

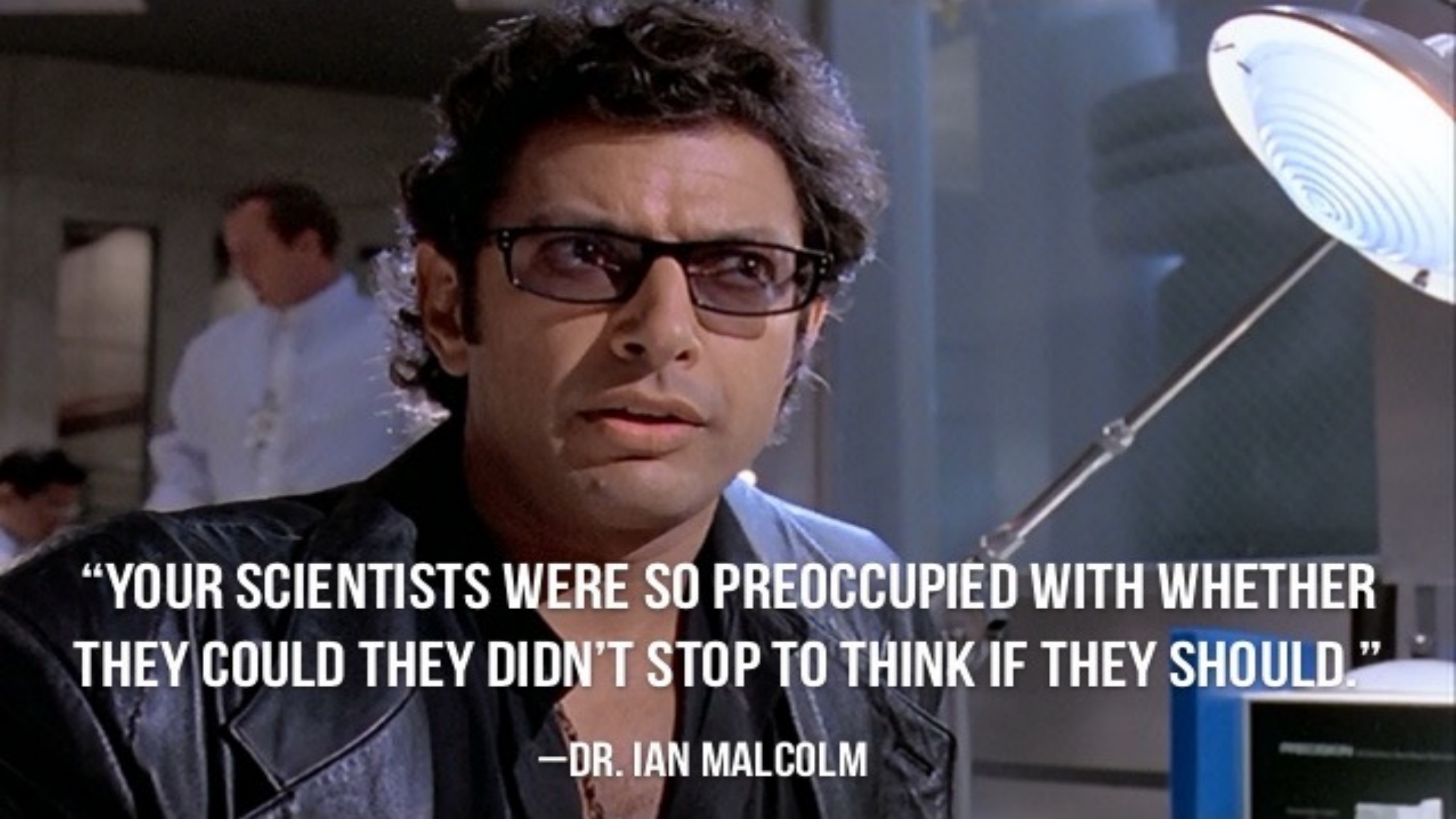


Tipping the scale: ***Moving from Scaling Experts to Balancing them with Novel Technologies***

Christopher J. Colangelo
Pfizer – Biometrics

August 12, 2021





**“YOUR SCIENTISTS WERE SO PREOCCUPIED WITH WHETHER
THEY COULD THEY DIDN'T STOP TO THINK IF THEY SHOULD.”**

—DR. IAN MALCOLM

The World's Fastest Car ... and Not So Much



SSC – Shelby Supercars Tuatara (331 mph)



Rickshaw (< 30 mph)

Bangalore, India @ Rush Hour in 2014



Better Value for Bangalore Commutes: **Rickshaws** or **SSCs**?



