Building a modeling culture with Survey Data

This talk focuses on demonstrating basic consumer survey analysis using the Categorical platform with the results of an internal JMP usage survey. This talk also includes comments on how we approached designing and placing the survey to encourage hearing from as many of our users as possible.

Amy Phillips & Scott Reese
P&G JMP Administrators

P&G

WHO WE ARE.

Making every day more than ordinary

Our brands are trusted in millions of living rooms, kitchens, laundry rooms, and bathrooms—and have been passed down from generation to generation. Over the course of 180 years, they've challenged convention, led innovation, and helped shape culture.

But no matter how much we grow, we always keep ourselves grounded in our deep-rooted **purpose, values, and principles**.

We've done it for over 66,000 days, and we don't plan on stopping anytime soon.

Our Brands

Overall

- Why?
  - To increase the JMP skill of the organization so they can activate their own data.

- How?
  - Treating internal technical support like managing a consumer goods product.
  - Translating support efforts into the idea of:
    - a product (necessary tools),
    - package (training delivery), and
    - communication (awareness of benefits).

Outline

- Results
- Background
- Survey info
- Recode example
- Sample data exploration
  - Latent Class Clustering
- Turning data into insights

Results:

- We answered these business questions:
  - How is JMP being used?
  - What is the current skill level?
  - Are there different types of JMP users within P&G?
  - How to support our users?

- Useful tools for this data set:
  - Distribution plots
  - Recoding
  - Graph Builder
  - Working with Indicator columns
  - Latent Class Clustering
  - Dashboard

- Created a measurable assessment of JMP skills!

Background

- What did we know?

- What information do we need?

- Principles followed:
    - Keep the survey as short as possible
    - Tied to license renewal timings
    - Anonymous submissions permitted

- What to do with the data?

File   Message   Tell me what you want to do

Thu 3/15/2018 8:53 AM

RS

Reese, Scott

RE: JMP Survey and required JMP License update

To   CNF-JMP2017LicUsers
Cc   Reese, Scott

You forwarded this message on 3/15/2018 1:10 PM.

Hello JMP users!

We have just posted the new JMP licenses and are also conducting a short survey on JMP usage. You are receiving this message as you are listed as having downloaded JMP within the last license cycle. If you do not update the license, JMP will no longer open for you.

Embedded in the survey is a link to the license installation page; if you complete the survey, you can then go directly to the license update page. This survey is only 13 questions and should take less than 5 minutes.

https://www.surveymonkey.com/r/C8CGMCG

Link to survey, which then takes you to Installation page.

While you are updating your license, you might want to consider getting
- Update any addins you have
- Consider joining the JMP User group monthly calls
- Explore the jmp.pg.com website for internal jobaids, podcasts on JMP, and other training information.

Thank you for your continued assistance and leading the company with JMP!
Please reach out at any time,
Scott Reese

Ps- It is also possible to get the license update through the P&G discovery index and following the links to the installation and license pages. Just follow the prompts through the site.

Directions to just go straight to Installation page.

Data & Modeling Sciences

Survey questions

- How often do you use JMP?

- What data methods have you used?

- Of the following platforms, which do you use?

- What is your current skill level?

- Of the following platforms, which 3 are most impactful to your work?

- Of the following platforms, which do you want to learn more about?

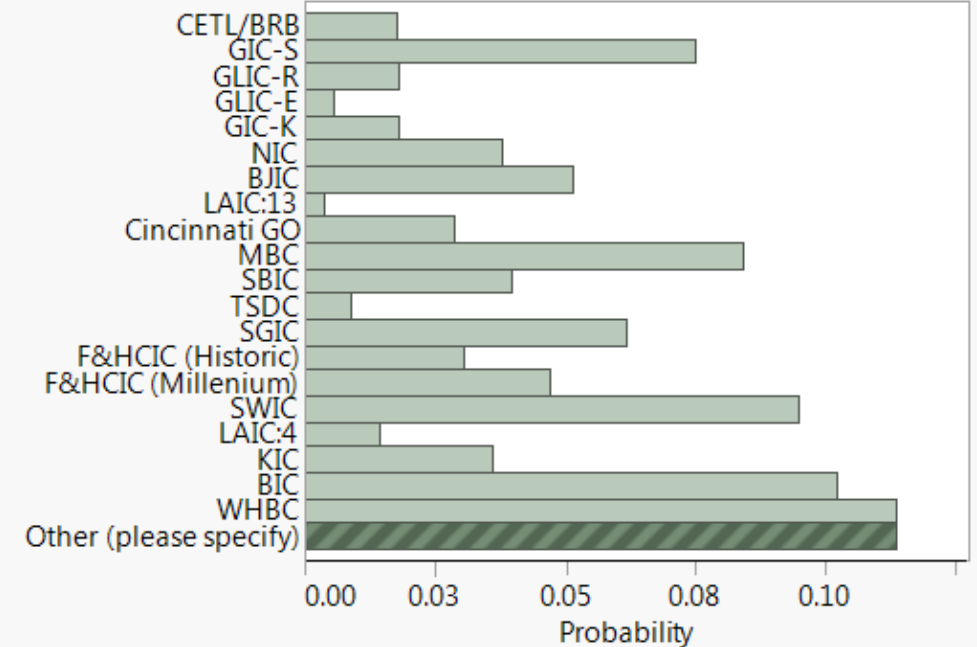- How do you currently get support?

- Function? Site? Category?

Regional identification- Recode example

Regional identification- Recode example

- Step 1:
  - Use recode for Regional recoding
    - Changed sites to Region (Cincinnati > North America)

- Step 2:
  - Recoded OTHER to the proper Region

- Step 3:
  - Combined 2 newly recoded columns
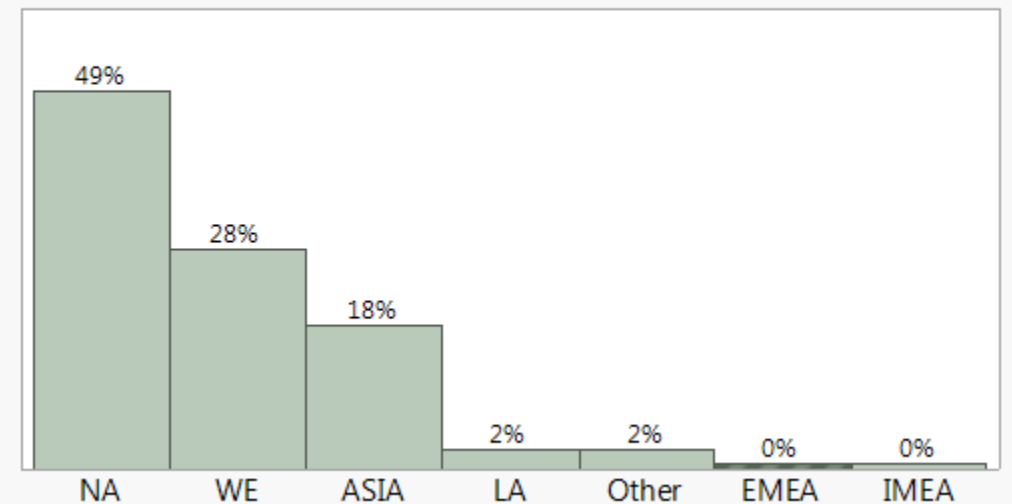 - Recoded into appropriate region
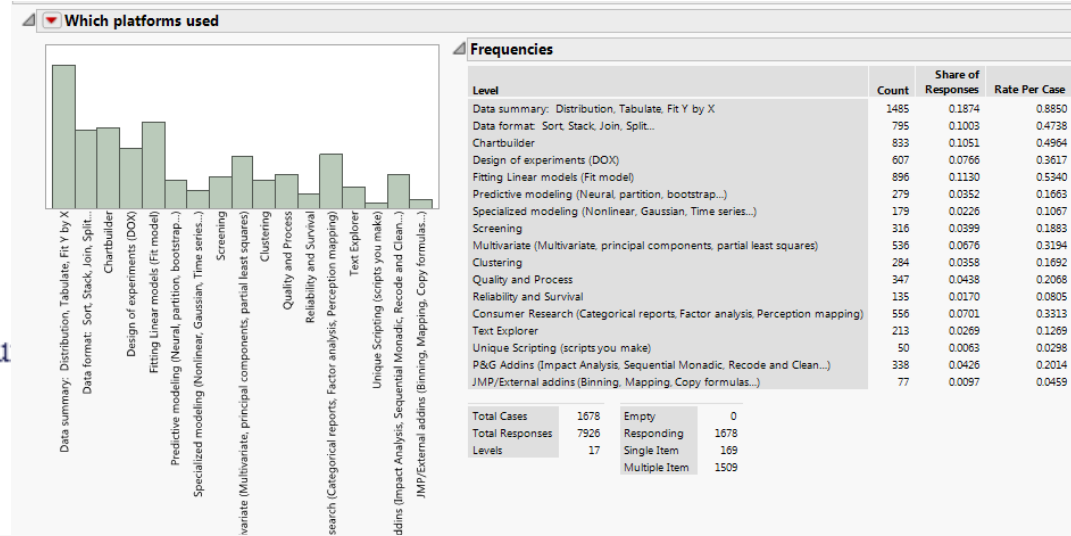
Which platforms do you use:

* 5. Of the following analysis platforms and approaches within JMP, which do you use for you current role? (select all that apply)

- ☐ Data summary: Distribution, Tabulate, Fit Y by X
- ☐ Data format: Sort, Stack, Join, Split...
- ☐ Graph Builder
- ☐ Design of experiments (DOX)
- ☐ Fitting Linear models (Fit model)
- ☐ Predictive modeling (Neural, partition, bootstrap...)
- ☐ Specialized modeling (Nonlinear, Gaussian, Time series...)
- ☐ Screening

