International Journal of Creative and Open Research in Engineering and Management
ISSN: 3108-1754 (Online)
Volume 02 Issue 11 November-2026 | Impact Factor: 3.5



An Integrated Rule Based Robo Advisory, Goal-Planning and Compliance Aware Lending Framework for Boutique Financial Advisory Firms in India: A Design-Science Study

Prathamesh Bibhishan Pawar
Pawarprathamesh2003@gmail.com
MBA (Finance), School of Business, Indira University, Pune, India
Guide: **Prof. Vaibhavi Shahane**

How to Cite this Article:

Pawar, P. B. (2026). An Integrated Rule Based Robo Advisory, Goal-Planning and Compliance Aware Lending Framework for Boutique Financial Advisory Firms in India: A Design-Science Study. International Journal of Creative and Open Research in Engineering and Management, 02(11), 1-9. https://doi.org/10.55041/ijcope.v2i11.083

License:

This article is published under the terms of the Creative Commons Attribution 4.0 International License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author(s) and the source are credited.

© The Author(s). Published by International Journal of Creative and Open Research in Engineering and Management.







https://doi.org/10.55041/ijcope.v2i11.083

Abstract

Purpose. Boutique financial advisory firms in India operate amid record retail participation in mutual funds and a large housing-credit market, yet often rely on manual, analyst-dependent processes and on a narrow revenue base, under tightening conduct regulation. This study asks how such a firm can standardise fund screening and goal-based planning with low-cost, transparent tools and extend responsibly into home-loan intermediation. **Design/methodology.** Using a design-science approach, the study documents two spreadsheet artefacts built during a two-month internship at an advisory firm in Pune, a rule-based Robo Mutual Fund Advisory model covering 200 funds and a Goal-Based Planner, together with a compliance-aware workflow for a proposed Direct Selling Agent (DSA) vertical. The artefacts are evaluated through sensitivity and scenario analysis, a qualitative capability comparison and a risk assessment, supported by secondary sector data. **Findings.** Required investment falls steeply with horizon (for a ₹1 crore goal at 10% p.a., about ₹1,28,070 a month over 5 years versus about ₹13,060 over 20 years); a two-point change in inflation moves a 15-year goal by about a third; and a 10% annual step-up roughly doubles the 20-year corpus of a flat SIP. Under illustrative assumptions, a DSA vertical breaks even at about two to four loans a month, with viability driven by lender payout and disbursal conversion. Data quality, conduct and privacy are the most consequential risks. **Originality.** The paper offers an integrated, auditable design that links investment advice, goal planning and loan sourcing within explicit compliance checkpoints. **Limitations.** No live client trial was conducted; payout and ticket values are assumptions.

Keywords: robo-advisory; goal-based planning; mutual funds; systematic investment plan; direct selling agent; home loans; design science; India

1. Introduction

Retail participation in Indian mutual funds has reached unprecedented levels. Monthly systematic investment plan (SIP) contributions touched a record ₹32,490 crore in September 2026 and stood at about ₹32,160 crore in October, while industry net assets under management (AUM) were ₹83.39 lakh crore (BusinessToday, 2026; Kotak Neo, 2026a). In parallel, individual housing loans outstanding rose from ₹28.26 lakh crore in March 2023 to ₹37.18 lakh crore in September 2025 (National Housing Bank [NHB], 2026, as reported by LoansJagat). Both markets are served by advisers and intermediaries, many of them small firms.

Three tensions characterise this environment. First, small firms differentiate on personalised advice but often produce fund shortlists and goal plans manually, which makes outputs depend on the individual analyst. Second, revenue linked to assets is exposed to market swings: industry AUM fell 5.1% in September 2026 even as SIP inflows hit a record (Kotak Neo, 2026a). Third, regulators are raising conduct expectations, including client-level segregation of advice and distribution for investment advisers (Taxmann, 2026) and, from 1 January 2027, amended RBI directions on the marketing and sale of financial products that bring direct selling agents and their sub-agents under explicit policy requirements (Khaitan & Co., 2026).



