

Problem Statement

- Turnover (TO) for nurses is higher than other professions.
- Children's Health (CH) hospitals have a high financial impact from constantly fulfilling vacant positions.
- There is no current method for estimating the financial impact of an employee departure.
- Having financial control towards employment can benefit CH to prepare for the future

Background- Children's Health

- Children's Health is pediatric hospital, HQ in Dallas, TX
- In 1913, Nurse May Smith founded Children's Health Hospital with only three nurses
- "Making Life Better for Children"

Project Purpose

- Develop a credible model using real data provided to project the cost of clinical nurses' voluntary departure
- The model will be inputted with functions considering all

Turnover (TO)

- Turnover is the constant workforce to be replaced because of employee departures

Number of Voluntary Departures

Average Headcount

- This project focuses on voluntary turnover. This rate will be used to calculate costs per individual

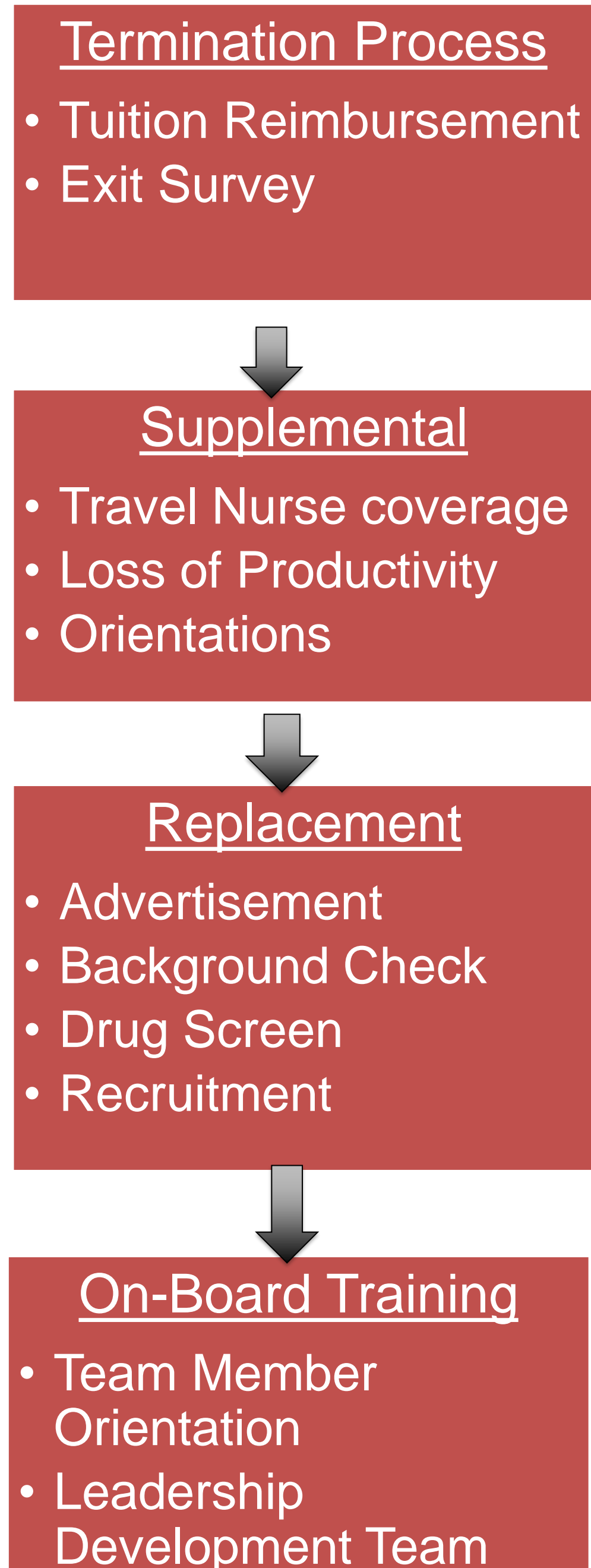
Research in Turnover (TO)