▼ Which platforms used

◢ Frequencies

Level	Count	Share of Responses	Rate Per Case
Data summary: Distribution, Tabulate, Fit Y by X	1485	0.1874	0.8850
Data format: Sort, Stack, Join, Split...	795	0.1003	0.4738
Chartbuilder	833	0.1051	0.4964
Design of experiments (DOX)	607	0.0766	0.3617
Fitting Linear models (Fit model)	896	0.1130	0.5340
Predictive modeling (Neural, partition, bootstrap...)	279	0.0352	0.1663
Specialized modeling (Nonlinear, Gaussian, Time series...)	179	0.0226	0.1067
Screening	316	0.0399	0.1883
Multivariate (Multivariate, principal components, partial least squares)	536	0.0676	0.3194
Clustering	284	0.0358	0.1692
Quality and Process	347	0.0438	0.2068
Reliability and Survival	135	0.0170	0.0805
Consumer Research (Categorical reports, Factor analysis, Perception mapping)	556	0.0701	0.3313
Text Explorer	213	0.0269	0.1269
Unique Scripting (scripts you make)	50	0.0063	0.0298
P&G Addins (Impact Analysis, Sequential Monadic, Recode and Clean...)	338	0.0426	0.2014
JMP/External addins (Binning, Mapping, Copy formulas...)	77	0.0097	0.0459

Total Cases	1678		Empty	0
Total Responses	7926		Responding	1678
Levels	17		Single Item	169
			Multiple Item	1509

'Which platforms used' in table 'JMP Landscape Assessment For JMP Discovery v1'

Column Name: Which platforms used

☐ Lock

Data Type: Character ▼

Modeling Type: Multiple Response ▼

Column Properties ▼

Multiple Response
Value Labels
optional item

Remove

Value Labels

If a column has value labels, and Use Value Labels is checked, the labels are displayed wherever the column data are displayed.

| 1 = Data summary: Distribution, Tabula |
| 10 = Clustering |
| 11 = Quality and Process |
| 12 = Reliability and Survival |
| 13 = Consumer Research (Categorical re |
| 14 = Text Explorer |

Add
Change
Remove

Value:

Label:

☑ Use Value Labels

Are there different types of JMP users at P&G?

Clustering Approach

- Latent Class Clustering on indicator columns for the question: Of the following analysis platforms and approaches within JMP, which do you use for your current role?

* 5. Of the following analysis platforms and approaches within JMP, which do you use for your current role? (select all that apply)
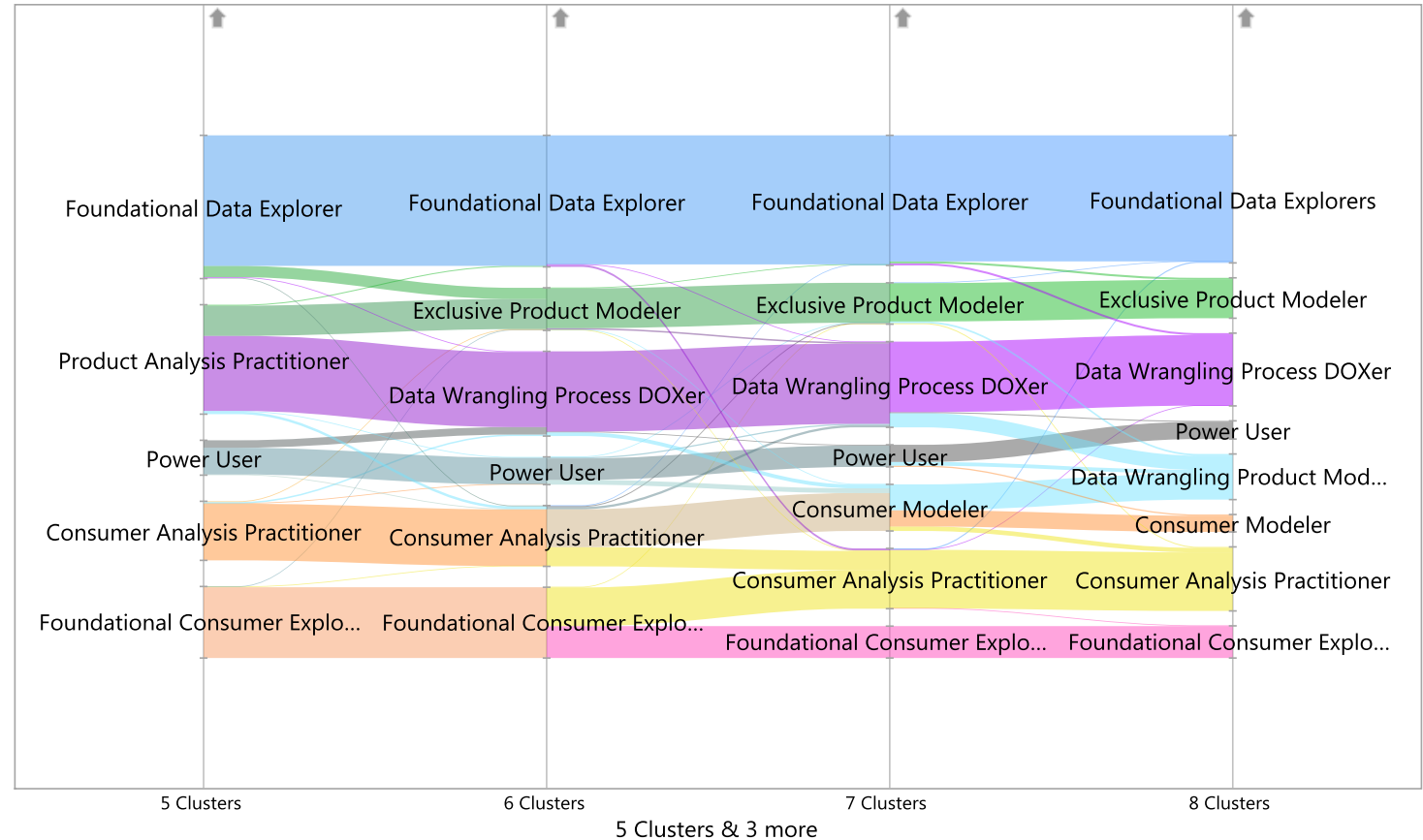
☐ Data summary: Distribution, Tabulate, Fit Y by X

☐ Data format: Sort, Stack, Join, Split…

☐ Graph Builder

☐ Design of experiments (DOX)

☐ Fitting Linear models (Fit model)

☐ Predictive modeling (Neural, partition, bootstrap…)

☐ Specialized modeling (Nonlinear, Gaussian, Time series…)

☐ Screening

Selecting A Cluster Solution

Evaluated 5, 6, 7, and 8 cluster solutions.
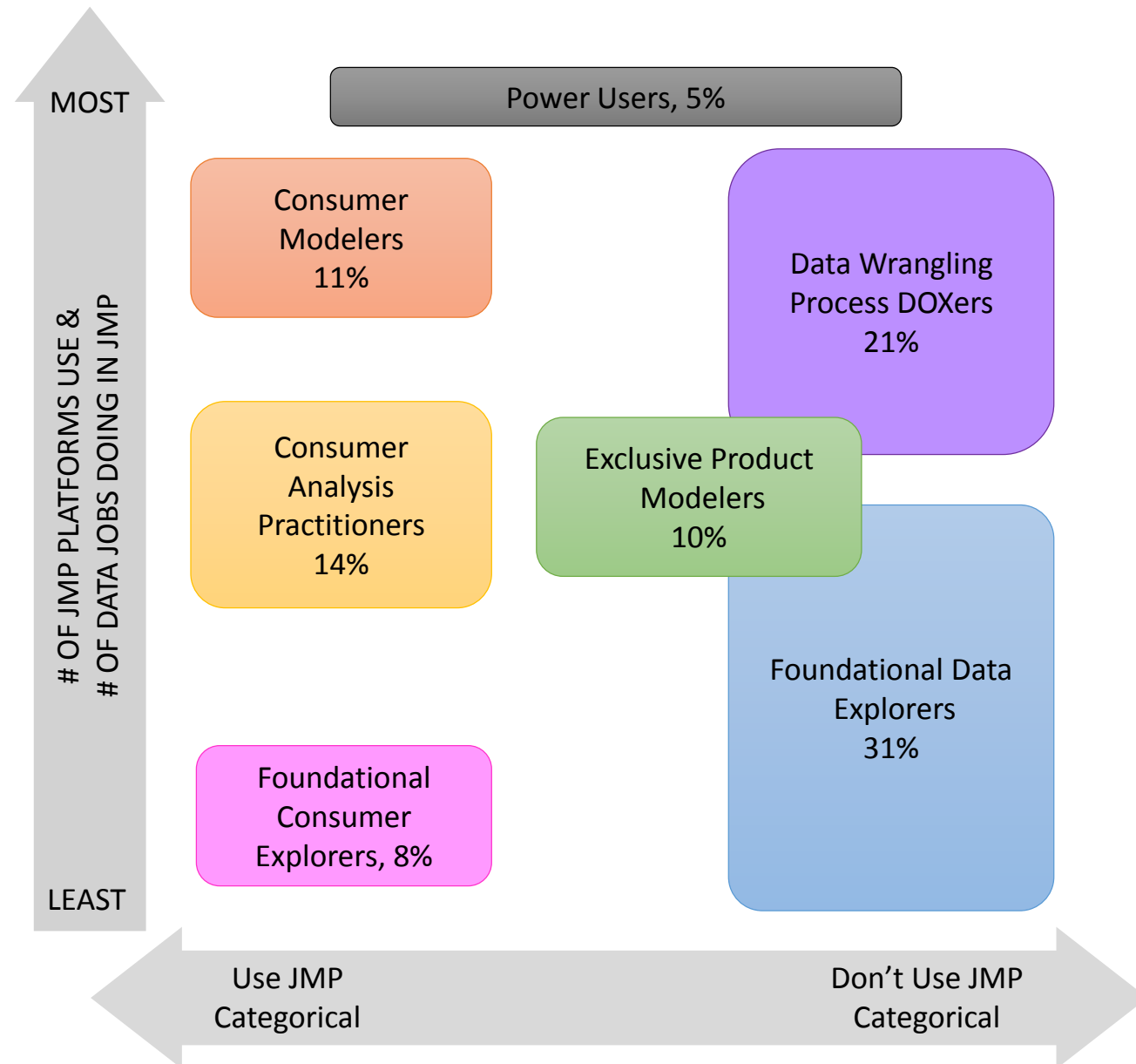
- Looked at relationship between each of the cluster solutions.

