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Business intelligence and data integration: It's not just for giant companies

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How you know there's a problem or need

How many jobs am I winning per estimator? Are they improving?

Everywhere I look, people have different versions of the same accounting data. Which one do I believe?

Someone used to push a button to get it. Now they're gone, and we think they took the button with them.

How do we compare to industry?

I don't want to spend every weekend dumping job cost data & scheduling data into Excel.

The new building owner has mandated requirements that we have to follow.

There's no consistency to how we measure project managers. 30/60/90% profitability would be great!

I need to know when and where we're spending too much on overtime.

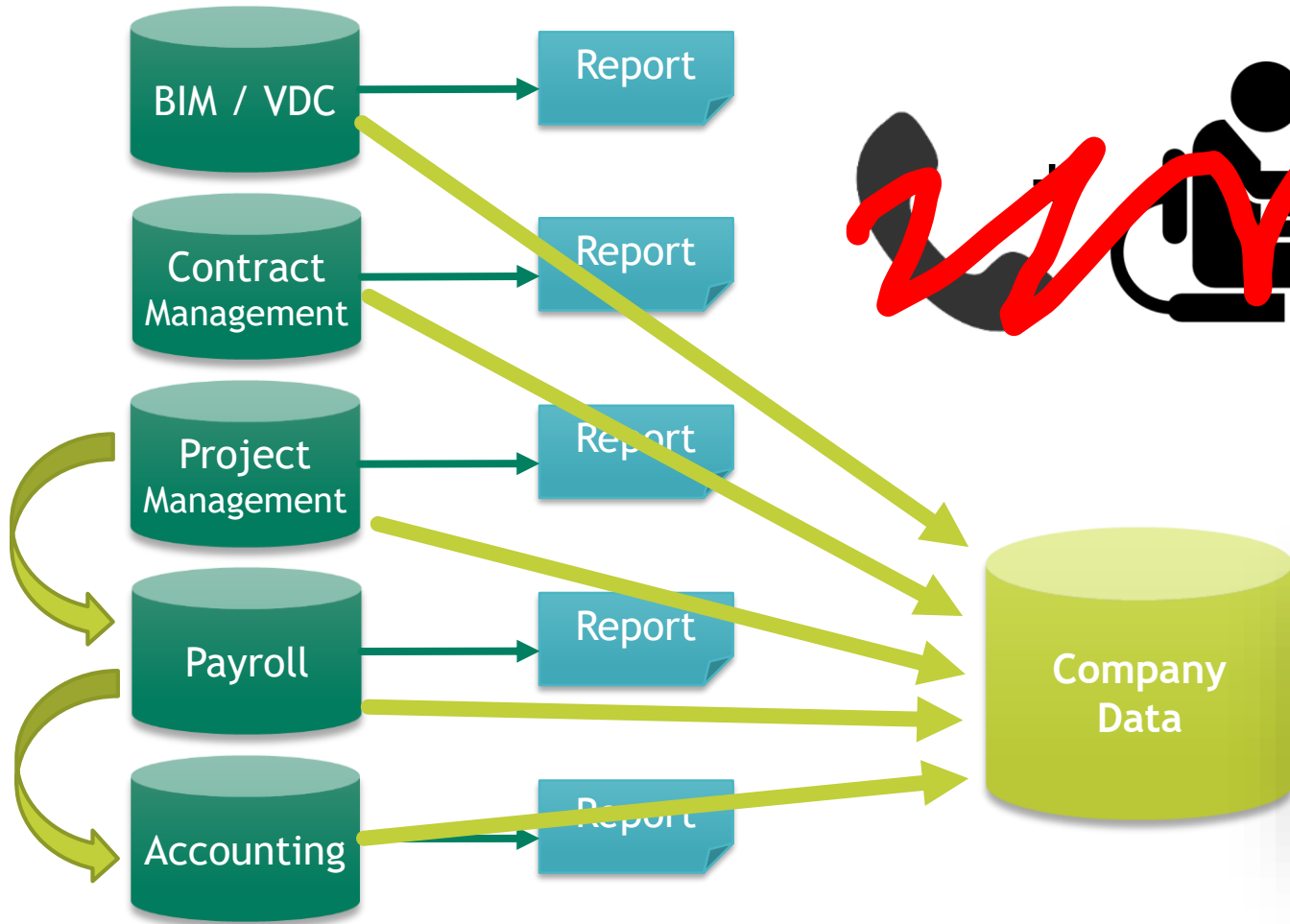
We've outgrown our processes, and they are too complicated to maintain.

We don't know how to get what we need.

Before it all comes together

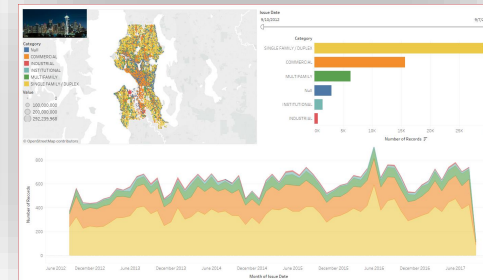


After data analytics solution



Report

- Accounting
- Project management
- Payroll
- Contract management
- Other



Applications for construction

- ▶ Estimating and bidding
- ▶ Accounting systems
- ▶ Project management systems
- ▶ Project scheduling
- ▶ Fleet management
- ▶ Other systems
 - ▶ Invitation to bid
 - ▶ Contact management
 - ▶ Prequalification
 - ▶ Subcontractor review
 - ▶ Subcontractor payment
 - ▶ Safety
 - ▶ Payment
 - ▶ Lien management
 - ▶ Etc.



