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Traits of a world class Data Scientist

WhyR 2019 | Olga Mierzwa-Sulima | 09 2019
Senior Data Scientist

@olga_mie


German telecom case
about churn

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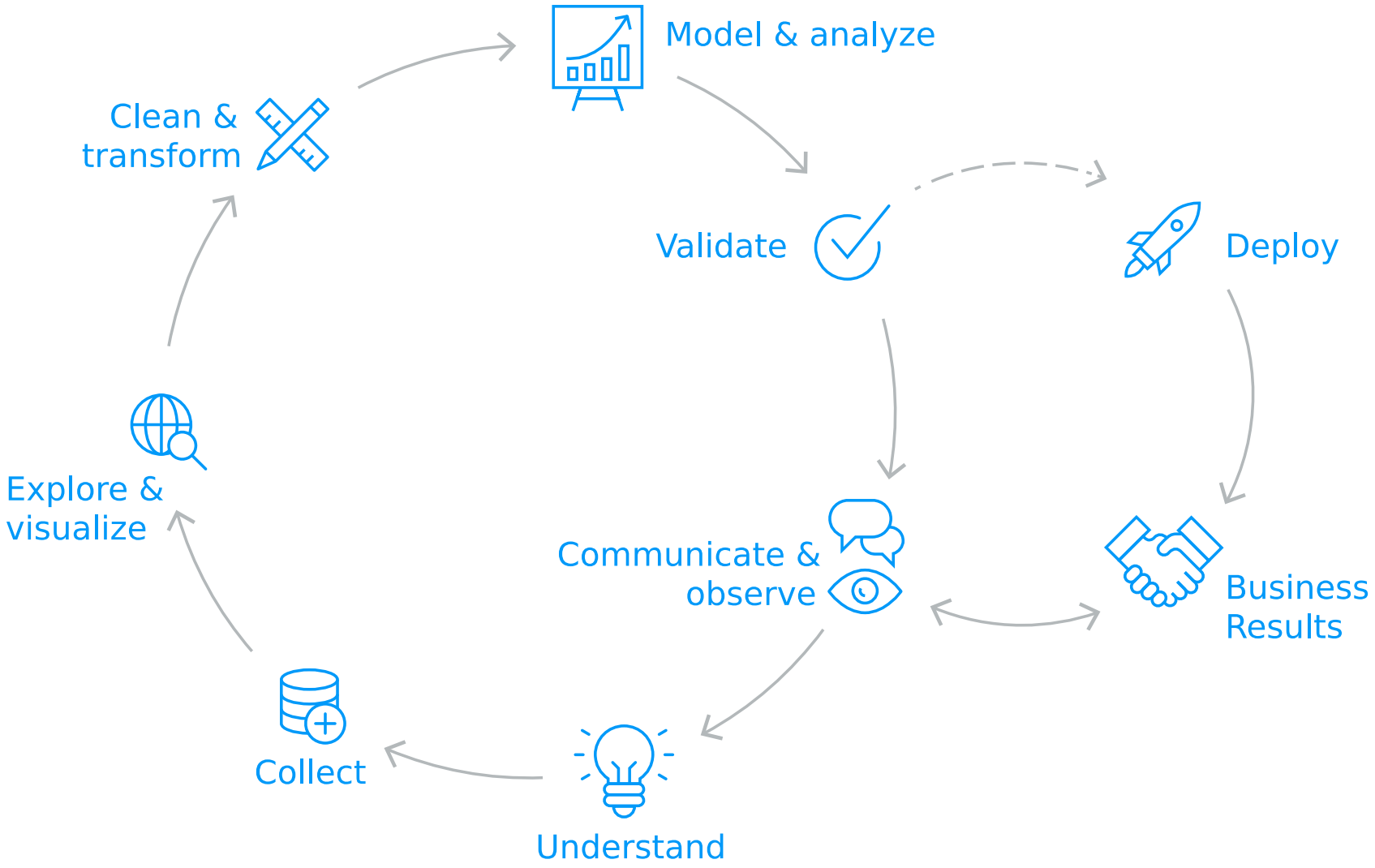
What does a Data Scientist do?



