



# Beyond the math

*Using a project management framework to improve  
the performance of data analytics initiatives*

Presented to PMI San Diego 2018 Conference

**July 11 & 12, 2018**

**John Wood, PhD, PMP**

john.wood@cardinalphs.com

# Learning objectives

- Understand:
  - The common approach of collecting “all data” is costly and virtually unconstrained
  - A business capabilities approach adds constraints and potential for a quality assurance program
  - Project management process groups are well suited for establishing quality controls and managing return on investment
- Apply:
  - Use project management process groups to organize and manage an analytics project



# Presentation flow



# Presentation flow

*Follows Gleicher's change formula*



# Presentation flow

*Follows Gleicher's change formula*

Overcoming resistance to change requires:



# Presentation flow

*Follows Gleicher's change formula*

Overcoming resistance to change requires:

- Dissatisfaction of the current state



# Presentation flow

*Follows Gleicher's change formula*

Overcoming resistance to change requires:

- Dissatisfaction of the current state
- Clear vision of the future state



# Presentation flow

*Follows Gleicher's change formula*

Overcoming resistance to change requires:

- Dissatisfaction of the current state
- Clear vision of the future state
- Concrete first steps to advance to the future state





# Presentation flow

*Follows Gleicher's change formula*

Overcoming resistance to change requires:

- Dissatisfaction of the current state
- Clear vision of the future state
- Concrete first steps to advance to the future state

*Dissatisfaction x Vision x First steps > Resistance to change*

$$D \times V \times F > R$$



# Agenda



# Agenda

- Dissatisfaction
- Vision
- First steps



# Agenda

- Dissatisfaction
  - Data maturation (nuggets)
  - IT data lifecycle (bytes)
  - Cost vs. benefit analyses
- Vision
- First steps



# Agenda

- Dissatisfaction
  - Data maturation (nuggets)
  - IT data lifecycle (bytes)
  - Cost vs. benefit analyses
- Vision
  - Business capabilities approach to analytics
- First steps



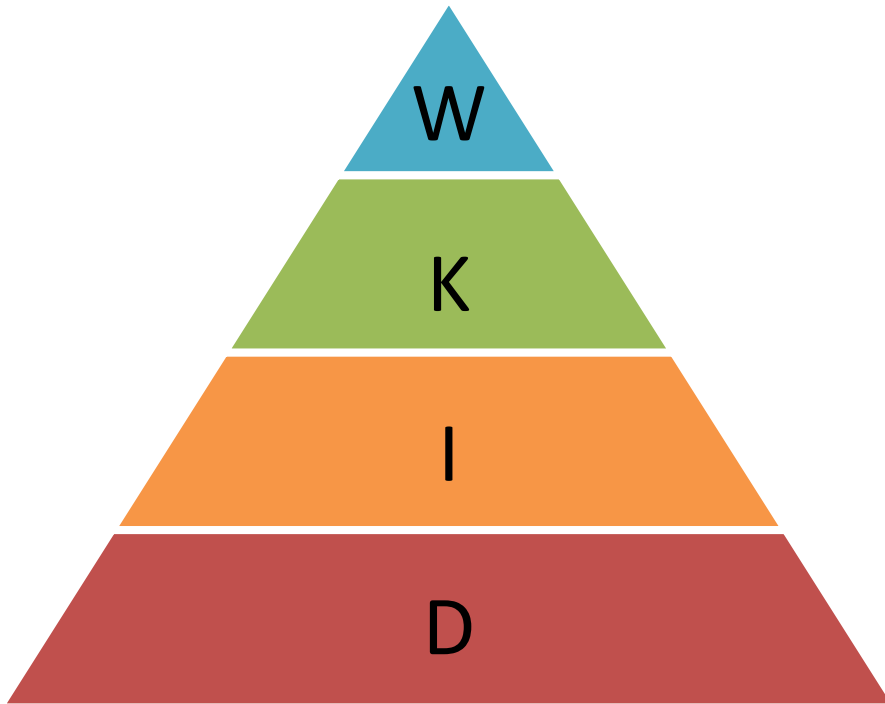
# Agenda

- Dissatisfaction
  - Data maturation (nuggets)
  - IT data lifecycle (bytes)
  - Cost vs. benefit analyses
- Vision
  - Business capabilities approach to analytics
- First steps
  - Mapping an analytics project to project management process groups



