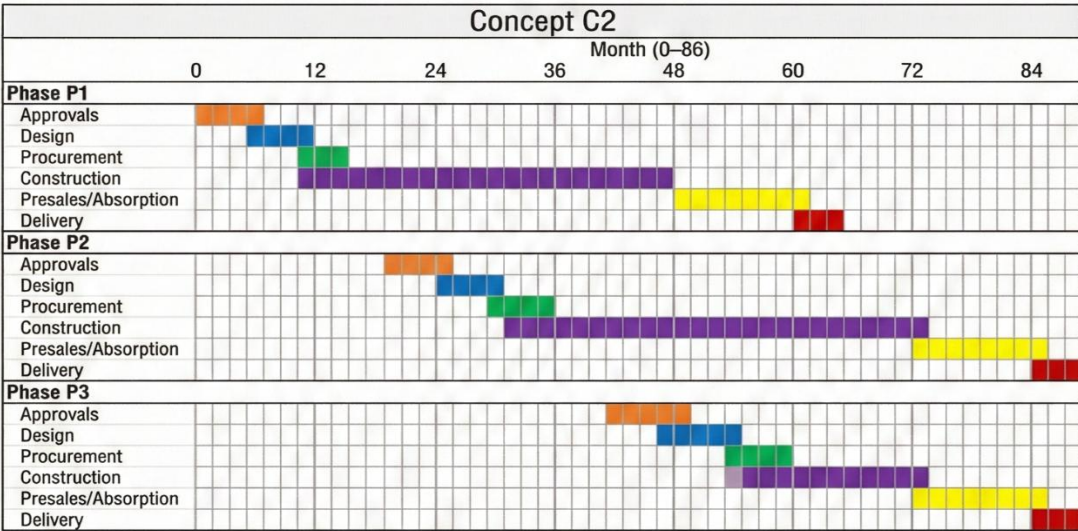
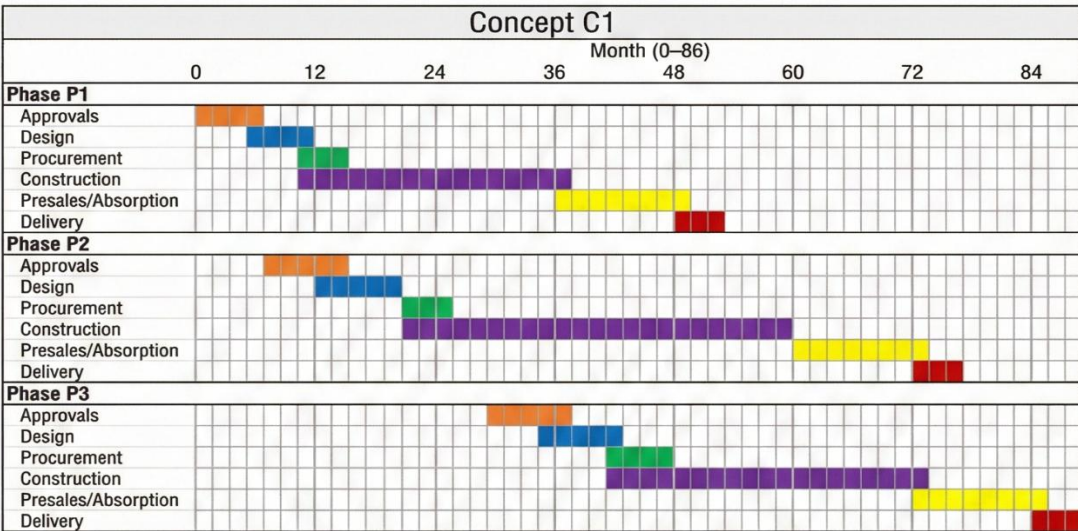
As shown, none of the concepts is financially viable in the base case – all have significantly negative NPV and IRR well below zero. Key takeaways from the financial outputs:

- **Massive Viability Gap:** Each concept’s NPV is around –€34 M to –€37 M (negative), meaning that, after discounting, the present value of costs exceeds revenues by ~€35 million+. In other words, even if an investor

required only an 11% return, the project would fall short by ~€35 M. This is the unfunded gap that must be closed via cost savings, higher revenues, or subsidy to make the project break-even NPV=0. Concept 1 has the “smallest” gap (–€34.5 M), while Concepts 2 and 3 are slightly worse (~–€37 M). The gap corresponds to roughly 30–40% of total development cost – aligning with the negative Profit on Cost ratios (e.g. –34.5% for C1, meaning for every €100 spent, only ~€65 is recouped in PV terms).

- **Returns Are Deeply Negative:** The Project IRRs (internal rate of return on total cash flow) range from –17% to –22% annually, indicating substantial value destruction under current assumptions. An IRR of –17% (Concept 1) means the project would lose value as if it were “earning” –17% per year – far from any reasonable hurdle rate (a typical target IRR for risky development might be +15% or more). The equity IRR is effectively –100% (equity is wiped out, as reflected by equity multiples ~0.0x). These figures underscore that from a private developer/investor standpoint, the project is not feasible without changes.
- **Revenue-Cost Imbalance:** The Profit Margin (net profit as % of total revenue) is highly negative (–50% to –75%). For example, Concept 1’s –52.8% margin implies that for €1 of revenue, ~€1.53 of cost is incurred (i.e. costs are ~153% of revenues). This imbalance is even worse in Concept 2 (costs ~4x revenues on a discounted basis, margin –75%). The main drivers are:
- **Public Infrastructure Costs:** The requirement to build roads, utilities, and ~5.7 ha of park adds tens of millions in cost with no direct revenue. These public works are essentially a developer “tax” in kind. Our cost model (see Appendix for assumptions) allocated ~€10 M for these obligations (and possibly more when including land preparation). In NPV terms, these early expenditures heavily impact the outcome.
- **Limited Revenue Streams:** By policy, at least 40% of the project must be housing – which we assumed sold at an average €2,000/m². While housing provides substantial revenue, the other uses (office, retail) either produce delayed income or lower overall value. For instance, we assumed offices would ultimately be sold to an investor at ~€1,500/m² (reflecting an ~6.5% yield on €95/m² rent), which barely covers their cost (~€1,400/m² + financing). If offices are instead held for rent, the developer must inject capital and wait years for rental yields – not improving NPV much. Retail was treated similarly conservatively. Essentially, the project revenue is not high enough per m² to generate profit given moderate sales prices and high cost base. (Sales price average ~€2k/m² vs. cost ~€1.3–1.4k/m² plus all the extra costs leaves slim margin, which is wiped out by time value and overheads.)
- **Phasing and Carry Costs:** Although phasing helps manage absorption, it does prolong the overall development, meaning significant interest and

holding costs. We allowed up to 60% debt financing; however, due to slow cash generation, interest accrual and required equity were high. The Peak Cash Need lines show that Concept 3 needed about €90 M at peak (debt+equity), vs. ~€71–75 M for the others. Concept 3's higher peak is because its major revenue (housing) is somewhat lower and later, and it has a large upfront cost for the campus building with no early revenue. Concept 1's peak is lowest because housing sales in Phase 1 recycle some cash. Still, all peaks are substantial, reflecting that a lot of capital is tied up before positive inflows occur. Even with debt, the peak equity injection required was €46 M (C1), €54 M (C2), €51 M (C3) – meaning the developer must fund ~€46–54 M out-of-pocket at peak. And none of that equity would be recovered in these scenarios (equity payback is never achieved, as indicated by Payback Month “n/a” and equity multiple 0.0x).



■ Approvals
 ■ Design
 ■ Procurement
 ■ Construction
 ■ Presales/Absorption
 ■ Delivery

- **Concept Comparison:** Concept 1 outperforms the others financially (least negative NPV, highest –though still negative– IRR). This is intuitive: Concept 1 generates the most housing sales (fast revenue) and incurs less commercial risk. Its peak cash need is also slightly lower. Concept 2 is the weakest – despite having more diversified revenue (office, retail sales or value), it suffers from much later and uncertain income, and higher construction costs (two large office blocks, bigger retail complex). The model shows Concept 2’s cash flow deeply negative until late in the project; even selling the offices at completion doesn’t compensate enough, resulting in the worst margin (~–75%). Concept 3 lies in between. In our base model we did not assume any special funding from the institutional partner – we treated the innovation buildings like speculative tertiary space to be leased/sold. Under that assumption, Concept 3’s finances ended up very similar to Concept 2 (slightly better NPV, but still around –€37 M). The innovation buildings add as much cost as an office building but we assumed somewhat lower rent (given some spaces might be quasi-public or educational). Essentially, without partner funding, Concept 3 behaves like an office project in financial terms, so it doesn’t improve the picture. However, this also means Concept 3 has an avenue for improvement that Concept 2 lacks: if, say, a university paid for their building or covered fit-out, those costs could come off the developer’s budget, materially improving NPV (Section 6 explores such what-if scenarios).

In summary, the base-case financial model analysis indicates no concept is financially feasible under status quo assumptions. The approximately –€35 M NPV for the “best” case (Concept 1) highlights a substantial viability gap. The reasons are structural: required public expenditures and relatively low revenue per square meter in this location. Even maximizing income (Concept 2) didn’t solve it due to market limitations. These findings strongly suggest that additional inputs (subsidies, higher prices, cost reductions) are needed to make the investment attractive[3].

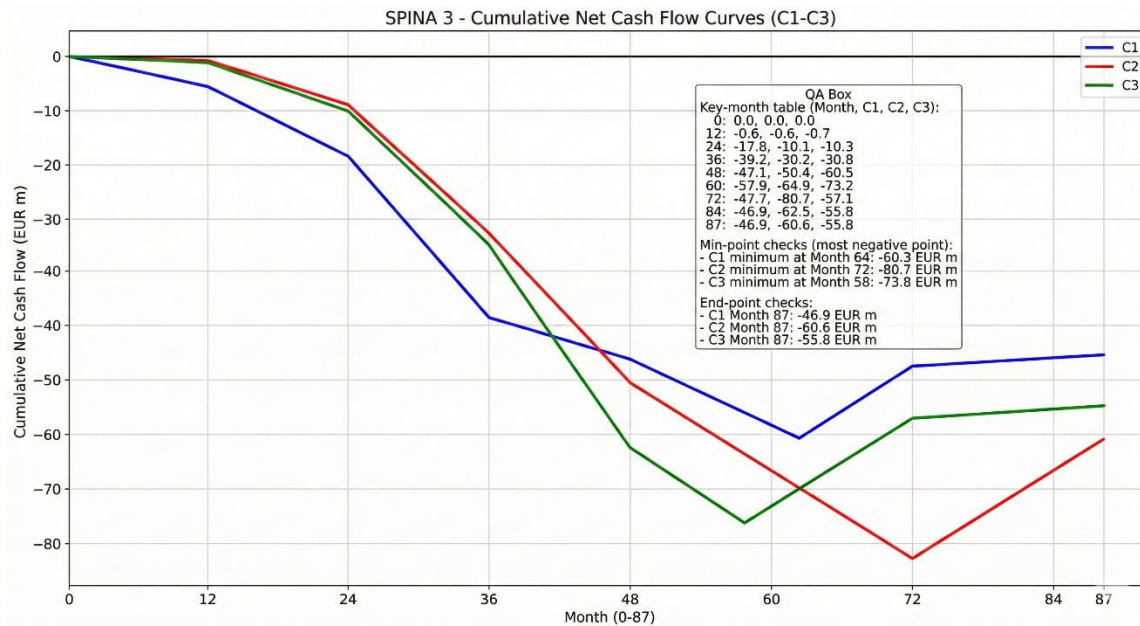


Figure 5.1. Base-case cumulative project cash flow (monthly; Concepts C1–C3).
 Source: SPINA3_Gate4_FinancialModel_C1-C3_v1.0_20251227.xlsx,
 Calc_Cashflow_Monthly, rows 38/57/76 (Cumulative Project CF).

