



How is Deep Learning Valuable for Your Company? Are You Ready for It?

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FOCUS: Management Challenges of Deep Learning (DL) systems
...as enabled by Artificial Neural Networks
...as supported by IT infrastructures at scale

1. Intelligent effectiveness drives the Analytic Value Chain
2. Data is the Power (and Weakness) of Deep Learning
3. Preparing for Deep Learning – short & medium term

Cutting thru the Hype

- **As with all hype, some of it is *true*!**
 - Exciting & amazing research that is counter-intuitive
 - Incredible amount of publicly-available resources
 - Proven in image analytics (object detection & labeling)
 - Major hi-tech firms (Google, etc) offering web services
- **Practical applications for 'normal' organizations are lacking!**
 - Uninterpretable, brittle, inflexible, alien, data-dependent...
 - DL is an alchemy, not a science! It's searching for a theory
 - Unique challenges for which most are unprepared
- **Overly optimistic in short-term; overly pessimistic in long-term**



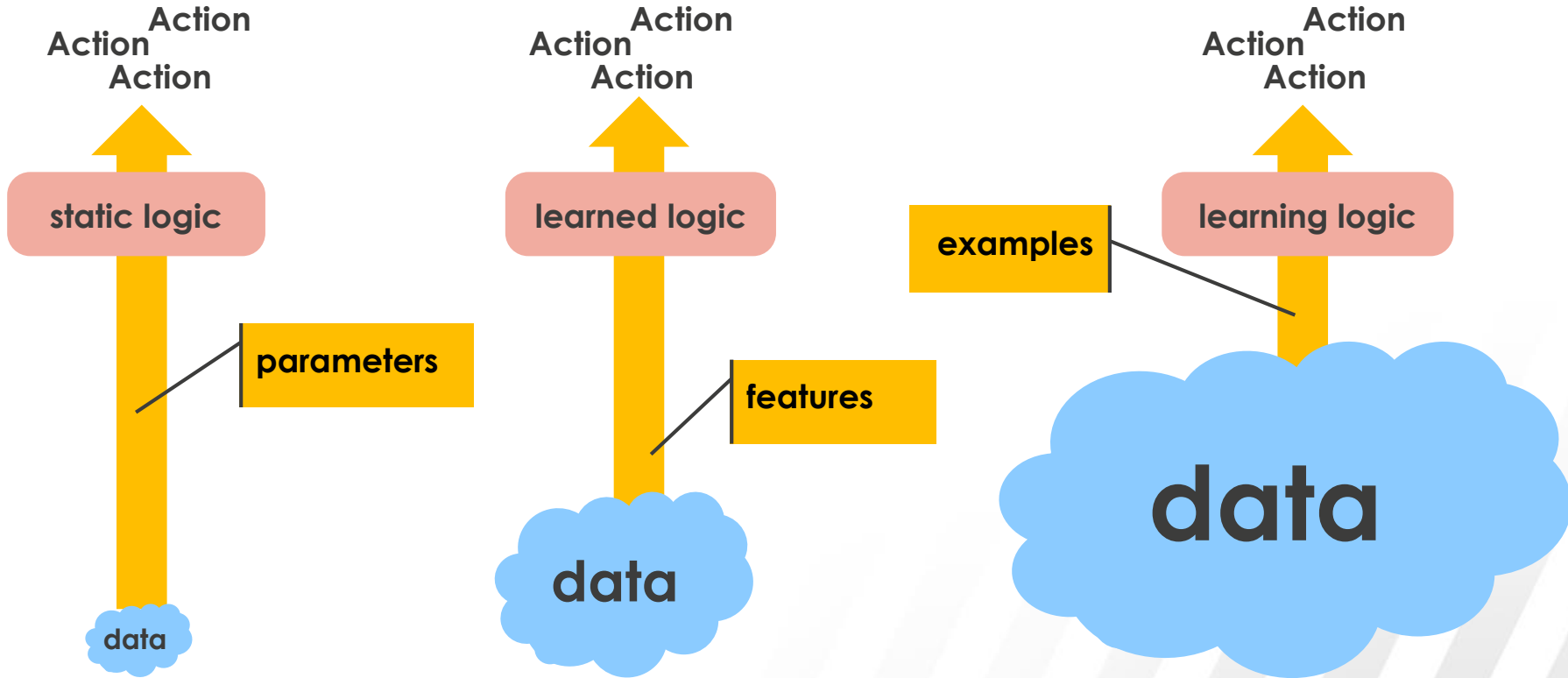
Analytic Value Chain

- From end-to-end, starting with data and ending with actions
 - Molding the behavior of the organization



