MODELING EMPLOYEE LIFE TIME VALUE (ELTV)

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Human Capital Management

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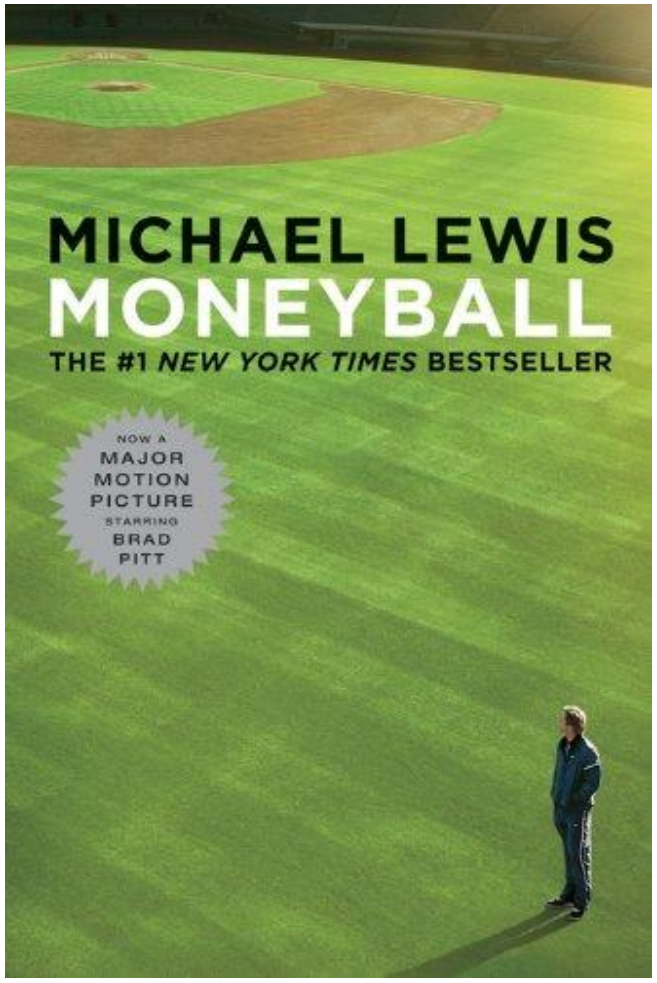
60% to 70% is the Human Capital Cost

Can we Optimise Employee Cost?

Can we build High Performing Team at optimal Cost?

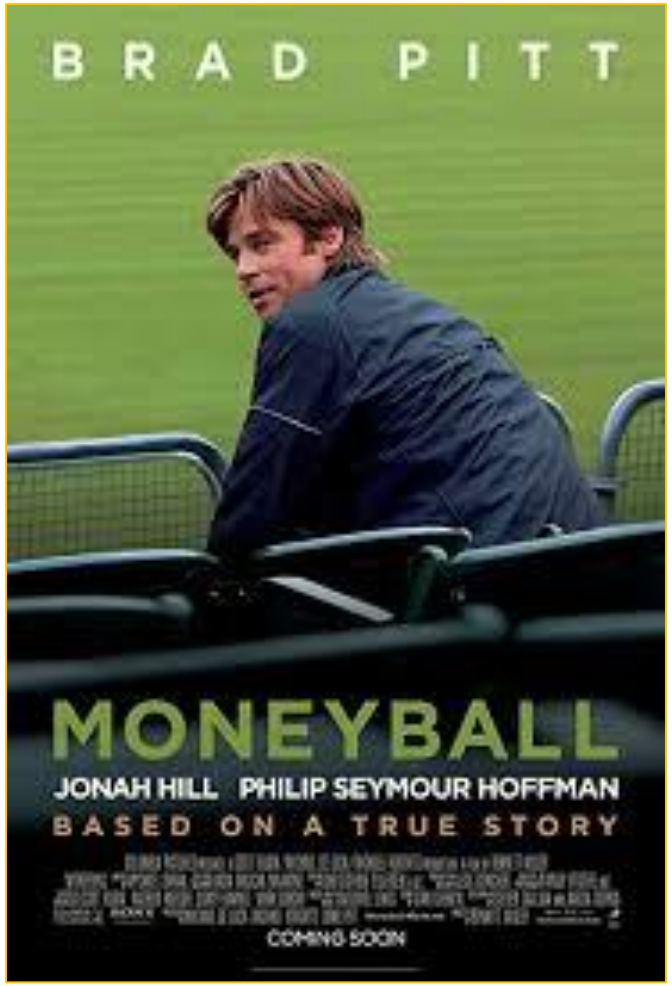
Business Understanding

Motivation for Research



Money Ball in HR?