Inspired by Szilard Pafka chart

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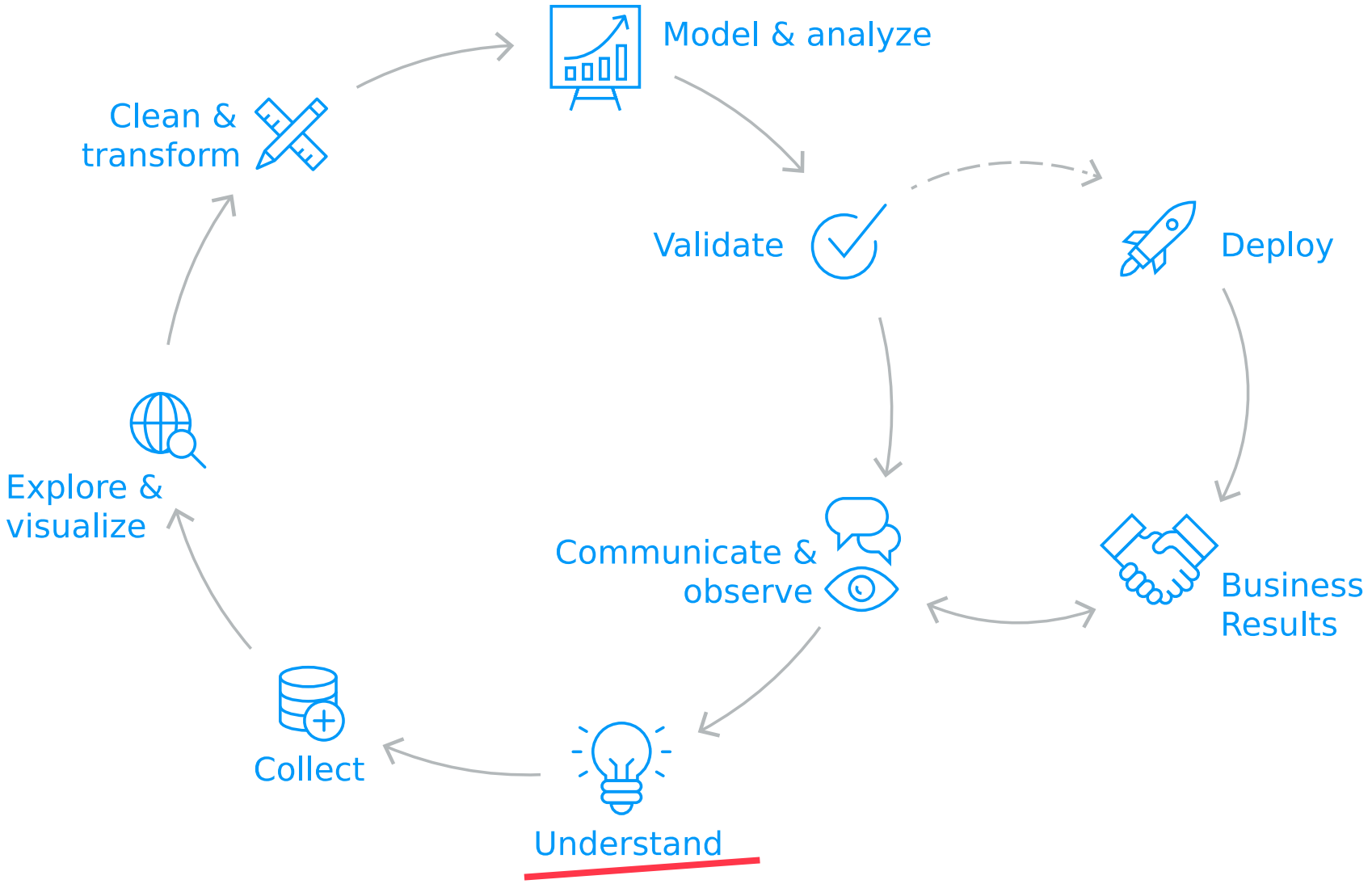
What does a Data Scientist do?



Inspired by Szilard Pafka chart

Data Science Value

Whether:
what's **answerable** is **valuable**
what's **unknown** is **answerable**

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François Chollet
@fchollet

Follow

There is an ongoing misconception that AI/ML are intrinsically valuable, and that therefore working in the field is bound to make you rich.

A ML model is only as valuable as the problem it solves. ML without an application isn't worth anything (beyond intellectual curiosity).

11:43 PM - 18 May 2019

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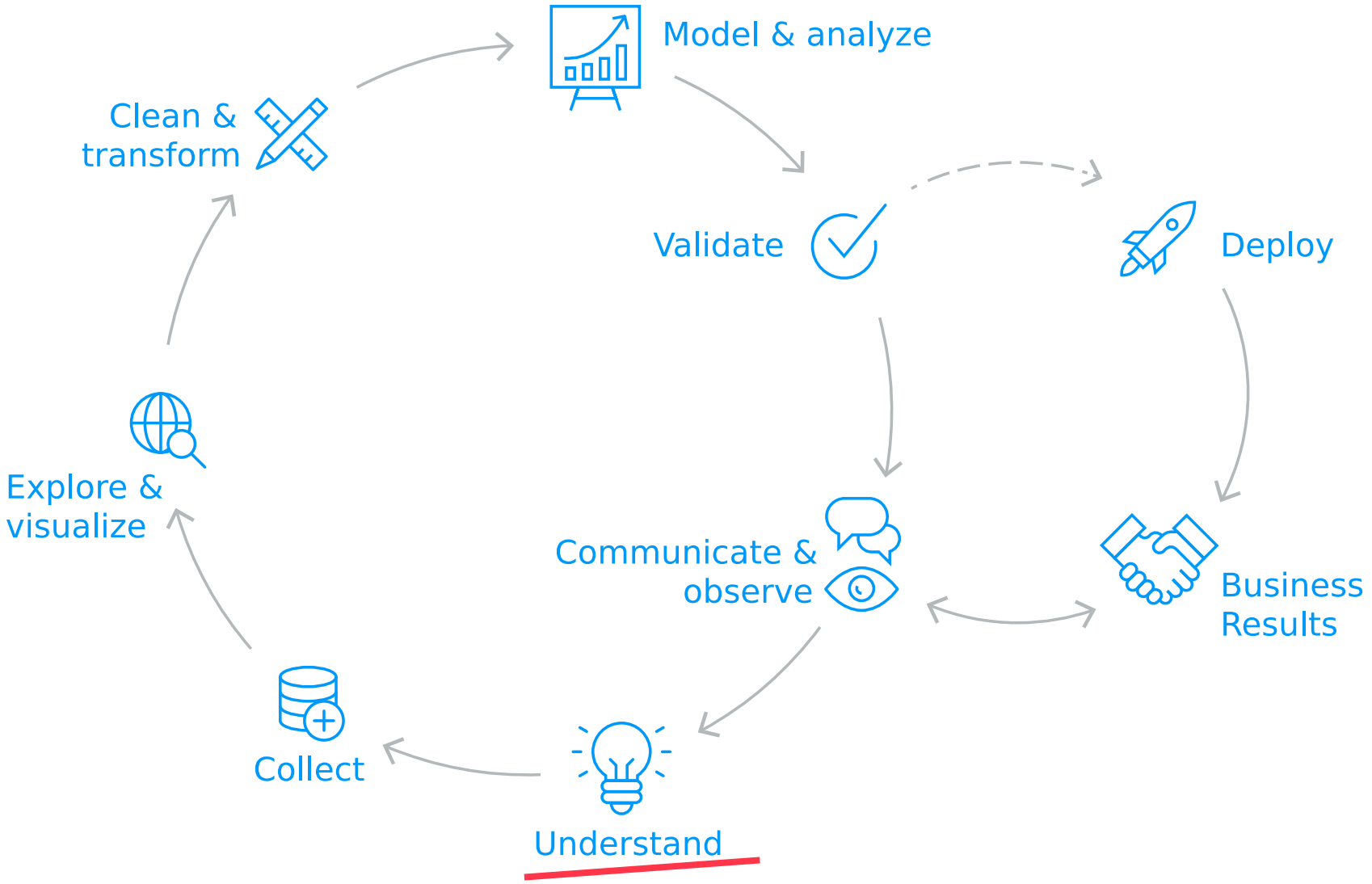
What does a Data Scientist do?



