

ML Project Feasibility & Business Impact Assessment

Project: _____ Assessed by: _____ Date: _____

Table 1: Feasibility and Actionability Checks (Yes / Partial / No)

Evaluate readiness against each criterion and note what it would take to achieve readiness. Items marked * are essential requirements.

§	Criterion & Question	Yes	Partial	No	Notes
1.1	Real Stable Relationship * <i>Does a meaningful and stable relationship exist between inputs and the proposed prediction target?</i>	☐		☐	
1.2.1	Feature Availability <i>Do you have data representing the factors that materially influence the target, directly or through a reasonable proxy?</i>	☐	☐	☐	
1.2.1	Data Volume <i>Do you have enough records to teach the model the relationship across the range of inputs, including rare but important cases?</i>	☐	☐	☐	
1.2.1	Feature Variation <i>Does your inputs vary enough across the relevant conditions (e.g., prices that have actually changed) for the model to learn the interdependent relationship?</i>	☐	☐	☐	
1.2.1	Granularity <i>Is your data at least as fine as the prediction you need? (Finer data can be aggregated.)</i>	☐	☐	☐	
1.2.2	Data Usage Regulations * <i>Can the data required for modeling be used for the purpose under privacy, anti-discrimination and other laws?</i>	☐		☐	
1.2.2	Connectivity <i>If records are stored across systems or tables, can they be accurately joined to build the training dataset (e.g., each customer to their purchase history)?</i>	☐	☐	☐	
1.2.2	Quality <i>Is the data accurate, complete, consistent, and representative enough for the intended use?</i>	☐	☐	☐	
1.2.3	Post-Prediction Generation <i>Are all the input features generated before prediction is required?</i>	☐	☐	☐	
1.2.3	Capture Frequency Mismatch <i>Is the input data captured and available for use when prediction is required?</i>	☐	☐	☐	
1.3.1	Prohibited Applications * <i>Is the application free of outright prohibition under AI-specific or industry-specific laws?</i>	☐		☐	
1.3.2	Compliance Burden <i>Are the explainability, documentation, testing and validation, oversight, monitoring, and approval requirements compatible with your approach and business case?</i>	☐	☐	☐	
1.4.1	Tooling & Infrastructure <i>Does the organization have or can acquire in time the tools and infrastructure required for data storage and preprocessing, training, deployment, monitoring, and compliance?</i>	☐	☐	☐	

§	Criterion & Question	Yes	Partial	No	Notes
1.4.2	Talent Gap <i>Are the required expertise available or can the gap be closed through hiring, training, or external support within your timeline and level of commitment?</i>	☐	☐	☐	
2.1.1	Execution Capability <i>Is there a team or automated system that can act on the predictions (e.g., engage customers or deliver offers)?</i>	☐	☐	☐	
2.1.1	Decision-Ready Prediction <i>Will the model output map directly to an existing operational decision (e.g., the discount to offer, not just a propensity to buy)?</i>	☐	☐	☐	
2.1.2	Predictive Visibility <i>Is there a mechanism to develop sufficient insight to gain trust of the team acting on the predictions?</i>	☐	☐	☐	
2.1.2	Boundary Clarity & Safeguards <i>Can unreliable predictions be safely identified and isolated?</i>	☐	☐	☐	
2.1.2	Business Metrics <i>Can relevant business metrics be used alongside technical accuracy to evaluate and document model performance?</i>	☐	☐	☐	

* Must be 100% met, with no partial credit. If any starred item is a No, ML cannot be used for this application until it is fixed; stop and revisit the objective or approach.

Table 2: Business Impact: Is It Worth Building?

Use the same period (e.g., per year) and the same currency for every figure. Gain recurs every period while build costs are largely one-time investment followed by small maintenance and monitoring cost, so either spread one-time costs over the expected useful life of the model or aggregate all figures over the life.

Variable	Question	Factors to consider	Your figure	Notes
Step 1- Ability to act: How many predictions can you actually act on? (Eq. 1; §2.2.1 Ability to Act)				
N_p	How many predictions will the model generate?	Number of cases (customers, transactions, items) to be scored in each period.		
A_c	How many predictions can the team or system act upon?	Team size and working capacity (e.g., 100 calls a day), automation available, and how well the prediction fits existing workflows (§2.1.1).		
A_p	Actionable Prediction (A_p) = min (N_p , A_c)		=	
Step 2- Gross value: What is each acted-upon prediction worth? (Eq. 2; §2.2.1)				
p	What fraction of acted-upon predictions will be correct (precision)?	No model is fully accurate. Use plausible accuracy given data quality, volume, and available features (Table 1).		
v	What value is generated by each correct action?	Margin or savings gained per correct action, measured against doing nothing.		
C	What does each incorrect action cost?	Direct costs beside missed opportunities, such as, a retention promotion offered to a customer who was not leaving reduces margin.		
GV_{ML}	Gross Value generated by ML (GV_{ML}) = $A_p \times [p \cdot v - (1 - p) \cdot C]$		=	
Step 3- Total cost of ownership: What will it cost to build and run? (Eq. 3; §2.2.2)				
HC_c	What is the human-capital cost of building, deploying, monitoring, and maintaining the model?	Approach-dependent (large in-house team versus outsourced), time to deploy, and production troubleshooting.		

Variable	Question	Factors to consider	Your figure	Notes
T_{lc}	What is the cost of tooling and infrastructure?	Besides compute: data storage, and tools for training, deployment, compliance readiness, monitoring, and generating predictions.		
R_{Cc}	What is the regulatory and compliance cost?	Basic requirements (documentation, validation records, audit logs) and problem-specific ones (extra testing, approval before deployment, human-in-the-loop).		
O_E	What does it cost to integrate predictions into existing systems and workflows?	Software and interface changes, API connections, recruiting a team, and downstream changes (e.g., digital menu boards for hourly pricing).		
E_{Sc}	What is the cost of external services and data?	Outsourced data collection, curation, and preprocessing. Do not exclude them as reusable, since data drifts and projects need different data.		
M_E	What does it cost to monitor the model for data and concept drift?	Monitoring tools and alerts, labeled outcomes needed to track accuracy, and staff time reviewing results.		
TCO	Total Cost of Ownership (TCO) = HC_c + T_{lc} + R_{Cc} + O_E + E_{Sc} + M_E		=	

Step 4- Risk exposure: What is the potential exposure and cost of mitigating it? (Eq. 4; §2.2.1 and §2.2.2)

LE	What is anticipated legal or liability exposure, if any?	Any risk of large settlements from inaccurate predictions generated without ample guardrails impacting someone's well being, or violations of data privacy, anti-discrimination, or other laws. [#]		
RM_c	What is the expected cost in mitigating backlash?	Include the cost of transparent communication, stakeholder engagement and other actions necessary to mitigate any potential backlash.		
R_c	Risk Cost (R_c) = LE + RM_c		=	

Step 5- Net return over the best alternative: Is ML worth it compared with a simple non-ML approach? (Eq. 5; §2.2.1 Alternate Heuristic Model)

GV_H	What net return could the best practical non-ML approach achieve?	Return from a model built as a handful of conditional rules based on expert's judgement.		
NR	Net Return (NR) = GV_{ML} - TCO - R_c - GV_H		=	
RoI	Return on Investment (RoI) = (GV_{ML} - R_c - GV_H) / TCO		=	

[#] Adhering to legal frameworks and following best practices keeps L to 0.

Access the article "Machine Learning for Business Value" at tvaritam.ai/article/ml-candidate-evaluation