



International Actuarial Association
Association Actuarielle Internationale



Institute of Actuaries of India
Statutory body established under an Act of Parliament



**21st Global
Conference
of Actuaries**

17th - 19th February 2020 | Mumbai, India

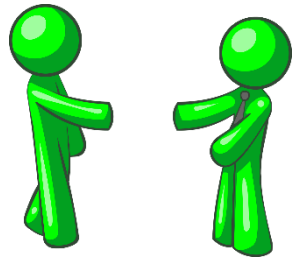
Actuaries Beyond Financial Services Industry

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Date: 19-Feb-2020

Agenda



Setting the context

A few examples of application of actuarial skills



Taking a step back

Identifying key actuarial skills



Case study

Designing a betting engine



Take the plunge?

What worked for me



Key take-aways

Learnings

Use cases for actuarial techniques

Pricing guarantee

How much should I charge extra for guarantying a cab at pre-defined time booked in advance?



Customer Lifetime value

How much value a particular customer would generate for me?



How much do I charge my customer if the workstation is offered on pay-as-you-go model as opposed to monthly subscription?



OF INDIAN ACTUARIAL PROFESSION

EST. 1944

Key Actuarial Skills



Case Study: Background



Digital Horse Racing Game



Buy



Breed



Race



Problem Statement 1



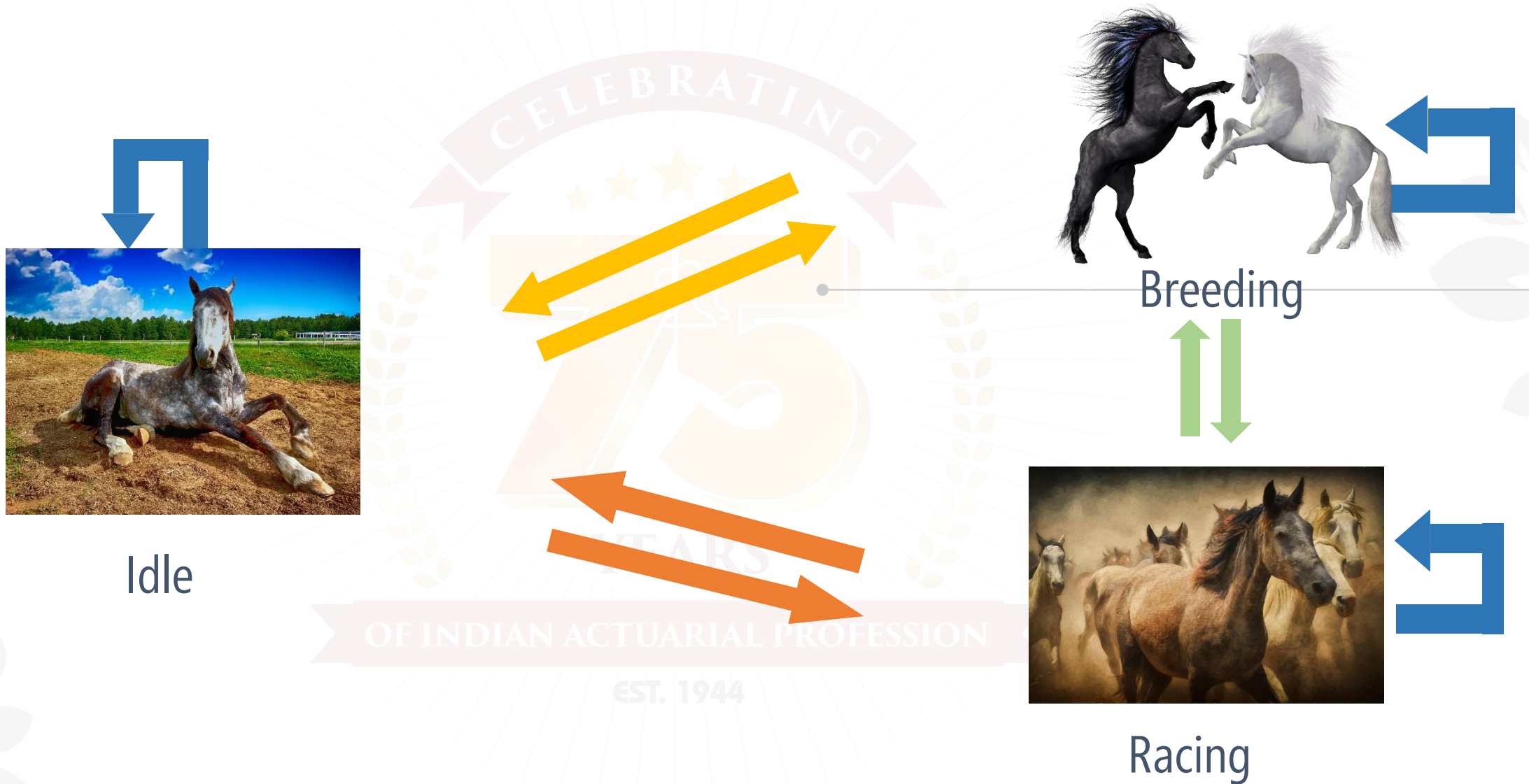
How many horses would I have in the future?

