Impactful football visualizations
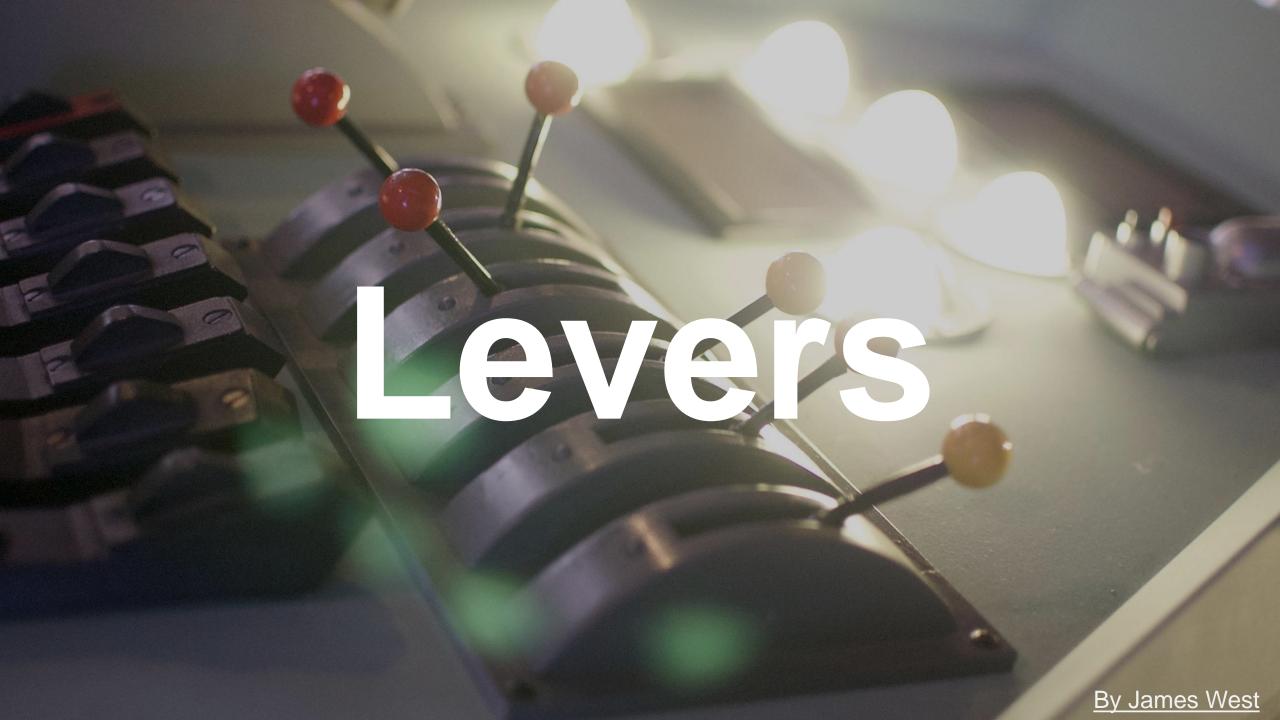
mpl soccer

