Agile BI Through Rapid Prototyping

Getting out of your business' way

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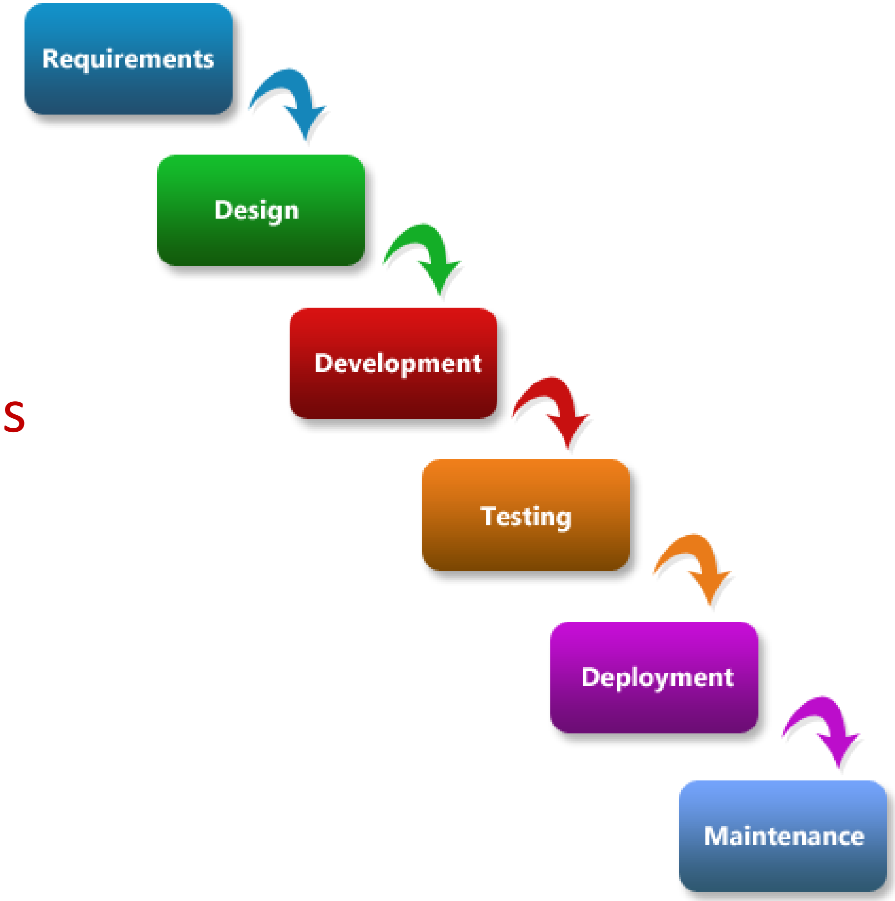
Agenda

- The Delayed Value Dilemma
- Defining the "Real" Deliverable
- Providing Opportunities - Rapid Prototyping
- Progressively Increasing Value
- Related Considerations
- Summary

The Delayed Value Dilemma

The Delayed Value Dilemma

- Typical BI projects delivered through a waterfall approach
- Typically lengthy delivery cycles
  - 6-24 months or more
- Comfortable and familiar



The Delayed Value Dilemma

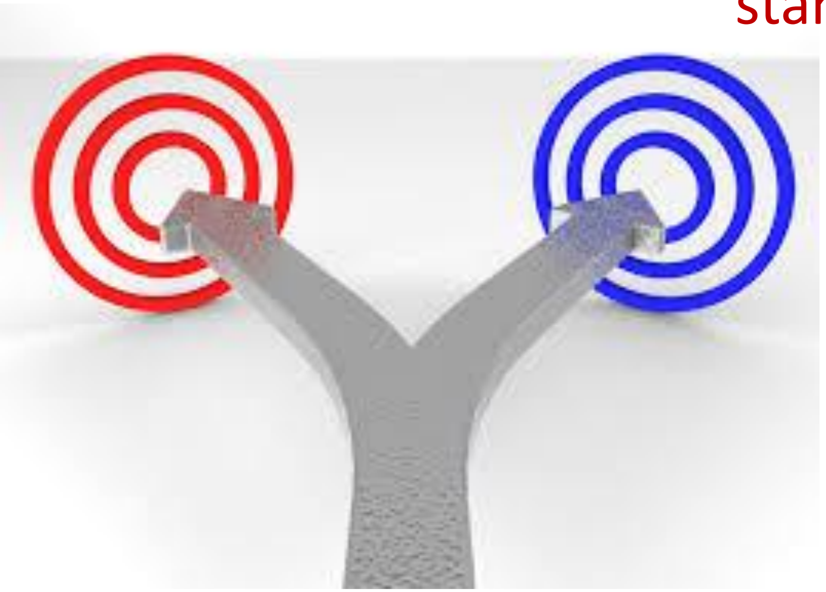
- Typical deliverable: integrated/modeled data, reports, dashboards, visualizations, etc.

- Actionable business insight not typically considered as objective

- Emphasizes on end state deliverable(s) and timeline
- Feedback loops come into play during QA and UAT

The Delayed Value Dilemma

- Technology considers deployment completion



- Business just gets started at deployment.

- Actionable business insight not possible until deployment
- Misalignment of objectives

The Delayed Value Dilemma

- Business engaged heavily during requirements gathering
- But withdraws until UAT
- Then mines for value post deployment

- Technology team typically ramps down at this time
- Leaving a skeleton crew, at best, to support the business' mining efforts

The Delayed Value Dilemma

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Typical Issues

- Inaccurate requirements
- Wasn’t sure what was wanted so long ago
- Requirements changed over time
- Original need has passed / no longer relevant

The Delayed Value Dilemma

- After working with the deliverable, the business is best prepared to provide feedback…

- There is unlikely to be sufficient staff or funding to do anything with that feedback

The Delayed Value Dilemma

- It is here that the business is most likely to be discouraged
- Likely to say the BI project was a failure, was a futile effort, etc.