- Research is the base to validating costs and calculation methods.
- In hospitals, TO causes unexpected direct or indirect impacts that add up to millions
- Healthcare organizations struggle with employee retention and look for new strategies; financials needed

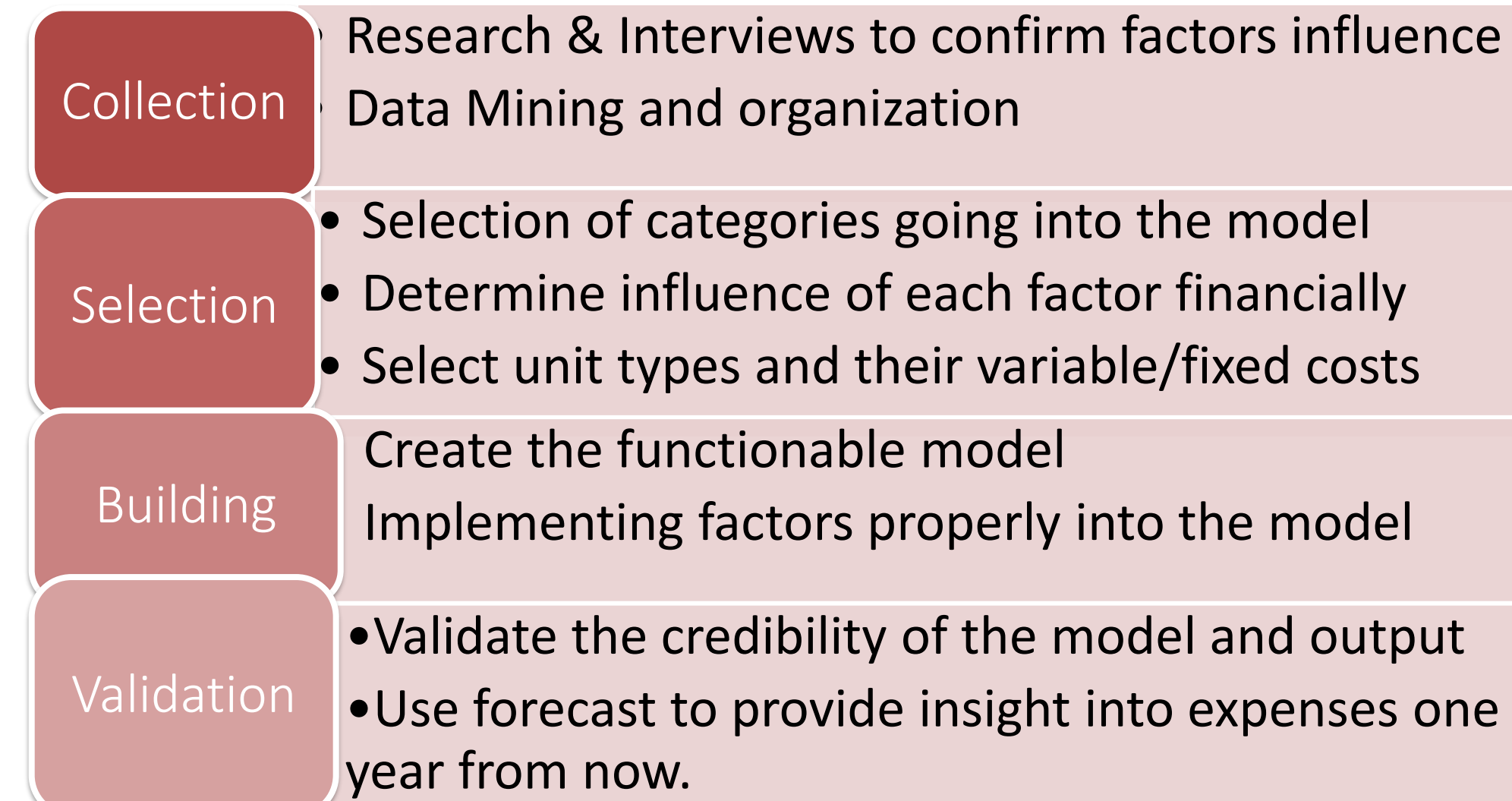
Objectives

- Research literature will be the base for obtaining precise data exclusively for the chosen topics and factors.
- Conduct interviews to obtain precise costs using averages and probability of being applicable.
- Build a model assuring the correct inputs into the model. --
- Estimate cost per individual based on annual voluntary departures
- Final objective is to simulate the model with forecasted TO rates and get estimated cost for next year.

Voluntary Departure Process with main Cost Categories



Building a Credible Model by Stages



Variable costs are based on avg. salaries and actual expenses.