The paper addresses the resulting practical problem and makes three contributions: a documented, rule-based screening and planning design; quantitative sensitivity and scenario evidence on how such tools behave; and a compliance-aware workflow for adding home-loan intermediation.

2. Background and Related Literature

Portfolio and goal-based theory. Modern portfolio theory (Markowitz, 1952) and the capital asset pricing model (Sharpe, 1964) motivate evaluating funds by risk as well as return and by contribution to diversification (Bodie et al., 2021). Behavioural portfolio theory describes investors building layered portfolios for distinct goals (Shefrin & Statman, 2000), consistent with mental accounting (Thaler, 1999). Goal-based investing operationalises this by attaching cost, deadline and priority to each goal (Sironi, 2016).

Robo-advisory. Robo-advice digitalises client profiling, portfolio construction and monitoring (Jung et al., 2018), often through simple rule-based allocation (Beketov et al., 2018). Field evidence indicates that robo-advice can improve diversification among under-diversified investors but may not remove behavioural biases (D'Acunto et al., 2019). This supports hybrid designs in which automation narrows choices and a human adviser decides.

Advice quality and conflicts. Commission-based remuneration can bias advice (Inderst & Ottaviani, 2012); audit evidence shows advisers sometimes reinforce clients' biases (Mullainathan et al., 2012); and even unbiased advice is often not followed by those who most need it (Bhattacharya et al., 2012). Household-finance research links literacy to planning and wealth (Lusardi & Mitchell, 2014; Campbell, 2006) and shows that commitment devices such as scheduled increases in saving raise saving rates (Thaler & Benartzi, 2004).

Intermediary regulation. Under RBI's outsourcing norms, banks remain responsible for their agents' conduct and agents must follow a code of conduct (RBI, 2006). DSAs are typically independent service providers under commercial agreements (Vinod Kothari Consultants, 2025). The literature on how a small adviser can combine advisory tools and lending intermediation within these constraints is thin, which motivates this study.

3. Research Problem, Questions and Objectives

Research problem: how can a boutique advisory firm standardise fund screening and goal-based planning through low-cost, transparent tools, and extend responsibly into home-loan intermediation without compromising suitability, auditability or regulatory conduct?

- **RQ1.** Can a rule-based screening workflow make fund shortlisting repeatable and auditable?
- **RQ2.** How sensitive is the required investment to horizon, return and inflation assumptions?
- **RQ3.** Under what volume and payout assumptions would a DSA vertical cover its costs, and which compliance conditions apply?
- **RQ4.** How can these components be combined in one workflow that manages conflicts of interest?

4. Methodology

The study follows the design-science paradigm (Hevner et al., 2004): artefacts are built to solve a practical problem in a defined environment, grounded in a knowledge base, and evaluated (Fig. 1). The environment is a boutique advisory firm in Pune; the artefacts were developed by the author during an internship from 18 May to 18 July 2026. Evaluation uses (i) sensitivity analysis of the planning formulas, (ii) scenario analysis of loan EMI, eligibility and DSA economics, and (iii) a qualitative capability comparison and risk assessment. Secondary data come from AMFI, NHB, RBI and SEBI-related sources. No client data are used.

