



The Celgene Story: Building a Billion-Dollar Product Launch Success with DataOps

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Speakers



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Turning data into strategic and
tactical insights



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DataKitchen
Algorithm, software, and data
nerd

Agenda

Introduction

Celgene Case Study (Rajesh)

DataOps (Chris)

Q&A

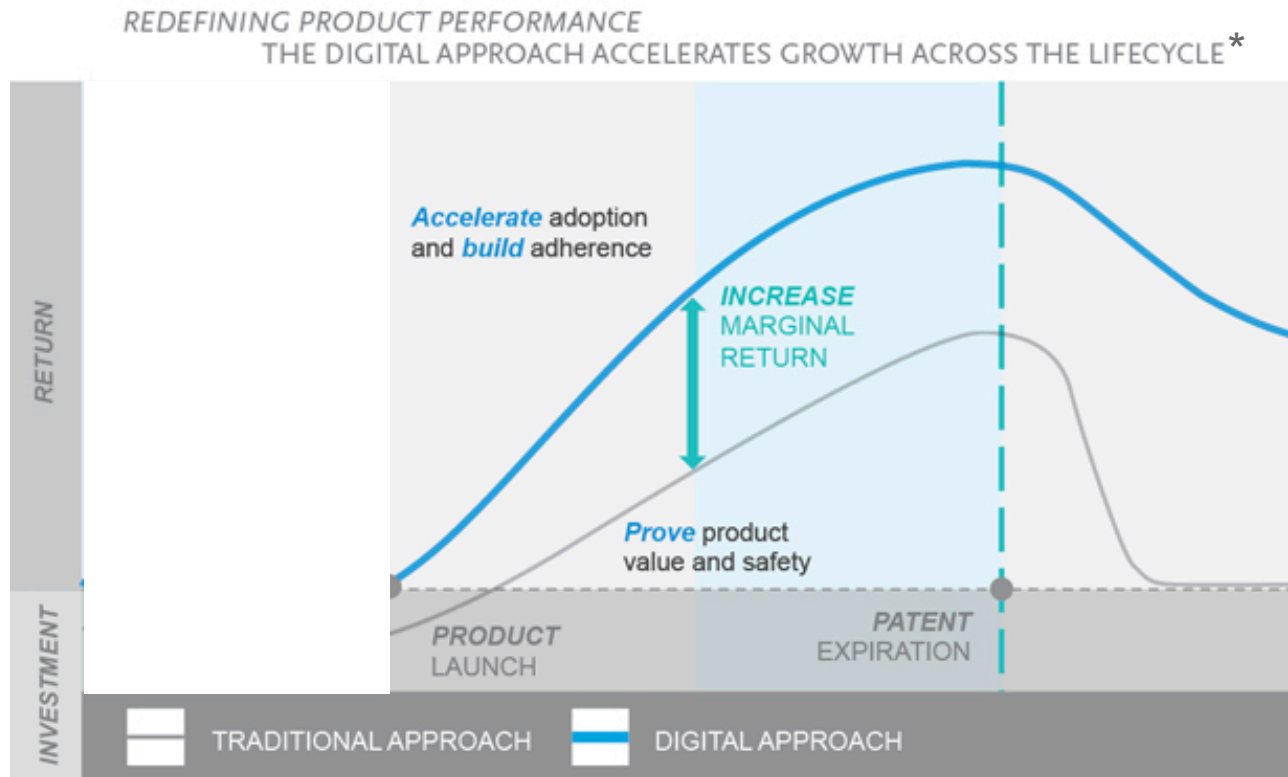


COMMITTED TO IMPROVING THE LIVES OF PATIENTS WORLDWIDE

Our vision as a company is to build a major global biopharmaceutical corporation while focusing on the discovery, the development, and the commercialization of products for the treatment of cancer and other severe, **immune, inflammatory conditions.**

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Pharmaceutical Product Launch

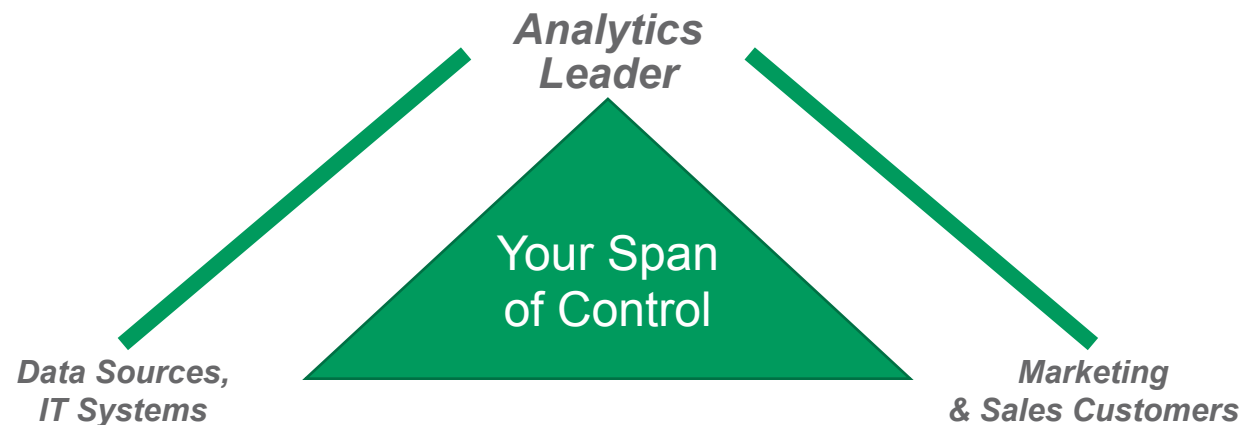


- It costs **\$2.6 billion** to bring a drug to market **
- **The first six to twelve months of a product launch are key**
- How fast a product grows during a launch determines the overall lifetime revenue
- Many **challenges** such as increasing complexity in the marketplace, fierce competition and continued pressure on managing cost

* quintiles.com

** Tufts Center for the Study of Drug Development

Key Challenges - 'Span of Control'

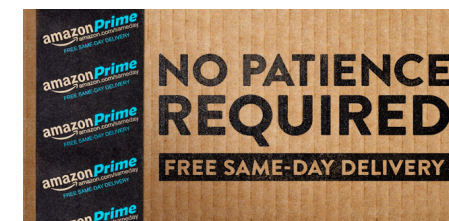


- Data/Analytics **siloed** across the different functions
- Analytics turn around time
- Brand Performance vs. plan/forecast
- Incorporate field intel and **evolve** with lifecycle of the product

The Analytic Team's Overall Goals



Allow fast changes to support investigative analytics and high-quality production deliverables