# Data maturation

# DIKW pyramid

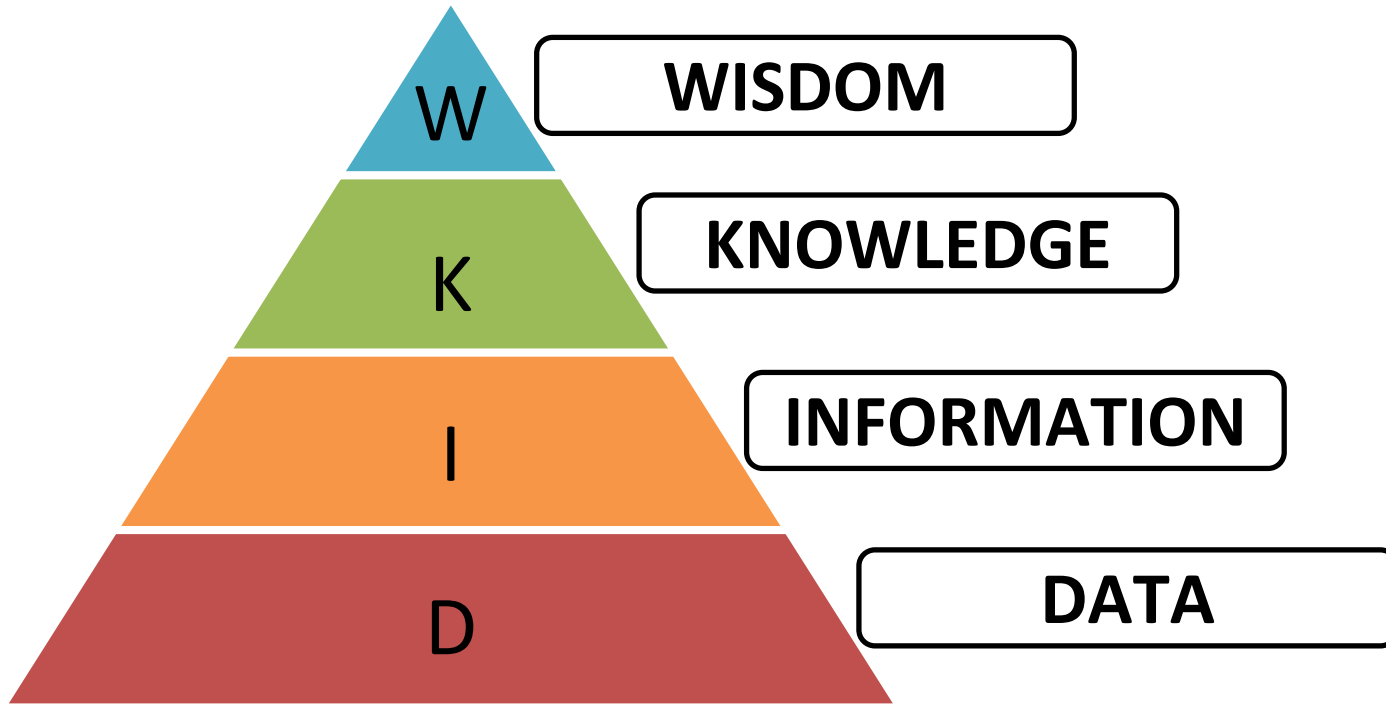


Ref: <http://www.systems-thinking.org/dikw/dikw.htm>



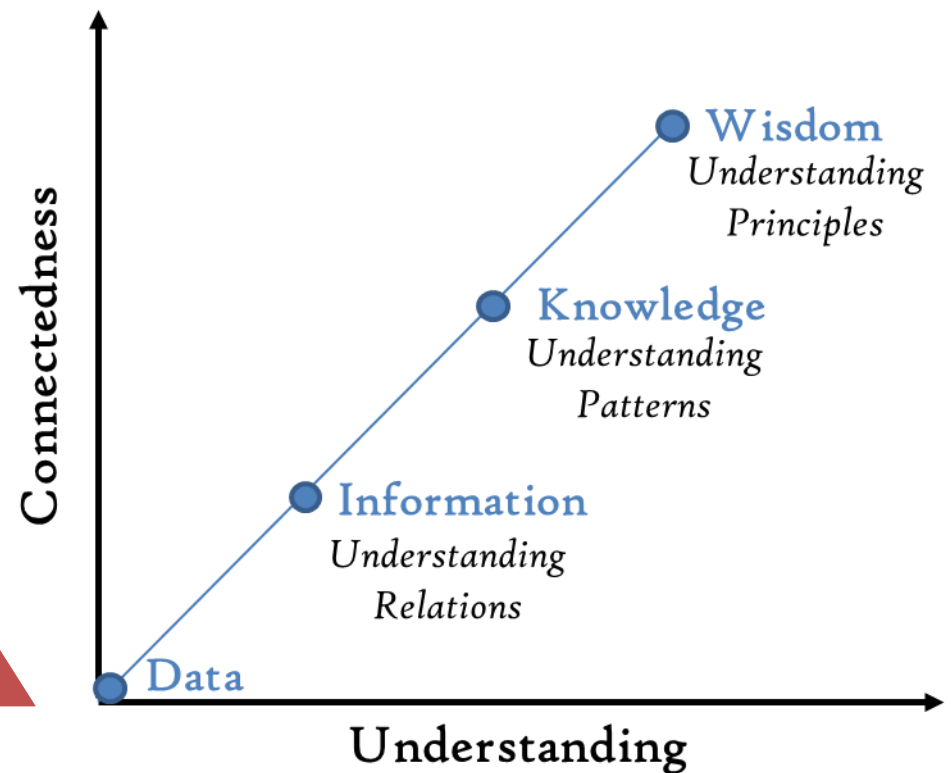
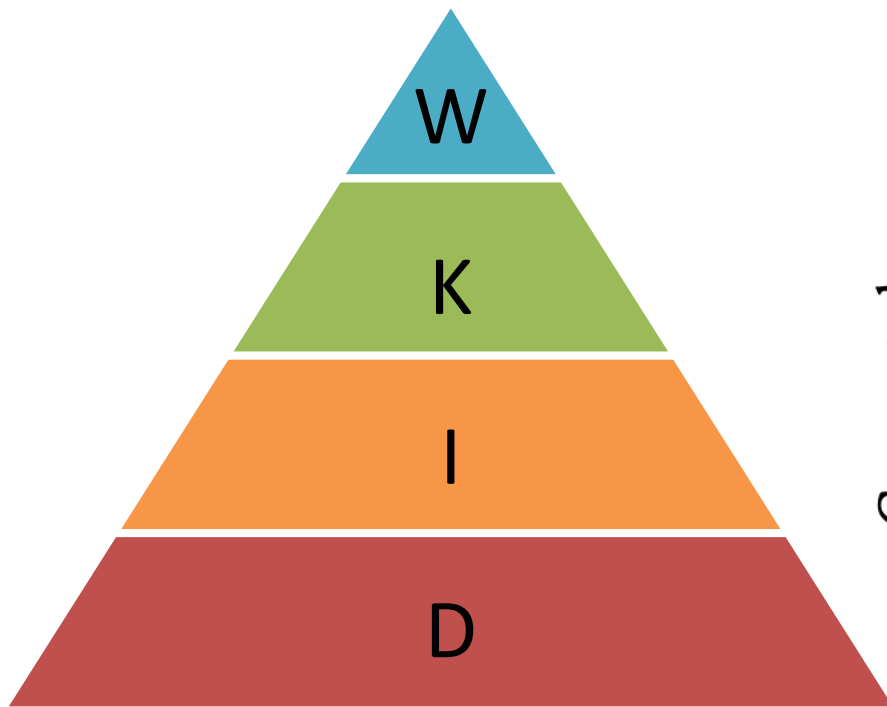