Is it possible to build a *High Performing* Team at *Optimal Cost*?



Strategic Human Resource Management

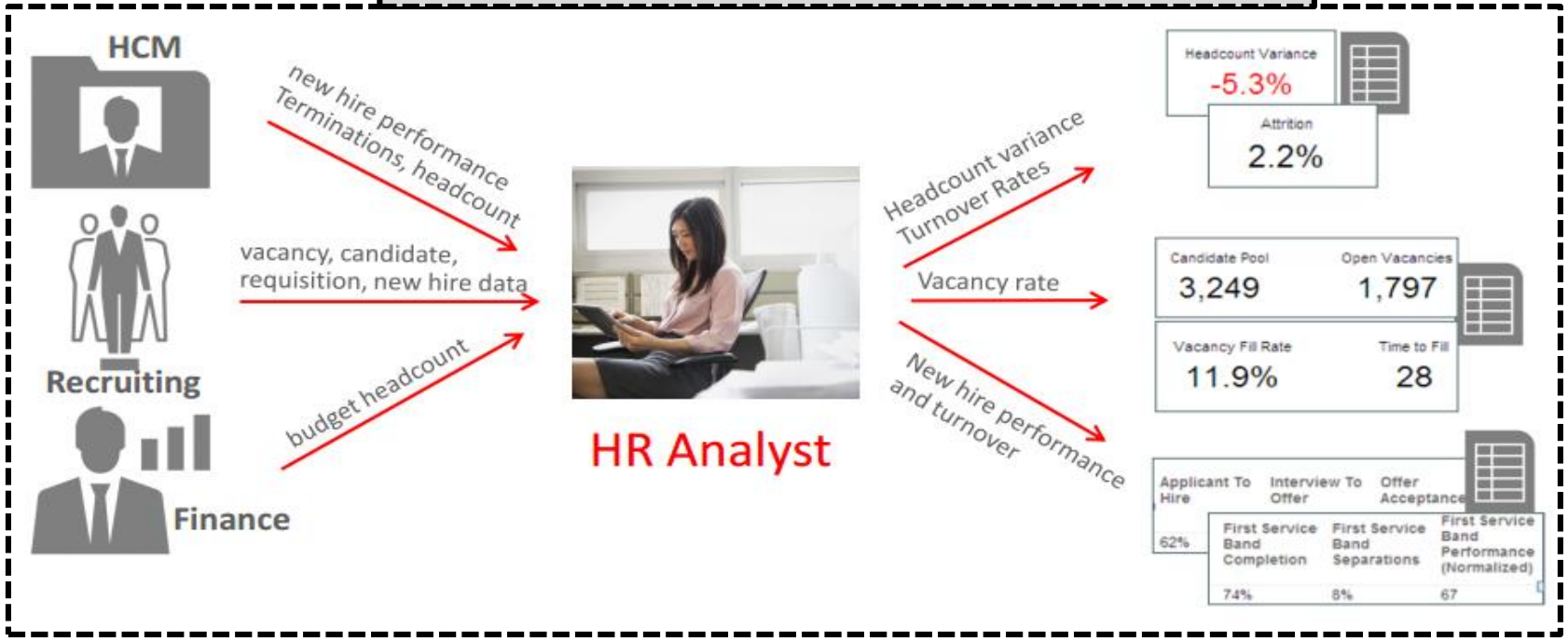
Role of CHRO

Develop Talent Strategy and systems to enable Sustainable Growth.

Question	Are we losing key talent?	Are we providing career development opportunities?	Are we rewarding employees competitively?
Insight	• What is the turnover trend? • Where are the retention hotspots? • What is the skill loss from the turnover? • What is the cost of turnover?	• What skills and job experiences produce high performance? • Are there adequate cross-team, cross-functional experiences? • Is top talent groomed for leadership positions?	• How is our compensation compared to the market? • Are we rewarding high performance? • How did compensation affect employee retention historically?
Action	**Identify at-risk key talent for retention.**	**Identify development and training opportunities for employee development.**	**Offer competitive compensation packages for key retention roles**