YEARS

OF INDIAN ACTUARIAL PROFESSION

EST. 1944

Active-Sick-Dead Model



Problem Statement 2



How many horses would I have in the future?

*Can you help me simulate the race?
The best horse should win most of the
times but not all the time!*

YEARS
OF INDIAN ACTUARIAL PROFESSION

EST. 1944

Random Walk & Monte Carlo Simulations



\$99

At time = T+1



\$100

At time = T



\$101

At time = T+1



OF INDIAN ACTUARIAL PROFESSION

EST. 1944

Problem Statement 3



Help me design the betting engine with an expected profit margin of $X\%$.

CELEBRATING
How many horses would I have in the future?
YEARS
OF INDIAN ACTUARIAL PROFESSION
EST. 1944

Pricing Term Insurance

Probability of Event

Mortality Table



Betting Odds

Risk Management

Product Design; Exclusions



Bet types; cap on betting

Capital Requirement

Solvency Calculations



Monte Carlo Simulations

Problem Statement 4



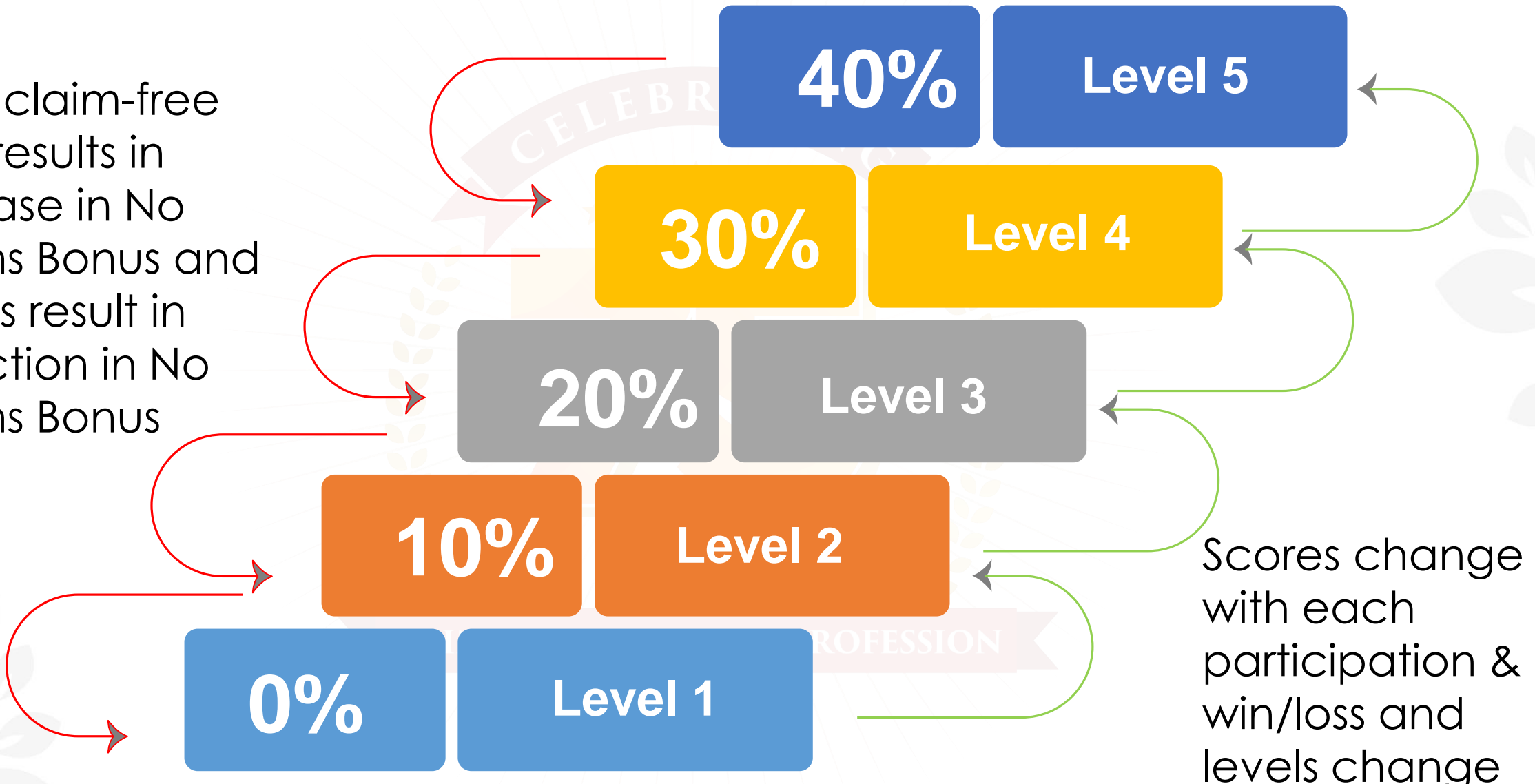
Help me design game levels such that moving to next level becomes increasingly difficult

CELEBRATING
How many horses would I have in the future?
YEARS
OF INDIAN ACTUARIAL PROFESSION

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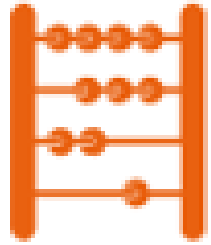
No Claims Bonus/Discount

Each claim-free year results in increase in No Claims Bonus and claims result in reduction in No Claims Bonus



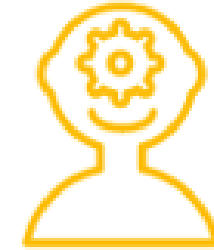
Scores change with each participation & win/loss and levels change

What worked for me?