# DIKW pyramid



Ref: <http://www.systems-thinking.org/dikw/dikw.htm>

# DIKW pyramid – progression

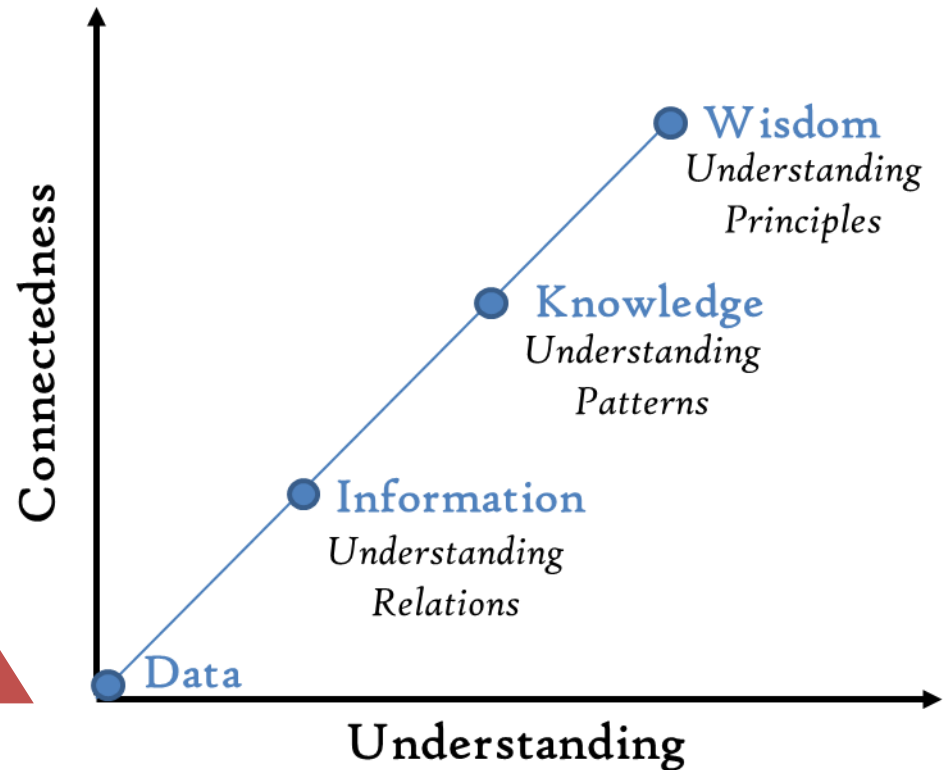
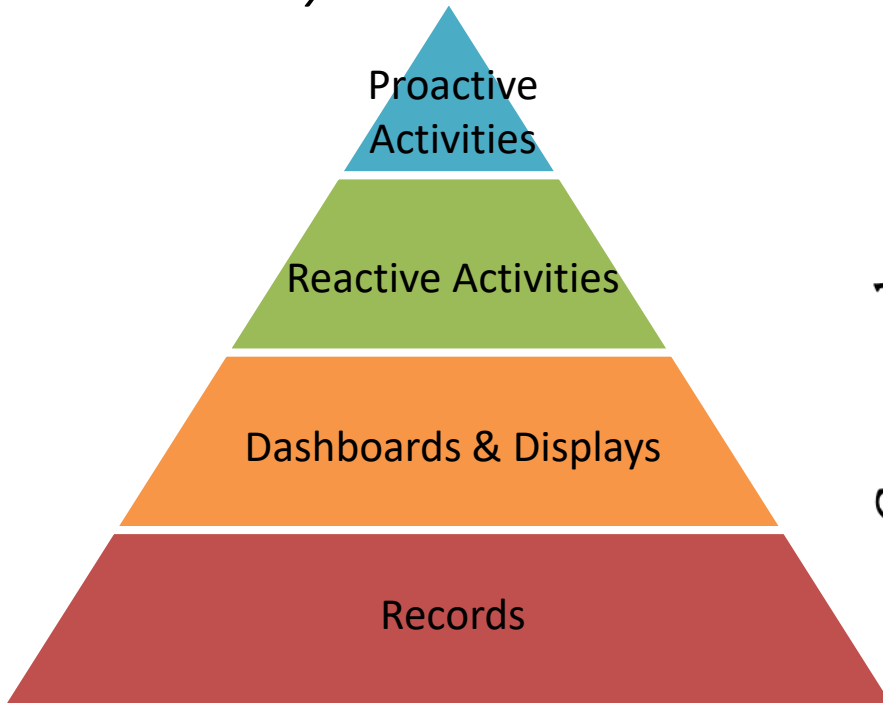


Ref: <http://www.systems-thinking.org/dikw/dikw.htm>



# DIKW pyramid – evidence

*Evidenced by:*

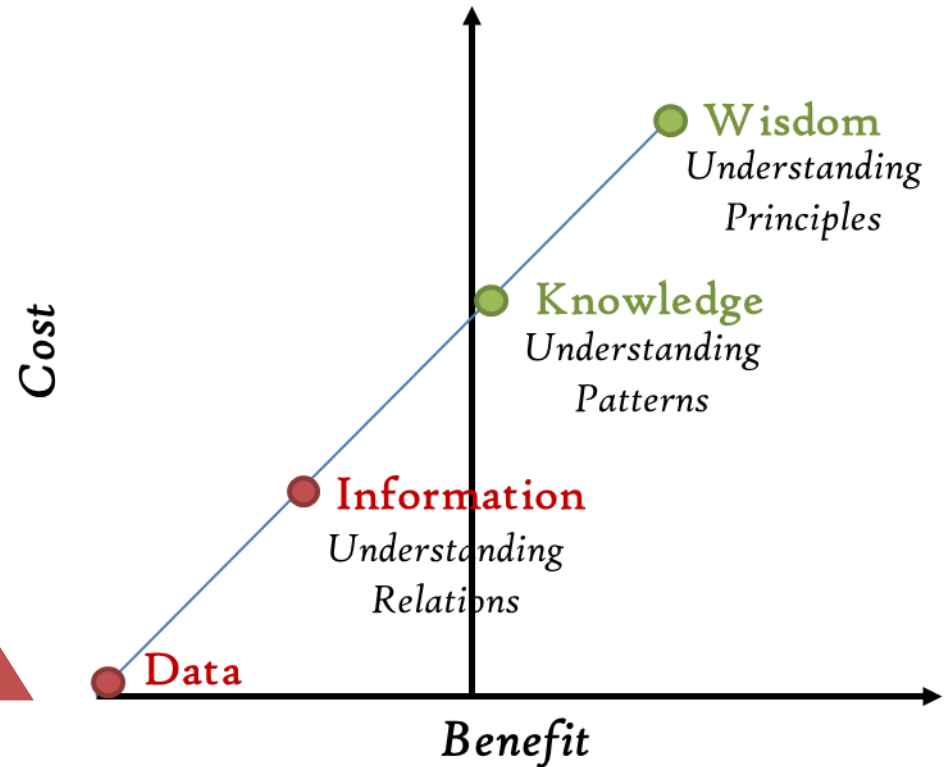
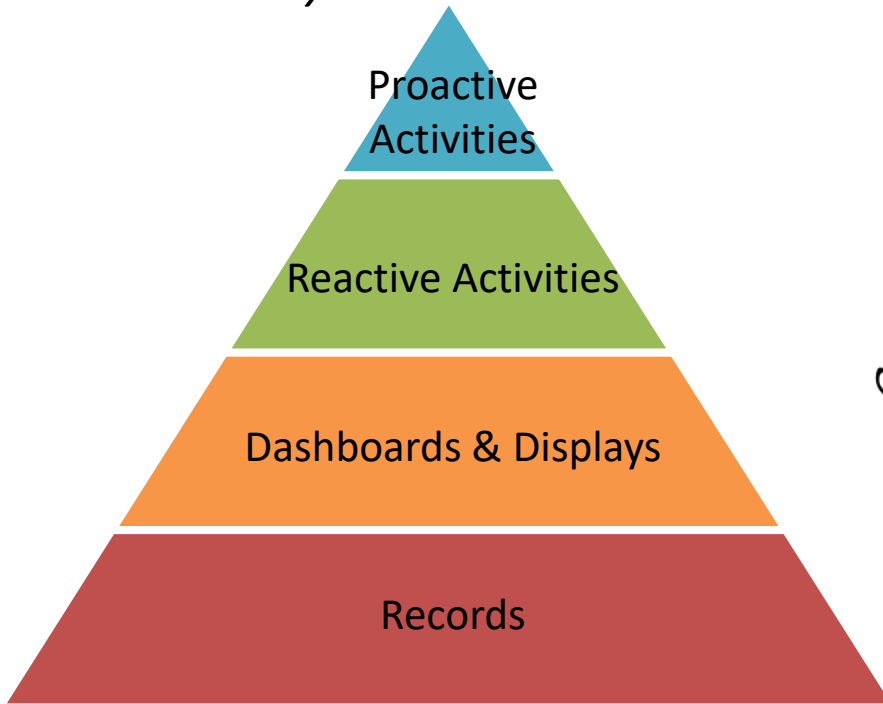


