



*Thoughts on Data Analytics within
the Integrated Utility*

Day for CDR

2 375 937
2 448 759
2 500 034
2 671 023
2 921 903
2 187 392
2 931 739
2 473 528
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Duration MCR and PP

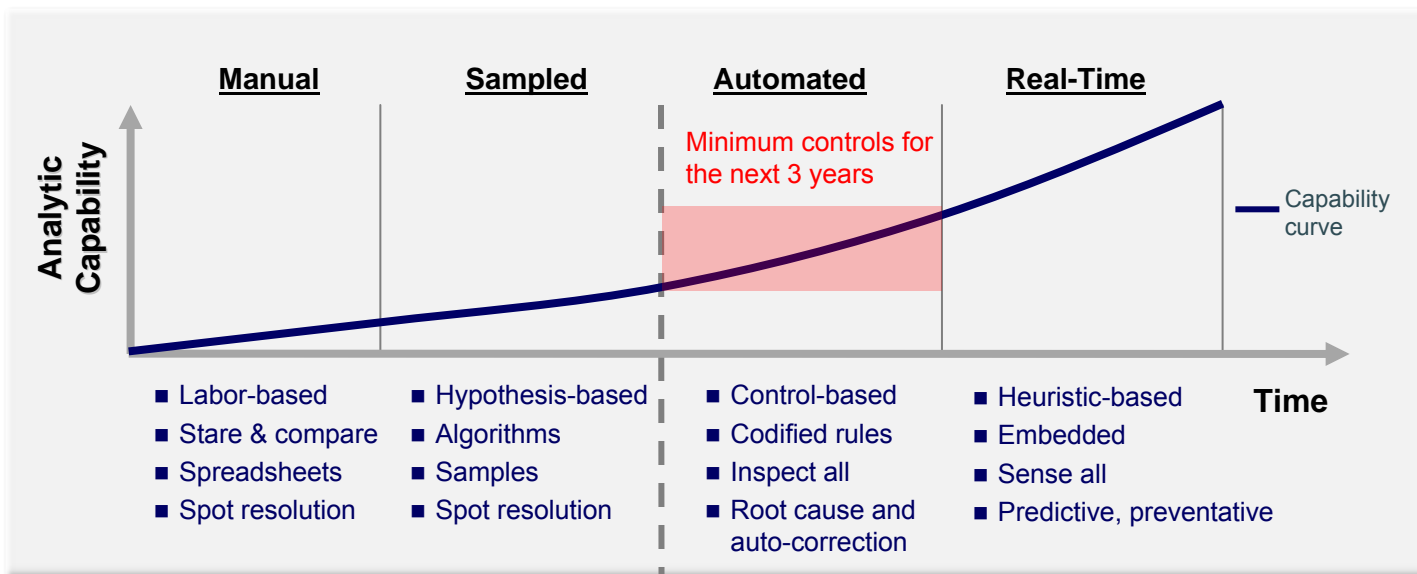
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Martin Dawes Analytics at a Glance



- Process-driven data analytics that enable providers to maximize cash from operations
- Integrated platform
 - Data acquisition/ETL – any source, any data
 - Data analytics – correlate, normalize, and enrich to enable business analytics
 - Business analytics – identifies atomic-level root cause errors, uncovers hidden values, and enable process automation
- 4 major discriminators
 - Able to address unlimited volumes (more than 1B/day) and conditional logic to emulate and analyze your business as it actually works
 - Leverage existing warehouse assets while enabling correlation across any data source – without imposing new warehousing requirements or data schema
 - Visual, iterative structure enables agile development process to minimize time-to-value
 - Library structure overcomes complex and opaque nature of SQL programming and inherent volume and logic challenges of excel





Analytic is Limiting Factor

- Most industries and enterprises fully dependent on data- and logic-intensive processes
- Minimal controls for data that flows across functions and the logic that converts data to value
- Most enterprises use “good enough” set of tools until business pressures become acute or where progressive enterprises see “extraordinary business case”
- Friction between solving chronic data challenges and time/cost considerations

Analytics is Business Enabler

- Operational visibility and addressing the “white space” that exists between business functions
- Uncover hidden causal relationships value because the data is affiliated with the logic that governs it
- Ability to retain local tools where they add value while improving controls and transparency
- Ability to create more complex offerings and products without realizing unnecessary risk