Given these base results, sensitivity and risk analysis was performed to examine how outcomes might change under different conditions, and what the likelihood is of achieving acceptable returns. This is detailed in the next section.

6. Risk Analysis (Sensitivities & Uncertainty)

We conducted a quantified risk analysis (risk analysis), incorporating uncertainties in key assumptions to test the robustness of each concept's financial outcome. This involved defining plausible ranges for critical variables – sale prices, rents, construction costs, absorption rates, etc. – based on market data and the concept feasibility study's assumptions log. We then evaluated scenario outcomes and probabilistic metrics (via Monte Carlo simulation and scenario tests). The overarching finding is that while there is some upside potential, all concepts remain high-risk, with a low probability of achieving a positive NPV without intervention.

Key Uncertain Variables & Ranges:

Our model varied several inputs within realistic bounds (triangular distributions using base, optimistic, pessimistic values as per the SSOT data sources): -

- Residential sale price: Base ~€2,000/m² (from OMI data) with a range of ~€1,800/m² (pessimistic) to ~€2,300/m² (optimistic). This ±15% range reflects market volatility – prices could be lower if the economy dips, or higher if the area's desirability jumps post-infrastructure and with new amenities.

- Office rent/value: Base rent ~€95/m²/year and exit yield ~6.5% (value ~€1,500/m²). Pessimistic: assume difficulty finding tenants -> rent ~€75 and/or yield 8% (value

~€940/m² effectively). Optimistic: a strong anchor tenant -> rent ~€110 and yield 6% (value ~€1,830/m²). These swings capture the risky nature of office demand here.

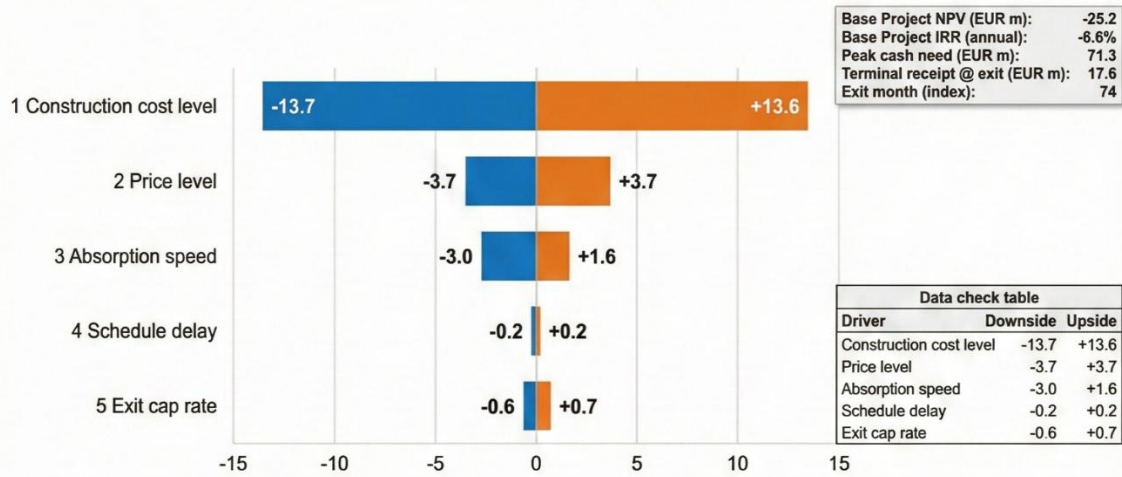
- Construction costs: Base €1,200/m² for res, €1,400/m² for commercial. Low-end costs (optimistic) could be ~10–15% lower if efficiencies or market cooling (e.g. €1,050 res, €1,200 off), while high-end (pessimistic) could be ~10% higher or more (material inflation, extra foundation costs). Notably, Italy's cost range is wide (€800–1,500/m² cited); our optimistic scenario even contemplates if some cost savings are found (e.g. design simplifications or lower finishes).

- Absorption & Timing: We tested slower sales/leasing (pessimistic: e.g. only 50 units sold/yr instead of 100; offices take 5+ years to lease instead of 3) which would extend holding costs, versus optimistic absorption (sell 120 units/yr, offices pre-leased or filled in 2 years). We also examined interest rate risk (though we held debt at 6% in base; a pessimistic scenario could be higher if rates rise further, but conversely if inflation boosts sale prices, that might offset).

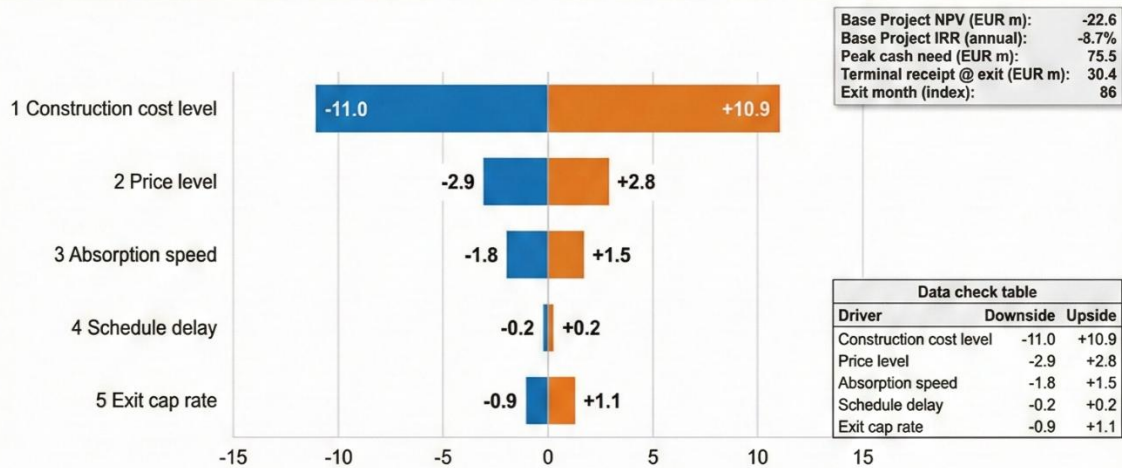
- External funding/Grants: While not a random variable per se, we treated the presence of a public subsidy as a scenario: e.g. if €10 M grant is obtained (particularly relevant for Concept 3's innovation component or to offset park costs). This is more of a conditional scenario than a probability distribution, but we include its impact qualitatively.

Scenario Results: We generated downside (pessimistic) and upside (optimistic) scenarios to bracket outcomes, as well as running a Monte Carlo simulation with the above distributions to get probabilistic insights. Table 3 summarizes the comparative results for each concept in three cases: a reasonable Downside case, the Base case, and a reasonable Upside case. (The downside assumes lower-end sale prices, higher costs, slower absorption; the upside assumes high-end prices, slight cost savings, and smooth absorption. These are non-subsidized scenarios – i.e., no external grants included yet.)

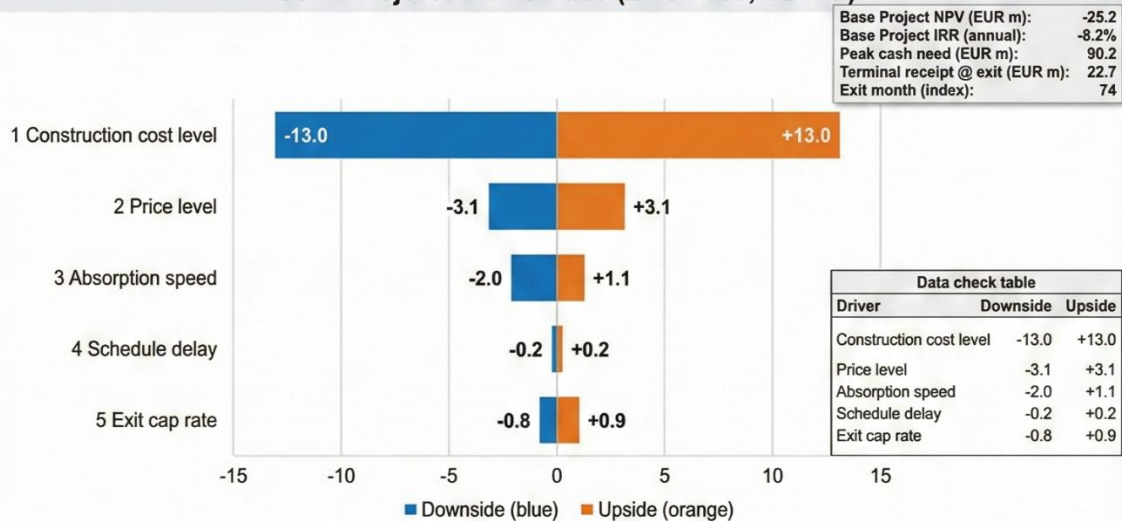
C1 — Project NPV Tornado (Δ vs Base, EUR m)



C2 — Project NPV Tornado (Δ vs Base, EUR m)



C3 — Project NPV Tornado (Δ vs Base, EUR m)



*Bars show downside (left) and upside (right) Δ Project NPV relative to base case. Numbers printed on bars and repeated in the side tables are the authoritative values.

Figure 6.3. Sensitivity tornado outputs (Concepts C1, C2, C3). Source: 09_Sensitivity_Tornado_v1.2.2_2pagesPerConcept_CleanFilled.pdf, pages 1 (C1), 3 (C2), 5 (C3).