Ref: <http://www.systems-thinking.org/dikw/dikw.htm>



# DIKW pyramid – cost vs. benefit

*Evidenced by:*



Ref: <http://www.systems-thinking.org/dikw/dikw.htm>



# IT data lifecycle

# IT data lifecycle

- Plan
- Collect
- Assure
- Preserve
- Discover/recall
- Integrate
- Analyze
- Archive
- Destroy

# IT data lifecycle – definitions

- Plan – Identify data needs, uses, and source
- Collect – Acquire the data
- Assure – Perform quality control checks on the data
- Preserve – Save the original data
- Discover/recall – Retrieve the data for use
- Integrate – Build connections among data elements
- Analyze – Build understanding of relations, patterns, and principles
- Archive – Store the data, information, knowledge, and wisdom
- Destroy – Remove the data, information, knowledge, and wisdom

# IT data lifecycle – cost vs. benefit

- Plan –
- Collect –
- Assure –
- Preserve –
- Discover/recall –
- Integrate –
- Analyze –
- Archive –
- Destroy –



# IT data lifecycle – cost vs. benefit

- Plan – Cost
- Collect – Cost
- Assure – Cost
- Preserve – Cost
- Discover/recall – Cost
- Integrate – Cost
- Analyze – Cost
- Archive – Cost
- Destroy – Cost

# IT data lifecycle – cost vs. benefit

- Plan – Cost
- Collect – Cost
- Assure – Cost
- Preserve – Cost
- Discover/recall – Cost
- Integrate – Cost
- Analyze – Cost **and potential benefit**
- Archive – Cost
- Destroy – Cost

# Findings and implications



# Findings and implications

- Following the DIKW pyramid
  - Data and information only create costs
  - Knowledge and wisdom provide benefit

# Findings and implications

- Following the DIKW pyramid
  - Data and information only create costs
  - Knowledge and wisdom provide benefit
- Following the IT data lifecycle
  - 8 out of the 9 activities only create costs
  - 1 activity may provide benefit



# Findings and implications

- Following the DIKW pyramid
  - Data and information only create costs
  - Knowledge and wisdom provide benefit
- Following the IT data lifecycle
  - 8 out of the 9 activities only create costs
  - 1 activity may provide benefit
- By focusing on data, we're focused on activities that create costs



# Findings and implications

- Following the DIKW pyramid
  - Data and information only create costs
  - Knowledge and wisdom provide benefit
- Following the IT data lifecycle
  - 8 out of the 9 activities only create costs
  - 1 activity may provide benefit
- By focusing on data, we're focused on activities that create costs
- Worse, by focusing on data, the scope of our efforts will grow virtually unconstrained



# Business capabilities approach to analytics



To promote positive and continued  
Return on Investment (ROI),  
we need to focus on *capabilities*  
instead of focusing on data.



# Focus on capabilities to achieve ROI



# Focus on capabilities to achieve ROI

- Introduce capabilities (*and associated data*) only upon validated business need



# Focus on capabilities to achieve ROI

- Introduce capabilities (*and associated data*) only upon validated business need
  - ***Control scope***



# Focus on capabilities to achieve ROI

- Introduce capabilities (*and associated data*) only upon validated business need
  - ***Control scope***
- Evaluate cost vs. benefit throughout capability lifecycle



# Focus on capabilities to achieve ROI

- Introduce capabilities (*and associated data*) only upon validated business need
  - ***Control scope***
- Evaluate cost vs. benefit throughout capability lifecycle
  - ***Perform quality assurance***



# Focus on capabilities to achieve ROI

- Introduce capabilities (*and associated data*) only upon validated business need
  - ***Control scope***
- Evaluate cost vs. benefit throughout capability lifecycle
  - ***Perform quality assurance***
- Retire capabilities (*and associated data*) when no longer providing positive ROI



