*You can find the sample files associated with this presentation at http://sfi.cc/what*

# Estimate What?

## A Business-Driven Method for Early Scoping and Estimation of Architecture Impact

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# Abstract

Rarely does a new solution introduced to an enterprise stand alone, but instead must plug into the spider web of existing systems and integrations. A challenge faced by all organizations is the need to estimate solution costs early in the lifecycle to drive business decisions. Unfortunately, while a packaged solution itself may have an understood cost, the integrations and other impacts to existing systems are often not yet understood and the business requirements needed to figure it all out are not yet developed.

This presentation introduces a method to provide a business with specific "yes and no" questions they can understand and answer to drive a model that identifies the enterprise technology impact of a solution. In practice, this has been very well received, resulting in a better understanding of scope for IT stakeholders and better visibility to business regarding the impact of their requests.

Not only does this data-driven approach streamline and de-stress the estimation process, but it produces data that over time can be used by Enterprise Architects to recognize patterns in project portfolios.

After introducing the theory and practice of the approach, we will review some real world case studies. While the technique applies to a wide variety of industries, the case studies reviewed will be for banking and health care.

After sharing these cases and the lessons learned when applying the method, we will review how you can go about identifying what types of solutions lend themselves to this method and how you can customize the model for your own organization.

# Estimating

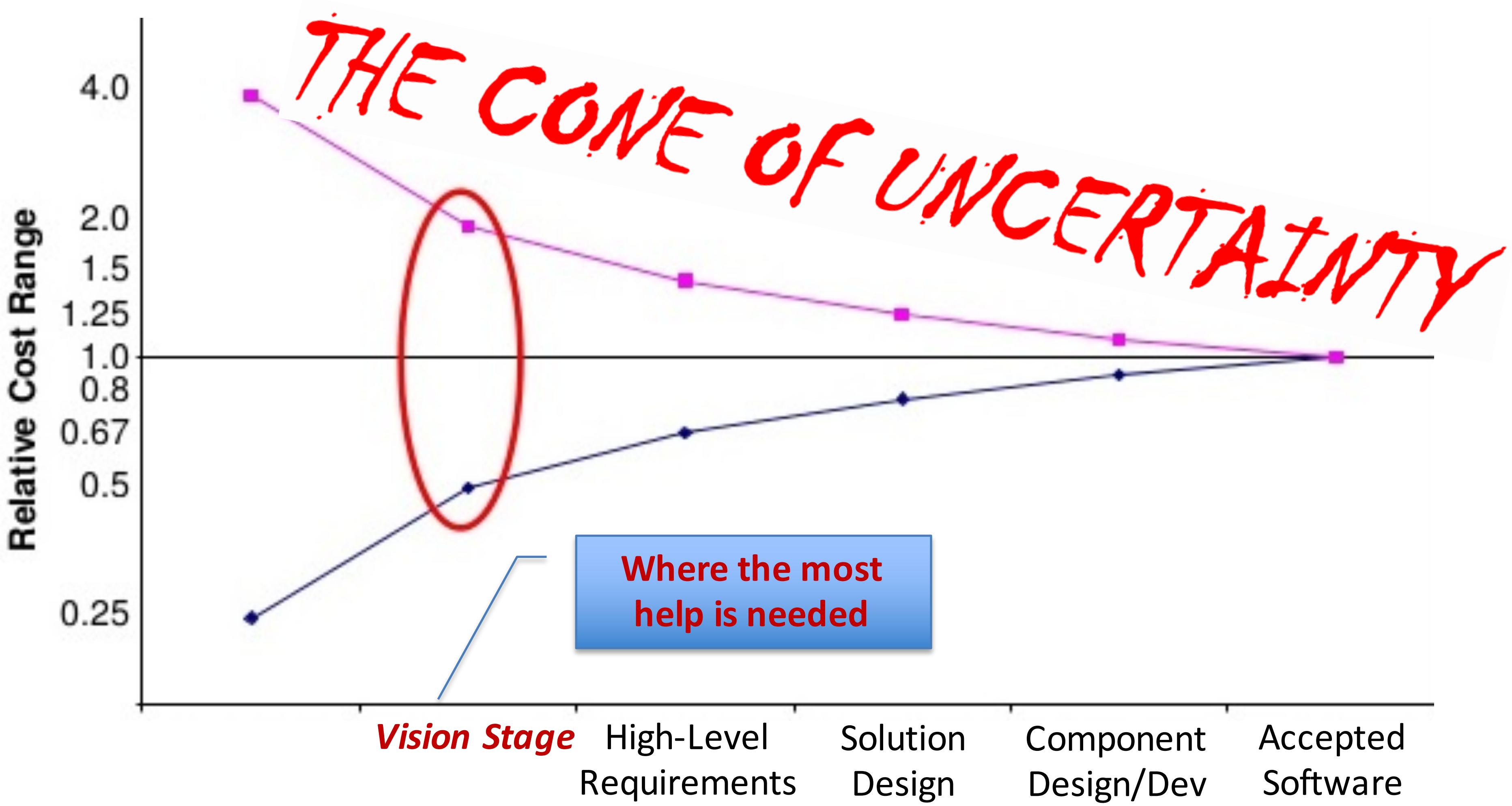
## Why so Important?

