

# Managing Business Analytics Projects

## Inception

**Daniel Boey**  
Chief, Products & Platforms Practice

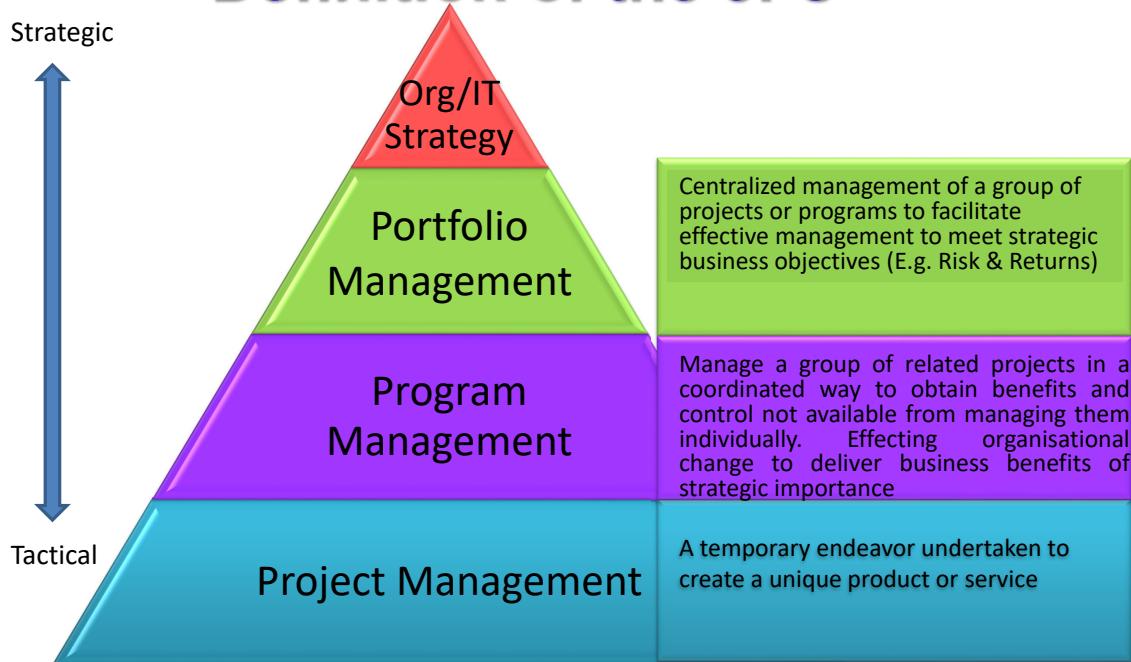
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## Agenda

- Project Management Overview
- Project lifecycles
- How to Succeed in BA projects
- Disciplined Agile
- Inception Phase
  - = Vision, Initial Scope, Architecture, Team, Enterprise aware
- Workshop



# Definition of the 3Ps



# Activities in the 3Ps



# Importance of Project Management



Strategy equals execution. All the great ideas and visions in the world are worthless if they can't be implemented rapidly and efficiently. Good leaders delegate and empower others liberally, but they pay attention to details, every day.

— Colin Powell —

## Definition of Project

“A project is a temporary endeavor undertaken to create a unique product or service”

•Source: *A Guide to the Project Management Body of Knowledge, Fourth Edition (PMBOK® Guide)* ©2012 Project Management Institute, Inc. All Rights Reserved.

“A project is a set of related tasks that are coordinated to achieve a specific objective in a given time limit.”

### Key Words

- Achieve a specific objective : normally Unique
- Time limit : often other constraints too
- Coordinated : projects typically involve many people



# Definition of Project Management

- Project management is the application of knowledge, skills, tools, and techniques to project activities to meet project requirements ...  
The project team manages the work of the projects, and the work typically involves:
  - Competing demands for: scope, time, cost, risk, resources and quality
  - Stakeholders with differing needs and expectation
  - Identified requirements.

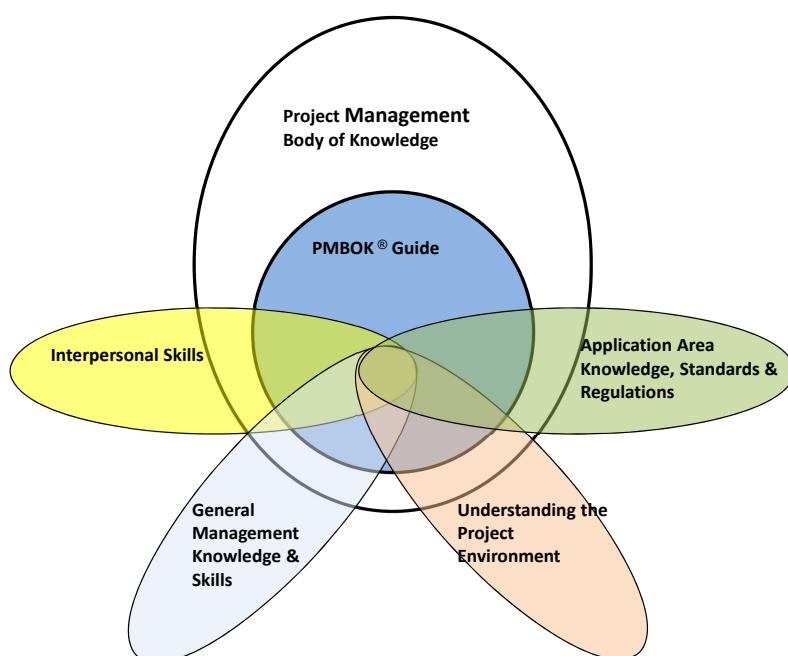


Source: PMBOK® Guide

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## Skills Needed to Manage a Project



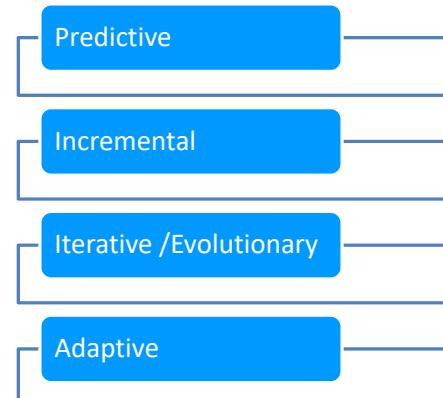
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# Choosing the Project Life Cycle

## Project Life Cycle:

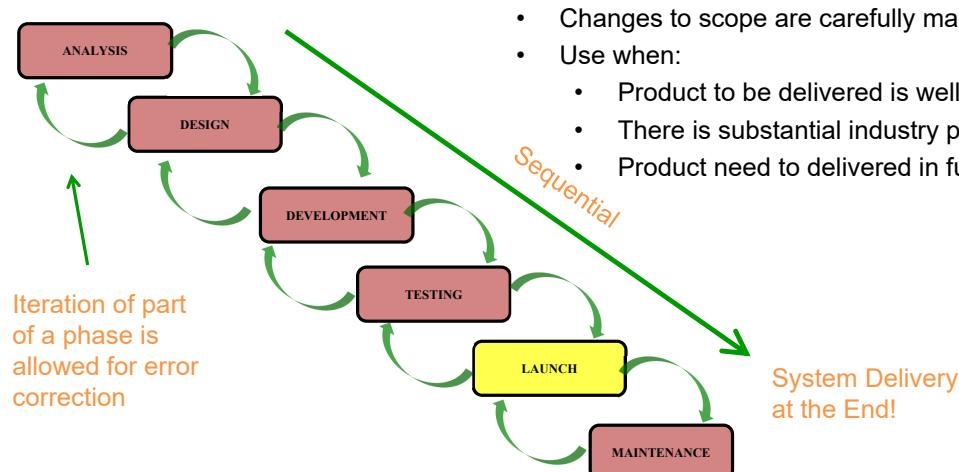
- The collection of project phases (concept, development, implementation and close-out ); applies to all projects regardless of the products being produced.
- Primary purpose of life cycle: to provide a consistent and effective approach for undertaking projects.
- Will the project consist of a
  - Single release?
  - Multiple releases?
- How much interaction will there be with users?
- How will the project be managed?
  - Is a top-down management style called for?
  - Or a more participative management style needed (e.g. SCRUM)



# Predictive Life Cycles

## In IT what is this commonly called?

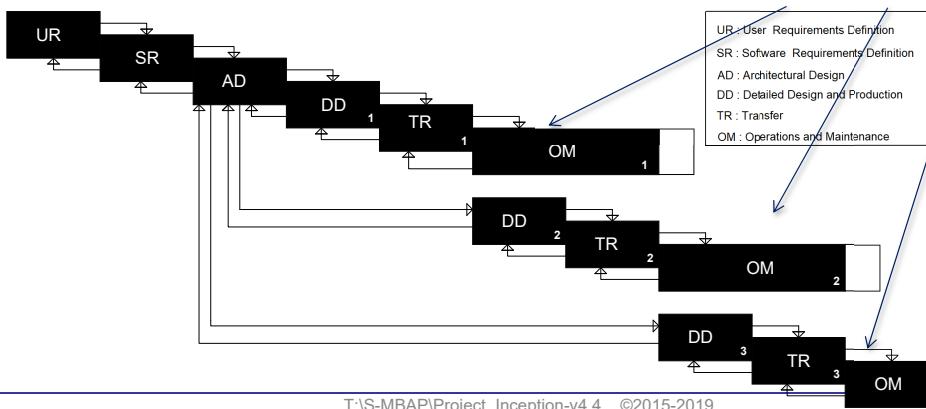
- Also called **fully plan-driven**
- Project scope, time and cost are determined as early as practically possible
- Each phase executed in sequence and only once
- Changes to scope are carefully managed
- Use when:
  - Product to be delivered is well understood,
  - There is substantial industry practice
  - Product need to delivered in full to have value



# Incremental Life Cycles

- Some phases of the project are repeated to deliver an **increment** (or release)
- Increments may be done sequentially or overlapping
- Each delivered release (increment) successively adds functionality and capability
- Each delivered release is usable (by users), capable of doing useful work, and provides a subset of the required total capabilities

Where are the releases 1, 2 and 3?



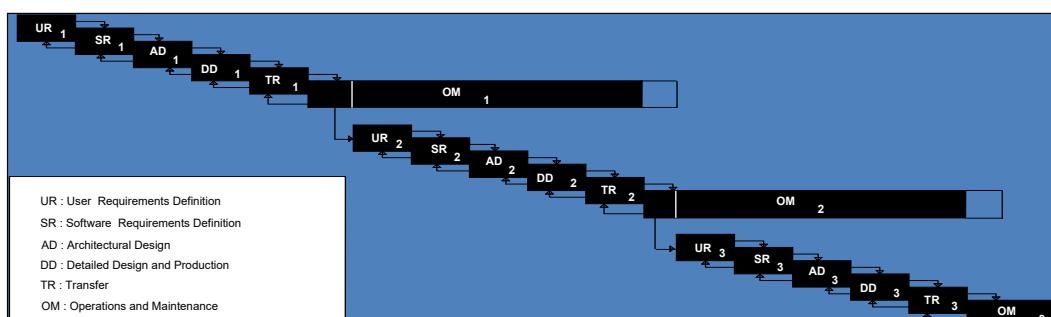
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# Iterative/Evolutionary Life Cycles

- Develop the product through a series of repeated cycles called **iterations**
- All phases of project (analysis through to installation) are executed to produce an iteration
- Each delivered release (iteration) **enhances** or **adds** functionality and capability
- High level vision may be developed for the planned iterations to ensure that the software is adaptable (to accommodate later releases)
- Detailed scope is elaborated one iteration at a time
- In each iteration – all PM process group activities will be performed
- Each new iteration incorporates the feedback and the experience of earlier releases
  - Example: Rational Unified Process

Is this prototyping?

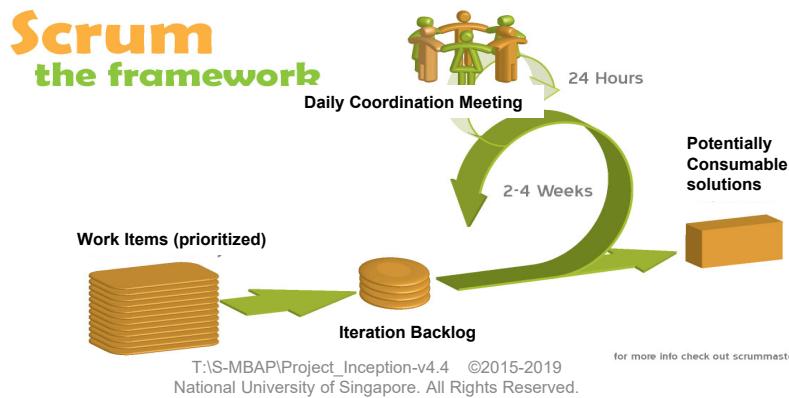


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# Adaptive Life Cycles

- Also known as change driven or agile methods. E.g. SCRUM
- Each iteration is short (usually 2 to 4 weeks) with fixed time and cost
- Respond well to high levels of change and ongoing stakeholder involvement
- Overall scope decomposed into prioritized requirements (or features) in the Work Items
- At start of each iteration (or Sprint), determine how many of highest priority items on the Work Items can be delivered (Iteration Backlog). Delivered it. Customer reviewed it. Repeat this step
- In each iteration – all PM process group activities will be performed



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## Which Type of Lifecycle to Choose?

- **Scenario 1:**
  - Product to be delivered is well understood; There is substantial industry practice, Product need to delivered in full to have value, No staff constraints
- **Scenario 2:**
  - High level of change. Stakeholders wants on-going involvement. Rapid iterations
- **Scenario 3:**
  - Technology not well understood (big risk), requirements changing, and not well defined
- **Scenario 4:**
  - Large project, Technology well understood, staff constraints, requirements expanding, but understood
    - a) Iterative life cycles
    - b) Adaptive life cycles
    - c) Incremental life cycles
    - d) Predictive life cycles

*What happens if you choose the wrong life cycle?*

*What are some of challenges that you see in managing your business analytics projects for success?*

## How to Succeed in BA Projects

Lack of knowledge on how to successfully run business analytics projects!