Implementation Challenges

- Data Scattered through multiple systems
- No single source of truth, many metrics
- Management by spreadsheet
- Inconsistent business processes



Business Challenges

- **No accurate view of** workforce profile
- **Lack of visibility into** the effectiveness of HR programs
- **Poor alignment of talent** management strategy with corporate strategy
- **Time wasted gathering** data to manage and report

Employee Data

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Behavioural

- Tenure
- Projects
- Over time
- Years since last promotion
- Total working hours
- Percent Salary Hike
- Performance Rating

Attitudinal

- Job Satisfaction
- Work life balance
- No of companies worked
- Tenure in each company
- Net Promoter Score

Demographic

- Age
- Marital Status
- Education
- Gender
- Distance from home
- Compensation and Benefits

Literature Review

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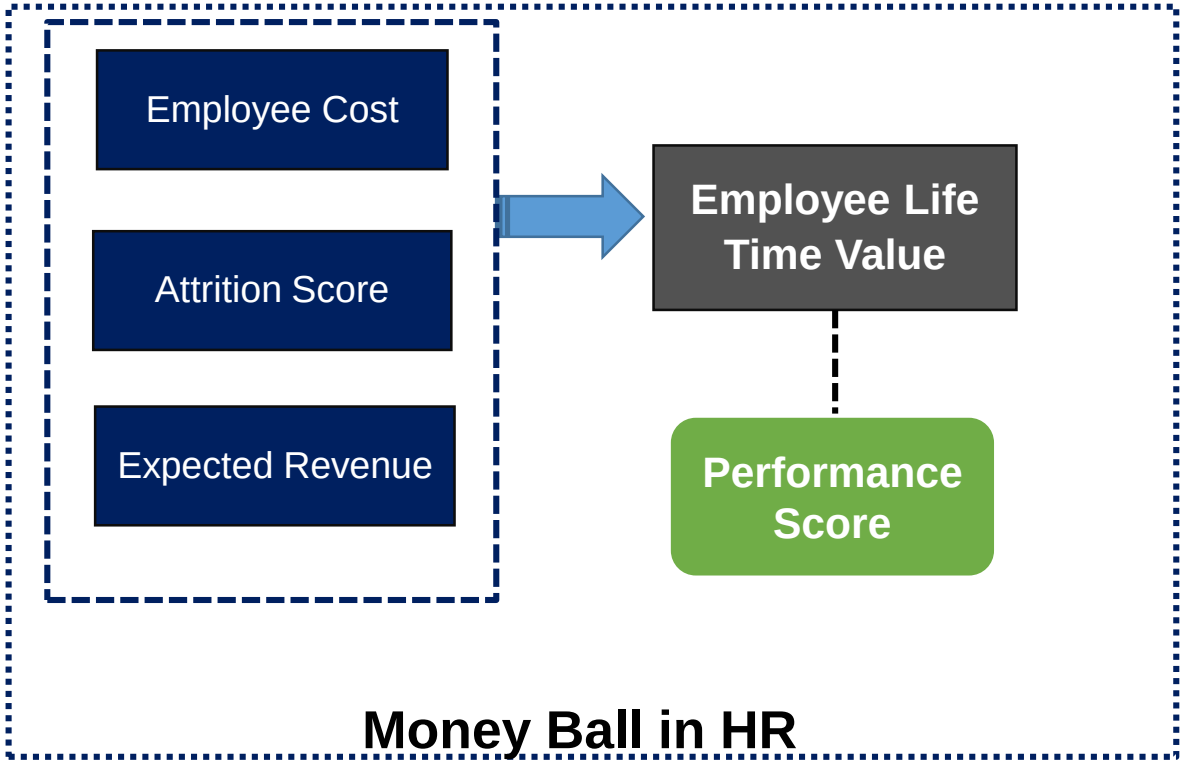
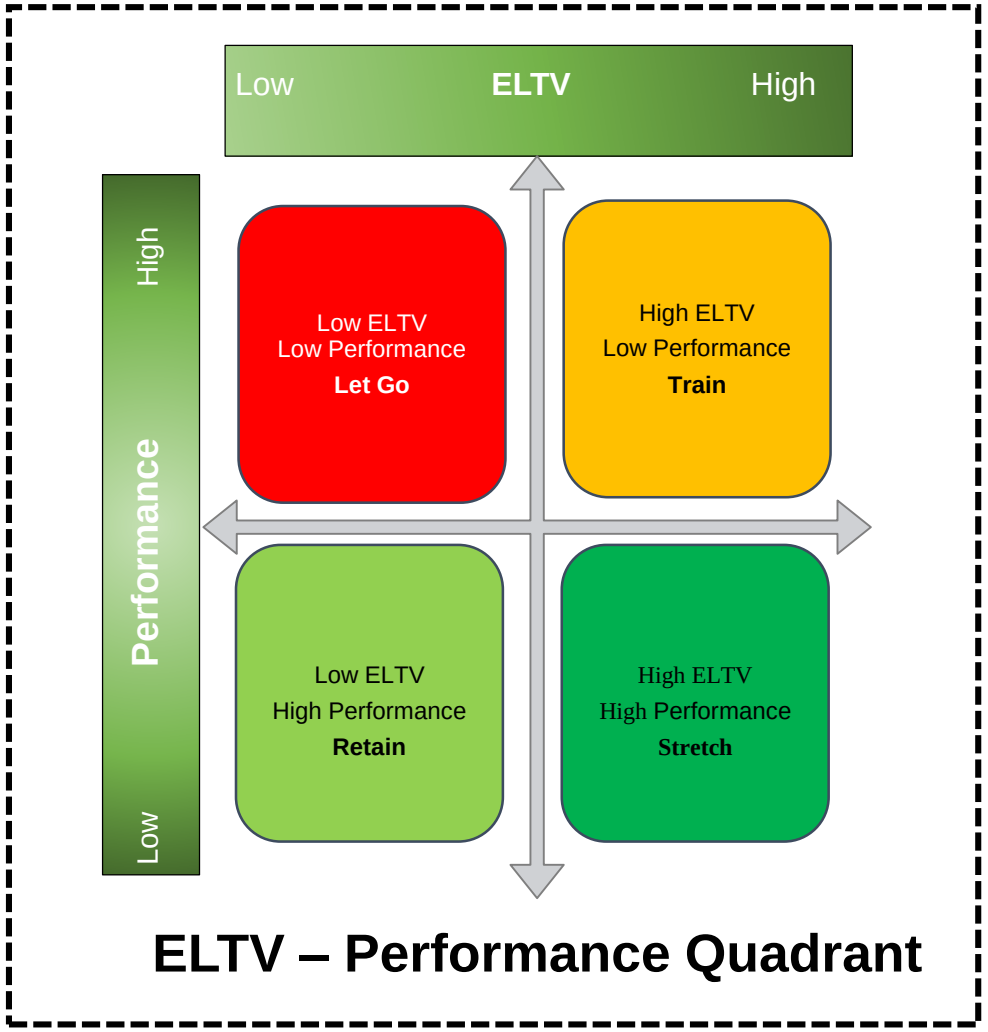
Authors	Description	Techniques	Results
Pasha R. (2016)	ELTV model	Heuristics	Operational Framework
Bednarska, M. A. (2014)	Attrition model	Logistic regression	Attrition prediction
Frye et.al (2018)	Attrition model	Random Forest	Attrition Prediction
Simha et.al (2018)	Employee Performance	SOM/FIS	Performance recommendation
Lukic, R. (2015)	Cost/Revenue	Business Intelligence	Profitability computation

