

Unleashing the Analyst

Establishing a department of dynamic Real World Data Science (RWD-S) Analysts who are able to partner, influence and drive the generation of Real World Evidence

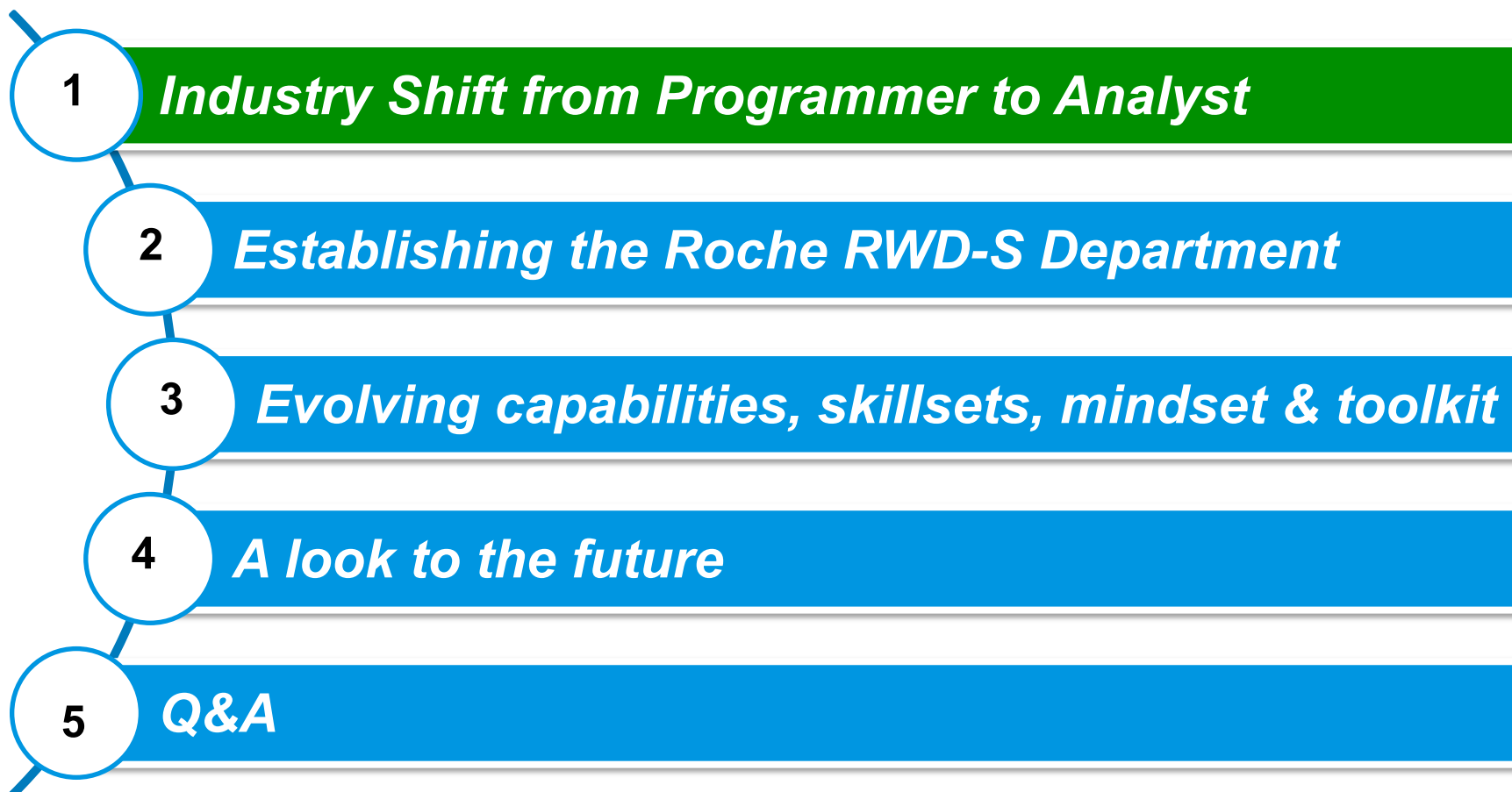
PD08 - PhUSE 2015

Ryan Copping – Global Head of RWD-S Analytics (South San Francisco)

Rob Walls – Deputy Global Head of RWD-S Analytics (Basel)



Agenda



Recap – PhUSE 2010, Berlin

- PD03 ["The Analyst Mindset in Statistical Programming"](#)
- Introduced the story of the "Analyst Mindset" which had been implemented globally at Roche
 - *"Programming teams have had to evolve and become an effective and innovative partner – Stepping out of our comfort zone!"*
- Focused on 4 key skills:
 - *Communication, Decision Making, Planning and Problem solving*
- Plus key behaviors including:
 - *Big picture understanding, being curious & asking questions and influencing without authority*

This presentation will focus on how the Analyst evolution has been further capitalized on at Roche ₃

Industry Shift – Analyst Evolution

Programmer



Analyst

Toolkit

Primarily
SAS



SAS

R

Data Visualization
Tools
(e.g. Tableau, Spotfire,
RStudio Shiny)
*+more
coming
soon!*

SQL



Environment & Mindset

Transactional

Reactive

Production line
mentality

Subservient to
Biostats?

