21st Century Data rooms: Leveraging New Technology For Your Benefit



Janette Conradson, CEO BetaZi, LLC EnerCom Dallas February 21, 2018



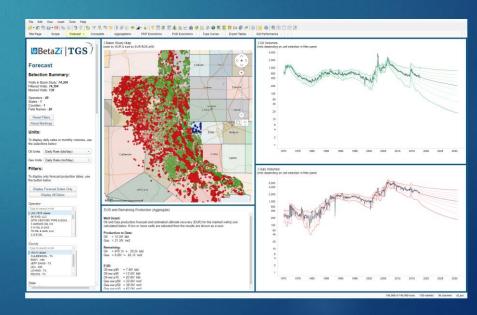
New tools save time/effort all while providing more information rapidly

MINUTES

VS

WEEKS







Who I am and what I do

Janette Conradson, CEO BetaZi LLC.

What I set out to do :

- Started this company in 2012 to bring production forecasting into the future using machine learning
- Best, smartest, most advanced technology out there
- Unexpected job: Data Cleaner
 - Who knew? (Everyone apparently)

Data Problems and Solutions

1) U.S. Reporting in all its particularity: public data

Need for top-notch curation

- ▶ Is it all there?
- Are there duplicates?
- Is it in the form we need (i.e. column headers)?
- What about allocations?

2) Private Data

- Is it all there?
- Is it skewed? (For example, are type curve analogs hand-picked?
- Has anyone looked at it? (!)

What I'm going to show you today

How a strong technology can not only work WITH good data, but can identify problems with it in the first place

 Avoid garbage-in/garbage-out scenario with good data, great technology (notably one with ready VISUALIZATIONS)

- What your new technology can and should allow you to do
 - Don't settle for a product developed as an add-on or after-thought in order to get to market in an all-inclusive package

Ready or not, the future is here

Hallmarks

- —Big data
- -Machine Learning (AI)
- -Predictive Analytics
- -Digital Oilfield

Promises

- Enhanced business value
- -Automation
- -Transformation
- -High velocity workflows





Qualify data in data rooms and the deal itself

- Screen for opportunity
- Validate pitch deck claims
- See what data is out of the normal ranges
- Ask deeper questions earlier in the process based on data results
- Spend your DD time looking at what really matters
- Transact on more properties in less time with increased confidence
- See all data rooms in the same framework

Cue the Visuals

Our technology is production forecasting, which is a numbers-in/numbers-out game, ultimately. But what happens when those numbers become new data points and can be visualized in a nimble framework where you can actually plot results against each other or on a map?

Human beings aren't good at groking lists of numbers, but we're very good at grasping complex subtleties visually.

So here's what a county's worth of well data and forecasts looks like.

Open Stephens County, OK project



What's in your forecast package?

Expect and Demand:

- Automatic forecasts with visualization
- All underlying data in a clean and allocated format
- Full range of uncertainty or probabilistic distribution (P10 to P90)
- No human bias inserted
- Reliable/ Accurate projections
- Exportable by decile
- Ability to perform Type Curves on the fly & test them
- 'What if' economic scenarios by whole deal, single PDP well or single PUD well
- Instant, repeatable results

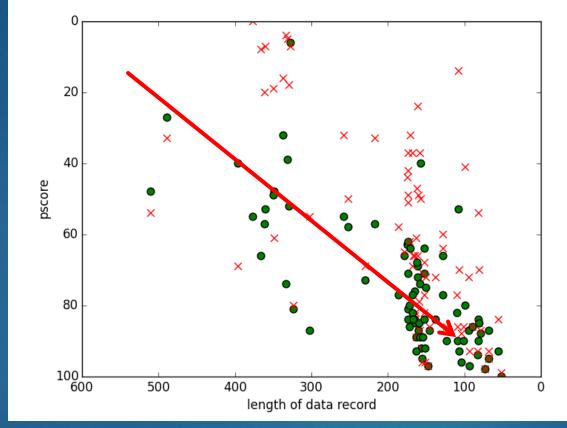
The goods in action: case studies

The following are deals we analyzed for clients and examples of what a good piece of technology can do for you. (Though these were custom deals, you could get similar results from an off-the-shelf product that used public data). [Full disclosure: yes, we make one of those.]