Inspired by Szilard Pafka chart

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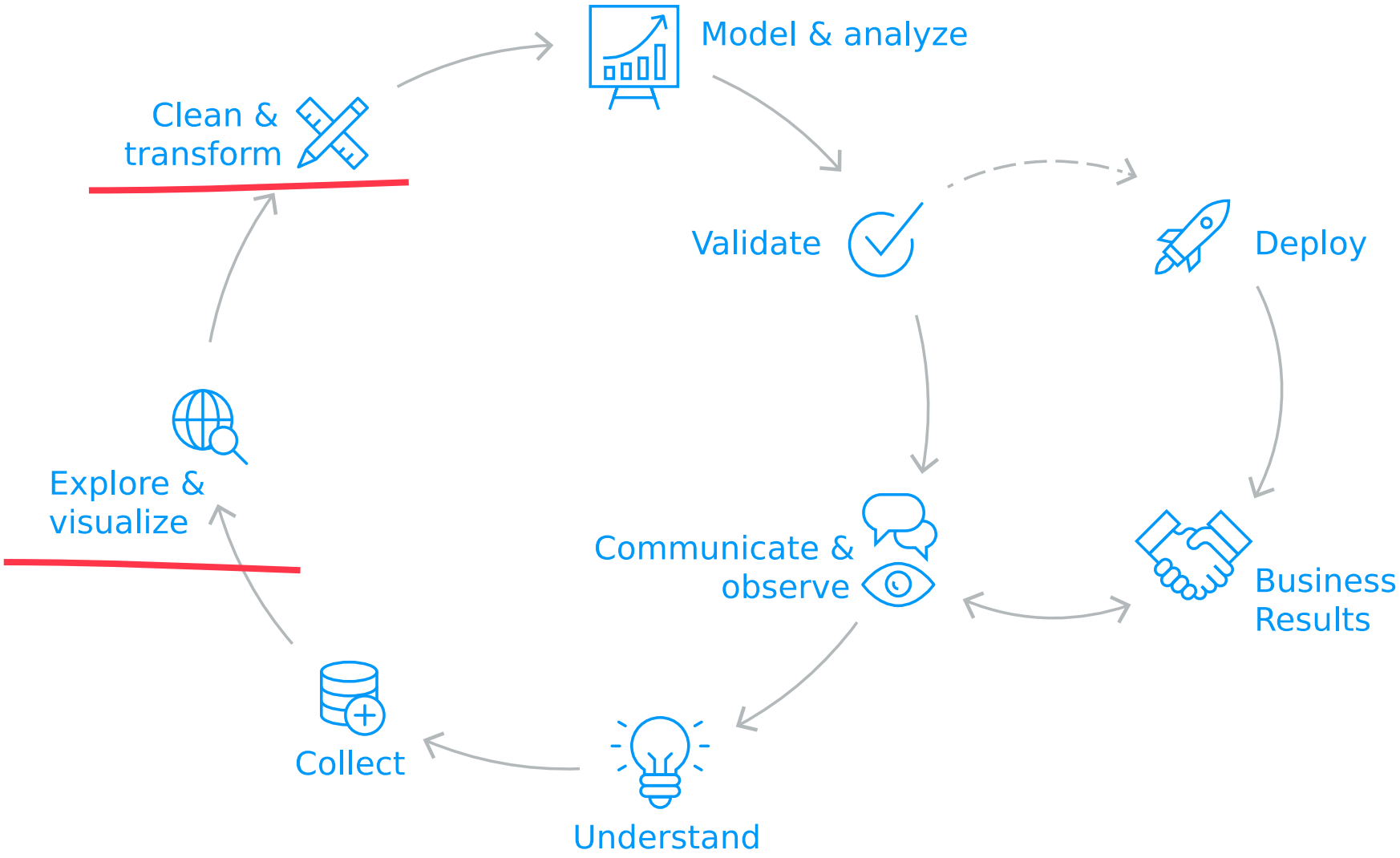
Everyone complains about



