

The background of the slide features a wireframe illustration of a person in a running pose, set against a dark teal grid pattern with glowing green lines and dots, suggesting a digital or data-driven environment.

Getting Started with Sports Analytics



Sports Analytics
Winter 2023

Quick Intro

1. Name
2. What and where studying
3. Primary & Secondary Sport

Topics for Today (20+20+20 minutes)

- 1. Sports Analytics Overview**
- 2. Sports Analytics Framework**
- 3. Interactive Exercise**



**Sports Analytics is an
excellent hobby, but
not great as a profession**

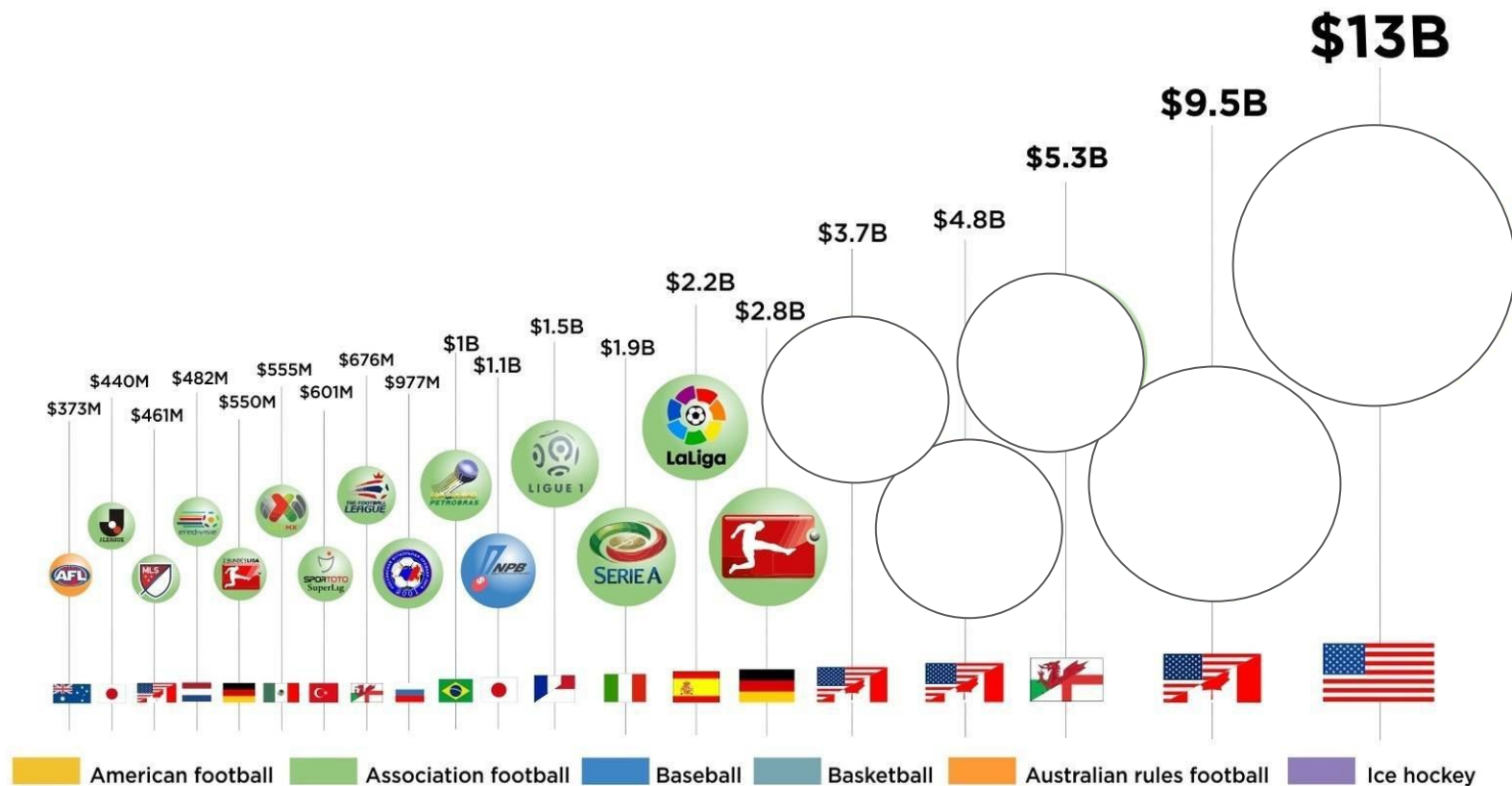
**This whole “wintercamp” is
an attempt to get:**

- ~~**0. Better Programming**~~
- 1. Better at Data Analysis**
- 2. Thinking Quantitatively**

Warm up!