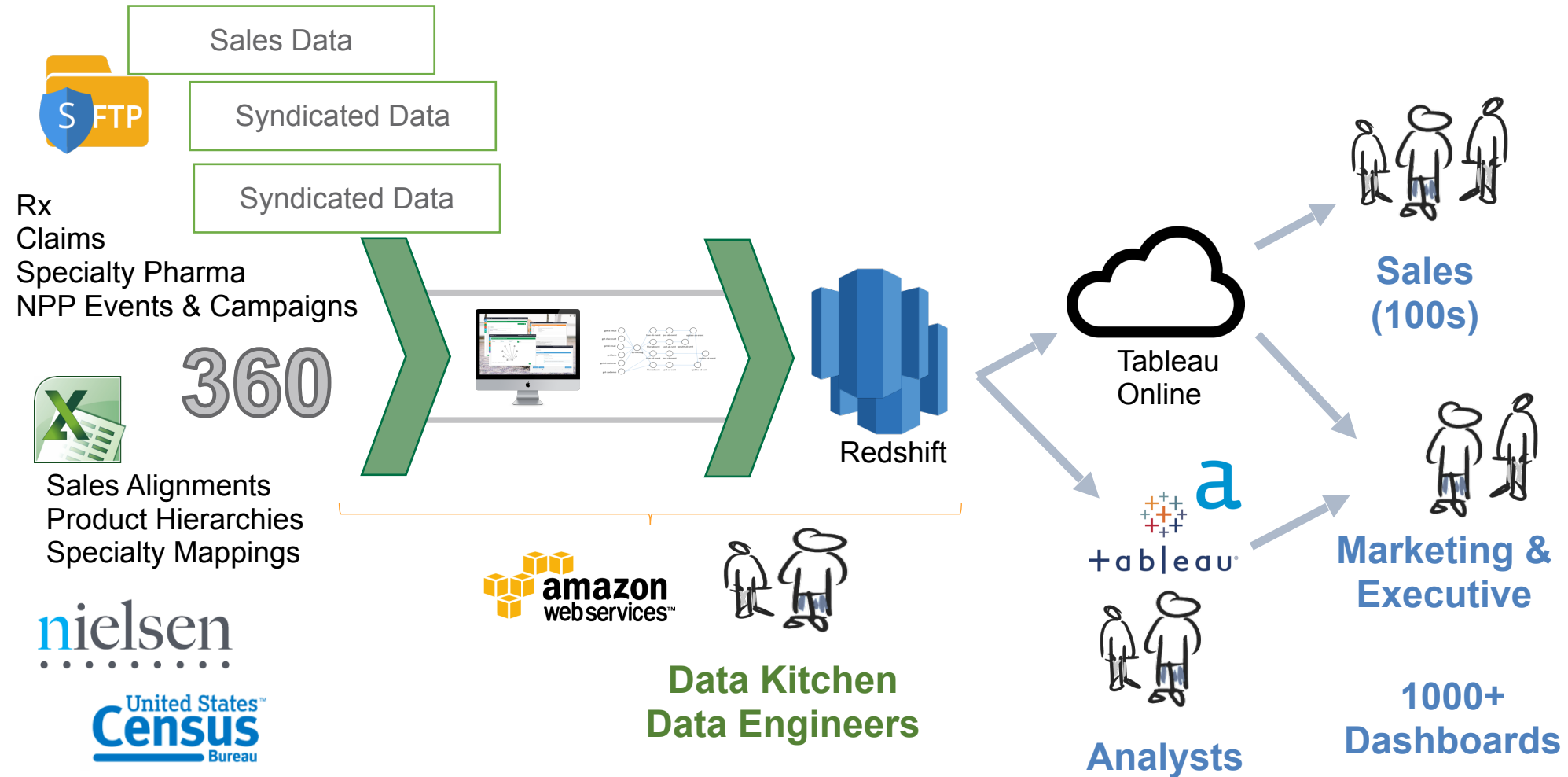
Guiding Principles

- Rely on expertise just as much as (if not more than) experience
- Ensure that ALL functions (eg, subteam members) have a clear understanding of the brand strategy
- Know that there will be issues
- Establish pathway for rapid decision making and resolution of critical issues



*No plan survives
first contact with
reality*

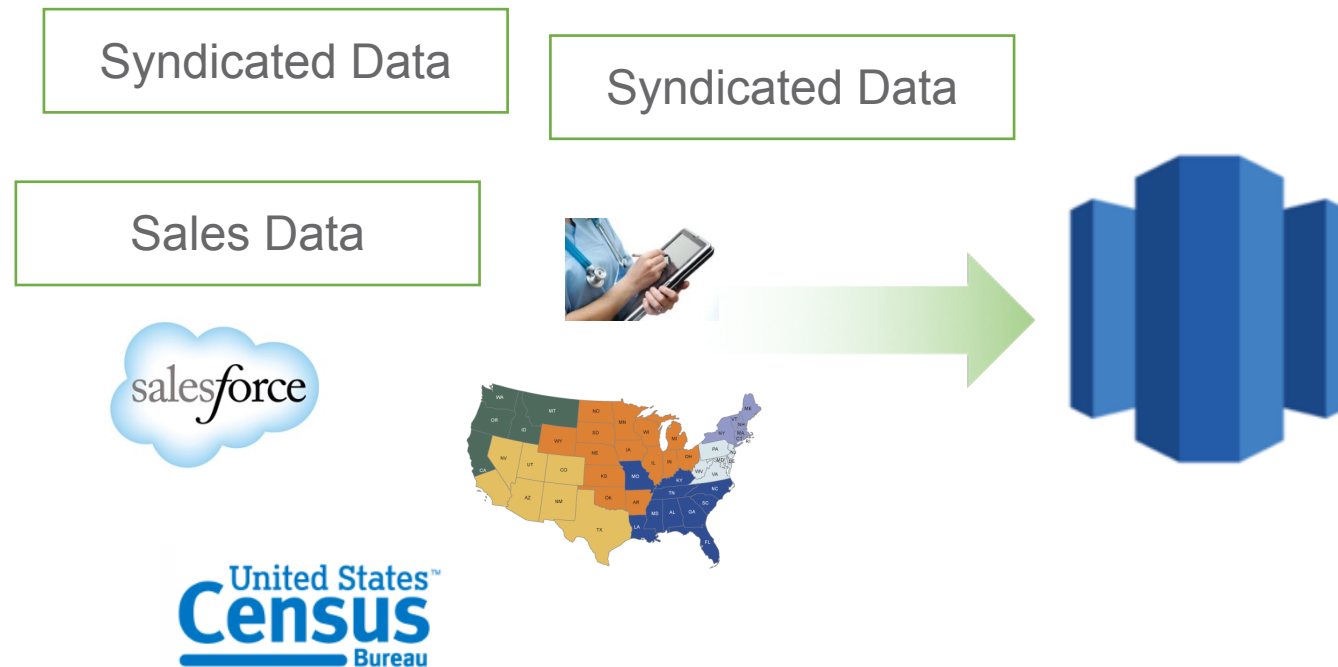
Project Overview



Data Comes from a Variety of Sources

Analytic data comes at varying timings and various sources

- Syndicated Data
- Sales Data
- Master Data



How do we allow all data to have utility and value?