Detailed specs

- Increasingly data driven environment
- Technology advancements
- Expanding wealth of data
- Evolving analyst capabilities
- Increased thirst for flexible & insightful analytics

Proactive

Comfortable dealing
with ambiguity

Empowered

Entrepreneurial

Equal
partners

Driving
collaboration

Key Messages

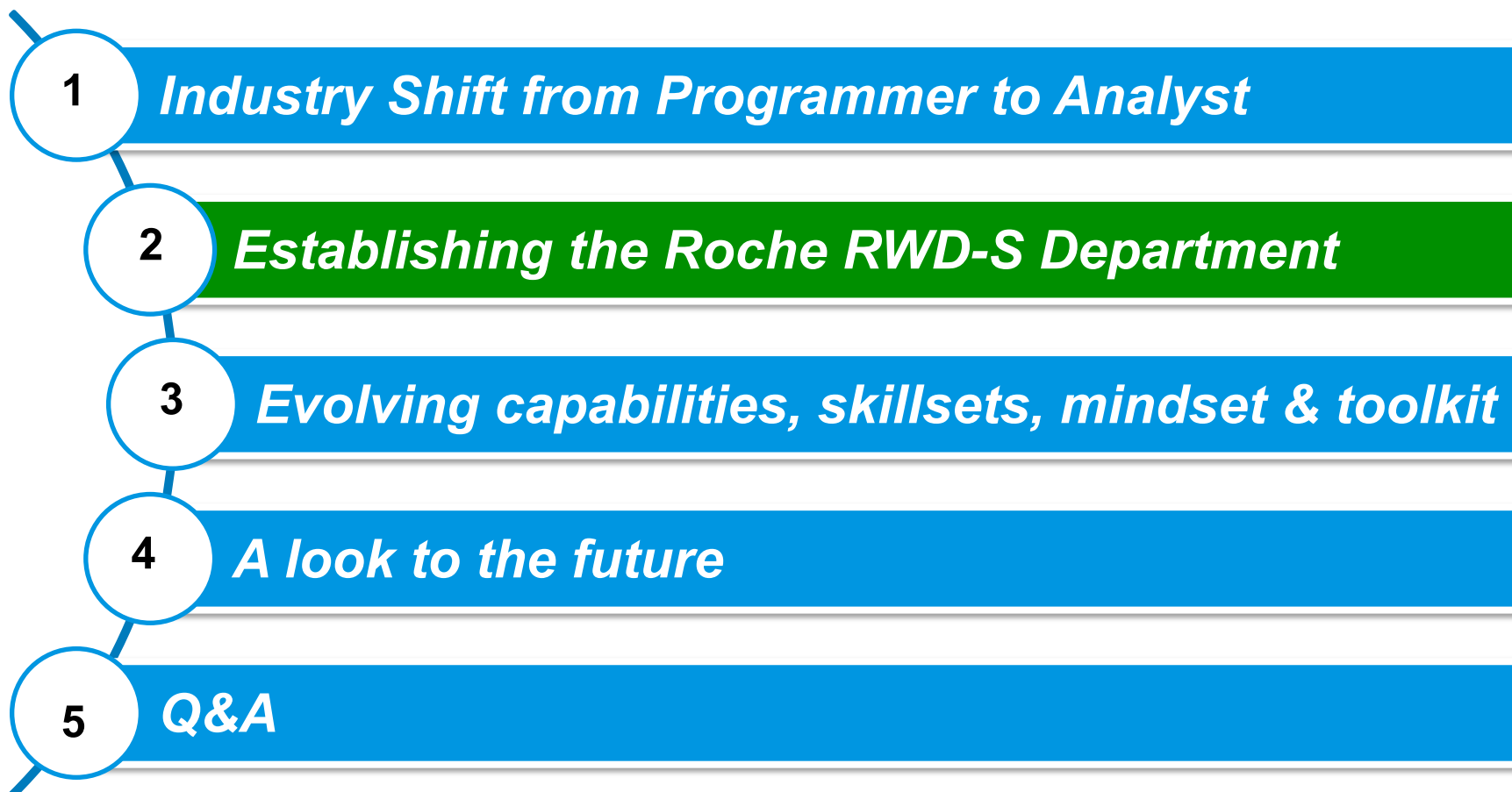
1. We are facing an **evolution** - Technology advancements, the expanding wealth of data, evolving analyst capabilities plus an increased thirst for analytics provide us with a **great opportunity**
 - This requires a further mindset and skillset shift
2. Analysts can have a **broader impact** within our industry – as well as demand for Analysts in Randomized Control Trials (RCTs) there is now a high demand in additional areas of the business
 - Analysts with RCT backgrounds have a great platform to help drive a new analyst journey and support the industry in gaining faster, more enlightened insights out of a variety of data sources
3. We will now share an **example** of where the Analyst mindset ⁵ has further evolved in another area at Roche

As Analysts there is an exciting journey ahead of us!

