

Lecture 21

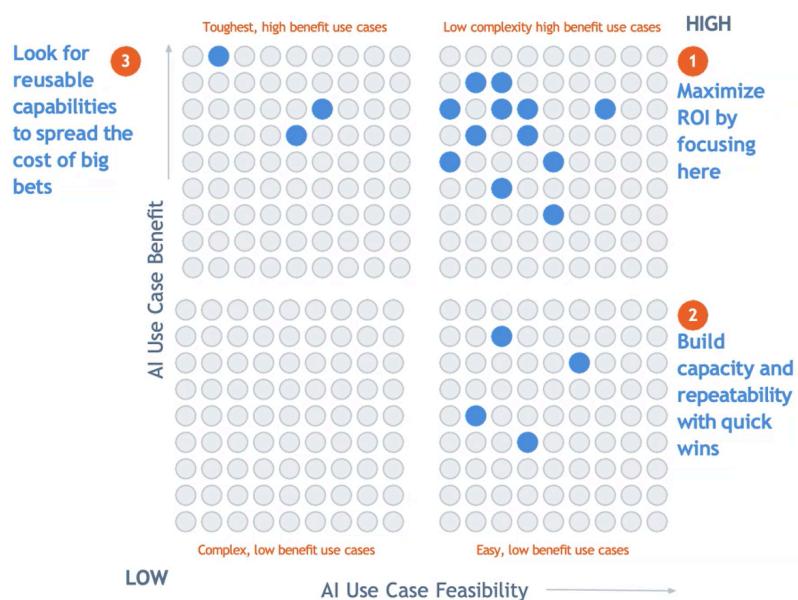
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Guest Lecture by Dr. Shreyas Chavan

AutoML (Automated Machine Learning)

Traditional ML model building takes time



What is AutoML?

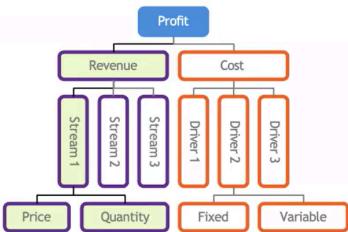
AutoML — short for "automated machine learning" — is a technology invented by DataRobot to automate many of the tasks needed to develop artificial intelligence (AI) and machine learning applications. AutoML helps accelerate the value delivery of AI.

Ref. Slides by the presenter

Value Estimation of a project

Exercise: Value estimation

Assess the value potential of the AI solution: Methodology

Step 1	Estimate the addressable base for each use case	The addressable baseline is usually a specific driver of cost or revenue. Make and state assumptions , these can be refined later.									
Step 2	Evaluate the opportunity for improvement through AI	<p>Estimate the potential for improvement on the baseline by:</p> <p><i>Qualitatively assessing current practices</i></p> <ul style="list-style-type: none"> ▪ Consistency of approach ▪ Analytical rigor ▪ Level of oversight <p>-OR- <i>Benchmarking against best-ever performance</i></p>	<table border="1"> <thead> <tr> <th>Sophistication of current practices</th> <th>Typical improvement from AI¹</th> </tr> </thead> <tbody> <tr> <td>Closely managed, well defined standard work, sophisticated analytics</td> <td>0-5%</td> </tr> <tr> <td>Simple business rules in place, limited management oversight</td> <td>5-10%</td> </tr> <tr> <td>Processes not formalized, minimal oversight</td> <td>10-20%+</td> </tr> </tbody> </table>	Sophistication of current practices	Typical improvement from AI ¹	Closely managed, well defined standard work, sophisticated analytics	0-5%	Simple business rules in place, limited management oversight	5-10%	Processes not formalized, minimal oversight	10-20%+
Sophistication of current practices	Typical improvement from AI ¹										
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1 Rules of thumb based on past DataRobot experience - opportunity will vary by business domain and use case

Sizing examples

Churn		Fraud	
Step 1 <i>Estimate the addressable baseline</i>	\$1B Annual revenue	5% Annual customer churn	\$50M Addressable revenue base
	TOP-DOWN		BOTTOMS-UP
Step 2 <i>Evaluate the opportunity for improvement with AI</i>	QUALITATIVE	Churn is measured, without accountability	\$100 Average cost of fraud transaction
		↑ \$5-10M Opportunity is high : 10-20% of \$50M base	1 out of 2 Customers defrauded Annually
			25M Customers
			\$1.25B Annual fraud cost base
			\$95 Best lowest cost of fraud achieved with early detection
			↓ \$63M Saved from lower annual fraud cost with AI
			Using AI to consistently achieve best performance on all fraud transactions

Feasibility Estimation

Feasibility has multiple dimensions - many aren't "technical"



Comparison

Use Case Value vs Feasibility - Sample Output