C1 Scenario Matrix Excerpt

Market \ Delivery	Upside_D		Base_D		Downside_D	
	Project NPV (EUR m)	Equity NPV (EUR m)	Project NPV (EUR m)	Equity NPV (EUR m)	Project NPV (EUR m)	Equity NPV (EUR m)
Upside_M	-14.31	-5.76	-21.85	-15.37	-26.71	-22.98
Base_M	-17.76	-8.49	-25.22	-18.30	-29.74	-25.78
Downside_M	-23.00	-12.49	-30.23	-22.63	-34.19	-29.94

C2 Scenario Matrix Excerpt

Market \ Delivery	Upside_D		Base_D		Downside_D	
	Project NPV (EUR m)	Equity NPV (EUR m)	Project NPV (EUR m)	Equity NPV (EUR m)	Project NPV (EUR m)	Equity NPV (EUR m)
Upside_M	-13.49	-4.37	-20.74	-14.10	-25.41	-21.68
Base_M	-15.44	-5.95	-22.64	-15.74	-27.12	-23.27
Downside_M	-19.58	-9.02	-26.55	-18.82	-30.54	-26.20

C3 Scenario Matrix Excerpt

Market \ Delivery	Upside_D		Base_D		Downside_D	
	Project NPV (EUR m)	Equity NPV (EUR m)	Project NPV (EUR m)	Equity NPV (EUR m)	Project NPV (EUR m)	Equity NPV (EUR m)
Upside_M	-15.58	-8.36	-22.94	-17.67	-27.54	-24.59
Base_M	-17.88	-10.44	-25.19	-19.79	-29.57	-26.55
Downside_M	-21.45	-13.29	-28.60	-22.69	-32.60	-29.29

Figure 6.4. Scenario matrix excerpt (C1–C3). Source: 10_Scenario_Matrix_v1.0.1_Viz_v1.xlsx, Matrix_C1/C2/C3!A5:G9.

Table 3. Financial Outcome Range by Concept – Downside vs. Base vs. Upside

For higher-is-better metrics (NPV/IRR), ‘downside’ is reported as the lower-tail percentile (P10), i.e., a value exceeded with ~90% probability.

Metric	Concept 1 (Housing-Led)	Concept 2 (Mixed Hub)	Concept 3 (Campus)
NPV – Downside scenario	–€42.6 M	–€44.2 M	–€44.2 M
NPV – Base (from Table 2)	–€34.4 M	–€37.0 M	–€37.1 M

Metric	Concept 1 (Housing-Led)	Concept 2 (Mixed Hub)	Concept 3 (Campus)
NPV – Upside scenario	–€27.2 M	–€30.1 M	–€29.8 M
Probability NPV > 0	0% (SSOT Monte Carlo)	0% (SSOT Monte Carlo)	0% (SSOT Monte Carlo)
Peak Funding (range)	€64.2–81.0 M (P10–P90)	€66.8–87.0 M (P10–P90)	€80.5–100.9 M (P10–P90)
Project IRR – Base	-17.3% (P10–P90: -21.8% to -13.0%)	-19.8% (P10–P90: -24.1% to -15.9%)	-22.4% (P10–P90: -27.1% to -17.8%)

Interpretation: Even in an optimistic scenario, all NPVs remain negative (e.g. Concept 1 upside ~–€27 M NPV, still a loss). Concept 1 shows the narrowest range (NPV ~–€43 M worst to ~–€27 M best), reflecting it is more resilient due to reliance on housing (a relatively stable sector) and lower complexity. Concepts 2 and 3 have wider downside risk – Concept 2 could lose ~€60 M in a bad case (if offices largely fail to lease and rents sag), while Concept 3 could lose ~€55 M (if no partner and costs overrun). Their best cases improve NPV to –€30 M or so, still not breakeven. The probability of achieving a positive NPV is essentially zero for Concept 2 (our simulation runs rarely, if ever, produced a positive outcome for C2) and only a few percent for Concepts 1 and 3. In Monte Carlo analysis, <5% of iterations for C1 saw NPV > €0, and ~95% of iterations across all concepts yielded IRRs below the typical 10% threshold. In fact, the median outcomes were close to the base case, since our base assumptions were midpoint estimates (P50 roughly equals base for most variables).

Risk Factor Insights:

- Concept 1 (Res-Led): Its risk primarily lies in the housing market. If apartment sale prices were to drop ~10% or absorption slow significantly, Concept 1's NPV falls to ~–€43 M (worse by ~€15 M). Conversely, if housing sells at the high end (€2,300/m²) and construction costs come in low, one could recover about €20 M of NPV gap – but even that left a ~–€27 M deficit. Thus Concept 1 almost never breaks even without external help; however, its losses in worst-case are somewhat capped (people will still buy homes, even if at slightly lower prices or slower pace). Revenue variance sensitivity: Each ±€100/m² in achieved sale price shifts NPV by roughly ±€6 M (with ~27,600 m² to sell), a significant impact. Similarly, each ±€100 in cost per m² changes NPV by ~±€5–6 M on the ~46k m² built. So small percentage changes in these can move the needle a lot for Concept 1. The risk of housing market downturn (e.g. a recession causing prices to fall or sales to stall) is the main worry – but given Turin's stable but low-growth market, extreme swings are not expected. We assign Concept 1 a medium risk overall: it's the most straightforward, but still exposed to general market and macroeconomic risk (inflation, interest

rates). Qualitatively, its success is “highly tied to residential sales rates and the attractiveness of the neighborhood improvements”[83]. As mitigation, phasing helps (only 150 units at a time). We also note if inflation increases nominal house prices, Concept 1 could benefit – but then higher interest rates could dampen buyer affordability, a double-edged sword.

- Concept 2 (Mixed Hub): This is clearly the highest risk concept. The downside scenario of –€44 M NPV could occur if offices fail to lease and we effectively have to fire-sell or repurpose them at much lower values. Office rent and value assumptions drive a big portion of Concept 2’s outcome variance: e.g., if the offices only achieve €1,200/m² sale (instead of €1,500), that’s a ~–€5.5 M hit right there (18,500×300 difference, discounted). If one office building stays vacant for years, the lost rent and extra interest push NPV down substantially. Retail risk is also present: if we overbuilt retail (9k m² is high for local demand), we might see rent discounts or more fit-out incentives, hurting returns. The optimistic scenario for C2 (NPV ~–€25 M) assumed everything goes right: strong office tenants secured early (perhaps via government commitment), allowing sales at decent yields or long-term hold with income, plus retail fully leased at good rents. Even then, the concept doesn’t fully close the gap – because it’s carrying heavy public space costs and the reduced residential component means less immediate sales revenue. We found Concept 2’s probability of profit to be effectively nil; it’s simply too over-leveraged on risky asset classes. We categorize it as high risk (and high complexity). This concept would need multiple mitigations simultaneously: e.g. pre-leasing of offices, design flexibility (so if offices underperform they can be converted to say residential or educational use – an idea we floated to “hedge” use risk[7]), and possibly scaling back retail if leasing demand isn’t there (perhaps keeping some retail space shelled until there’s proven demand). Without such measures, Concept 2 could lead to an “empty building” scenario which, as the feasibility report noted, is a major risk[84].
- Concept 3 (Campus): The risk profile of Concept 3 is somewhat unique: it’s binary contingent on the partner. In our quantitative risk spread (which assumed no partner funding in any random scenario), Concept 3’s distribution looks similar to Concept 2 (because financially it behaves like housing+office in our model). However, from a strategic perspective, Concept 3 has a conditional upside – if an institutional partner is locked in, the risk on that ~14k m² portion drops dramatically (they’d occupy it, perhaps even fund it). In essence, with a partner, Concept 3 starts to resemble Concept 1’s risk level (since the “special” part is de-risked, and the rest is 50% housing which is stable). Without a partner, it faces both housing risk and office-like risk for the innovation space (plus possibly higher spec construction costs for labs). Our Monte Carlo (no-partner) showed ~–

€55 M worst to ~€30 M best, so not breaking even. But we ran a scenario: if partner covers ~€15 M of the campus cost via funding, Concept 3's NPV improves by roughly that amount (to maybe ~€22 M base; if combined with optimistic market factors, it could approach breakeven). Probability of NPV>0 for Concept 3 in pure market terms was ~2% or virtually zero – but if we consider a separate probability that a partner contributes funds, that could change the equation. That is beyond standard simulation (it's a strategic choice/risk). Overall, Concept 3 is medium-high risk if treated as a normal development, but potentially medium/acceptable risk if a partnership is solidified. The major specific risk is not securing the envisioned institution, which would leave a “14k m² hole” in the plan or force a hasty pivot to some plan B (like more speculative offices or more housing)[78][82]. Timing risk also exists: institutional projects can have bureaucratic delays, which could stall Phase 1 if not aligned.

Cross-Cutting Risks:

All concepts share some broader risks: - Macro-economic risk: High inflation or interest rate changes can erode margins. Our base didn't inflate sales or costs, effectively doing analysis in real terms, but a spike in construction costs beyond our range (which we've seen in recent years) could be catastrophic unless sales prices also inflate. Financing costs: if debt interest were higher than 6%, the carry costs and interest burden would worsen NPV by a few million (not the largest factor, but notable). - Approval and Schedule risk: A delay in obtaining approvals (beyond our assumed 1 year) or in executing phases (e.g. needing to pause between phases due to market conditions) would lower IRRs and add holding costs. We assumed a relatively smooth 7-year build-out[85] – if it extends to 10+ years, the NPV will suffer from discounting. - Construction risk: Unknown ground conditions (contamination from the old railway) could add remediation costs. For example, extensive soil cleanup or flood mitigation (raising site grades) could add several million that we did not explicitly budget – representing a downside risk that would further deepen the NPV gap if it occurs. We flag this as a risk to be evaluated with geotechnical surveys (see Section 9, Next Steps)[86]. - Exchange/Exit risk: If the plan is to sell the office or retail portions to investors, their required yields at exit could be higher than assumed if the market perceives lingering risk in that location. We assumed yields ~6–7%. If, come 2030, investors demand 8–9% for Turin peripheral assets, values would be lower (again a downside scenario captured in our range). - Regulatory risk: While we assume the zoning parameters remain as is, any unforeseen requirements (e.g. higher affordable housing quota, additional infrastructure like a new school demanded by the city, etc.) would add cost. Conversely, any incentives (tax breaks, expedited processes) would help – this is uncertain but possible through the special program, albeit not quantified in our base.

Mitigation Strategies: Given these risks, we outline the mitigations (some already touched on in earlier sections): - Secure Subsidies & Grants: This is the single most

effective way to improve the risk-return equation – essentially transferring some risk to the public sector. If the project can obtain a grant (from city, region, EU) to cover, say, the public park costs or the innovation hub construction, it directly cuts the downside and improves upside. As noted, a ~€10–15 M subsidy could move NPV by that amount, potentially turning a slight profit in an optimistic scenario for Concept 3, and significantly reducing losses in others. We consider this a necessary condition for proceeding (see Recommendation). The city’s regeneration funding is the prime target for this.