@numberstorm
@mplsoccer_dev

Impact

Andy's data viz rules

A Inverted pyramid*

B One message per viz

C Actionable message

Most newsworthy

Important details

Other info

Objective

By Dave Gunn

Levers

By James West

Transfers	Loans	Contracts	Academy
Training	Injury prevention/ rest	Nutrition	Tactics
Stadium	Crowd	Transport	Rules
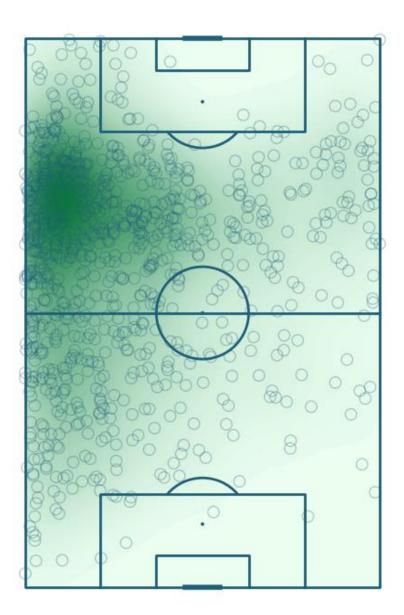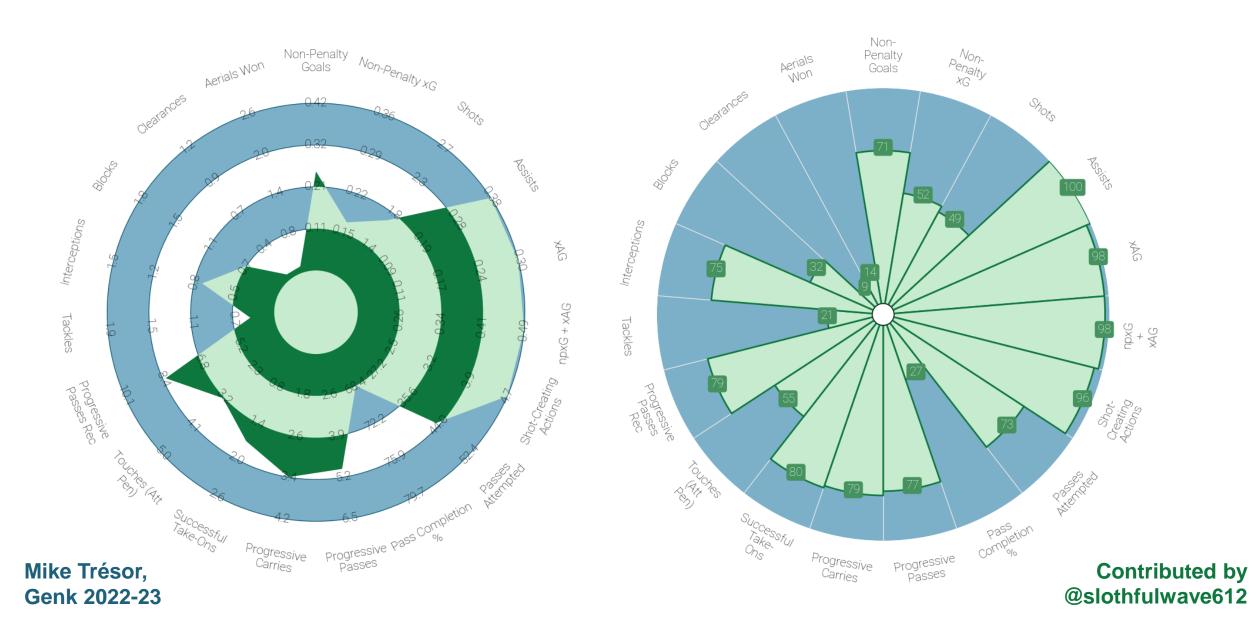
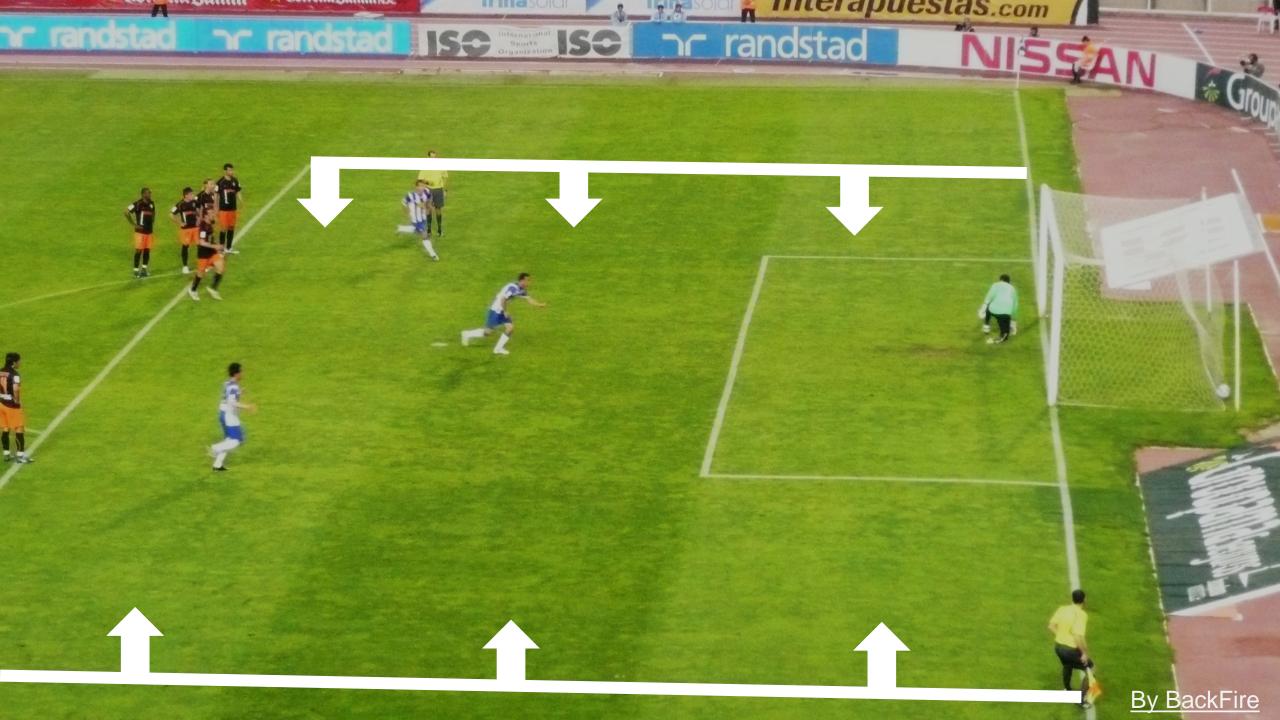| Transfers	Loans	Contracts	Academy
Training	Injury prevention/rest	Nutrition	Tactics