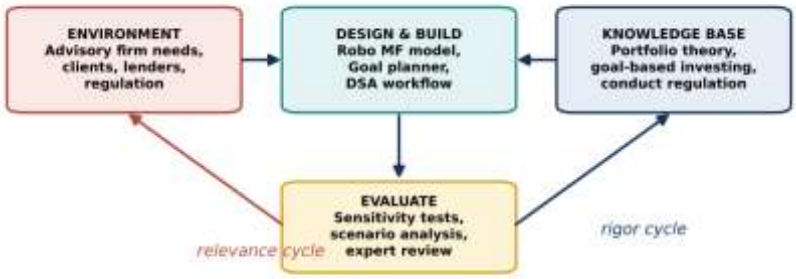


Fig. 1. Design-science cycle applied to the study

Table 1. Formulas used in the analysis

Purpose	Formula
Future cost of a goal	FV = PV × (1 + g)^n
Monthly SIP (start-of-month payment)	SIP = FV × i / [((1 + i)^N − 1)(1 + i)]; i = annual return / 12; N = 12n
EMI	EMI = P × i × (1 + i)^N / [(1 + i)^N − 1]
DSA revenue	Loans disbursed × average ticket × payout %

5. The Artefacts

5.1 Robo Mutual Fund Advisory model

The model is a spreadsheet rules engine over a 200-fund database with category, return and risk information and sector-wise AUM allocation columns. Fixed dropdowns restrict inputs to permitted values; a category filter, a multi-sector filter and a theme filter successively narrow the universe; and a return-and-risk screen ranks the remainder within category (Fig. 2). The output is a ranked shortlist for adviser review, not an autonomous recommendation. Determinism (same inputs, same output) is what makes the process auditable.

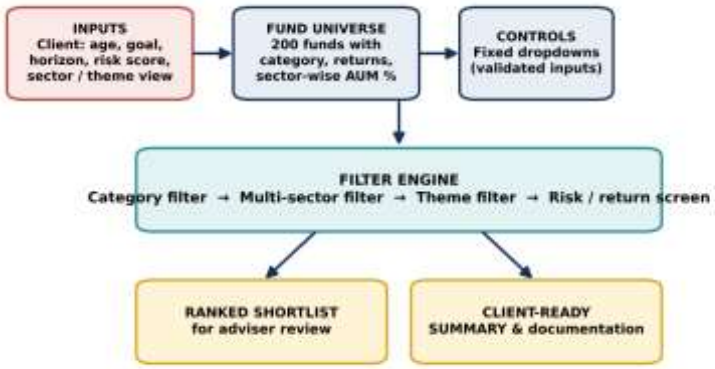


Fig. 2. Architecture of the Robo Mutual Fund Advisory model

5.2 Goal-Based Planner

The planner implements the sequence: identify goal, inflate to future cost, net existing resources, solve for SIP or lump sum, match to risk profile, monitor. Templates exist for retirement, child education (with a systematic withdrawal calculator), car, asset creation and corpus-fund goals. Rounding logic ensures the displayed SIP is a practical round amount that still meets the target.

5.3 Compliance aware DSA workflow

The proposed loan vertical has six stages (lead, eligibility check, document collection, lender login, sanction, disbursal and payout) with a compliance checkpoint at each: disclosure of the lender's identity and the intermediary's role; an indicative, clearly caveated eligibility screen; consent-based KYC and data protection; adherence to the lender's SOP and code; non-misleading communication of terms; and record-keeping of payout. The workflow is designed so that the same suitability discipline applies to loan sourcing as to investment advice.



6. Evaluation and Results

6.1 Goal-planning sensitivity

Table 2 and Fig. 3 show the monthly SIP needed for a ₹1 crore corpus. Time dominates: at 10% p.a. the 5-year SIP is about 9.8 times the 20-year SIP, and for a 20-year horizon moving from 8% to 12% lowers the SIP from ₹16,865 to ₹10,009. Inflation sensitivity is also large: a ₹25 lakh education goal costs ₹59.9 lakh, ₹79.3 lakh or ₹104.4 lakh after 15 years at 6%, 8% or 10% inflation, so a two-point change shifts the target by about a third.

Table 2. Monthly SIP (₹) required for a ₹1 crore corpus

Horizon	8% p.a.	10% p.a.	12% p.a.
5 years	1,35,196	1,28,070	1,21,232
10 years	54,299	48,414	43,041
15 years	28,707	23,928	19,819
20 years	16,865	13,060	10,009
25 years	10,445	7,474	5,270

Assumptions: nominal return/12; start-of-month payment; no taxes or costs.