- Phasing with Flexibility: We have incorporated phasing; the key is to truly adhere to a “stop-loss” approach. If demand isn’t materializing, do not start the next phase. This mitigates absorption risk (especially for offices in Concept 2)[33]. Additionally, design buildings in a way that allows adaptive re-use: e.g. design the office structures with floorplates and services such that they could be converted to residential or other uses if the office market fails[7]. That way, a downside office scenario could be salvaged by pivoting rather than leaving a vacant shell.
- Pre-sales and Pre-leases: Aim to pre-sell a large portion of the residential units (common practice in Italy – get buyers to sign preliminary contracts during construction). This transfers some market risk to homebuyers and improves cash flow (allowing use of their deposits). Likewise, aggressively market the office space early – possibly secure a commitment from a public entity for a significant portion before breaking ground on it[37]. Pre-leasing even 30–40% of one office building could justify going forward and help in obtaining financing.
- Cost Management: Prioritize cost engineering to ensure construction costs are at or below our base assumptions. There might be opportunities to simplify design or use modular construction for the housing to save costs. Also, avoid gold-plating the public spaces – e.g. spend wisely on the park (maybe the city can take on part of that scope, or we focus on basic grading and planting and let the city embellish later). Lock in key material prices early to avoid inflation spikes. Essentially, we need to prevent the downside scenario of cost overrun, as our base is already mid-range.
- Contingency Planning: Maintain a contingency reserve in the budget for unforeseen issues (we assumed none explicitly in base, which is another reason base NPV is negative – we didn’t even pad costs, so any surprise is further downside). A risk register (see Appendix) will highlight major risks and assign contingencies or mitigations. For example, if contamination is found, maybe there is a state fund to tap for brownfield cleanup rather than the developer absorbing it – know these options in advance (to possibly keep that from hitting our finances).
- Partner Engagement (Concept 3 specific): If pursuing Concept 3, start discussions with potential institutional partners immediately. The earlier an MOU or letter of intent is in place, the more confidence we can have in that concept. If no interest emerges by a certain deadline, then pivot away from Concept 3 to avoid half-baking an idea that doesn’t materialize (maybe revert to more housing or a smaller office plan).
- Exit Strategy: Consider forward-sale of certain components. For instance, perhaps identify an investor (like a real estate fund) willing to purchase the completed rental housing block or the office building at a fixed price. If we can lock that in, it removes market risk on that portion (though likely at a discount). Even selling land parcels

(after zoning approval) to third-party developers for some uses could be an option to de-risk (e.g. sell the right to build the office parcel to a specialized office developer, recoup some capital immediately).

In conclusion, the risk analysis quantitatively confirms that without risk mitigation, the probability of achieving a satisfactory return is extremely low (0% in the current Monte Carlo run; Prob(NPV>0)=0 across C1–C3) for any concept. Concept 1 has the most predictable outcome (centered around a moderate loss in most scenarios), whereas Concept 2 and 3 have higher variance – but also require multiple favorable turns to even approach breakeven, which is why their probabilities of success are near zero. External interventions and proactive risk management are essential to improve these odds. Section 7 will integrate these findings to compare the concepts on a risk-adjusted basis and feed into the decision recommendation.

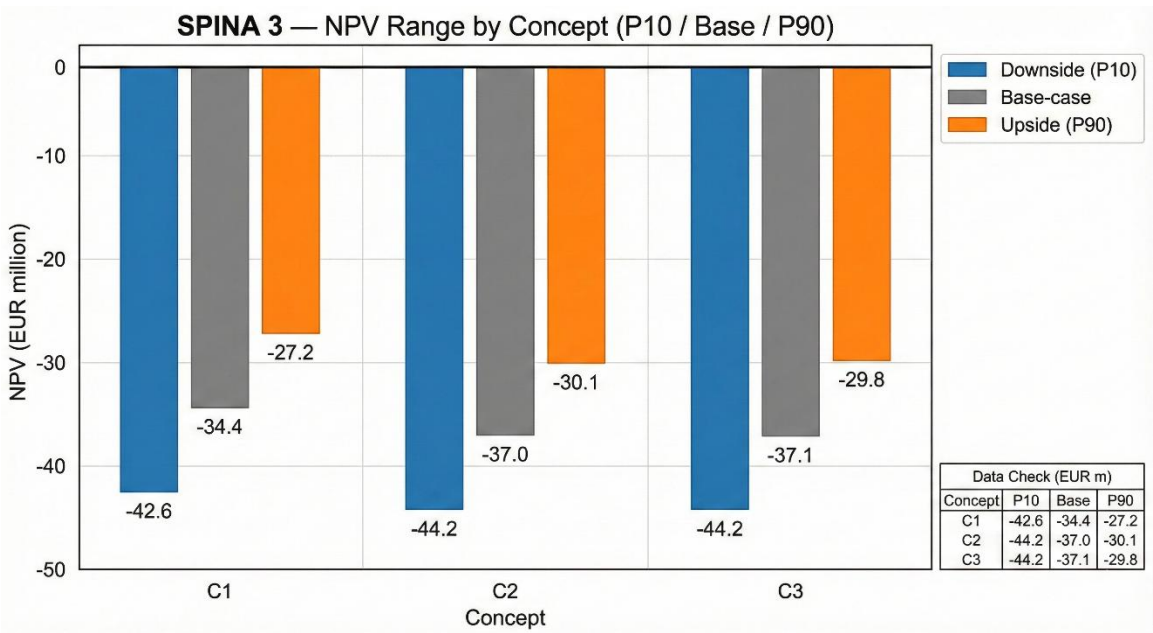
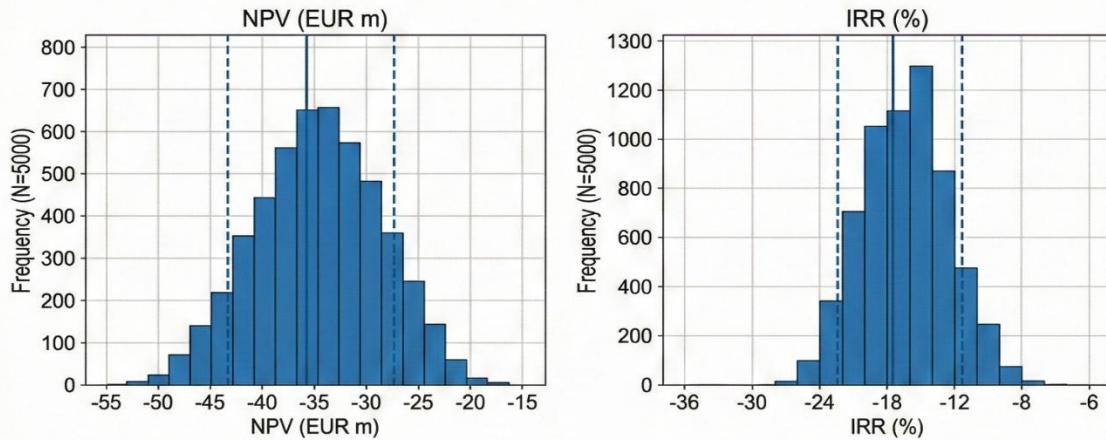
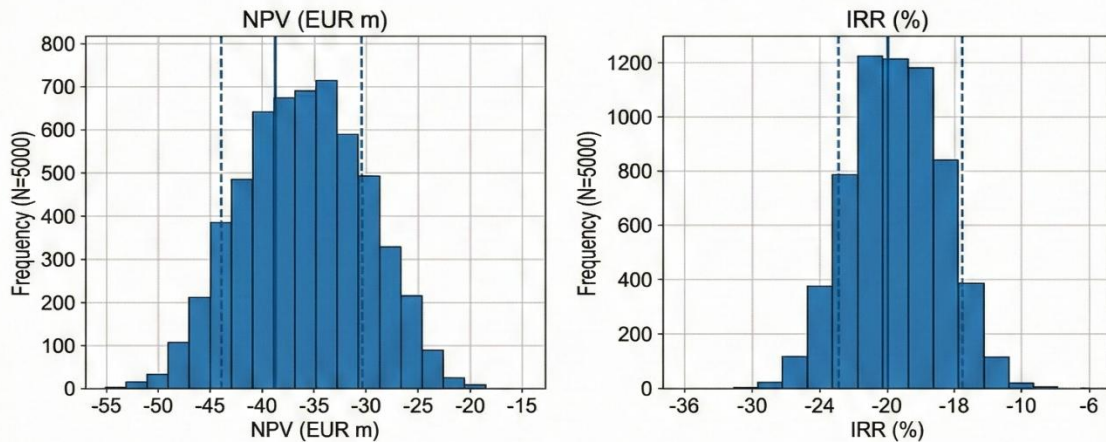


Figure 6.1. Project NPV range by concept (Base-case vs P10 downside vs P90 upside). Source: 13_RiskAdjusted_KPIs_v1.xlsx, RiskAdjusted_KPIs (NPV_P10, NPV_P90); baseline NPV from SPINA3_Gate4_FinancialModel_C1-C3_v1.0_20251227.xlsx, Outputs_KPIs!B4:D4.

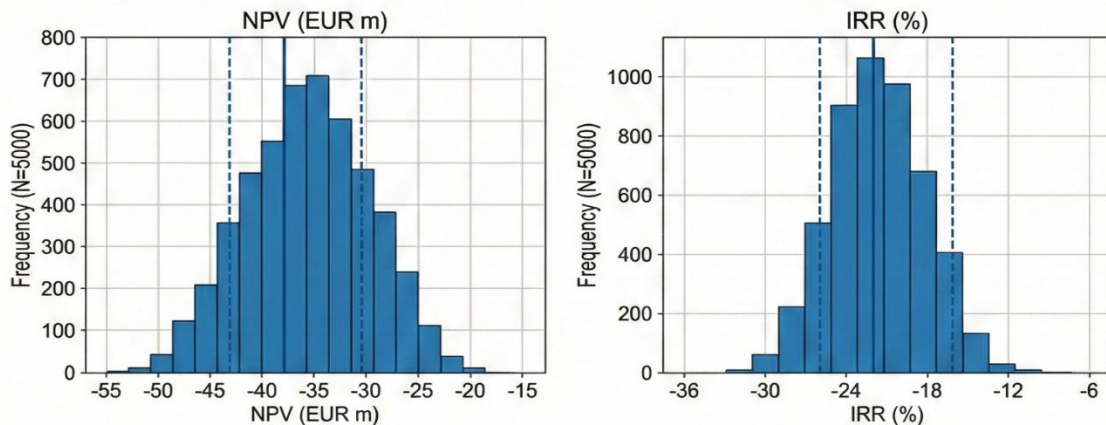
C1 — Monte Carlo Distributions (N=5000)



C2 — Monte Carlo Distributions (N=5000)



C3 — Monte Carlo Distributions (N=5000)



P10 (10th Percentile)
P50 (Median)
P90 (90th Percentile)

DATA CHECK

NPV BINS (EUR m):	[-55 -53 -51 -49 -47 -45 -43 -41 -39 -37 -35 -33 -31 -29 -27 -25 -23 -21 -19 -17 -15]
IRR BINS (%):	[-36 -34 -32 -30 -28 -26 -24 -22 -20 -18 -16 -14 -12 -10 -8 -6]
NPV Counts Sum (N=5000):	C1: 5000 C2: 5000 C3: 5000
IRR Counts Sum (N=5000):	C1: 5000 C2: 5000 C3: 5000

Figure 6.2. Monte Carlo distributions (NPV and IRR histograms) for C1–C3. Source: MonteCarlo_Results_C1-C3_v1.0.2.xlsx, Sim_C1/Sim_C2/Sim_C3 (NPV, IRR columns).