### 1. Identifying clear business need and business value

- Very complex, need organizational biz case to guide the project
- Not a technology solution for unclear purposes

### 2. Value co-creation of value with stakeholders

- Create a cross-organization team and involve all stakeholders early in the game; only they know what is of value to them.
- **Partner with business peers to identify opportunities, solutions and new capabilities**, e.g. using advanced analytics to uncover patterns previously hidden; visualization and exploration to help the business find more complete answers, with new types and greater volumes of data to best represent the data to the user and highlight important patterns to the human eye; enable operational decision-making with on-demand stream data by making floor employees into analytic consumers; and turn insight into action to drive a decision – either with a manual step or an automated process.

# How to Succeed in BA Projects

## 3. Start small, simple & scalable

- While business analytics techniques may be quite advanced; best practices, methodologies, org structures, etc. – is nascent. No one has all the answers, at least not yet. So experiment!

## 4. Identify what part of the business would benefit from quick wins.

- Show quick wins within no more than three months. Success brings more people to the table.

## 5. Avoid getting too complicated too fast

- Solutions can quickly grow out of control since discovering value from data prompts wanting more data.

## 6. Be prepared to scale once a solution catches on.

- Architecture for data integration & exponential data growth
- Sandbox vs Pilot/Deployment

**Table 1: Common mistakes for analytics projects.**

Failing to build the need for big data within the organization
Islands of analytics with "Excel culture"
Data quality and reliability related issues
Not enough investigation on vendor products and rather than blindly taking the path of least resistance
Departmental thinking rather than looking at the big picture
Considering this as a one-time implementation rather than a living ecosystem
Developing silo dashboards to answer a few questions rather than strategic, tactical and operational dashboards
Not establishing company ontology and definitions for "single version of truth" culture
Lack of vision and not having a strategy; not having a clear organizational communications plan
Lack of upfront planning; overlooking the development of governance and program oversight
Failure to re-organize for big data
Not establishing a formal training program
Ignoring the need to sell success and market the big data program
Not having the adequate architecture for data integration
Forgetting rapidly increasing complexities with ...volume, velocity, variety, veracity, and many more

Adapted from <http://analytics-magazine.org/the-data-economy-why-do-so-many-analytics-projects-fail/>

# How to succeed in BA Projects

## 7. This is not a one-time implementation.

- But a living and evolving organism that will grow exponentially very fast. It is a culture change in the company with the way that you collect and use data, and the way you make outcome-based decisions.

## 8. Develop a minimal set of governance directives upfront.

- chicken-and-egg problem – you can't govern or secure what you haven't explored. However, exploring vast data sets without governance and security introduces risk. E.g. meet privacy & access control requirements

## 9. New processes to manage open source risks.

- legal and skill implications as firms are: 1) exposed to risk due to intellectual property issues and complex licensing agreements; 2) concerned about liability if systems built on open source fail; and 3) required to use technology that is often early release and not enterprise-class.

Adapted from <http://analytics-magazine.org/the-data-economy-why-do-so-many-analytics-projects-fail/>



# How to Succeed in BA Projects

## 10. New agile processes for solution delivery.

- Successful firms will embrace agile practices that allow end users of business analytics solutions to provide highly interactive inputs throughout the implementation process.

## 11. Integrate structured and unstructured data from multiple sources.

- Integration of data is one of the most important and also complex processes to serve efficient and effective decision-making. In terms of data, it includes machine data, sensor data, videos, audio, documents, enterprise content in call centers, e-mail messages, wikis and, indeed, larger volumes of transactional and application data.



Adapted from <http://analytics-magazine.org/the-data-economy-why-do-so-many-analytics-projects-fail/>

# How to Succeed in BA Projects

## 12. Data sharing is key.

- In order for a company to build a big data ecosystem that drives business action, organizations have to share data. Yet there is a lot of fear!

## 13. Build a strong data infrastructure to host and manage data.

- Make sure to have secured and reliable in-house and/or hosted data (e.g., cloud) and information management infrastructure.

## 14. Think about what information do I collect today ...

- and what analytics should I perform that can benefit me and others.



Adapted from <http://analytics-magazine.org/the-data-economy-why-do-so-many-analytics-projects-fail/>

# How to Succeed in BA Projects

## 15. New security and compliance procedures to protect extreme-scale data.

- In order to succeed with big data, new processes must be developed that recognize and protect the special nature of extreme-scale data that may be largely unexplored.

## 16. Be ready to support rapid growth.

- Big data solutions can grow fast and exponentially. They can start as a pilot with a few terabytes of data, then becomes a petabyte very quickly. Since the same data can be used different ways and re-analyzed for new insights easily, nothing ever gets deleted.



Source: <http://analytics-magazine.org/the-data-economy-why-do-so-many-analytics-projects-fail/>

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# How to Succeed in BA Projects

## 17. Funding must move out of IT for big data success.

~~SHORT~~  
LONG-TERM!

- to a marketing or sales organization, for instance, so that the business has a vested stake in the game.

## 18. Turn over part or all of biz analytics solution delivery to business leaders.

- Project management and ownership from business (not IT)
- Ensure clear alignment between business and IT.

## 19. Create a road map that gradually builds the skills of your organization.

- It's important to create a road map that allows you to gradually build the required skills within your staff, minimize risk and capitalize on previous successes to gain more support. In the organization, there will be new roles and responsibilities such as the data scientist, who possesses a blend of skills that includes statistics, applied mathematics and computer science.



# Case - Hotel Chain

What to  
Do When  
the  
Analytics  
Fail

- Project - Yield management pricing and promotion efforts. This ultimately required greater centralization and limiting local operator flexibility and discretion (bad!). The forecasting models mapped out revenues and margins by property and room type (amazing!). **Result?**
- The projections worked fine for about a third of the hotels but were wildly, destructively off for another third. **What do you think is the reason?**
- The data scientists had priced against the hotel group's peer competitors but hadn't weighted discount hotels into either pricing or room availability. **Why not?**
- Top management's belief in its brand value and positioning excluded discounters from their competitive!
- Resulting in roughly a quarter of the properties prediction failed - get lower average occupancy and lower prices per room. **Is AirBnB a competitor?**  
**Is there value knowing this?**



Source: Learn from Your Analytics Failures, Michael Schrage, HBR, 03Sep 2014, HBR

# Case: A Major Industrial Products company

- Huge predictive analytics commitment to preventive maintenance to identify and fix key components before they failed and more effectively allocate limited technical services talent.
- Halfway through the extensive & expensive data collection and analytics review, a couple of the repair people observed that, increasingly, many of the subsystems could be instrumented and remotely monitored in real time. In other words, preventive maintenance could be analysed and managed as part of a networked system. This completely changed the design direction and the business value potential of the initiative. The value emphasis shifted from preventive maintenance to efficiency management. **Lesson Learnt?**
- The predictive focus blurred the larger vision of where the real value could be.



# Tip: What to Do When the Analytics Fail

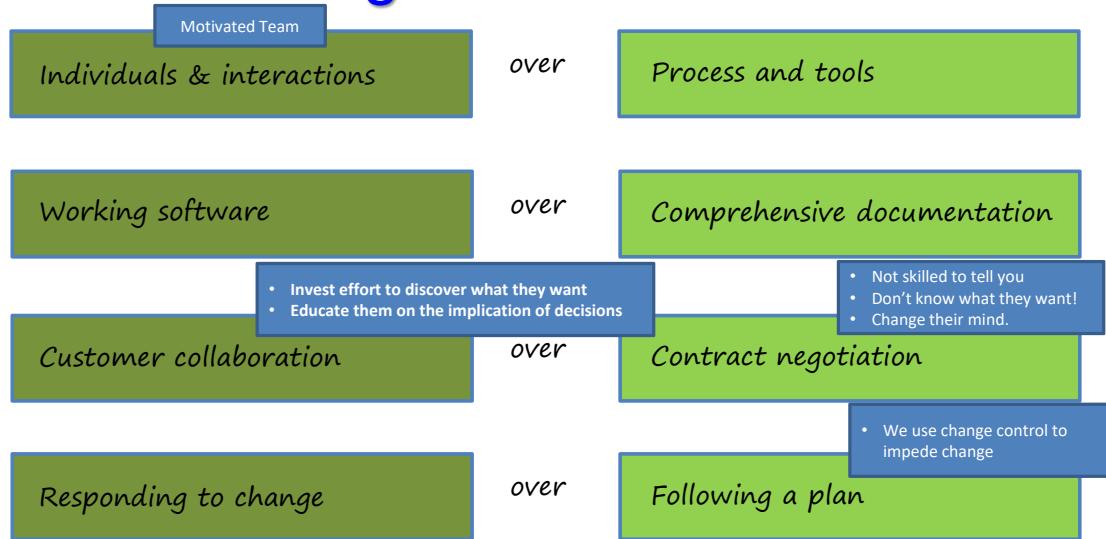
- While the computational resources and techniques for prediction may be novel and astonishingly powerful, many of the human problems and organizational pathologies appear depressingly familiar.
- ***The greatest value from predictive analytics typically comes more from their unexpected failures than their anticipated success.***
- When predictive analytics are done right, the analyses aren't a means to a predictive end; rather, the desired predictions become a means to analytical insight and discovery
- ***Our goal is not in analytics success but to deliver business value!***

Source: Learn from Your Analytics Failures, Michael Schrage, HBR, 03Sep 2014, HBR

*Now knowing all these, which type of project lifecycle would you choose?*

*What are some of the factors that will influence which lifecycle to choose?*

# Agile Manifesto



That is, while there is value in the items on the right, we value the items on the left more.

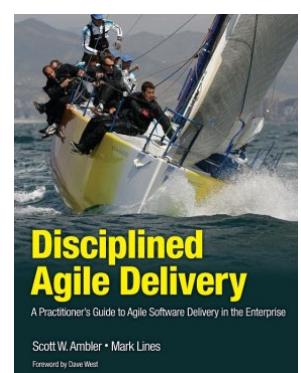
Source: [www.agilemanifesto.org](http://www.agilemanifesto.org)

## Disciplined Agile Delivery (DAD)



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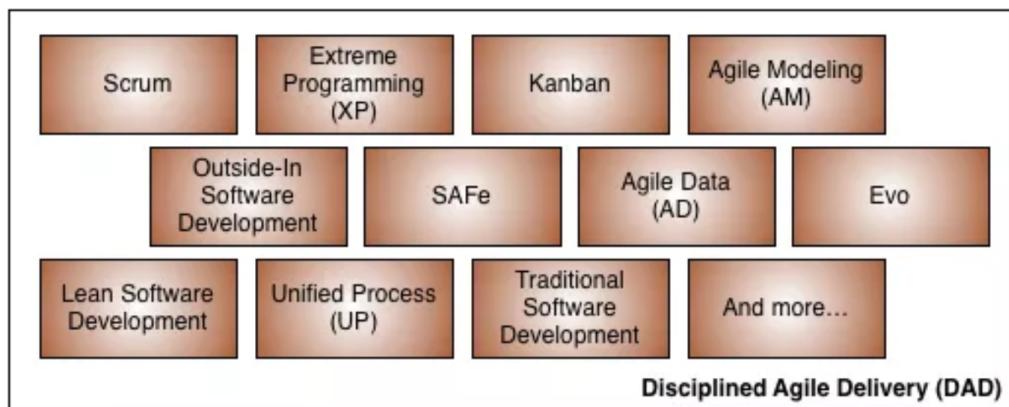
Based on research  
and comments on  
what actually works  
out there!



Materials from this book will be source as:  
*Disciplined Agile Delivery*, 2012

Source: <http://disciplinedagiledelivery.com/principles/>

# DA is a Hybrid Framework



Copyright 2014 Disciplined Agile Consortium

DAD leverages proven strategies from several sources, providing a decision framework to guide your adoption and tailoring of them in a context-driven manner.

Source: Disciplined Agile Delivery, 2012

## DA Extends Agile Thinking...

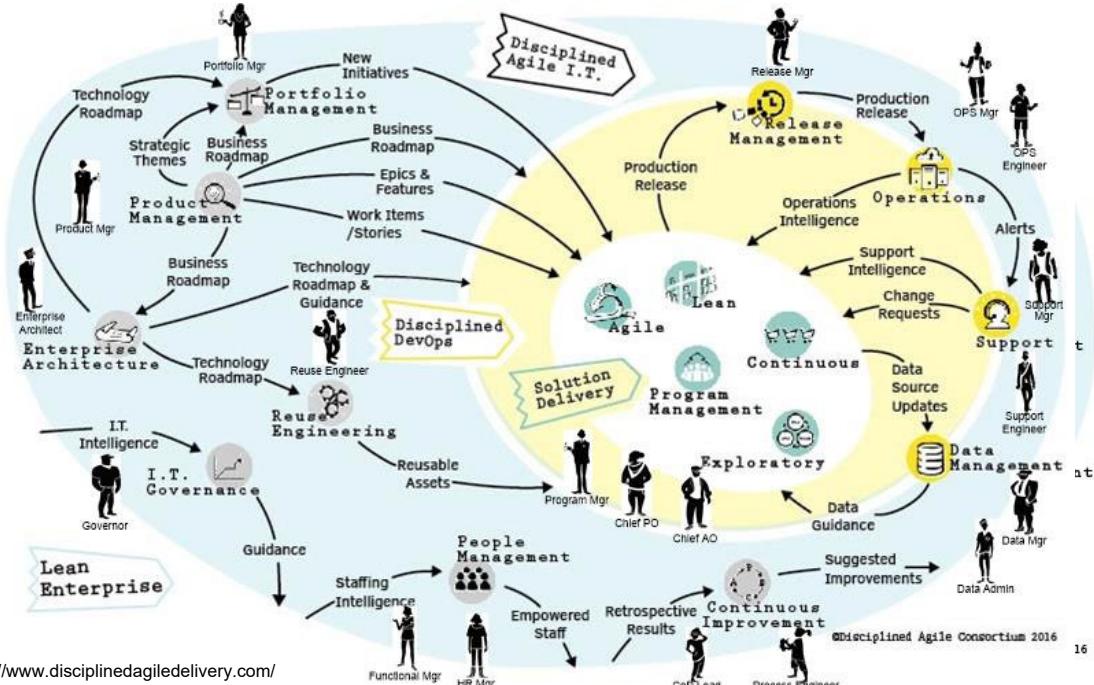


Solutions, not just software



Stakeholders, not just customers

# ... cater to organizational ecosystem



<http://www.disciplinedagiledelivery.com/>

## Disciplined Agile Principles – Extending the Twelve Principles of Agile Software (underlined)

1. Our highest priority is to satisfy the stakeholder through **early** and **continuous** delivery of valuable solutions.
2. **Welcome emerging requirements**, even late in the solution delivery lifecycle. Agile processes harness change for the customer's competitive advantage.
3. Deliver working solutions **continuously**, from many times a day to every few weeks, with the aim to increase the frequency over time.
4. **Stakeholders** and developers must actively collaborate to deliver outcomes that will delight our organization's customers.
5. Build teams around motivated individuals. Give them the environment and support they need, and trust them to get the job done.
6. The most efficient and effective method of conveying information to and within a delivery team is face-to-face conversation, ideally around a whiteboard.
7. Continuous delivery of value is the primary measure of progress.
8. Agile processes promote sustainable delivery. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.