Data Room 1: \$850MM Deal

The producer was hiding the fact that the field was in severe pressure decline.

Disjunction Revealed in 15 Minutes ²roduction (low to high)



Vintage of well (old to young)

Moral(s) of the story:

- Don't trust a database
- Well counts shouldn't vary by 100%
- Demand verification tools that start from first principles.

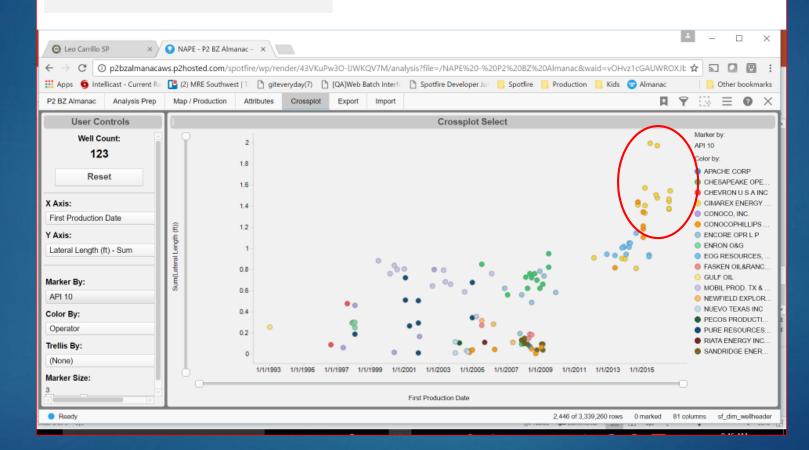
This disjunction was revealed in 10 Minutes



Data Room 2: \$25MM Deal

use d the

First Production date vs length: We see that everyone who drilled after 2009 used the longer length; Company for sale had the best record in the field and was selling at a reduced price.



Cross-plot on any metric in database to see benefit instantly





12

Data Room 3: \$150MM Deal

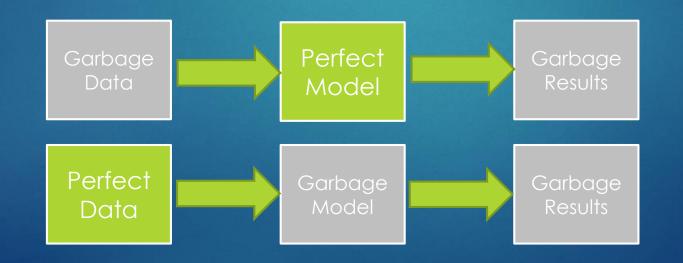
- Company forecasts supplied started at a point that was significantly higher than company supplied sales data.
- When asked, company provided three more databases.
- Well counts varied from 108 to 270 PDP wells.
- During three months of due diligence, sales declined further





WARNING: GIGO still matters

- The best technology cannot make up for bad data: Be ruthless in vetting your data provider.
- Understand the science behind the specific technology/ies on offer so you can gauge the value of the results you are going to get.
- Find out how the model underlying the technology is tested for accuracy. Are results repeatable?