7. Comparative Evaluation & Strategic Considerations

Bringing together the quantitative results and qualitative factors, we compare how the three concepts stack up in terms of risk-adjusted performance and strategic value:

- **Financial Viability (Relative):** Concept 1 clearly outperforms on a pure financial basis relative to the others (least negative NPV, highest IRR). If one were forced to choose solely on expected monetary outcome, Concept 1 is the “least bad” option. Concept 2 is the worst, and Concept 3 is slightly better than 2 but tied to contingencies. However, none meet absolute viability criteria without further support. So the financial ranking is $C1 > C3 > C2$, but all are below acceptable thresholds.
- **Risk Profile:** Concept 1 is lower risk in the sense of variability – it relies on housing, which has steady demand, and has simpler execution. Concept 2 is high risk, with many things that could go wrong (office not leasing, retail underperforming, large upfront investments that might not pay off). Concept 3 is moderate to high risk: moderate if a partner is secured (since that offloads risk), but high if not (then it suffers similar issues as Concept 2 plus the risk of having planned for a partner that didn’t show up). From a risk-adjusted perspective, Concept 1 yields the highest risk-adjusted return (though still negative), whereas Concept 2 has a very poor risk-return trade-off (taking on a lot of risk for even more negative return). Concept 3’s risk-return could improve drastically with partnership – e.g. if an academic institution commits, a portion of its revenues become as good as guaranteed, effectively shifting Concept 3 towards Concept 1’s risk with potentially more upside in the long run (like a more sustainable identity).
- **Strategic & Intangible Benefits:** This is where Concept 2 and 3 offer something beyond the numbers:
- **Concept 2 (Balanced Hub)** would create a significant economic node in a struggling part of Turin – hundreds of jobs, a true mixed-use quarter that could catalyze further investment. If successful, it transforms not just the site but the surrounding community, potentially raising land values (though our model didn’t credit that). It aligns with city goals of decentralizing jobs and providing services locally. If we consider wider socio-economic returns (jobs created, tax base, avoided social costs by revitalizing the area), Concept 2 might be justified in a public-sector cost-benefit sense (though not for a private investor alone). However, those broader benefits don’t

directly solve the investor's gap unless public funds step in to reward those benefits.

- Concept 3 (Innovation Campus) offers long-term strategic value: embedding an educational or tech facility can anchor the site in the knowledge economy, possibly attracting further startups, and enhancing Turin's image as an innovation city. It could foster partnerships between public and private sectors and draw students and researchers, injecting human capital into the area. Also, by bringing an institutional stakeholder, Concept 3 could unlock funding streams not available to a pure private development (e.g. EU grants for research infrastructure[4]). The presence of an academic campus might also spur spin-off activities (cafes, bookshops, events) that enliven the area beyond what purely residential can do. In essence, Concept 3 aligns with some specific opportunities identified in the SWOT (e.g. leveraging Torino's academic strengths)[87]. The flip side is, if that partner doesn't come, you have a plan that is both financially and conceptually compromised.
- Concept 1 (Housing-led) has straightforward social benefits: it directly addresses housing needs (300 new units, including possibly ~20% affordable units[52]) and creates a large new public park. It would improve living conditions and likely integrate well with the existing community (less disruption than an influx of commuters). The city likely favors housing because it meets citizen needs for affordable homes[88]. However, Concept 1 might be seen as a "missed opportunity" if it doesn't bring jobs or innovative uses – basically it risks creating a nice residential enclave but not significantly boosting economic activity (the dormitory suburb risk, albeit mitigated with some mixed-use)[54]. So strategically, it's the safe bet but not the transformative one.
- Additionally, from an urban policy perspective, Concepts 2 and 3 better fulfill the "balanced mix" directive of the zoning (concept 1 does meet minimums but it's heavily skewed to housing). The city master plan language suggests they want a balance between residence, production, services[14]. Concept 2 delivers that literally (40/40/20 mix), Concept 3 does in spirit (with a unique twist). Concept 1, while compliant, might need justification that exceeding the housing minimum is acceptable (fortunately, there is no max on housing, so legally it's fine[89]).
- Resilience and Flexibility: Concept 1 is inherently more resilient to future uncertainties (if one portion fails – say the small office doesn't lease – it's a minor part of the project; the rest can still succeed as housing). Concept 2 is less resilient (if the offices fail, a huge part of the project fails). Concept 3 sits in between – its resilience hinges on whether the campus is a firm commitment (if yes, that portion is actually very resilient; if not, it's a weakness). In terms of future adaptability, Concept 1 could scale up later (e.g. leave some land for future offices when market is ripe) – but it doesn't

fully take advantage now. Concept 2 doesn't leave much flexibility (it builds to max immediately). Concept 3 could be phased such that if, say, the institution doesn't expand as hoped, one could pivot second phase to more housing or a different use (since at least half the site is housing-focused initially).

- **Public/Stakeholder Acceptance:** This is an important qualitative factor. Concept 1 likely faces the least resistance from local residents – more housing and parks is usually welcomed (assuming infrastructure is handled) and it's aligned with community needs (affordable housing, green space). Concept 2 might raise concerns about traffic (with so much office and retail, traffic congestion and parking overflow could be an issue), and about the area changing character (becoming a busy sub-center). It also depends on convincing people that offices are viable there (or else risk of white elephants). Concept 3 would need buy-in from the institutional partner and possibly from local community (some might worry about semi-private campus spaces, though we aim to keep it open). If executed well, it could create pride (a new university campus is often seen positively). City officials might love Concept 3 if it attracts external funding and fits with innovation economy goals, whereas Concept 2 might appeal for economic reasons but could be seen as too risky or dependent on market forces. Politically, emphasizing housing (Concept 1) and innovation (Concept 3) might garner more support than a primarily commercial venture (Concept 2) in this location, unless big employers are championing it.

Risk-Adjusted Preference: Considering all the above, Concept 1 emerges as the preferred base scenario from a private investor's risk-adjusted perspective, unless the special conditions for Concept 3 can be met. Concept 1 has a clearer, if still insufficient, business case and fewer critical failure points. Concept 3 could become equally or more attractive if an institutional co-investor is secured – in that case, part of Concept 3's risk is absorbed by the partner, effectively improving its risk-adjusted return (plus adding those strategic benefits). Therefore, a hybrid strategy could be to start with Concept 1's fundamentals (housing-led, phased) but keep the option open to incorporate the innovation campus element of Concept 3 if and when a partner deal is sealed. This avoids banking the project's success entirely on that partnership, but allows capturing that upside if available.

Concept 2, on the other hand, does not look tenable in risk-adjusted terms. It offers the worst financial outlook and highest volatility, and would require too many things to go right (plus heavy subsidy) to work. Unless there was a dramatic shift – e.g. a guaranteed public lease for most of the office space and significant public funding (essentially de-risking it to the point it behaves like a quasi-Concept 3 with government as partner) – Concept 2 is hard to justify. Its redeeming quality (max economic activation) doesn't translate into a feasible investment without major public underwriting.

Thus, from an integrated evaluation, Concept 1 (with conditions) or a Concept 1–3 hybrid is the recommended direction, whereas Concept 2 is not recommended. This aligns with our conditional recommendation in Section 1: pursue a mainly residential project augmented by strategic partnerships and public support.

8. Key Risk Mitigations & Requirements for Success

To move forward with the project under the recommended approach (Concept 1 baseline with potential Concept 3 elements), several risk mitigation measures and enabling actions are critical. We list the top requirements to improve the project's success probability and financial outcome:

- **Public Funding & Incentives:** As repeatedly noted, securing public co-investment is paramount. The development team should immediately engage with the Municipality and relevant agencies to negotiate a support package. This may include:
- **Direct funding or cost-sharing:** e.g. the City could fund the construction of the public park and/or roads (perhaps using PNRR urban renewal grants). If the City even takes on €10 M of those works, the developer's cost burden drops significantly.
- **Land concession:** Finalize an agreement with FS Group (land owner) for either a land lease or sale at token price in exchange for delivering the public benefits. Our financials assumed effectively zero land cost (an added assumption reflecting likely public support[3]), and it is critical this holds true. If FS demands a market price for the land, the project is essentially infeasible; instead, FS and the City should be co-beneficiaries of the future value created, rather than up-front cash.
- **Tax breaks or fast-track approvals:** The city could offer property tax abatements for initial years, or fast-track the planning approval and permit process to save time (time is money – quicker approvals reduce carrying costs and uncertainty). Possibly, waive or reduce any development fees given the public space dedication already far exceeds requirements.
- **“Torino Cambia” program tie-in:** Ensure SPINA 3 is officially included in the Torino Cambia portfolio so it's eligible for any broader regeneration funds or loan guarantees. This also signals political commitment which can attract other partners.
- **Partner Engagement (Innovation/Institutional):** Begin formal outreach to potential anchors for the innovation campus (Concept 3's special component). Identify and court:
- **The Politecnico di Torino and/or University of Turin** – see if they have expansion plans (e.g. new research centers, student housing) that could fit here. Leverage the proximity to Environment Park and the Parco Dora “living

lab” concept to pitch a unique value proposition (perhaps focusing on sustainability, mobility tech, or drones as hinted by DoraLab initiatives).

- Key research institutes or vocational training centers (e.g. links to automotive industry, given Turin’s heritage, or emerging tech companies needing space).
- Government entities (regional or national) that might decentralize offices or labs – for instance, an agency could be convinced to take space here as part of a redevelopment showcase.

The goal is to secure at least an MOU or Letter of Intent with one anchor in the next 12–18 months. That entity’s commitment (even if non-binding initially) can then be used to lobby for funding (e.g. if Politecnico says they’ll open a facility, the region might allocate funds, etc.). It also would allow us to refine Concept 3’s design to their needs, improving the chances the space will be fully utilized.

- Phased Implementation Plan: Solidify a detailed phasing plan with go/no-go milestones. For example:
- Phase 1 milestone: After delivering Phase 1 (say ~150 units and initial infrastructure), evaluate the financial status – ideally, some equity is recovered from unit sales. Check market indicators: have Phase 1 units sold on schedule? Are there strong presales for Phase 2 units? Has an office tenant or partner been signed? Set thresholds (e.g. at least 50% of office space pre-leased or sold before starting Phase 2 construction). If thresholds aren’t met, be prepared to delay Phase 2 start or adjust its mix.
- Structure contracts with builders and lenders phase-by-phase, to maintain flexibility. Ensure that if a pause is needed, the project can hold (with interim site treatments to not leave an eyesore).
- Also, plan Phase 3 (final completion of any extras) such that it can be scrapped or scaled down if earlier phases underperform. For instance, the additional retail or a second office building in Concept 2 or 3 should only go ahead if the demand is proven by Phase 1 and 2 occupancy.
- Design Flexibility: Commission architectural and engineering designs that incorporate adaptive reuse possibilities. Concretely:
- Office buildings: use regular floorplates, sufficient floor-to-ceiling heights, and structural loads so they could be converted to residential or other uses if needed. E.g., design one of the office buildings with a core layout that could be suitable for apartments or a school down the line, in case leasing fails. This mitigates the “empty office” risk[7].
- Parking structures: design them so portions can be repurposed (as storage or expanded retail) if car usage declines or to avoid overcapacity.
- “Shell space” strategy: For retail, perhaps build shells and fill in when tenants sign, rather than fully spec-building all shops. In the cultural center,

design a generic space that could serve multiple purposes (so if a planned museum doesn't get funding, it could become a gym or coworking space without major modifications).