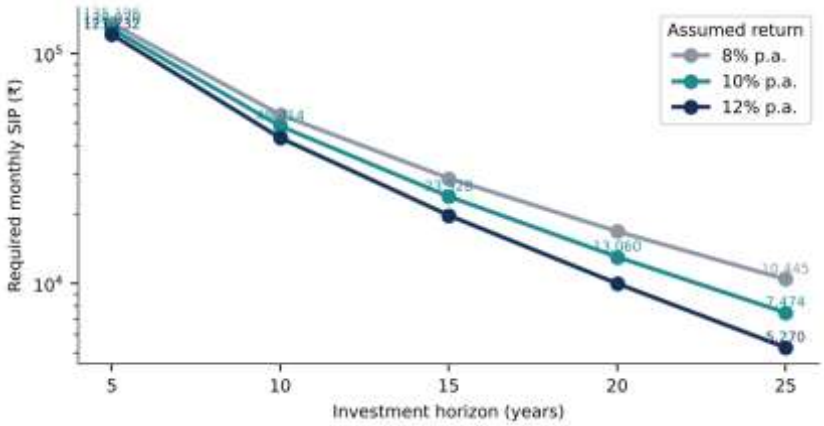


Fig. 3. Required monthly SIP for a ₹1 crore goal

A 10% annual step-up in a ₹10,000 SIP over 20 years at 12% builds about ₹199 lakh versus ₹100 lakh for a flat SIP, investing about 2.9 times as much in total (Fig. 4). Consistent with commitment-device evidence (Thaler & Benartzi, 2004), building the step-up into the plan is an effective alternative to chasing higher returns.

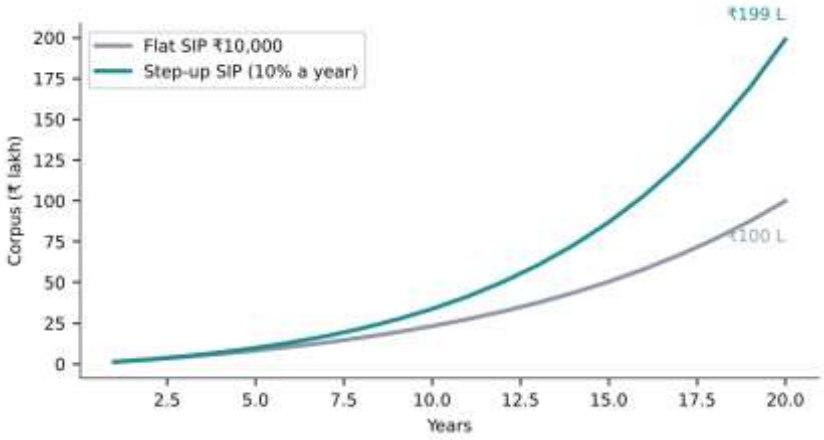


Fig. 4. Flat versus step-up SIP over 20 years

6.2 Loan arithmetic and an integrated case

For a ₹50 lakh loan at 8.5% over 20 years, the EMI is about ₹43,391; at 9.5% it is about ₹46,607. In a hypothetical case (client aged 32, net income ₹1,20,000, education, down-payment and retirement goals plus a ₹48 lakh loan), the three goal SIPs and the EMI total ₹1,00,472, or about 84% of income, although the EMI alone (about 35%) passes an illustrative 50% FOIR screen. Goals and loans therefore compete for the same income, a trade-off visible only when planning and loan workflows are integrated.

6.3 DSA economics

Because confirmed payouts were unavailable, revenue is shown as a scenario grid (payout 0.30–0.75% of disbursal; average ticket ₹40 lakh; 2–10 loans a month; Fig. 5). Against an illustrative fixed cost of ₹50,000 a month, break-even is about 4.2, 2.5 and 1.7 loans a month at payouts of 0.30%, 0.50% and 0.75%. Viability therefore depends on lender terms and disbursal conversion rather than lead volume.