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What is mplsoccer?


```python
p = VerticalPitch(pitch_type='opta', line_zorder=3, line_color='#1E607A')
fig, ax = p.draw(figsize=(4.5, 4.5/p.ax_aspect))
p.scatter(df_player_events.x, df_player_events.y, alpha=0.3, s=80, marker='o',
zorder=2, ec='#1E607A', fc='None', ax=ax)
p.kdeplot(df_player_events.x, df_player_events.y, fill=True, levels=100,
cmap=custom_cmap, zorder=1, thresh=0, ax=ax)
```
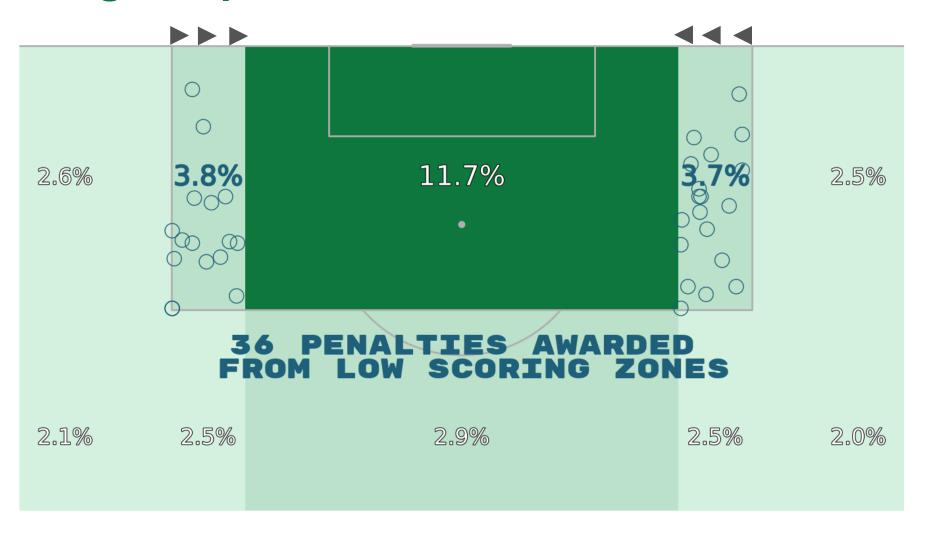
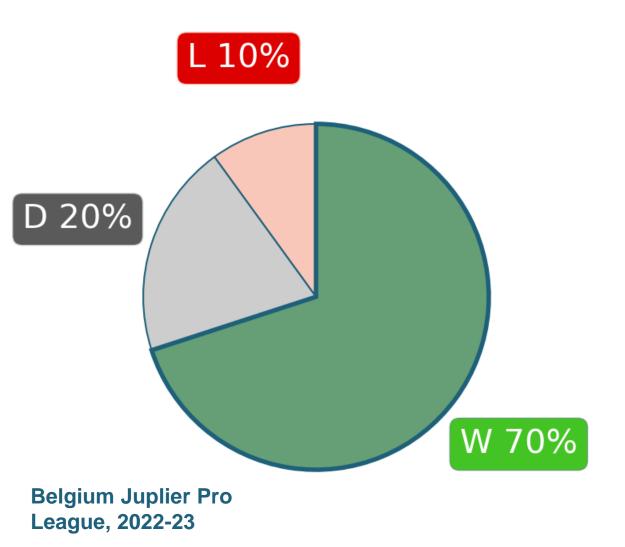**Mike Trésor open play successful pass locations, Genk 2022-23**