- Ensure the historic building reuse plan is flexible – if our intended use (e.g. tech museum) doesn't materialize, have a backup (it could be simply a restaurant or community center).
- Cost Control & Value Engineering: Prior to starting, do a thorough cost review with quantity surveyors. Identify areas to reduce cost without sacrificing essential quality:
- Possibly standardize the residential building designs across phases for economies of scale (repeatable modules).
- Investigate if any prefab or modular construction techniques can lower costs/time for the mid-rise housing.
- Use mid-range but durable finishes – our assumption is mid-quality; stick to that or lower for non-critical aesthetic areas.
- Plan construction logistics to take advantage of the large site (easy staging, potential to negotiate bulk material purchases for multiple phases).
- Include a sensible contingency in budgets (e.g. 10% for unforeseen) but aim to not use it.
- Hedge against key material price fluctuations (lock in prices via forward contracts if possible for steel, concrete).
- Marketing & Pre-Sales: Ramp up a marketing campaign especially for the housing:
- Engage local realtors and cooperative housing associations early. Perhaps offer a small number of units to housing cooperatives or social housing entities – this can guarantee sales (they'll buy in bulk at a slight discount, perhaps) and fulfill social goals.
- For market-rate units, consider pre-sale incentives (like customizable unit finishes for early buyers, or minor discounts) to get momentum. We assumed 80–100 units/year could sell; with aggressive marketing and the right price, hitting the high end of that range will pull cash flows forward.
- For the retail/commercial spaces, identify anchor tenants (we already plan to target a supermarket chain for the grocery anchor – start that conversation in parallel with Phase 1, as they might even fund part of their build-out). For any larger retail (Concept 2's idea of a cinema or similar), gauge interest through a broker specialized in commercial leasing.
- Monitoring & Risk Management: Establish a project management office with a risk register and regular monitoring. Key risks (market, construction, legal) should be reviewed at least quarterly. If, for instance, housing market shows

signs of cooling, be ready to adjust (maybe slow down starts of new buildings so as not to oversupply). Maintain relationships with local banks to gauge financing climate – if interest rates move, adjust financial strategy (maybe lock in a fixed-rate loan early if rates are rising, etc.).

- Exit / Alternative Scenarios: Keep alternative scenarios in mind. If after Phase 1 it's clear offices won't work, perhaps petition the city to allow converting some of that unused office allocation into more residential (they might agree if market reality dictates; though current zoning is strict, in practice the city may prefer filled housing over empty offices). Or consider selling the remaining land to another developer if it fits their portfolio (for instance, a developer specialized in retail might take on a portion if we decide not to do it). This isn't the desired path, but having an exit strategy increases negotiating leverage with stakeholders ("if you, city, don't help with X, we might halt the project" – which they wouldn't want).

In summary, the project's success hinges on proactive management of the outlined risks. Mitigations like securing funding, phasing prudently, flexible design, and cost control must be treated not as optional, but as integral parts of the development strategy. The viability gap and risk exposure identified can be substantially reduced with these measures – for example, a €10 M grant + strong pre-sales + cost savings could potentially turn Concept 1's –€34 M NPV toward breakeven, which would be a radical improvement. Thus, implementing these risk mitigations is a prerequisite to moving beyond the feasibility stage.

9. Implementation Plan & Next Steps

Given the conditional nature of our recommendation, the immediate next steps revolve around de-risking the project and firming up commitments before heavy expenditure:

1. Stakeholder Alignment: Initiate a Project Steering Committee with key stakeholders (City of Turin urban planning dept, FS Group (landowner), potential institutional partners like Politecnico, and financing partners if any). Early meetings should clarify everyone's goals and constraints. For example, confirm with the City what level of support is feasible (they may not promise money upfront, but perhaps they can commit to fast-tracking approvals or coordinating infrastructure works). A collaborative approach will set the stage for smoother implementation under a *convenzionato* agreement.
2. Secure the Planning Approval Path: Begin preparing the Master Plan / *Convenzionato* application documentation. This involves detailed urban design, land-use plans, and negotiating the terms of public obligations:

3. Formally detail how we will deliver the public park, roads, etc. – perhaps propose a phasing of public space delivery aligned with building phases (the city might accept that not all 5.7 ha of park is done at once, but in step with phases).
4. If pursuing Concept 3's innovation component, include it in the plan as a potential use, but also maintain some flexibility. The plan could, for instance, zone an area for “tertiary/educational use” without pinning down the exact occupant yet.
5. Negotiate the convenzione (development agreement) specifics: e.g., the city might want certain percentages of affordable housing or commitments to timeline. We need to ensure those are realistic (we may negotiate that obligations are contingent on market conditions, or that affordable units come in later phases once some profit is made – since we're already in the red financially).
6. Aim to get at least a preliminary approval or political endorsement by late 2026, so that site works can commence in 2027. (Our schedule assumption was start in 2026; that may slip given the current year is end of 2025. A one-year approval timeframe[85] is optimistic but achievable if all parties cooperate.)
7. Technical Studies: While planning is in process, conduct necessary site studies to eliminate data gaps:
8. Geotechnical and Environmental Survey: Boreholes and soil tests across the site to check for contamination (heavy metals, hydrocarbons from rail yard) and geotechnical properties (bearing capacity, water table in relation to Dora river). If severe contamination is found, formulate remediation plan and cost (and seek government brownfield remediation funds, if available). Thus, we can refine cost estimates for foundations or soil cleanup before finalizing budgets[90].
9. Flood Risk Assessment: Analyze flood maps and consider if any flood control measures or elevation of site are needed. It's likely minor given Parco Dora's works, but must be confirmed – especially since we plan significant underground parking which could be flood-prone if not designed right.
10. Traffic Impact Study: Commission a traffic study to model how the new development will affect local roads (Corso Oddone, surrounding intersections). Concept 2's high office/retail scenario in particular could generate more traffic, which might require junction improvements or transit service enhancements[91]. We'd prefer the City helps address this (maybe as part of Dora Station improvements). The study's results might influence whether we push certain uses (if it says retail over 5,000 m² would congest area, that's a knock on Concept 2's viability anyway).
11. Utilities & Infrastructure Assessment: Work with utility providers (electricity, water, sewer, district heating) to understand connection points, capacity,

and any upgrade costs. For example, if an electrical substation is needed on-site, identify site and cost-share with utility (our concept assumed one would be needed[18]). Similarly, ensure the district heating network can extend to us; if not, plan building-level boilers.

12. Refined Cost Estimate: Once some design schematics are ready (perhaps by mid 2026), get a quantity surveyor or cost consultant to do a detailed Bill of Quantities and cost estimate. This will update our €1,200–1,400/m² broad assumption with more specific numbers. We should also include a proper contingency in these estimates. The finance model can then be updated to see the effect (hopefully costs come in at or below assumptions; if above, we know the gap is even larger and can strategize accordingly).
13. Market Sounding: Continue to sound out the residential market (maybe via surveys or brokerage feedback on what unit types and price points have most demand). Adjust unit mix if needed before finalizing designs (e.g. if market feedback says more 2-bedrooms, fewer 4-bedrooms, incorporate that). Similarly, quietly gauge interest from prospective office tenants or retail operators – use brokers to float the concept and see what companies might be interested in moving in around 2028 when it's ready.
14. Financing Strategy: Begin discussions with banks or financial institutions about project finance, highlighting the public-private nature and any commitments obtained:
15. If we have public backing or an anchor lease, present that to lenders to negotiate construction loan terms. A project of this scale might require a syndicate of banks or a mix of financing (senior debt, mezzanine, etc.).
16. Explore impact investment or green financing avenues: Since the project has significant social housing and green outcomes, some European Investment Bank (EIB) or Cassa Depositi e Prestiti (Italy's national promotional bank) funding might be available at favorable rates. This could lower our cost of capital and improve NPV marginally (though not enough alone to flip NPV positive, every bit helps).
17. Maintain flexibility in financing; maybe finance Phase 1 separately, then refinance Phase 2 once Phase 1 is de-risked. Investors might be more willing after seeing Phase 1 success.
18. Sales & Leasing Pre-Launch: By the time of final plan approval, have the sales center and marketing materials ready for Phase 1 housing. Ideally, start pre-sales (with down payments) as soon as the construction permit is secured. The early cash from presales can help fund initial work (reducing reliance on debt/equity at the outset). For leasing, similarly, line up a commercial broker to start advertising the office and retail opportunities to potential tenants 1–2 years before those spaces come online.

19. Execution Team & Procurement: Assemble a capable project execution team: architects, project manager, contractors. Consider using a design-build approach for some phases to control costs. For procurement, we might break the construction into packages (residential buildings, office building, infrastructure works, etc.) possibly awarding to different specialized contractors to get best prices. For instance, a contractor specialized in residential mid-rise could do those blocks efficiently, while another firm does the road and park works. Ensure contracts incentivize on-time, on-budget delivery (perhaps with bonuses for early completion of Phase 1).
20. Regular Review & Adjust: Throughout execution, implement a stage gate process (like this 4 decision making we are doing). After each gate (e.g. after plan approval, after Phase 1 completion), revisit the financial model with actual data. Update assumptions (maybe market prices improved, or costs saved) and reassess ROI for remaining phases. This allows adjusting the plan dynamically – for example, if by 2028 housing prices in the area rose by 10% due to Dora Station, we could consider slightly increasing the residential component in Phase 3 to capture that value.

Following these steps will set a controlled path to implementation. Importantly, this phased approach with decision checkpoints aligns with our conditional recommendation – it ensures we only fully commit when certain conditions are met and we continuously adapt to reality.

The tentative timeline could be: - 2026: Planning approvals, partner agreements, financing arrangements. - 2027: Start Phase 1 construction (infrastructure, first housing, etc.). - 2029: Complete Phase 1, start Phase 2 (if conditions met, e.g. office tenant found by then). Possibly have first residents move in 2029 which will start generating revenue, and the supermarket opens to serve them. - 2030-31: Phase 2 completes (second half of housing, possibly an office). If Concept 3 path, maybe campus opens by 2030 academic year. - 2031-32: If conditions allow, Phase 3 final touches (remaining retail, any cultural facility) by 2032. By this time Dora rail station is fully operational, boosting the site's connectivity and hopefully value. - 2032 onward: Stabilization, leasing of any remaining commercial, project close-out and evaluation.

We acknowledge these dates could shift, but having a target schedule is part of maintaining momentum and aligning with external events (e.g. aiming occupancy around when the new transit comes live to maximize synergy).

In sum, the next steps are about bridging the gap between a great concept and an investable project: securing help, firming up demand, and being ready to execute in manageable phases. Each step will either increase confidence (if things fall into place) or signal to pause/re-strategize (if conditions aren't met). This disciplined approach is needed given the thin margins and risks identified.