Example

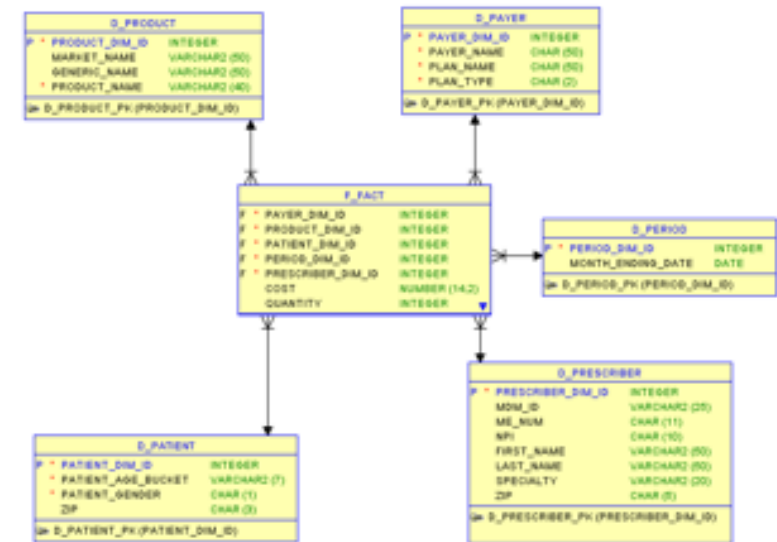
A new business question requires a large new data set.



DataKitchen's Data Engineering Team

NEW LARGE DATA SET

1. Make a “scrappy star” in a data mart
2. Send questions to Supplier and keep Analysts in the loop
3. Add data tests – enables speed with quality
4. Share star with Data Analyst team and get feedback
5. Iterate (several Agile sprints)
6. Release “solid star”

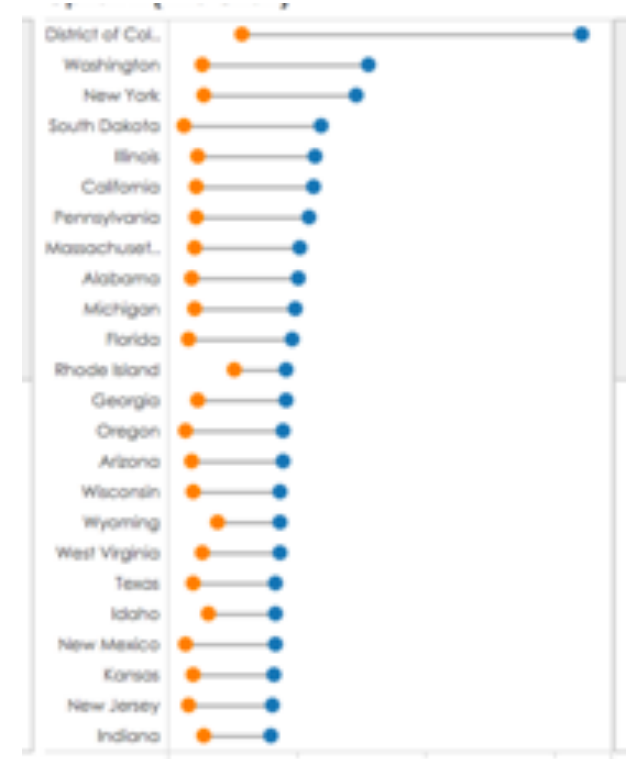


Celgene Data Analytic Team

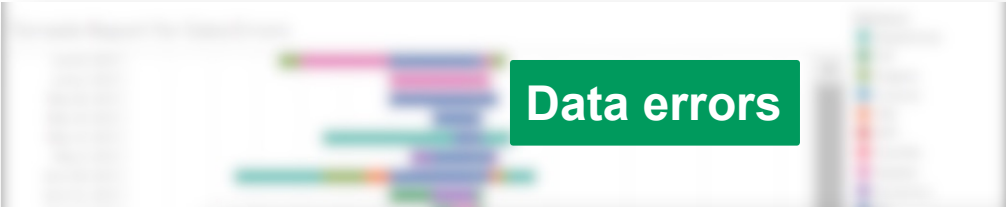


NEW LARGE DATA SET

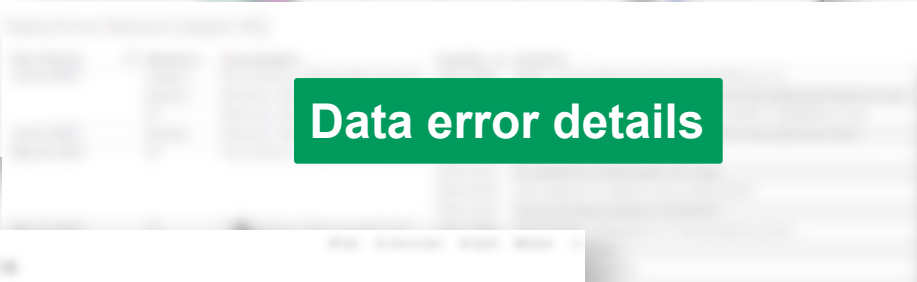
1. Make “scrappy dashboards”
2. Provide feedback to Data Engineering team
3. Show early dashboards to users
4. Have active build / design sessions
 - Make as many changes **live** as possible
 - Update changes via Tableau Online
5. Publish production dashboards 70% “done”



Multiple Metrics, Dashboards, and Emails

A dashboard titled 'Data Errors' showing a horizontal bar chart with various colored bars representing different error categories.

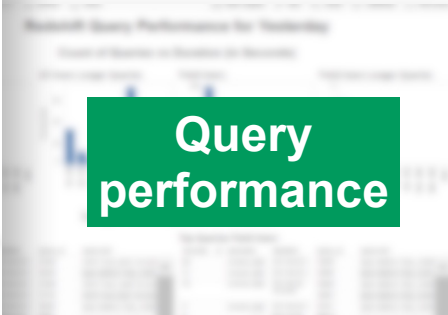
Data errors

A dashboard titled 'Data Error Details' showing a table of error details with columns for error type, count, and status.