Rickshaws

- $\frac{1}{2}$ as wide & $\frac{2}{3}$ the length of SSCs
- More maneuverable
- ... but only $\frac{1}{10}$ as fast 😬

→ Safer

→ Quicker

→ Cheaper

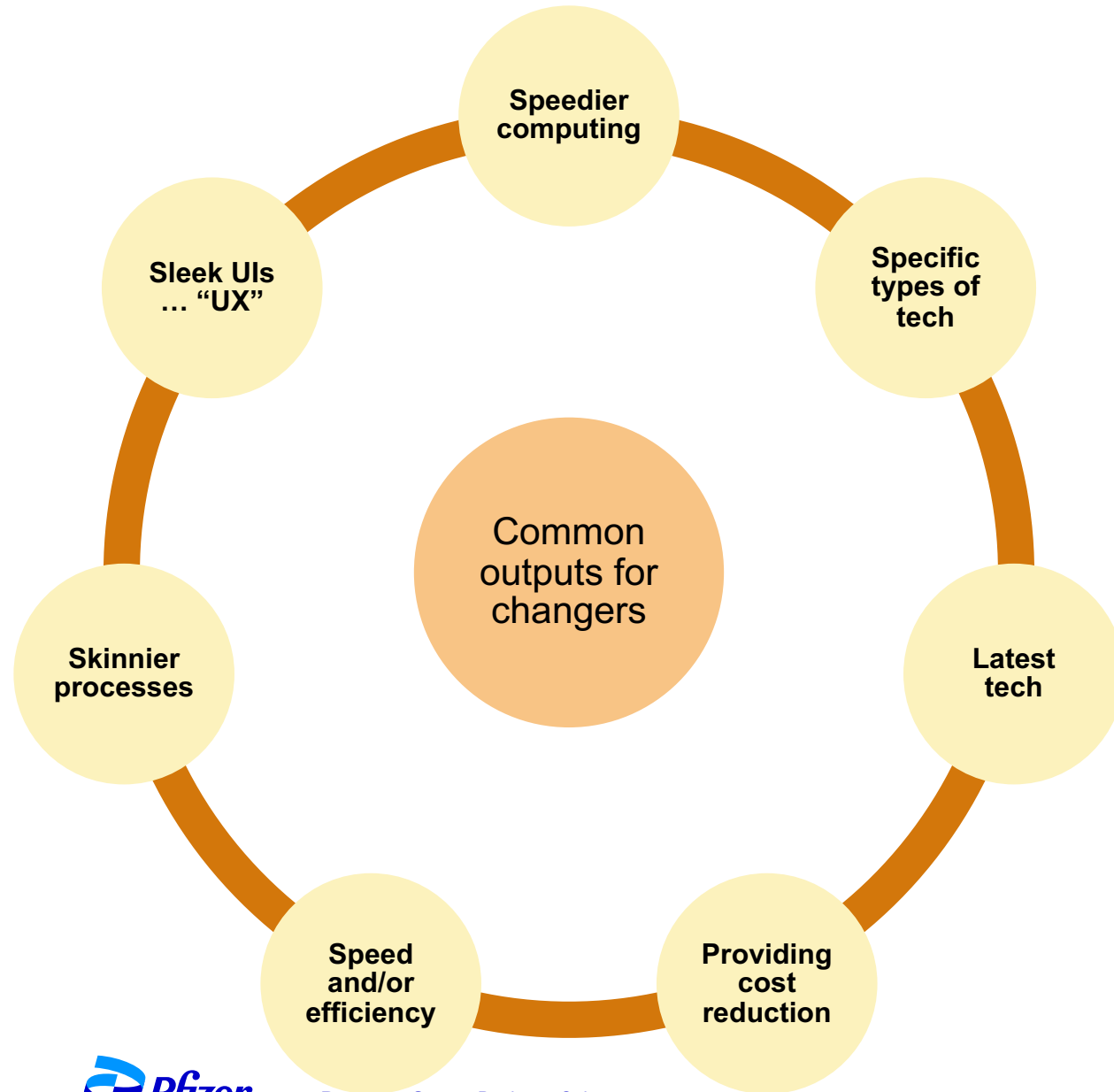


The Key To Being *Fit for Purpose*

... is first knowing for **what** to aim



Common Outputs for Changers