… and thanks to Anmol

Mike Trésor,
Genk 2022-23

Contributed by
@slothfulwave612

Let's reduce the width of the penalty area from 40m to 30m, since too many low scoring opportunities are given penalties…

▶ ▶ ▶   ◀ ◀ ◀

2.6%   **3.8%**   11.7%   **3.7%**   2.5%

The probability of eventually scoring from these wider zones is around **3.7-3.8%** compared to **79%** for a penalty

36 PENALTIES AWARDED FROM LOW SCORING ZONES

2.1%   2.5%   2.9%   2.5%   2.0%

… 9% of the games are affected by goals coming from the penalties awarded in the wider areas. From these penalties, 70% of the scoring teams go on to win the game…

L 10%

D 20%

W 70%

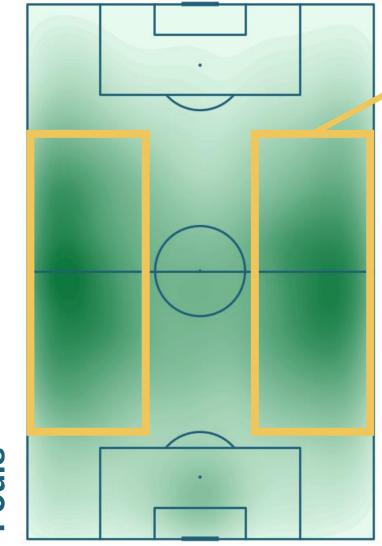**Belgium Juplier Pro League, 2022-23**

2.4%

of game results are decided by penalties from wide areas *

* The penalty improved the team's result and it was the last goal they scored before a win/draw

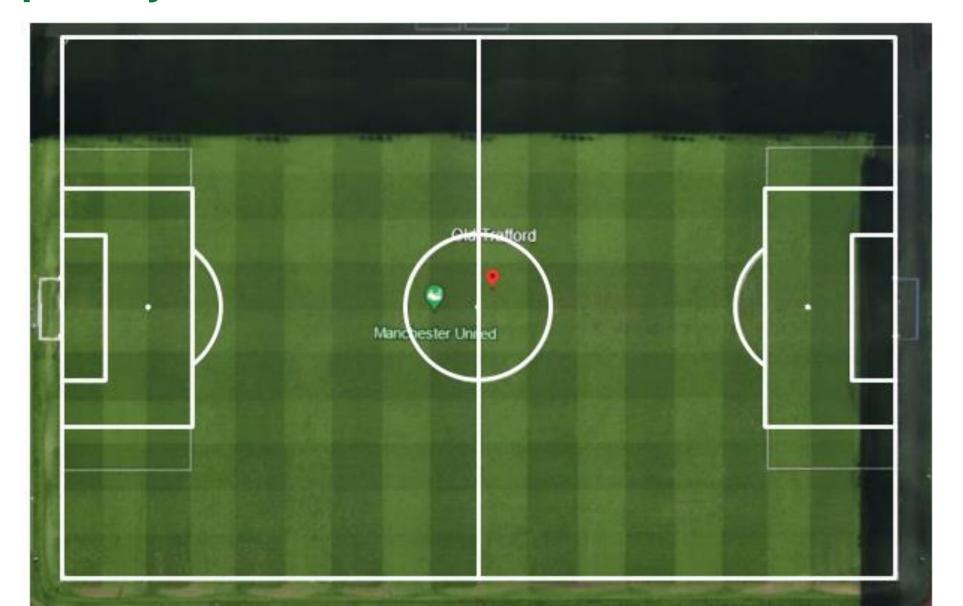# … we need to trial this approach as it's not certain what the unintended consequences would be…