Units are based on proportion of Voluntary TO as applicable to cost

Ex: **Sourcing**: Salary* (VTO=372)
*2hrs spent = \$32,540

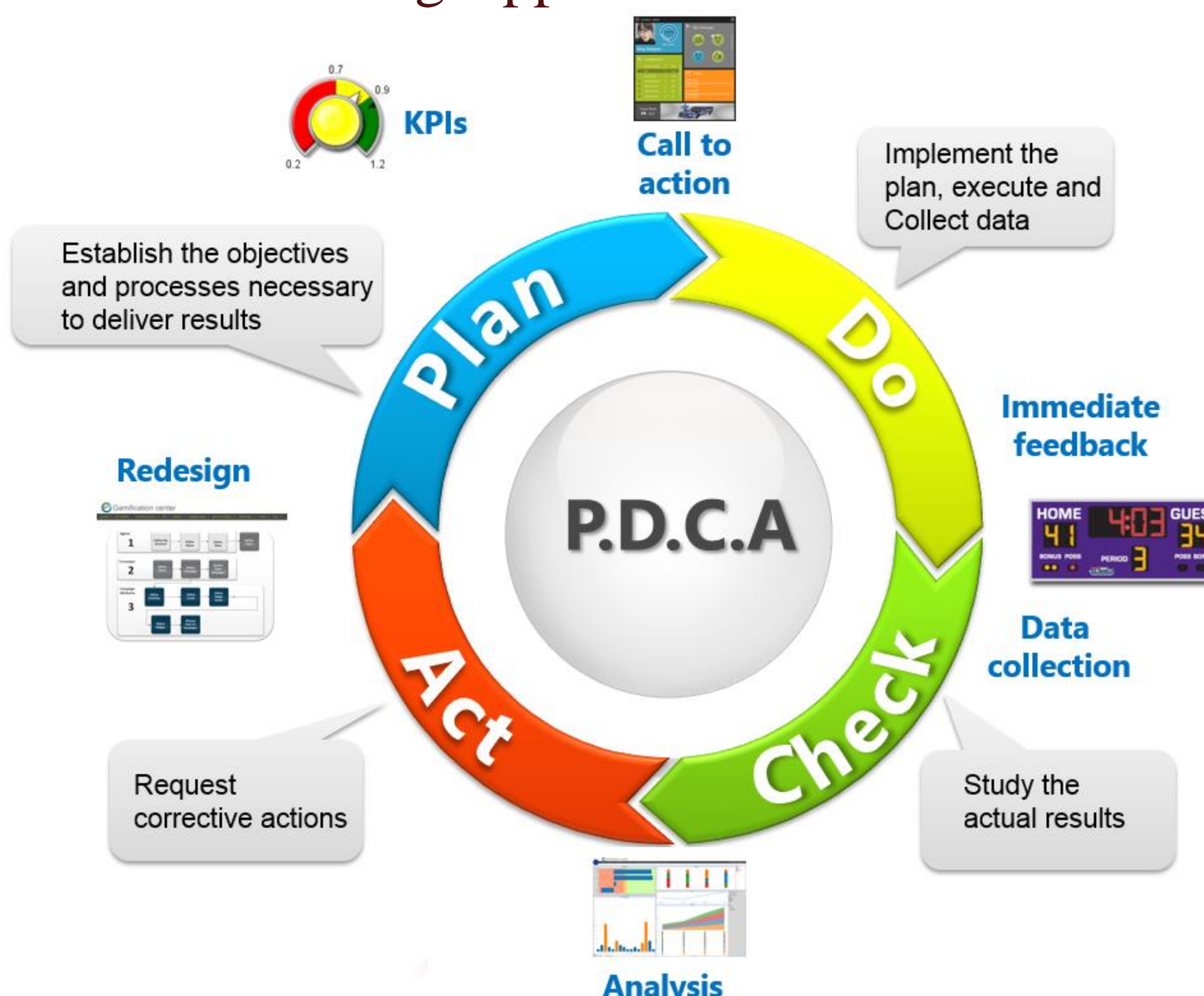
Model Example- Replacement Category

Replacement Subcategory	Fixed Cost	Variable Cost	Units #	Unit Type	Variable Costs
Leader approval time		\$ 52.40	284.25	30 min each	\$ 14,894.70
HR approval time	\$ -	\$ 42.93	284.25	45 min assumption	\$ 12,202.85
Advertisement	\$ 30,000.00	\$ 1,500.00	379	avg advertisement	\$ 568,500.00
Sourcing time	\$ -	\$ 42.93	758	2 hrs sourcing	\$ 32,540.94
Recruiter time	\$ -	\$ 52.40	1516	4 candidates/posit	\$ 79,438.40
Hiring Manager interview		\$ 47.21	379	1 hr/new employ	\$ 17,892.59
Panel interview		\$ 157.20	227.4	40 min*3 salarie*	\$ 35,747.28
Background check		\$ 55.00	379	for each	\$ 20,845.00
Drug screen		\$ 50.00	379	for each	\$ 18,950.00
Reference check		\$ 36.44	189.5	30 min each	\$ 6,905.38
Referral bonus		\$ 5,000.00	151.6	40% of leaves	\$ 758,000.00
Sign-on bonus		\$ 3,000.00	189.5	50% of leaves	\$ 568,500.00
Relocation support		\$ 2,500.00	94.75	25% relocated	\$ 236,875.00
Applicant Tracking System		\$ 30.00	379	per new profile	\$ 11,370.00
Value	Total Fixed			Total Variable Cos	Total Estimate
	\$ 30,000.00			\$ 2,396,044.63	\$ 2,426,044.63

Ethics & Responsibility

- Honesty regarding financial decisions and investments
- Research Ethics
- Privacy and Confidentiality
- Equity & Fairness with Compensation
- Professional Responsibility
- Respect everyone's role and contribution