- Critical input to go / no-go decision
- Key dimension for evaluating options
- Vendor package cost vs. fully loaded cost

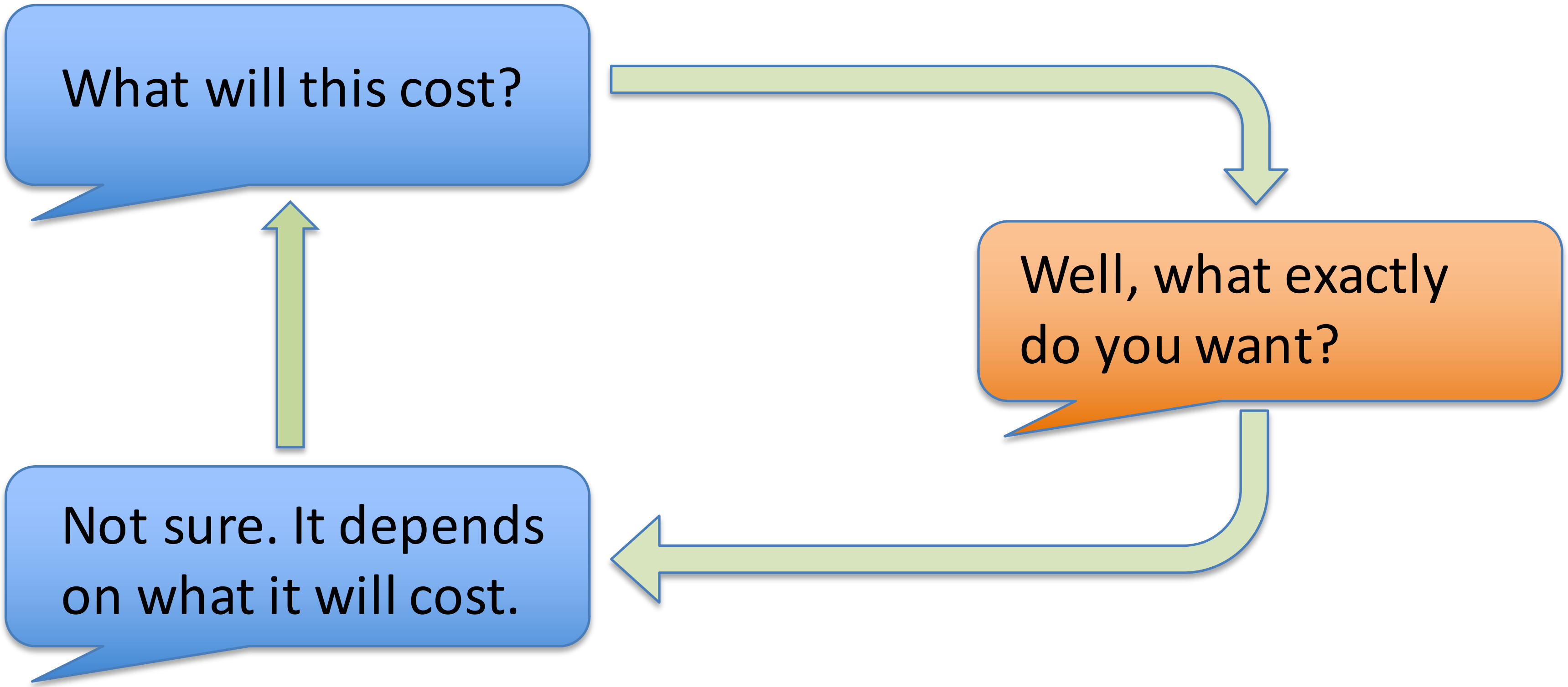
## Why so difficult?