The power of business analytics

**Business
Analytics**

**Better
Outcomes**



**Smarter
Decisions**



**Actionable
Insights**



**Relevant
Information**

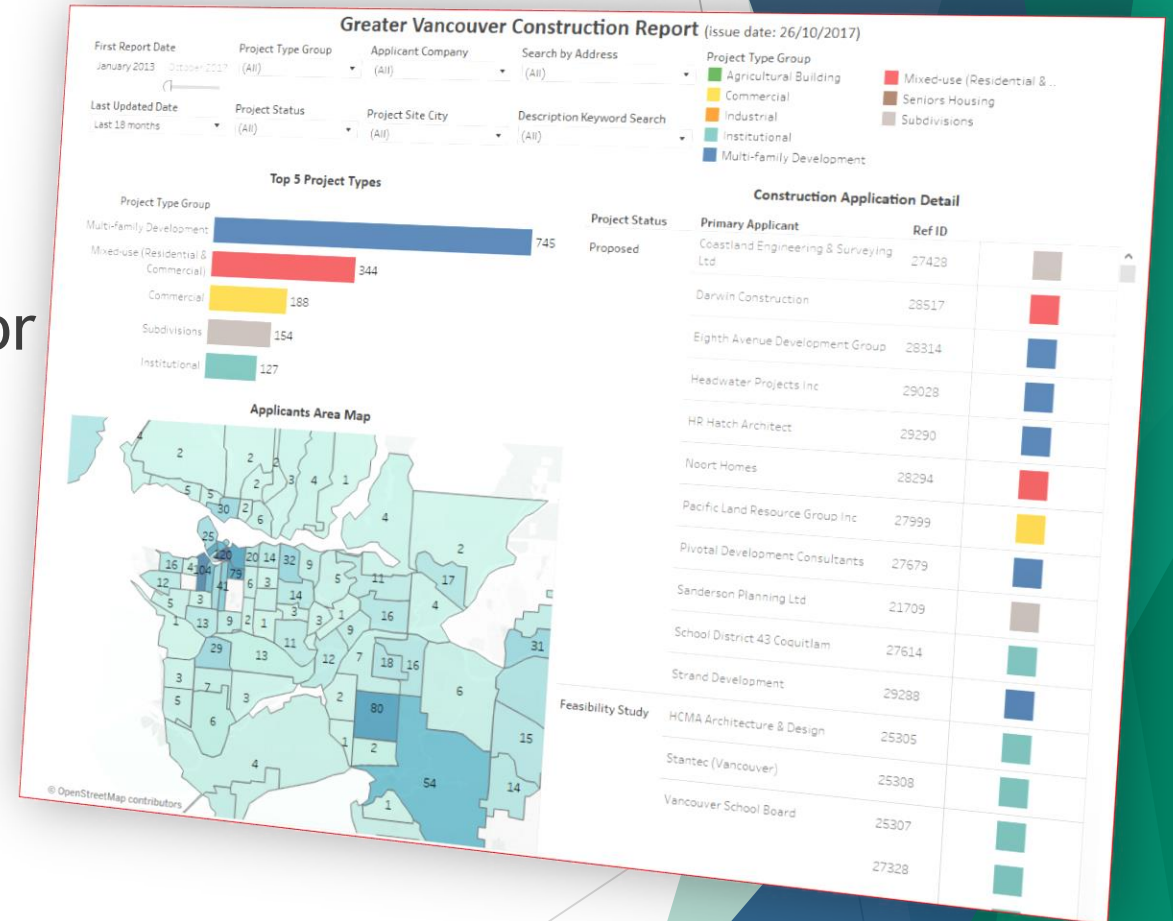
Business intelligence and data integration



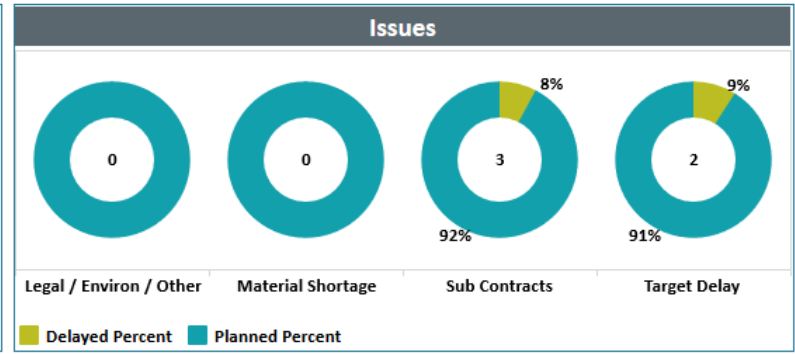
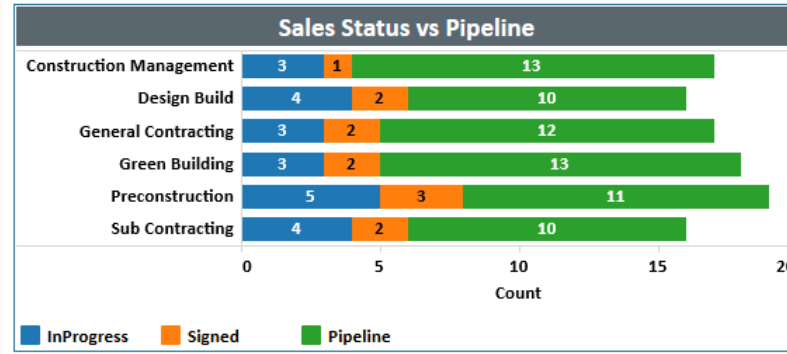
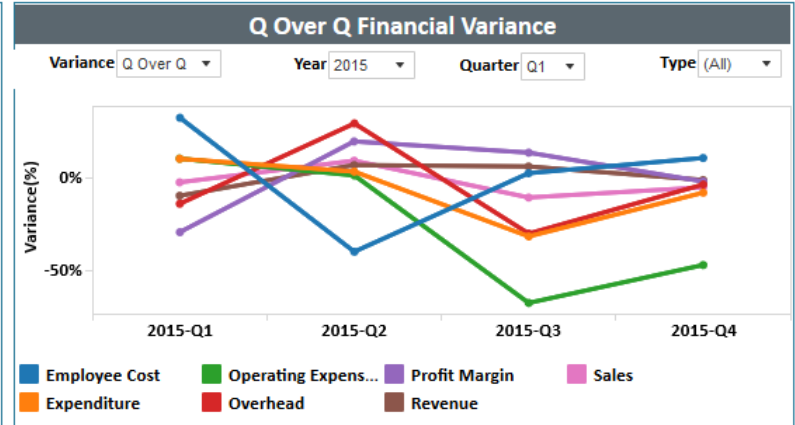
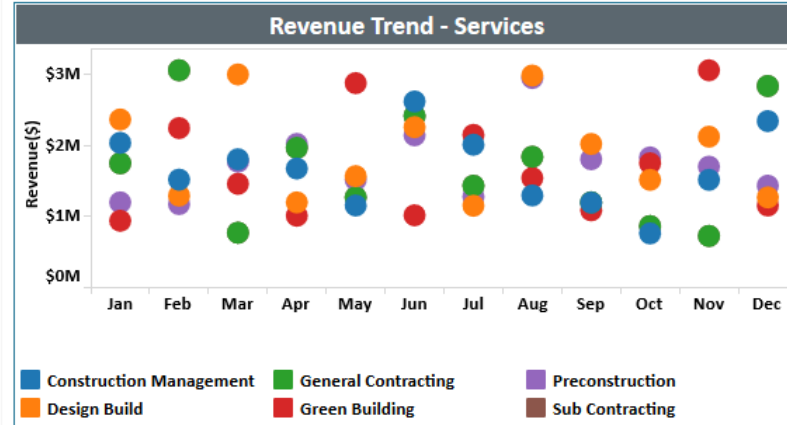
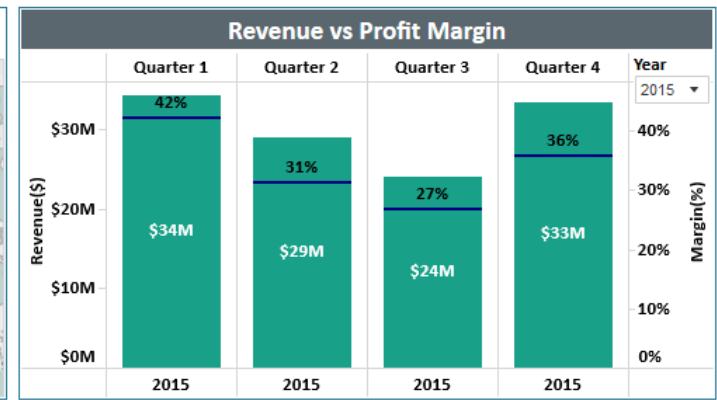
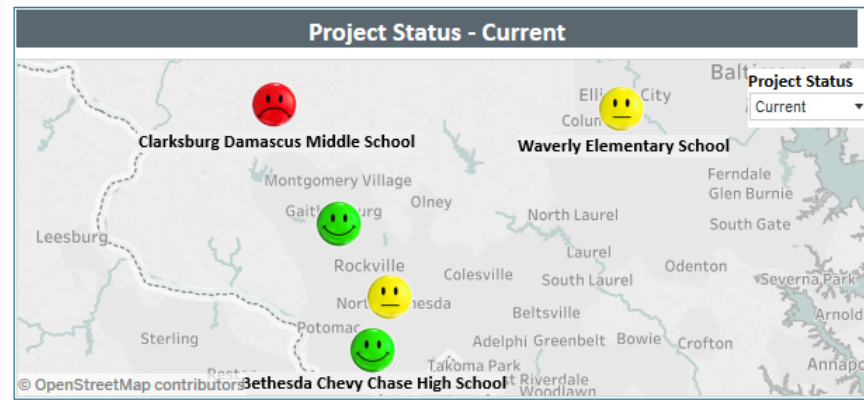
- ▶ Information for every decision maker
 - ▶ Data discovery, reporting, analysis, scorecards, and dashboards
 - ▶ Delivered where, when, and how needed
 - ▶ View of all time horizons: Past, present, & future
 - ▶ Up to date and performant
- ▶ Free to answer critical business questions
 - ▶ Answer “how am I doing,” “why,” and “what should I be doing?”
 - ▶ Ensure organizationwide insight and alignment