Typically governed by contracted outputs/deliverables

Outputs are "objective" & thus easier to measurable

Focus on-time & on-budget delivery ... paid proximate

Often long before effectiveness or success can be assessed

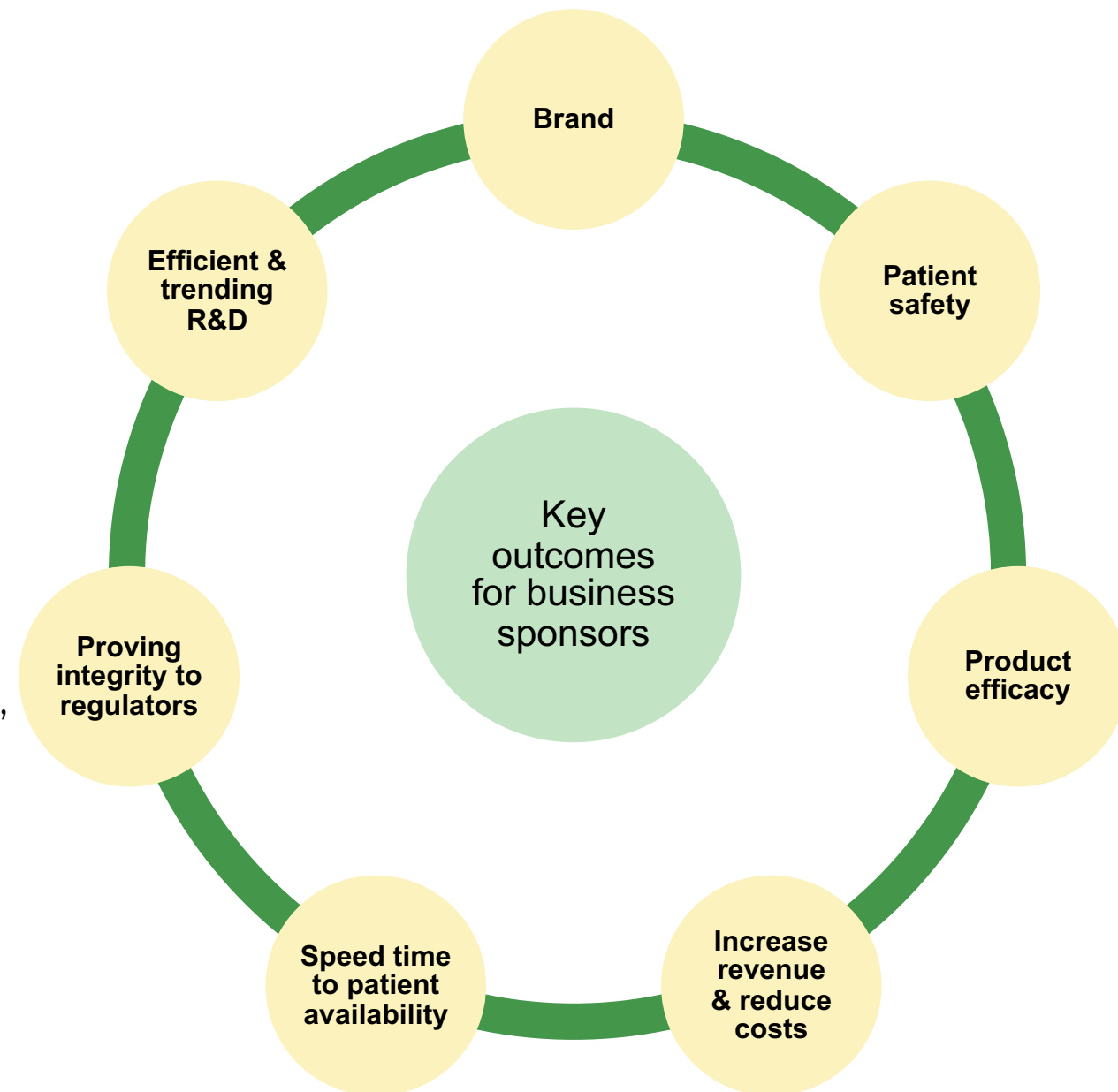
Key Outcomes for Business Sponsors

Execs realize Pharma R&D is an “integrated supply chain”