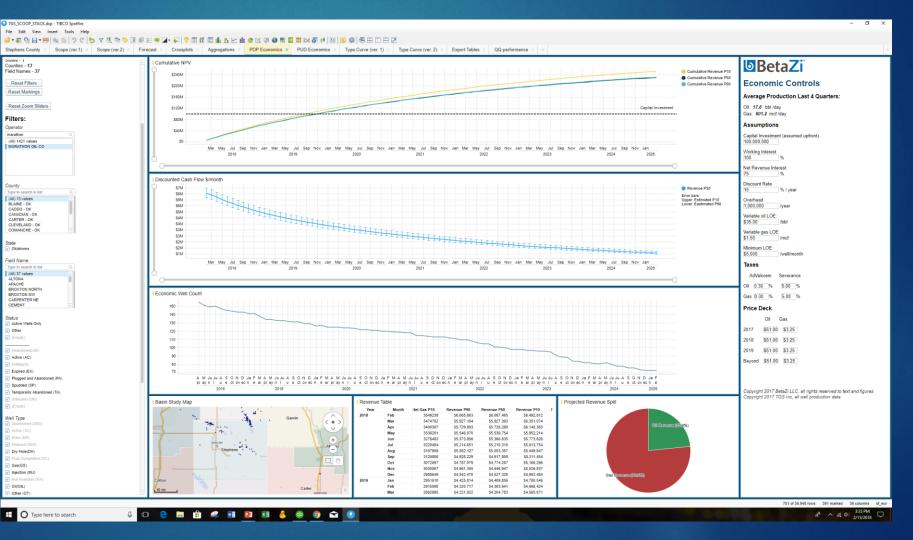
Instantly test Type Curves

BetaZi	Well status contributing to Median Well Graphs	Producing Well Count	Select percentile to be displayed on below graph [p50 +
pe Curve lection Summary:	Flugged and Spudded (SP) Temporarity A	300 380 200 180 100	I Aggregate Currulative Volumes - Oil (bb) Gas (BOE) When there are no filters or makings, all wells are displayed.
in Basin Study: 19,962 d Wells: 429 d Wells: 391	82.4%	80- 0- 0 10 20 30 40 80 80 70 80 80	18,000
ars: 1 - 1 is - 13 ames - 37	Selected Wells Oil Production (bbl/day) Oil (bbl) Average Daily Production	Selected Wells Gas Production (mct/day) Gas (mcf) Average Daily Production	140.000
p90 = 95.5M bbi p50 = 71.7M bbi p10 = r46.7M bbi p50 = 70.61M mcf rp50 = 1.320.7M mcf rp10 = 2.221.0M mcf	4800 4800 3800 3800 2800 2800 2800 2800 2800 2		120,000 100,000 80,000 60,000
et Filters (Markings			40,000
oque Well Selection for Type Curve:	0 10 20 30 40 50 60 70 80	-5.000 Y 0 10 20 30 40 60 60 70 80	4 13 22 31 40 49 58 67 76
Using the concentration of the selected wells are truly pour. (This computation may take some times if a large number of wells are ed. agood indication is still computing is that Background task (1)" is on the bottom left of this Spotfire page.)	Oli Volumes böliday The graph provides the median of markad wells in böliday. When here are no filters or mankings, all wells are displayed. 130 130 130 130 130 130 130 130 130 130	Gas Volumes mcHday This graph provides the median of marked wells in mcHday. When there are no filters or mankings, all wells are displayed.	Enter a Type Curve name#dentifier below: Papa's wells Save Type Curve results in a new table called sf_Typecurve_Data: Save Type Curve results
etrics used to determine validity are Mean Absolute Error (MAE) and dx-Leibier (RL) Divergence.	100 50 80 70	800 800 700 600	Median Well Daily Volumes Month In Well Count Type Curve M Oil Produced Oil p10 Oil p20 Oil p30 Oil p30 Oil p30 Oil p30 Oil p30
as): 0.199 -0.041	60 40 30	800 400 300	0 390 Papatwells 28 51 48 46 44 r 381 Papatwells 40 44 42 31 2 377 Papatwells 30 39 37 36 31 31
, so 0.063 isstematrics for the acceptance of a type curve are: 1) MAE<0.07 and 2) $t_1>0.2$	20 10 0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 80 80 70 80 90	4 379 Papers verils 22 34 31 29 27 # 377 Papers verils 18 31 20 26 25 # 332 Papers verils 18 31 20 26 25 # 332 Papers verils 18 30 27 25 23 # 376 Papers verils 15 36 25 23 21
's:	MAE Oil Value	MAE Gas Value	Table 1: Production Wells use to create Typecurve Graphs
ay only forecast projection dates, use the button below lay Forecast Dates Only Display All Dates	ne.	we.	apl_act_10 Operative Field Name Status Well Type First Producti Ist producti 50412216100 MARATHYON PUTMAM Puoged and A. Ox101. 211/15 501122211000 MARATHYON Pooged and A. Ox101. 211/15 211/15 501122211000 MARATHYON Pooged and A. Galaxies 111/16 211/15 501122210100 MARATHYON POOREDLEW Advectoring Galaxies 111/17 501122210100 MARATHYON OXEEDLE W/M Advectoring Galaxies 111/17 50112225100 MARATHYON OXEEDLE W/M Advectoring Galaxies 111/17 50012225100 MARATHYON OXEEDLE W/M Advectoring Galaxies 111/17 5000122364 MARATHYON OXEEDLE W/M Advectoring 111/17 5000122364 MARATHYON OXEEDLE W/M Advectoring 111/17 5000122364 MARATHYON OXEEDLE W/M Advectoring 111/17
ar Q. 21 values	0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4 0.45 0.5 0.55 0.6 0.65 0.7 Absolute KL Oli Value	0 0.05 0.1 0.15 0.2 0.25 0.3 0.36 0.4 0.45 0.5 0.65 0.6 0.65 0.7	35073248028 MARATHON ALTONA Active (AC) Gaw(0S) 11/1/85 5/1/17 35073249480 MARATHON ALTONA Active (AC) Gaw(0S) 7/1/85 7/1/17 350732494 MARATHON ALTONA Active (AC) Gaw(0S) 7/1/85 7/1/17
HON OIL CO	k.	K. R.	3697225430 MARATHON VIRTONA-C. Active (AC) Gand S9 7/184 2/1716 35917223600 MARATHON VIRTONA-C. Active (AC) 7/189 4/174 35917223600 MARATHON VIRTONA-C. Plaged and A. Ol(1) 7/189 8/172 35917223600 MARATHON VIRTONA-C. Plaged and A. Gand S9 6/188 8/172 35917223600 MARATHON VIRTONA-C. Active (AC) Gand S9 6/188 7/117 35917223600 MARATHON VIRTONA-C. Active (AC) Gand S9 1/18 3/115 35917293604 MARATHON MARALOW Active (AC) Gand S9 1/14
			35031213540 MARATHON FORT SILL Active (AC) Gas(GS) 10/1/87 6/1/17