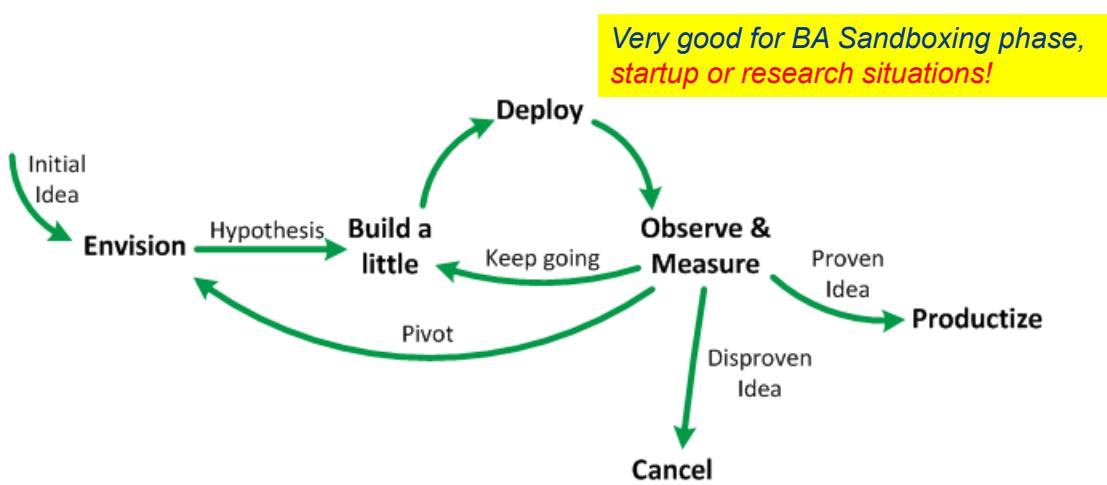
(source: <http://disciplinedagiledelivery.com/disciplinedagilemanifesto/>)

## Disciplined Agile Principles – Extending the Twelve Principles of Agile Software (underlined) -2

9. Continuous attention to **technical excellence** and **good design** enhances agility.
10. **Simplicity** – the art of maximizing the amount of work not done – is essential.
11. The best architectures, requirements, and designs emerge from self-organizing teams **enabled by organizational roadmaps and support**.
12. The team continuously reflects on how to become more effective, then **experiments, learns, and adjusts its behavior** accordingly.
13. Leverage and evolve the assets within your enterprise, collaborating with the people responsible for those assets to do so.
14. Visualize work to produce a smooth delivery flow and keep work-in-progress (WIP) to a minimum.
15. **Evolve the entire enterprise**, not just individuals and teams, to support agile, non-agile, and hybrid teams.
16. We measure our work and its outcomes, preferring automated measures over manually gathered ones, to make data-led decisions.
17. We provide **complete transparency** to our stakeholders in everything we do and produce, to enable open and honest conversations and effective governance of our team.

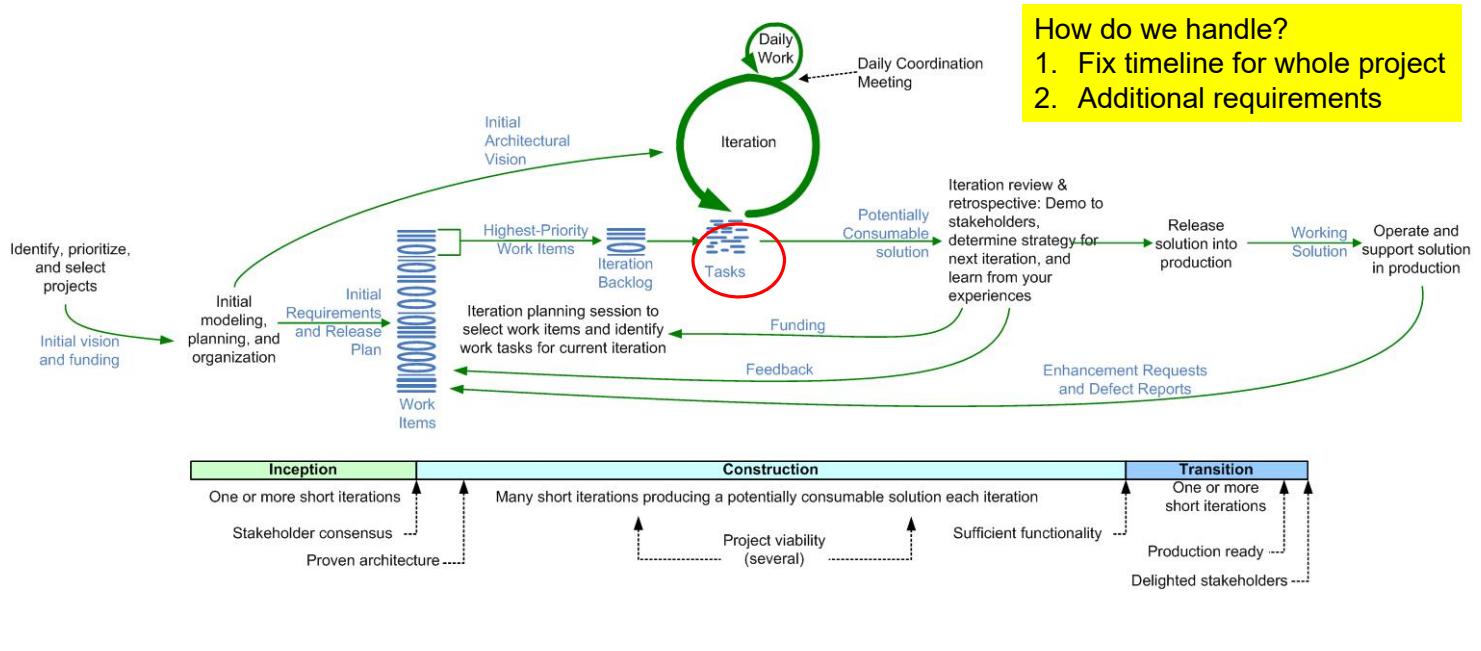
(adapted from [www.agilealliance.org](http://www.agilealliance.org))

## DA Exploratory “Lean Startup” Lifecycle



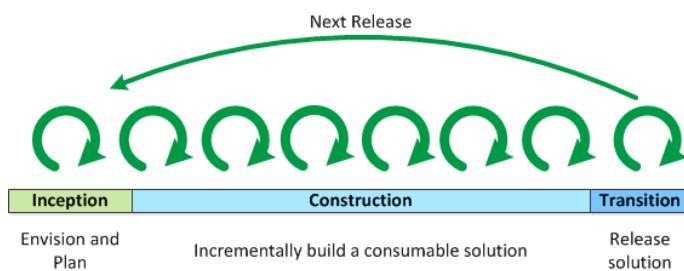
- Sometimes it takes time to identify what your stakeholders actually need!
- This could also be done to try out ideas to come up with a list of possible BA projects for consideration

# The Basic/Agile Lifecycle of Disciplined Agile



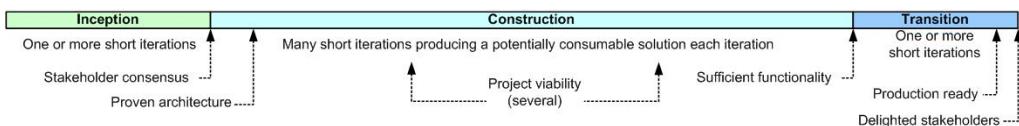
Source: Disciplined Agile Delivery, 2012

## A High Level Lifecycle



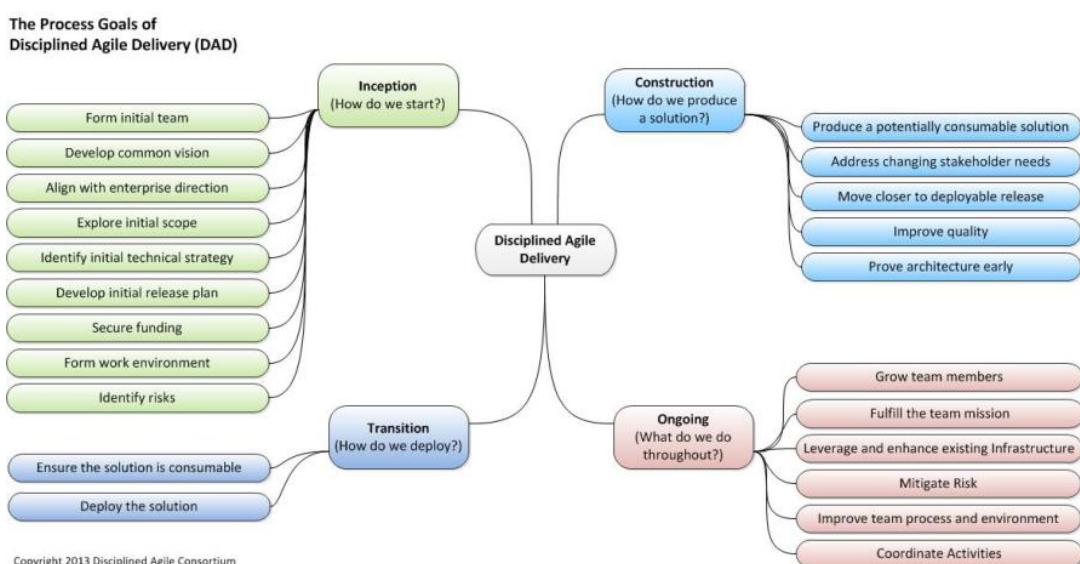
Note: This is only for 1 release!

# Governance is Built Into DA



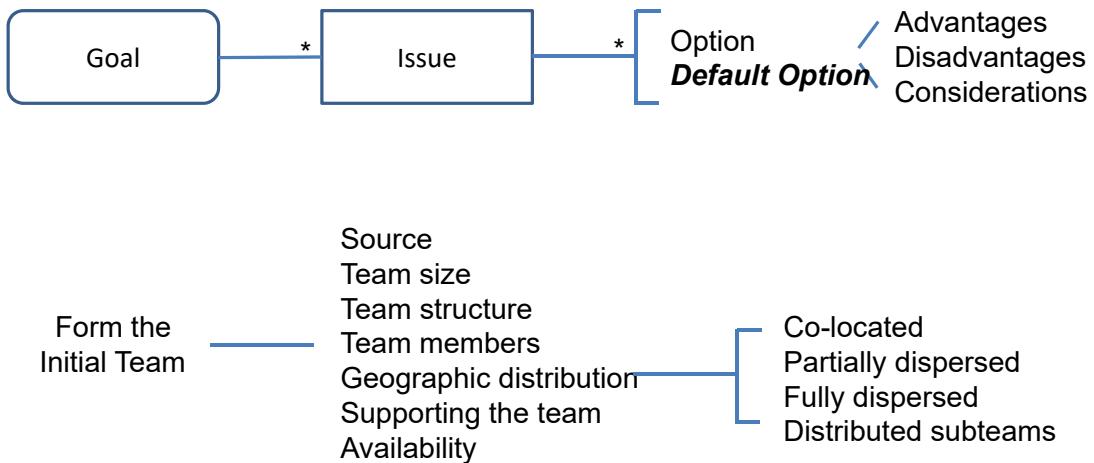
- Governance strategies built into DA:
  - Risk-value lifecycle
  - Light-weight milestone reviews
  - “Standard” opportunities for increased visibility and to steer the team provided by agile
  - Enterprise awareness
  - Robust stakeholder definition
  - Development intelligence via automated dashboards

# DA is Goal-Driven, Not Prescriptive



Source: Disciplined Agile Delivery, 2012

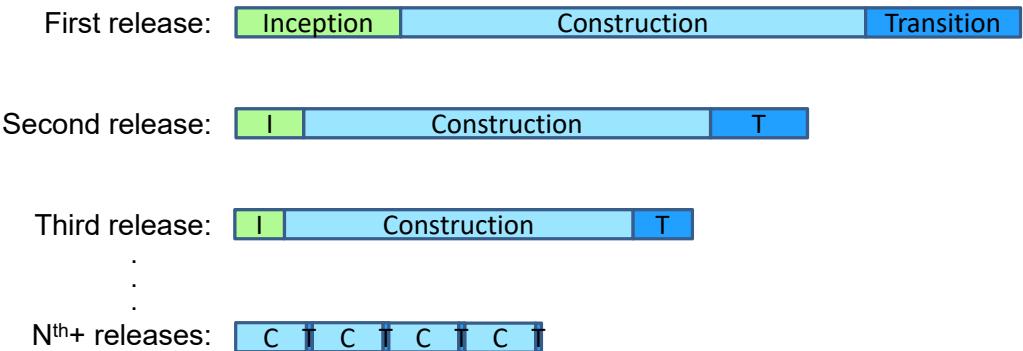
# Goal Driven Approach



## The Agile 3C (Coordinate-Collaborate-Conclude) Rhythm

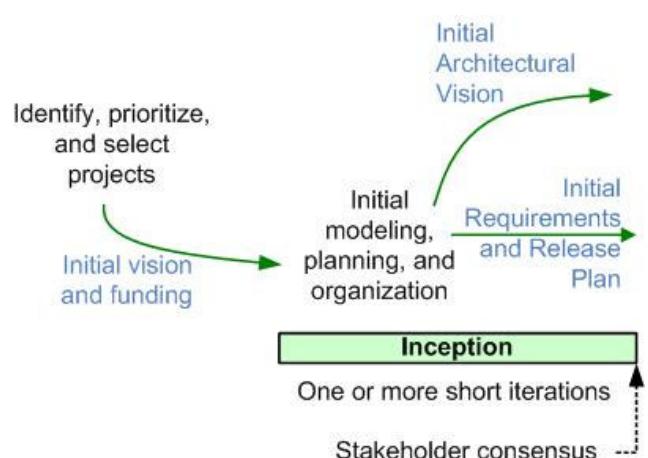
Release rhythm	Inception	Construction	Transition
	Day to weeks	Several iterations	Hours to weeks
Iteration rhythm	Iteration planning	Development	Iteration wrap up
	A few hours	Several days	A few hours
Daily rhythm	Coordination Meeting	Daily Work	Stabilize
	A few minutes	Several hours	Varies
<b>Coordinate</b>		<b>Collaborate</b>	<b>Conclude</b>

# The Phases Disappear Over Time



## The DA Inception Phase

- Also known as: project initiation, startup phase, iteration zero
- The objectives:
  - Clarify business problem
  - Identify viable technical solution
  - Plan the approach
  - Setup the work environment and team
  - Gain stakeholder concurrence that it makes sense to proceed with chosen strategy
- The average agile team invests about four weeks performing these activities\*



\* 2009 Agile Project Initiation Survey, Ambler

# The Inception phase



*the potential activities that occur during Initiation – do the minimum!*

Source: Disciplined Agile Delivery, 2012

## Inception Phase

The Inception process goals are:

- Form Initial Team
- Develop Common Vision
- Align with Enterprise Direction
- Explore Initial Scope
- Identify Initial Technical Strategy
- Develop Initial Release Plan
- Secure Funding
- Form Work Environment
- Identify Risks



# Goal: Form the Initial Team

The team will evolve over time, how to get it started?