Benefits of a data analytics solution

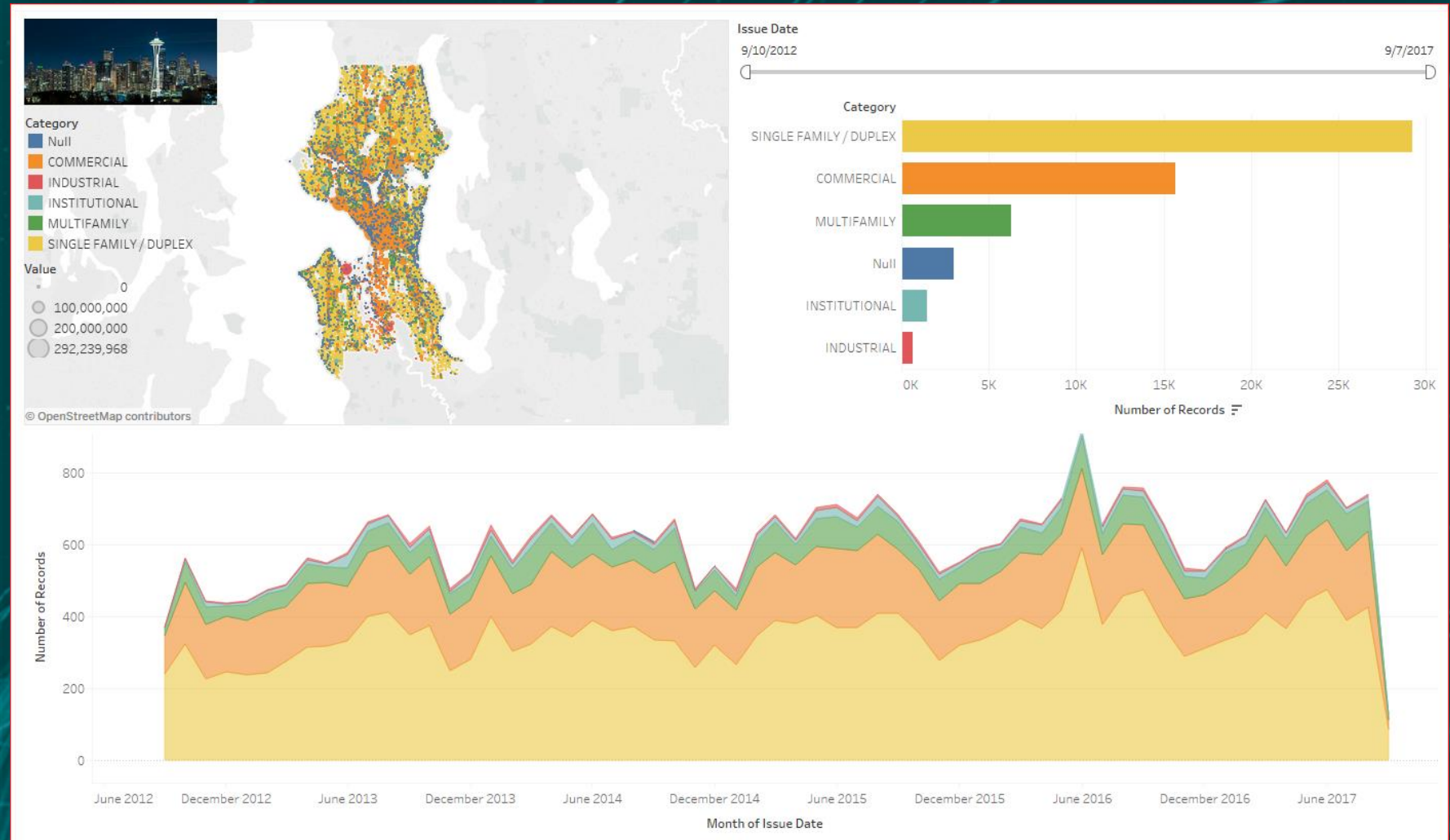
- ▶ Single version of the truth
- ▶ Reports, dashboards, scorecards, visualization, data discovery
- ▶ Companywide view appropriate for all roles
- ▶ Self-service analysis
- ▶ Any format, any time
 - ▶ Mobile, iPad, offline access