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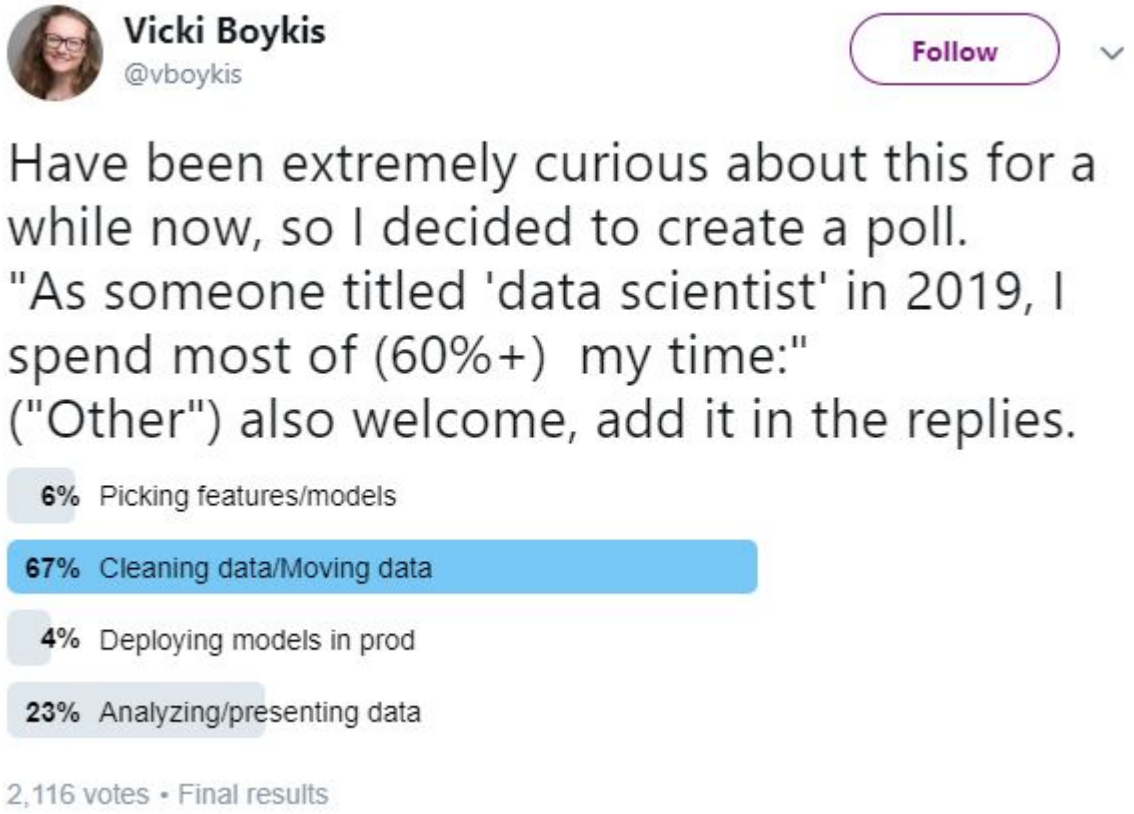
Truth about data science?



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Data preparation

Takes at least 60% of the time

Prepares the data and the modeler

Teaches to be curious

Has high impact on any further work incl. model quality

Why would you want to plot?

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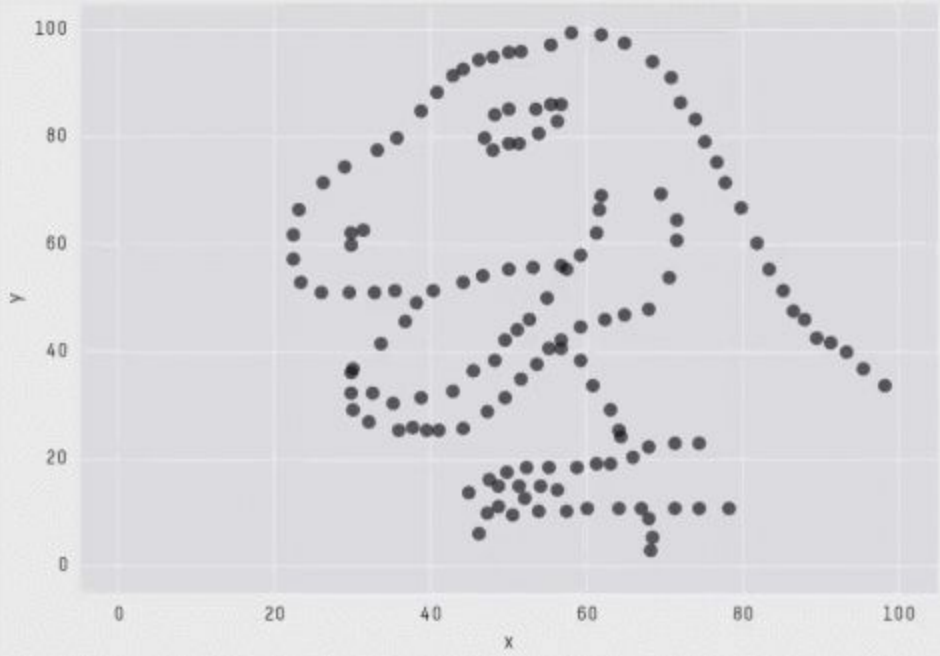
Meet DataSaurus



X Mean: 54.2659224
Y Mean: 47.8313999
X SD : 16.7649829
Y SD : 26.9342120
Corr. : -0.0642526

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Outlier hunt?

```
Time Series:
Start = 1821
End = 1934
Frequency = 1
  [1]  269  321  585  871 1475 2821 3928 5943 4950 2577  523   98  184  279  409
 [16] 2285 2685 3409 1824  409  151   45   68  213  546 1033 2129 2536  957  361
 [31]  377  225  360  731 1638 2725 2871 2119  684 6800  236  245  552 1623 3311
 [46] 6721 4254  687  255  473  358  784 1594 1676 2251 1426  756  299  201  229
 [61]  469  736 2042 2811 4431 2511  389   73   39   49   59  188  377 1292 4031
 [76] 3495  587  105  153  387  758 1307 3465 6991 6313 3794 1836  345  382  808
 [91] 1388 2713 3800 3091 2985 3790  674   81   80  108  229  399 1132 2432 3574
[106] 2935 1537  529  485  662 1000 1590 2657 3396
```

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Outlier hunt?