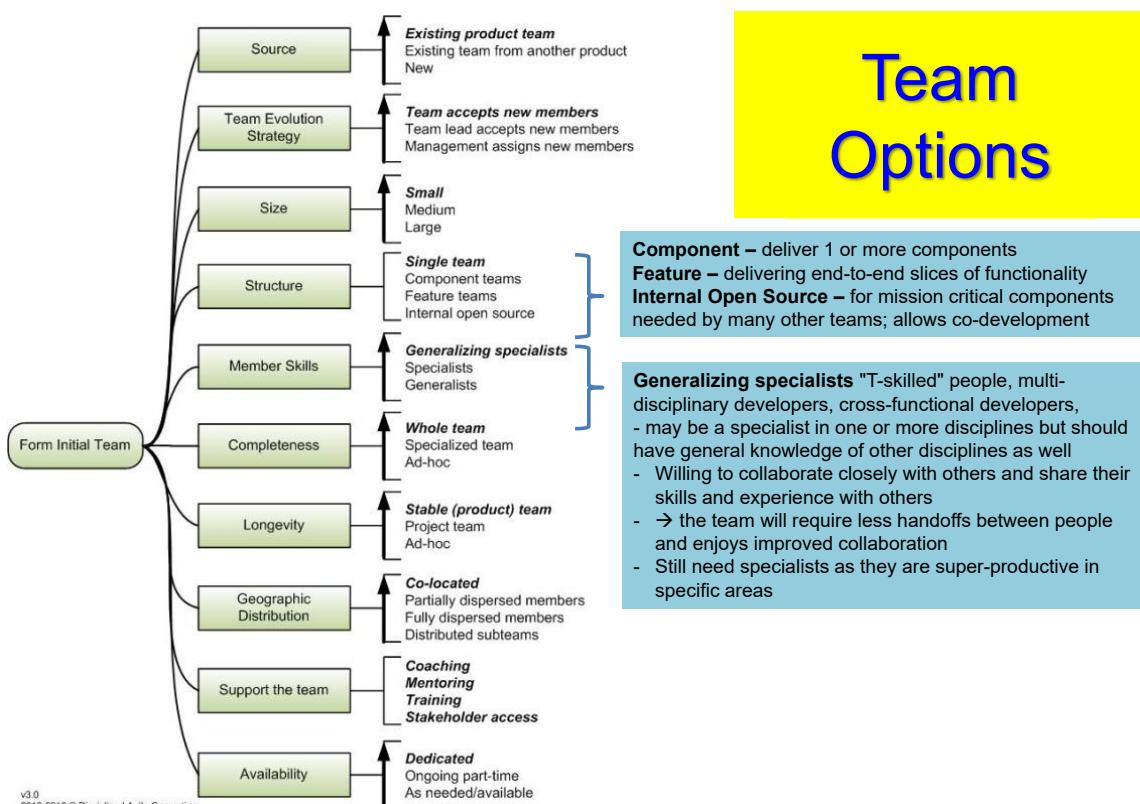
Consider team structure, membership, and organizational concerns.

- Where will team members come from?
- How do we intend to evolve the team over time?
- How large should the team be?
- How will sub-teams be organized (if we need them)?
- What type of team members do we need?
- Where will team members be located?
- How will we support the team?
- How available will team members be?
- ***When do we need them?***



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# Forming DA Teams

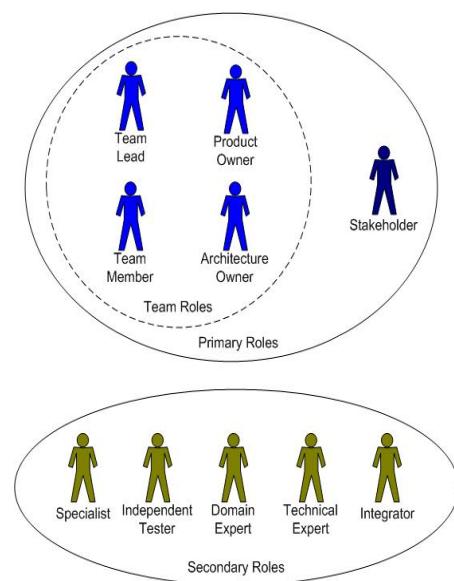
Effective teams follow the 4<sup>th</sup> and 5<sup>th</sup> principles of the Agile Manifesto:

- Stakeholders and developers must work together daily throughout the project
- Build projects around motivated individuals. Give them the environment and support their needs, and trust them to get the job done!



## DA supports a robust set of roles

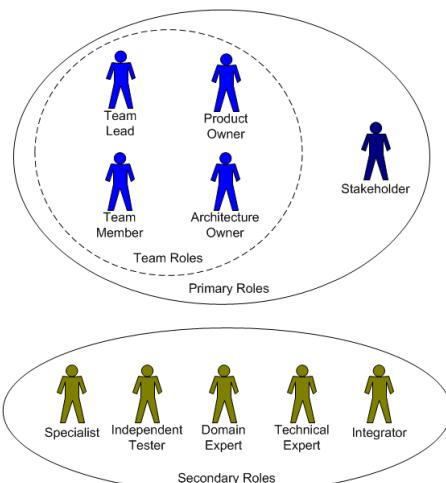
- Team Lead (SCRUM master)
  - Agile process expert, keeps team focused on achievement of goals, removes impediments
- Product Owner
  - Owns the product vision, scope and priorities of the solution. *In BA projects this may be the BA manager during Sandbox. During Pilot and Deployment stages, it will be a user instead.*
- Architecture Owner
  - Owns the architecture decisions and technical priorities, mitigates key technical risks
- Team Member
  - Cross-functional team members that deliver the solution
- Stakeholder
  - Includes the customer but also other stakeholders such as Project Sponsor, DevOps, architecture, database groups, governance bodies



# Secondary Roles on DA Teams

“The secondary” DAD roles typically occur at scale

- Specialist
  - Someone in a specialist role, such as business analyst, program manager, or enterprise architect
- Domain Expert
  - Someone with deep knowledge of the domain, such as a legal expert or marketing expert who is brought in as needed to share their expertise
- Technical Expert
  - Someone with deep technical knowledge, such as a security engineer or user experience (UX) professional, whose help is needed for a short period
- Independent Tester
  - A test/quality professional outside of the team who validates their work.
- Integrator
  - Someone responsible for the operation of the overall team build



## Exercise: Transitioning to DA Roles

- Get back into your teams
- Choose two of the following “traditional” roles:
  - Business analyst
  - Project manager
  - QA professional
  - Database administrator
  - Tester
- For five minutes, discuss:
  - Of the DA roles previously described, which one(s) are the most likely ones for a person in each role to move to?
  - What strengths do they bring to that role?
  - What challenges will they face?
- A spokesperson should be prepared to share a few key learnings with the larger group

**Other BA specific Roles:**

- Data Scientist
- Data Engineer
- Data Strategist
- Data Owners
- UI developer

# Strategies for Effective Teams

- Are focused
- Are tailored to the environment
- Are based on trust and respect
- Are safe
- Provide learning opportunities
- Are as small as possible
- Have shared workspaces
- Are “whole”
- Are self-organizing within the constraints of the organization
- Have adequate resources to fulfill their remit
- Are accountable
- Are self-aware
- Are enterprise aware
- Include dedicated people
- Are geographically close
- Follow a common strategy
- Stay together

## Teams

- Team members are cross-functional “generalizing specialists”
- Better able to collaborate with others and do the work that needs to be done at any point in time
- Team works together to deliver the work that they have committed to deliver to the product and architecture owners at the beginning of each iteration



# Project Stakeholders



- Who are the Project Stakeholders?

Individuals, groups or organizations who may affect, be affected by, or perceive itself to be affected by a decision, activity, or outcome of a project.

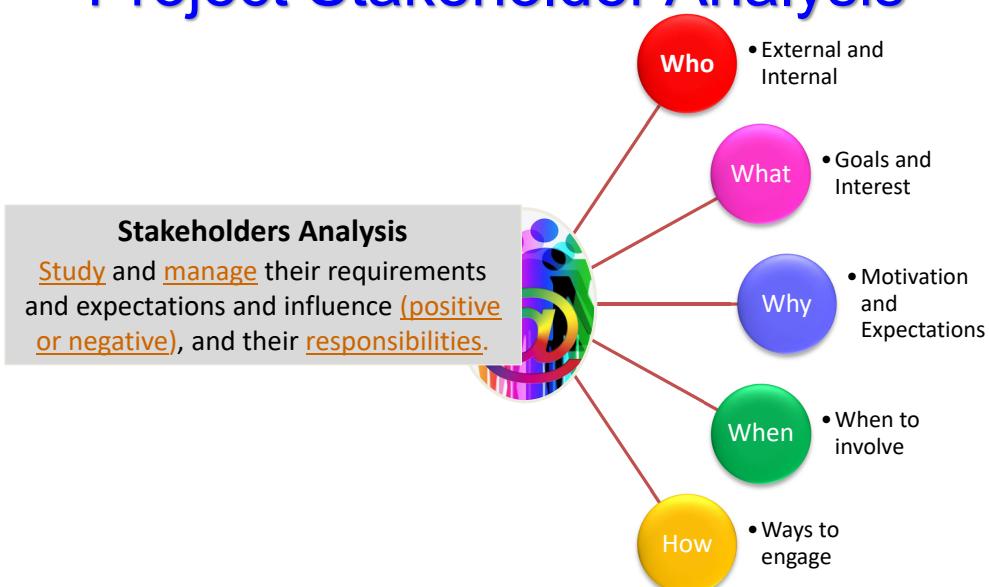
May be actively involved in the project or have interests that may be positively or negatively affected by the performance or completion of the project..."

*They may exert influence over the project and its deliverables*

## What kind of problems do you have managing bosses and teams?

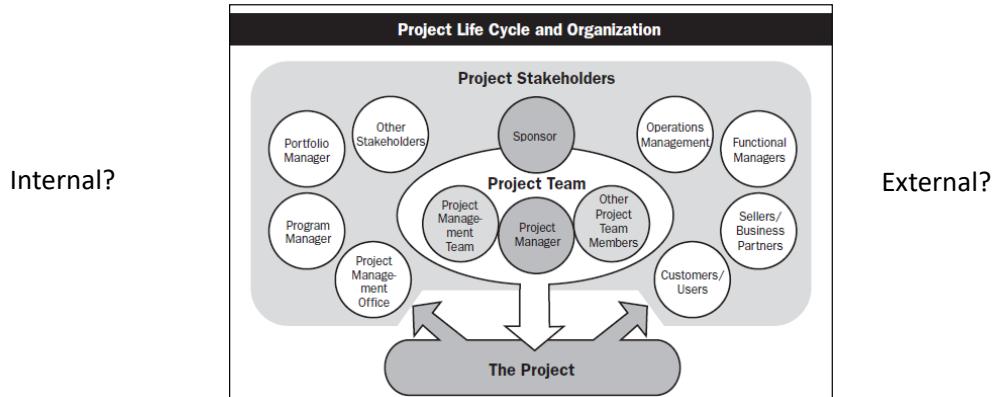
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# Project Stakeholder Analysis



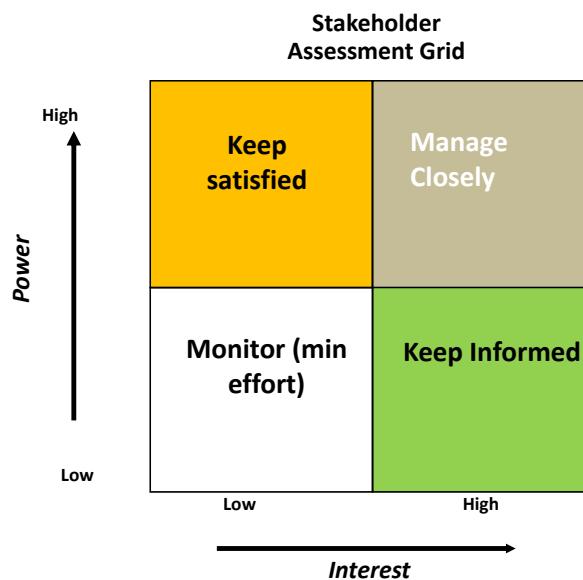
**Assumption : No two stakeholders share a common perspective of the project**

## Identifying Project Stakeholders (WHO?)

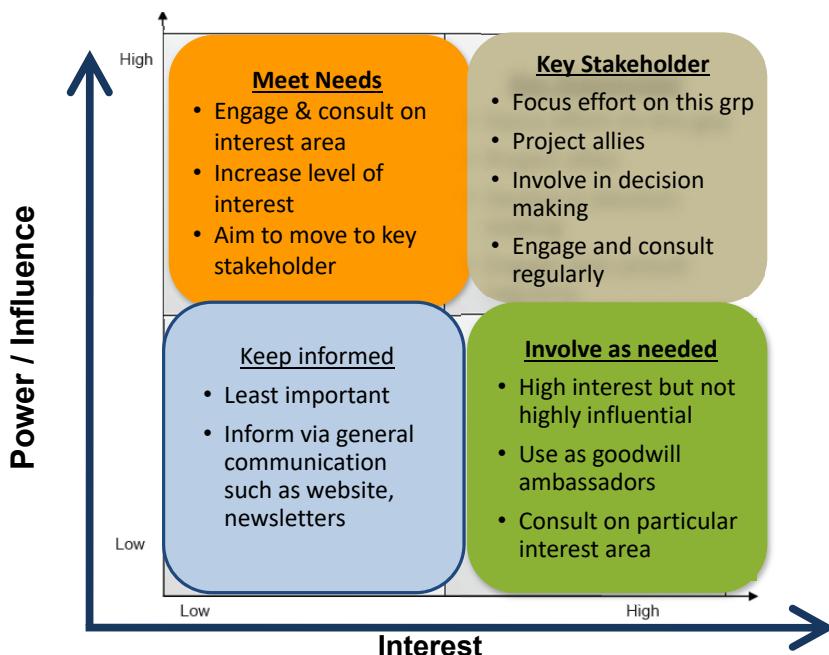


- Who will use your system?
- Who will benefit from your system?
- Who will be affected by the system?
- Who has an interest in your system operating?