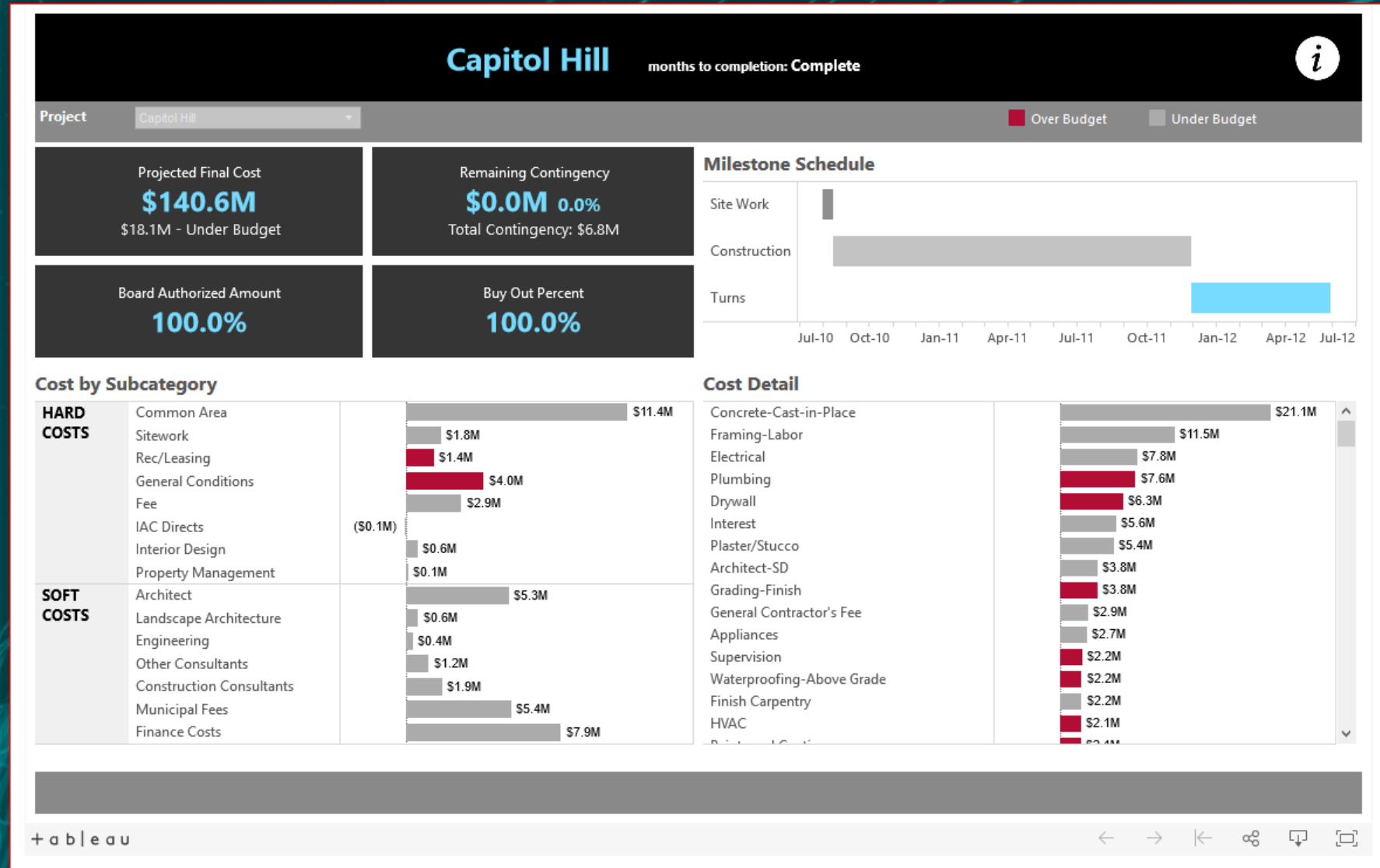
Commercial construction dashboard



Commercial construction dashboard



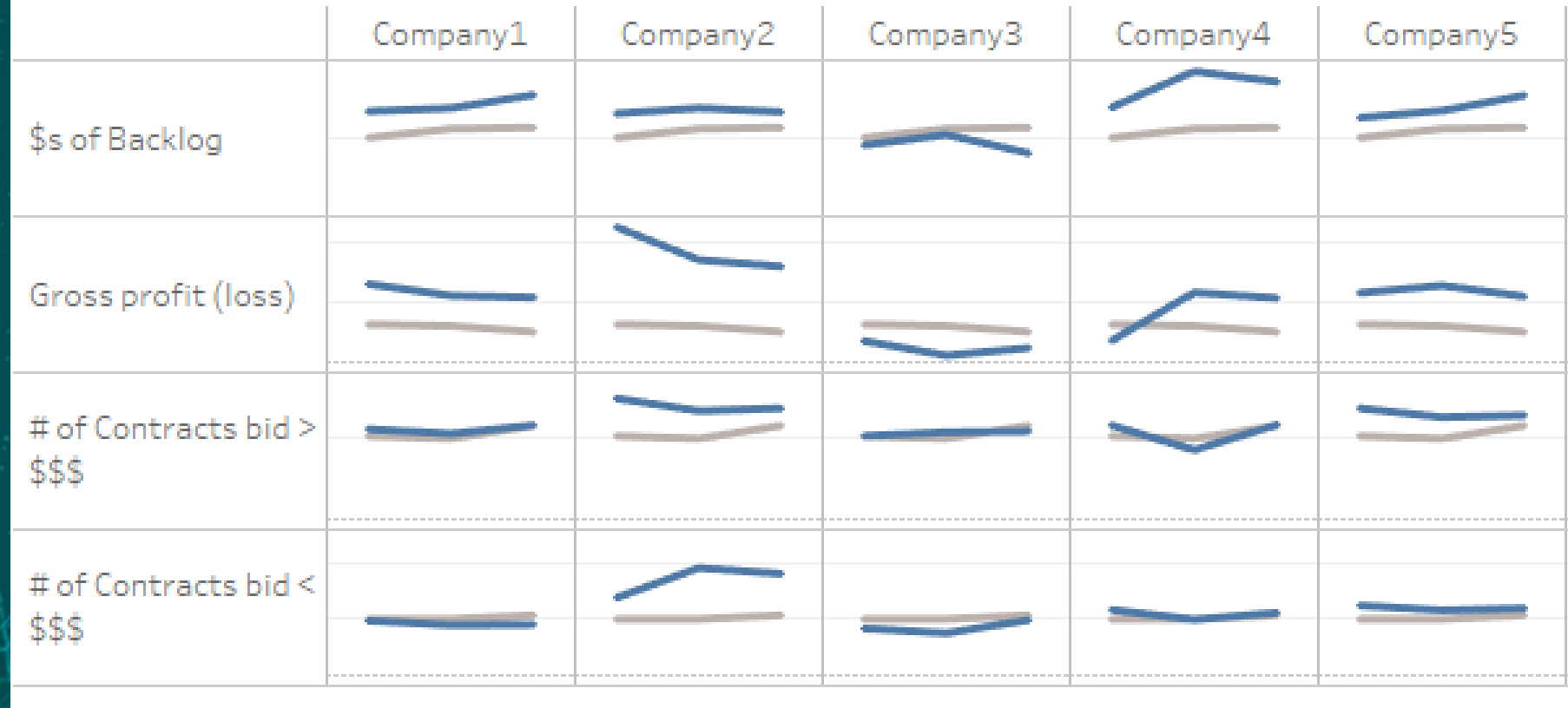
Construction dashboard



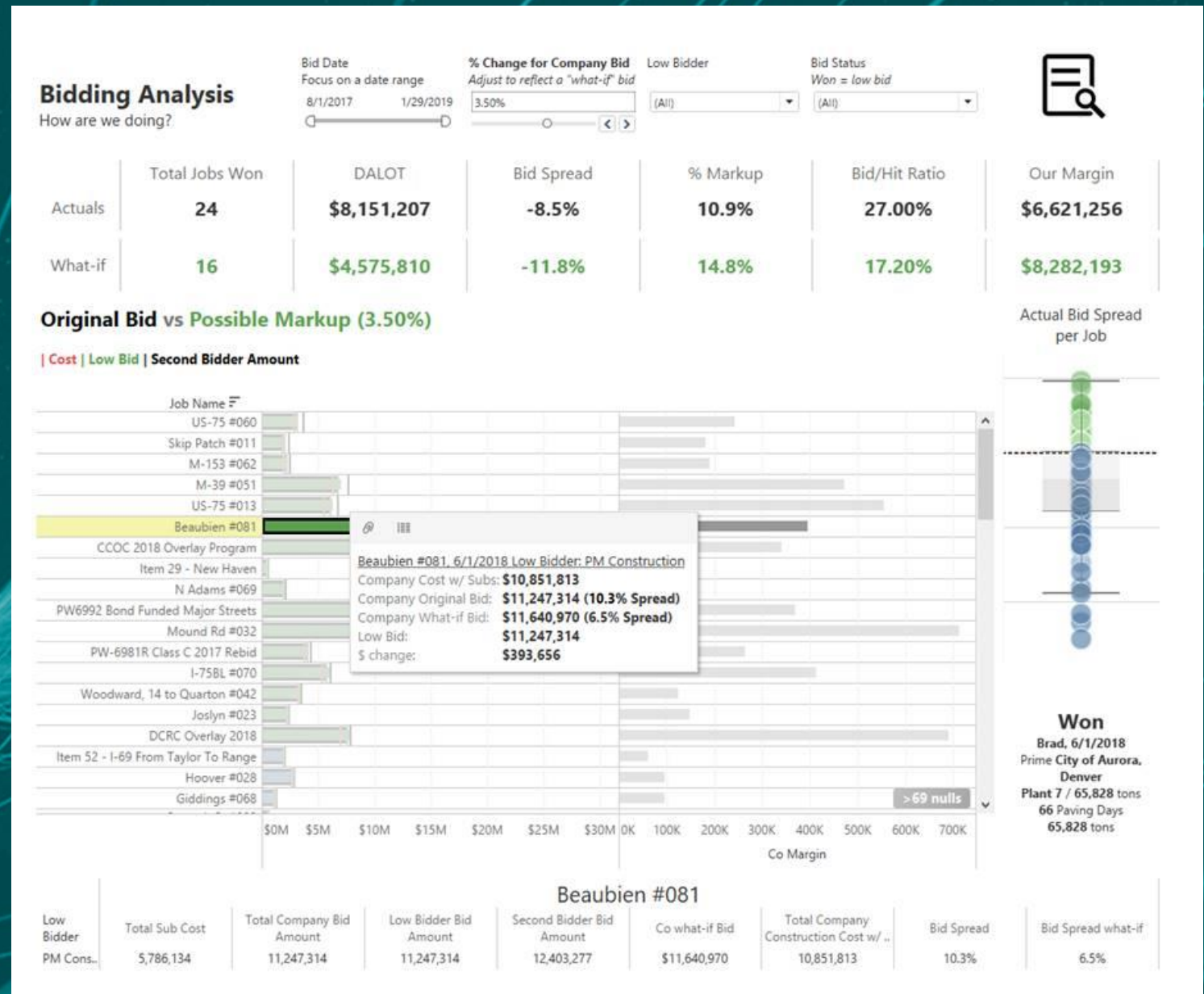
Sample from peer group solution

2016 to 2018 Metrics

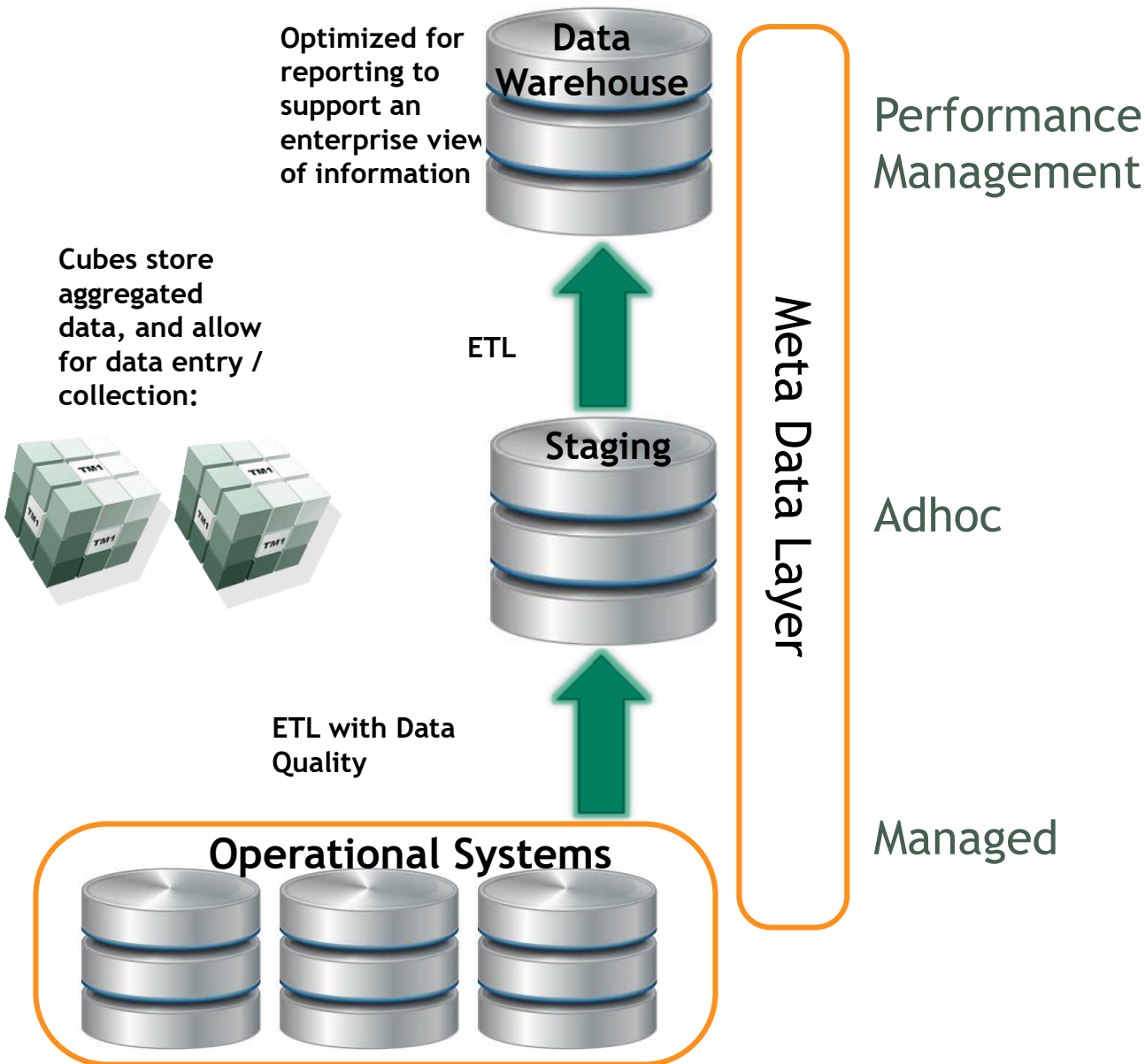
COMPANY AVERAGE VS CONSORTIUM AVERAGE



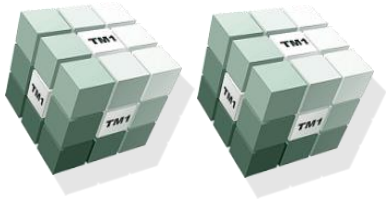