- More art than science
- Too early for detailed requirements
- Lack of business understanding of downstream impacts
- Tension → politics → distrust when money is at stake

# Estimate Lifecycle



# The Challenge



# Business Frustration

" Isn't this what you guys do!? "

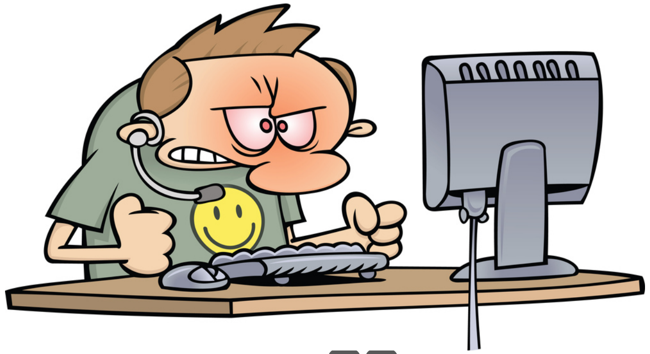
" This can't be the first time you did one of these? "

" We can't fund analysis for something that hasn't been approved and we can't get approval without a cost! "

" Our external vendors don't seem to have any problem providing estimates. "

**" We don't know how to give you what you are asking us for. "**

# IT Frustration



“You want a +/-20% accuracy estimate!?”

“Why didn’t you fill out the database transaction volume questionnaire?”

“Why weren’t we engaged earlier?”