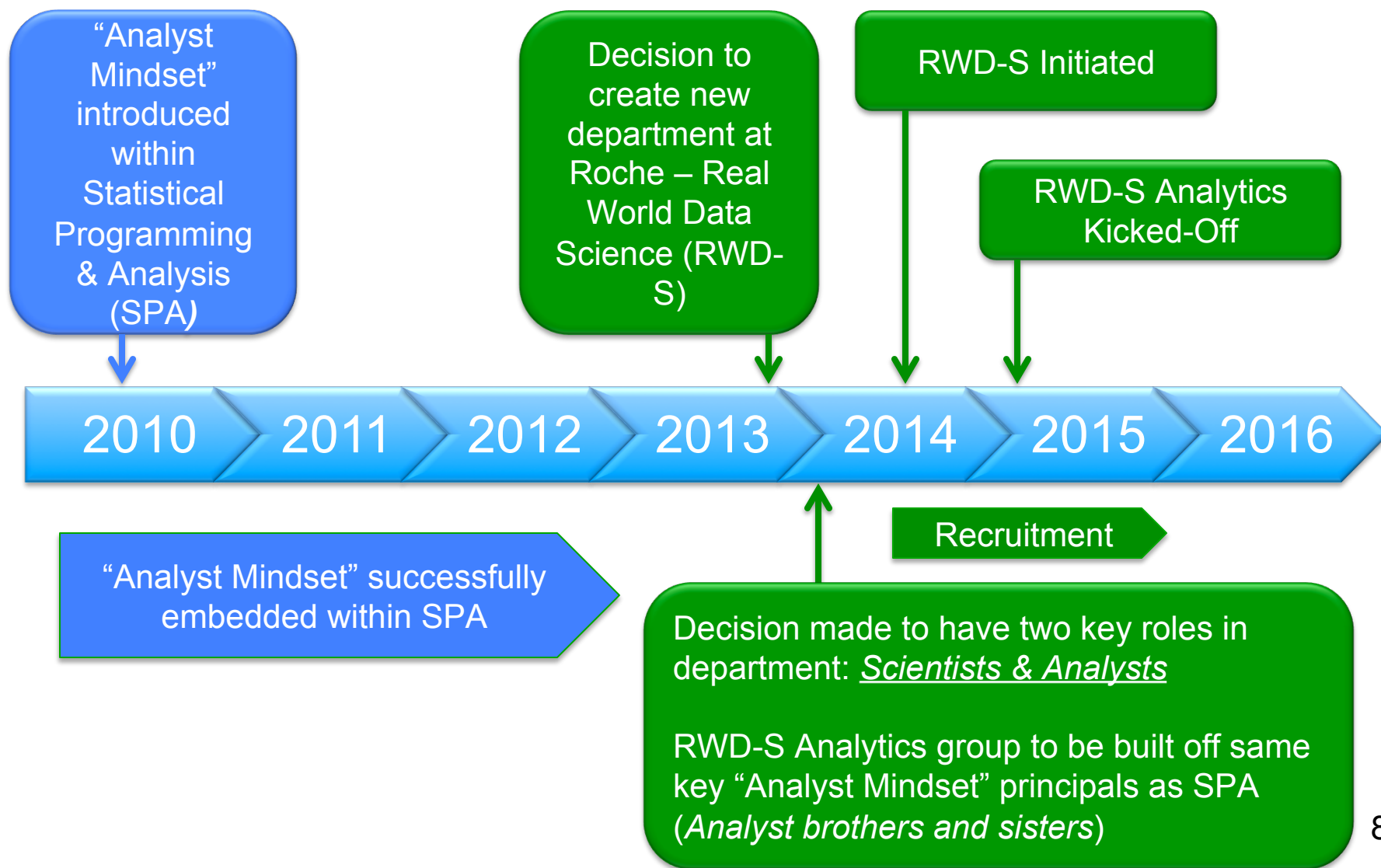
Roche



Agenda



Analyst Evolution @ Roche



RWD Provides Insights To Enable Better Decisions

Real World Data

- Electronic Medical Records
- Claim Data
- Non-interventional studies
- Disease/product registry
- Population survey
- National statistics