## Stakeholder Analysis



## Strategies to Manage the Stakeholder



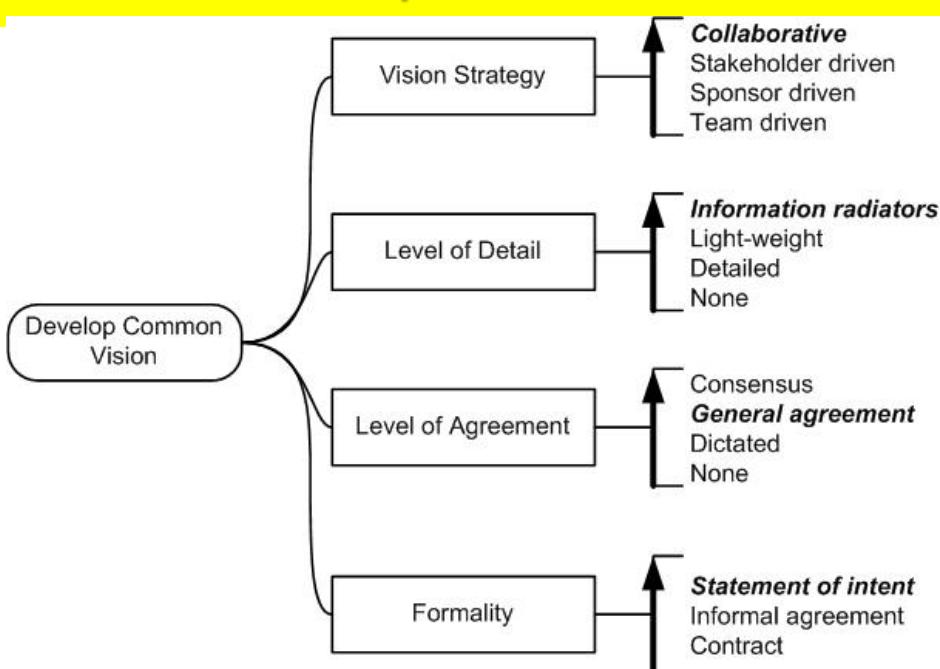
## Stakeholder Register - Example

Stakeholder Name	Joseph Lim	Jack Mah	Jacqueline	
Appointment in Company	Group Operations Director	Department Head	Head of Sales	What are the other typical BA project stakeholder concerns?
Roles & Responsibilities in Project	Sponsor	Business Owner	Data Owner	
Key Concerns	That there is real value from the Analytics project and not just extra work as his group already very short handed	Accuracy of the prediction must be good and fast.	That use of the data complies to regulations the company is subjected to.	
Response action to stakeholder's concerns	Demonstrate improvement in productivity and accuracy of the predictions thereby giving value	Clarification later revealed it has to be better than the 55% of the current manual process) within 1 min. Priority and focus on feasibility of the accuracy and speed required	Audit and walk through of how the data will be aggregated and masked.	

# Exercise A: Business Analytics Stakeholder Analysis

- Get back into your teams
- Take 20 minutes to discuss within the team:
  - Review the information you know about the key stakeholders from the case, and summarize their concerns and discuss with your team and think about how would you use what we have learned about Project Lifecycles, Agile, How to make BA projects successful to handle some of these concerns
- A spokesperson should be prepared to share a few key learnings with the larger group
- ***Please capture the key concerns and your responses on the workbook with your name and today's date (to be handed as WSQ Assessment later).***

## Goal: Develop Common Vision



# What's in a Project Vision?

Also known as project charter or business case, typically outlines:

- Goals of the project team and who is on it
- High-level scope of the current release
- Technical overview of the solution
- Could include:
  - Feasibility information
  - Description of business problem being addressed
  - High-level schedule and estimates
  - Key milestones
  - Stakeholders
  - Funding models
  - Project risks and constraints
  - Process/method used (eg. DA), governance strategy
  - Key assumptions

## Example: Vision and Business Value

- Consider the following business case for incorporating social media data for **brand monitoring**:
- Business Problem: YYY Logistics is a leading-edge shipping and logistics organization where management has recently seen a slump in its business because of service and performance problems.
- Business value: In conducting research about the recent loss of customers and business, the organization discovered it needed to monitor social media for trends and sentiments that directly and indirectly impact its brand. Monitoring social media would provide valuable insights into its customers' expectations and to forecast sales. The following aspects were deemed critical for this program:
  - **Social media data** can provide geospatial information about Twitter or Facebook users, their sentiments, and processes that caused the organization to fail them in some way.
  - **Metrics** offer direct influence (friends), indirect influence (reach and amplification), impacted geographies, brand and competitive analysis, and number of fans.
  - **Value** enables measuring the value delivered when the social media data analytics are integrated with existing enterprise analytics including customer analytics, marketing analytics, sales analytics, and campaign analytics.
  - In summary, the YYY Logistics organization believes this exercise is mandatory to help regain customer confidence and market share and help production to be more inline with sales

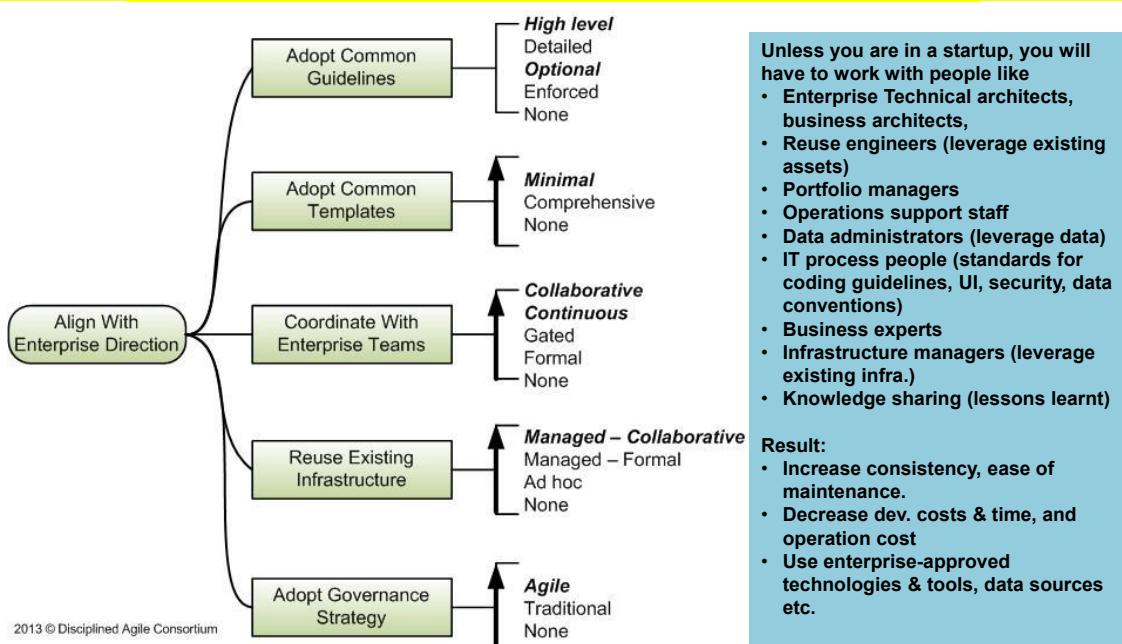


# Exercise B: Business Analytics Project Vision

- Get back into your teams
- Take 10 minutes to discuss within the team:
  - With consideration of these stakeholders needs, write the vision statement and business case of the business analytics project your team has chosen
- A spokesperson should be prepared to share a few key learnings with the larger group
- ***Please capture the project vision on the workbook with your name and today's date (to be handed as WSQ Assessment later).***

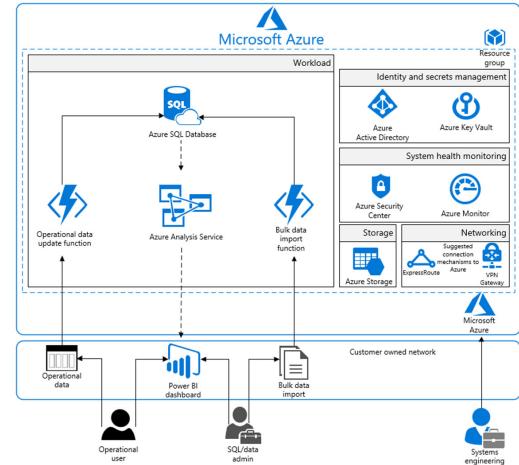


## Goal: Enterprise Alignment

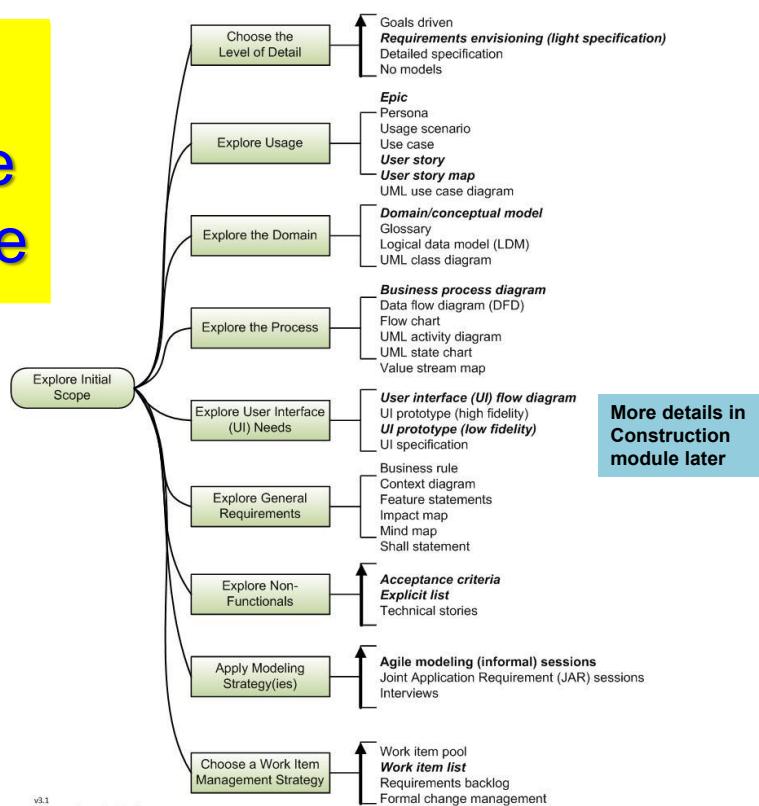


# Business Analytics Enterprise Alignment

- Reuse of existing infrastructure – hardware, software, databases
- Standardization of tools – e.g. Hadoop, SPSS, SAS, Excel, open-source
- In the cloud (private or public)
- Governance - Security standards, access control
- If new elements of architecture are required, you need the Architects' blessing



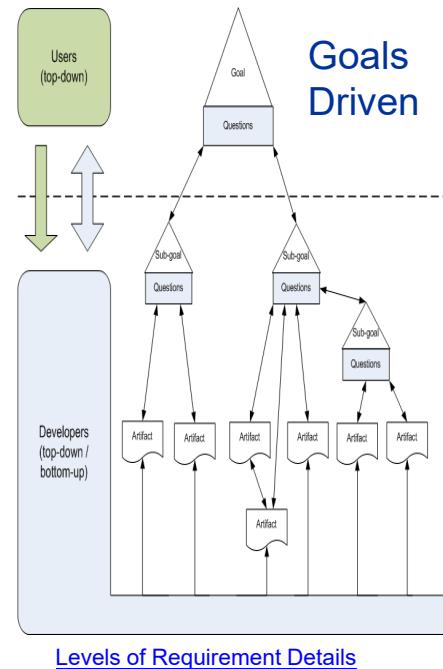
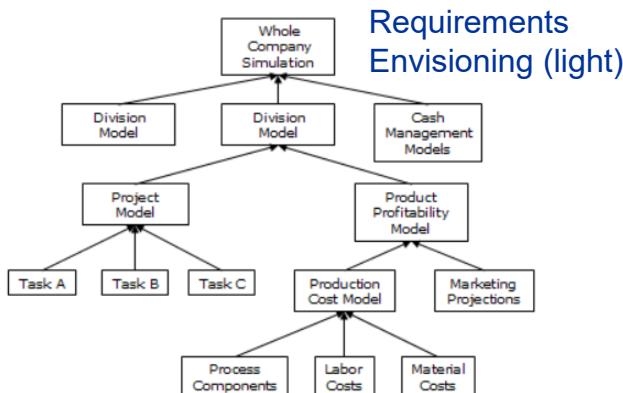
**Goal:**  
**Explore the Initial Scope**