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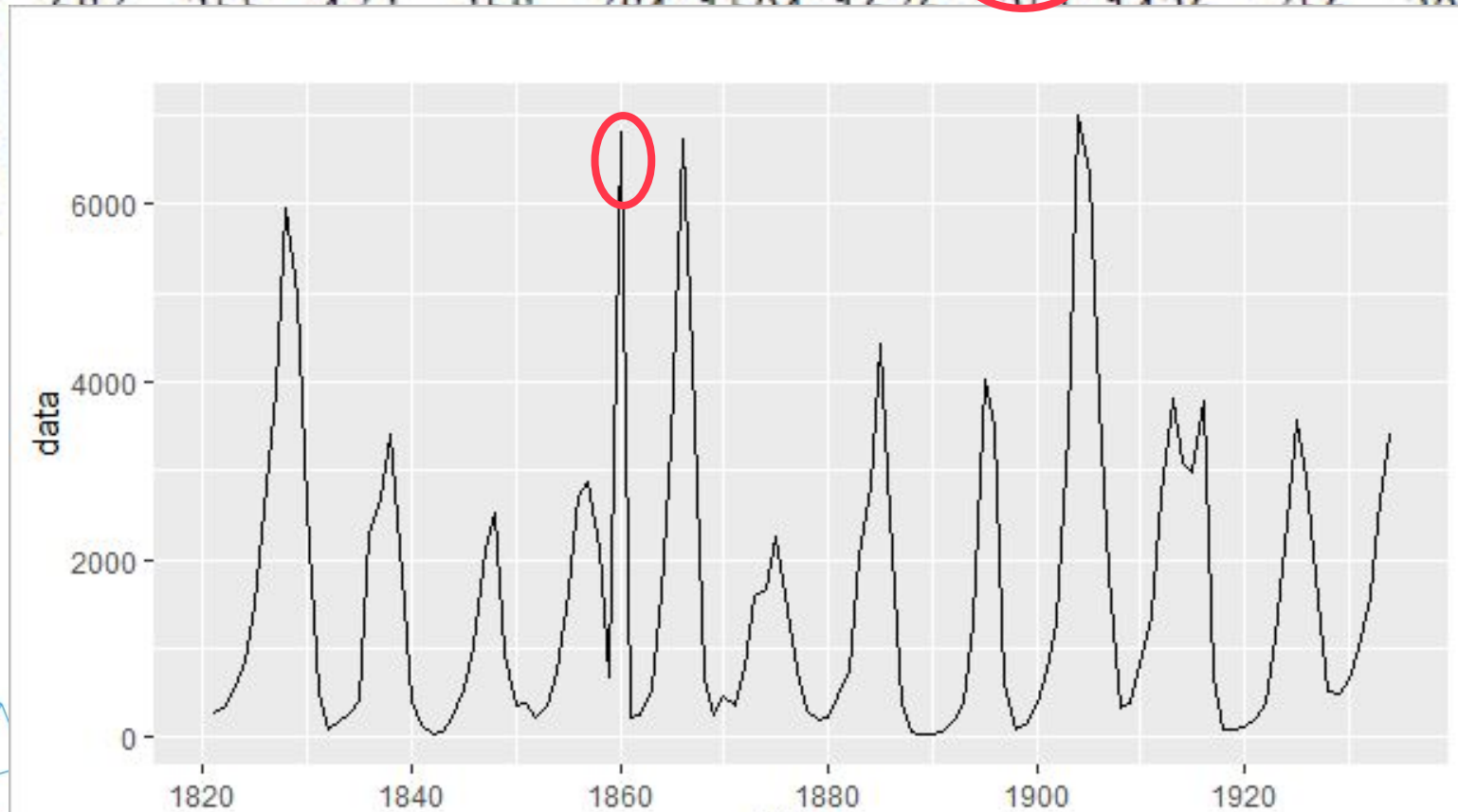
 [76] 3495  587                                                  5  382  808
 [91] 1388 2713                                                  2 2432 3574
[106] 2935 1537
```



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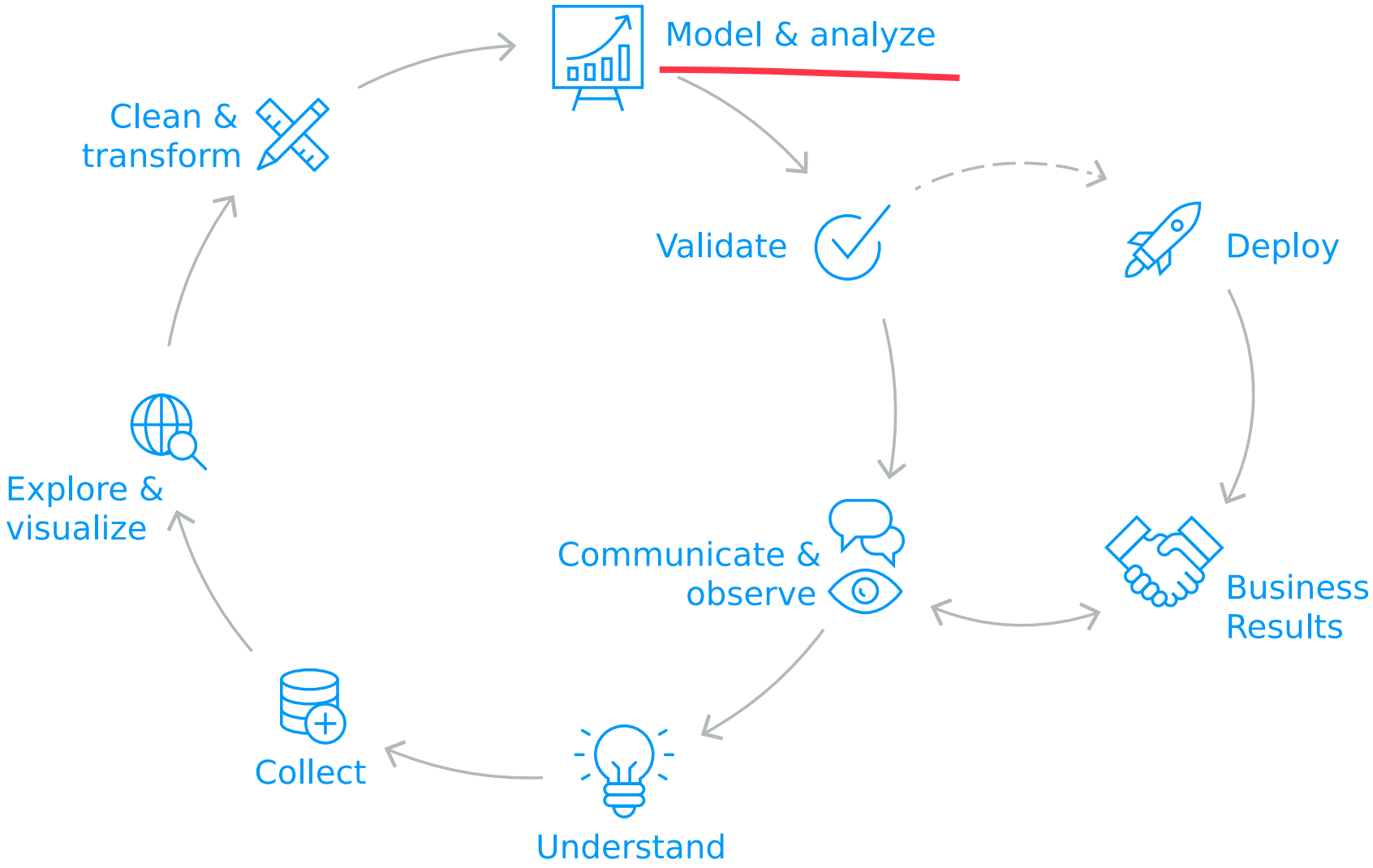
Everyone wants to...



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Modeling

Hard: need to understand the Math and the algo

Know pros and cons of different algorithms

Leverage domain knowledge

Use the right tools

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Tools: Performance R GBM packages

	xgboost	lightgbm	h2o
easy R install	cran	linux OK	java_cran
maintained	yes	yes	yes