Construction dashboard



Business analytics architecture



Cubes store aggregated data, and allow for data entry / collection:



Account	Jan	Feb	Mar	1 Quarter
S Series	1,135,700	1,239,400	1,400,100	3,775,200
L Series	1,335,500	1,414,300	1,645,500	4,395,300
T Series	742,700	819,000	902,800	2,464,500
Total	3,213,900	3,472,700	3,948,400	10,635,000

The real world problem of data issues

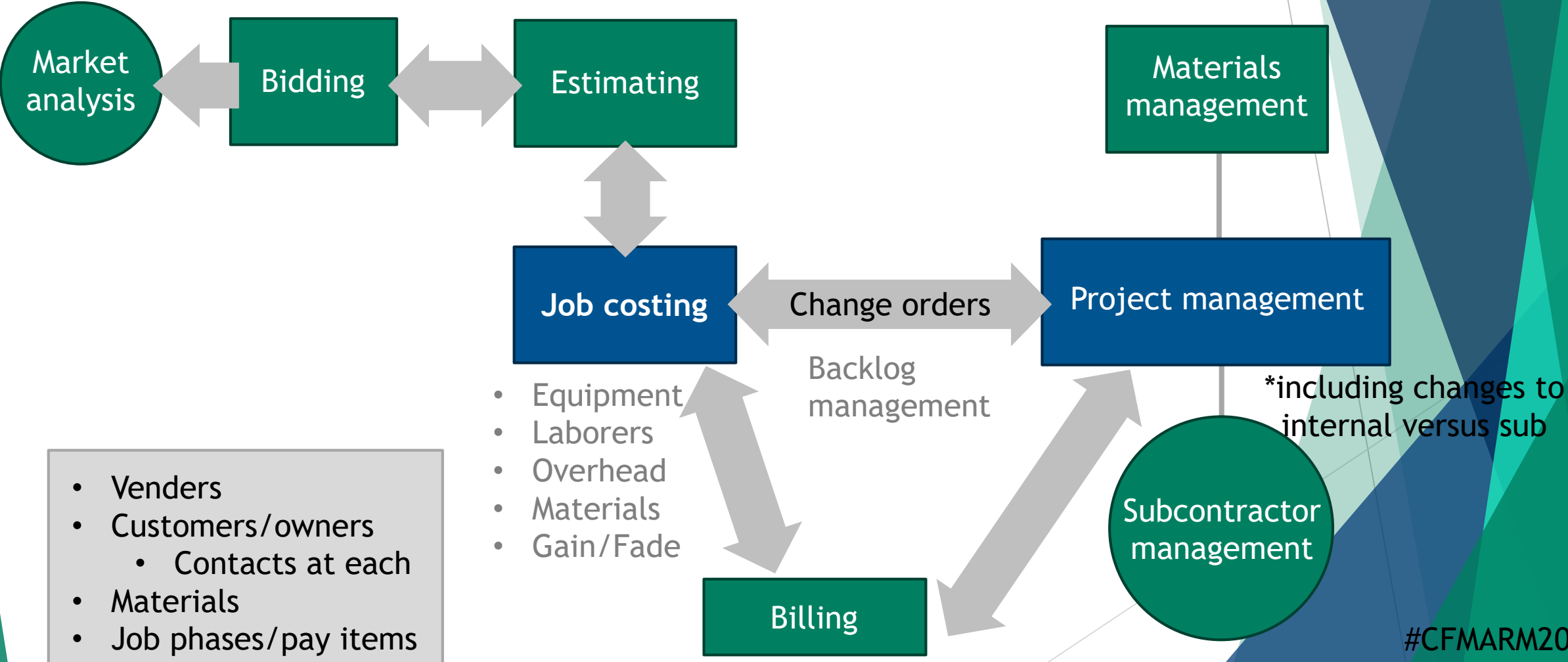
Customer name	Number of orders	Total paid
Chris Froome	11	11,000
Mark Cavendish	7	7,000
Bradley M Wiggins	6	6,000
M.S. Cavendish	6	6,000
Bradley Marc Wiggins	5	5,000
BM Wiggins	4	4,000
Taylor Hamilton	3	3,000
Tyler Hamilton	2	2,000
Brad Wiggins	2	2,000
Bradley Wiggins	2	2,000
Tylor Hamilton	1	1,000
B.M. Wiggins	1	1,000