# Initial Scope - How Detail?

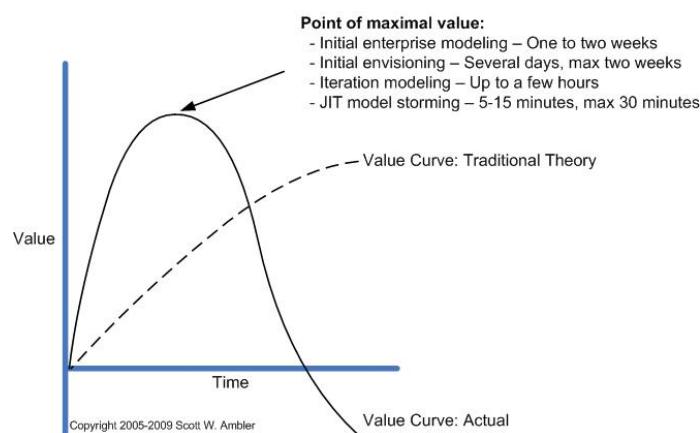


Big Requirements  
Up Front (BRUF)



## Requirements Envisioning

- Not detailed requirement specs which is best done during construction in a JIT manner



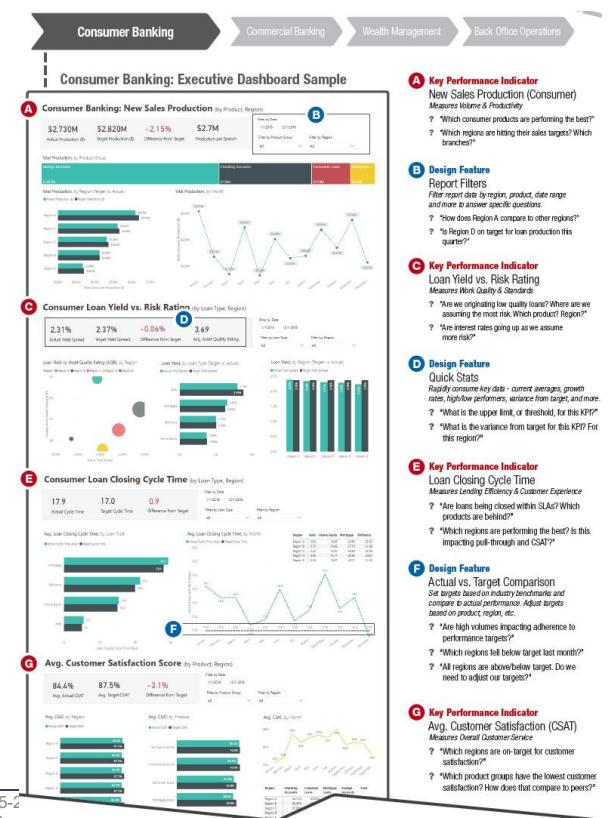
# Initial Business Analytics Requirements

What's the key scope elements for BA projects?

- The number of users of the data by type, area
  - E.g. Geographies involved (e.g. EMEA, AP, NA..)
- The number and sources of data
  - Internal (e.g. , customer buys, inventory ) vs External (buy? Mine?),
    - Structured vs Unstructured (e.g. Social media). How to process unstructured?
    - Big Data Needed?
- Quality of the data – what are the steps to prep? \_\_\_\_\_
- Lead-time for the prediction (live, tomorrow vs 3 months down the road)
- Measurements (Metrics) to be used

## Development Work

- Building User Interfaces and dashboards
- Building Scoring engines
- Implement decision workflow (business rules implemented on scoring engines)
- Automation





## “Business Analytics” 1.0 Architecture

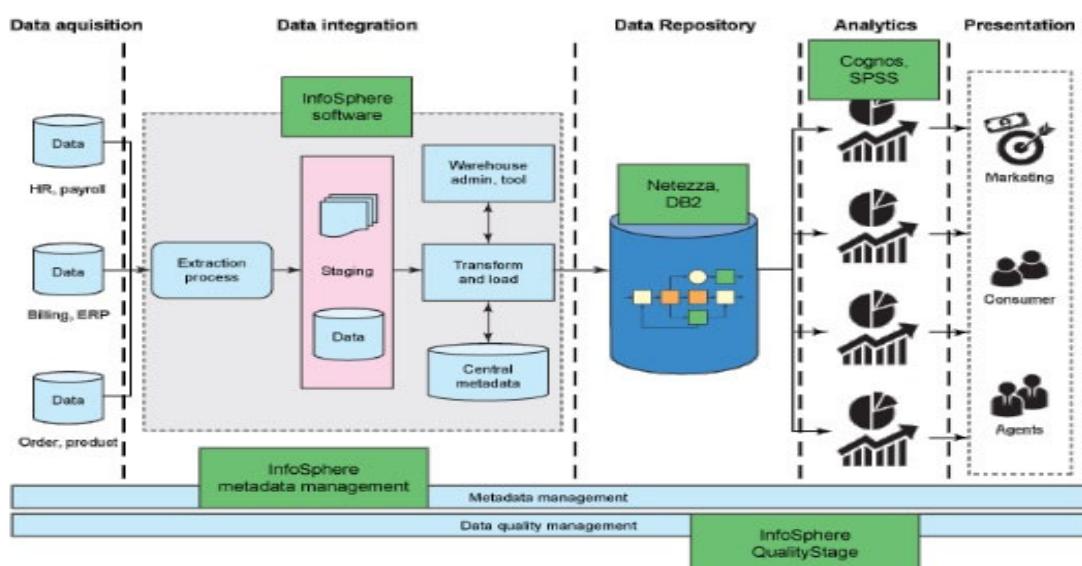
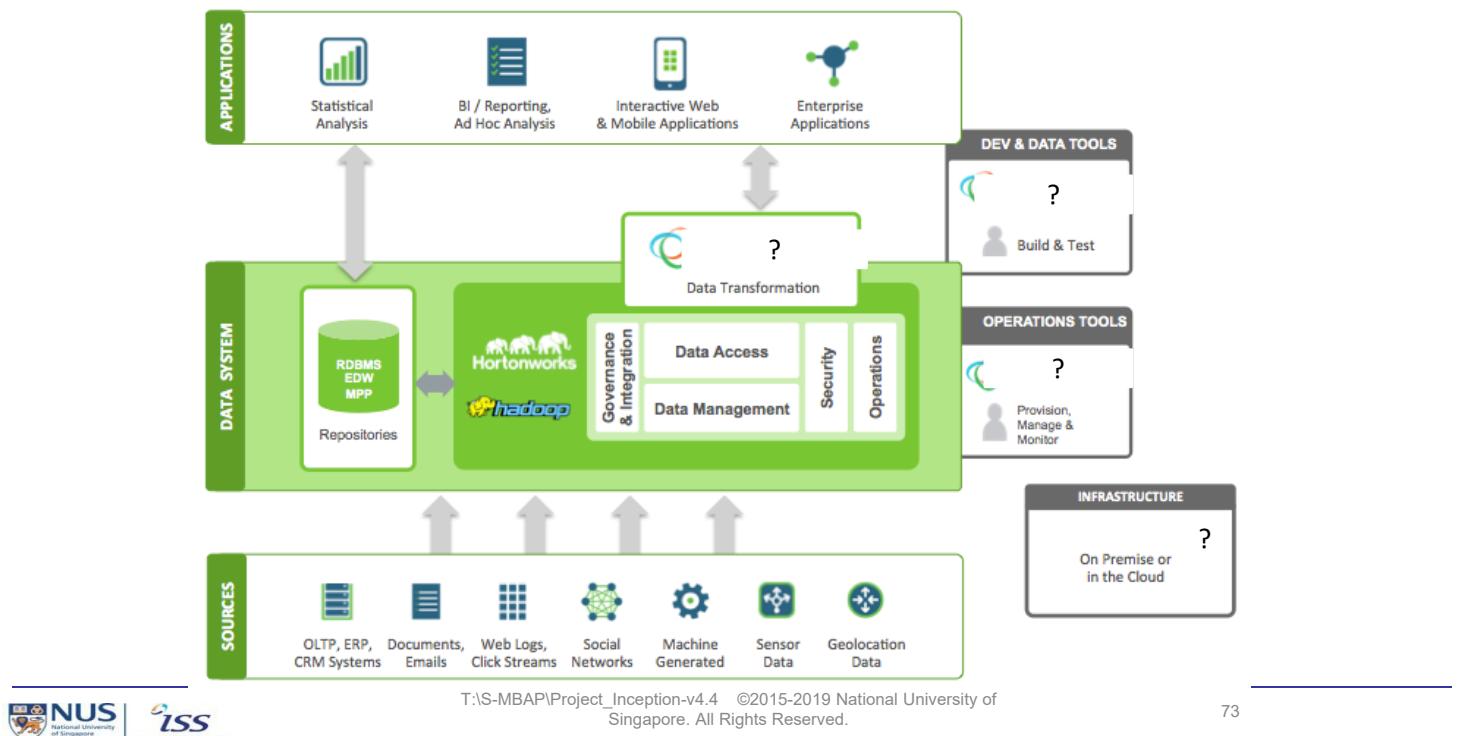
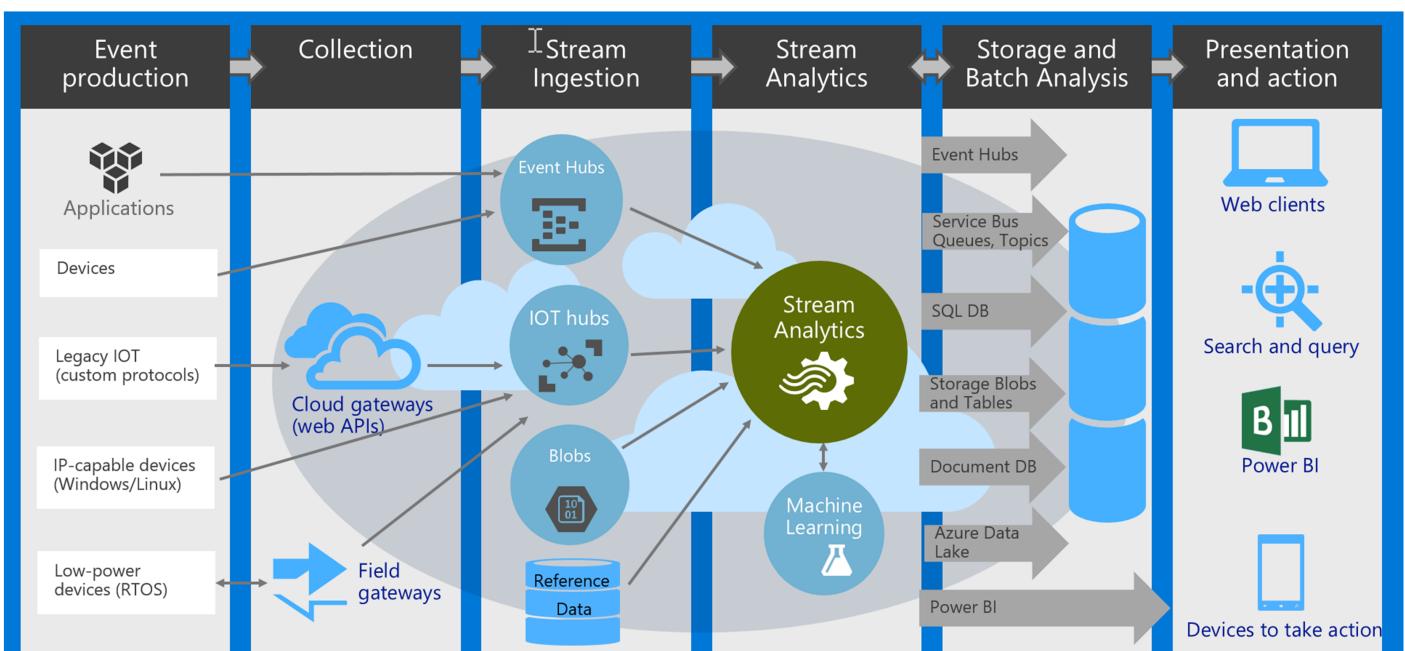


Image source: ibm.com

# Can be Incomplete!



# Live Stream Analytics



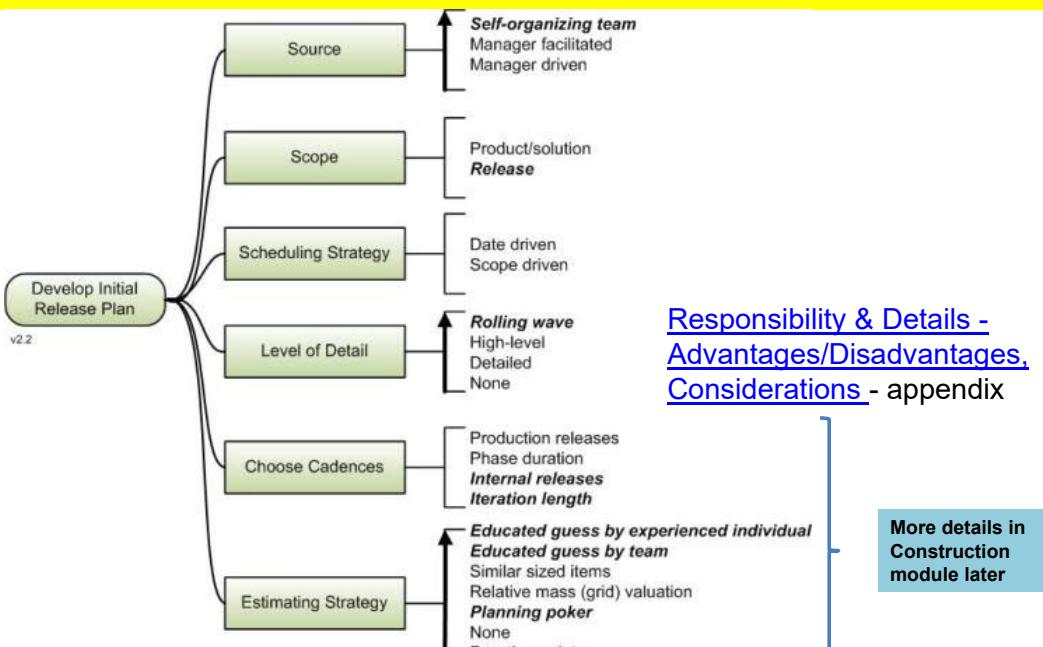
# Business Analytics Technical Strategy

- Some thinking through of technical issues
- Have a guiding vision to avoid rework!
- With plans to meet the non-functional requirements such as speed, capacity, performance
- We defer architecture and design decisions to the most appropriate time in the project to make them
- Have an idea of the models to use, for e.g.:
  1. **Predictive models:** The models in Predictive models analyze the past performance for future predictions.
  2. **Descriptive models:** The models in descriptive model category quantify the relationships in data in a way that is often used to classify data sets into groups.
  3. **Decision models:** The decision models describe the relationship between all the elements of a decision in order to predict the results of decisions involving many variables.

