The Smart Decision Group

Building Predictive Models In-House

What a business needs – and the Practical Alternatives

Analytics, Automation, Advantage

2025 White Paper

Executive Summary

Predictive models—whether logistic regression scorecards or advanced machine-learning models—have become core to modern decision-making. They drive credit decisions, fraud detection, pricing, customer management, cross-sell, retention, collections, and more.

But many organisations underestimate what is required to successfully **build, deploy, and maintain** these models in-house. The challenge is not the maths or the software; it is the **data, people, governance, and operational discipline** needed to run modelling capability sustainably.

This paper outlines:

- What a business needs to build and host predictive models internally
- The four practical alternatives used in the market today
- A comparison of cost, speed, governance, and long-term value
- A modern approach: Scorecard-as-a-Service using Champion/Challenger rotation
- How executives can choose the right option based on maturity, data, and urgency

Detail

1. How Businesses Access Scorecards and Predictive Models Today

Organisations typically choose one of four paths to obtain scoring capability.

Option 1: Use a Bureau General Scorecard

Credit bureaus offer generalised risk scorecards built using industry-wide data.
Advantages:

- Extremely fast to implement
- Low cost
- Regulator-accepted and stable
- No internal team required

Limitations:

- Not customised to your customer base
- Limited uplift compared to a tailored model
- Everyone else is using the same score

Best for organisations needing **immediate go-live**, or those with **limited internal data**.

Option 2: Custom Scorecard Developed and Hosted by a Bureau

A bureau builds a custom model using your data but hosts and manages it.
Advantages:

- Better predictive lift than generic scores
- Bureau handles hosting, updates, and governance
- Reduces internal staffing burden

Limitations:

- Costlier than generic models
- Long turnaround times for updates
- Vendor lock-in
- Slow experimentation, limited flexibility

Best for organisations that want a customised model but do **not** want to operate the infrastructure.

Option 3: Use a Specialist Third-Party Modelling Provider

Independent analytics companies build the scorecard; hosting may be on your infrastructure or theirs.
Advantages:

- High expertise and innovation
- Faster delivery than bureaus
- Customised to your business context

Limitations:

- Variable governance quality
- You may still need infrastructure to host it
- Performance monitoring often remains your responsibility

Best for businesses with **moderate to high data maturity** looking for strong uplift.

Option 4: Scorecard-as-a-Service (Design + Hosting + Rotation) — Your Offering

This is a modern, scalable approach: businesses **rent** scorecards instead of building or hosting them internally.
The service includes:

Champion / Challenger Model

- Businesses receive **two** scorecards:
- **Champion** – current production model
- **Challenger** – experimental model competing in shadow
- Every 3–6 months (depending on volume), performance is evaluated:
- If the Challenger outperforms → it becomes the new Champion
- A new Challenger is developed
- Over time, the business gets **continuous uplift**, not a model updated every 2–3 years.

Business Benefits

- No internal data science team required
- No hosting or model infrastructure needed
- Predictable monthly or annual pricing
- Faster go-live
- Independent governance and monitoring included
- Continuous improvement without project overhead
- Transparent, explainable results
- Easy integration with your decision engine

Best for organisations wanting **fast results, continuous uplift, and low operational burden.**

2. Why Some Businesses Choose to Build In-House

Despite the complexity, some businesses prefer internal modelling because they want:

- **Full IP ownership**
- **Deep transparency and explainability**
- **Tight integration** with internal platforms
- **Strategic differentiation**
- **Regulatory control**
- **Long-term cost efficiency** once maturity is reached

However, this path demands the highest level of organisational readiness.

3. What a Business Needs to Build and Run Its Own Predictive Models

Building internal modelling capability requires five capability pillars.

A Reliable Data Foundation

- Clean, historical data (12–36+ months)
- Consistent variable definitions
- Secure and compliant storage (e.g., POPIA)
- Ability to integrate internal + external data sources

Without high-quality labelled data, model performance is severely limited.

Skilled People (or Access to Them)

An effective modelling function requires:

- Data scientists
- Data engineers
- Business analysts
- Independent model validators
- Model risk & governance
- IT and deployment support

Most mid-sized companies lack these roles, making in-house development challenging.

The Right Tools and Technology

Businesses need:

- A secure modelling environment
- Production hosting infrastructure
- Automated monitoring
- Integration with operational systems
- Versioning, audit trails, and fallback capability

This adds ongoing cost and requires dedicated IT involvement.

Governance & Regulatory Compliance

Executives must ensure:

- Models are fair and explainable
- Documentation is complete
- Policies are followed
- Independent validation occurs
- Regular monitoring is performed
- Decisions are compliant and auditable

This is often the most demanding requirement.