- Compared the profiles of each of the clusters between each of the cluster solutions.

- Thought about personal experience with our JMP users.

Selected the 7 cluster solution for our JMP User Model.

5 Clusters   6 Clusters   7 Clusters   8 Clusters

5 Clusters & 3 more

JMP User Segments

Foundational Data Explorers

MOST

OF JMP PLATFORMS USE & # OF DATA JOBS DOING IN JMP

Power Users, 5%

Consumer Modelers 11%

Data Wrangling Process DOXers 21%

Consumer Analysis Practitioners 14%

Exclusive Product Modelers 10%

Foundational Data Explorers 31%

Foundational Consumer Explorers, 8%

LEAST

Use JMP Categorical

Don't Use JMP Categorical
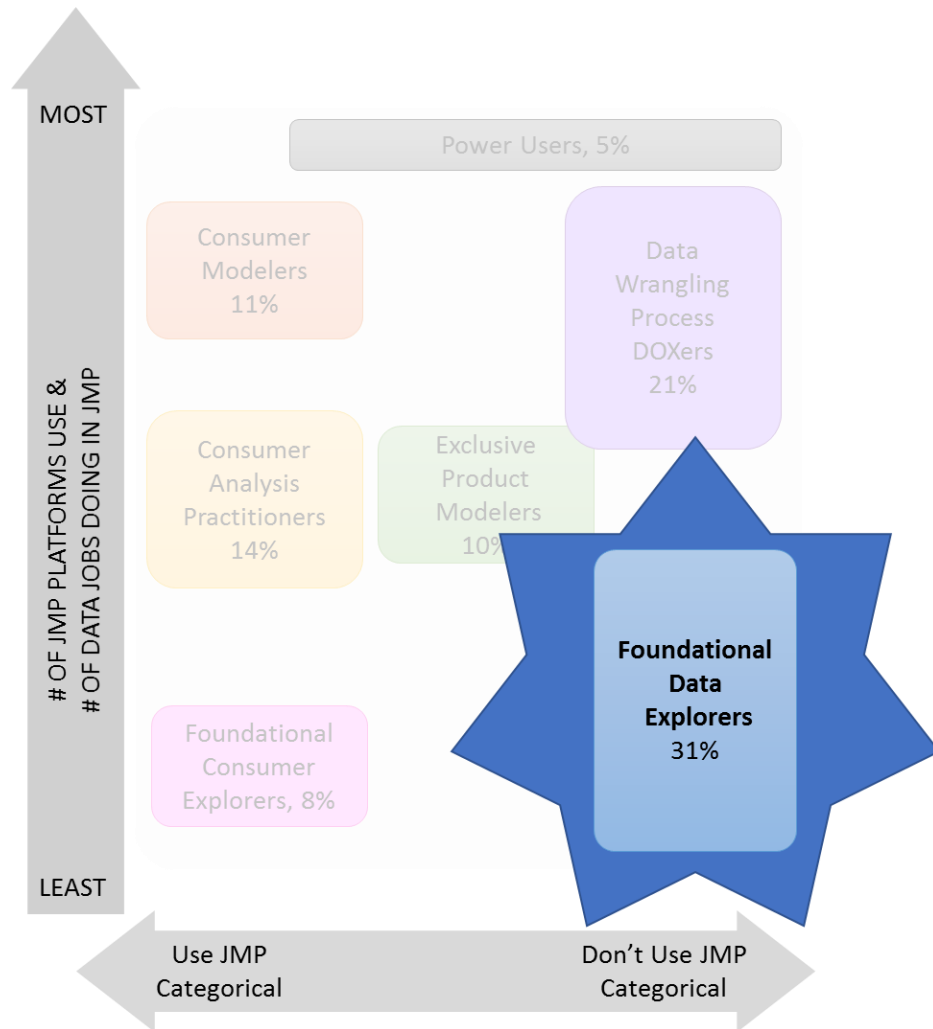
Foundational Data Explorers tend to....

- Use a few JMP Platforms (mean = 2)

- Use JMP a couple of times a month

- Primarily Use Data Summary Platforms like Distribution & Fit Y by X

Foundational Data Explorers
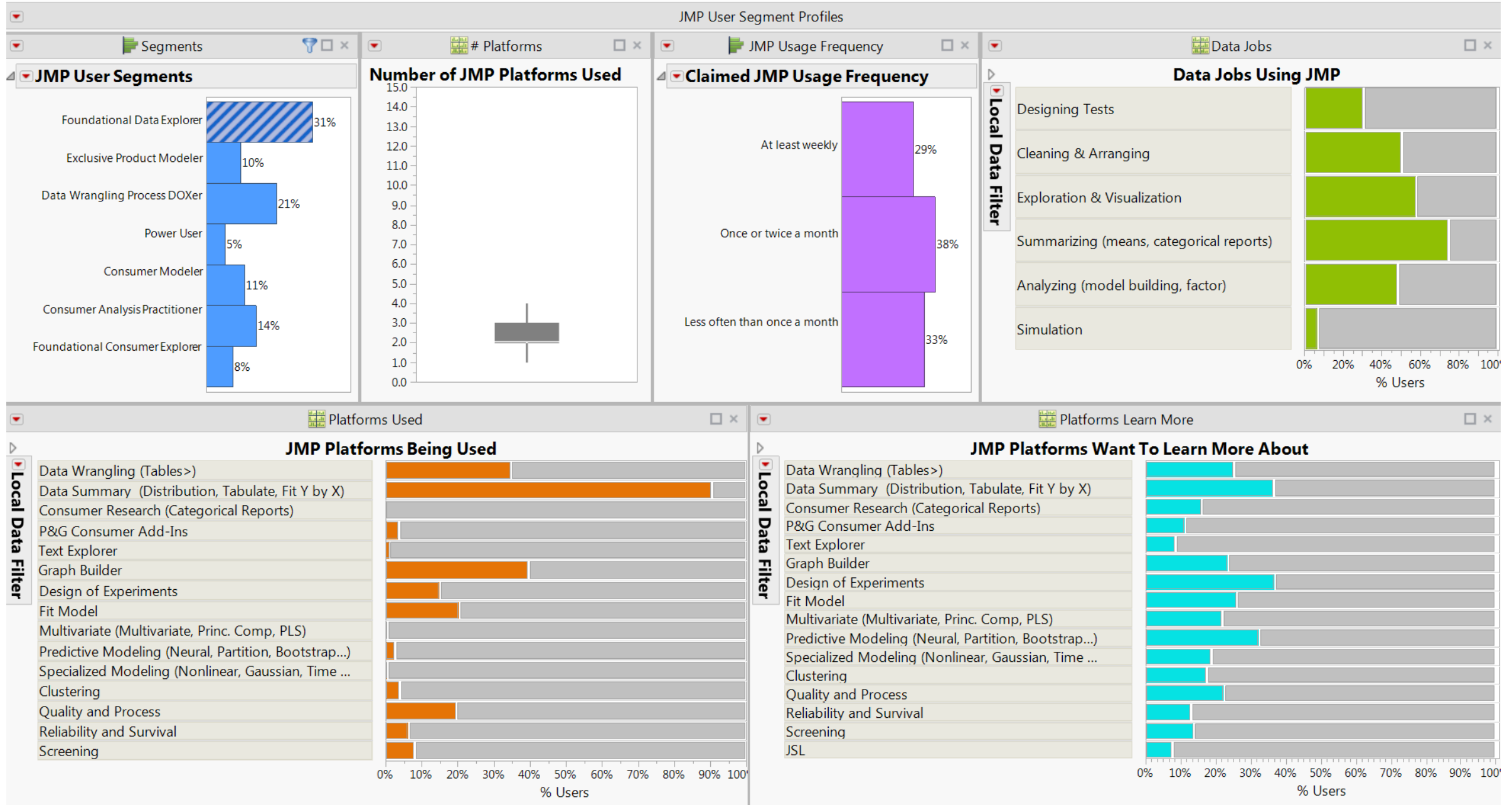
Foundational Consumer Explorers
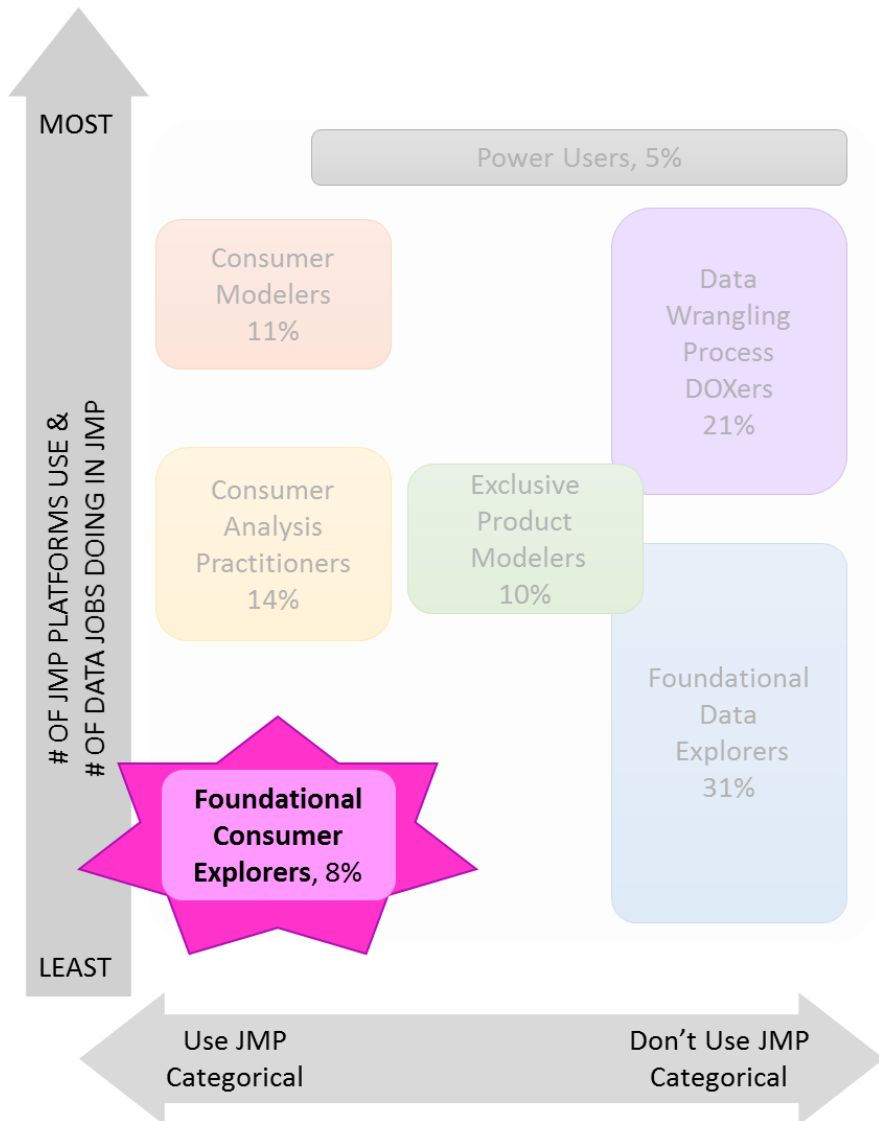
Foundational Consumer Explorers tend to....