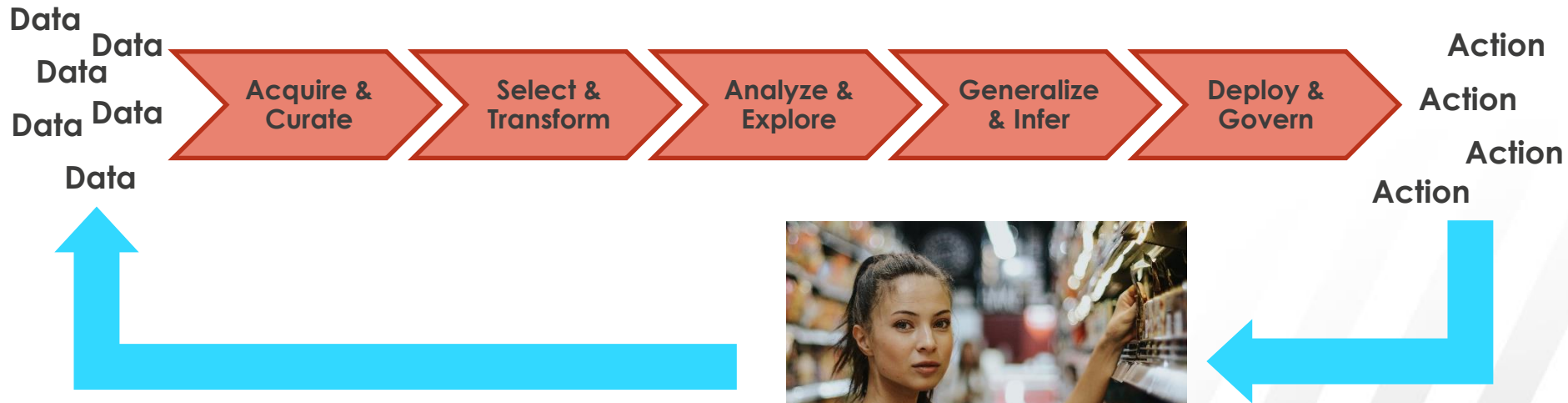
- *Efficiency is doing things right; Effectiveness is doing the right things.*
- Peter Ducker
- **Intelligent Effectiveness** is...
Customizing tasks to match the needs of the specific situation