- The business may express their dissatisfaction many ways
- Technology team left wondering what went wrong

The Delayed Value Dilemma

- Technology will feel that they fulfilled their obligation

- The business will feel that technology doesn't understand them or their needs

- Finger pointing, name calling, etc.
- Development work likely headed to the scrap dump

The Delayed Value Dilemma

So,…

- How could we approach BI projects more effectively?

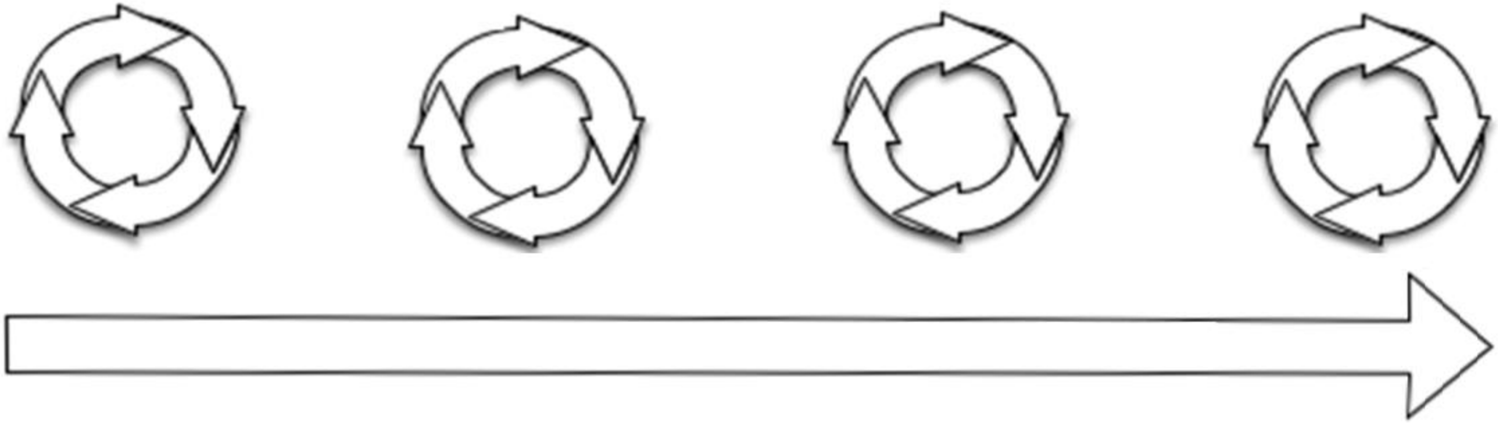
- How can we realize the value of BI projects quicker?

- How do we bring the business and technology together to work collaboratively throughout the life of the project?

The Delayed Value Dilemma

Let’s Start with Agile…

- Powerful approach to any development project
- Expected to infuse the value of feedback loops



- However, Agile alone can't solve the data-specific problems encountered in BI projects

Defining the "Real" Deliverable

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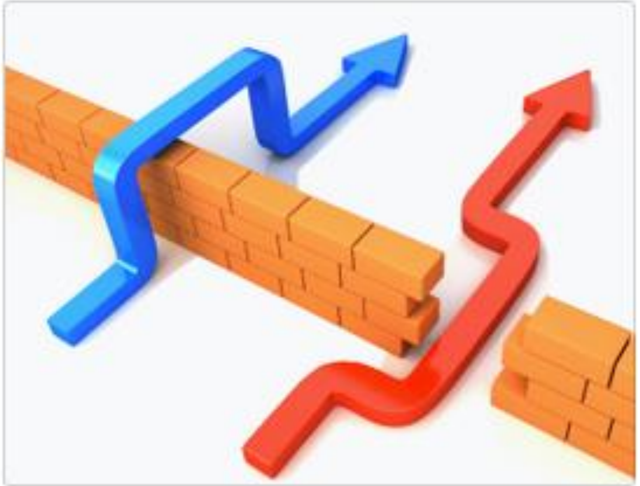


- Deliverable in waterfall is clearly defined, though ineffective
- Define the deliverable as "to provide opportunities for the business to discover actionable insight"

- Objective of a BI project is <u>not</u> to build a data model, report or dashboard but <u>rather</u> to derive business value in the form of actionable insight mined from the data, report or dashboard

Defining the "Real" Deliverable

- This shift in objective causes us to view expectations and execution from different angles and contexts

- Technology can march alongside the business

- Different mission from developing code to meet requirements

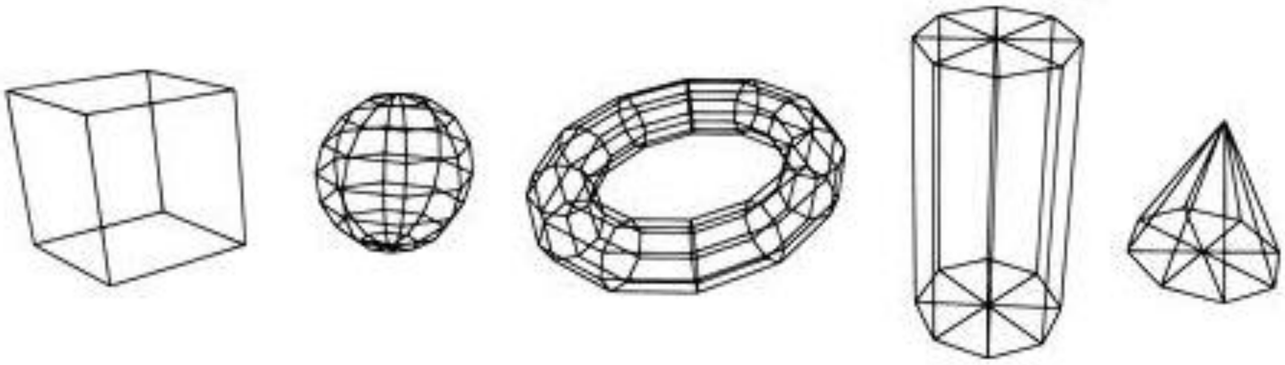
Emphasis on:

- refining business requirements
- providing opportunities to discover actionable insight

Providing Opportunities through Rapid Prototyping

Providing Opportunities - Rapid Prototyping

- Give business access to evolving product and obtain feedback incrementally
- Use the principles of rapid prototyping
- Generate prototypes as quickly as possible while the business articulates requirements



Providing Opportunities - Rapid Prototyping

- Requirements do not need to be complete; start small
- Quickly move on to layer in new requirements, and so on
- No predefined order to layering in requirements

Providing Opportunities - Rapid Prototyping

- It may feel disorganized or sloppy
- But refining of requirements happens quicker
- Reviews done in small chunks leading to a higher quality of requirements

Providing Opportunities - Rapid Prototyping

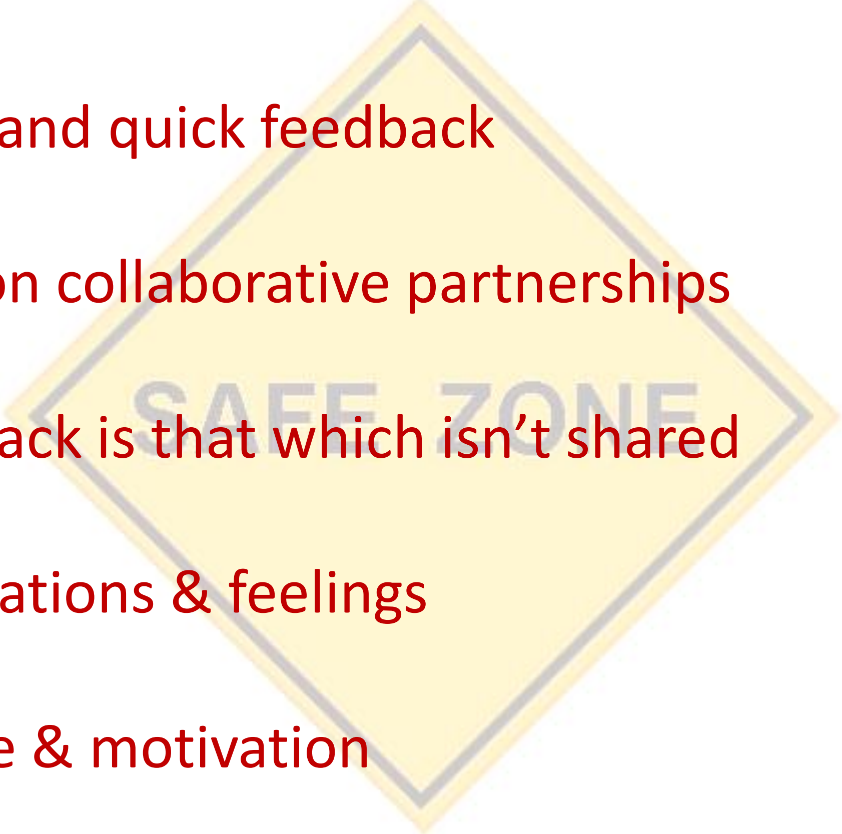
- Get the prototype in front of the business as rapidly as possible
- For now, disregard quality, completeness, or correctness
- Coalesce all project participants to a common understanding

Providing Opportunities - Rapid Prototyping

- Focus on small changes, getting feedback, repeat…
- Reduce throw away work
- Progressive increase in quality and completeness
- Easier than trying to imagine the entire finished product
- Short iterations work best since review covers a smaller number of changes

Providing Opportunities - Rapid Prototyping

- Feedback loops are safe zones: how close are we?
- Honest, direct, and quick feedback
- Culture based on collaborative partnerships
- Only bad feedback is that which isn’t shared
- Manage expectations & feelings
- Encourage drive & motivation
- Level set expectations: positive and negative feedback



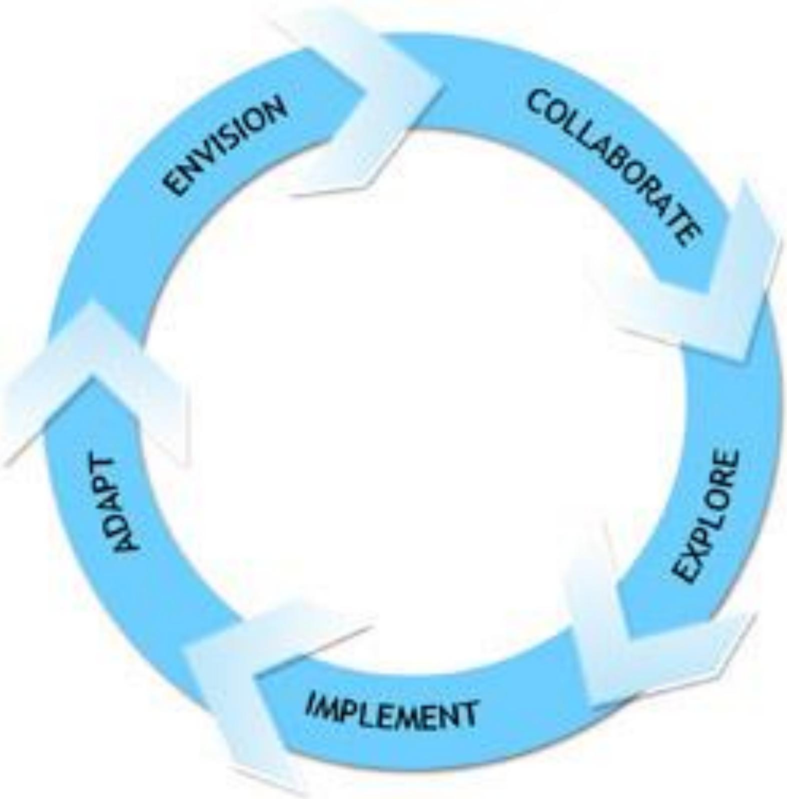
Providing Opportunities - Rapid Prototyping