Evidence & Insights

- Disease epidemiology e.g. incidence, prevalence, natural history, molecular subset, disease progression
- Patient population, distribution of patient characteristics
- Geographic distribution of patients
- Treatment pattern e.g. SOC, pathways
- Diagnostics
- Efficacy signal in a sub-population
- Patient preference e.g. compliance
- Clinical value e.g. clinical outcome
- Economic value
- Benefit-risk assessment
- Comparative effectiveness

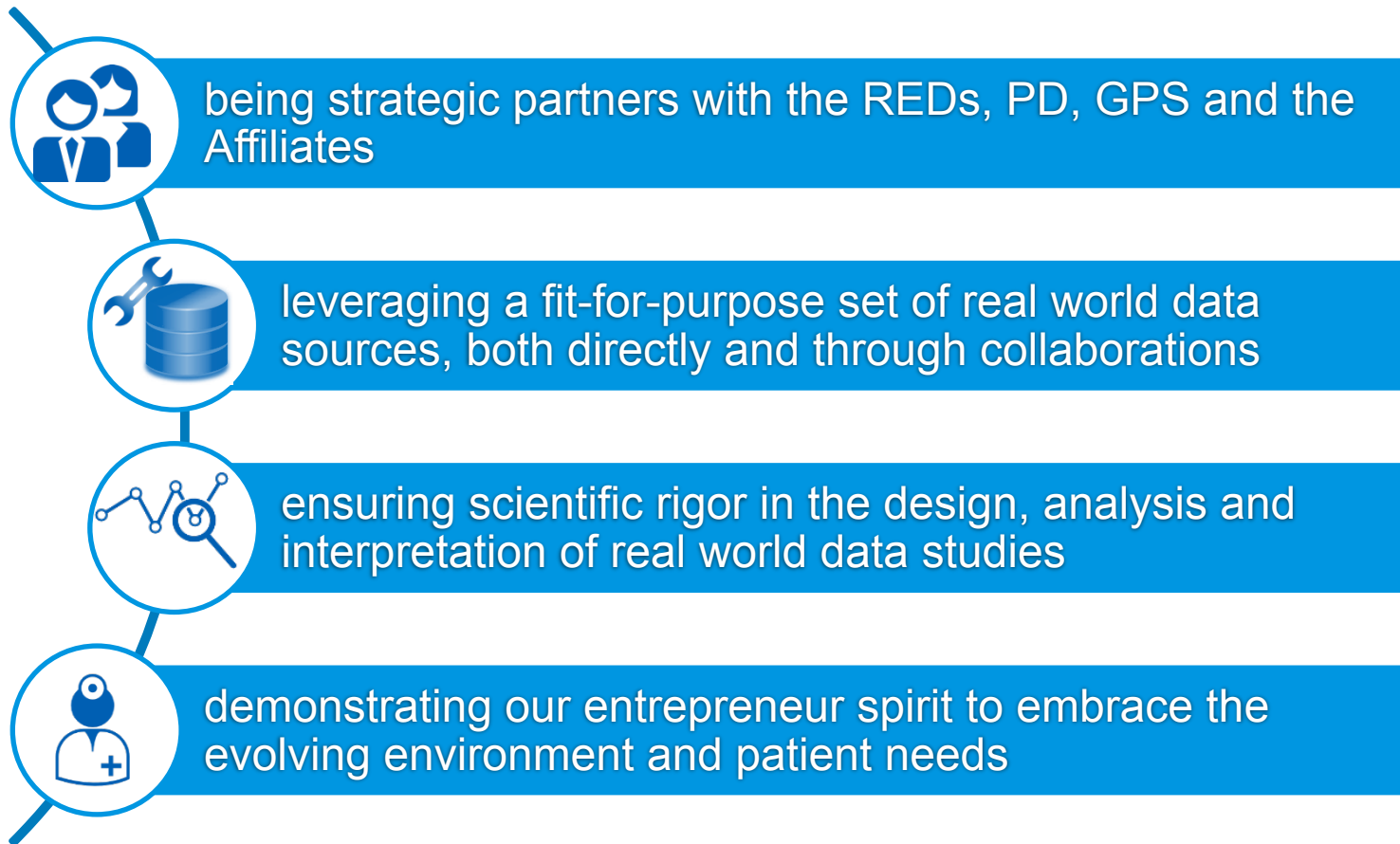
Business Impact

- Commercialization plan
- Disease area strategy
- Target product profile
- Clinical development plan
- Clinical trial assumptions, e.g. efficacy
- Site selection; recruitment assumptions
- Safety profile
- Medical strategy
- Pricing strategy
- Regulatory strategy
- Medical practice, treatment guideline
- Reimbursement decision



RWD-S Purpose Statement:

We translate real world data into evidence and insights to enable better decisions for our medicines to improve patient care



Agenda

- 1 *Industry Shift from Programmer to Analyst*
- 2 *Establishing the Roche RWD-S Department*
- 3 *Evolving capabilities, skillsets, mindset & toolkit*
- 4 *A look to the future*
- 5 *Q&A*

The challenge.....