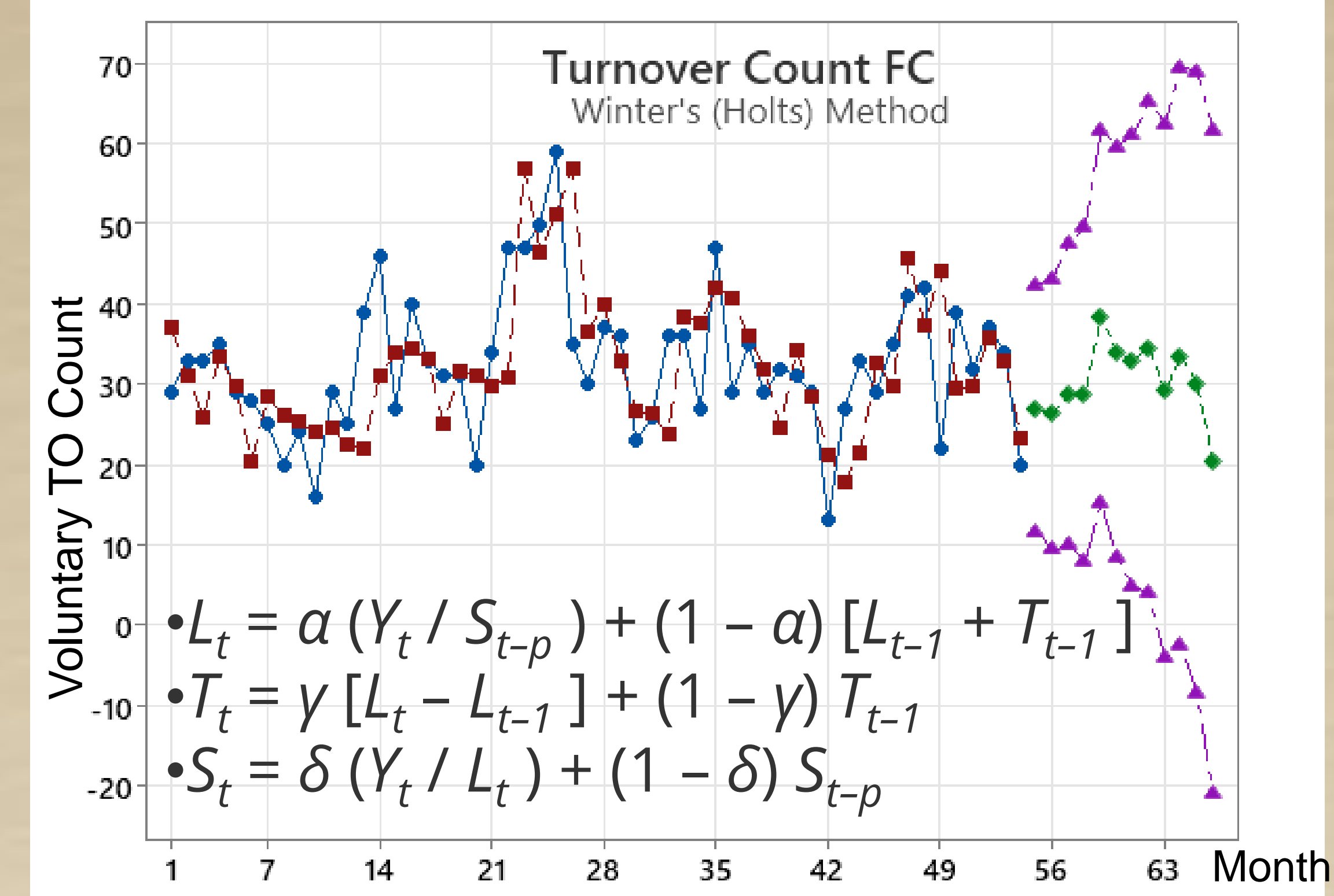
Problem-Solving Approach



Forecast

- Winter's method with 60 months data for both Headcount and voluntary Turnover Count
- Forecasted the next 12 months to project next year's TO

Smoothing Constants		Accuracy Measures	
α (level)	0.5	MAPE	20.9346
γ (trend)	0.1	MAD	6.2757
δ (seasonal)	0.3	MSD	65.9069