- Rapid prototyping works well to extract and refine requirements
- More effective to "tease" out ideas and thoughts
- Having an example at hand sparks thoughts, ideas, memories

Reaching Actionable Insight - Progressive Value

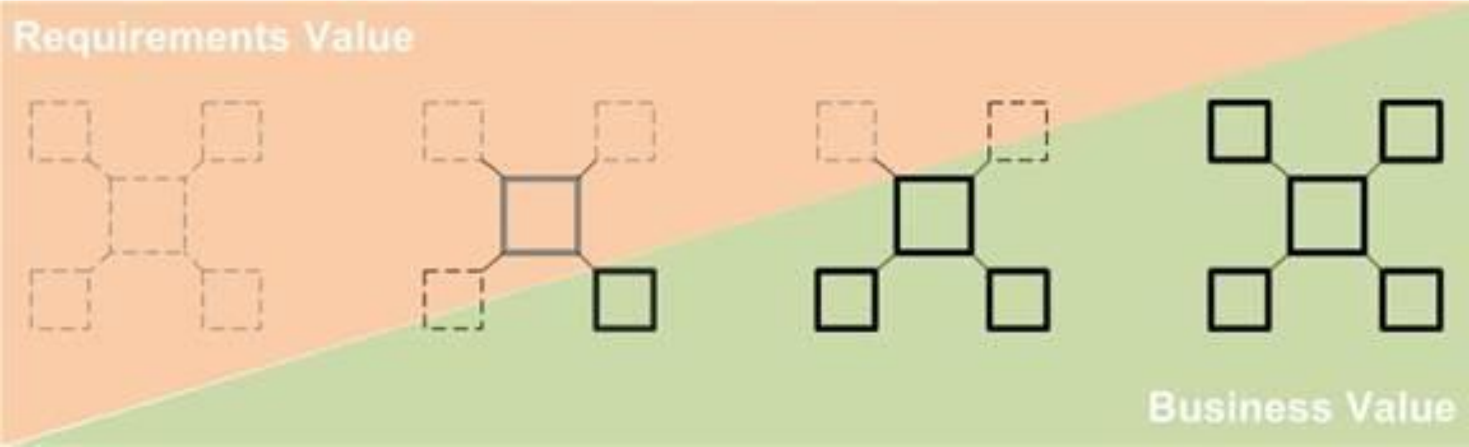
Reaching Actionable Insight - Progressive Value

- Natural progression to the feedback cycles
- Initial feedback likely to be highly critical: numerous problems and inaccuracies
- Likely to be little to no usable parts initially
- But will hear what should be

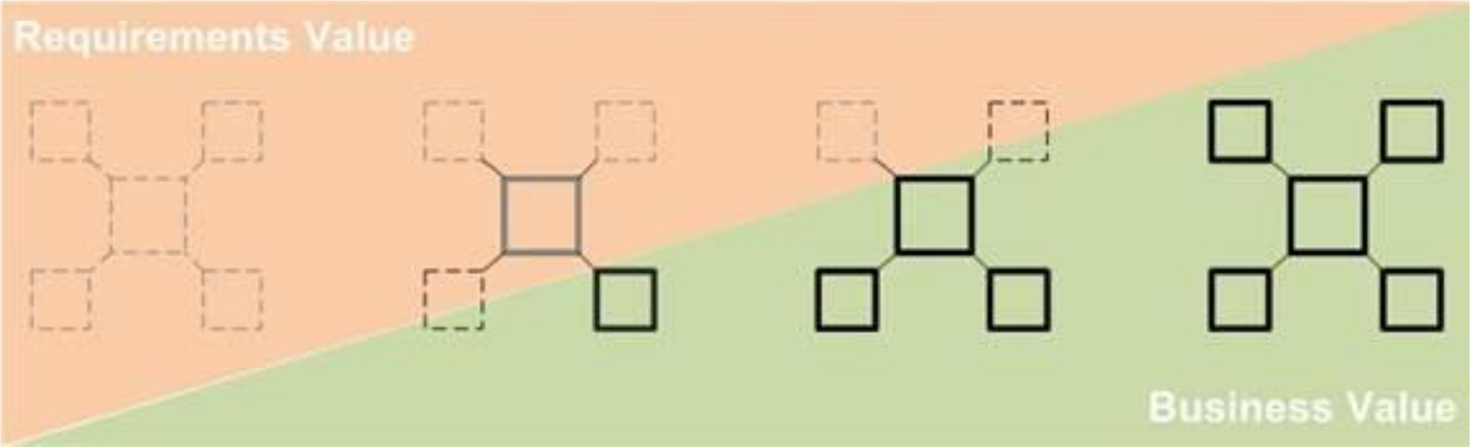


Reaching Actionable Insight - Progressive Value

- Each new prototype improves in quality, correctness, and completeness
- Requirements become more refined and complete
- Defining characteristics of the underlying data model evolve:
  - Data granularity, KPI definition, Schema approach