Think “globally” while acting “locally”

Accountable for outcomes that enable the whole

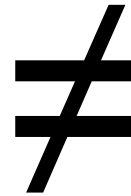
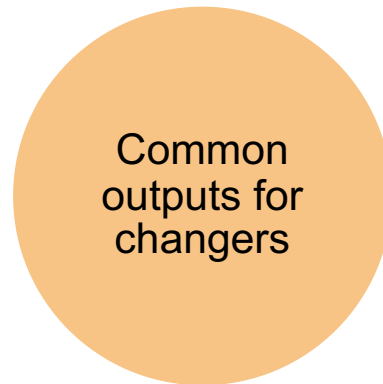
Need solutions designed to change “locally” to improve “globally”



(Mis-)Aligned on Impact

Changers tend to be biased to demonstrable *outputs* – aligned to what they are held accountable

Sponsors tend to be biased towards business *outcomes* – aligned to what they are held accountable



What Do I Propose?

Viewing the problem & *opportunity* differently

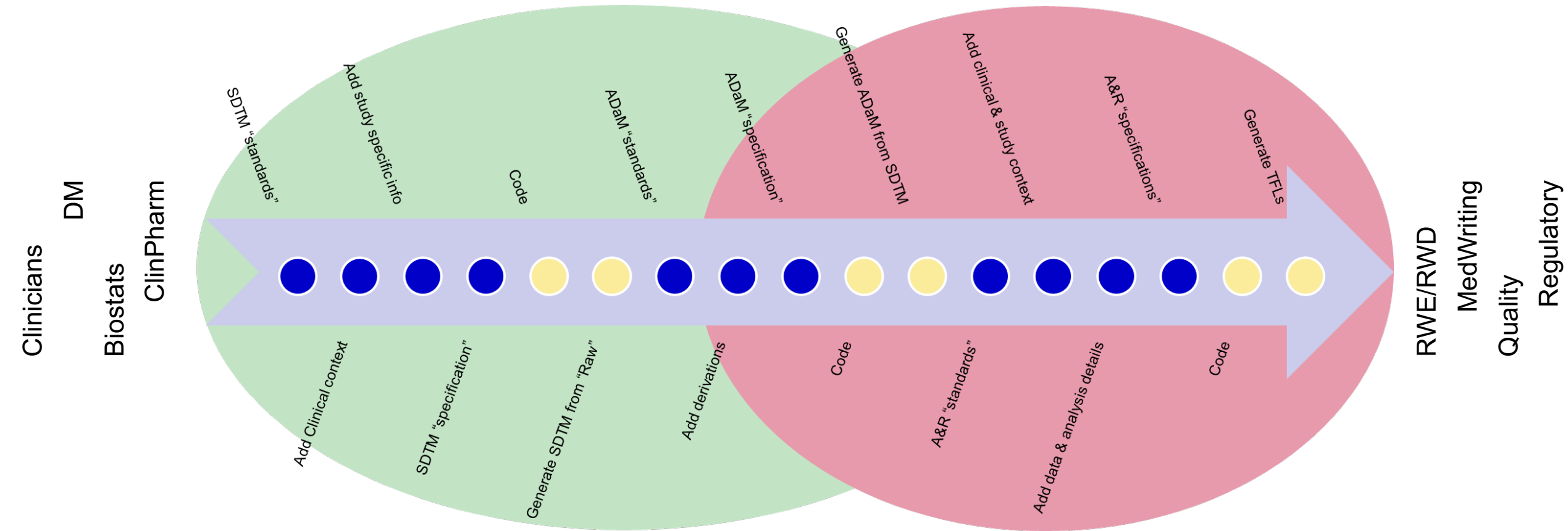
No longer viewing it as a coding problem
as a quality problem
as a technology problem
as a process problem
as a *silo'd* problem(s)

Viewing it as an *integrated supply chain* ...
the product is *knowledge*

- Join innovative mindsets & domain SMEs
- Think “globally” and act “locally”
- Target in-scope knowledge chains
- Target “local” & “global” interactions & logistics



