Will Industry Need Statisticians In An AI World?

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EFSPI Regulatory Statistics Workshop

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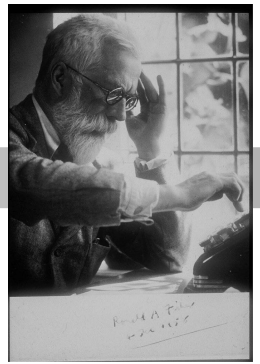
Will Industry Need Statisticians In An AI World?

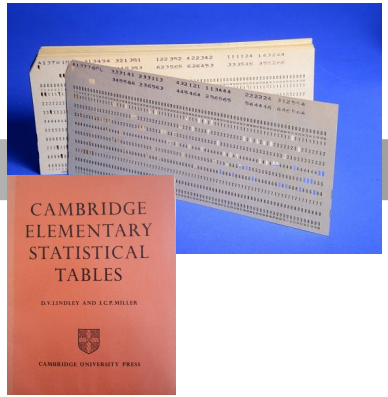
SPOILER

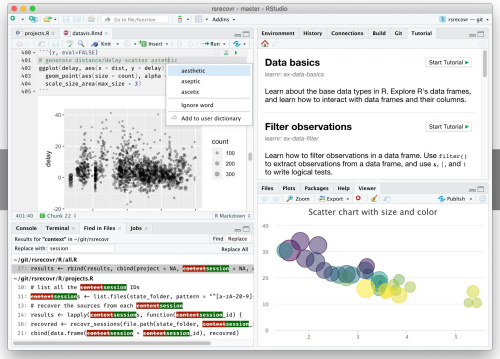
Yes….

… but they may look a little different to today

We Have Always Adopted New Technologies To Make Our Lives Easier
This Will Continue As AI Brings Us New Tools







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There Is Lots Of Activity Throughout The Pharmaceutical Industry

Pre-Clinical

- Schrödinger
- BenevolentAI
- Exscientia
- Recursion
- Atomwise
- Insilico Medicine