Operational Hot Buttons for Integrated Utilities



Process Area	Business Value	Sample Analytics
Meter-to-cash (Retail Energy)	<ul style="list-style-type: none"> • Improved revenue assurance • Ability to accelerate move to SmartGrid/Smart Metering • Greater segmentation of customers and customer profitability 	<ul style="list-style-type: none"> • Compare actual energy usage to expected profile to identify revenue • Compile profitability and usage patterns to determine implications of SmartGrid • Secondary Analytic: Develop customer segmentations based on profitability over time to determine marketing opportunities
End-of-Day Reconciliation (Merchant Energy/Asset Management)	<ul style="list-style-type: none"> • Avoid energy leakage and ensure operational integrity/excellence between mid-office (nominated data) and operations (actual volumes) • Associate value to off-takers and suppliers (counterparty value) 	<ul style="list-style-type: none"> • Compare changes in allocation data to invoices to determine risk of out of balance and to identify extremely high- or low-profitability counterparties • Locate discrepancies between energy nominated and delivered for revenue leakage and balance risk • Determine billing/invoicing errors with counterparties to drive performance KPIs, best-in-class positioning, improved retention
Internal Controls	<ul style="list-style-type: none"> • Address inconsistencies between existing processes and systems either across the energy value chain or within an operating group/unit/department • Create enhanced controls for ad-hoc tools based on .xls, Access and others • Reduce need for data consolidation activities by controlling source data “at the source” 	<ul style="list-style-type: none"> • Compare data inputs and outputs in a set of redundant or overlapping systems (multiple dispatch tools, compare trading and ops data) • Identify source and recurrence of discrepancies between enterprise trading tools and .xls-based tools for complex deals • Create “canary in the coal mine” measures/KPIs to be run by internal auditors on a monthly or quarterly basis to find inconsistencies in results vs. interim data or logic

Merchant Energy Reconciliation Pain Points

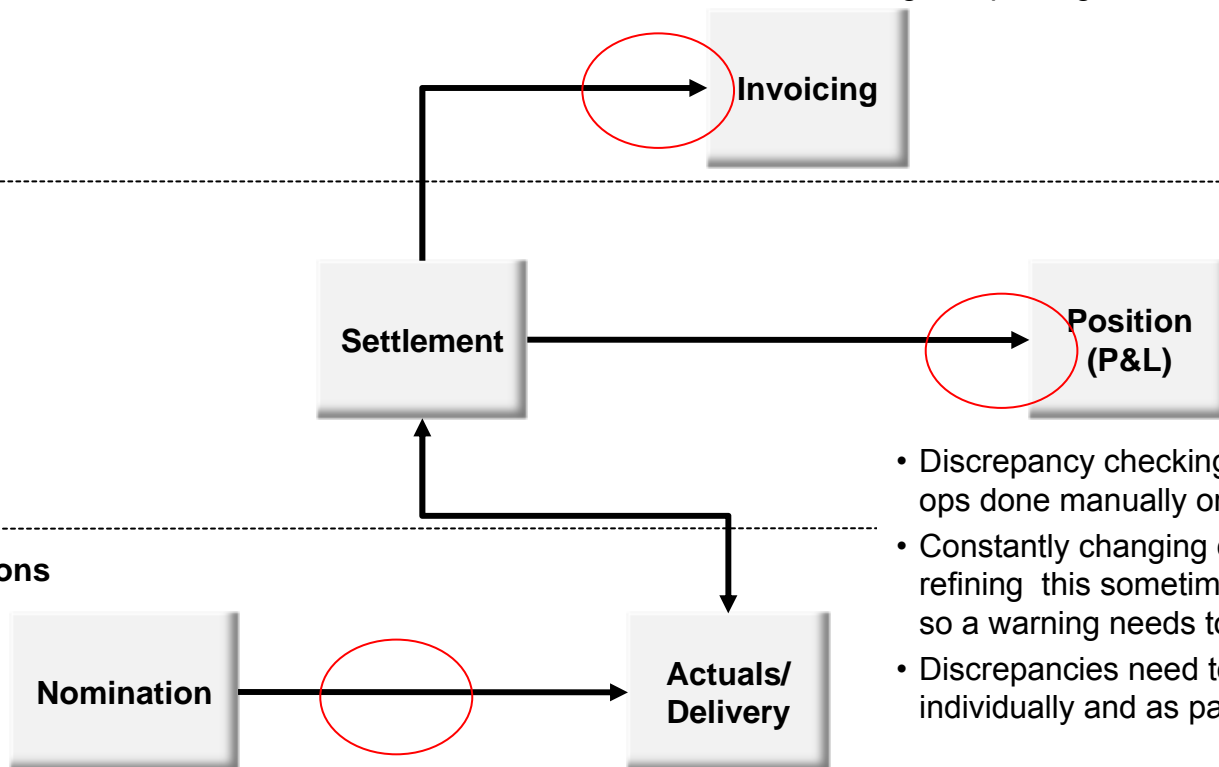


Billing

- Invoicing tool is often distinct from trading/settlement tool
- Daily financial reconciliation requires cross-check of invoicing and posting financial data