Actuarial Skills

Modelling, Problem Solving, Apply judgement, Statistics, Professionalism



Growth/Open Mindset

Willing to learn and open to failing

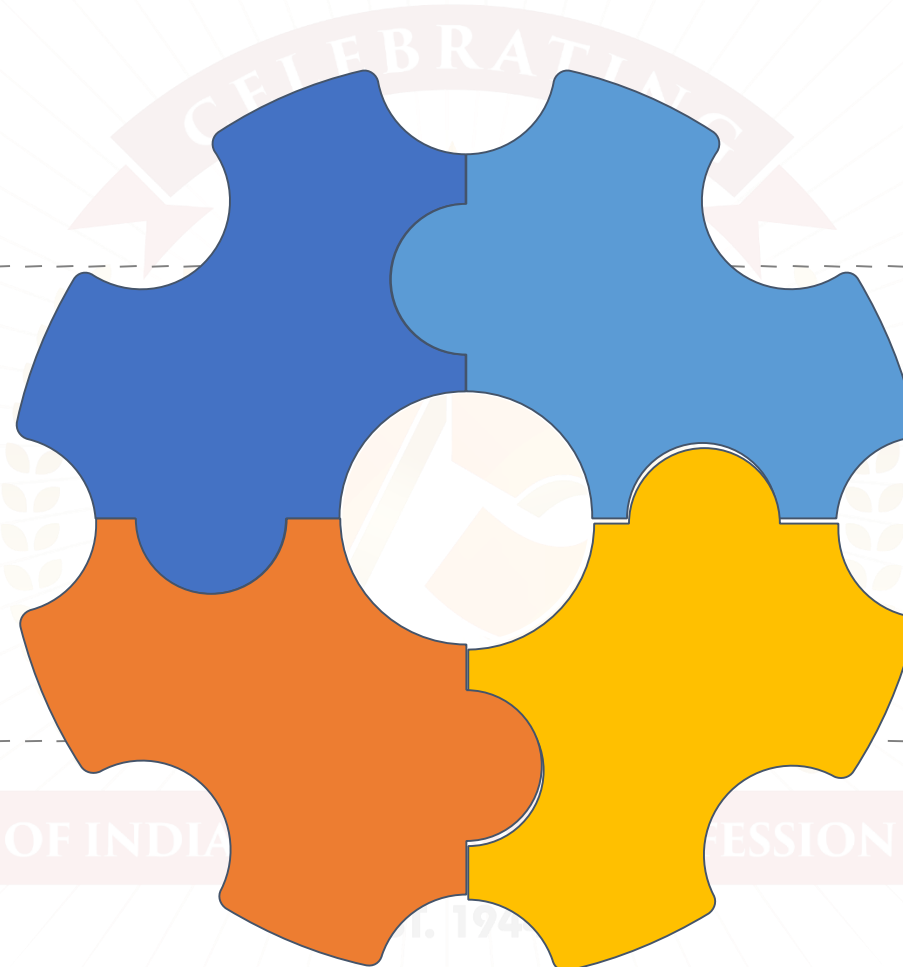
Communication

Outside insurance, we aren't as respected; avoiding jargons



Business Understanding

The nuances of business



Key take-aways

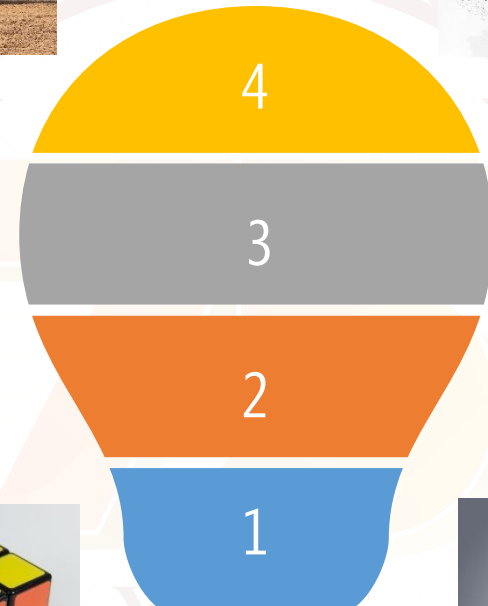
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3

Appetite for risks is the key

Actuarial skills go beyond financial services



Communication & professionalism are key differentiators

4

Actuaries are problem solvers

1



Questions & Answers

CELEBRATING
How many horses would I have in the future?



**THANK
YOU**

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Thank You