Continuous Monitoring & Maintenance

Predictive models degrade over time. Sustaining performance requires:

- Monthly monitoring
- Champion/Challenger strategy or A/B testing
- Recalibration
- Periodic rebuilds
- Strategy impact assessments

Model development is not a project — it is an ongoing discipline.

4. The Model Development Lifecycle (Executive Version)

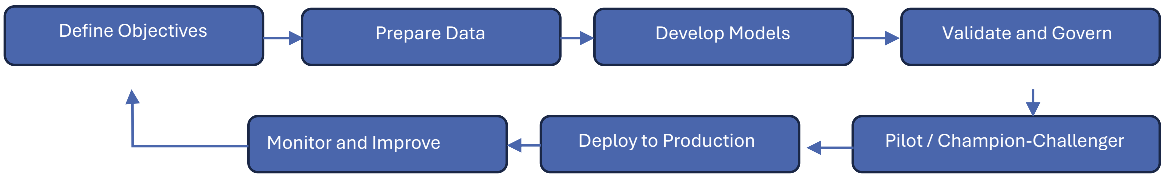

Figure 1 — Model Development Lifecycle

1. **Business Objective Definition**
Alignment with strategy, compliance, and financial goals.
2. **Data Preparation**
Clean, merge, standardise, and engineer predictive variables.
3. **Model Development**
Logistic regression, scorecards, ML models depending on purpose.
4. **Validation & Governance**
Independent challenge, bias testing, stability assessments.
5. **Pilot Testing & Champion/Challenger**
Controlled rollout with performance comparison.
6. **Deployment**
Integration into the decision engine or workflow.
7. **Monitoring & Maintenance**
Ongoing tracking and periodic redevelopment.

5. Deployment & Integration Requirements

To unlock value, a model must be:

- Embedded into operational decisioning
- Connected to data sources
- Integrated with your front-end systems, workflows, CRM, or underwriting environment
- Version-controlled and auditable

Decision engines accelerate this significantly by handling workflows, branching, overrides, policies, and audit trails.

6. Build vs Buy vs Rent — Executive Comparison

Decision Matrix

Criteria	Bureau Generic	Bureau Custom	Specialist Provider	Scorecard-as-a-Service	Build In-House
Speed to Market	⭐⭐⭐⭐	⭐⭐⭐	⭐⭐⭐	⭐⭐⭐⭐	⭐
Short-Term Cost	⭐⭐⭐⭐	⭐⭐	⭐⭐	⭐⭐⭐	⭐
Long-Term Cost	⭐⭐	⭐	⭐⭐	⭐⭐⭐⭐	⭐⭐⭐⭐
Predictive Lift	⭐	⭐⭐	⭐⭐⭐	⭐⭐⭐⭐	⭐⭐⭐⭐
Ownership	⭐	⭐⭐	⭐⭐⭐	⭐⭐⭐⭐	⭐⭐⭐⭐
Governance Burden	⭐⭐⭐⭐	⭐⭐⭐⭐	⭐⭐	⭐⭐⭐⭐	⭐
Continuous Burden	⭐	⭐	⭐⭐	⭐⭐⭐⭐	⭐⭐⭐⭐

Vendor Lock-In	High	High	Medium	Low	None

7. Budget & Timeline Expectations

- A realistic, market-aligned view:

Approach	Time to First model	Typical Cost Profile
Bureau Generic	Days	Very Low
Bureau Custom	2-6 Months	Medium-High
Third-Party Specialist	1-3 Months	Medium
Scorecard-as-a-Service	Days-Weeks	Predictable Subscription
Build In-House	6-12+ Months	High Initial + Ongoing

8. When Renting a Scorecard Is the Optimal Path

Scorecard-as-a-Service is ideal when:

- You want results **within weeks**, not months
- Data is limited or inconsistent
- You lack an internal modelling team
- Governance and audit requirements are strict
- You want model uplift without project overhead
- You want continuous Champion/Challenger improvement
- You want predictable subscription-based costs
- You need to reduce risk before investing in full internal capability

It is particularly effective when paired with a modern decision engine.

9. Conclusion & Executive Recommendation

Predictive models are essential for modern businesses—but building an internal modelling capability is only suitable for organisations with the necessary **data maturity, staff, governance, infrastructure, and long-term commitment**.

Most organisations achieve faster and more consistent value by leveraging:

- Bureau models
- Specialist third parties
- Or, increasingly, **Scorecard-as-a-Service** using Champion/Challenger rotation.

This approach balances uplift, cost, governance, and speed to market—allowing businesses to modernise decisions while building internal capability over time.

If your organisation is beginning its journey, needs rapid lift, or lacks internal resources, renting a scorecard is often the most strategic and least risky path.

Contact Details
The Smart Decision Group (TSDG)
Email: contact@tsdg.co.za
Web: www.tsdg.co.za