Conceptual Model and Performance Matrix





Data Understanding

Exploratory Data Analysis

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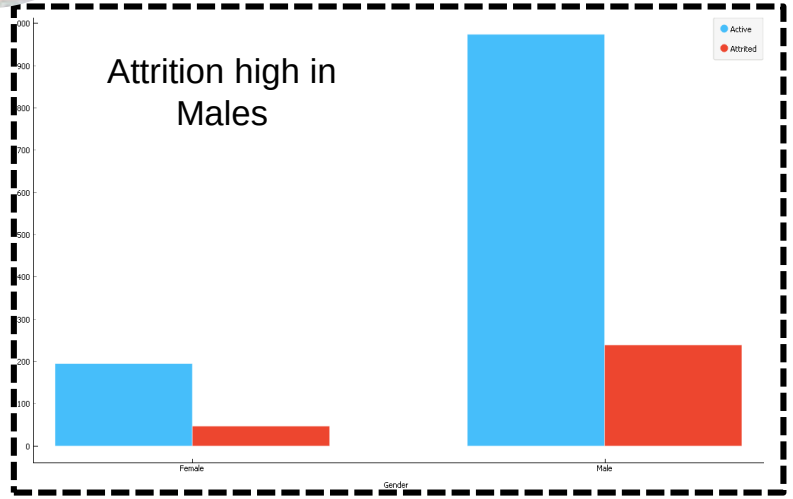