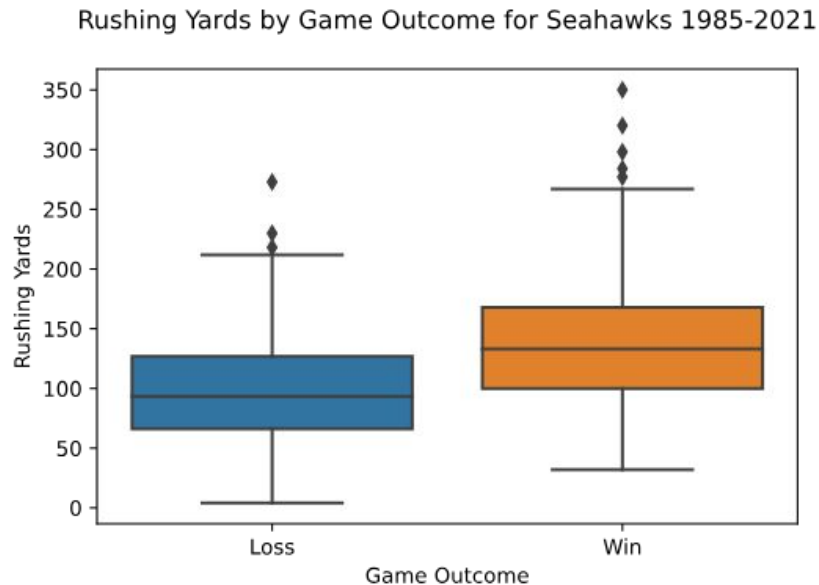
Just think. Don't shout out the answer

Top Professional Sports Leagues by Revenue



Study this plot: “Team Level” Stats

1. How to read the plot
2. What can we conclude?



We could make a 1-variable prediction model!
Of course, it is not enough. But it is highly informative




Can you suggest
a few other NFL stats which
might predict wins?

Offensive stats

Defensive stats

For ex. Rushing yards...



Off-Field Analytics

Team Performance
Post-Game Analysis
Competition Analysis



On-Field Analytics


Scouting/Player selection
Player Training
Game Strategy



Sports Analytics

Revenue Analytics

Ticket Sales
Merchandising
Sponsorships



Fan Engagement Analytics

Stadium Seating
Fan promotions
Social Media Engagement
Apps

The Sports Analytics “Journey”

1. Ask some (what-if) questions
2. Frame as a “Story”
3. Gather Data
4. Descriptive
5. Visualization
6. Comparative Analysis
7. Predictive
8. Simulations
9. Communicate the Story /Presentation

Sports Data

**How many different types of
sports data can you think of?**

Ex. Game data

Variety of Sports Data Available

| Time Duration | Entity (Group) | Format | Importance | Related | Revenue |
|---------------------|----------------|------------------------|----------------|----------------------|----------------|
| Single Play Quarter | | ODI vs T20 vs Test | | | |
| Single Game | League | | Regular Season | Umpires Referees | Sales |
| Game Set Match | Conference | Singles/ Doubles | | | |
| | Team | | Playoffs | Coaches | Marketing |
| Tournament | Position | Rapid/Blitz/ Classical | Special Games | Playbook Strategies | Seating |
| Current Season | Player | Butterfly vs Freestyle | | | Fan Engagement |
| 2021-2023 | Stadium/ Venue | 100m vs 4x100 relay | Exhibition | Substitutes | |
| All of History | | | | | |

About your “Project”

Tactics

Start Small
Come up with 3-4 related
questions and try to answer
them

Get the datasets ready

Explore the datasets

Create a few plots

Look for insights

Let the data lead you

Strategy

Elevator Speech
(Internship|interview|resume)

Where will you “publish” it?
(Medium, Blog, Podcast, GitHub
Pages)