preprocessing	1-hot	1-hot/categ int	not needed
new cats scoring	no	no	yes
early stopping	yes	yes	yes
speed (CPU)	**ok**	**fastest**	**slow (small data)**
GPU supported	yes	yes	via xgboost
speed GPU	**fastest**	**ok/slow**	**indirectly/slower**
REST scoring	**no**	**no**	**yes**
other algos	RF	RF	RF/GLM/NN
best for	**Kaggle**	**Kaggle**	**prod/real-time**

Source : https://github.com/szilard/GBM-perf

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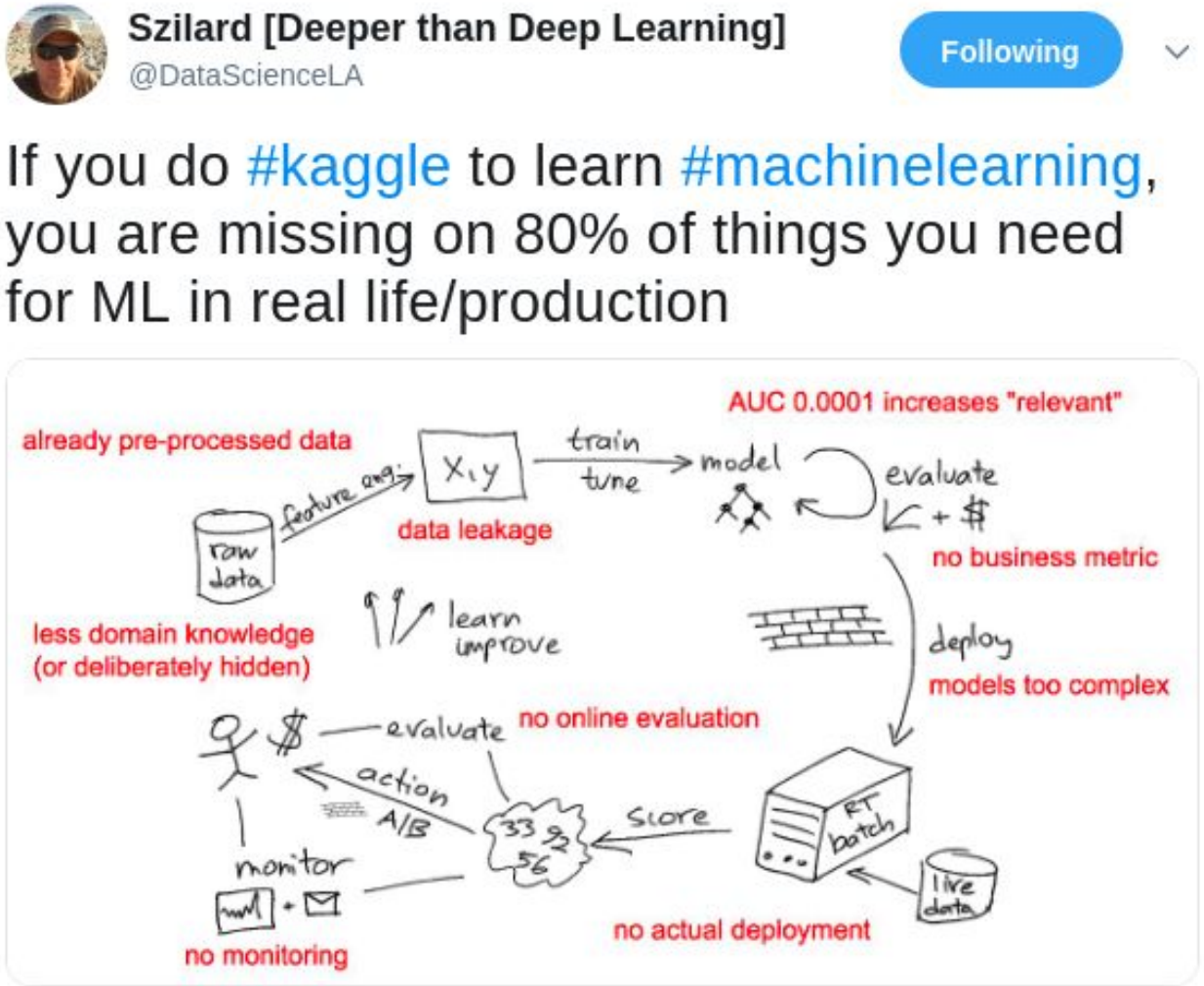
Kaggle != ML



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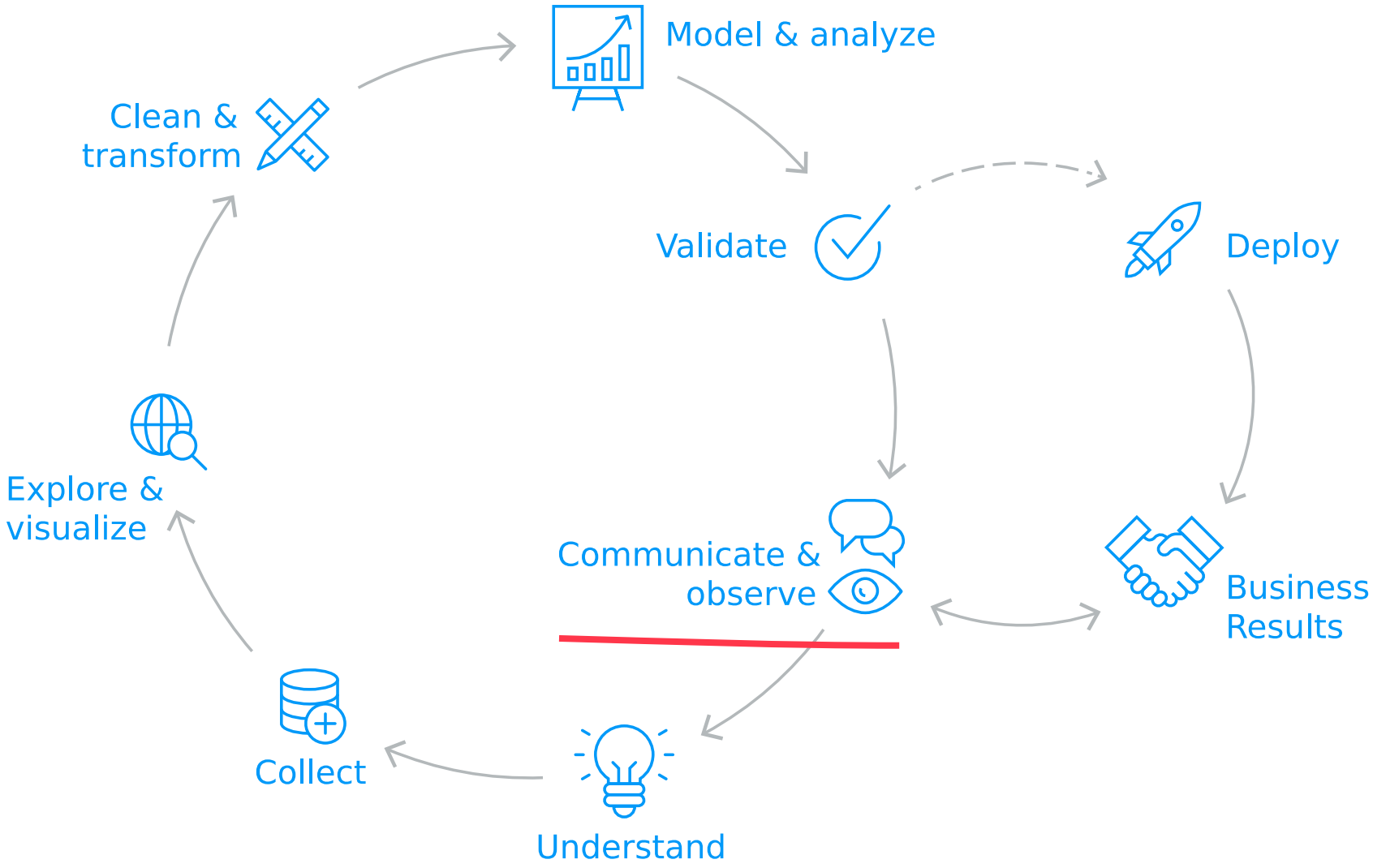
Everyone should master



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Communicate ➡ Sell

- **Understand** your audience/user/client
  - A role of listening, empathy and exploration