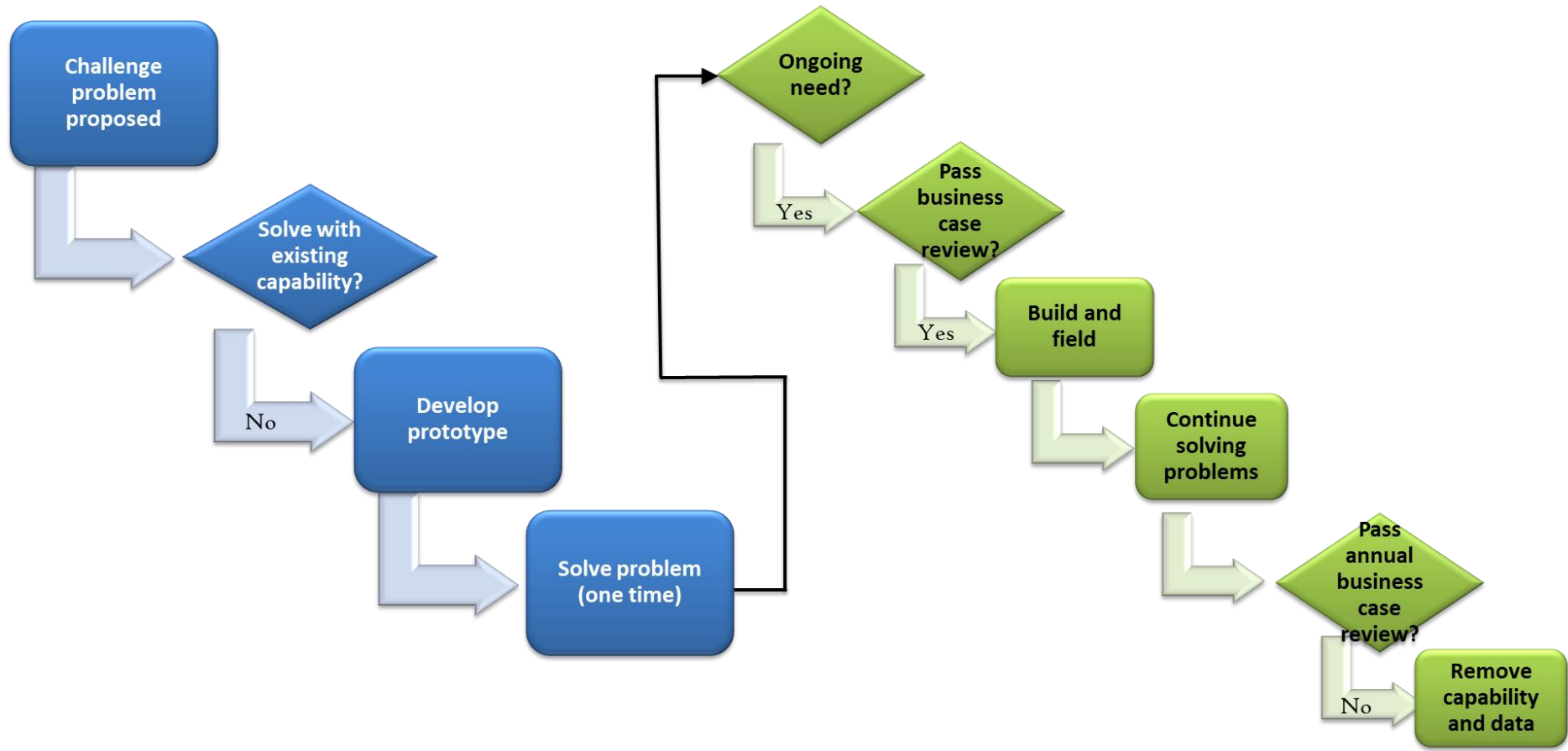
# Focus on capabilities to achieve ROI

- Introduce capabilities (*and associated data*) only upon validated business need
  - ***Control scope***
- Evaluate cost vs. benefit throughout capability lifecycle
  - ***Perform quality assurance***
- Retire capabilities (*and associated data*) when no longer providing positive ROI
  - ***Control scope***





# Capability lifecycle



# Annual business case review example metrics

## Measured benefits

- Increase in sales, revenue, etc.
- Reduction in operating costs
- Mishap prevention
- Number of challenge problems solved
- User feedback

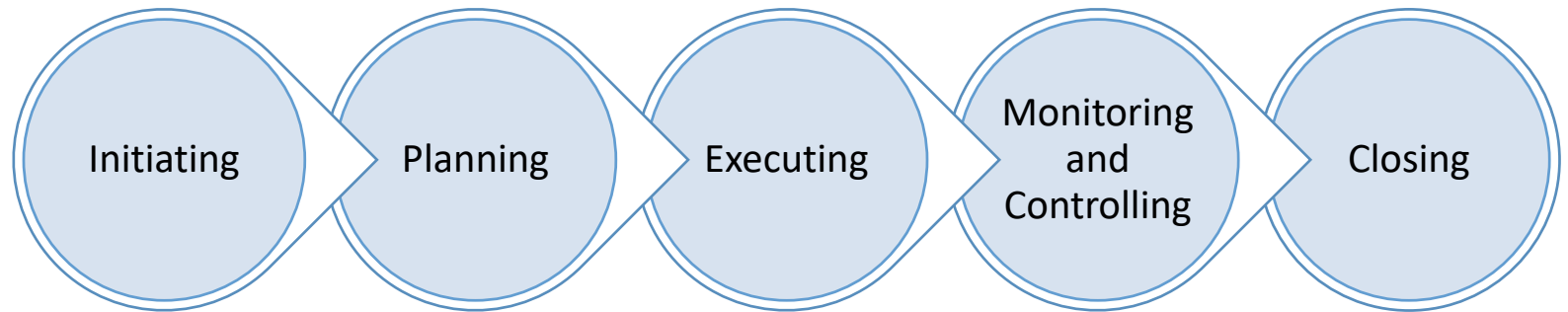
VS.

## Measured costs

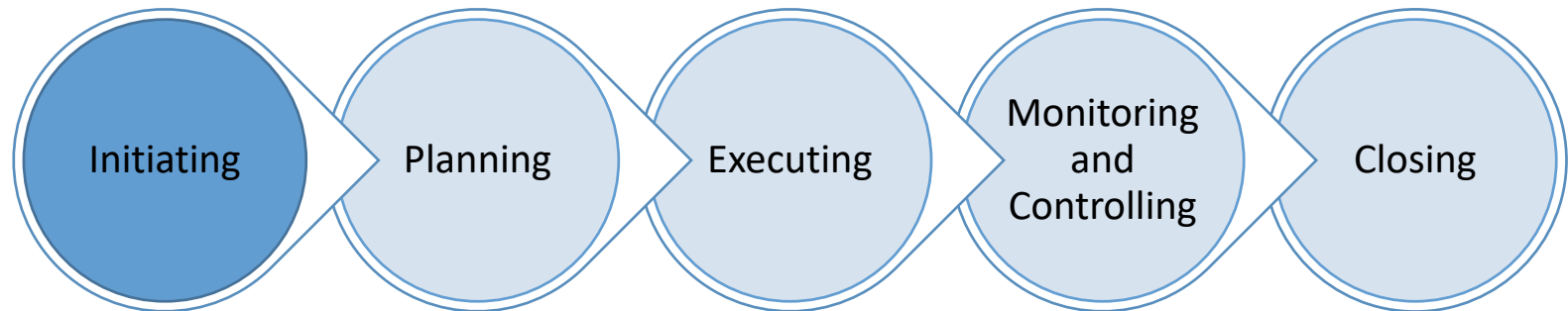
- Hardware hosting
- Software licenses
- Interface support
- Operations labor
- Software upkeep/refresh
- User training

