A Lab Animal Data Analytics Workshop

Animal Resource Directors Meeting
Austin, TX
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Where's the Evidence??
- Zach Freeman

"How to Design (and Analyze) a Business Experiment"

1. Identify a narrow question (*more focus is better*)
2. Use a big hammer (*avoid mere tweaks*)
3. Perform a data audit (*establish a baseline*)
4. Choose a study population (*select a sample*)
5. Randomize (*duh*)
6. Commit to a plan, and stick to it (*don't deviate*)
7. Let the data speak (*be brave, it'll be OK*)

Harvard Business Review

O. Hauser and M. Luca, https://hbr.org/2015/10/how-to-design-and-analyze-a-business-experiment

Acknowledgements

(*From Steve and Donna)*

- My CCM Senior Team: *Especially…*
  - Mark Depathy: IT Oversight
  - Peter Chelton: Financing the Day; Coordinating MGH Resources
  - Cliff Gibbons: Was “Volunteered” to talk about his program within CCM
  - Gerry Cronin: Coordination of all follow-up publication and feedback survey
  - Rosa Pineda: For feeding us all day!
- Our Planning Team:
  - Nirah Shomer: Abstract Submission Management
  - Sai Tummula: Vision Translation > Planning

All of You!!

What We Heard….

- **Operational Equipment and Supply Management (Eliminating Non-value Added Work; Performance Standards)**
  - **Steve N: (Rack Management)**
    - 3 year implementation of “seamless” integration
    - take advantage of faster & simpler (cheaper) technologies ;TrackR (smart phones)
    - “no decision can be your best decision”
    - always be positive that change encounters resistance so make sure the benefits are appreciated…
  - **Zach F: (Cage Top Management):**
    - identified lack of data-driven standards for “acceptability”; comparative management with American Public Health Association standards applied
    - a rat is not a large mouse (once again)
    - Acceptable tops intervals could go out 90-120 days; 2 care techs + 3 cagewash FTEs/50000 cages/year saved
  - **Evan H: (Disinfectants Comparison MB-10 versus RESCUE RTU)**
    - Look beyond the price point of the product to the additional “hidden” costs (labor);
    - the “smaller” things (labeling, wear and tear on the bottles, improved compliance with contact times – Bl-2, in/out facility)
    - accounting for “invaluables”
      - product confidence
      - ease of preparation (ready to use); no human error;
      - less opportunity for IACUC findings of expired labels…
  - **Ethan H: (RFID Technology Optimization)**
    - What really goes on during the day as far as total cages under care (census); daily is a “good look”
    - Assures “fairness” to the customer (pays for actual days in the vivarium)
    - Best to take RFID census before activity starts (people and metal equipment)
    - Find errors early so they can be resolved with staff around; “flood checks” of rooms offers easy manual scanning contingency directive

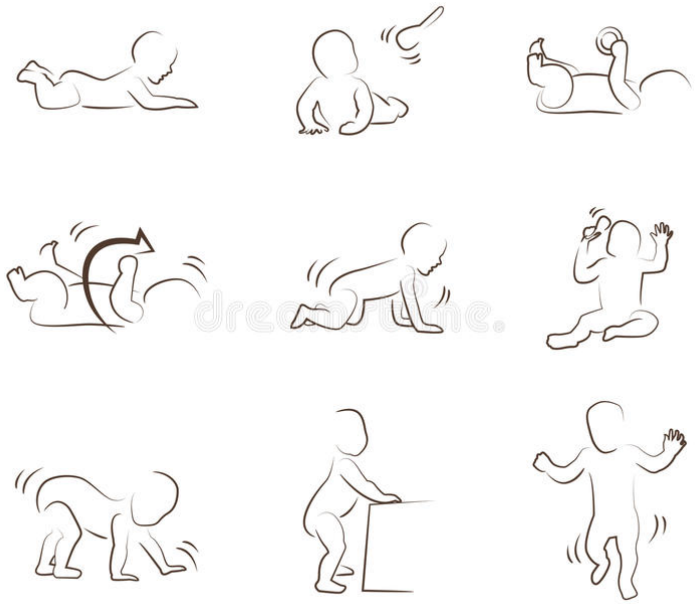
What We Heard….