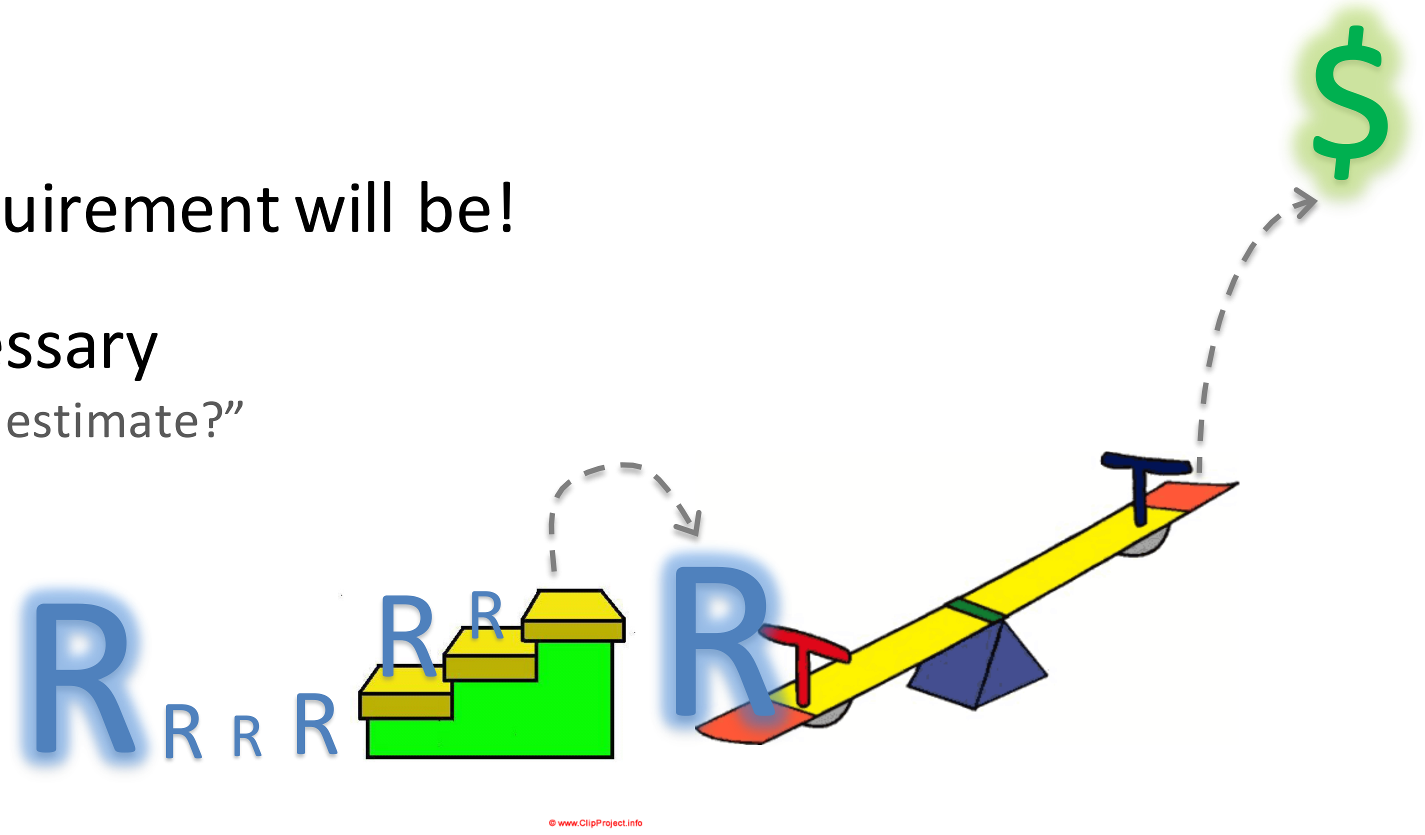
“I don’t estimate middleware code migration, only development. Why did’t you identify your stakeholders?”

**“We need more information”**

# Estimating Without Requirements

## Make Assumptions

- aka. Guess what the requirement will be!
- Only assume when necessary
  “Will this dramatically impact the estimate?”




Many models exist for estimating projects. This is not a comprehensive list, but a few approaches that have helped us facilitate estimates without requirements in the past, and that feed into the model we will discuss.

# Estimating Without Requirements (cont)

## Base on Prior Experience

- Determine "fingerprint" of solution using a data-based model
    - Identify measurable solution attributes that correlate to cost
    - Prefer hard data; provide rubrics for scoring soft
- Calculate project costs based on measured attributes by analyzing historical project portfolio
- Requires good historical data
- Very "trail and error" to lock down right attributes

Refer to "Assessing Architectural Significance," presented at Open Group Cannes 2012 for more details on establishing an attributes-based assessment model. Available at Open Group site and sysflow.com

# A Business Driven Model

Both prior strategies rely on identifying key answers

- Business requirements with material impact on cost
- Solution attributes contributing to cost

If we can get those key answers up front, we can quickly and effectively assess impact and cost

We are reliant on the business to provide these key answers

- The business requirements with direct material impact on cost
- The business requirements needed for us to identify the solution attributes contributing to cost

# The "Aha" Moment

We can ask our business partners

- specific questions
- that they have the capability to answer
- which we map to technology impact and cost

in order to acquire our key answers

And nobody gets a car.

# Model Construction

Define a minimum set of key answers that identify architecture impact

- Work forward, from prior projects
  requirements | designs
- Work backward, from “as is” views
  data context | conceptual
- Define questions that elicit key answers

A: Our customers will have access to it online.

A: It requires claims information.

A: Customers will mail payments.

A: Customers will be businesses and individuals.

# A Rubric for Questions

Q: Will customers need access to it online.

Q: Will it display claims information.

Q: Can customers mail payments to us?