## Exercise C: Initial BA Architecture and Requirements Envisioning

- Get back into your teams
- Take 20 minutes to discuss within the team:
  - Key requirements envisioned by your team (use hierarchical chart (lightweight))
  - Initial BA Architecture (diagram)
- A spokesperson should be prepared to share a few key learnings with the larger group
- **Capture the initial architecture and requirements into your WSQ workbook.**

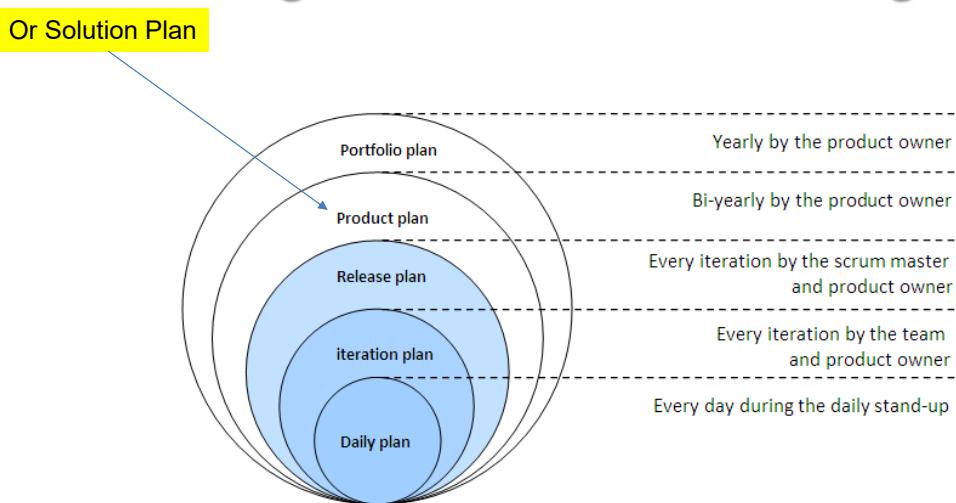
# Goal: Planning the Initial Release Plan



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## Agile Levels of Planning



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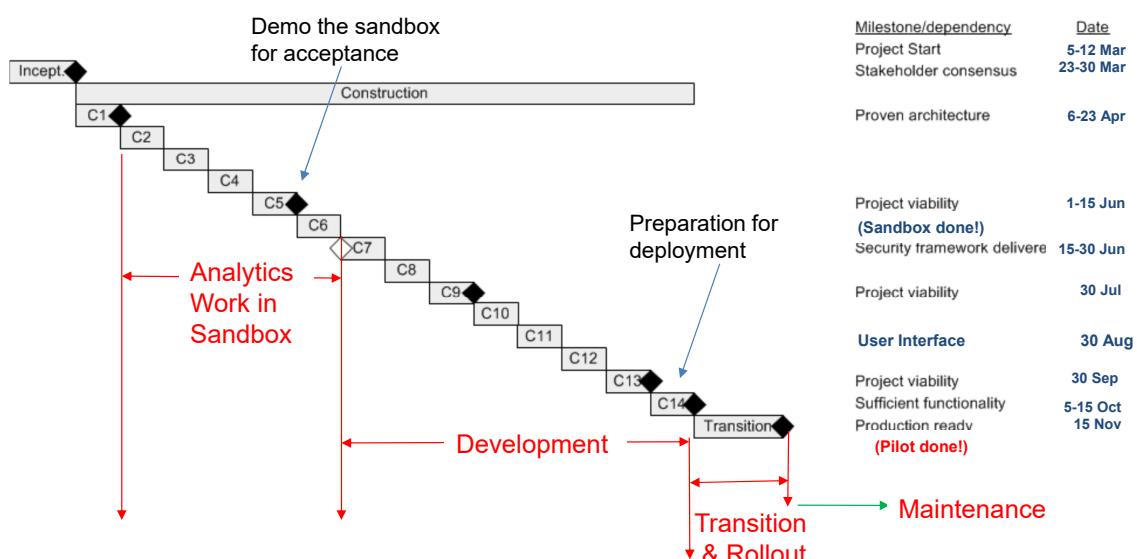
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# Release Plan Considerations

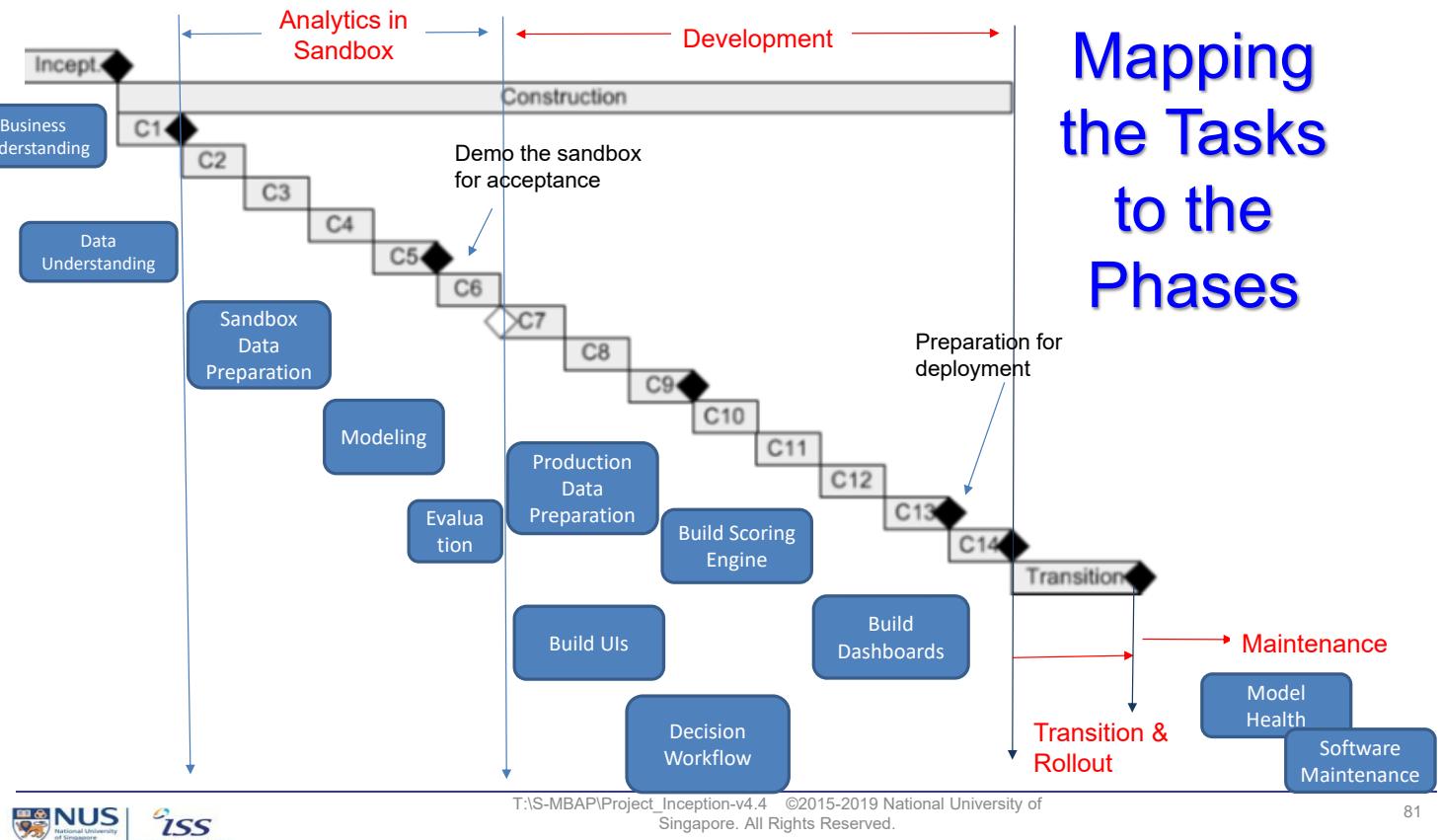
- Value is in planning itself (thinking things through), not the plan it produce (document)!
- Range estimates are always recommended
- Gantt charts cannot depict ranges!
- Important considerations
  - Project team's skill and experience
  - Include milestones e.g. to demo to stakeholders or architecture is proven, review project viability
  - Dependencies on other teams (or vice versa)
  - Available release windows
  - Desired or legislated release dates (e.g. GST change)



## Initial Release Plan



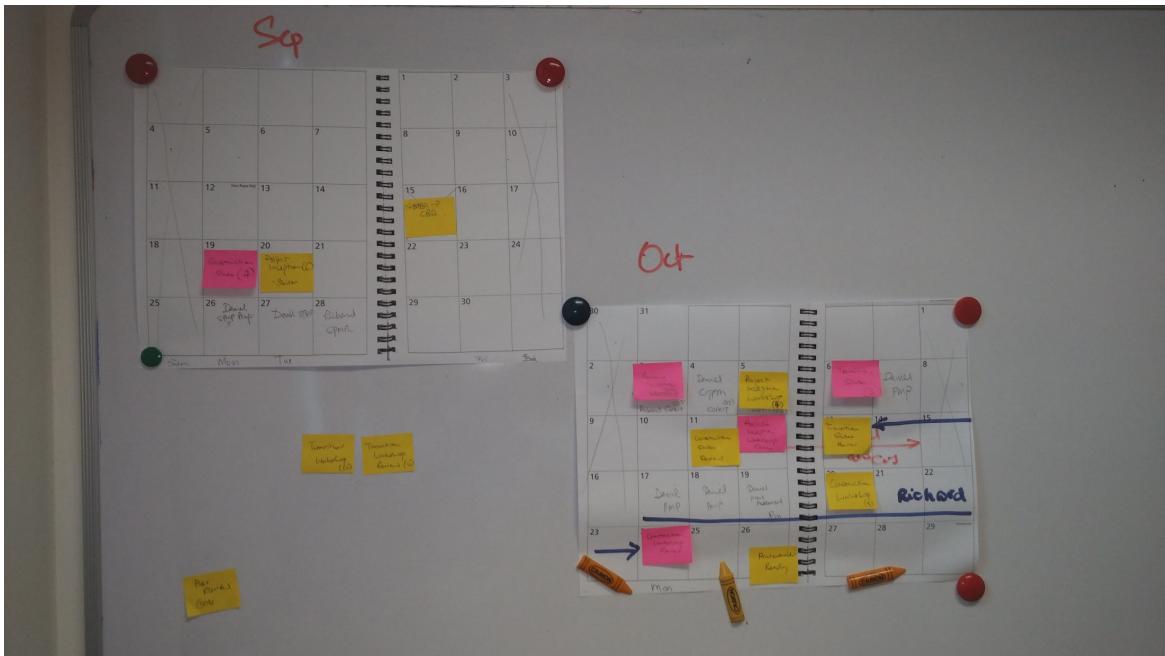
# Mapping the Tasks to the Phases



## How To Put the Release Plan Together

- Estimate the number of days each task will take
- Divide by the number of team members (are they generalizing specialists? If not, be aware that only some members can do certain tasks and we cannot overload them)
- Duration of each iteration is fixed at say 2 weeks.
- Can you determine the number of iterations for each phase now?

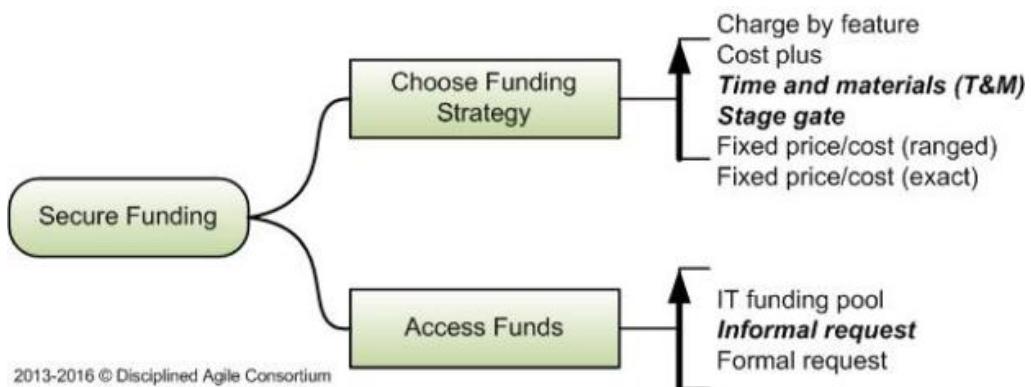
# Richard and My Plan for This Course



## Exercise D: Initial Release Plan

- Get back into your teams
  - Take 10 minutes to discuss within the team:
    - List the tasks needed to set up the architecture and accomplish the requirements
    - Estimate the number of iterations and develop the initial release plan (1 release only)
    - (This is a very rough plan and you can assume this can change as you have more information about the analytic techniques in the subsequent modules and requirements become clearer.)
  - A spokesperson should be prepared to share a few key learnings with the larger group
  - ***Capture the initial release plan into your WSQ workbook***