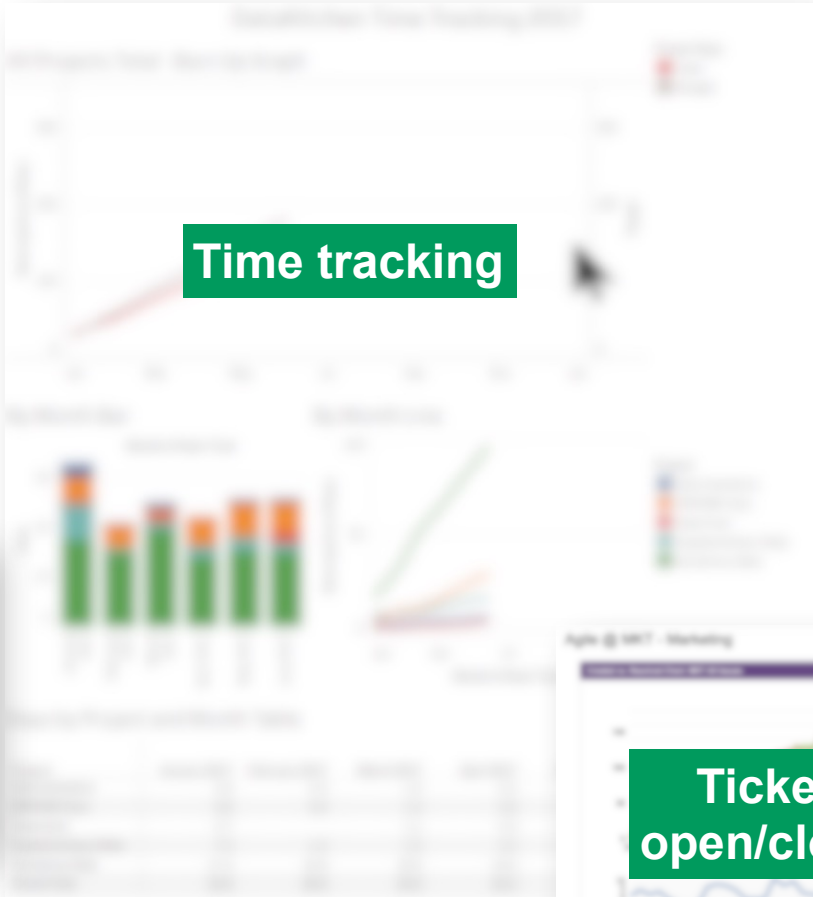
Data error details

A dashboard titled 'Data Sources' showing a table of data sources with columns for source name, type, and status.

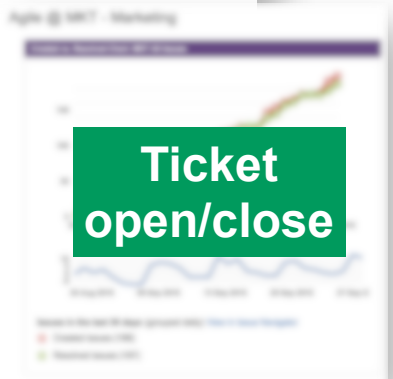
Data sources

A dashboard titled 'Query Performance' showing a bar chart of query execution times and a table of query details.

Query performance

A dashboard titled 'Time Tracking' showing a line chart of time spent on various tasks and a table of task details.

Time tracking

A dashboard titled 'Ticket Open/Close' showing a line chart of ticket status changes and a table of ticket details.

Ticket open/close

Analytic Team Has Multiple Deliverables

The Analytic Team supports:

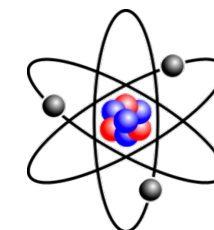
- Ongoing, production reports and deliverables: 'Weekly Launch/Performance Tracker'
- Ad Hoc answers to business leader questions
- Resource Allocation and predictive models



Ad Hoc



Prediction
and
Optimization



More importantly how do we help people unlock value

How To Succeed?

A Mindset Change to DataOps



From	To
Change Fear	Change Velocity
Manual Operations	Automated Operations
Hope For Quality	Integrated Quality
Hero Mentality	Repeatable Processes
Perfection	70% Right The First Time

Super Power Mindset



Data
Engineer



Data
Analyst/Scientist

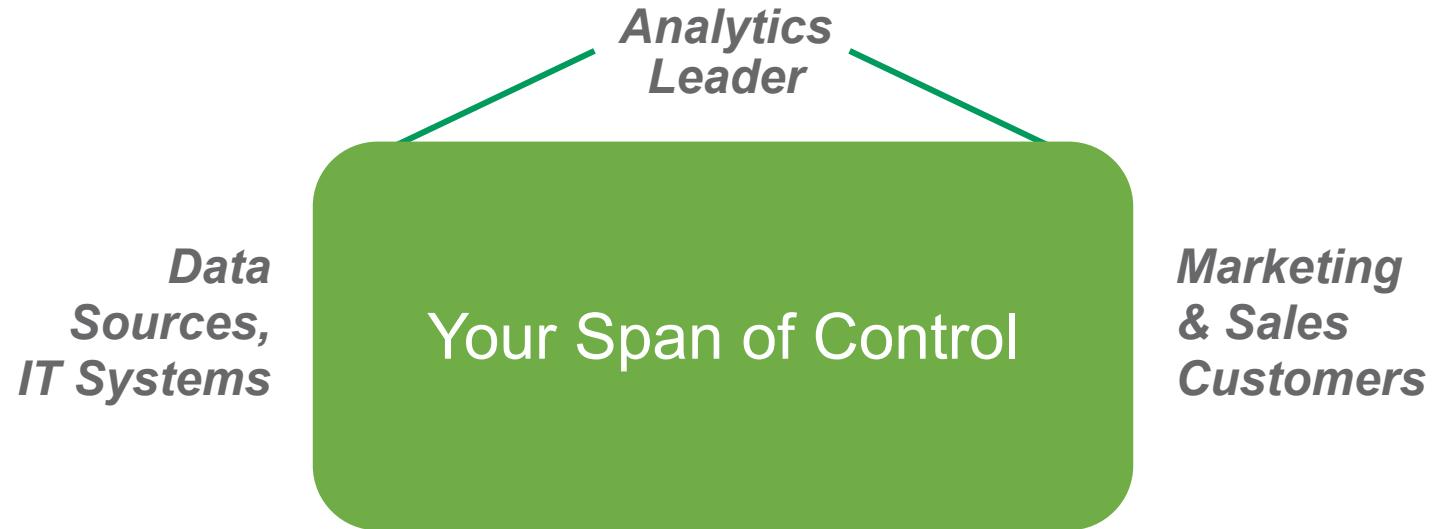


Customers



*The power to say... Sure we can do that...
We'll have a first draft in a couple days*