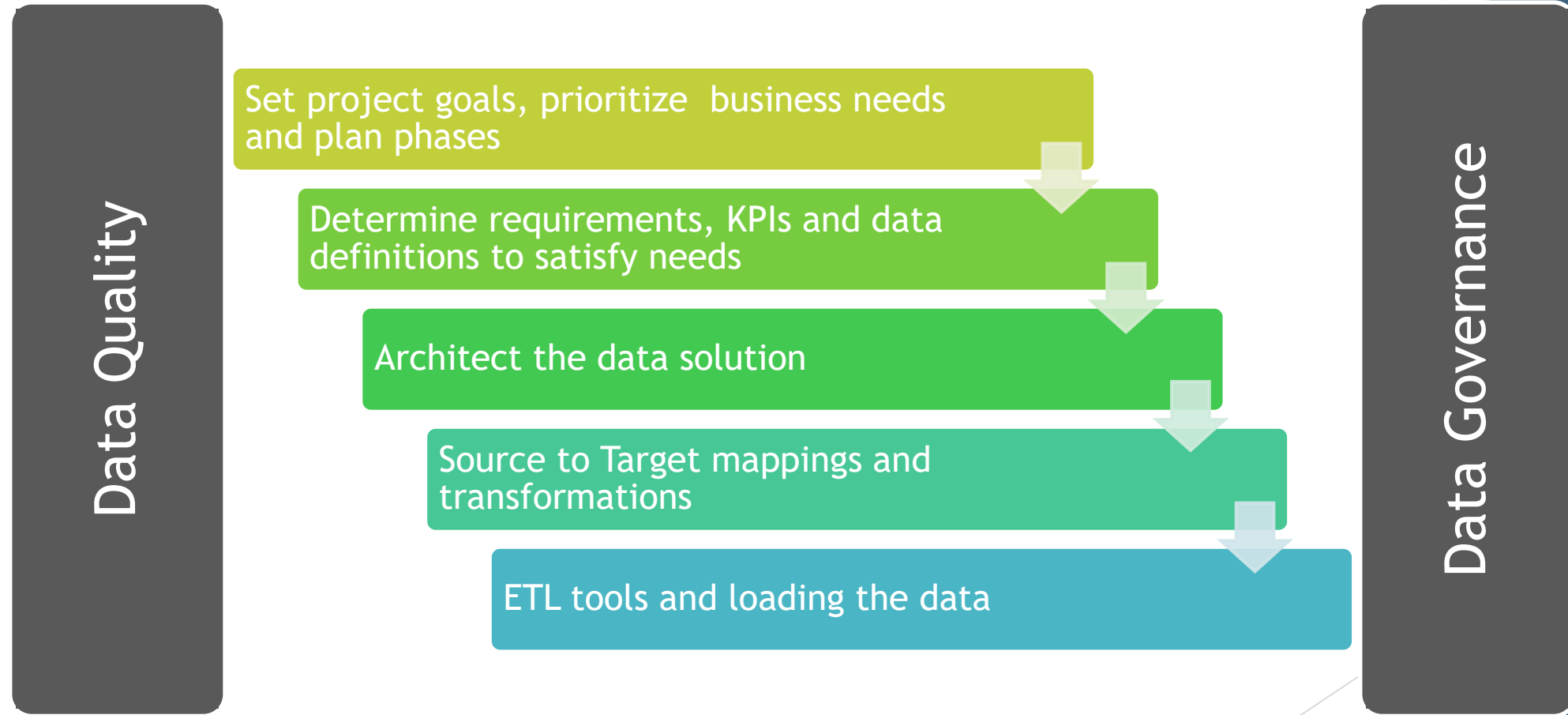
Customer name	Number of orders	Total paid
Bradley Wiggins	20	20,000
Mark Cavendish	13	13,000
Chris Froome	11	11,000
Tyler Hamilton	6	6,000