- Use 1 or 2 JMP platforms (mean = 2)

- Use JMP less than once a month

- Primarily use JMP's categorical platform to analyze survey data.

Foundational Consumer Explorers
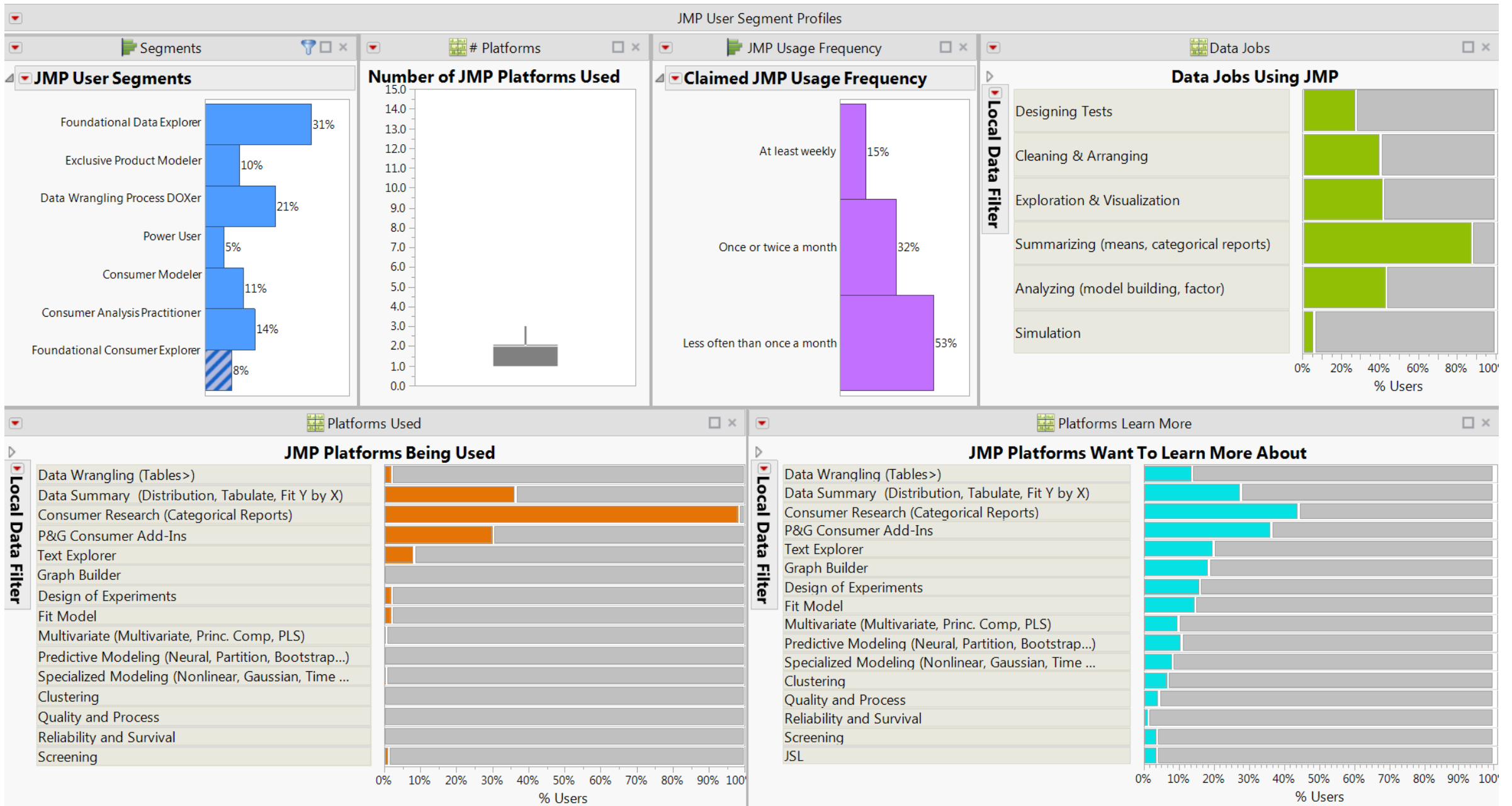
Consumer Analysis Practitioners
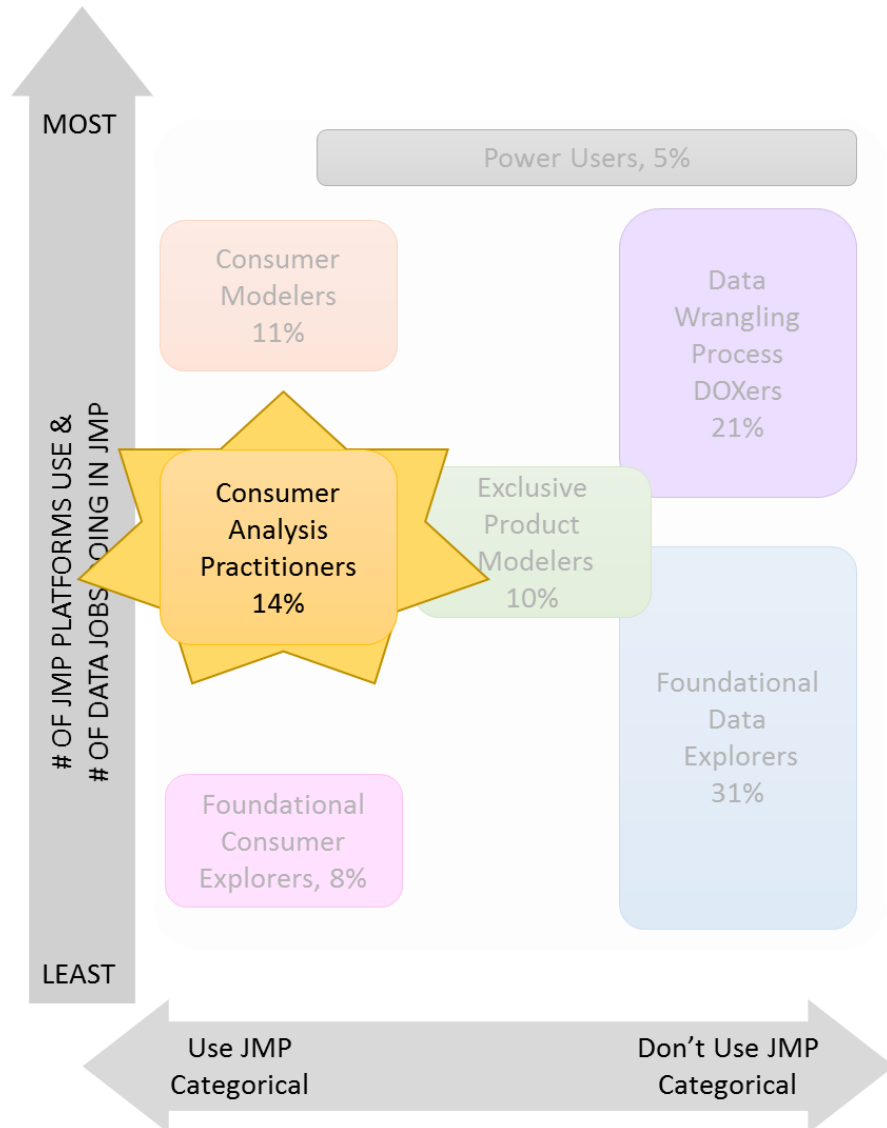
Consumer Analysis Practitioners Tend To……

- Use a few JMP Platforms (mean = 4)

- Use JMP once month.