# The PM process groups

# Project management process groups

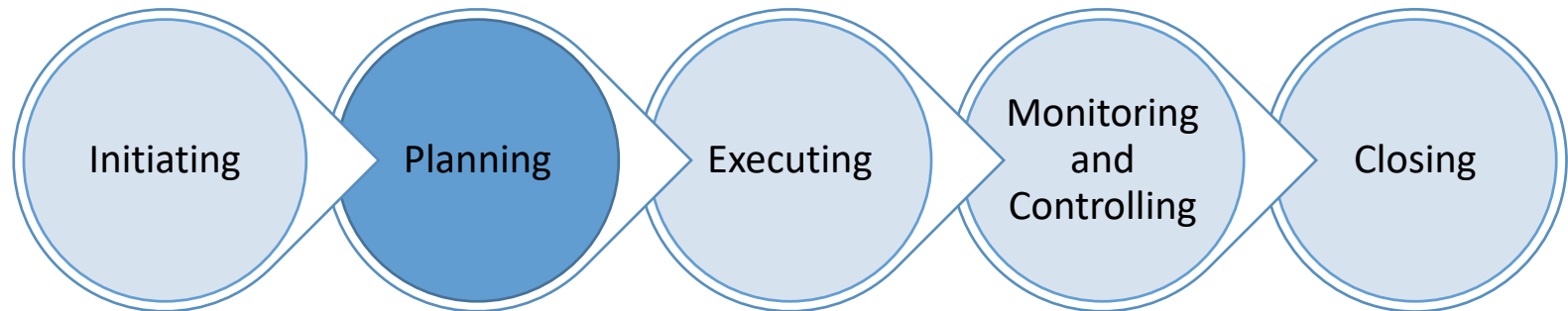


# Project management process groups



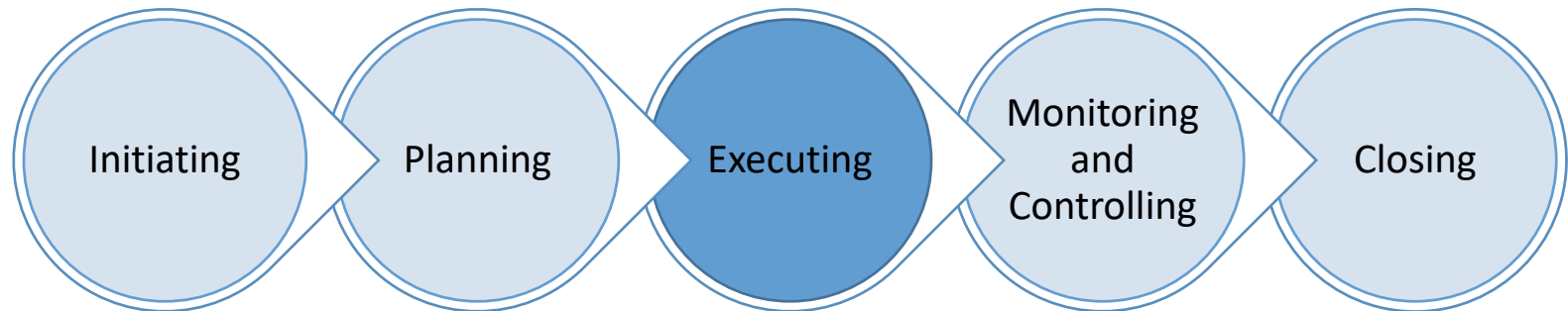
- Define project
- Obtain authorization

# Project management process groups



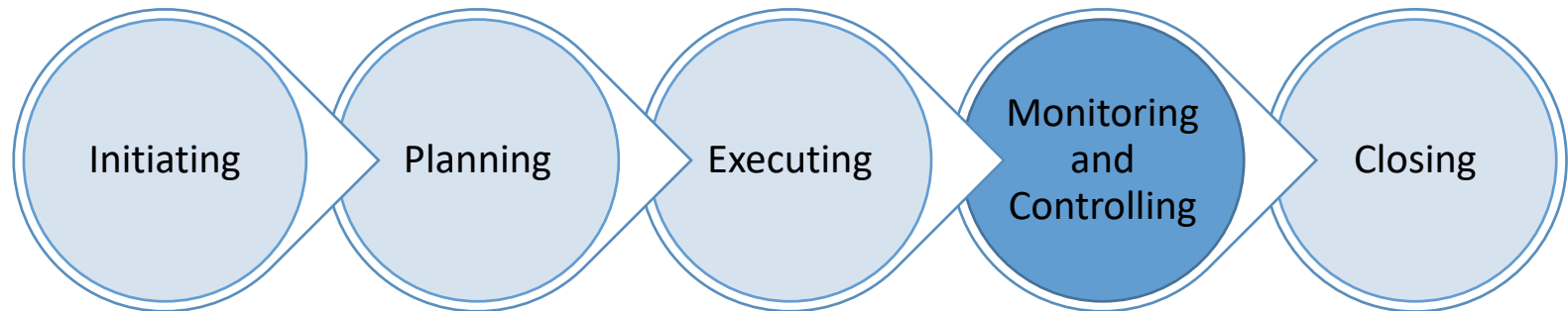
- Establish the scope
- Refine the objectives
- Define the course of action to achieve objectives

# Project management process groups



- Complete the work described in the project management plan

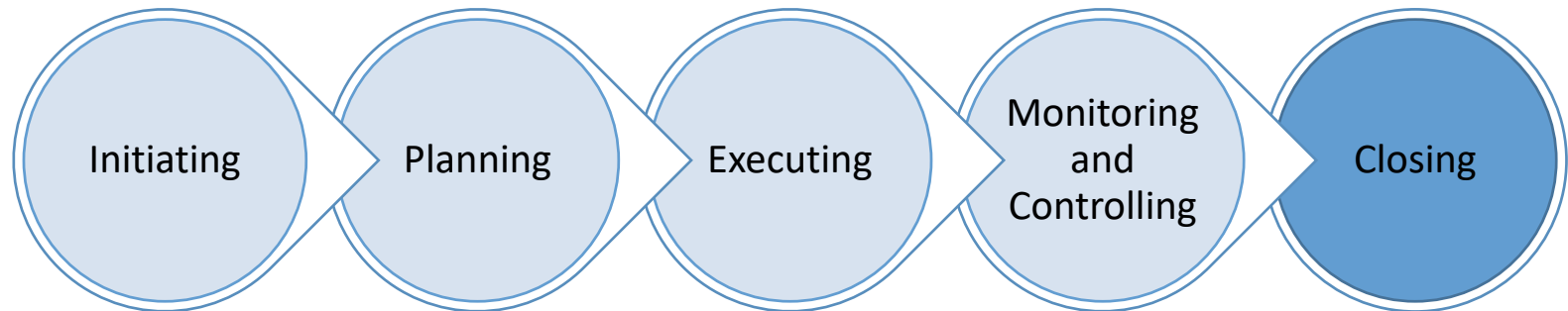
# Project management process groups



- Track, review, and regulate progress and performance
- Identify areas for change and take action