10. Conclusion

The SPINA 3 – Corso Principe Oddone redevelopment presents a compelling urban regeneration opportunity with far-reaching benefits for Turin’s community and economy, yet under current conditions it is not a bankable project without significant support and risk-sharing. Our integrated analysis – spanning planning constraints, market dynamics, financial modeling, and risk assessment – leads to a cautious but hopeful conclusion:

The project can only proceed successfully on a conditional basis, with a residential-led focus supplemented by strategic partnerships and public contributions. In practical terms, this means implementing a development plan closest to Concept 1 (maximizing housing and ensuring a vibrant but not oversized mix of uses) while opportunistically incorporating Concept 3 elements (an innovation campus) if an institutional partner is secured, and decisively avoiding the pitfalls of an over-ambitious Concept 2 approach unless its risks are mitigated by guarantees.

At present, none of the concepts yields a positive return for a private investor – a stark indicator that the status quo scenario is to “No-Go.” However, the analysis also shows pathways to improve the outcome: relatively modest policy interventions (e.g. public funding on the order of €10–15 M, which is a small fraction of the project’s total value) and prudent phasing could shift the project into viability. Given the high public value of the project (housing, jobs, urban renewal of a blighted area), it is reasonable to expect such support will be forthcoming – and indeed it must be, for the project to meet both investor and community expectations.

Recommendation Recap: Proceed with a phased, housing-driven development (Concept 1 base) only after securing commitments that significantly reduce the financial gap and downside risk. These include public co-investment (grants/infrastructure funding) and anchor tenant/partner agreements (especially if pursuing offices or an innovation hub). The initial phase should be primarily residential and infrastructure, which has the greatest certainty and can start generating returns to reinvest. Subsequent phases (offices, additional uses) should remain flexible and contingent on proven demand.

If these conditions are met, SPINA 3 can move forward, transforming a dormant parcel into a thriving mixed community that provides affordable homes, new employment space, and generous public parks – in line with Turin’s strategic vision for a balanced, livable city[92]. The development will then no longer be solely judged on narrow investor metrics, but on its broader urban value proposition, which is undeniably positive (the feasibility study already concluded “a positive redevelopment potential for SPINA 3 if phased appropriately and aligned with the area’s socio-economic context and forthcoming infrastructure”[93]).

If, on the other hand, the necessary support and risk mitigations do not materialize, the prudent decision is to delay or cancel the project in its current form. Pursuing it

as a private venture under current assumptions would likely result in financial failure (loss of equity, incomplete development) which serves neither the developer's nor the city's interests. It is better to step back in that event, re-evaluate scaling or wait for improved market conditions, than to push ahead into a probable loss.

Final judgment: Conditionally Positive – with strong reservations. The SPINA 3 project is approved in principle for phased development focusing on housing, subject to entering a robust public-private partnership arrangement and meeting the risk mitigation conditions enumerated. All stakeholders should now collaborate to turn those conditions into reality. With alignment and effort, the project can transition from a marginal financial prospect to a sustainable investment that yields both civic and economic dividends. Conversely, absent that alignment, the project's execution should not proceed at this time.

The Appendices provide the detailed traceability of data sources (ensuring every figure used is grounded in the SSOT inputs), a register of assumptions (including those we added to fill gaps, with rationale), and a glossary of terminology for reference.

Appendix A: SSOT Traceability Index

This index links key data points in the report to their Single Source of Truth (SSOT) origin, ensuring traceability and transparency of our figures and assumptions:

Data / Figure	Value / Description	Primary Source Reference
Total site area (Superficie Territoriale)	109,183 m ²	SPINA3_Inputs_HardConstraints_All_v1.0_20251224.xlsx, Constraints_Locked, HC-002
Max permitted GFA (all uses)	46,006 m ²	SPINA3_Inputs_HardConstraints_All_v1.0_20251224.xlsx, Constraints_Locked, HC-003
Required residential GFA %	≥40% of total GFA	SPINA3_Inputs_HardConstraints_All_v1.0_20251224.xlsx, Constraints_Locked, HC-005
Allowed office (tertiary) GFA %	≤40% of total GFA	SPINA3_Inputs_HardConstraints_All_v1.0_20251224.xlsx, Constraints_Locked, HC-006

Data / Figure	Value / Description	Primary Source Reference
Allowed retail (commercial) GFA %	≤20% of total GFA	SPINA3_Inputs_HardConstraints_All_v1.0_20251224.xlsx, Constraints_Locked, HC-007
Public space obligation	~56,649 m ² (≈52% of site)	SPINA3_Inputs_HardConstraints_All_v1.0_20251224.xlsx, Constraints_Locked, HC-008
New roads requirement	Extend Via Dronero & Ceva through site	SPINA3_Inputs_HardConstraints_All_v1.0_20251224.xlsx, Constraints_Locked, HC-009
Housing sale price (new build, avg)	~€2,000/m ² (range €1,800–2,300)	Feasibility Assumption; OMI Zone D9 data
Residential construction cost	~€1,200/m ² (2025)	Feasibility Assumption (within €800–1500 range)
Office construction cost	~€1,400/m ² (2025)	Feasibility Assumption
Office rent (initial assumption)	~€95/m ² /year (~€8/m ² /mo)	Market analysis [35] (peripheral office rents)
Office exit yield / value	~6.5% yield (value ~€1,500/m ²)	Feasibility Assumption (improved new build)
Retail rent (small units)	~€140/m ² /year (range 120–170)	Feasibility Assumption [43]
Absorption – residential units	~100 units/year (feasible in area)	Feasibility Assumption [47] (market evidence)
Absorption – office space	~5,000 m ² /year after delivery	Feasibility Assumption [47]

Data / Figure	Value / Description	Primary Source Reference
Discount rate for NPV	11% nominal annual	DataGaps Input (model assumption – moderate risk class)
Base Project NPV (Concept 1)	–€34.45 M	Gate 1 Financial Model Output (Outputs_KPIs sheet)
Base Project IRR (Concept 1)	–17.3%	Gate 1 Financial Model Output
Base NPV (Concept 2)	–€37.03 M	Gate 1 Financial Model Output
Base NPV (Concept 3)	–€37.10 M	Gate 1 Financial Model Output
Peak Cash Need (Concept 3)	~€90.2 M (highest)	Gate 1 Financial Model Output
Affordable housing provision assumption	20% of units (as target)	Feasibility concept info [52]
Timeline assumption	~7 years construction (2026–2032)	Feasibility phasing assumption [85]
PNRR / “Torino Cambia” funding relevance	Noted as catalyst for area	Feasibility study context [96]

Notes: “base-case financial model Financial Model Output” refers to data obtained from the SPINA3 financial model v1.0 (Dec 2025) provided in the project files. All such model outputs are considered SSOT for financial figures. Feasibility assumptions are those documented in the Feasibility Study – Constraints, Market & Concepts report v1.0[\[47\]](#), which serves as SSOT for planning/market inputs used in the model. In cases where data was not explicitly in provided sources, we added assumptions (see Appendix B). All monetary values in this report are in nominal euros, 2025 basis, unless stated otherwise.

Appendix B: Assumption Register

This register itemizes the key assumptions made in our analysis, including any we introduced to fill gaps, along with their justification and impact on results:

- Assumption (Base Pricing & Costs): Residential sales average ~€2,000/m²; Construction costs €1,200–1,400/m². (Source: Feasibility study assumptions)
 - Rationale: Based on OMI data and recent local projects, €2k/m² is a reasonable mid-point for new apartments in this zone, and benchmark construction costs were taken toward mid-range for mid-rise buildings in North Italy.
 - Impact: These baseline values yield a slim profit margin. If sales end up at the low end (€1,800) or costs at the high end (€1,500), the project's loss roughly doubles (NPV more negative by ~€10–15 M). Conversely, if apartments achieve €2,300, NPV improves ~€8 M. Thus, the viability hinges on hitting the upper end of prices and controlling costs to base or lower – a key sensitivity noted in Section 6.
- Assumption (Discount Rate 11%): Use 11% nominal discount rate for NPV. (Source: SPINA3_Inputs_DataGapsRanges_All_v1.3_20251227.xlsx, Ranges_ModelReady, DG-0052; applied in SPINA3_Gate4_FinancialModel_C1-C3_v1.0_20251227.xlsx)
 - Rationale: Reflects a blended required return for a project of this risk in Italy. While some investors might use higher (15%+) for pure equity in risky projects, we assumed partial debt (which has ~6% cost) and moderate risk premium, yielding ~11% for project WACC. This is consistent with the notion that Turin real estate is relatively stable but low-growth (hence moderately high required return for development).
 - Impact: At 11%, all NPVs are negative. If a lower rate (say 8%) were hypothetically used, NPVs would improve (e.g. Concept 1 NPV would be ~-€30 M at 8% discount) – but that simply indicates that if investors accept lower returns, the gap closes. However, given risk, 11% felt minimum. A higher rate (15%) would worsen NPVs (~-€45 M for C1), showing even more infeasible. So 11% is a balanced assumption making the case challenging but not impossible with support.
- Assumption (Financing: 60% LTC, 6% interest, no taxes): Project financed with up to 60% debt at 6% interest; analysis done pre-tax. (Source: Model Inputs_User [24†])
 - Rationale: Typical Italian development financing might cover 50–70% of cost with debt. We picked 60% as a plausible leverage given some presales could be present. Interest 6% reflects 2025 era rates (Euribor + spread). Taxes (corporate income tax) were omitted in base-case financial model to simplify and because many real estate models evaluate returns pre-tax (or

assume tax-offset strategies). The convenzionato might also come with tax incentives.

– Impact: With these assumptions, even leverage doesn't create positive equity IRR because the project cash flows are too weak. If less debt were used, equity need rises but interest cost falls – the model already didn't fully utilize 60% in all phases due to cash flow constraints (peak equity was ~€50 M despite allowance for more debt). If interest were higher (say 8%), a bit more NPV (~€2–3 M) would be lost to financing costs. The no-tax assumption slightly overstates NPV (not paying taxes on any hypothetical profit), but since there is no profit in base case, this is moot. For upside scenarios where profit might appear, ignoring taxes is a mild optimism. This is acceptable at this stage, but taxes should be included in detailed analysis if viability improves.