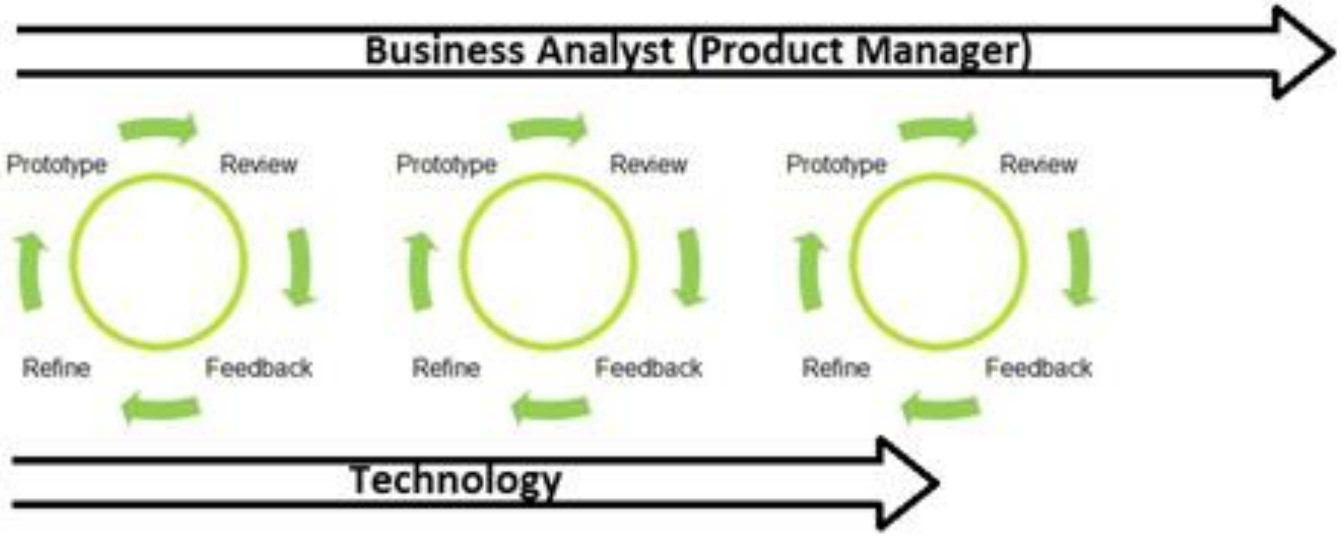


Reaching Actionable Insight - Progressive Value



- Layer in a new objective in each subsequent prototype
- Deliberate target of completing an area(s)
- Discuss and plan collaboratively to maximize the opportunities
- Technology and architectural considerations can be determining factors