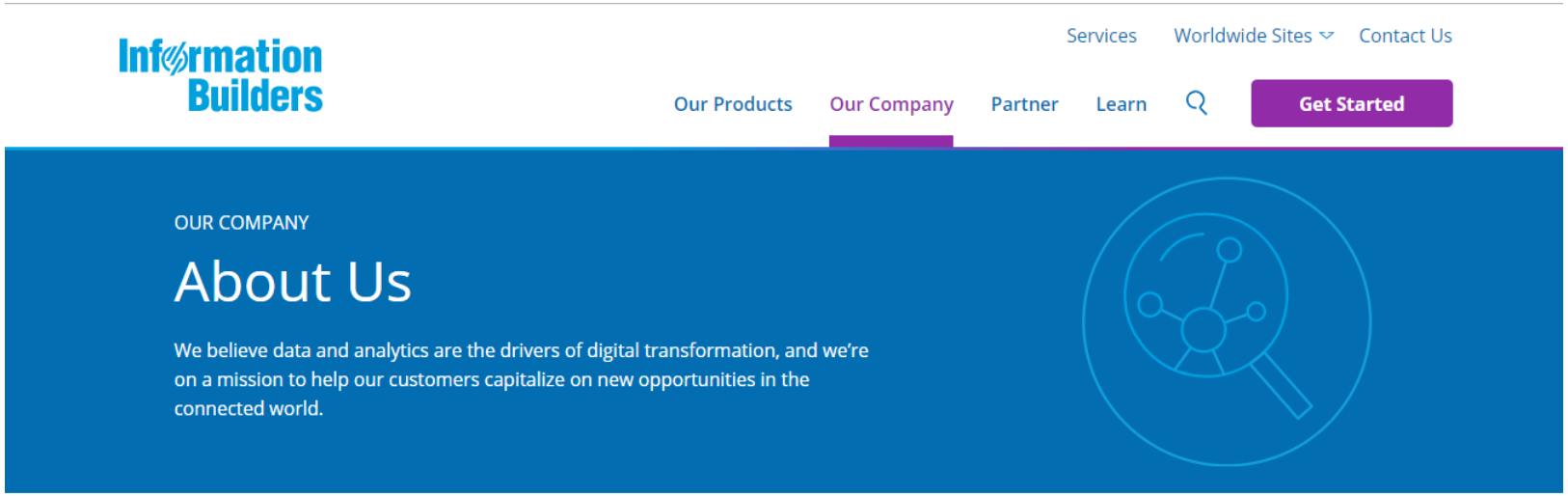
- **Clinical Care and Compliance Management**
  - **Ida W:**
    - reminds us of the “real challenges” of managing adequate veterinary care
    - Reconsideration of PPE > use less
    - Use of iPod Touch >
      - < 1% inaccuracies/omissions;
      - < excessive work to the tune of > 50% reduction;
  - **Colleen T:**
    - “Technology is our Friend – Google Suite”;
    - tracking services requests (surgical, lab submissions, etc.) challenges
    - data mining of historical procedures > improved tracking and/or planning
    - SLACK vs email…the future?
    - “Using what you already have requires creativity”
  - **Eric H:**
    - Behavioral data generally seems to “sit idle”;
    - “general dogma” is not objectively supported > Wound Score over Hour-long observations
  - **Sara F:**
    - The “monkey matcher”;
    - shortages of “men” lead to combining of groups > fighting, decr birth rate;
    - alternating males > allowed for group stability while maintaining a high Sire Conception Rate (SCR)

What We Heard….

- **Human Resourcing and Operational Management**
  - **Hiliary V:**
    - make scheduling visible > making work visible
    - set factors for all room-based tasks needing to be completed
  - **Jason J:**
    - Introduced us to the concepts of “churn rate” and “frequency of churn”
    - zeroed in on changes in the work that is not notable in overall census data review
    - management can now better distribute the “right” amount of human resources
  - **John H:**
    - Automated Continuous Home Cage Monitoring Systems
    - allows for “learning phase” where signally can be adapted to institutional standards
    - ~40% reduction in cage changing when moving to evidence-based operations
    - resources are used more effectively doing what they “should be” doing
  - **Leopoldo Z:**
    - shared with us how to evaluate durable/reusable versus one-use/”no processing” caging
    - Is the lifespan of a durable cage (high breakage compared to disposable) = 6 years?
    - Overall durable caging is often still the best options however there are specific cases where disposable is better
  - **Cliff G:**
    - Took us to the beginning of the human resources “value stream map”/process
    - Showed how continuous evaluation of standard KPIs helps to know exactly how many hires are needed real-time
    - Staffing Crisis can be avoided or minimized
  - **Victoria G/Dennis M:**
    - The Future…..