Risk

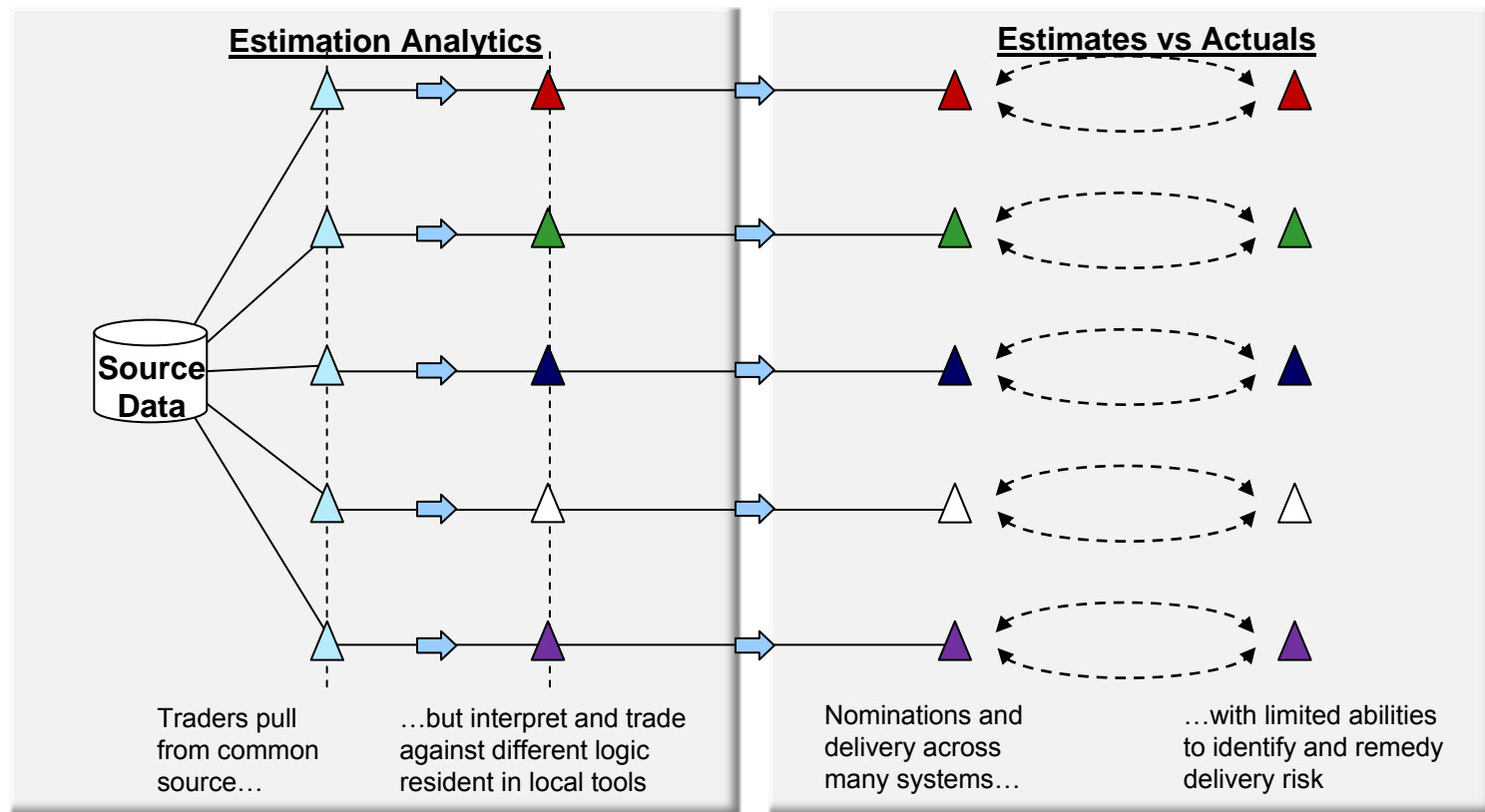
Operations



- Discrepancy checking between trading, settle, ops done manually or with .xls
- Constantly changing data requires updating and refining this sometimes happens automatically so a warning needs to be flagged
- Discrepancies need to be understood individually and as patterns