Data Drives the Logic

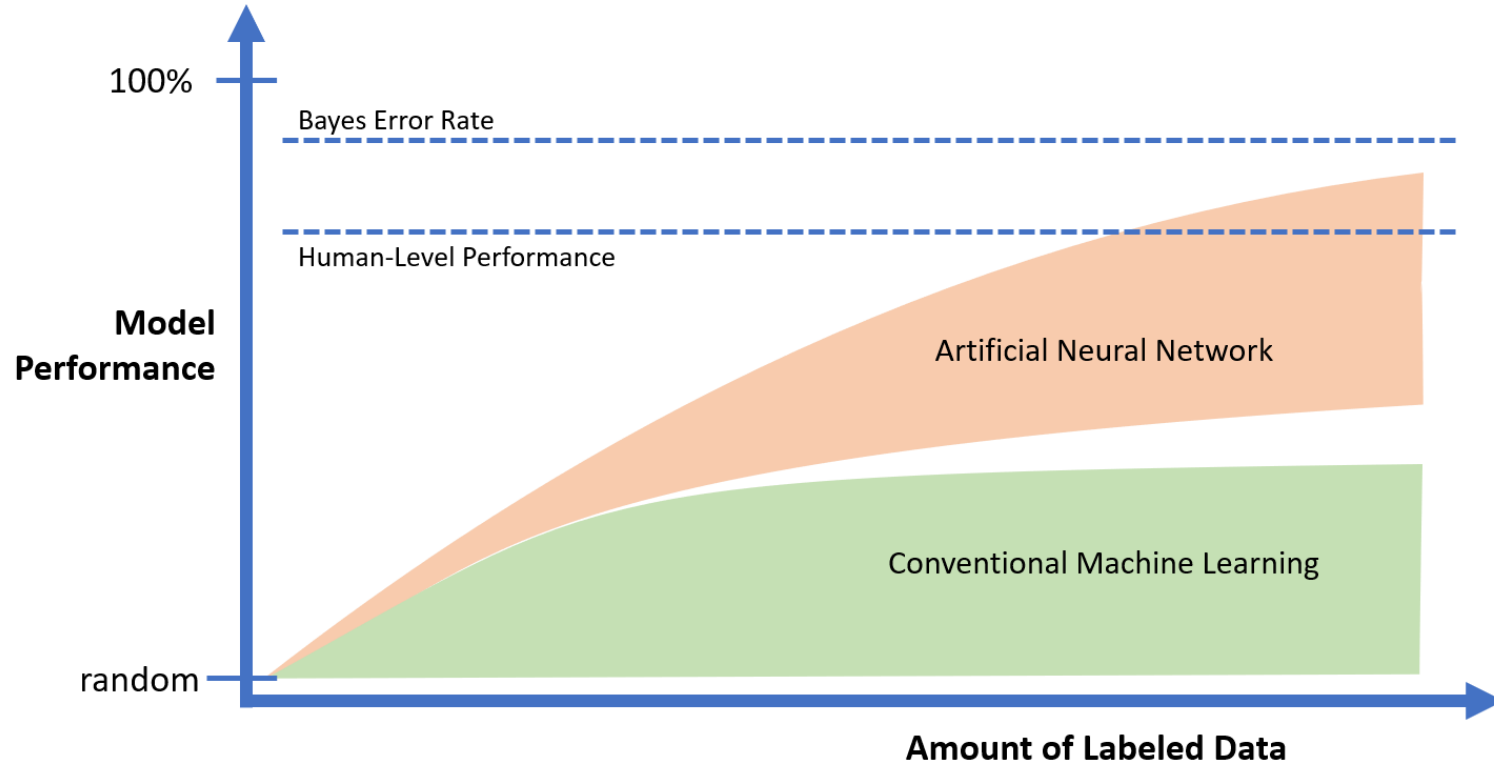


Analytic Value Chain – Feedback

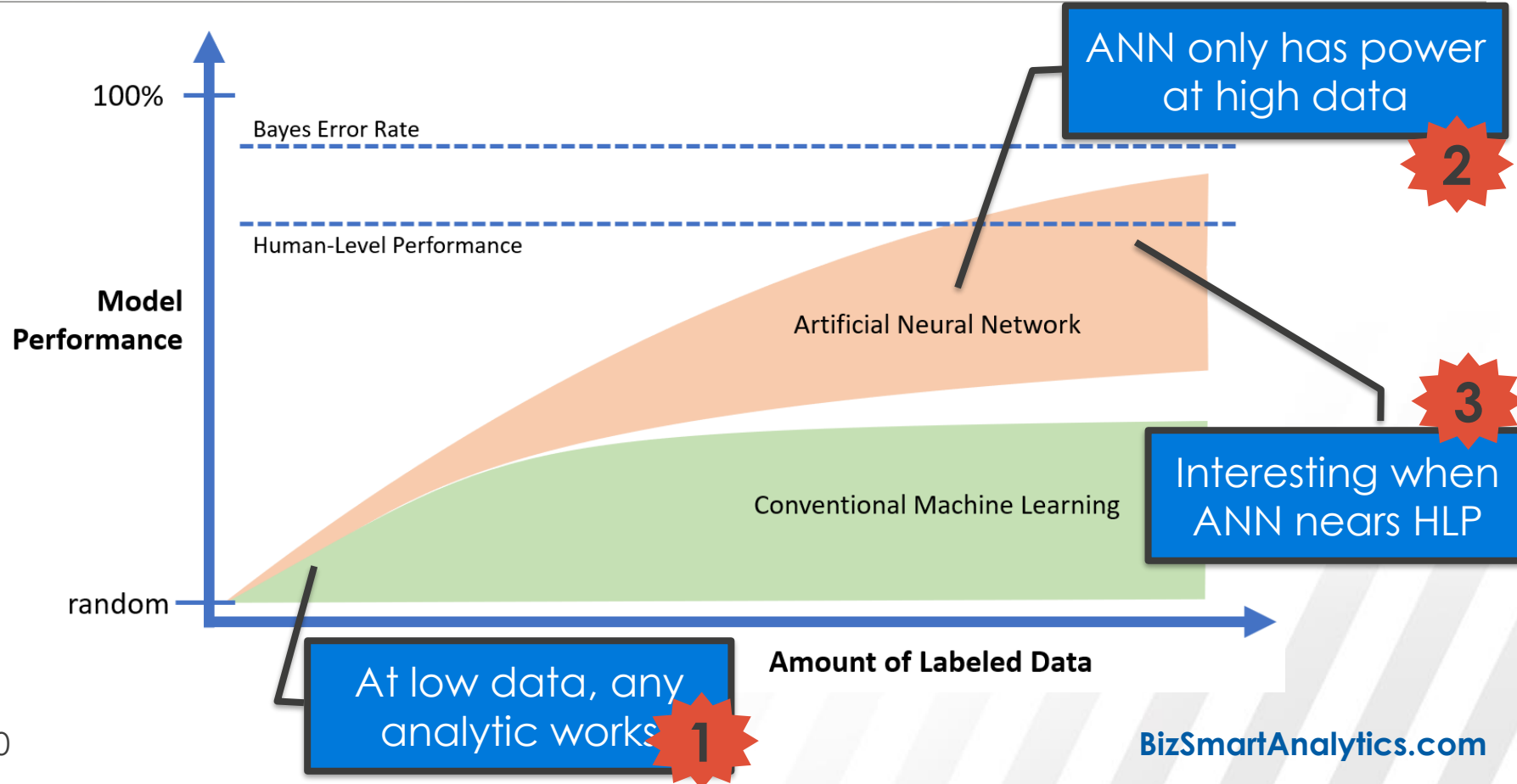
- ...affecting customers whose responses change the data



Power (and Weakness) of Deep Learning



Power (and Weakness) of Deep Learning



1. Assess the potential business value

- Opportunities for intelligent effectiveness
- Specific use cases to operationalize
- Sketch the financials across these use cases
- Be aware of the competition

2. Assess the ability to utilize DL techniques

- Got the data? Owe it? Enough of it? Is it labeled?
- Is this data well organized and governed?
- Are your key people thinking about DL correctly?

3. Selective prototyping to learn what you don't know

- DL Innovation team: cross-functional, skill-building
- Cataloging potential uses cases

1. **Systematic Monitoring of Research and its Practices**
 - Lots of surprising developments are like to happen!
 2. **Deal with the Social and Ethical Challenges**
 - Start “The Conversation” & make it safe to do so
 3. **Start Educating all Managers**
 - ...in business objectives, basic concepts & skill appreciation
 - ...in dealing with ambiguity where everything is a probability
- • • • •

The ultimate challenge is **managing super-intelligence**

- Exceeding Human-Level Performance for specific tasks
- Reinserting the human-into-the-loop
- Augmenting human intuition to augment artificial intelligence

Call To Action

1. **Let's talk ...immediately outside! Also, forming peer groups**
2. **Let's study ...see list of resources**
3. **Let's collaborate ...start playing with prototypes**

RESOURCES at... [BizSmartAnalytics.com](https://bizsmartanalytics.com)

Thank You!

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