## Is the question…

- Answerable with a yes or no response?
- Simple and using terms familiar to the business?
- Within the capabilities of the business to answer

~~Will this nee to use the E ?~~

Q: Is this sold to businesses?

Q: Is this sold directly to consumers?

# Model Refinement

## Review with impacted technical teams

- *What other types of requirements have caused issues in the past?*
- *What else would you need to estimate?*

## Review with target business audience

- *Are these all questions you would be able to answer?*
- *Did we miss anything you recall causing issues on a prior project?*

# CASE STUDY 1: FINANCIAL SERVICES

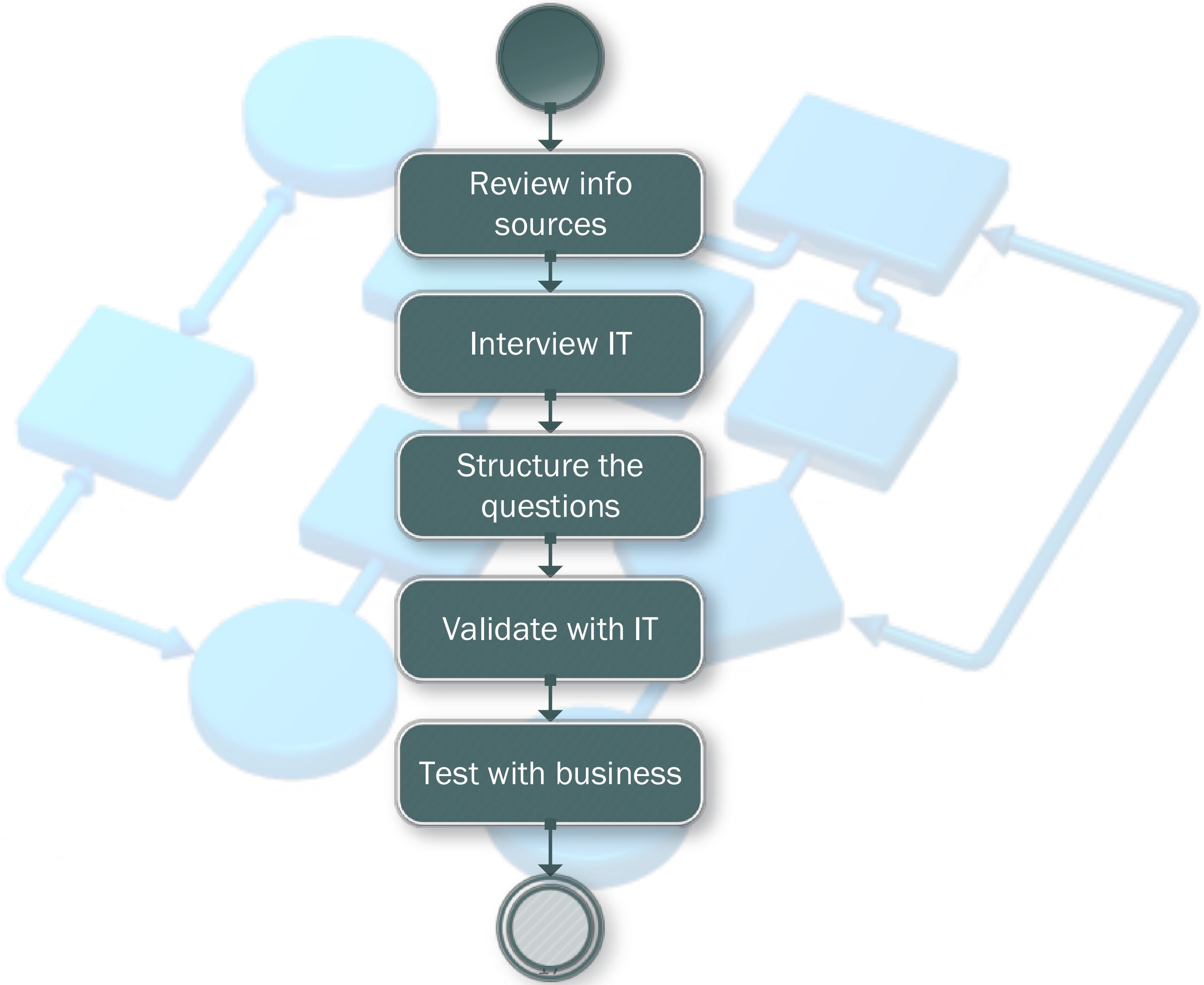
# Specific Challenge

1 or 2 critical projects annually extending existing core product servicing system to support new products