Explore Economic 'What-ifs' on PDP and PUD Wells

Change assumptions instantly within same program:

- CapEx or Loan amount
- Price Deck
- Etc



The Take-Away

- ▶ It is time to update how we are assembling and using data rooms for oil deal valuations.
- Advances in science and technology allow for a fresh view of data revealing more information in less time with increased certainty.
- > One, deterministic, number is no longer valid as the sole arbiter of value.
- New models give you the full spread of uncertainty or potential distribution of well outcomes and therefore the deal value spread in seconds.
- Products are now100% Automatic & unbiased = no human "fingerprints" on results.
- Redundant sensitivity testing is eliminated in this new work flow with the ability to export by decile range.
- Use of new tech allows decrease in staff time on compilation and investigation
- Increases in computing power allow you to see ALL the data instantly on any play and filter/cross plot at will.
- Applies to every transaction:
 - Buying/Selling
 - Investing & Capital Expenditures
 - Financing/Lending



Adapt now!

Remember: In the land of the blind the one eyed man is king

- Many companies are slow to adopt new technology.
- Use this fact for your benefit.
- Apply the new tech available now to find arbitrage opportunities and increase ROI on Data Rooms you are looking at.



Thank You!

Janette Conradson, CEO jConradson@betazi.com 530.308.9074

11209 Brockway Road Suite 302 Truckee, CA 96161

www.betazi.com