Think of the Narrative
(Story-telling)

**Staying away from
Sports Betting**

**Staying away from
Fantasy Sports**

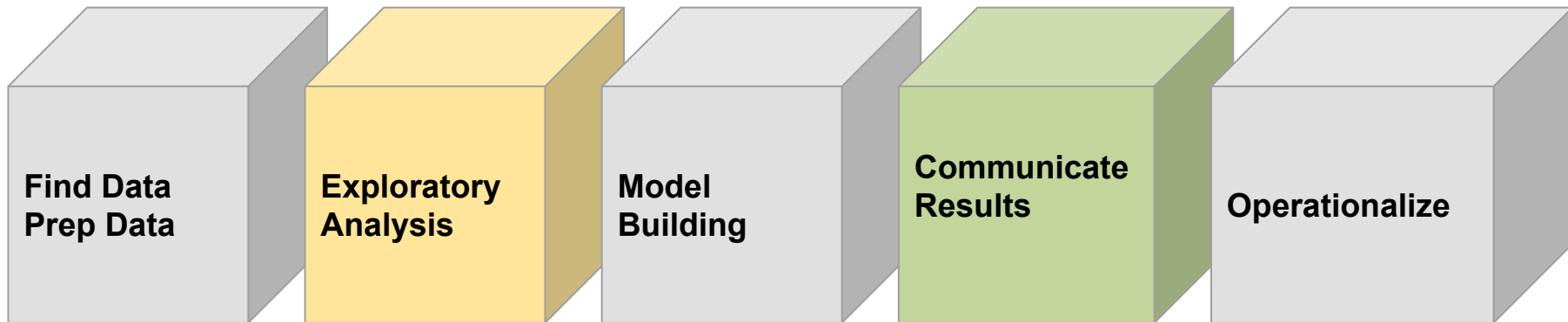
A wireframe illustration of a person in a running pose, overlaid on a background of a green grid and glowing circular data lines. The figure is composed of a mesh of points and lines, giving it a digital, analytical appearance.