- Difference between nominations & actuals leads to loss and potential out of balance charges and penalties
- Associate value to off-take and suppliers, determine which counterparties may be losing money and which are reliable suppliers/off-takers

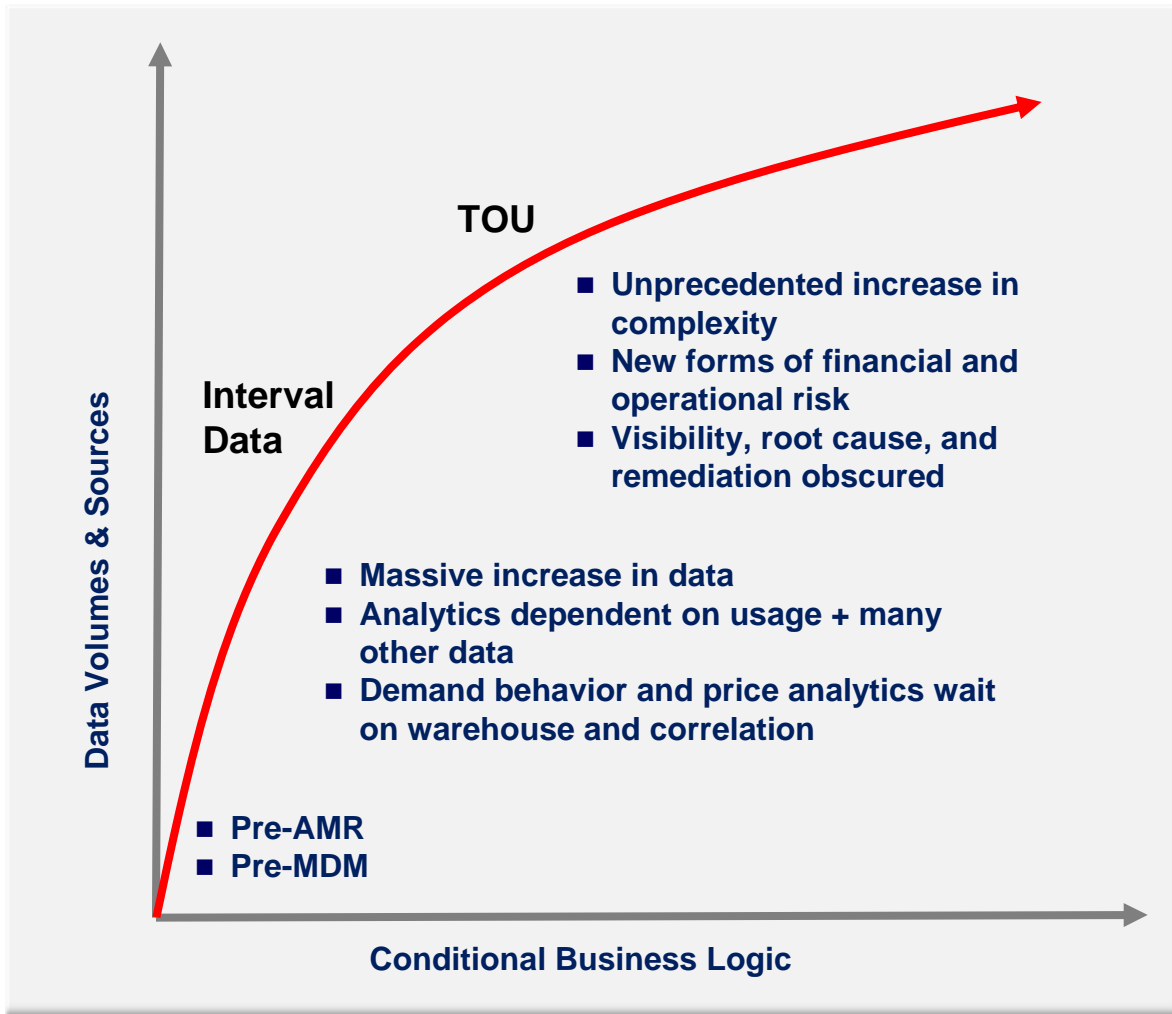
Merchant Energy – A Closer View of Risk and Value



- Visibility to logic and interpreted data across range of tools
- Can track analytics which makes it easier to maintain local data, excel-based trading/mid-office tools, etc.
- Greater transparency reduces inadvertent risk and allows larger risk limits
- Reduce variance and converge to best practices

- Visibility to nominations versus actual delivery
- Identify systemic root causes to reduce uncertainty and risk
- Lower operational costs and optimize delivery
- Counter-party assessment

Meter to Cash – Process and Product Evolution Result in Increased Data Dependency