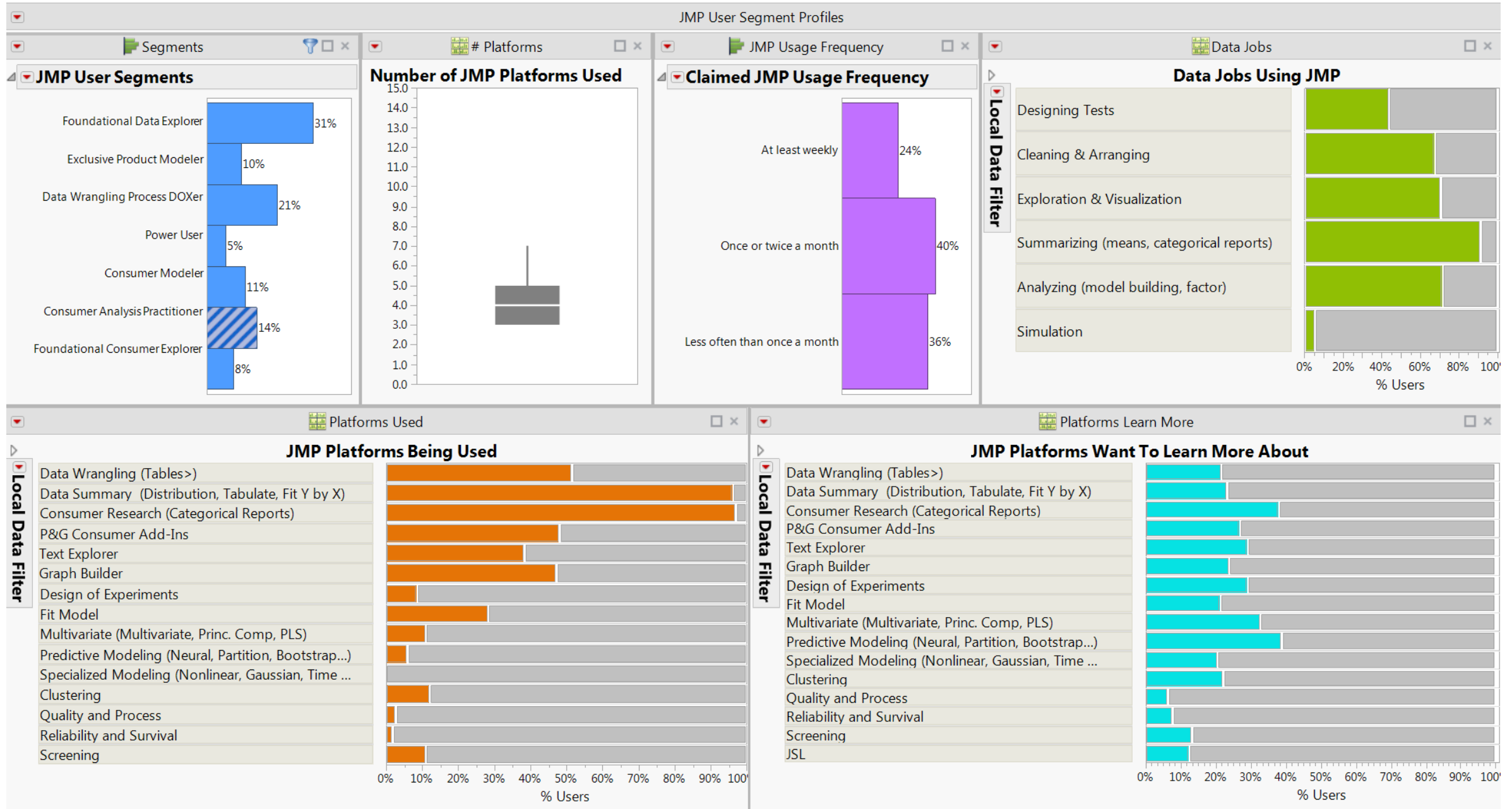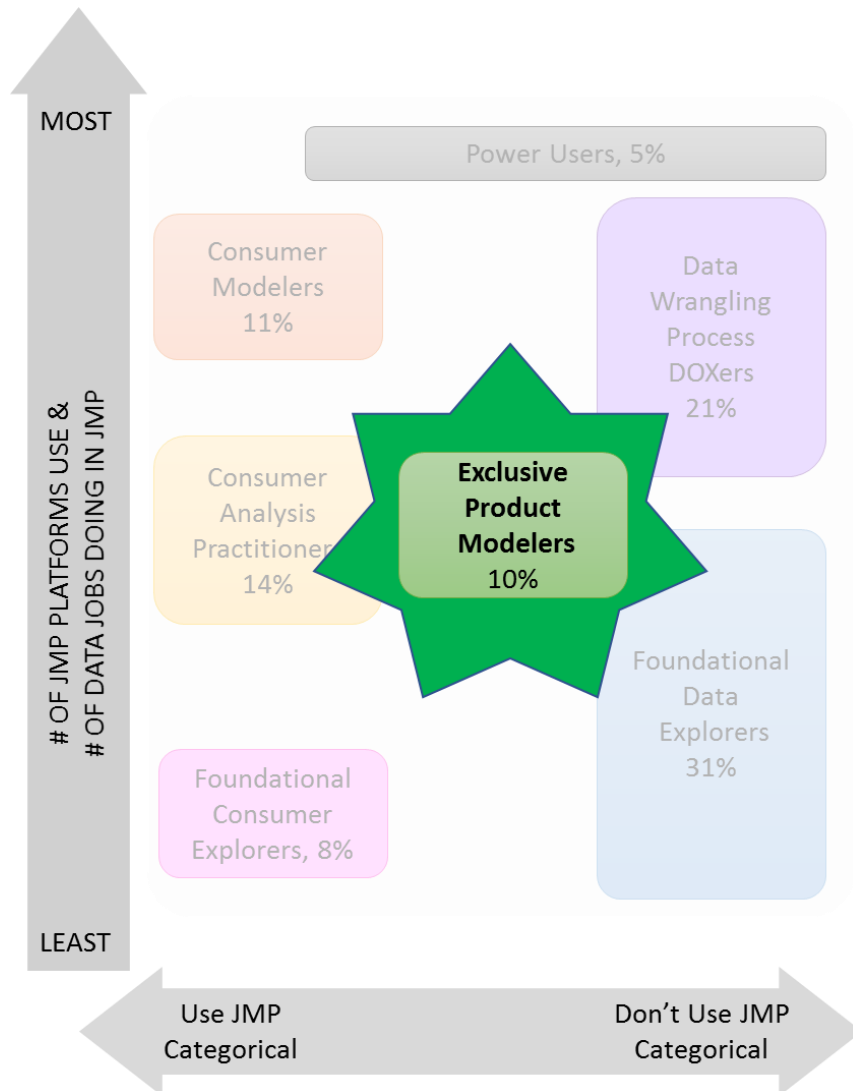- Use Data Summary Platforms like Distribution & Fit Y by X and Categorical to build survey breakout tables. Some use text explorer.

Consumer Analysis Practitioners

JMP User Segment Profiles

Segments — **JMP User Segments**

- Foundational Data Explorer — 31%
- Exclusive Product Modeler — 10%
- Data Wrangling Process DOXer — 21%
- Power User — 5%
- Consumer Modeler — 11%
- Consumer Analysis Practitioner — 14%
- Foundational Consumer Explorer — 8%

 # Platforms — **Number of JMP Platforms Used**

JMP Usage Frequency — **Claimed JMP Usage Frequency**

- At least weekly — 24%
- Once or twice a month — 40%
- Less often than once a month — 36%

Data Jobs — **Data Jobs Using JMP**

- Designing Tests
- Cleaning & Arranging
- Exploration & Visualization
- Summarizing (means, categorical reports)
- Analyzing (model building, factor)
- Simulation

% Users

Platforms Used — **JMP Platforms Being Used**

- Data Wrangling (Tables>)
- Data Summary (Distribution, Tabulate, Fit Y by X)
- Consumer Research (Categorical Reports)
- P&G Consumer Add-Ins
- Text Explorer
- Graph Builder
- Design of Experiments
- Fit Model
- Multivariate (Multivariate, Princ. Comp, PLS)
- Predictive Modeling (Neural, Partition, Bootstrap...)
- Specialized Modeling (Nonlinear, Gaussian, Time ...
- Clustering
- Quality and Process
- Reliability and Survival
- Screening