1. To build a diverse and motivated team of 16 RWD-S Analysts (*by end of 2015*) to partner with the RWD-S Scientists
 - Headcount ratio of 1 Analyst to every 3 Scientists
 - 12 FTEs, 4 CRO (split between EU & US)
2. To deliver on molecule projects immediately whilst also building and embedding the technical infrastructure, processes and the right mindset & team culture
3. To be seen as true partners and not service providers

How did we tackle this?



RWD-S Analytics Journey

Roche

RWD-S
Analytics



Advancing Healthcare Analytics
“A-HA”

2017
“Advancing Healthcare Analytics”

2016
Continue to build our analytical experience and expertise with a focus on advancing methodology expertise

2015
Focus on laying a strong foundation to enable future success

1. People (onboarding, development & fostering mindset)
2. Technical Infrastructure
3. Build & Strengthen Partnerships
4. Team Culture

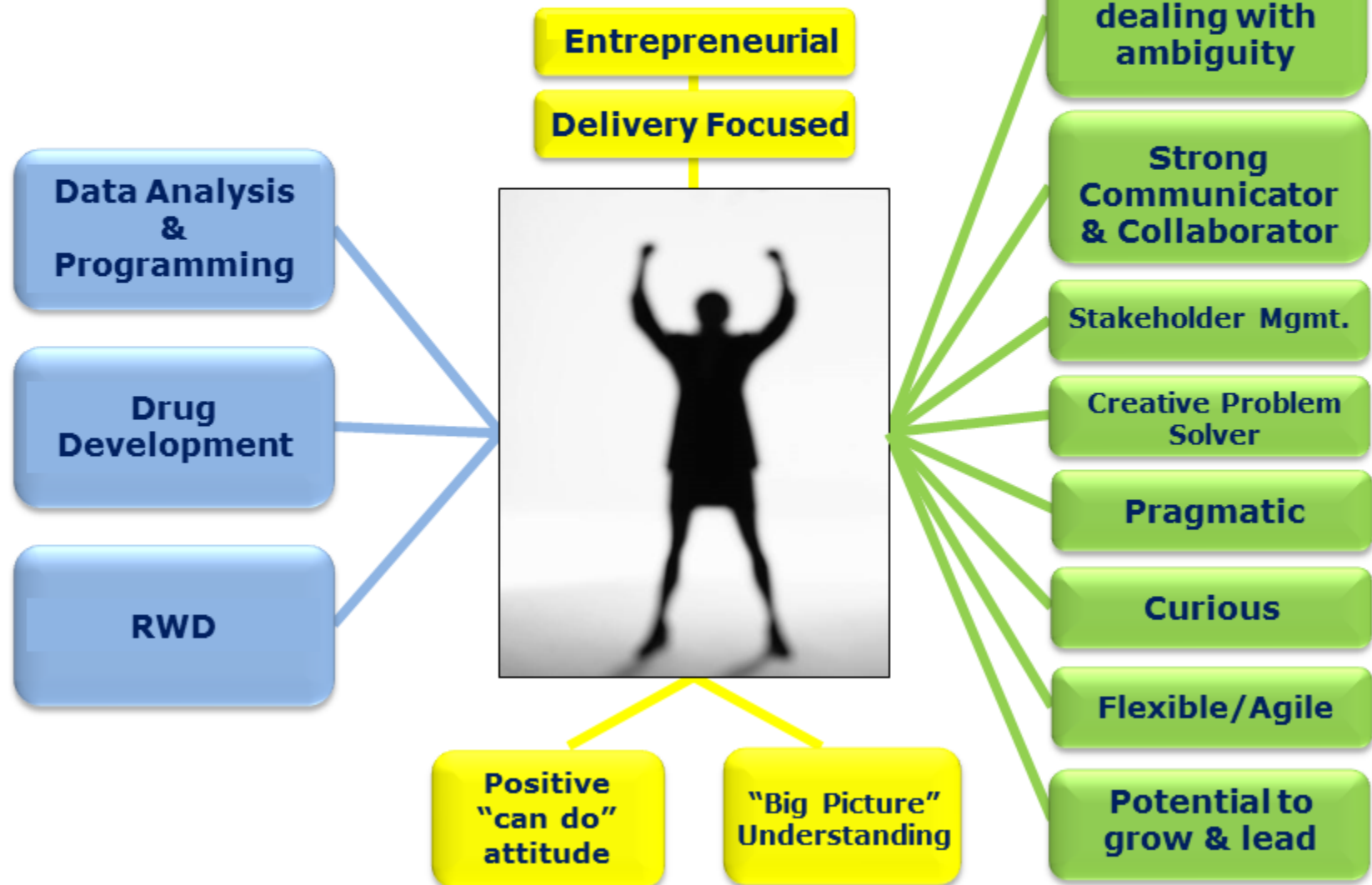
Team Profile & Behaviors



Proven Technical Experience
(or potential to learn quickly)