Reaching Actionable Insight - Progressive Value

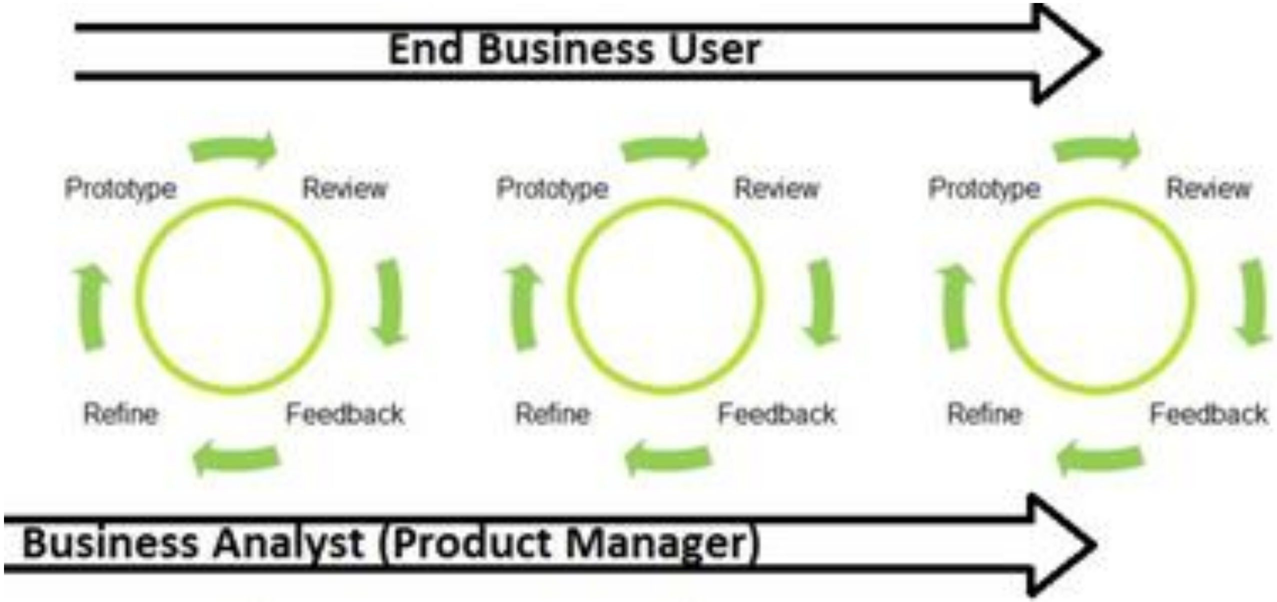


- Progress sets up the opportunity for having two distinct feedback loops

- First focuses on establishing and refining the requirements

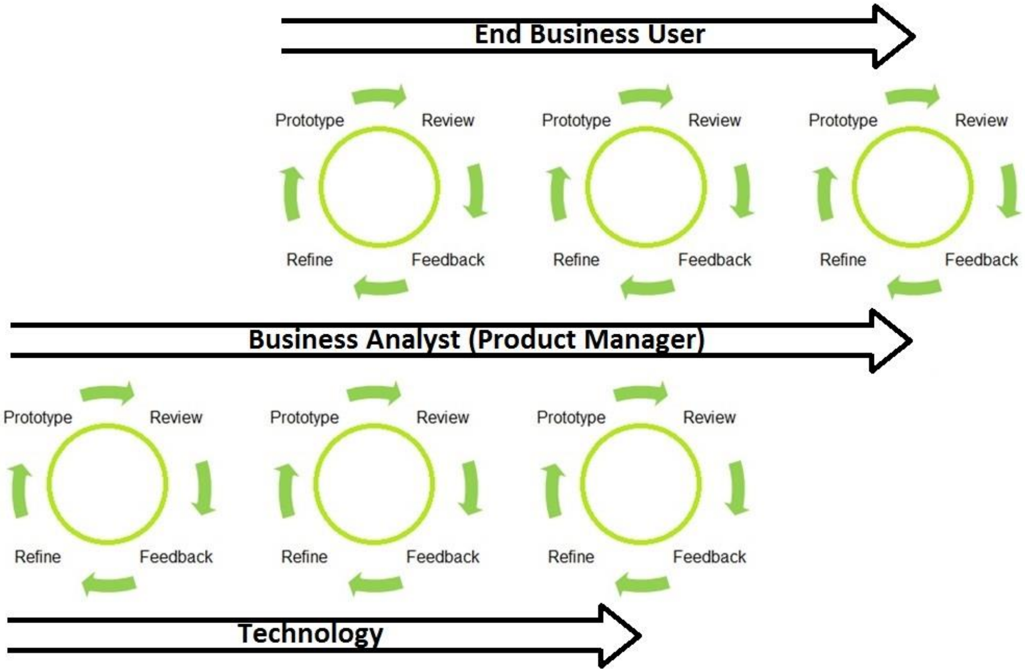
Reaching Actionable Insight - Progressive Value

- Second loop provides opportunities to find actionable insight
- Can begin once part of the final deliverable is completed
- End business user acts as reviewer and feedback provider
- Business analyst is feedback collector for the business consumer



Reaching Actionable Insight - Progressive Value

- Shift towards business (data analyst, scientist, etc.)
- Business can review and analyze the data in parts
- Parts of the whole product are still under development and are not ready for mining



- Care must be taken to clearly demarcate and socialize what is and what isn't considered business-ready

Reaching Actionable Insight - Progressive Value

- With double loop: insights can be mined simultaneously as the end deliverable continues to evolve

- This is how we bring about business value sooner in the BI process

When Are We Done?

When Are We Done?

- No time bound deliverables
- Feedback loops can continue until a specified goal is obtained

- Completed report or dashboard
- Data has been cleansed, transformed, and integrated
- Target amount of business value has been obtained
- Funding or time runs out
- No further value remaining in the area being researched

Productionalization

Productionalization

- If business has found sufficient ROI and value from the efforts, there may be nothing to 'productionalize'

- Prototyping in the iterations should be performed with a wireframe / straw-man approach

- Without spending time or effort on making production-ready

Productionalization

- Parallel planning effort for reproducible, ETLs, reports, dashboards, etc.
- Likely to be more protracted than feedback loops
- Need to productionalize supporting architecture
- Planning and building run in parallel to feedback loops

- Threading through the same team provides highest continuity, efficiency, and quality

Productionalization

- Delivering data rapidly can be as simple as hard coding data in the presentation layer

- Pull data from a service with hard coded data
- Pull data from a service that consumes data from a database but mocked up
- As requirements evolve and productionalization imminent, complete end to end architecture

Productionalization

- Evolve your architecture approach as requirements evolve
- Minimize throw away work, reduce technical debt
- Ensure best alignment of solution architecture

Adoption Challenges

Adoption Challenges

- Any new process, procedure, language, etc. can be expected to be met with
  - anxiety
  - skepticism
  - discomfort
  - reluctance
  - resistance
  - defiance

- Socializing the value to the organization, the benefits to the team, and individuals is key to driving adoption

Adoption Challenges

- Positive messages emphasizing benefits
- Socialize message thoroughly, consistently, repeatedly
- Coach new teams until self-organized
- Re-socialization necessary to maintain culture; teams help here

- Better, more accurate, requirements in less time
- Quicker insights & ROI
- Increased satisfaction
- Less throw away work
- Better collaboration

Adoption Challenges

Typical technology team concerns:

- Fear of new, unknown, unproven
- Dissatisfaction with throwing away work
- Discomfort of delivering partial work
- Difficulties in providing prototype

Emphasize the benefits:

- Collaborative partnership focused on finding actionable business insight
- Best way to serve the business objectives
- Brings teams into alignment and build synergies

Adoption Challenges

- Data specific challenges may impede adoption
- Deliver prototypes to the business without wasted effort or technical debt
- Similar to rapid code development or rapid GUI development

- Deliver minimum data required with as little effort as possible
- Don’t create delivery solutions until requirements complete
- Allow architecture to evolve to ensure alignment