% Users

Platforms Learn More — **JMP Platforms Want To Learn More About**

- Data Wrangling (Tables>)
- Data Summary (Distribution, Tabulate, Fit Y by X)
- Consumer Research (Categorical Reports)
- P&G Consumer Add-Ins
- Text Explorer
- Graph Builder
- Design of Experiments
- Fit Model
- Multivariate (Multivariate, Princ. Comp, PLS)
- Predictive Modeling (Neural, Partition, Bootstrap...)
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- Clustering
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- Reliability and Survival
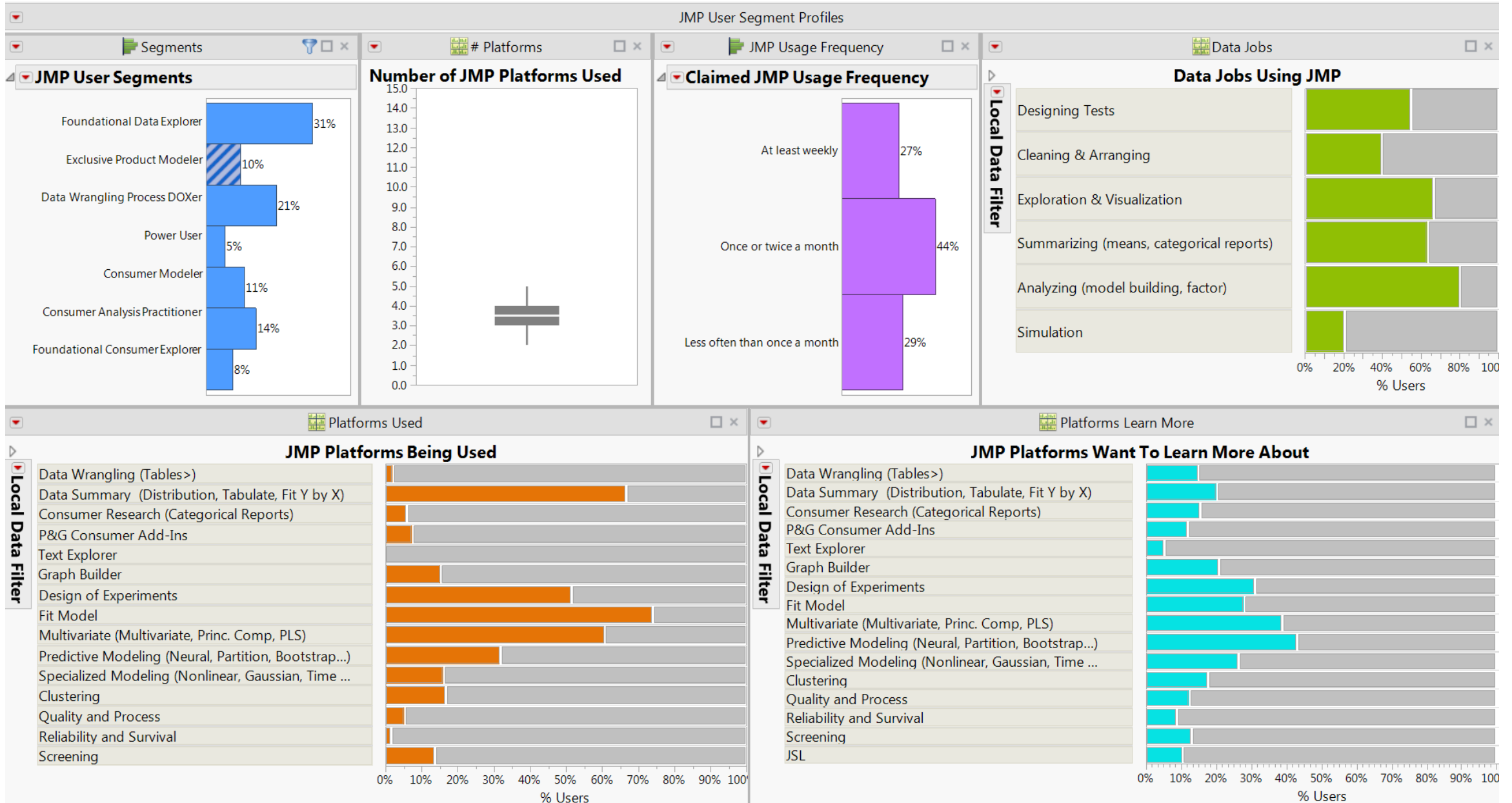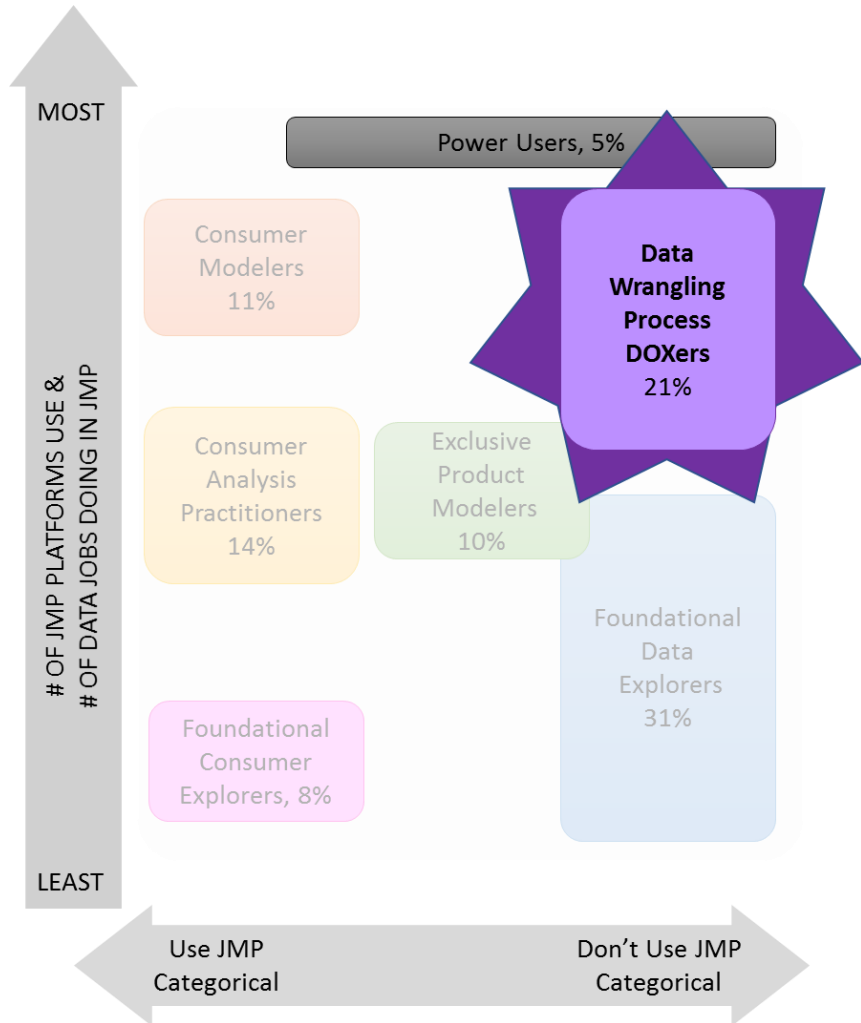- Screening
- JSL

% Users

Exclusive Product Modelers

Exclusive Product Modelers Tend To……

- Use a few JMP Platforms (mean = 3.5)

- Use JMP a couple of times a month.

- Use JMP's modeling platforms, but DON'T use its data wrangling capabilities or Graph Builder.

