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Development Research and Worked Examples

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RE-06

Saudi market indicators and development decisions

English — From market indicators to project decisions

Real estate price indices and construction cost indices measure different phenomena. Their periods and baskets may differ; their difference is not a development profit margin.

Before using a numerical market observation, consult the original statistical release, identifying the period, category, unit and methodology. An aggregate index is not a substitute for asset- or project-specific evidence.

Decision implication: changes in land values, saleable product prices and construction inputs cannot be treated as one uniform escalation rate. Establish a marketable product, usable and saleable areas, current site-specific cost estimates, development and absorption schedules, and comparable cash-flow assumptions before deciding on a land commitment.

Independent hypothetical sensitivity example: direct construction budget SAR 6m; assumed cost mix 50% materials, 30% labour and 20% equipment. Stress assumptions of +3%, +2% and +5%, respectively, result in a weighted 3.1% increase, or SAR 186,000. Revised direct construction budget: SAR 6,186,000, before indirect effects. If all other costs and revenue remain constant, the surplus declines by the same amount. This is a teaching scenario, not a market forecast or site-specific estimate.

Practical step: obtain dated quotations based on the work scope and design. Test at least two scenarios for delivery delays and area efficiency, distinguishing quantity changes from unit-price changes. Use the reference index only to check the plausibility of assumptions; do not substitute it for contractor pricing, an asset-specific study or licensed valuation.

RE-11

Development cash flow and capital exposure

English — A positive surplus can conceal a funding deficit

A development can generate a positive undiscounted surplus yet face a funding shortfall before completion. Separate total nominal surplus, the peak cumulative pre-financing cash deficit and time-adjusted net present value. These are different decision measures, not substitutes for valuation, investor solvency or a committed financing facility.

Hypothetical annual end-of-period model: SAR 3m land at t0; SAR 4m and SAR 3m outflows at t1 and t2; SAR 12.6m receipt at t3. The annual 8% discount rate is an assumed teaching input, not observed cost of capital. No explicit tax, financing, advance receipts or residual value. Peak deficit is max(0, negative minimum cumulative balance); NPV discounts each cash flow by its period, with t0 undiscounted.

Base: [-3,000,000; -4,000,000; -3,000,000; 12,600,000] | cumulative funding deficit 10,000,000 | nominal surplus 2,600,000 | NPV 726,566 SAR

Revenue delayed one period: [-3,000,000; -4,000,000; -3,000,000; 0; 12,600,000] | cumulative funding deficit 10,000,000 | nominal surplus 2,600,000 | NPV -14,344 SAR

Construction overrun SAR 600k: [-3,000,000; -4,000,000; -3,600,000; 12,600,000] | cumulative funding deficit 10,600,000 | nominal surplus 2,000,000 | NPV 212,163 SAR

Combined stress: delay, overrun, revenue -10%: [-3,000,000; -4,000,000; -3,600,000; 0; 11,340,000] | cumulative funding deficit 10,600,000 | nominal surplus 740,000 | NPV -1,454,885 SAR

In this simplified model, delaying the receipt leaves nominal surplus and maximum cumulative deficit unchanged yet reduces economic value. An overrun increases required funding and weakens NPV. The combined stress demonstrates why design, construction sequencing and revenue timing must be assessed together, using project-specific evidence rather than a headline margin.

Decision discipline

Develop comparable monthly or quarterly cash-flow schedules. Tie work packages to contractor milestones, completion and evidenced collection assumptions. Separate cash received from sales contracted. Verify any phasing constraints and funding availability with authorised specialists. Assess cash flow before and after financing using consistent definitions, and include taxes and fees where applicable. Do not turn this demonstration into an individual investment recommendation.

RE-12

Property development alternatives and decision gates

English — Comparable alternatives, defensible decisions

Start by defining the product, user, constraints and purpose of the decision. Screen out options with unresolved legal, planning, technical or safety impediments before ranking financial outcomes. An attractive modelled surplus cannot substitute for permission or feasible design. Standardise area definitions, product quality, cost scope, time horizon and risk assumptions.

Screen five areas before calculation: (1) title, rights and easements, without claiming legal verification; (2) permitted use, planning and permit requirements, setbacks, heights and parking from authoritative sources; (3) access, utilities and site risks; (4) design feasibility, safety and operation with specialists; and (5) product-specific demand, pricing and absorption evidence. Classify each gate as verified, unverified or blocked. Modelled returns cannot compensate for a legal or technical barrier.