Tackles are concentrated up to edge of penalty area.. so could cause more tackles

The threat of free kicks already mostly deters fouls in the final third

Tackles

Fouls

Belgium Juplier Pro League, 2022-23

… this is how Old Trafford would look with the proposed penalty boxes.
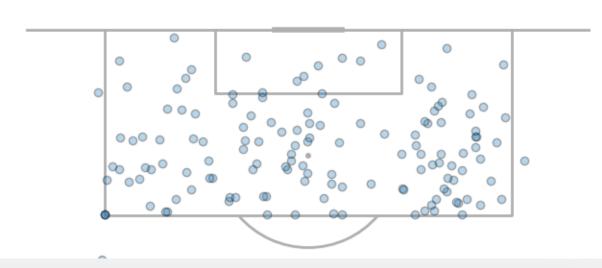
Image from Google Earth

Andy's data viz rules

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How mplsoccer helped?

padding

standardizer

images

heatmaps


```python
from mplsoccer import VerticalPitch

p = VerticalPitch(pitch_type='opta',
                  half=True, pad_left=-10, pad_right=-10, pad_bottom=-20)

fig, ax = p.draw()

p.scatter(df_pen_award.x, df_pen_award.y, ax=ax, alpha=0.3, ec='black')
```

How mplsoccer helped?

A padding

B standardizer

C images

D heatmaps

```python
from mplsoccer import Standardizer
uefa_to_opta = Standardizer(pitch_from='uefa', pitch_to='opta')
uefa_to_opta.transform([105, 105], [68/2 - 15, 68/2 + 15])
```
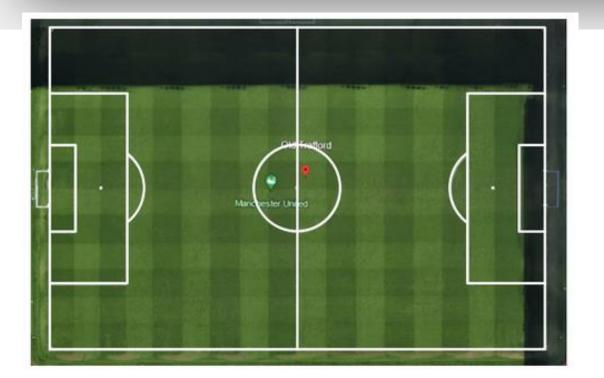
```
(array([100., 100.]), array([28.46472727, 71.53527273]))
```

How mplsoccer helped?

A padding

B standardizer
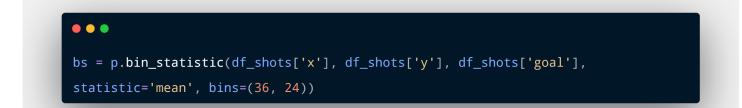
C images

D heatmaps

```
fig, ax = hp.draw()

image = plt.imread('old_trafford.png')

ax_image = add_image(image, fig, left=0.033, bottom=-0.01, width=0.94, height=1,
alpha=1)
```
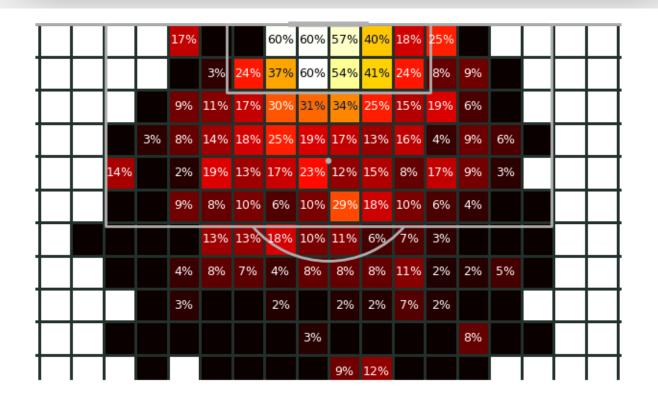
How mplsoccer helped?

A padding

B standardizer

C images

D heatmaps

```
bs = p.bin_statistic(df_shots['x'], df_shots['y'], df_shots['goal'],
statistic='mean', bins=(36, 24))
```

Thank you

Final tip: https://www.learnui.design/tools/data-color-picker.html

mpl soccer

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github.com/andrewRowlinson/data-science/pysport