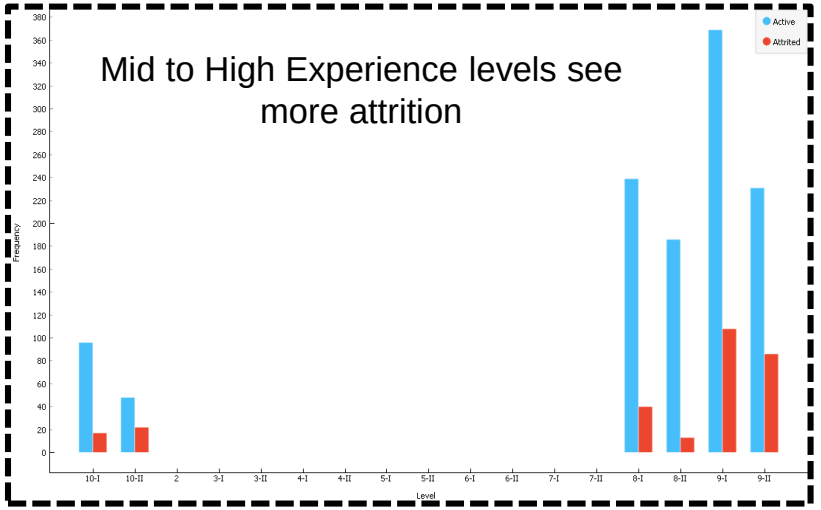

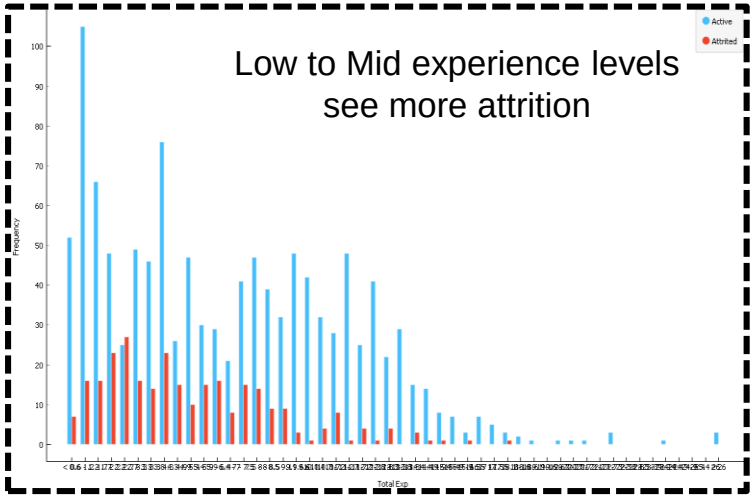

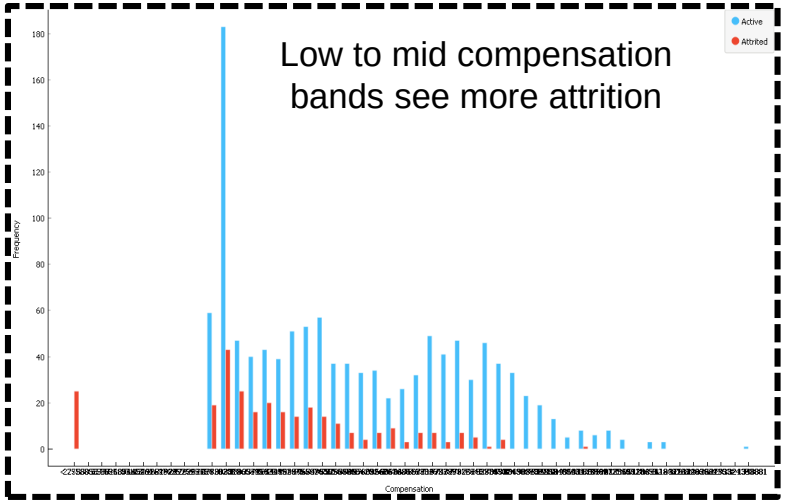

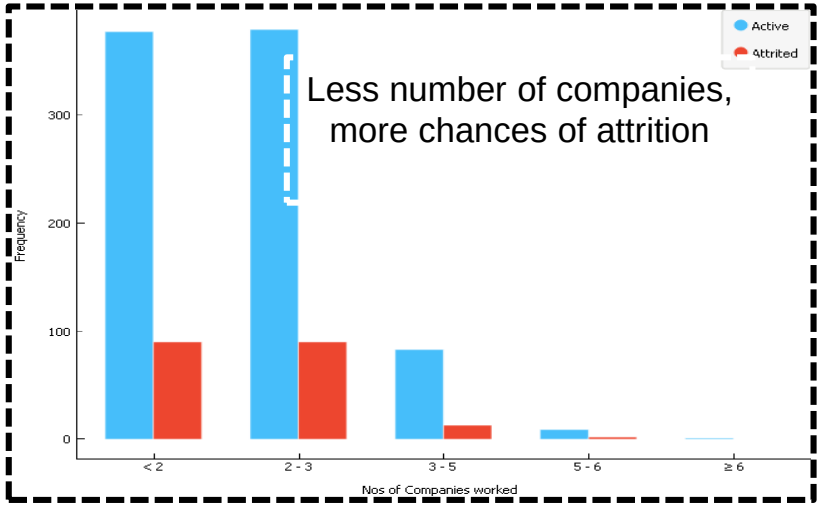

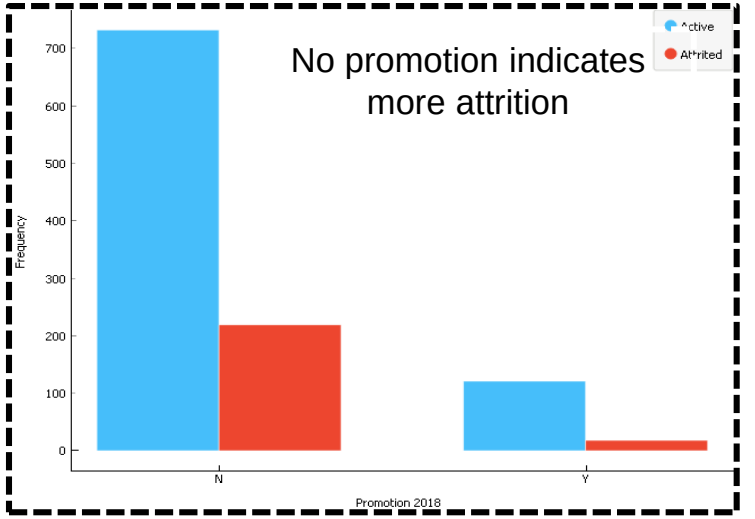

Data Preparation and Business Rules

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Dataset

- Approx. 1800 Employees
- Attriters Vs. Active: 270 (~18%)