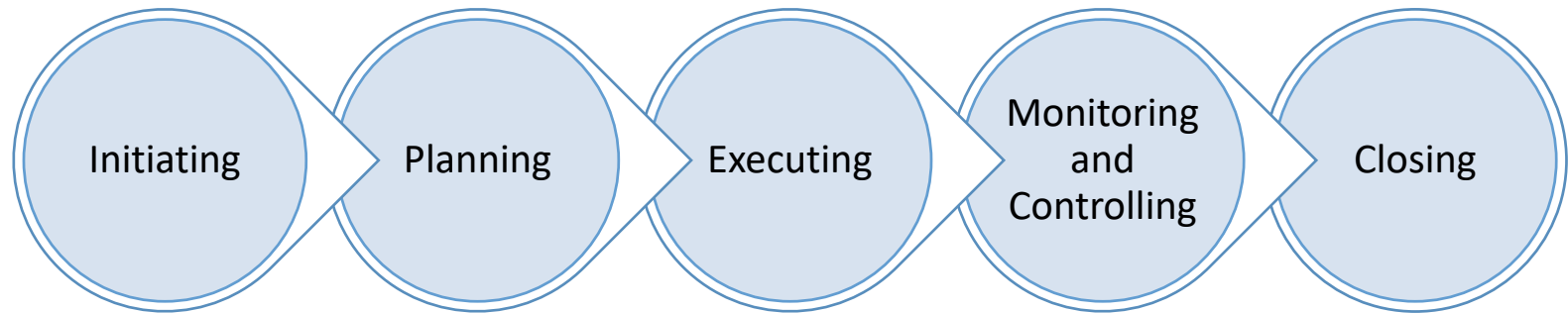
# Project management process groups



- Formally close the project

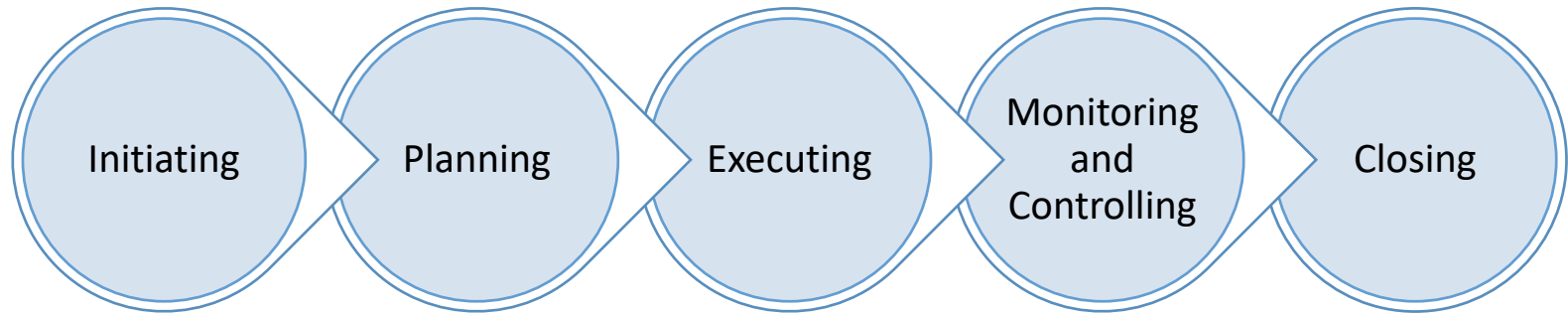
# Organize and manage an analytics project

# Project management process groups



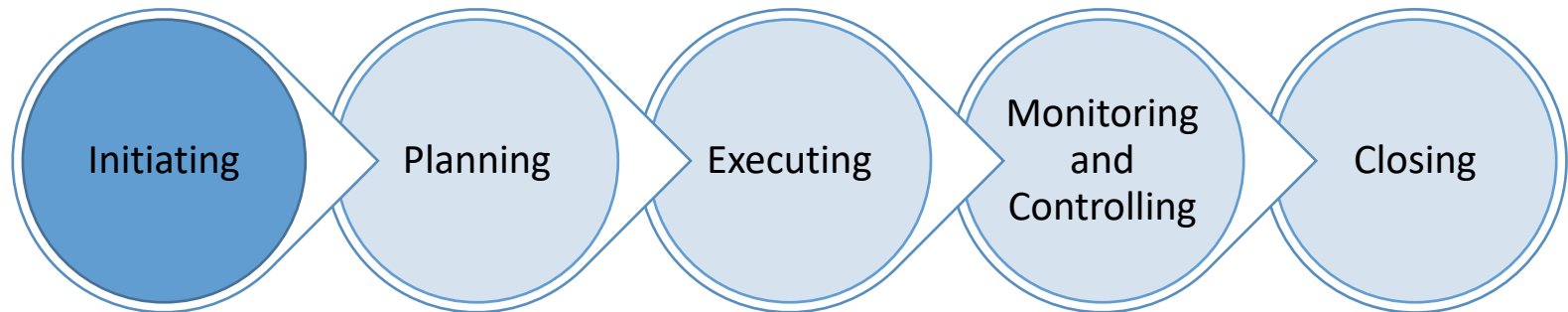
# *Data analytics*

## ~~Project management~~ process groups



# Data analytics

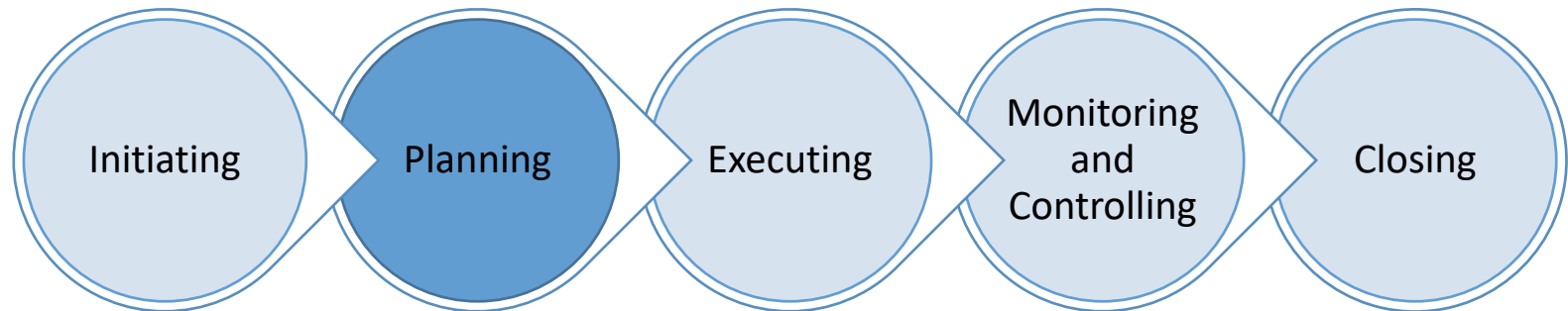
## ~~Project management~~ process groups



- Who is the project champion?
- What are the *business* objectives?
- How are things done today?
- How will they be different?
- How will we know if we're successful?