Key Tasks Along the Typical A&R *Integrated Supply Chain*

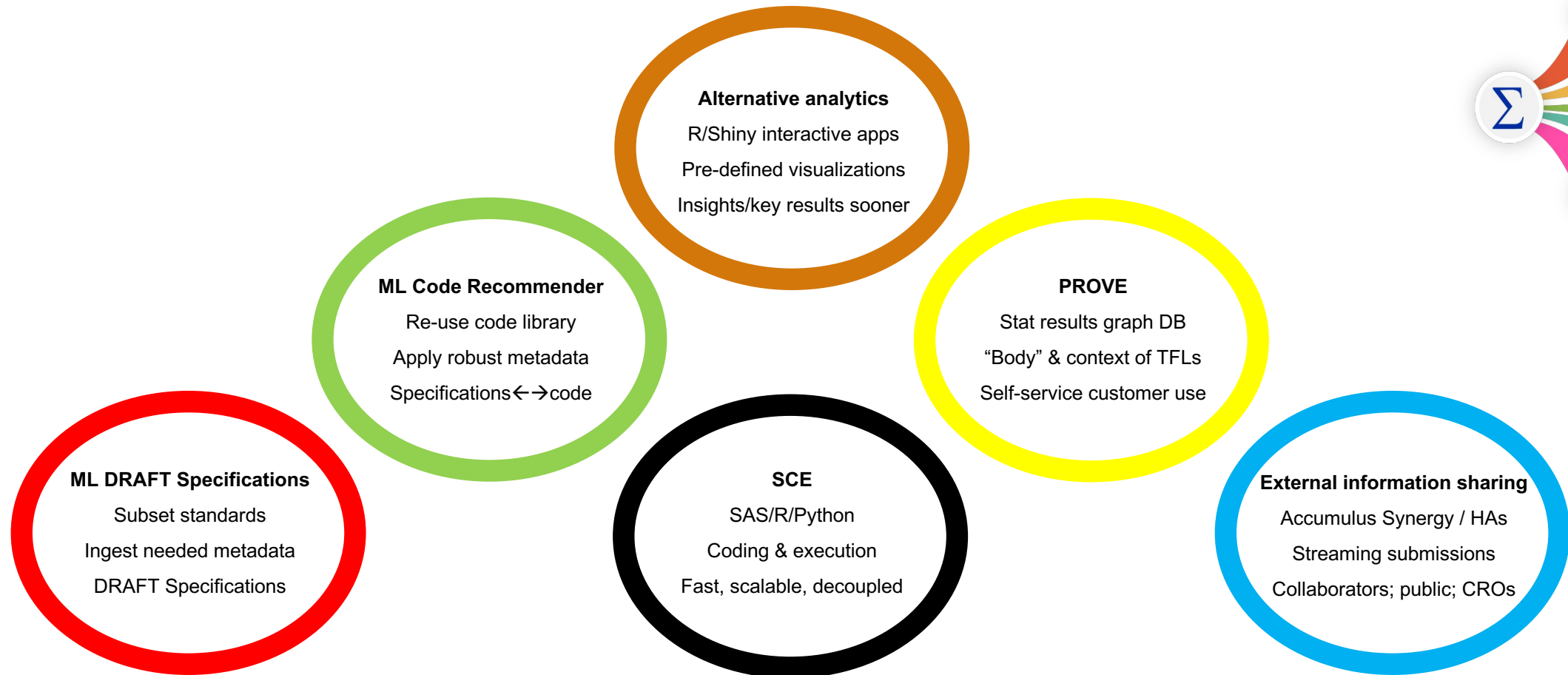


Transformation (value) outcomes *cannot* be achieved without innovating the blue circles

Innovating the blue circles requires *digital partners* for SMEs ... & up-/down-stream cross-org *info share*

This means *difficult solutions* ... *difficult OCM* ... & synergistic teams of *innovative mindsets*

SIGMA – Pfizer's A&R Digital Transform Foundation



Semantic networks/Graphical databases – study docs; metadata; interim artifacts; analysis data; statistical analysis results

Digitally engineered processes – systematize judgments, knowledge, manual tasks to aid SMEs

State-of-the-art technology – extensible, cloud-based architecture; integrated apps/components; automation / AI / ML / horizontal workflows



Thank you!
**I'm happy to answer
any questions ...**

For further information on this presentation or regarding **SIGMA**, please contact:

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Thank You



— Fundamental Point About *Fit for Purpose*

An approximate answer to the right question is worth far more than a precise answer to the wrong one.

John Tukey – Statistician

To build fit for purpose
implies one must *first* know the purpose

Question
>
Answer

Innovators must know the problems to solve in order to deliver success.