Fig. 5. Monthly DSA revenue (₹) by payout and monthly volume

6.4 Capability comparison and risk

A qualitative comparison on eight capabilities (screening consistency, turnaround, plan accuracy, documentation, scalability, client communication, compliance traceability and set-up cost) rates the integrated workflow higher than a manual one on seven of eight, with set-up cost the exception; these are the author's judgements, not measurements. A risk register of eight items (Fig. 6) places stale or incorrect fund data, conduct breaches and client-data privacy at the top by impact-weighted score.

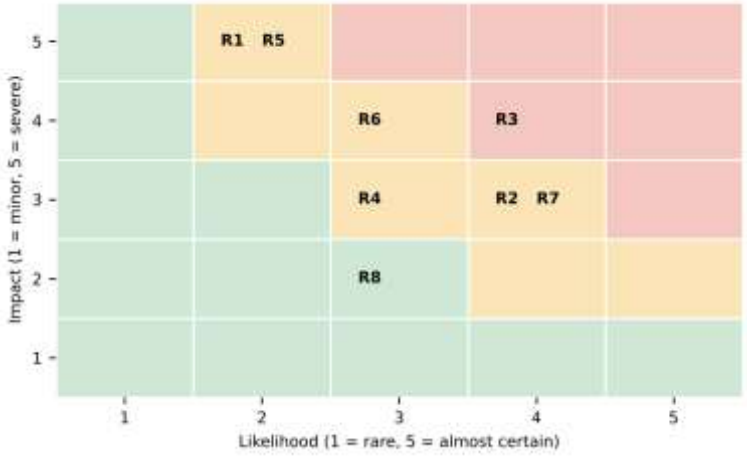


Fig. 6. Risk heat map (author's qualitative assessment)

Table 3. Findings against research questions

RQ	Finding
RQ1	Fixed inputs and sequential filters yield repeatable, explainable shortlists; reliability depends on data freshness
RQ2	SIP falls steeply with horizon and return; ±2 points of inflation shifts a 15-year goal by about 30%; step-ups sharply raise the corpus
RQ3	Break-even is about 2–4 loans a month under stated assumptions; payout and conversion drive viability; lender code, KYC and data-handling terms must be confirmed
RQ4	Embedding disclosure and suitability checkpoints in each workflow, and assessing goals and loans together, manages the main conflicts

7. Discussion and Implications

For practice. A boutique firm can raise consistency and speed with transparent spreadsheet tools provided every output is reviewed by an adviser and data refresh is governed. Presenting ranges, not point estimates, treating inflation as a visible input and encouraging step-ups improve the quality of planning conversations. **For regulation and conduct.** Adding loan intermediation to an advisory franchise raises conflict-of-interest questions. The firm should confirm its registration category, because SEBI's client-level segregation rules apply to advisory and distribution of investment



products (Taxmann, 2026; Legal500, 2026), disclose any lender payout to clients, and align with each lender's DSA code and, for NBFCs, the amended directions effective 1 January 2027 (Khaitan & Co., 2026). **For research.** The design contributes a transparent baseline against which more advanced, data-driven robo-advisory could be compared.

8. Limitations and Future Research

The study is a single-firm, short-duration design study. The models were not trialled on measured client cases, so no time-saving or accuracy claims are made; capability scores are judgemental. DSA payout, ticket size, fixed cost and FOIR are illustrative, and model outputs are not forecasts. Some market figures derive from press reports of AMFI and NHB releases. Future work should pilot the tools against a manual baseline, validate capability scores, collect actual lender payout and conversion data, and extend the design to insurance advisory.