Sports Analytics - A Framework

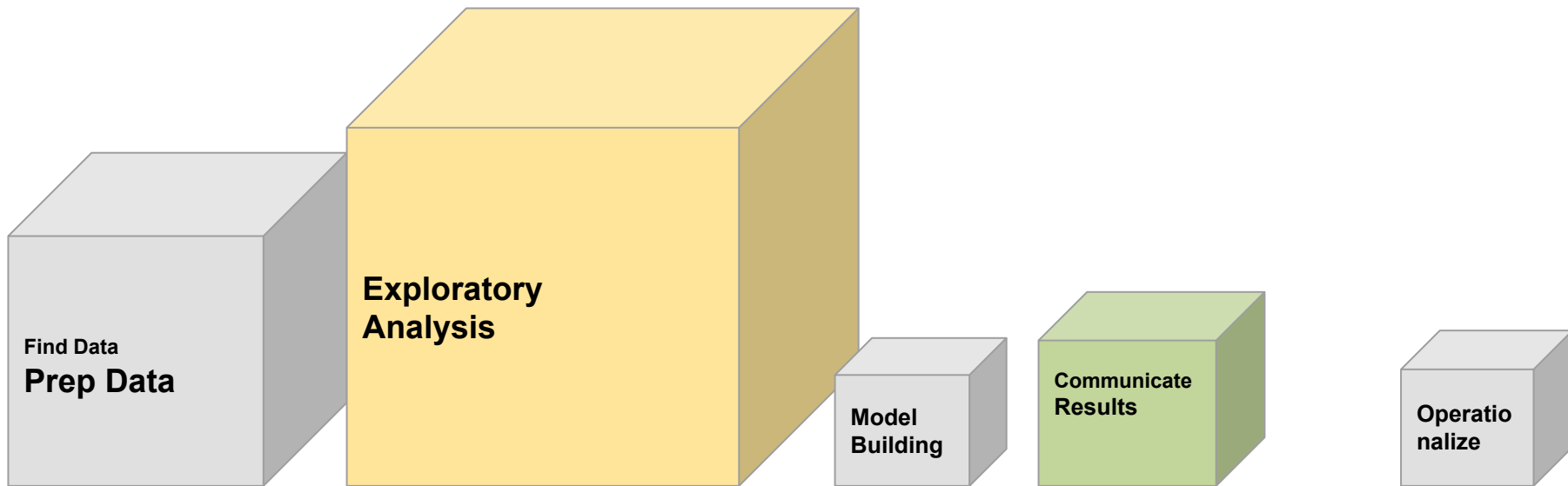


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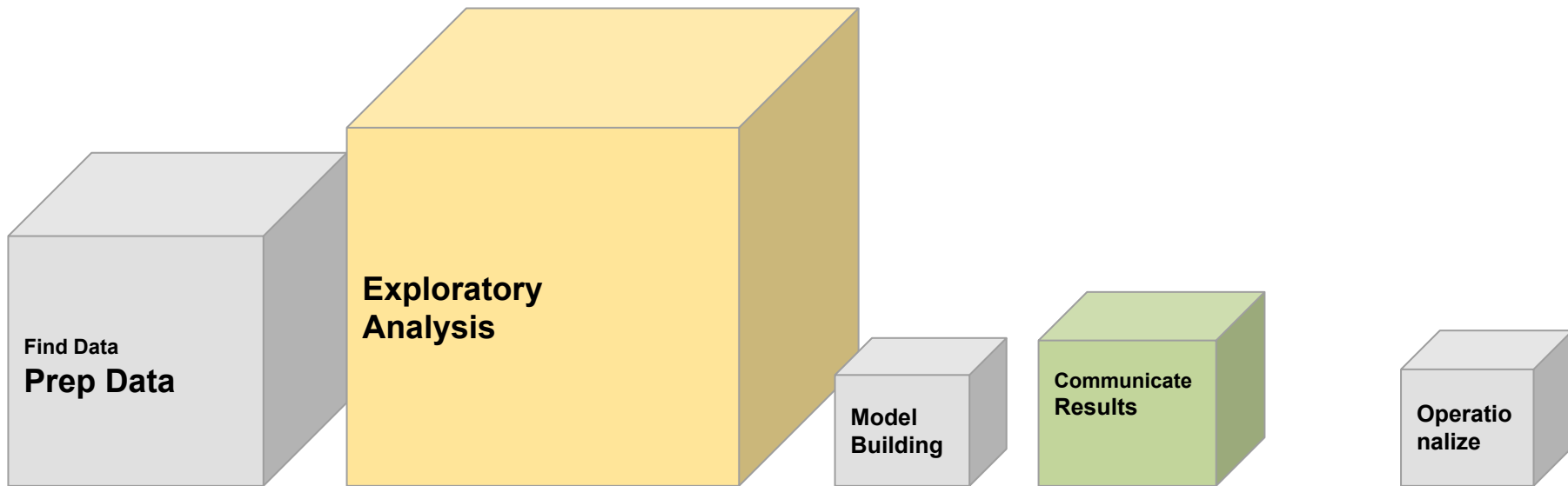
Standard Sports Analytics Approach



Standard Sports Analytics Approach



Standard Sports Analytics Approach



Exploring Data: A Step by Step Approach

Load Data

**Size &
Column
Types**

**Run Std
Stats**

**Time Series
Trends and
Change Pts**

Distributions

**Quantiles
Outliers**

Correlations

**Simple
Visualizations**

#1 Tool in your toolbox



Data Science is ...
having common sense and curiosity,
a knack for asking good questions, and
the ability to tell a good story with data.

– Steven Levitt



“

Statistics is fundamentally about
Asking the Right Question

”

Coming up with “Good” Questions

**What are “good”
questions?**

**How can one come
up with these?**

Tips to come up with good questions

1. Be willing to come up with tons of bad questions
2. Read blog posts
3. Read. What questions are other Sports analysts asking?
4. Social media - your sports of choice
5. Keep an eye out for interesting & new metrics
6. Read sports articles, listen to interviews
7. What-if questions
8. Game Levers – Good Coach vs Bad Coach

Let the questions guide your data search. Preferably, not the other way around

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Advantages of working on Sport Analytics

Build Coding Skills

You will pick this skill up along the way

Learn Analytics


This is the ultimate purpose of the workshop

Create Portfolio

This will prove useful in the long run



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Interactive Data Exploration



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How to get started?

Pick a project, idea or question today

And jump right in!