Fiona Murray – MIT Associate Dean for Innovation & Inclusion & Professor for Entrepreneurship

Problem
>
Solution

Innovation is “...whatever changes the wealth-producing potential of already existing resources”.

Peter Drucker – Business Management Guru

Outcomes
>
Newness

It is better to identify the correct target but occasionally not hit it ... than to reliably hit the wrong one.

Target
>
Aim

Me 😊

The Bottom-Line ...

In order to accelerate & stretch revenue generation for Biopharma ... to speed therapies/vaccines to patients ...

to reduce operating costs ... to ease demands on SMEs ... to increase UX ... to reduce risks ...

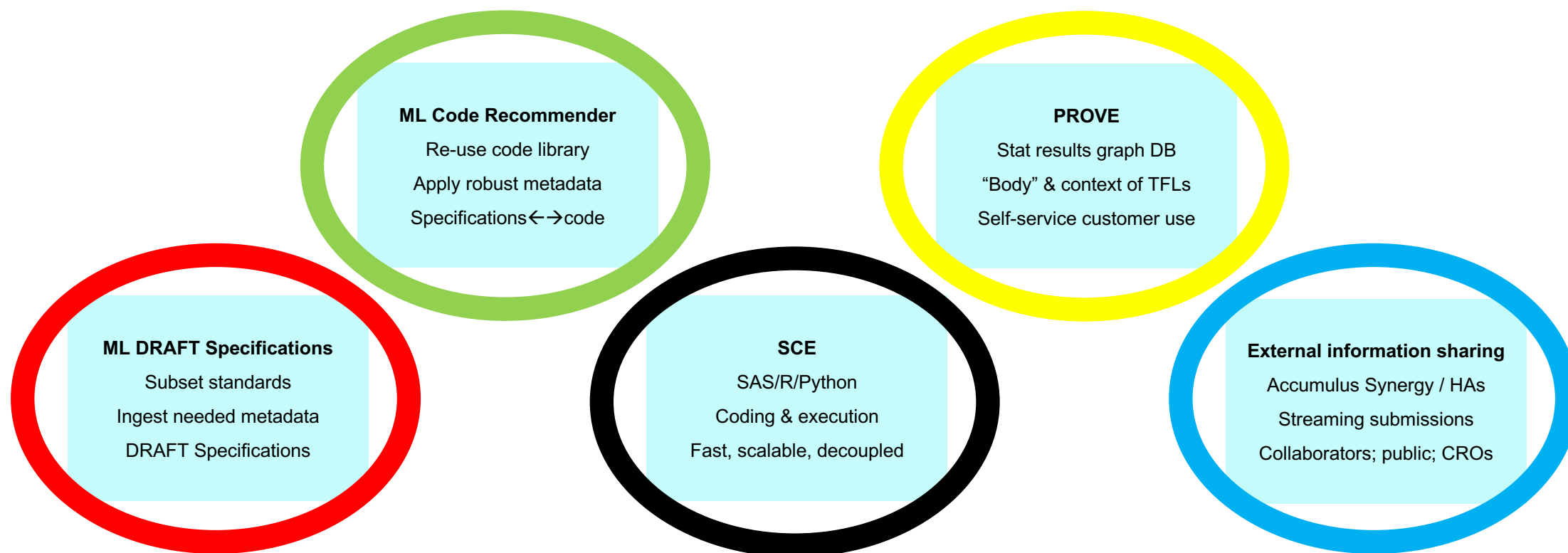
“we” need to identify outcome targets (“purposes”) that actually *transform* the analysis/analytics *supply chain*



Faster processing may not accelerate timelines
Automating point processes may actually detract
New tech enabling old processes is like putting lipstick on a pig