Mindset

Key Behaviors



Analyst University

- Each RWD-S Analyst has a tailored Individual Development Plan (IDP) & also takes part in Analyst University
- **Key Objective of Analyst University:** To learn and grow together
- Analyst University consists of 4 key components:

Knowledge Sharing

- Bi-weekly
- Covers technical sharing incl. analysis learnings

Internal Training

- Training from peers (e.g. methodology specialist)
- Group training (e.g. new systems and tools)

Internal Innovation Days

- Recent “Chopped” Analyst University Day

External Training & Conferences

- Linked to IDP needs
- E.g. University courses, ICPE, ISPOR, Tableau conf.

Current RWD-S Analytics



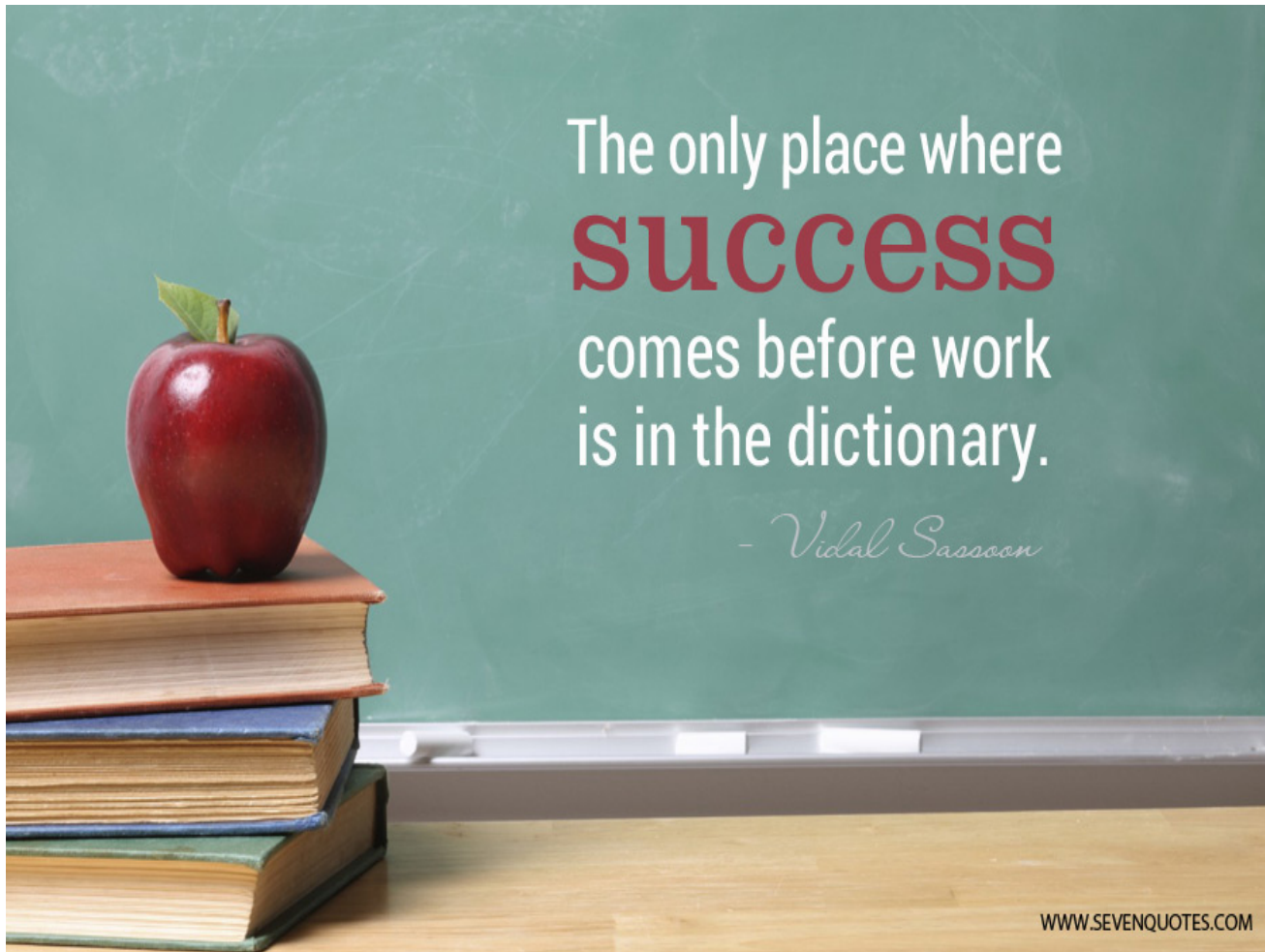
Tool	When will we use it?
Teradata	Database used to store in-house RWD data sources. SAS integration and Teradata SQL used to query data for analysis.
SAS	Core tool for data manipulation and creating regular static analysis deliverables (Also exploring Enterprise Miner and VA/VS)
R	Used for advanced statistical analyses and graphics with ability to leverage open source capabilities
Tableau	Used to create interactive web-based data visualizations and dashboards
RStudio Shiny	Used to create interactive web-based data visualizations for more advanced statistical analyses and novel web-based apps