GASTAT's real estate price-index methodology (7 July 2026) tracks price changes by property category and period, rather than the price of an individual transaction. REGA provides sales and rental indicators. Check the definition, base period and methodology of each series before comparison; do not average dissimilar index levels or treat them as an asset's fair value.

Obtain observed transaction evidence by product and geography, sample count and date, area basis, rental/sale definition, and relevant supply and absorption evidence. Clearly disclose missing data and avoid presenting model assumptions as observed prices.

Hypothetical alternative A: shared land SAR 2.4m; 1,800 m² GFA, 80% saleable efficiency, 1,440 m² saleable; SAR 5,000/m² sale price; direct build SAR 2,000/GFA m²; other costs SAR 500k; sales expense 3%. Alternative B: 2,400 m² GFA, 65%, 1,560 m² saleable; same price, build SAR 2,100/GFA m², other costs SAR 600k, same sales fee. A revenue SAR 7.2m, cost SAR 6.716m, surplus SAR 484k. B revenue SAR 7.8m, cost SAR 8.274m, deficit SAR 474k. B adds SAR 600k revenue but SAR 1.558m cost, reducing surplus by SAR 958k. These are illustrative assumptions only.

A decision file should include constraint evidence and outstanding checks, consistent option cards, economic delta bridge, cash-flow and sensitivity comparison, and a conditional disposition: eliminate, continue study, or hold pending verification. Actual recommendations require appropriate licensing, project data and independent confirmations.

RE-08

Improving saleable efficiency without increasing GFA

A hypothetical residential for-sale development has 3,000 m² GFA. Option A has 70% saleable efficiency, B 75%. Assume SAR 5,500/m² sale price, SAR 3m land, SAR 2,000/m² direct construction cost, SAR 800k other fixed costs, and sales expenses of 3% of revenue. B incurs SAR 180k additional design and execution cost. These are teaching inputs, not observed market prices.

A: 2,100 m² saleable area; SAR 11.55m revenue; SAR 10,146,500 total cost; SAR 1,403,500 surplus (12.15% of revenue). B: 2,250 m² saleable area; SAR 12.375m revenue; SAR 10,351,250 total cost; SAR 2,023,750 surplus (16.35%). Incremental surplus = SAR 825,000 revenue less SAR 24,750 incremental sales expense and SAR 180,000 intervention cost = SAR 620,250. Break-even additional saleable area ≈ 33.74 m², subject to unchanged unit price and other assumptions.

Decision: B is only a candidate if life safety, access, building services, planning constraints and product quality are maintained and the commercial assumptions remain credible. Funding, additional taxes and timing are not explicitly modelled. Accounting profit and market valuation are outside this example.

RE-08

Refurbishment versus retention

Assume an existing income asset with annual net operating cash flow of SAR 600k before financing and tax if retained, versus SAR 840k after refurbishment. Immediate capex SAR 900k, six months of first-year downtime, three-year horizon and 8% annual discount rate; no terminal value, disposal or rent growth.

Retention cash flows: [0, 600k, 600k, 600k]. Refurbishment: [-900k, 420k, 840k, 840k]. Undiscounted incremental cash flow over three years is -SAR 600k. Retention NPV ≈ SAR 1,546,258; refurbishment NPV ≈ SAR 875,873; incremental NPV ≈ -SAR 670,386. The equal-NPV immediate capex ceiling is approximately SAR 229,614. This is a scenario limit, not an asset valuation or contractor quote.

Decision: refurbishment fails this particular three-year incremental comparison despite a 40% increase in stabilised operating cash flow. A longer holding period or evidenced residual value could change the conclusion. Verify technical condition, hidden enabling works, permissions, achievable rents and contractor quotations before a real decision.

References and source notes

RE-06

DataSaudi: https://datasaudi.sa/en

REGA Real Estate Indicators Platform: https://rei.rega.gov.sa/en

GASTAT statistical categories: https://www.stats.gov.sa/en/statistics-tabs/-/categories/121920?category=121920&delta=60&tab=436312

GASTAT construction-cost statistical category: https://www.stats.gov.sa/en/statistics-tabs/-/categories/3453505?category=3453505&delta=60&periodicity=121424&tab=436312

GASTAT construction cost index methodology: https://www.stats.gov.sa/ar/w/methodology-and-quality-report-for-the-construction-cost-index-cci-statistics-4.1

GASTAT reuse policy: https://www.stats.gov.sa/en/use-policy

All numerical examples are hypothetical teaching assumptions or calculations, not observed market statistics or forecasts.