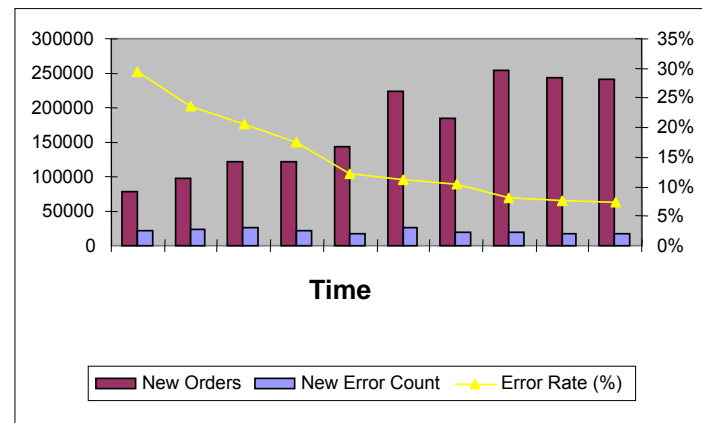
- Business performance increasingly dependent on data
 - Visibility to data AND logic
 - Shift to smart metering increases the risk of fraud and need for cross-operational controls
 - Reduced ability to manage operational inefficiencies via rate changes
- Increased complexity of revenue model
 - Product complexity - More “moving pieces”,
 - Pricing complexity - revenue tied to time of use
- Overcome risk of new product introduction
 - Avoids unnecessary risk exposure
 - Enable you to be as aggressive as you want (to accelerate expected demand management value)

Current Dynamics Will Strain Meter-to-Cash; Planned Changes will Severely Stress Meter-to-Cash



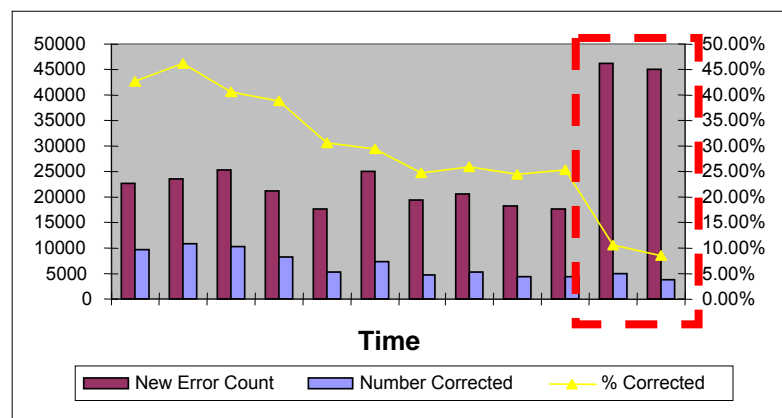
- Margin erosion (pre-SmartGrid)
 - Capital and cost of capital pressures
 - Increasing bad debt costs
 - Lower commercial tenancy rate
- SmartGrid development (now in pilot; 1-3 years in roll-out)
 - Interval data will overwhelm system; but will not cause material billing issues
 - Time-of-use (TOU) pricing will severely complicate meter-to-cash performance
 - Pilots will test technical feasibility; may not test business performance
 - Billing and CIS upgrades solving billing; not full accuracy
- SmartGrid “enlistment”
 - Utilities will seek to enlist SmartGrid customers without mature marketing
 - Expect promotions and incentives to add pricing complexity
- Service Development
 - Packaging and pricing by energy type adds to the billing complexity by adding data sources and logic to the process
- SmartGrid (3-7 years)
 - Micro-settlement with customers has little current precedence
 - Integrated and cross-service dependency

New errors increase in correlation with new orders...



...the goal is to reduce error % WHILE growing volumes...

New introductions tend to spike errors...



...the goal is to see it near real-time and aggressively reduce back to a downward trend



- Typical hurdles to adoption
 - Technical feasibility – we analyze, in near real-time over 1B records a day across more than 100 pricing plans today for one customer
 - Business case – we produce working capital within 3 months 100% of the time; and over 50% ROI within one year....because we are directly affecting how revenue is recognized

- Our experience shows successful adopters address real change challenges
 - Intellectually understanding a market risk or opportunity is straightforward
 - Overcoming the inertia of “good enough” tools is hard - but utility companies are launching data-driven business models that will overwhelm these tools
 - The path can be incremental and organized:
 - Include data analytics as part of the overall SmartGrid development and to realize early cash gains from current operations
 - Use early working capital to fund the overall capability

Thank You For Your Time



If there are any further questions, desire for follow-up, etc.; please feel free to reach me.

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