Next Steps…. Predictive Analytics…





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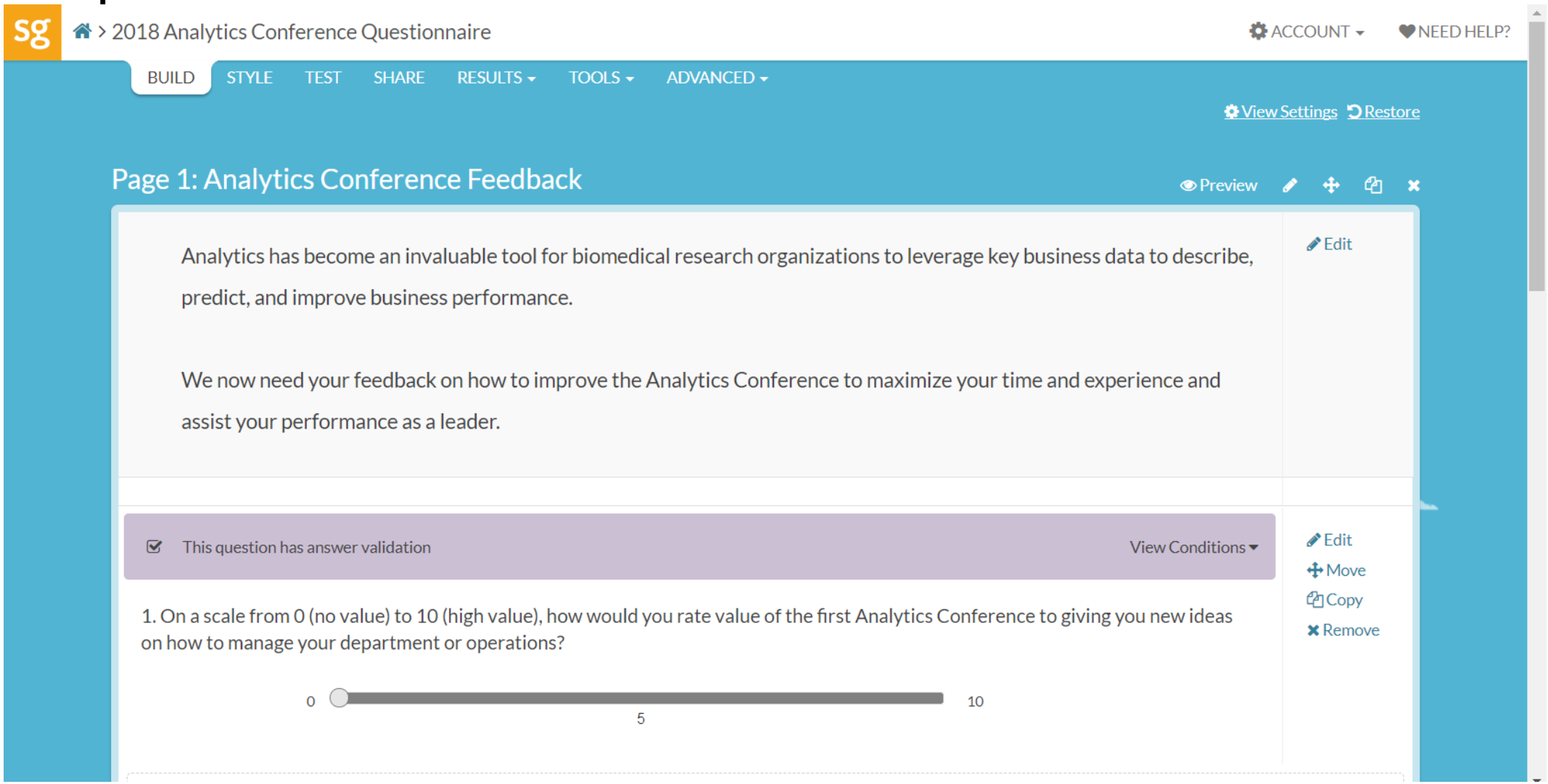

WHAT DID WE THINK WOULD HAPPEN?

- HOPE: We could create something…catalyst…cross-talk…
- PLATFORM: VOEN offers a place to document and continue the dialogue
- EXPECTATION: Find things of interest across many programs…copy as you wish
- REALITY: Novel experience…coming together to compare notes…
- PARTICIPANTS: To attend, you must participate…blessed with a wide-spectrum of inputs…
- FUTURE: The conversation will continue…