Interfaces is highest risk area

- Risk of breaking existing interface functionality is high when key requirements are missed
- Unhelpful questions like: “*Does this need GL file changes?*”
- People had forgotten what function interfaces serve: poor documentation, high dependence on “subject matter experts”

# Approach


Review info sources
Interview IT
Structure the questions
Validate with IT
Test with business

# Demonstrate Model

| 1 | # | Question | Answer |
|---|---|---|---|
| 2 | 1 | Do these customers' loan accounts & balances need to be aggregated with their other accounts for servicing? | Yes |
| 3 | 2 | Should these loans be included in the general ledger? | No |
| 4 | 3 | Should these loans be classified as a separate type? | Yes |
| 5 | 4 | Should these loans be reconciled independently of the general ledger? | Yes |
| 6 | 5 | Could these loans be part of the product to sweep available funds to/from deposit for benefit of interest? | |
| 7 | 6 | Could these loans be used to fund cons | |
| 8 | 7 | Are any of these customers' yearly reve | |
| 9 | 8 | Should these customers be *excluded* fr | |
| 10 | 9 | Might these customers make loan payr | |
| 11 | 10 | Should these customers be specifically branch? | |

| | | $ 510,525 |
|---|---|---|
| **System/Interface** | **Reason** | **Cost** |
| FEED: Customer Aggregator Interface | Changed Interface | $ 37,500 |
| FEED: General Ledger Interface | Changed Interface | |
| General Ledger | General Ledger Account Setup | |
| Loan System | Valid Value Update | $ 4,900 |
| FEED: GL Autobalance | Changed Interface | $ 3,675 |
| FEED: DDA Sweep-to-line | Changed Interface | $ 20,000 |
| BuilderPro | Valid Value Update | |
| FEED: BuilderPro | Changed Interface | |
| Consumer Online Banking Platform - Acct Inquiry | Changed Interface | |
| Consumer Online Banking Platform - Payments | Changed Interface | |
| Consumer Online Banking Platform | Enrollment Process Update | |
| Small Business Reporting | Changed Interface | |
| Business Checking | Enrollment Process Update | |
| AML Transaction Monitor - Exclusion | Changed Interface | $ 7,350 |

# How did it go?

- IT Architect frustrated with too-technical biz requirements
- Business understood questions and were able to answer
- Quickly gathered information technology teams needed
- Quote from a frustrated IT systems analyst:
  *"I thought your simplifying it [the system interfaces] into pure business questions was pure genius"*
- Helped immensely with later 2nd/3rd/4th guessing about impacts to systems downstream from loan servicing system

# CASE STUDY 1: HEALTH CARE

# Specific Challenge

## Large number and large scope of IT projects related to products

- Annual product changes + new products
- Health Care Reform & Market Competition

## Unique Business Requirements Document for each

- Quality dependent on Business Analysis and Operational SME's
- All hands throwing "pet requirements" into scope bucket

## Complex challenge for IT to decompose into technical implications

- Significant "noise" in non-impactful features
- No consistent rendering of needs

# Approach

- **Review** requirement documents, solution designs, and estimates from prior product rollouts
- **Interview** technical teams in mock design session for impactful changes
- **Structure** in a way that maps understandable questions to impacts
- **Validate** draft questionnaire with technology
- **Test** draft questionnaire with operations and business lines