Mastering bids through job costing



Development methodology

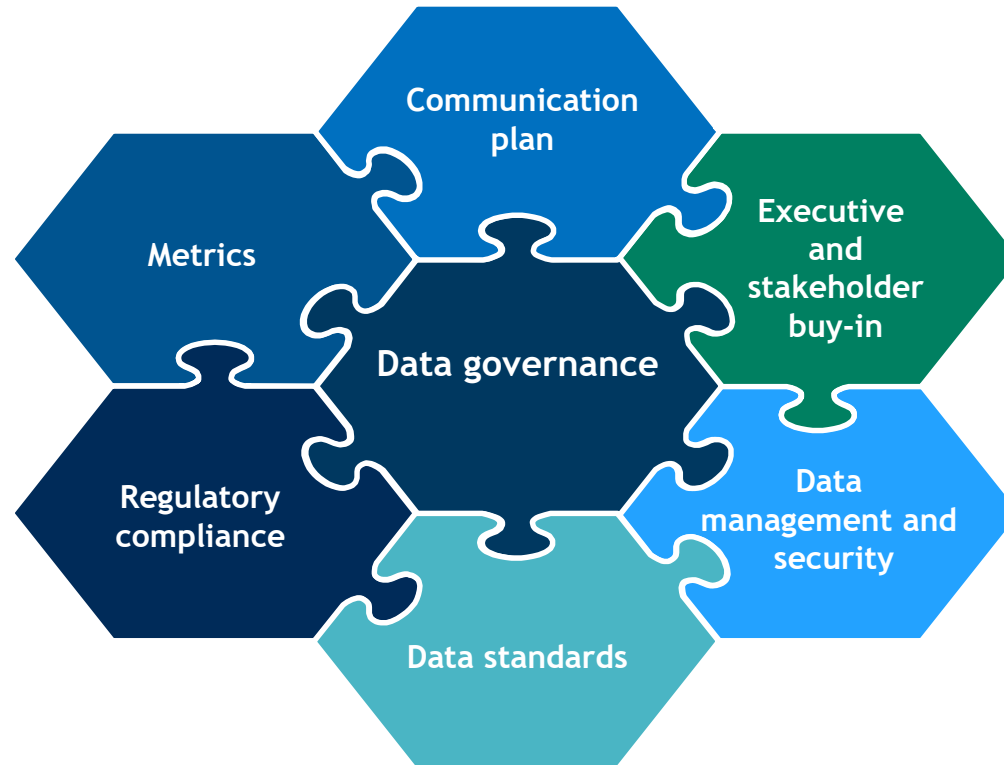


The jigsaw of data governance

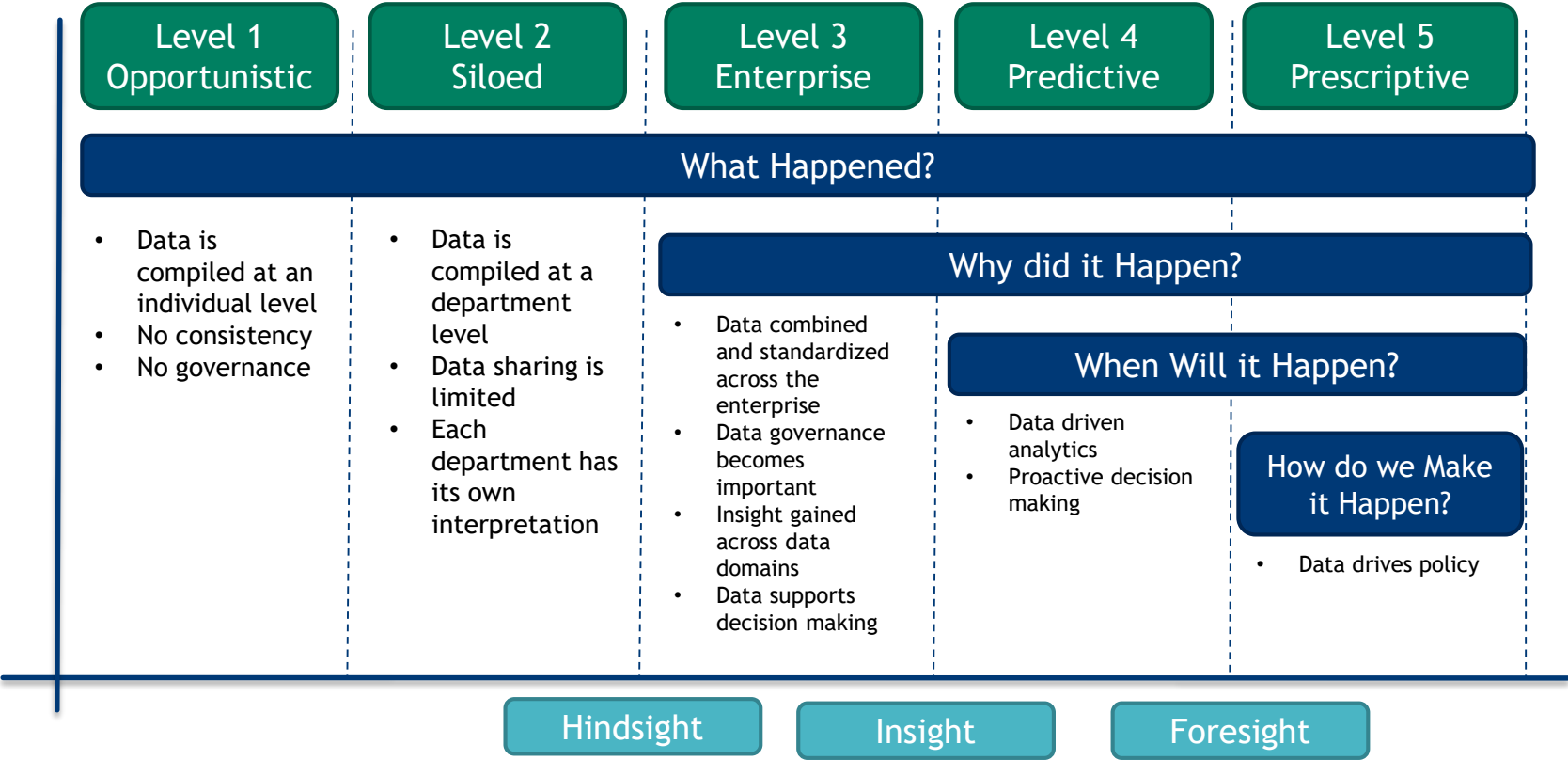
Best practice components are variable for each organization; some translate into higher success rates than others.

Start with a manageable set of data. **Look at the size of the organization, the number of data sets to be governed, and required data security compliance**

Establish which best practices will generate the highest results for your organization's data governance initiative and implement them first.



Data Maturity



IT Maturity Model

Innovator

- Transform the business through technology

Business Partner

- Expand the business, use advanced analytics

Trusted Operator

- Optimize the business, build efficiencies through technology

Tech Manager

- Support the technology, reliable basic services

Firefighter

- React to fires, struggle to support

End user adoption

- ▶ Solve a business need
- ▶ Understandability
- ▶ Performance
- ▶ Accuracy
- ▶ Executive sponsorship



Additional thoughts on analytics

- ▶ [Growing into business analytics](#)
- ▶ [How construction companies can use business analytics to boost margins](#)
- ▶ [Case study: Large construction company upgrades critical ERP software](#)
- ▶ [Supercharge your industry peer group to drive innovation](#)