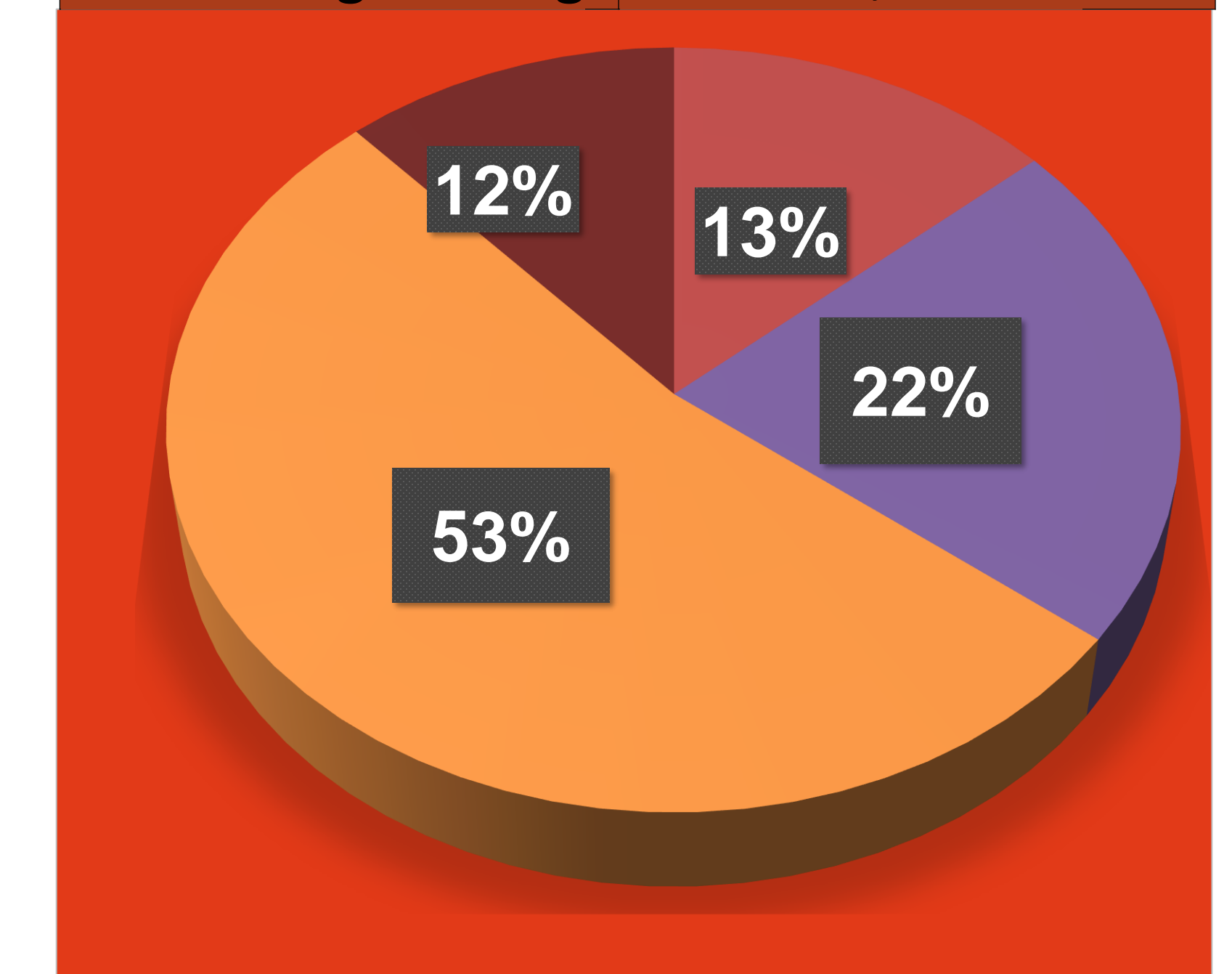
Results:

Month	1	2	3	4	5	6	7	8	9	10	11	12	Total
Forecast	27	26	29	29	38	34	33	35	29	34	30	20	364

Results

- Avg. Total Cost of TO= \$4,294,409.65
- Modeled Avg. Cost per employee: \$12,120.23
- Projected Avg. Cost in one year: \$4,411,035.52
- Forecasted TO Rate = 8.7%

Category by Color	Total cost
Replacement	\$ 2,426,044.63
Supplemental	\$ 1,000,766.56
Termination Process	\$ 627,737.51
Onboarding Training	\$ 539,018.71



Future Work and Benefits

- To be more precise according to CH future findings
- Model can be used to determine future budgets and strategized investments for employment
- Focus on high-cost categories and attempt to reduce expenses
- Control over financial investments towards employment

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