Manufacturing

- INSCRIPTA
- Axom
- MultiplyLabs

Pharmacovigilance

- SELTA SQUARE
- Century Health

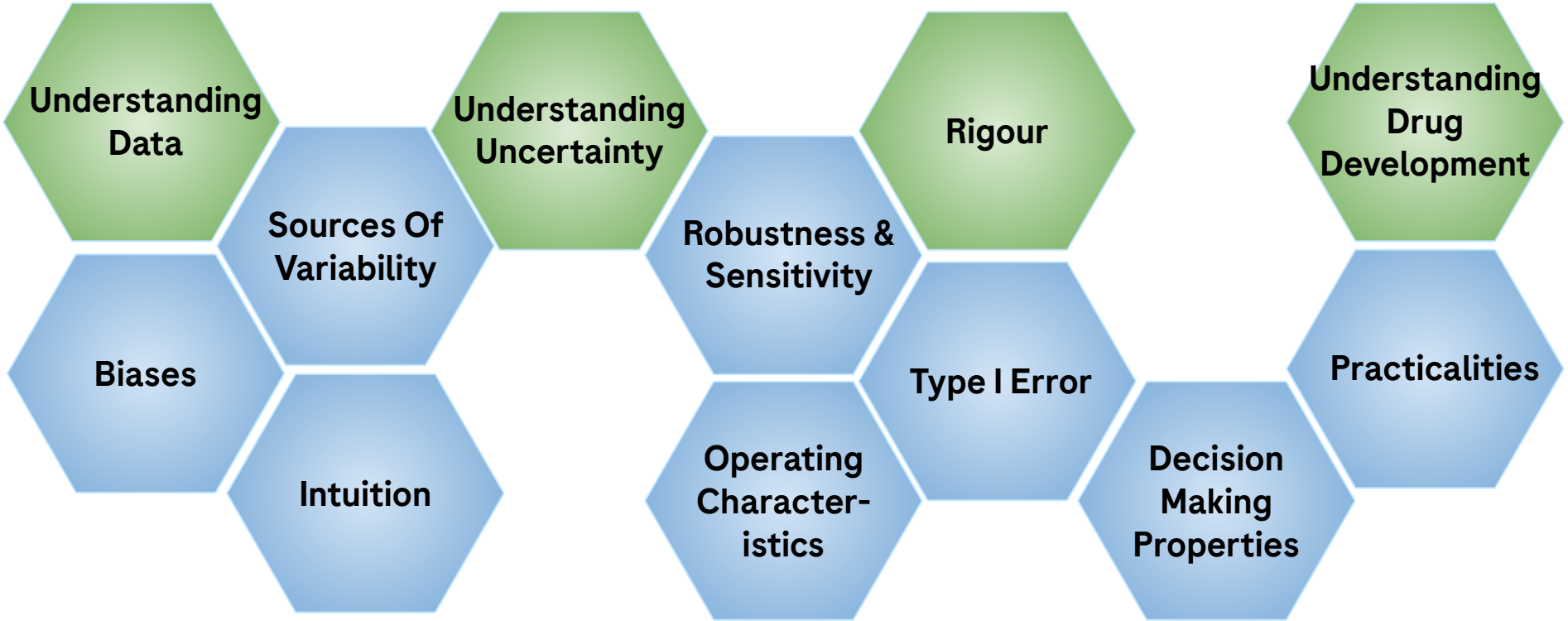
Patient Recruitment

- DEEP 6 AI
- Paradigm Health

Supply Chains

- s.lab healthcare
- 4G CLINICAL

Statisticians Bring Something Unique To The Table



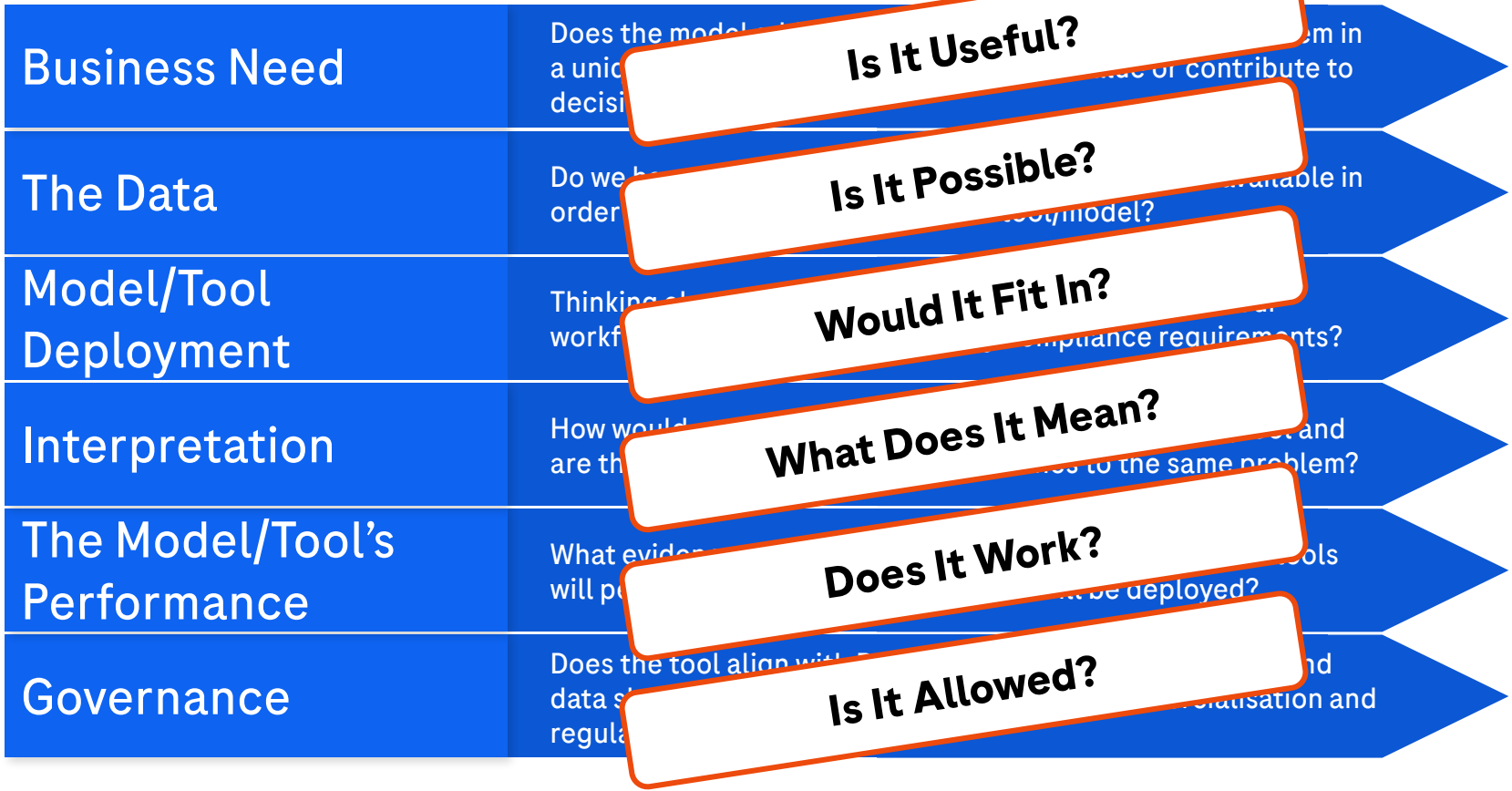
Statisticians Can Drive & Support Exciting Developments

New, Improved Endpoints	Selection	Validation	Missing Data	Variability	Biases
Predictive Covariates	Validation	Generation	Interpretation	Power / Sample SIze	Inclusion Into Analyses
Patient Selection / Stratification	Cutoffs	Subgroups	Design	Testing	
Replacement Of Animal Testing	Uncertainty At Entry-Into-Human	Impact On Phase 1 Design			

Statisticians Can Stress-Test Other Developments

Synthetic Control Arms / Digital Twins	Uncertainty	Validation	Biases	Variability	Confidence
Ensuring Patient Privacy in Data Reuse	Data Flow		Data Properties	Probability	Confidence
Federated Learning & Analytics	Data Flow		Data Properties	Biases	Confounding
Claims From AI Vendors	Do we need AI?	Validation	Is it an improvement?		Are Claims Feasible?

Top Level Questions



Statisticians Are Ideally Placed To Expand Their Role
Maybe It Is The Statisticians Who Will End Up As The Cool Kids!

"The sexy job in the next ten years will be statisticians. Because now we really do have essentially free and ubiquitous data. So the complimentary factor is the ability to understand that data and extract value from it."

Hal Varian
Chief Economist, Google