Expected to continue to evolve.....

Our Journey So Far..... 6 Key Observations



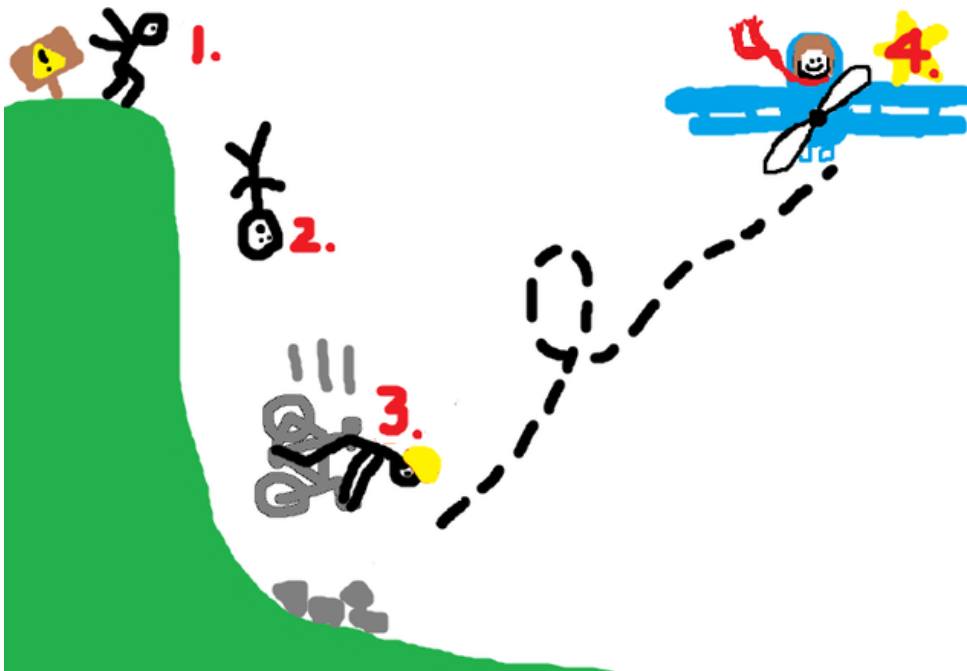
#1) Collaborative & entrepreneurial Analysts are the key! As is the right team culture



#2) *Embrace the change! Things are evolving fast – we need to stay flexible and agile*

“You jump off a cliff and you assemble an airplane on the way down.”

**- Reid Hoffman,
LinkedIn co-founder**



#3) Developing close partnerships with key stakeholders is important Driving interactions & side-by-side impact



#4) *You need the right technical infrastructure to enable your team*

A few examples of successes of implementing Teradata based platform:

Query	TODAY: Teradata	YESTERDAY: Legacy UNIX Box
Selecting claims from Truven MarketScan® Commercial, Medicare, and Medicaid, inpatient and outpatient claims from 2006-2013 (48 tables!)	2.1 mins	1,920 mins (32 hours)
Selecting claims from Clinical Practice Research Datalink [CPRD®] clinical, referral, test, immunization from all years data	4.5 secs	~6 hrs
Simple feasibility checks - Scientist wanted to know how many patients have a peanut allergy lab result in Truven MarketScan®	<1 sec	~20 mins