Sampling

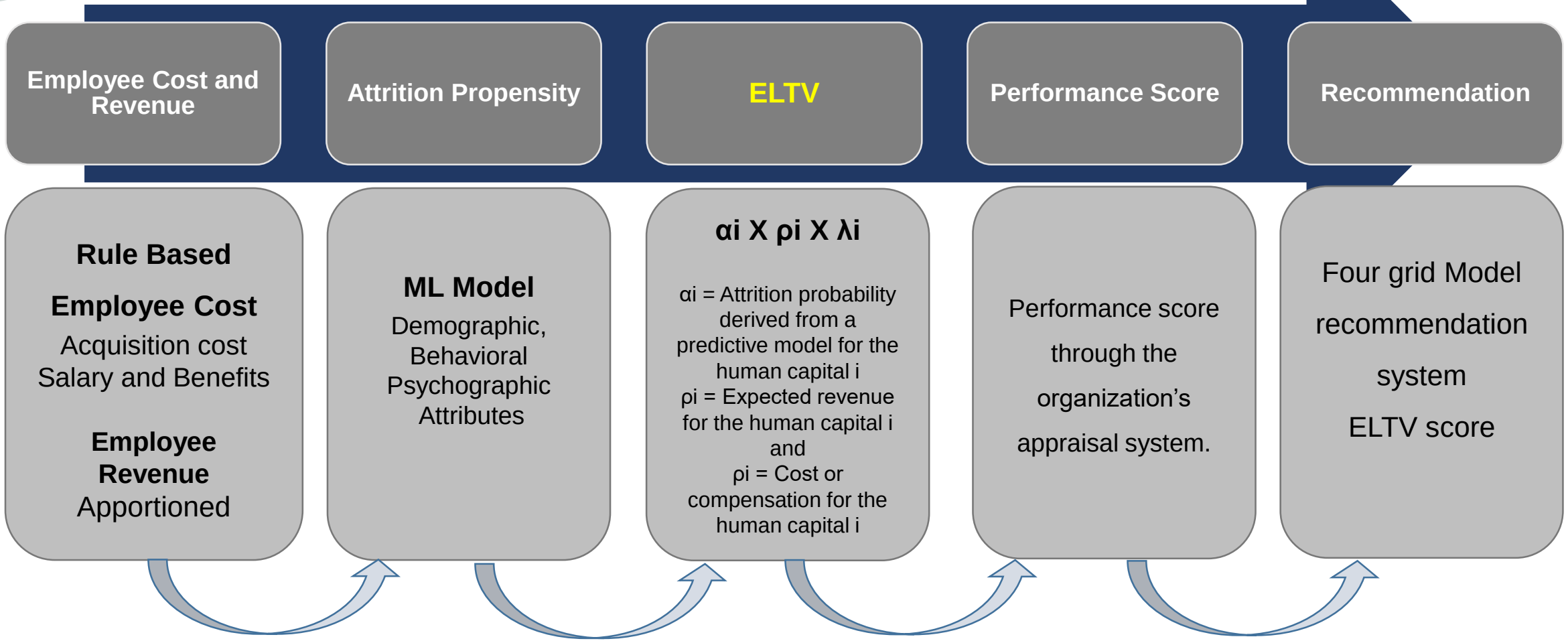
- 70/30, 60/40 and 50/50 (Training/Testing)
- **50/50 data set is used for final modeling**

Rules

- Only employees with at least one year of tenure
- Three different segments
  - Segment 1: Executives
  - Segment 2: Mid Management
  - Segment 3: Senior Management
- Different segments have different attrition rates.
- Combining them will diffuse the heterogeneity

	Active	Attrite	Attrition %
Segment 1	744	233	**24**
Segment 2	610	175	**22**
Segment 3	99	9	**8**

Experiments – 5 Stages



Attrition Propensity for Three segments

Segment 1 - Executives

	Accuracy	TP Rate	Coverage
Naïve Bayes	0.91616	0.74051	1
Logistic regression	0.78528	1	0.10256
Decision tree	0.90798	1	0.61538
Random forests	0.98978	1	0.95726
Support Vector Machi	0.99796	1	0.99145
Neural networks	1	1	1

Segment 3 - Senior Management

	Accuracy	TP Rate	Coverage
Naïve Bayes	0.12963	0.07843	1
Logistic regression	0.92593	0	0
Decision tree	0.92593	0	0
Random forests	0.98148	1	0.75
Support Vector Machi	0.98148	1	0.75
Neural networks	1	1	1

Segment 2 - Mid Management

	Accuracy	TP Rate	Coverage
Naïve Bayes	0.73469	0.30579	0.97368
Logistic regression	0.89796	1	0.07895
Decision tree	0.9621	1	0.65789
Random forests	0.99417	1	0.94737
Support Vector Machi	1	1	1
Neural networks	1	1	1

Neural Networks performed well on all the three metrics

Accuracy

TP Rate

Coverage

Results and Recommendation

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Performance	ELTV		Total
	Low	High	
0	25	90	115
1	6	6	12
2	20	60	80
3	48	318	366
4	12	100	112
Grand Total	**111**	**574**	**685**

Segment 1

Performance	ELTV		Total
	Low	High	
0	25	90	115
1	6	6	12
2	20	60	80
3	48	318	366
4	12	100	112
Grand Total	**111**	**574**	**685**

Segment 2

Performance	ELTV		Total
	Low	High	
0	7	5	12
1	1	5	6
2	1	17	18
3	0	55	55
4	0	17	17
Grand Total	**9**	**99**	**108**

Segment 3

Overall, 25% of the workforce has low performance, Low ELTV and High cost.

Conclusion

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- **ELTV** can be the single metric in ELCA.
- **ELTV** predicts the future value of an individual for multiple decisions.
- **ELTV** model appears non linear in the reference study.
- Neural networks perform excellent on the data used for the research
- 25% of the work force scores Low ELTV/Low performance, who can be re-looked for replacement.
- ELTV can be easily incorporated into ELCA.