Adoption Challenges

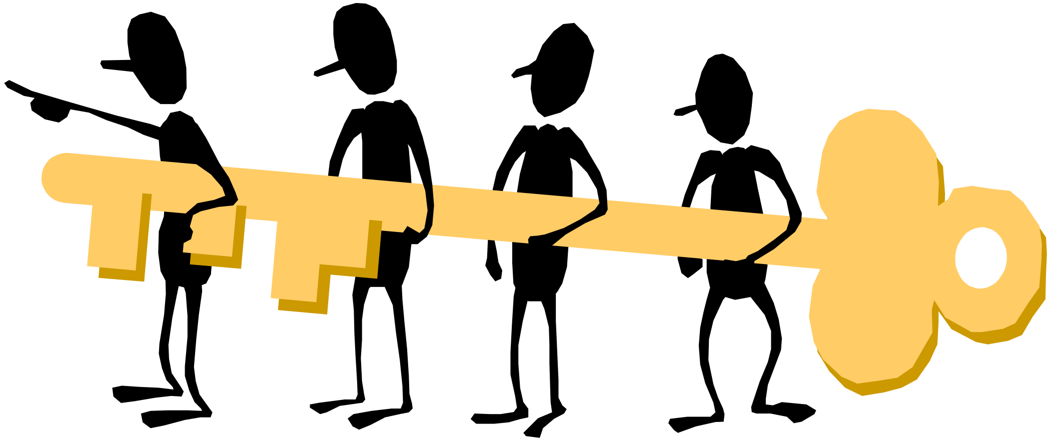
- Project Managers might feel lost without familiar benchmarks
- Several deliverables but very different from waterfall

- Responsible for iteration schedule
- Second loop doubles efforts
- Process and expectation socialization and management
- Shepherding development teams, who will be focused on innovation

Adoption Challenges

- Business analysts may struggle reviewing something known to be imperfect
- Foster a collaborative partnering environment
- Repeated emphasis on the benefits of using the agile/rapid
- Drive adoption and set expectations and perspectives

Adoption Challenges

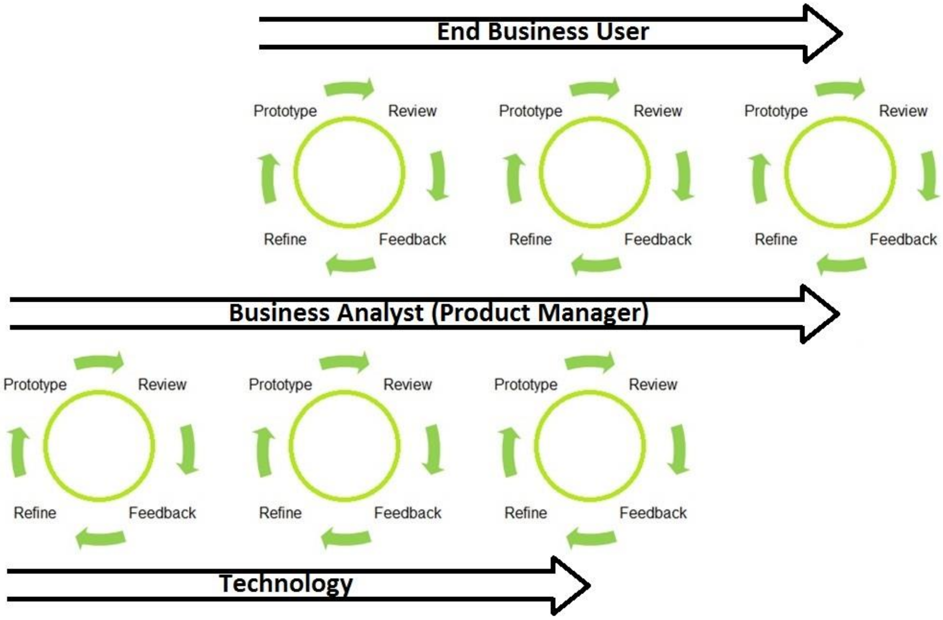


- Business consumer's expectations and understanding determine success
- Likely to be confused by what technology is doing and why
- Unlikely to believe there is value in reviewing incomplete/inaccurate data
- For this reason the BA participates in the primary feedback loop
- Challenges of engaging the business with rough prototypes are great

Adoption Challenges

- Introduce the end business user to partially completed end product in the second feedback loop

- Working with part of deliverable early should dispel confusion and resistance



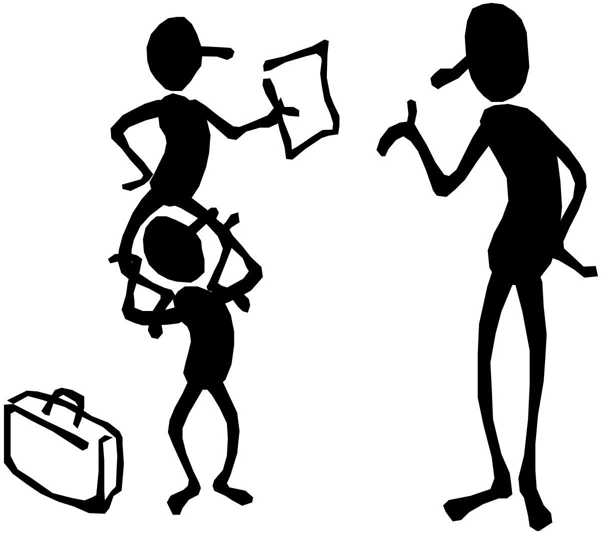
- Business analyst and/or product manager, can shepherd the end business user through the process of working with a partially completed deliverable

Adoption Challenges

- The Product Manager can tie the components to the broader whole of the end deliverable…

- and map the whole to the components …

- and keep focus on the primary objective of finding actionable insight



Adoption Challenges

- Predicting how well or how poorly your teams may acclimate to agile and rapid is difficult

- One bad apple can derail this approach
- May need to swap out role players for optimal alignment
- Once teams have participated in an agile/rapid project they help evangelize