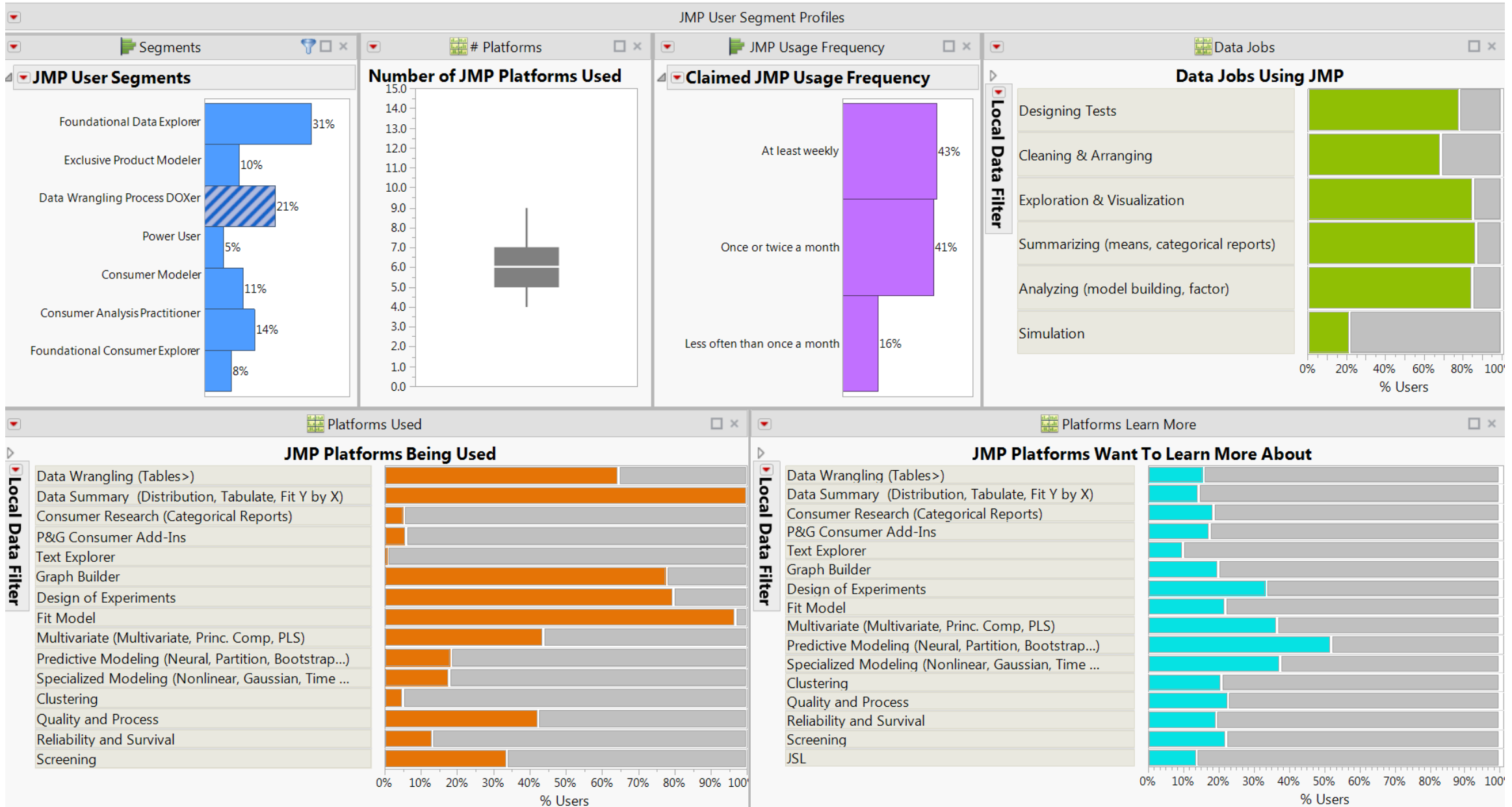# Exclusive Product Modelers

Data Wrangling Process DOXers

Data Wrangling Process DOXers Tend To……

- Use several JMP Platforms (mean = 6)

- Use JMP weekly

- Use JMP to design and model experiments, leverage JMP's data wrangling capabilities, and use Graph Builder. Some use JMP for Control Charting.

Data Wrangling Process DOXers

Consumer Modelers
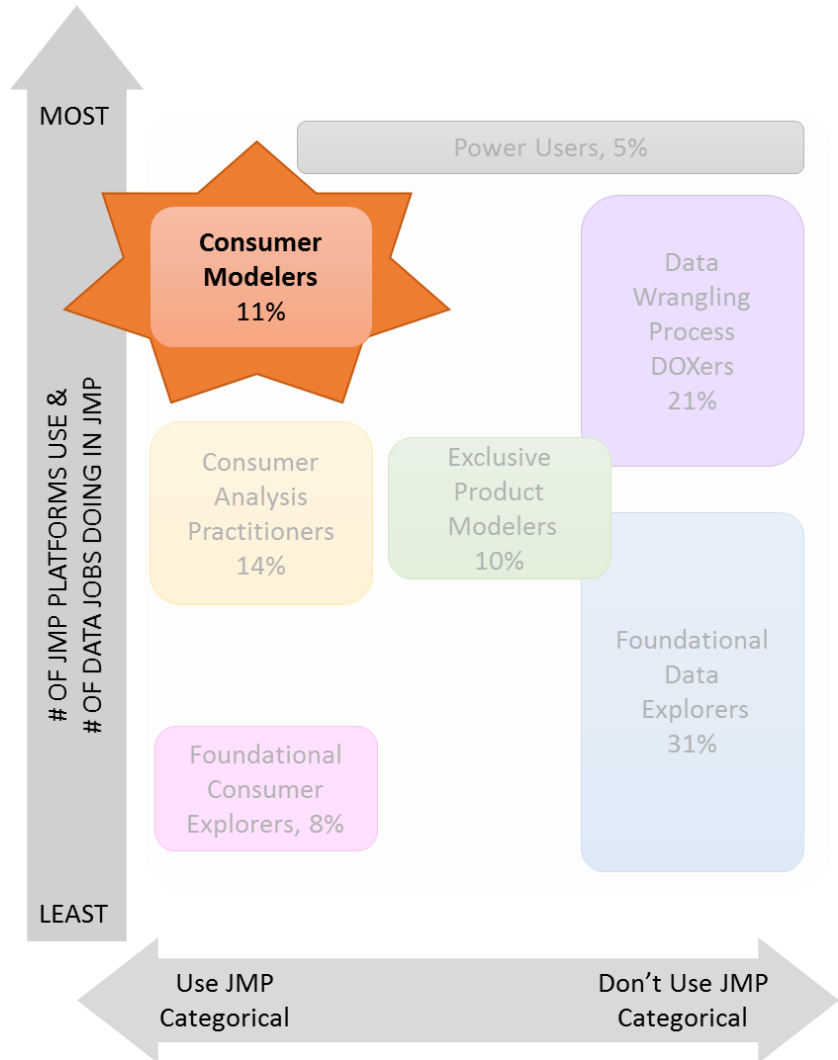
Consumer Modelers Tend To……

- Use several JMP Platforms (mean = 7)

- Use JMP weekly or more often.

- Use multiple JMP modeling platforms along with data wrangling and JMP Categorical. Some use Text Explorer.

Consumer Modelers
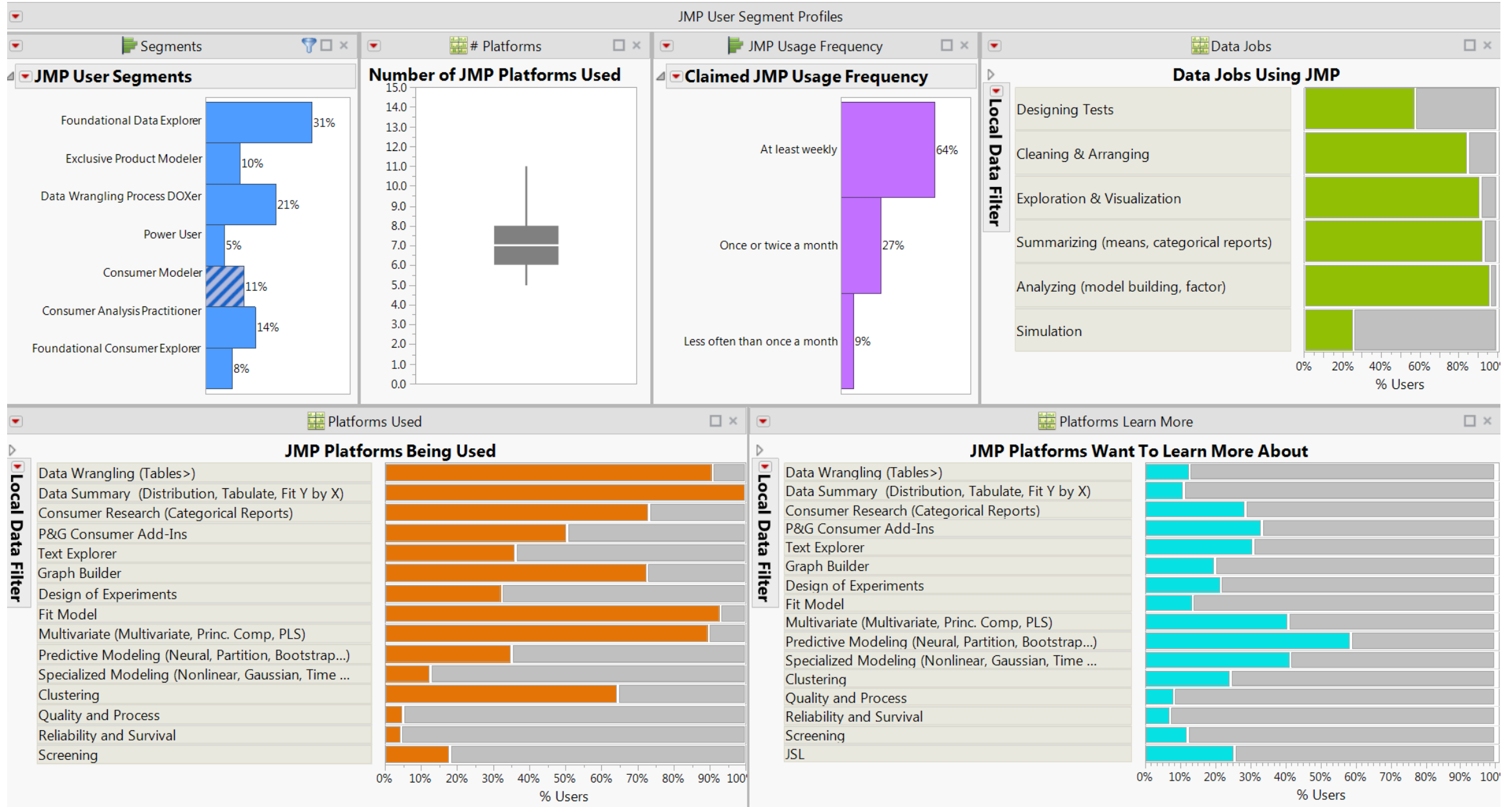
Power Users
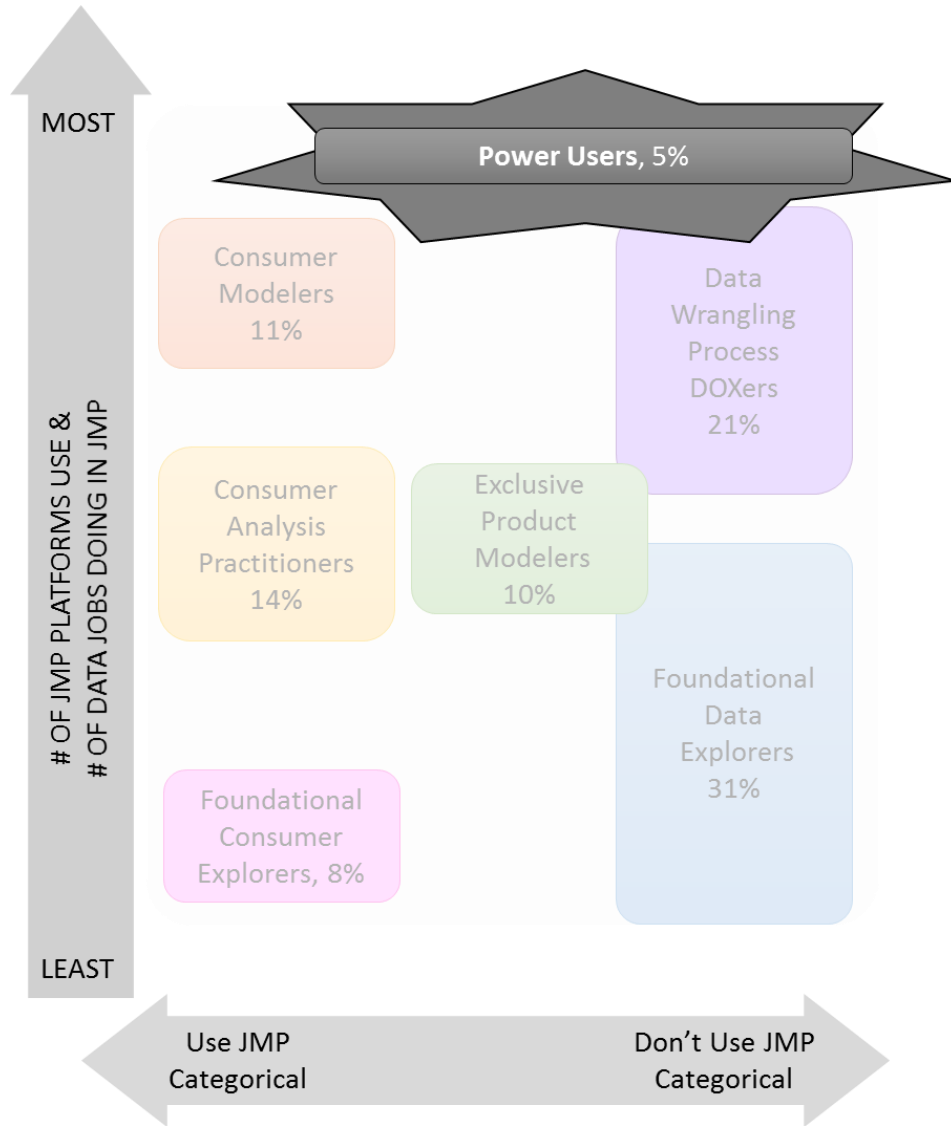
Power Users Tend To......