# Demonstrate Health Care Model

| # | Question | Answ |
|---|---|---|
| 1 | Is this product offered to Small Groups? | |
| 2 | Is this product offered to Large Groups? | |
| 3 | Will product be sold on the Federal Exchange? | |
| 4 | Will product be offered through any new external exchange or broker? | |
| 5 | Does this product require a new rating model? | |
| 6 | Does the product have a pharmacy feature not offered in any existing product? | Yes |
| 7 | Does the product have a vision feature not offered in any existing product? | |
| 8 | Does the product have a dental fe | |
| 9 | Does product include new feature | |
| 10 | Is this a limited network product? | |
| 11 | Does the product require referral | |
| 12 | Is the deductible tiered? | |
| 13 | Will the product use standard Me | |
| 14 | Will the product use standard EO | |

| System/Interface | Reason | Effort | Cost |
|---|---|---|---|
| Broker5000 | New Commission Configuration | | |
| Cardomatic | Member ID Card Changes | | |
| ClaimsPlus | New Unique Dental Feature | | |
| ClaimsPlus | Tiered Product | | |
| ClaimsPlus | New Unique Product Feature | | |
| CSREnlightment | New Unique Product Feature | | |
| EDI: ViewBenefits_EDI | New Unique Product Feature | | |
| Employer Portal | Member Enrollment Requires Limited Network PCP | | |
| Enrollment Gateway | New Exchange | | |
| FEED: ClaimsPlus to Cardomatic | Member ID Card Changes | | |
| FEED: ClaimsPlus to Dental Auth Vendor | New Unique Dental Feature | | |
| FEED: Data Hub to Pharmacy Benefits Vendor | New Unique Pharmacy Feature | 100 | $ 8,00 |
| FEED: Data Hub to UW+ | New Large Group Model | | |
| FEED: Data Hub to Vision Vendor | New Unique Vision Feature | | |
| FEED: Welcome data for Print Fulfillment Vendor | Welcome Kit Changes | | |

# How ~~did~~ will it go?

- Taking longer than planned topic was proposed! 😐
- Business and operations are hanging onto Business Requirement Document
  - Duplicate “tool” for now
  - Will always need additional location for not yet modeled features
- Rolling out in 2016 for 2017 products

# IN SUMMARY

# Some Caveats

- Works well for product rollouts
- Works well for defined, understood target areas
- Less useful for new, uncharted territory

# Lessons Learned

- Having "prior art" to work from is a huge enabler
- Managing stakeholders through the change is critical
- Simpler is better (technologists love to automate)
- **Don't show the math** unless <u>*very confident*</u> in the model:
  - Seeing too much detail leads business & program leaders to have greater - potentially misplaced - confidence in estimates

# Summary

- A business focused approach reduces estimation angst and friction significantly
- This is not silver bullet – due diligence is still required
- Products or well defined architectures with frequent change requests are good places to start
- Accuracy can be “tuned”
  - *For greater accuracy, but more work*: drive more detailed estimation using impacts
  - *For lower accuracy, but less work*: create “proxy” estimates based on precedent or expert knowledge

# Questions?

Ask… now!

Or email us later.

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# Authors

**Dan Hughes** has launched, managed, and executed all aspects of both product and enterprise life cycle, delivering complex, enterprise- scale architectures for clients in the public and private sector, in industries ranging from banking, health care, and insurance to international development.

He has guided the launch and participated in ongoing operations of Enterprise Architecture teams at numerous organizations in multiple industries and has served on the United Nations Development Programme IT Governance Board as an external member and advisor. He holds a degree in Computer and Systems Engineering from Rensselaer Polytechnic Institute and blogs on architecture (and other) topics at http://www.sysflow.com/dhughes.

Dan's non-architecture time is consumed by his family and his obsessions with his lawn, home automation, and genealogy.

**Ben Sommer** works for Systems Flow, Inc doing enterprise architecture, project/solution architecture and business architecture for clients. His career has spanned network engineering, systems administration, and software development – running the gamut from tools to automate network and systems tasks, to web-based CRM applications, to identity management and provisioning systems, to real-time music synthesis applications. His industry experience includes education, education finance, health care, marketing, banking and payments. Ben is a trained composer and musician. He blogs on geek topics at http://www.sysflow.com/bensommer.

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