# Goal: Secure Funding



## Funding Strategies

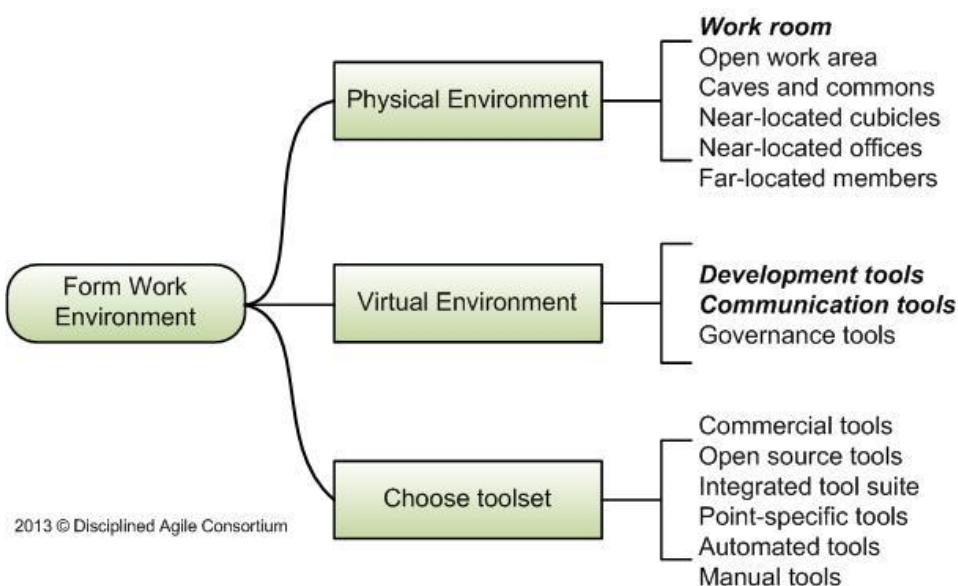
## Funding Strategies

- Fixed Price
- Fixed with Range
- Staged
- Time & Materials (T&M)
- T&M with performance bonus

# Business Analytics Funding

- Business to own project, so funding must be from beyond IT
- Aim for **Fixed price/cost (ranged)** with Staged gate approval
- The minimum funding of a business analytics project is by Staged Gate funding up to the end of the **Sandbox** stage.
  - Be careful if this is the case. As often **Sandbox** solutions may have problem later in **Pilot** and **Deployment** stages

## Goal: Form Work Environment



# Potential Challenges When Building Teams

- Not everyone is an agile expert and you don't have adequate agile mentoring
- You don't have team leads that are skilled coaches
- You don't have (enough) generalizing specialists
- You don't have skilled product owners – **understand BA issues**
- Your human resources (HR) department is geared toward staffing traditional teams
- You can't build a whole team – **in terms of skills – data scientists (each specific areas of BA), architect owners, project manager...etc**
- You don't know how to identify agile-experienced people
- Some of your staff want/need to be directed and not be self-organizing



## To Manage Key Risks

- All Business Analytics Projects will contain some element of risk
- It is the project managers duty to minimize and manage risk
- A critical task in project initiation is to
  - Ensure possible sources of risk are not inserted in the project at this time
    - Project Managers must recognize these sources of risk
  - Select a project/technical strategy that will minimize risk

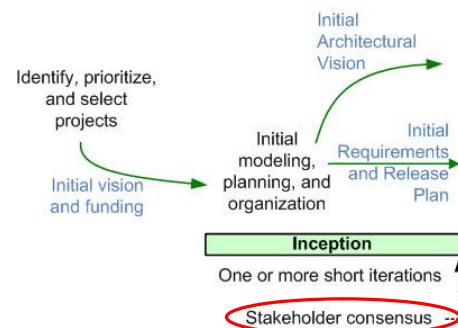


# Assumptions and Constraints

- Organizational, environmental and external assumptions and constraints
  - **Assumptions** – considered to be true without any proof or verification. Validated at various stages.
  - **Constraints** – a restriction or limitation that affects the project (e.g. milestone schedule or summary budget)

## Inception is Complete When:

- Your stakeholders agree that it makes sense to proceed based upon the achievable scope, schedule, budget, constraints, and other criteria related to your business case
- The risks have been identified and seem tolerable
- There is agreement on using a minimalist and agile process for building the solution
- The team and environment have been set up or are in the process of being so, that supports collaborative teamwork
- The process and governance strategies have been agreed to by both your team and your stakeholders



# Summary: Best Practices on Inception

- Inception should be short and sufficient
- Use ranged estimates for the overall schedule and cost
- Minimal but sufficient documents
- Focus on goals not work products
- Getting support for skills in agile PM
- Avoid jumping into development
- Avoid analysis paralysis
- Get a dedicated team workarea
- **Remember..It's all about Business Value!**



# THANK YOU 😊

danielboey@nus.edu.sg  
richardtan@nus.edu.sg

# Levels of Requirement Details

Strategy	Potential Advantages	Potential Disadvantages	Considerations
BRUF (detailed specification)	<p>Very effective when the requirements are in fact well defined and unlikely to change, such as with government legislated changes.</p> <p>Traditional oriented stakeholders will be comfortable with this strategy.</p> <p>Supports systems engineering environments, particularly life critical regulatory systems such as medical device or automobile control system development.</p>	<p>Identify many “requirements” that aren’t needed at all.</p> <p>Lose significant time getting to construction activities.</p> <p>Motivate stakeholders to not be involved with construction activities, where they are desperately needed, because the requirements are already defined.</p> <p>Slowly and expensively achieve the benefits of initial requirements modeling.</p> <p>Increase the time required for Inception activities, thereby increasing both schedule and political risk.</p>	<p>Watch out for situations where the requirements would in fact change if it wasn’t for the onerous “change management” process inflicted upon stakeholders.</p> <p>Experienced development professionals who are new to agile are often at risk of wasting time trying to write a perfect specification before proceeding with construction.</p> <p>Scaling situations, such as larger or geographically distributed teams, may be mistakenly used as an excuse to justify detailed specification (yes, you may need a little more specification, but not much more).</p>
Requirements envisioning (lightweight specification)	<p>Quickly and inexpensively achieve the benefits of initial requirements modeling.</p>	<p>Stakeholders and IT professionals used to BRUF need to be educated and even coached in this lighter-weight method.</p> <p>Requires stakeholders, or minimally a stakeholder representative, to actively participate throughout construction.</p> <p>Can be difficult to judge when the requirements are “just good enough” as suggested by Agile Modeling, which requires experience.</p>	<p>Too little robustness in your requirements approach, e.g., “We only need to write up some user stories on a stack of index cards,” often results in delivery teams having to scrap a lot of their initial work once they discover they’ve misunderstood the scope of what they need to produce.</p>

Source: Disciplined Agile Delivery, 2012

# Levels of Requirement Details (Cont.)

Strategy	Potential Advantages	Potential Disadvantages	Considerations
Goals driven	<p>Provides the team with significant flexibility as to how they approach providing a solution.</p> <p>Can and should be used with the more detailed approaches.</p>	<p>Requires significant discipline on the part of the delivery team.</p> <p>Requires significant trust between stakeholders and the delivery team.</p>	<p>This is a very lean/advanced approach that is appropriate for experienced DAD teams.</p> <p>Goals are typically captured as a simple list that is easily available to anyone involved with the project.</p>
No modeling at all	You can quickly jump to construction.	You are likely to start producing inappropriate functionality early in the project.	<p>When no initial modeling occurs the team risks building what they want instead of what their stakeholders need.</p> <p>Just because it is difficult to identify or access stakeholders, which can be the case with commercial product development and green-field development, this isn’t an excuse to not define the initial scope.</p>

Source: Disciplined Agile Delivery, 2012

## Initial Scope - How Detail?

# Planning Responsibility Options

Strategy	Potential Advantages	Potential Disadvantages	Considerations
Manager driven	Produces a plan that is acceptable to senior management and stakeholders.	<p>The plan is overly optimistic due to aggressive goals, increasing the risk that the team won't deliver on plan.</p> <p>The team may not accept the plan given to them, decreasing motivation.</p> <p>The plan doesn't reflect the realities faced by the team.</p> <p>Significant effort invested throughout the project tracking actual results against the plan.</p>	<p>Plans based on generic positions/people are often not very accurate as the productivity of developers has been shown to range by more than an order of magnitude between individuals. Also, this is a symptom of project teams that risk not being adequately staffed.</p> <p>Watch out for plans that make unrealistic assumptions about staff availability, dependencies on deliveries by other teams, or implementation technologies.</p>
Manager facilitated	Produces a plan that is acceptable to senior management and stakeholders.	The plan is overly optimistic due to aggressive goals.	Beware of manager-driven plans with a façade of being manager facilitated.
Self-organizing team	Produces a realistic plan that is acceptable to the people who have to follow it.	<p>The plan may not be what senior management and stakeholders want to hear.</p> <p>The plan may be overly pessimistic in an attempt to be conservative.</p> <p>Still needs someone in a team lead role to facilitate the planning effort.</p> <p>Team members may need some coaching in the various planning techniques (this is typically on the order of hours for most people).</p>	Teams new to agile run the risk of insufficient planning at the beginning of the project—detailed planning during construction supports initial release planning; it doesn't replace it.

Source: Disciplined Agile Delivery, 2012

# How Detail to Plan?

Strategy	Advantages	Disadvantages	Considerations
<b>Detailed</b> (Detailed planning for whole project)	Enables you to identify and think through critical issues before they occur. Supports the requirements of some life/safety-critical regulations. Stakeholders see that you are considering major risks early in the project.	Time is often lost early in the project in an attempt to think through everything. You are likely to need to invest significant effort reworking the plan to reflect the actual situation. The high ceremony gives stakeholders the false impression of how things will unfold on the project. Milestone dates are likely to vary in practice, potentially giving the impression of a troubled project.	This could be a symptom of a traditional team claiming to be agile. Detailed up-front project planning does not result in greater cost or schedule predictability, although it does provide the foundation for a façade for such.
<b>Rolling Wave</b> (Detailed planning for critical issues & activities in near term)  (High-level planning for activities to be performed far away in the future.)	Enables you to identify and think through critical issues before they occur. Often supports the requirements of some life/safety-critical regulations. Stakeholders see that you are considering major risks early in the project.  The plan is more accurate because it is easier to think through immediate issues. Greater acceptance of the plan due to the increased accuracy. It is clear what each person should be doing. It is easier to adjust the plan to reflect the current situation because people are used to doing so.	<p>Milestone dates are likely to vary in practice, potentially giving the impression of a troubled project.</p> <p>Inexperienced people may need more details, requiring some flexibility.</p>	<p>There is still a risk of too much upfront planning because people haven't yet abandoned some of their traditional habits.</p> <p>Needs considerable management trust, which may need to be earned first.</p>

Goal: Planning the Initial Release Plan

# Funding Strategies

Strategy	Potential Advantages	Potential Disadvantages	Considerations
Fixed price (nonranged)	Provides stakeholders with an exact cost to hope for.	Doesn't communicate the actual uncertainty faced by the project team. Sets false expectations about accuracy and your ability to plan. When scope and schedule are also fixed it motivates questionable behavior on the part of IT professionals. <sup>2</sup>	Works well when the scope of what you need to deliver is allowed to vary. Stakeholders have caught on to the fact that most IT teams are padding the budget, so will do their best to negotiate that padding away. High probability that you will need to go back and negotiate for more funding, which in turn can lower stakeholder trust in your ability to get the job done.
Fixed with range	Provides stakeholders with a more realistic assessment of the uncertainty faced by the team.	Many stakeholders will focus on the lower end of the estimate range. Many stakeholders don't understand the need for ranged estimates (see Chapter 10 for a detailed discussion).	You will likely need to educate some of your stakeholders regarding the desirability of a ranged estimate.
Staged	Lowers financial risk of project. Provides stakeholders with financial leverage over your project.	Some organizations have an onerous project funding process, so requiring teams to obtain funding in stages can increase their bureaucratic overhead and increase risk of delivering late.	Align your funding gates with lifecycle milestones to hopefully reduce overall overhead and to focus both stakeholders and the teams on the importance of the milestone reviews.
Time and materials (T&M)	Significantly lower financial risk when projects are governed appropriately (see Chapter 20).	Requires stakeholders to actively monitor the project.	Some organizations have mistakenly concluded that a T&M approach is a risky way to fund IT projects. Invariably these organizations prove to have ineffective governance strategies where stakeholders take a "hands off" approach to IT.
T&M with performance bonus	Low financial risk for both the project team and for stakeholders.	Requires active monitoring by stakeholders and a clear definition of how to determine whether the project team has met their service level agreement (SLA) and therefore has earned their performance bonus.	Works very well for outsourced projects.

## Goal: Secure Funding

# Key Risks in BA Projects

	Risks	Resolution
1	The tools you selected doesn't live up to the hype	Thorough vendor evaluation process & product demonstration, check referrals; Proof of Concept (POC); gap analysis
2	Resistance to change	Develop a comprehensive <b>Change Management Plan</b> – covers culture; effective communication with stakeholders regarding the business benefits; how they can complete their job more efficiently and to a higher standard
3	Poor data quality – go live disaster! Lose users and sponsor trust	Adequately clean your data in the back-end systems properly. Strict change control policies over data, esp. over source systems that could accidentally or unknowingly affect the analytics. Remember GIGO!
4	Poor user adoption – potential benefits not realized	Include reps from each defined user group to get input thru out project. Deliver iteratively the business needs (not technology); provide after launch support services; monitor usage; find out low-usage problems and resolve the issues
5	Over promising & under-delivering	Focus on early quick wins for one user group at a time; deliver actionable reports one at a time

# Key Risks in BA Projects (Contd)

Risks	Resolution
6 Locking down everything from beginning	Prediction lifecycle with tight requirements, schedule don't work well with exploratory nature of Biz Analytic projects. Iterative and agile work much better delivering small chunks ensures business needs always met and helps with user adoption; self-service satisfy user needs in near real-time
7 Scope Creep	Need a realistic delivery schedule; careful about new requests and requirements; say No; keep track of unexpected expenses, data requests, data collation and cleaning; careful about every little bit extra
8 Losing/Cut in financial backing – political, legitimate	Cut scope to meet the new financial constraints; look at what you can deliver with the hardware, tools already invested; often some manpower expenses still ok
9 Too many moving parts makes it hard to access information and attain insight	Changes to any parts could render the analytics to fail; ensure the data sources are resilient and build in safeguards. UI may get too complicated for users – as far as possible ensure good integration and consistent UI (e.g. different parts from the same vendor)

## Exercise: Business Analytics Project Risks