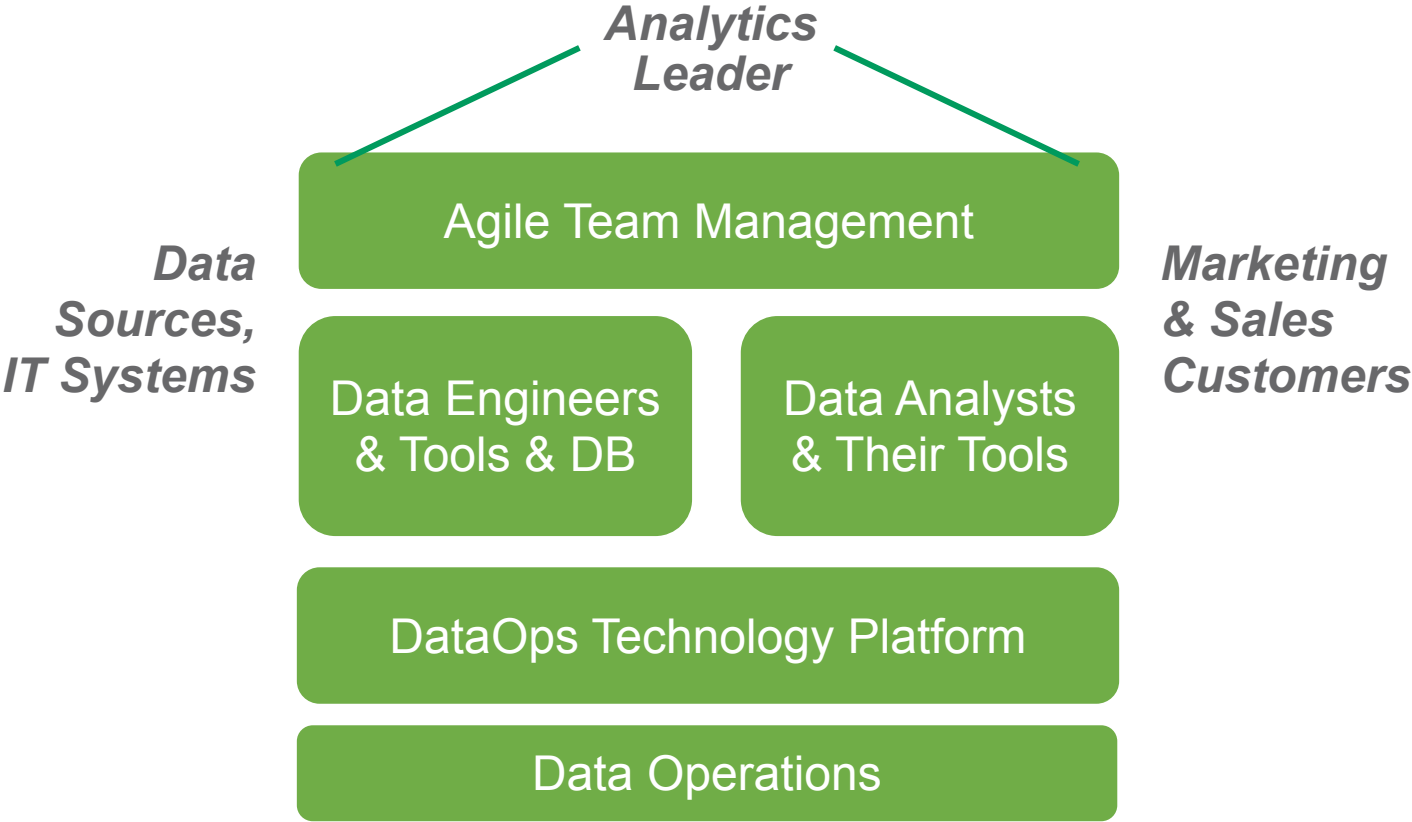
Analytic Leadership: Control Your Destiny



Make sure you have under your 'Span of Control' the:

- Data
- Analytic database
- People
- Tools
- Processes to deliver value to your customers

Your 'Span of Control' should include these five areas



Agenda

Introduction

Celgene Case Study (Rajesh)

DataOps (Chris)

Q&A



The Art of The Possible With DataOps



**ORIGINAL
INSIGHT**



**DELIVERED
FAST**



**LOW
ERRORS**



**LOW
COST**

What You Do
**Is Much Less Important
Than How You Do It**

A DataOps Aphorism

What You Do Is Much Less Important Than How You Do It



“We realized that the true problem, the true difficulty, and where the greatest potential is – is building **the machine that makes the machine**. It’s building the factory.” – Elon Musk



94% of causes were common cause. We often attribute problems to a specific case, and look for a person to blame, rather than focusing on the underlying process – Dr Deming

What You Do Is Much Less Important Than How You Do It (in data analytics)



What You Do:

- The Model,
- The Algorithm
- The Data Pipeline,
- The Data Visualization,
- The Data Governance,
- The Data Itself



How you do it:

- Development
- Deployment
- Monitoring
- Iterating
- Collaborating
- Measuring

A Contrarian Perspective



The Tools
The Technology
The Data



The Process
The People
The Operations

A Change In Focus And Mindset



Decreasing Cycle Time of Change
and Continuous Deployment



Lowering Error Rates In
Production, Increasing Customer
Data Trust



Improved Collaboration Inter and
Intra Team; Less Meetings &
Bureaucracy



Measure Your Process Show
Increased Productivity, Lower Cost
and More Insight

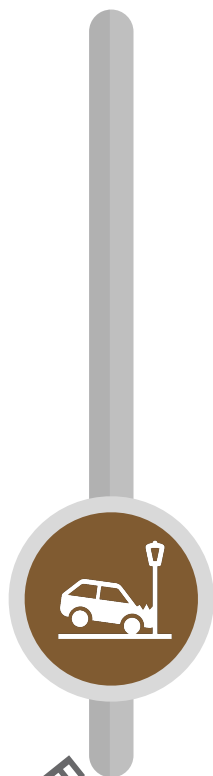


The Process
The People
The Operations

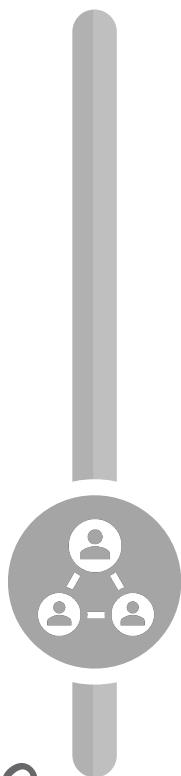
Before DataOps



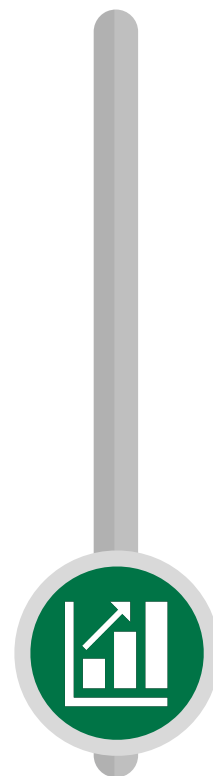
CYCLE
TIME



ERROR FREE
DAYS

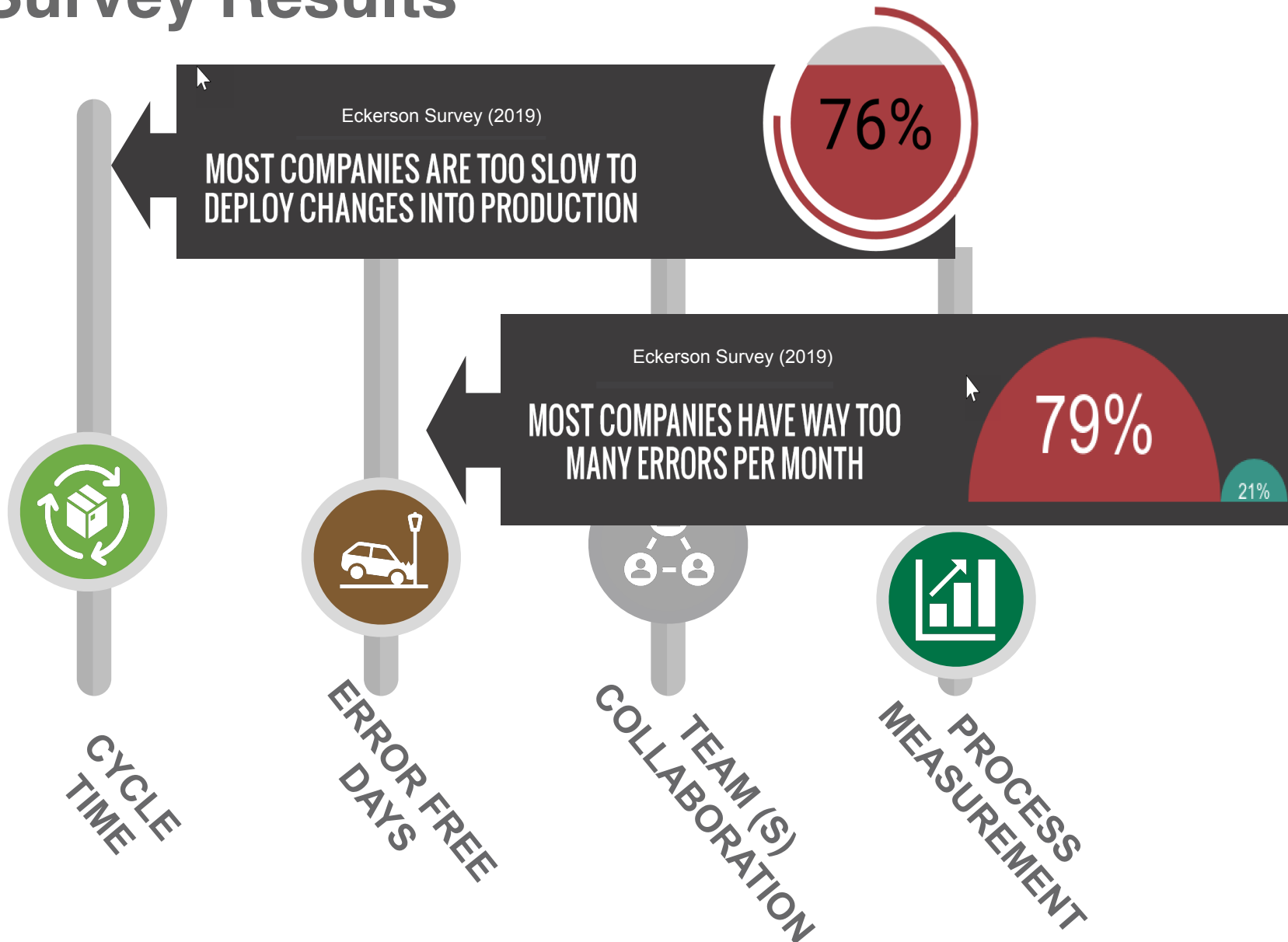


TEAM (S)
COLLABORATION

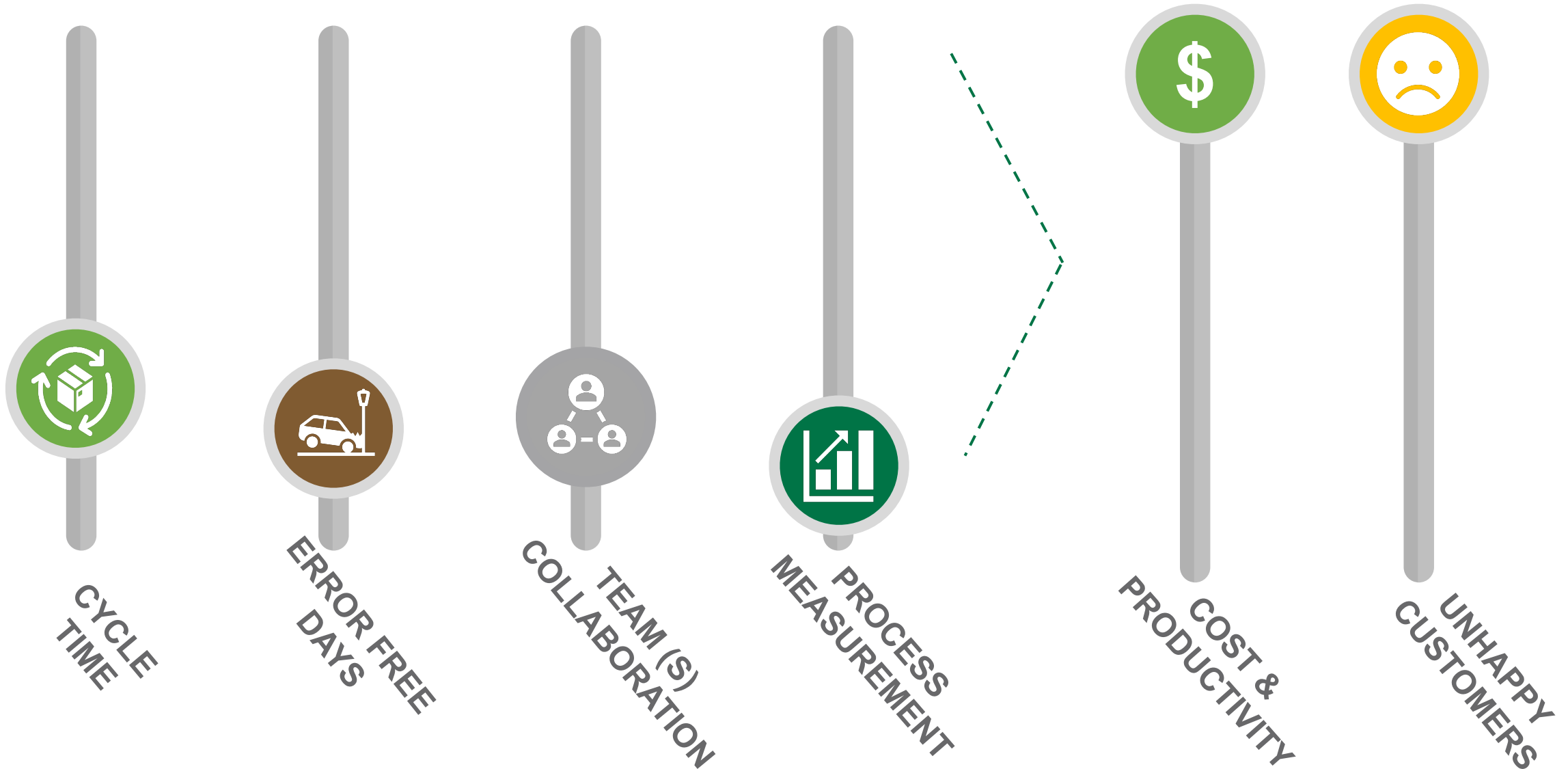


PROCESS
MEASUREMENT

Survey Results



Before DataOps



Why Do Companies Implement DataOps?