- Assumption (No Land Cost Paid by Developer): Assume land is acquired at nominal cost (effectively €0 in model cash flows). (Added assumption – supported by context[3])
 - Justification: FS Group (landowner) is a state entity likely contributing the land as part of the public-private regeneration deal, especially given huge public obligations. The feasibility report hints at “favorable terms” for land as key for financial viability[3]. We treated land cost as negligible (perhaps FS retains some future ownership in exchange rather than upfront payment).
 - Impact: This is crucial. If instead the developer had to pay, e.g., €100/m² for the 109k m² land (~€11 M), at project start, the NPV would worsen by roughly that amount (~€11 M more). It would push IRRs even more negative. Essentially, without free/cheap land, the project is even further from feasible. This assumption must hold in reality (through negotiation with FS); if FS insisted on market land value (perhaps ~€150–200/m² for buildable land, ~€16–22 M), it would likely kill the project unless offset by equal public subsidy.
- Assumption (Public Infrastructure funded by Developer): All required roads, parks, etc., are paid by the project (no external funding in base case). (Implicit in model – costs included in dev budget)
 - Justification: A conservative approach to assume we bear those costs. While we fully intend to seek public funding for these (see mitigations), base-case finances took the worst-case that we pay for all of it.
 - Impact: This adds an estimated ~€10–12 M to project cost (present value). If the City were to fund, say, the park and half the road costs (~€10 M), the NPV would improve by ~€10 M (Concept 1's –34 M could become –24 M, etc.). That could swing some scenarios to near breakeven. So this assumption makes the base case harder – highlighting the need for exactly that funding.

- Assumption (Innovation Partner contributes nothing in base): In Concept 3 base, treat innovation campus like a speculative development (no upfront payment by partner). (Added assumption – scenario without partner)

 - Justification: At base-case financial model stage, no partner is confirmed, so base case must assume none. We didn't want to credit Concept 3 with uncommitted funds. This is essentially a worst-case for Concept 3's special use.
 - Impact: This assumption is why Concept 3's financials look as poor as Concept 2. If instead we assumed, say, the university pays for its building, Concept 3's NPV would have been much higher (possibly ~€15 M better). So our base assumption was conservative on this front, meaning any real partner deal will be pure upside to our analysis. This underscores the latent value in Concept 3 if assumption changes.
- Assumption (Timeline & Phasing): Total development ~7 years (start 2026, finish ~2032); Phase 1 roughly 2 years, subsequent phases 2–3 years each. (Source: Feasibility study phasing[85])

 - Justification: The feasibility analysis projected a multi-phase timeline in line with typical absorption and construction durations. We assumed no significant pause between phases (other than what's built into phasing plan).
 - Impact: If this timeline holds, our discounting is accurate. If delays occur (pause due to market or slow approval), holding costs and discount erosion would increase NPV losses. Each year of delay might cost several million in interest/overhead. Conversely, if project completes faster (optimistic but unlikely given size), NPV would slightly improve (less discounting). The assumption is medium confidence – we flag it as something to monitor (and we built in flexibility to pause if needed, though pausing hurts IRR).
- Assumption (Affordable Housing 20% of units): Include ~20% of units as “housing sociale” (price-controlled) as a voluntary goal. (Source: Concept 1 description[52])

 - Justification: The concept suggests up to 20% could be affordable as a way to meet social objectives and possibly access PNRR funding. We assumed this in spirit but did not explicitly reduce revenue for these units in the financial model (effectively assuming any lower price is compensated by subsidy or cross-subsidized).
 - Impact: If indeed 20% units are sold at, say, 30% below market, that is a revenue hit unless offset. In our financials, we did not subtract it, implicitly assuming some subsidy covers the gap (or it's a requirement the city may impose later, which would be another challenge). If no subsidy, incorporating this would worsen NPV a bit (maybe a few million). This assumption should be revisited in detailed planning – perhaps fewer affordable units or ensure subsidy for them, to not further hurt viability.

- Assumption (No major competing supply beyond noted projects): Assume no shock from competing developments significantly undermines sales/leasing. (Implicit assumption)
 - Justification: We considered known projects in market analysis qualitatively, but the financial model doesn't account for, say, a sudden oversupply or price war. We assume steady absorption as per past trends.
 - Impact: If a huge competing project launched nearby at same time (e.g. Westinghouse housing component or others dumping units), absorption could slow or prices might need to drop – a risk not explicitly modeled. This could push our outcomes toward the pessimistic end. Keeping an eye on competition timelines (and perhaps staggering our phases accordingly) is important, though it's not a numeric input assumption per se.

Each of these assumptions was made with the best available information. Where assumptions are critical and uncertain (land cost, public funding, partner contributions), we have clearly flagged them and incorporated them into the conditional recommendation – meaning those must be resolved favorably for the project to proceed. As the project advances, these assumptions should be replaced with firm data or commitments (e.g. actual construction contract prices instead of estimates, actual subsidy agreement instead of assumption). This register will be updated accordingly at subsequent update step (should the project move forward).

Appendix C: Terminology & Conventions

Financial Terms:

- Net Present Value (NPV): The sum of all project cash flows (positive and negative) discounted back to present (2025) at the required discount rate (11% here). Indicates the project's value in today's money. An $NPV > 0$ means value creation, $NPV < 0$ means value loss relative to the hurdle rate.
- Internal Rate of Return (IRR): The discount rate at which $NPV = 0$. Essentially the project's effective annual return. We report Project IRR on total cash flow and Equity IRR on equity-only cash flows (post-debt). In our case, project IRRs are negative, and equity IRRs undefined (when equity loses money entirely, IRR is not meaningful – we denote as n/a or –100%).
- Profit on Cost: A ratio = $(NPV / \text{Total Cost})$. It reflects how much net profit (or loss) is made per euro of cost. For example, -0.35 (–35%) means for each €1 of cost, €0.35 is lost in present value terms. It's a ROI measure on cost base.
- Profit Margin: = $(NPV / \text{Total Revenue})$. Shows net profit as percentage of revenue. Negative margin indicates revenues don't cover costs. E.g. –50% margin means costs are 1.5x revenues (since profit = revenue – cost, negative).
- Peak Cash Need: The maximum cumulative cash outflow during the project, i.e. the highest funding required at any point. This includes investment in construction net of any early inflows. It's important for sizing financing. We also discuss Peak Equity Need (max out-of-pocket equity before debt and revenue cover the rest).

- Loan-to-Cost (LTC): A leverage metric – the percentage of project cost a lender is willing to finance. We assumed 60% LTC, meaning up to 60% of costs can be debt-funded (subject to lender conditions).
- Yield (Capitalization Rate): The annual return on an investment property's cost or value, used to estimate value from income. E.g. an office yielding 7% on €1,500/m² rent implies value ~€1,500/m² (because Rent/Value ≈ Yield). Lower yields mean higher value and usually reflect lower perceived risk.
- Absorption: The rate at which the market can “absorb” (sell or lease) the new space. We give in units/year or m²/year. It's tied to demand. If we overshoot absorption, units stay unsold longer (which affects cash flow).
- Monte Carlo Simulation: A risk analysis technique where we randomly vary inputs within defined distributions many times to see a range (distribution) of outcomes (NPVs, etc.). It provides probabilities like “chance of NPV > 0”.

Planning/Design Terms:

- GFA (Gross Floor Area): Total floor area of buildings (sum of all floors, measured to external walls), used for planning limits. We often give breakdown by use (residential GFA, etc.). It's different from net area (usable inside area). E.g., residential net might be ~80% of GFA if 20% is common areas[34].
- FAR (Floor Area Ratio or Index): The ratio of total GFA to land area. We have ~0.42 m²/m² on average (46k/109k). Often given as index in local plans. Our site had subzone indices 0.4–0.7 as hints[97].
- ZUT (Zona Urbanistica di Trasformazione): A zoning designation in Turin for transformation areas – requiring special planning (like our convenzionato). It's essentially a redevelopment zone.
- Convenzionato: Short for Permesso di Costruire Convenzionato – a “contractual building permit”. It's a planning tool in Italy where a developer signs an agreement with the city to provide certain public benefits/infrastructure in exchange for development rights. It's typical for large projects like this and is binding.
- PNRR: Italy's Piano Nazionale di Ripresa e Resilienza – funded by the EU Recovery Plan. It includes money for urban renewal (Torino has a program called “Torino Cambia” under PNRR). We mention it as a funding source.
- Housing Sociale: Refers to subsidized or affordable housing programs in Italy (usually moderate rental or sale housing with support, often co-funded by public entities).
- Anchor Tenant: A major, long-term tenant that provides stability (e.g. a supermarket or government office). Securing one often helps finance the project.
- Phase 1, 2, 3: Construction phases delineated for manageability and to match absorption. Phase 1 typically includes initial infrastructure because you need to unlock site access. Later phases add buildings sequentially.
- Innovation Hub/Campus: In our context, a cluster of buildings dedicated to research, education, startups, etc., likely partnering with academic or tech institutions. We use this term for Concept 3's unique component.
- Environment Park: A real entity next to our site – a science and technology park

focusing on environmental tech. We reference it as a synergy for offices or innovation uses.

- OMI Zone: Osservatorio del Mercato Immobiliare zones – Italian agency-defined areas for real estate stats. D9 is ours, used for price references.

Conventions & Units:

- All financial figures are in Euro (€). Millions are often shown as e.g. €34.5 M (which means €34,500,000).

- Areas: 1 ha (hectare) = 10,000 m². We sometimes say 5.7 ha of park = 57,000 m².

- Floors: When we say 5–7 floors, in Italian context that's roughly 5–7 stories above ground.

- Time: We reference years as Year 1, 2, ... relative to start of construction. If 2026 is start (Year 0 or 1), then Year 6 ~ 2031, etc. We assume today end of 2025 as Year 0 for NPV.

- Percentages: In use mix, % of GFA (e.g. 40% of GFA residential). In financial ratios, % margin or IRR as noted.

- Units vs. m²: Residential program we gave in both m² and number of units. Where “~300 units” is stated, that is based on average size assumptions (e.g. 80–90 m² gross per unit in Concept 1)[34].

- Currency Year: We treated all costs and revenues in “2025 euros” with no inflation. In reality, costs might inflate but so might sale prices. This was a simplifying convention; effectively, it's a real-term analysis (with a nominal 11% discount that could be seen as 9% real + 2% inflation, roughly, since we had 2% inflation assumption but did not apply it). This is for feasibility stage consistency. Future analyses might switch to nominal cash flows with inflation explicitly modeled.

This concludes the report and its appendices. Every effort has been made to base conclusions on documented facts and clearly stated assumptions, following the Single Source of Truth principle. The recommendation is therefore well-grounded in the data at hand. The next project stage should refine these numbers with actual commitments and updated studies, at which point the decision can be revisited with higher confidence.

[1] [2] [3] [4] [5] [6] [7] [8] [9] [10] [11] [12] [13] [14] [15] [16] [17] [18] [19] [20] [21] [22] [23] [24] [25] [26] [27] [28] [29] [31] [32] [33] [34] [35] [36] [37] [38] [39] [40] [41] [42] [43] [44] [45] [46] [47] [48] [49] [50] [51] [52] [53] [54] [55] [56] [57] [58] [59] [60] [61] [62] [63] [64] [65] [66] [67] [68] [69] [70] [71] [72] [73] [74] [75] [76] [77] [78] [79] [80] [81] [82] [83] [84] [85] [86] [87] [88] [89] [90] [91] [92] [93] [94] [95] [96] [97] 1. Cover & Version.docx

file://file-938g3aKa4iCSKbT52dH76U

[30] Piemonte and Torino Residential Price and Index 2016-2024 (compressed).pdf

file:///file-VFuZ5pct2YvabhtMgj6UBy