RE-11

Original educational cash-flow analysis. Net present value is calculated by discounting equal-period flows; cumulative exposure is the greatest negative cumulative balance. No site-specific forecast.

RE-12

GASTAT — Methodology and Quality Report for Real Estate Price Index Statistics 4.1: https://www.stats.gov.sa/en/w/methodology-and-quality-report-for-real-estate-price-index-statistics-4.1

REGA real estate indicators: rega.gov.sa. No period-specific market bulletin or chart is reproduced. Not a valuation or investment recommendation.

RE-08

Both cases are independent hypothetical teaching examples, not client projects or actual returns. No third-party project drawings or images used.

Residential design review

Real case 01 — townhouse prototypes

A technical architectural and engineering review by LECON concerns a residential development in Riyadh, with end and repeated townhouse prototypes and dwellings across three floors. The subject is design review, not construction or operating outcomes.

The report examines room relationships, circulation, privacy, orientation, ventilation, structural grids, stairs, levels and finishes, and identifies missing drawing details.

Documented recommendations include improving visual separation of guest reception and living areas, reviewing kitchen workflow, protecting upper-floor privacy, and checking terrace shading and roof drainage. A recommendation is not evidence of implementation.

Architectural lesson: review repeated prototypes before design freeze, assessing each proposed change for spatial quality, cost and buildability. No realised savings or completed construction are asserted.

Source: LECON Model A technical report. The review is attributed to the office; no individual role or implementation is asserted.

Programming a school complex

Real case 02 — programme and relationships

Concept drawings dated 10 May 2026 for a Riyadh educational complex show nursery and kindergarten, primary, intermediate and secondary functions.

The drawings label departments, entrances, playgrounds, administration, supervision, laboratories and services, alongside shared facilities such as a theatre, pool and sports hall. The archive also contains a facade presentation, review folders and a permit-submission folder, not evidence of issued permits.

Architectural lesson: begin with user-group relationships, access and supervision; then assess shared facilities, discipline coordination, life safety and accessibility. This is an educational reading of drawings, not a compliance certificate.

LECON's 2026 educational-buildings presentation supports the method with a separate quantitative comparison of three concepts. Its figures are not attributed to this particular complex until the identity is confirmed.

Sources: concept drawings and facade presentation. No completed project or operating result is asserted.

Three concepts, one programme

Supporting evidence — education design economics

LECON's 2026 educational-buildings presentation (pp. 4–9) compares a reference model, client vision and office concept on the same site and programme during concept design.

Reference: 19,707 m² GFA, 78 educational spaces, SAR 31.5m estimated cost. Client vision: 14,864 m², 105 spaces, SAR 23.8m. Office concept: 14,528 m², 118 spaces, SAR 23.2m.

Against the reference, the office option has 5,179 m² less GFA (26.28%), 40 more educational spaces (51.28%), and SAR 8.3m lower estimated cost. These are design-stage comparisons, not realised construction savings.

The cost-per-classroom, efficiency, flexibility and operating-cost indicators are omitted from this quantitative summary because detailed calculation methods were not supplied. They remain preserved in the source and evidence register.

Source: LECON presentation, pp. 4–9; concept estimates, not final costs or measured outcomes. Link to the selected complex unconfirmed.

From concept to developed design

Keep stages and evidence separate

Page 10 reports that the client adopted the office concept and that construction was in progress when the presentation was prepared. A later design is described as 15,930 m², 90 classrooms and 28 training rooms, design capacity of 2,220 students, and concept-to-IFC delivery. Do not combine these figures with the earlier concept comparison.

Page 12 describes seven stages: understand client requirements, architectural programming, concept options, option assessment, schematic design, permit drawings, and IFC/BIM. The presentation also describes a central axis, sky courtyards, a 0.6 × 0.6 m module and multidisciplinary Revit coordination.

Lesson: establish a consistent brief before comparing alternatives, document estimates and assumptions for each stage, and track subsequent scope and area changes. No actual expenditure, realised saving or occupancy is inferred.

Source: LECON educational-buildings presentation, pp. 10–18. No individual role, professional certification or operating result is asserted.