Business Problems



Slow Deployment

Slow Deployment of new features, rapidly address consumer requests, changing data sets



Too Many Errors

Errors in dashboards, reports, and data pipelines - lack of trust; No production visibility, multi-cloud



Poor Coordination

Poor Collaboration within local and between distributed, self-service teams



No Measurement

No Measurement of team productivity, errors, SLAs, deployment rates/latency

Real Life Example: Commerical Pharma



Constraint: Slow Deployment

Constraint: Too Many Errors

Constraint: Poor Coordination



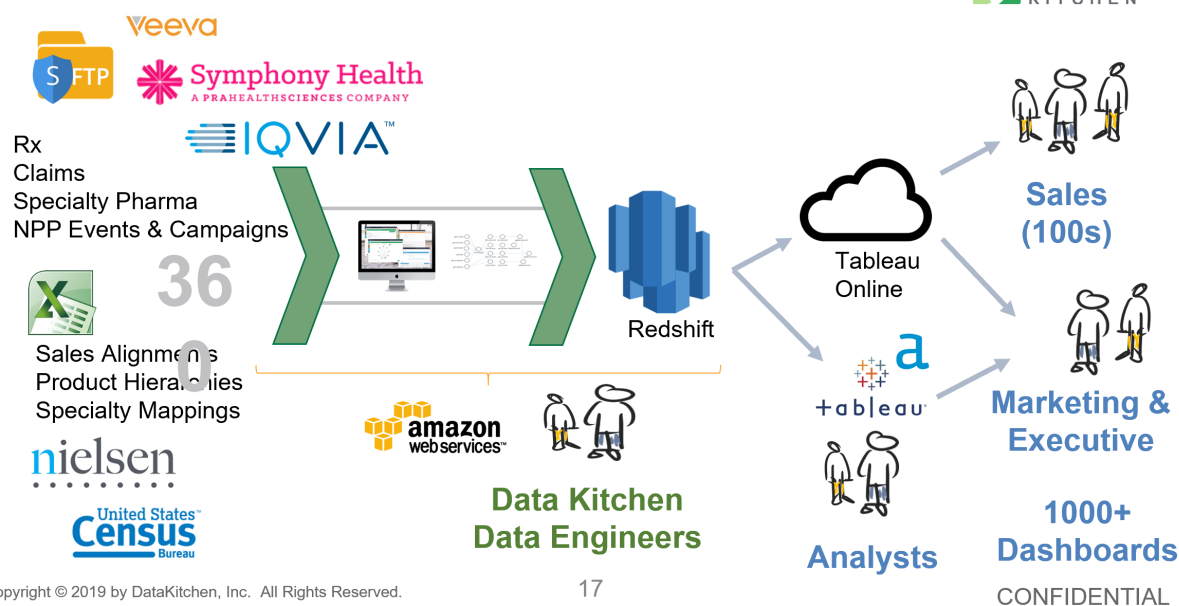
Challenge: How to enable the enterprise with unified, integrated, commercial data?

- Effectively integrate many external data sources of varying quality
- Deliver new analytics at business speed with high quality
- Leverage preferred tools: Tableau, Alteryx, SQL, Python
- Enable ad hoc insights as well as production processing
- Ensure high quality, trustworthy analytics

DataOps Success at Celgene



Celgene Project Overview



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DataKitchen DataOps Platform handles

- Integrating 100s of data sets
- Mastering and creating a unified data star schema representation
- Very, very few errors or missed SLAs
- > 20,000 automated tests
- > 100 of schema/data changes per week
- Low total yearly cost hardware/hosting/software/staffing