- Make it beautiful yet understandable
- Make it impactful and business worthy

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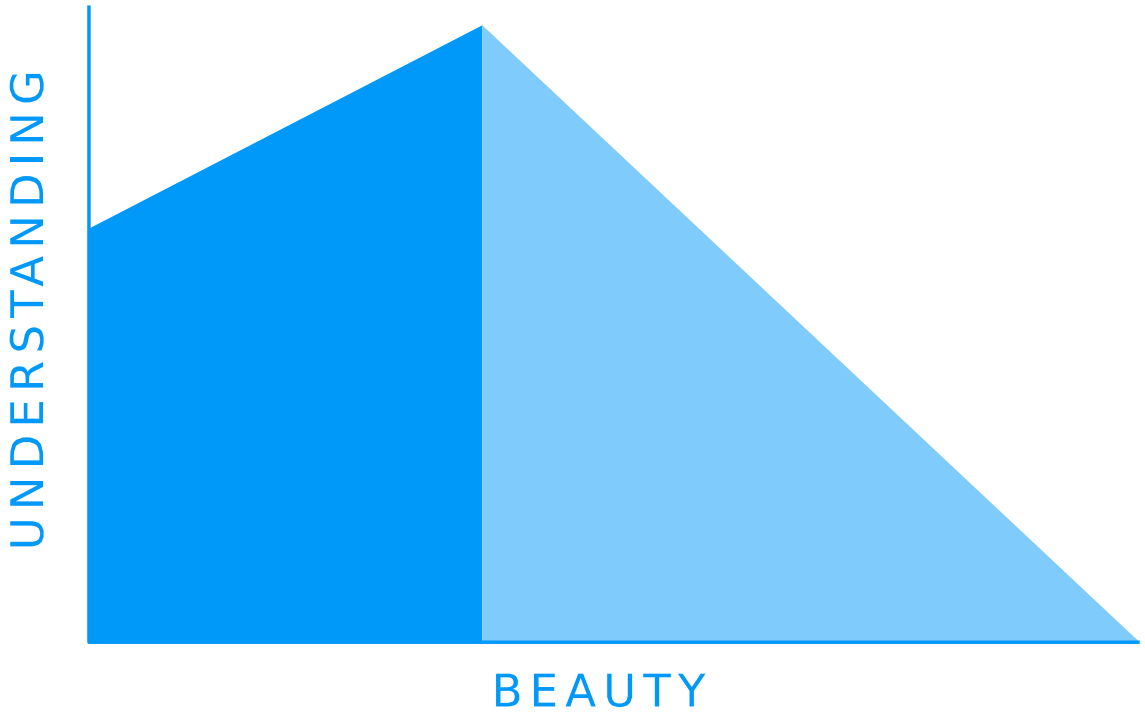
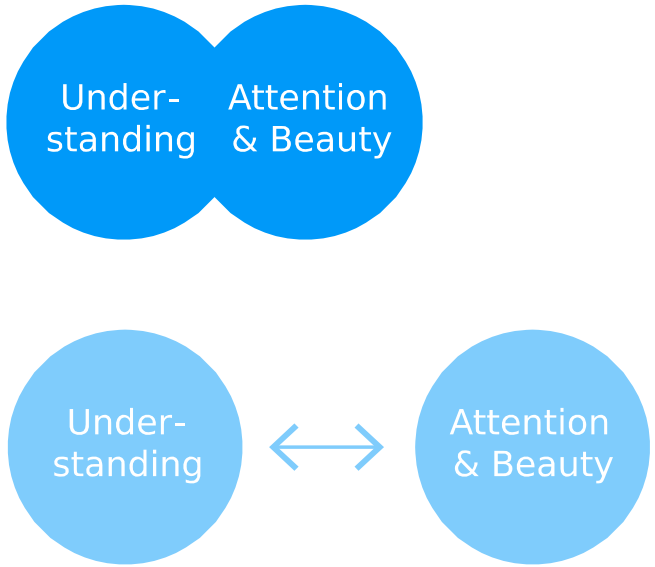
Make it beautiful yet understandable





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Communicate ➡ Sell

- Understand your audience/user/client
  - Role of listening, empathy and exploration
- Make it beautiful yet understandable
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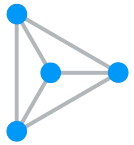
Kill it quickly

- Move on to a new idea / hypothesis
- Advice on the best next step
- Hand-off



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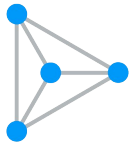
World class data scientist ships value