# Data analytics

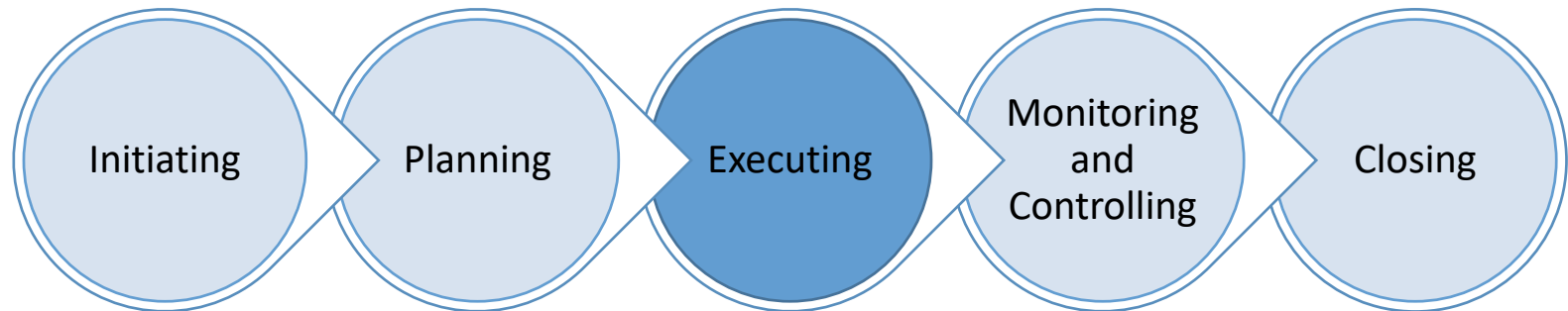
## ~~Project management~~ process groups



- What is new in our approach?
- What tools and resources will we need?
  - Data collection
  - Data display
  - Data analysis
  - User training
- How much time and money will it take?
- What are the risks?
- What are the criteria for maintaining the process? Retiring the process?

# Data analytics

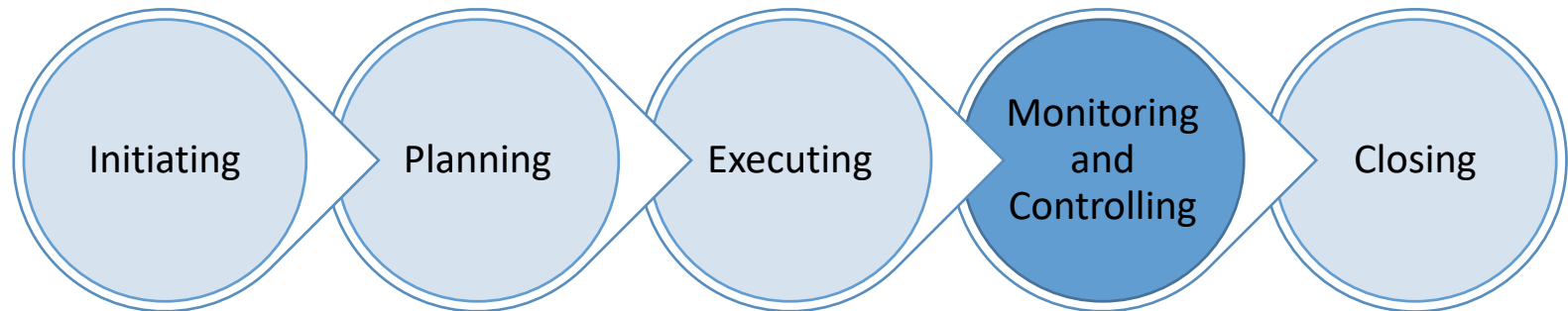
## ~~Project management~~ process groups



- Build capability to:
  - Collect data
  - Analyze data
  - Display data
  - Act upon data
  - Measure results
- Field capability
  - Pilot test
  - Full rollout

# Data analytics

## ~~Project management~~ process groups

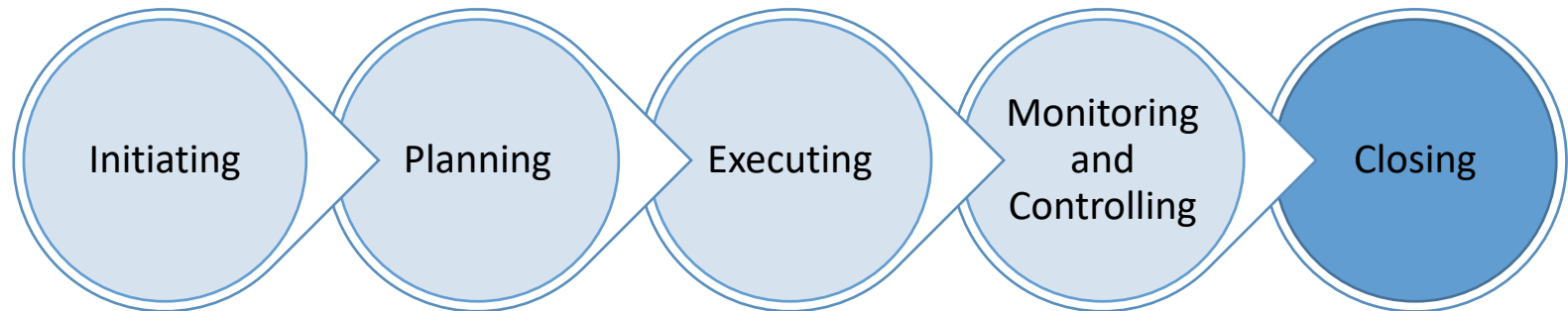


- Monitor criteria for maintaining the process
  - Are we making progress towards target metrics?
  - Are we within the bounds of risk-related metrics?
  - Should we revise the process?
- Monitor criteria for retiring the process
  - Have we achieved success?
  - Have we triggered a critical risk?
  - Are we no longer realizing a return on investment?



# Data analytics

## ~~Project management~~ process groups



- Discontinue:
  - Data collection
  - Data analysis
  - Data display
  - Measuring results
- Train (or re-train) users
- Archive or dispose of data in accordance with policy
- Document lessons learned (*and then act upon them!*)

# Q&A

# Recap

# Key takeaways

- The common approach of collecting “all data” is costly and virtually unconstrained
- A business capabilities approach adds constraints and potential for a quality assurance program
- Project management process groups are well suited for establishing quality controls and managing return on investment

*Thank you!*