- Use the most JMP Platforms (mean = 10)

- Use JMP frequently – most are using JMP every week.

- Use JMP platforms for study design, data wrangling, exploration, visualization, model building, and simulation.

Power Users

JMP User Segment Profiles

Segments — JMP User Segments
- Foundational Data Explorer: 31%
- Exclusive Product Modeler: 10%
- Data Wrangling Process DOXer: 21%
- Power User: 5%
- Consumer Modeler: 11%
- Consumer Analysis Practitioner: 14%
- Foundational Consumer Explorer: 8%

 # Platforms — Number of JMP Platforms Used

JMP Usage Frequency — Claimed JMP Usage Frequency
- At least weekly: 75%
- Once or twice a month: 21%
- Less often than once a month: 3%

Data Jobs — Data Jobs Using JMP
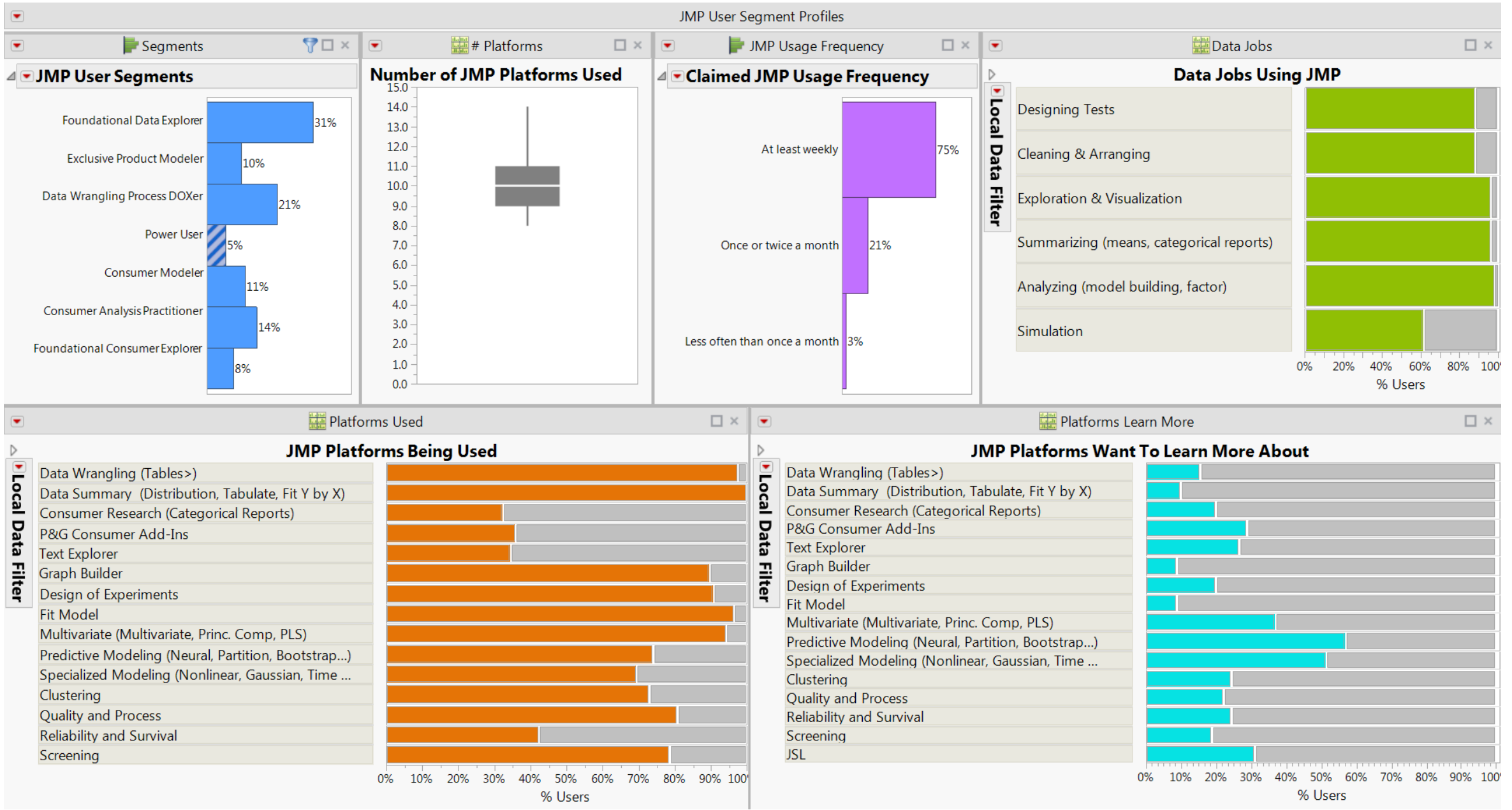- Designing Tests
- Cleaning & Arranging
- Exploration & Visualization
- Summarizing (means, categorical reports)
- Analyzing (model building, factor)
- Simulation

Platforms Used — JMP Platforms Being Used
- Data Wrangling (Tables>)
- Data Summary (Distribution, Tabulate, Fit Y by X)
- Consumer Research (Categorical Reports)
- P&G Consumer Add-Ins
- Text Explorer
- Graph Builder
- Design of Experiments
- Fit Model
- Multivariate (Multivariate, Princ. Comp, PLS)
- Predictive Modeling (Neural, Partition, Bootstrap...)
- Specialized Modeling (Nonlinear, Gaussian, Time ...
- Clustering
- Quality and Process
- Reliability and Survival
- Screening

Platforms Learn More — JMP Platforms Want To Learn More About
- Data Wrangling (Tables>)
- Data Summary (Distribution, Tabulate, Fit Y by X)
- Consumer Research (Categorical Reports)
- P&G Consumer Add-Ins
- Text Explorer
- Graph Builder
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- Specialized Modeling (Nonlinear, Gaussian, Time ...
- Clustering
- Quality and Process
- Reliability and Survival
- Screening
- JSL

Turning the info into action!

Identification of different segments of JMP usage.

- Enables targeted training of different topics.
  - For more efficient and impactful training sessions.
- Measurable skill values for each segment.
  - *Follow up surveys will measure progress and impact of efforts.*

Identification of which sites need additional support.

Identification of experts for certain techniques.

Identified preferred routes of communication.

- Internal web page support.

All the above by segment, by site, or by job function.

Thank you!

Self reported skill level question

Regarding your normal JMP usage, please select one response for each skill:

	I am an expert and people seek my coaching	I have skill and can do it independently	I have some skill, but would need to seek help or coaching	I have understanding, but no experience	I have little or no understanding
Applying basic quantitative analysis techniques and data cleanup steps (e.g. formatting, filters, breakouts, means, means comparisons)	○	○	○	○	○
Applying intermediate quantitative analysis techniques (e.g. simple regression, partition analysis, impact analysis)	○	○	○	○	○
Applying advanced quantitative analysis techniques (e.g. multivariate regression, factoring, PLS, clustering, DOX, or discriminate).	○	○	○	○	○