Model without an application is worth nothing



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Questions?

olga@appsilon.com

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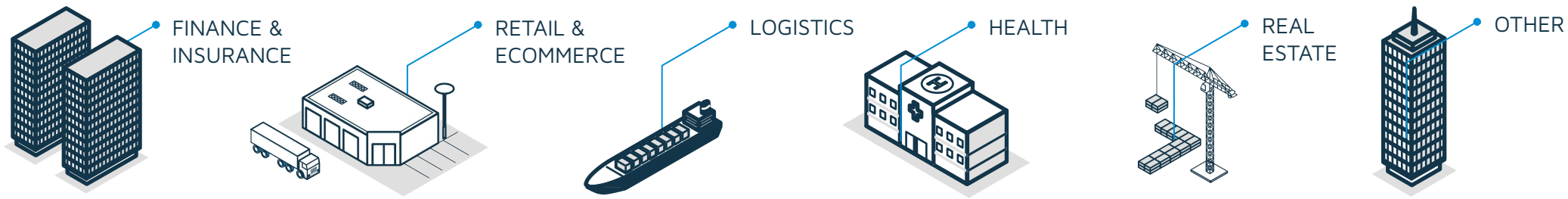
What mark will you leave on the world?

appsilon.com/careers

fb.com/appsilondatascience



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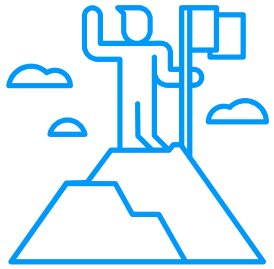
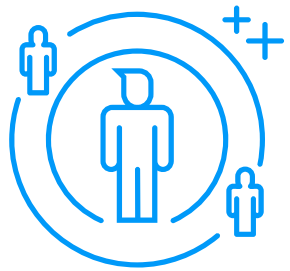
Not only tech skills



Ownership

Drive to ship project success
Own deliverables



Influence

Communicates clearly
Teamwork
Building and maintaining relations

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Performance R GBM packages

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best for	-	**Kaggle**	**Kaggle**	**prod/real-time**