9. Conclusion

A rule-based, adviser-reviewed toolkit for fund screening and goal planning, linked to a compliance-aware home-loan sourcing workflow, is a feasible and economically plausible way for a boutique advisory firm to improve consistency and diversify income. The evidence presented concerns design and feasibility under stated assumptions; measured field validation remains the next step.

References

1. **5paisa.** (2026, October 13). SIP contributions reach record ₹32,490 crore in September 2026. https://www.5paisa.com/blog/sip-contributions-reach-record-rs32490-crore-in-september-2026

2. **Beketov, M., Lehmann, K., & Wittke, M.** (2018). Robo advisors: Quantitative methods inside the robots. *Journal of Asset Management, 19*(6), 363–370.

3. **Bhattacharya, U., Hackethal, A., Kaesler, S., Loos, B., & Meyer, S.** (2012). Is unbiased financial advice to retail investors sufficient? Answers from a large field study. *Review of Financial Studies, 25*(4), 975–1032.

4. **Bodie, Z., Kane, A., & Marcus, A. J.** (2021). *Investments* (12th ed.). McGraw Hill Education.

5. **Business Today.** (2026, November 11). Mutual fund SIP inflows slip marginally to Rs 32,160 crore in October; equity inflows fall 14%.

6. **Campbell, J. Y.** (2006). Household finance. *Journal of Finance, 61*(4), 1553–1604.

7. **D'Acunto, F., Prabhala, N., & Rossi, A. G.** (2019). The promises and pitfalls of robo-advising. *Review of Financial Studies, 32*(5), 1983–2020.

8. **Hevner, A. R., March, S. T., Park, J., & Ram, S.** (2004). Design science in information systems research. *MIS Quarterly, 28*(1), 75–105.

9. **Inderst, R., & Ottaviani, M.** (2012). Financial advice. *Journal of Economic Literature, 50*(2), 494–512.

10. **Jung, D., Dorner, V., Glaser, F., & Morana, S.** (2018). Robo-advisory: Digitalization and automation of financial advisory. *Business & Information Systems Engineering, 60*(1), 81–86.

11. **Khaitan & Co.** (2026, July 7). Ergo: RBI amendment directions for NBFCs.

12. **Kotak Neo.** (2026, October 12). SIP contributions hit record ₹32,490 crore in September 2026; mutual fund assets fall.

13. **Legal500.** (2026, November 2). SEBI's push for unbiased financial advice: Drawing the line between advisory and distribution.

14. **LoansJagat.** (2026). India's home loan demand rises as buyers search for cheaper EMIs.

15. **Lusardi, A., & Mitchell, O. S.** (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature, 52*(1), 5–44.

16. **Markowitz, H.** (1952). Portfolio selection. *Journal of Finance, 7*(1), 77–91.



17. **Mullainathan, S., Nöeth, M., & Schoar, A.** (2012). The market for financial advice: An audit study (NBER Working Paper No. 17929).

18. **Reserve Bank of India.** (2006). Guidelines on managing risks and code of conduct in outsourcing of financial services by banks.

19. **Sharpe, W. F.** (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *Journal of Finance, 19*(3), 425–442.

20. **Shefrin, H., & Statman, M.** (2000). Behavioral portfolio theory. *Journal of Financial and Quantitative Analysis, 35*(2), 127–151.

21. **Sironi, P.** (2016). FinTech innovation: From robo-advisors to goal based investing and gamification. Wiley.

22. **Taxmann.** (2026, September 1). Client-level segregation mandatory – advisory-distribution switching banned: SEBI.

23. **Thaler, R. H.** (1999). Mental accounting matters. *Journal of Behavioral Decision Making, 12*(3), 183–206.

24. **Thaler, R. H., & Benartzi, S.** (2004). Save More Tomorrow™: Using behavioral economics to increase employee saving. *Journal of Political Economy, 112*(S1), S164–S187.

*Web sources accessed 13 November 2026;- Declaration: the author has no conflict of interest to declare **confirm**; client data were not used.*