SIGMA – Pfizer's A&R Digital Transform Foundation



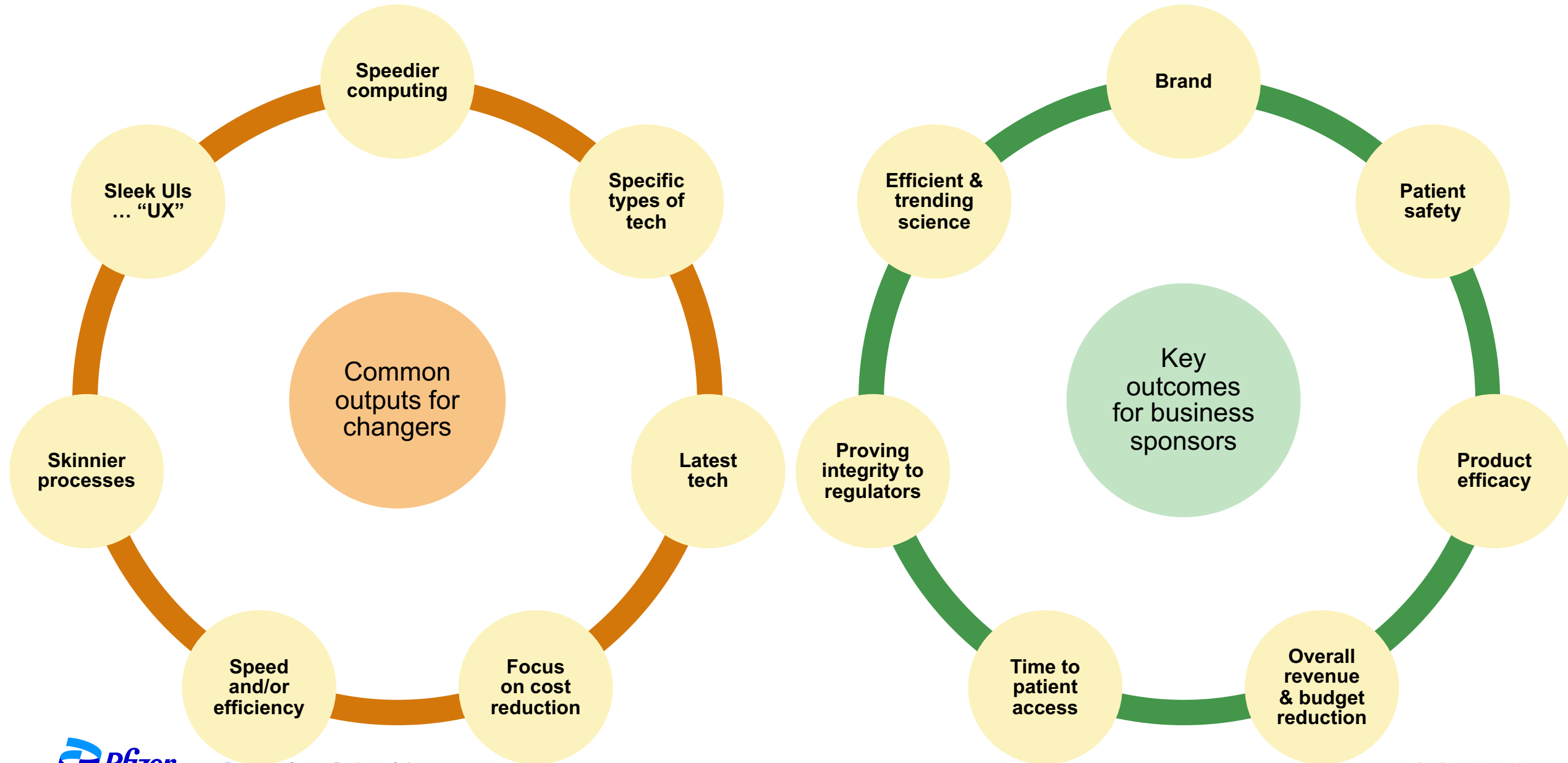
Semantic networks/Graphical databases – study docs; metadata; interim artifacts; analysis data; statistical analysis results

Digitally engineered processes – systematize judgments, knowledge, manual tasks to aid SMEs

Business Intelligence (BI) – resource & task tracking; operational insights; code re-use metrics; standards compliance; etc.

Extensible, cloud-based architecture – AWS infrastructure; integrated apps/components

Tale of the Tape



SIGMA – CDARS: Tale of the Tape

Semantic A&R Plan:

- Digital, linked info
- **Database** (PROVE)
- Interactive UI
- **AI/ML Drafts**

SIGMA SCE:

- SAS/R/Python
- Coding & execution
- Persists outputs
- Gathers metadata

Semantic Results:

- Digital, linked info
- **Database** (PROVE)
- Gold standard
- **Self-service re-use**

UX design:

- Holistic UX
- Custom UIs
- Workflows
- Simplify effort

Technical footprint:

- Cloud-based
- Burstable
- HPC
- Open architecture

Unify in SIGMA:

- TA/study, integration
- Submission
- SDP outputs