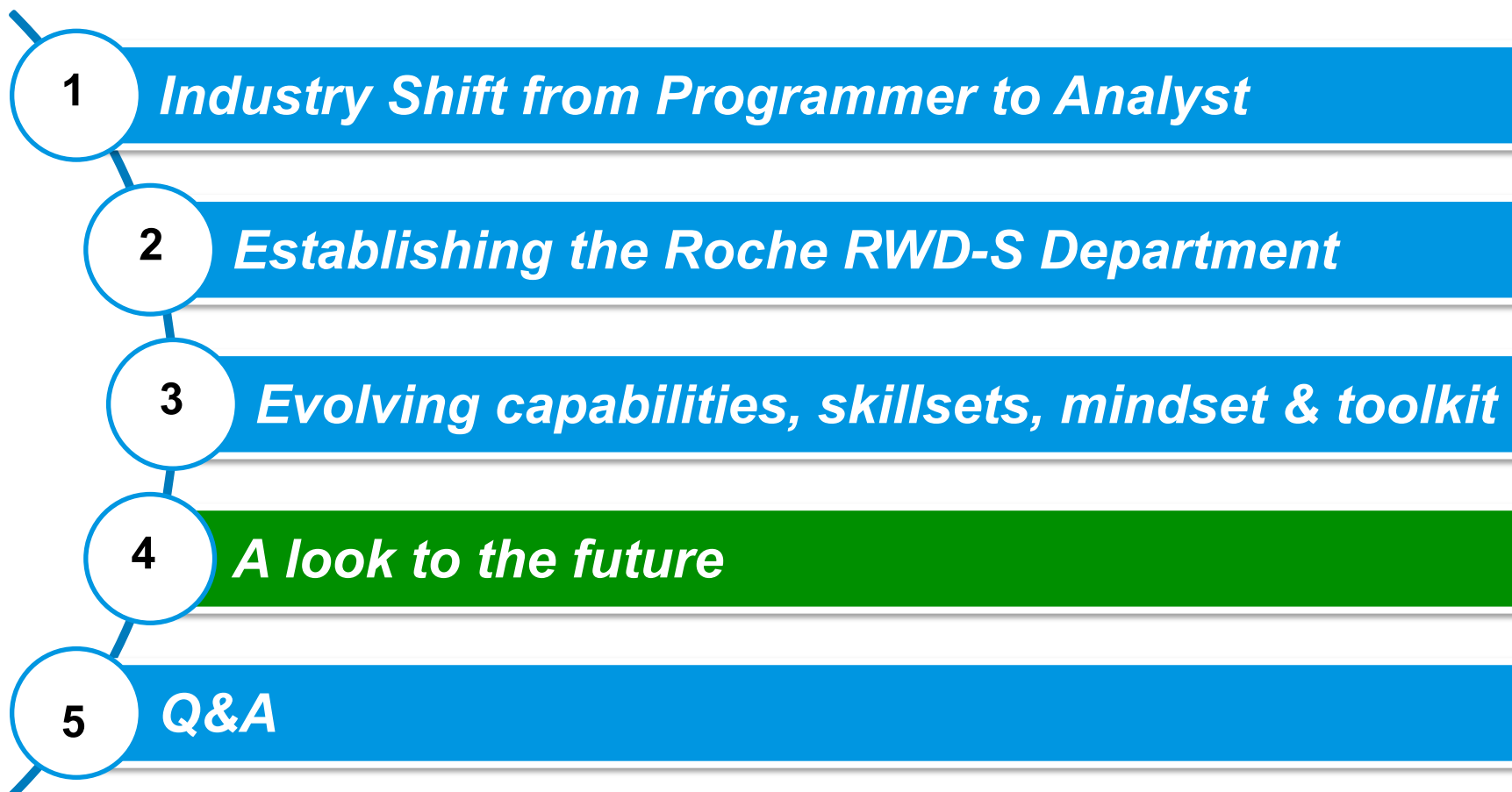
#5) The diverse Analyst community can pull together to help each other evolve and have a more significant impact in our industry

- Positive experience of different Roche Analyst groups starting to collaborate together by forming a connected network, e.g:
 - SPA & RWD-S (GLIDE RWD, GLIDE Visualization, Tools)
 - RWD-S, USMA, GPS, US Commercial, Diagnostics, Affiliates (SUN)
- Fantastic opportunity to share experiences, ideas and leanings across different companies (e.g. at PhUSE)

#6) *It's also important to have fun!*

- The team have been working very hard this year and in order to have a well balanced team culture we have also tried to find time for the team to have fun, for example:
 - Learning together in fun environment (e.g. chopped day)
 - Team building at F2F meetings
 - Weekly Analytics Google Hangouts
 - The Analyst band!
- The Analyst Evolution also provides a lot of great opportunities to have fun, for example there are many opportunities to:
 - Learn
 - Work on new problems/questions & new areas
 - Work with new people
 - Be creative and entrepreneurial

Agenda



A look to the future



- What do we need to keep doing?
 - Invest in developing analysts (mindset, behaviors and technical skills)
 - When recruiting mindset is probably more important than technical skills
 - Constantly reassess our tools, technology and methodologies
 - Continue to nurture and leverage our Analyst networks
- What will it look like?
 - Analysts impacting new areas
 - A network of dynamic, connected Analysts having a large impact across the industry
 - **Every team needs an Analyst.....and they know it**

Which path will you choose?!



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***Doing now what patients need
next***