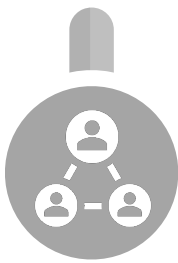
You Can Do It All With DataOps



CYCLE
TIME



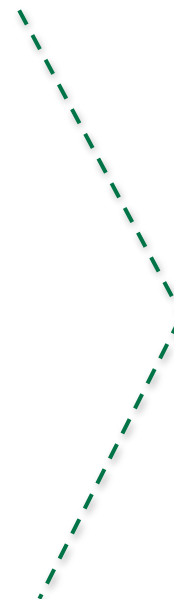
ERROR FREE
DAYS



TEAM (S)
COLLABORATION



PROCESS
MEASUREMENT



COST &
PRODUCTIVITY

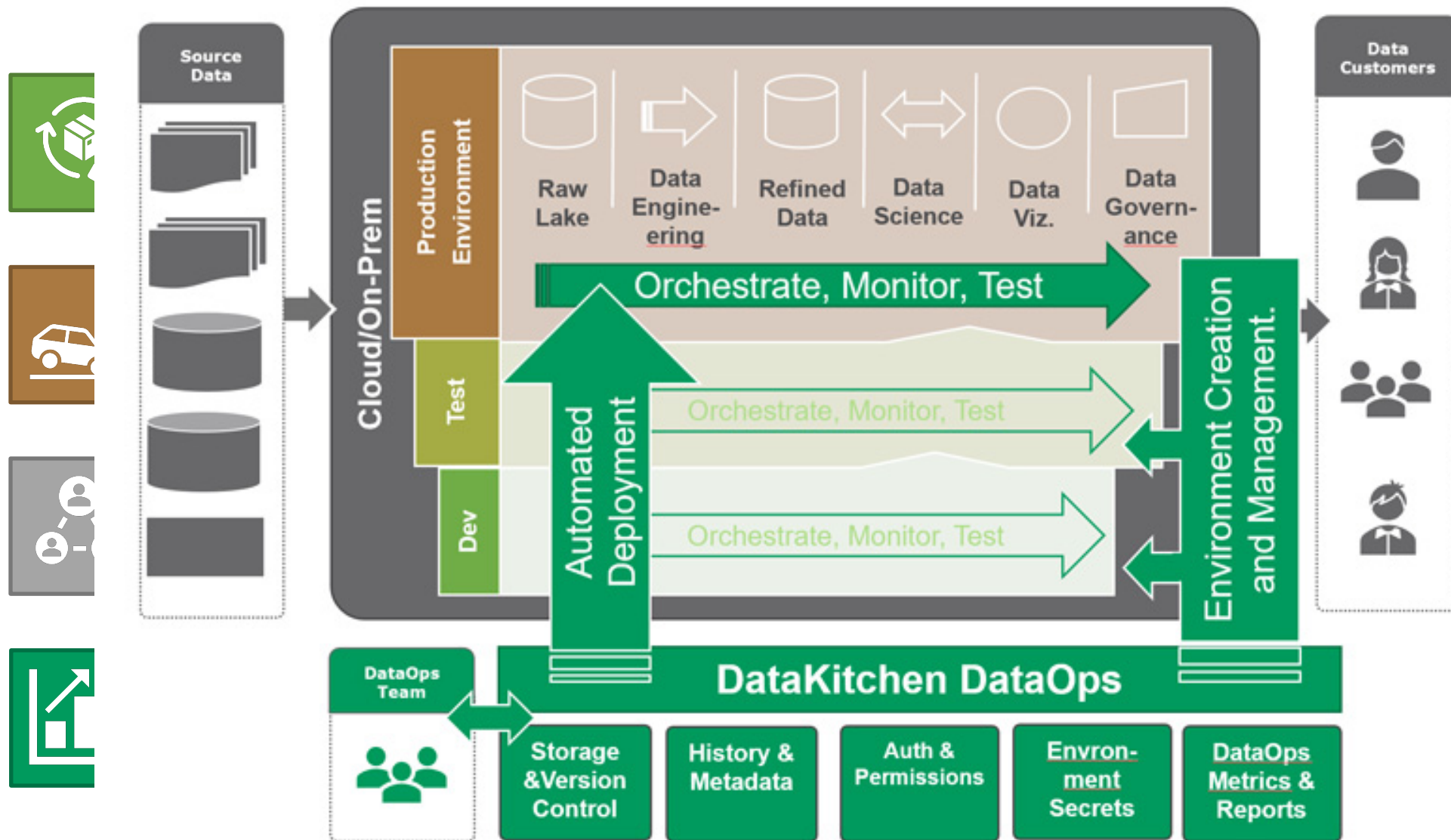


UNHAPPY
CUSTOMERS

What kind of products are you building?

**Does your data analytics factory build
AMC Pacers or Toyota Corollas??**





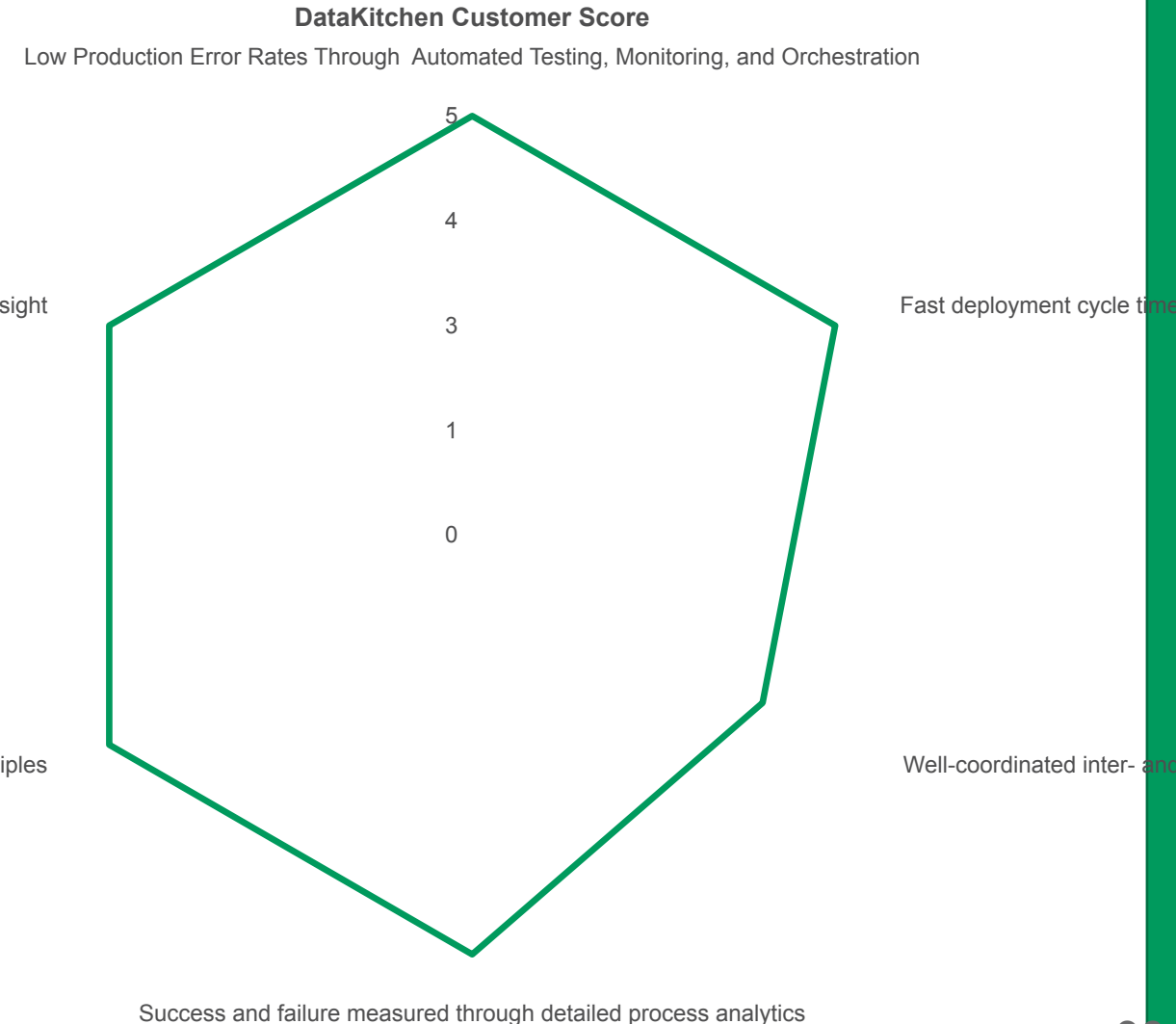
re Platform
insights by
deployment
a analytic

We can benchmark your team.



DataOps Maturity Model

- ☐ Very, very few errors or missed SLAs
- ☐ Weekly cycle time of new changes/features/data
- ☐ Detailed process metrics
- ☐ Agile culture
- ☐ High inter- and intra-team coordination
- ☐ High customer satisfaction



Learn More About DataOps and DataKitchen



Decrease Cycle Time of Innovation & Change



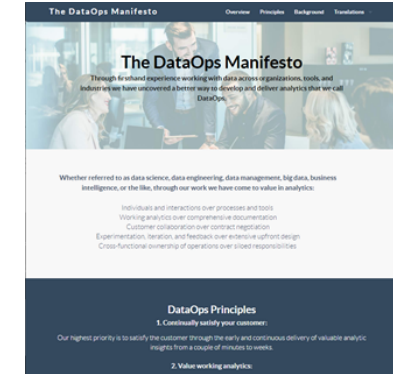
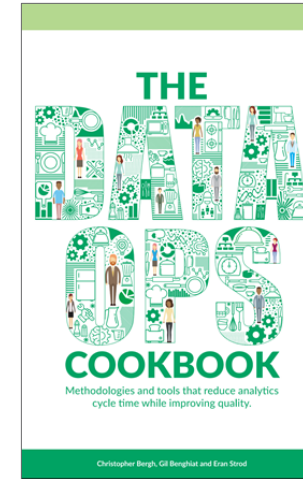
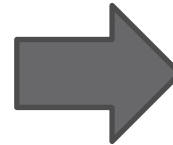
Lower Error Rates In Production



Improve Collaboration: Inter and Intra Team



Measure Your Process: Lower Cost and More Insight



Sign The DataOps Manifesto:
<http://dataopsmanifesto.org>

Free DataOps Cookbook: <https://www.datakitchen.io/dataops-cookbook-main.html>

<https://datakitchen.io>