When to Use Agile BI with Rapid Prototyping

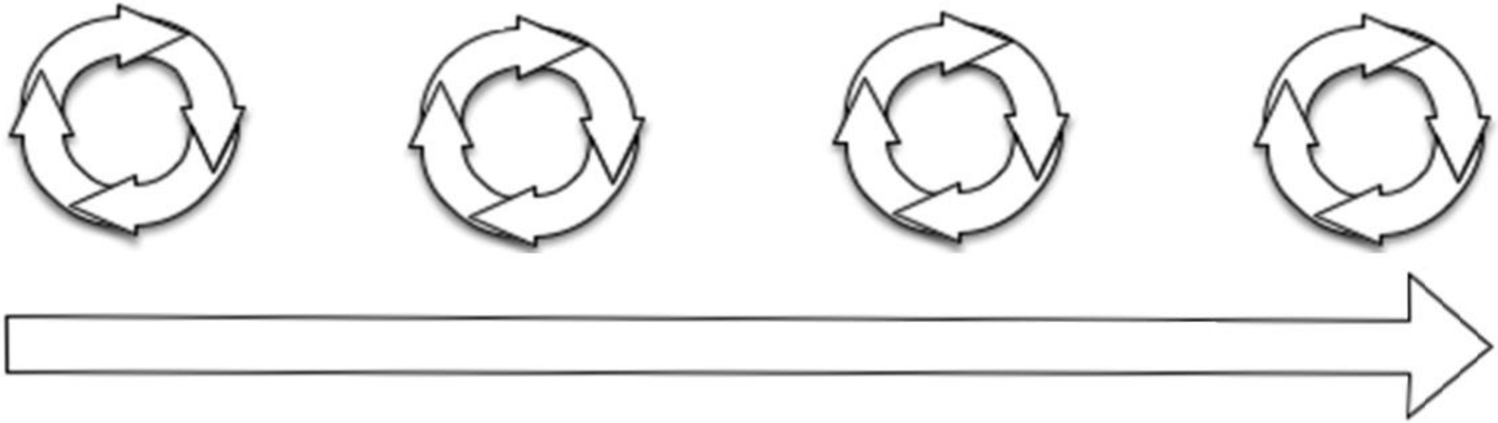
When to Use Agile BI with Rapid Prototyping

- Most effective for exploration and discovery projects (unfamiliar and undocumented data)
- Works well for GUI representations such as a report, dashboard, or visualization
- Value for any project through acceleration of requirements gathering and improvement to quality

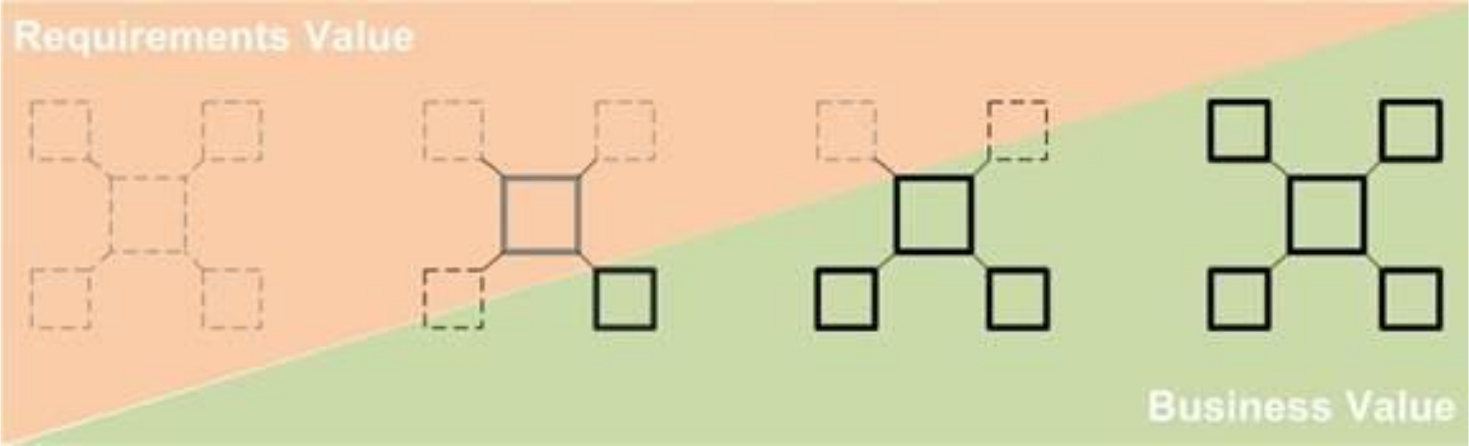
When to Use Agile BI with Rapid Prototyping

- With initial firm understanding of requirements, agile/rapid will have shorter role in requirements refinement

- Breaking down work and delivering through an evolving architecture can provide incremental reviews, and help keep projects on track and teams aligned



When to Use Agile BI with Rapid Prototyping



- Iterations in smaller projects & discovery projects should be short
- Possible for a single resource to serve multiple roles as accelerator
- Larger efforts require longer iterations especially once the requirements are complete and the build out proceeds
- Incrementally releasing prototypes keep the business engaged
  - Continue to provide new and fresher opportunities to find actionable business insight

Summary

Summary

- With the use Agile BI through Rapid Prototyping in appropriate projects, I have observed the highest degrees of business partner's engagement, satisfaction, and success ratings as compared to any other manner of project delivery

Summary

- Redefined objective: "to provide opportunities for the business to discover actionable insight"
- Align teams toward objective
- Embrace safe-zones
- Deliver visual representations of progress (prototypes) in short cycles
- Evolve architecture as requirements are refined
- Increase/decrease emphasis on prototyping depending on the maturity of the requirements
- Persevere through adoption challenges -- it's worth it

Agile BI Through Rapid Prototyping

Getting out of your business' way

Dirk Garner has a broad technology background spanning 20+ years in data management including 10+ years in consulting roles, focusing on BI, software development, networking, and operational support. He has previously launched and ran a software and systems consulting services company for 10 years. Dirk can be contacted via email: dirkgarner@garnersoftware.com or through LinkedIn: http://www.linkedin.com/in/dirkgarner