Solving Business Problems with Alphabet Soup
Making sense of the BA, SE, and PM
Agenda

The SDLC
The Challenge
SE Overview
BA Overview
PM Overview
The Solution
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The SDLC

Section One

Others Talk, We Listen.
Overview of the SDLC

SDLC = Systems or Software Development Lifecycle

- Methodology used to build software and/or systems
- People & process in-between the business and hardcore IT
- Framework for developing software and business systems for an organization
- Has grown as IT has grown

Positions in the SDLC can include:

- Process Modeling (PE, SE, BA)
- Requirements Elicitation (BA, SE, PM)
- Project/Portfolio Management (PM)
- Testing (QA, BA, SE)
- Systems Architecture (EA, SE, BA)
- Developers/Programmers
Systems and software must reflect the needs of your business functions and your goals.
The “CHASM” Challenge

Section Two

Others Talk, We Listen.
The Environment

- Our development teams are building something that doesn’t exist.
- The customer is attempting to describe what they imagine this non-existent product should be.
- Our developers / engineers then try to imagine what the customer is describing and the build the product they believe they heard the customer describe.
- And finally, the first opportunity anyone has to truly see if the product built is one that the customer needs and wants is after development is complete.
The Problem

How Pervasive are Challenged Projects?

62% of organizations say 30% or more of their projects are "challenged"

11% of organizations say 100% their projects are "challenged"

Challenged projects possess one or more of these characteristics:
1. delivered more than two months after initially projected delivery date;
2. 15% or more over planned budget;
3. the solution contained significant enough defects that it had to be re-worked to satisfy its stakeholders.

Reasons

• Wrong requirements addressed
• Bad governance
• Poor implementation
• Impossible to deliver business request
• No clear vision
• External factors
New Project Law: \( S + S + $ \neq \smiley \)

The “Holy Grail” of Complex Project Delivery

- **Schedule:**
  - Project delivered within the timeframe originally identified
  - No date slips
  - Every milestone achieved

- **Scope:**
  - Everything originally requested is delivered
  - Everything delivered works perfectly as the customer requested, no bugs

- **Budget:**
  - Did not spend a single cent more than originally estimated to spend
  - Did not need any additional resources, hardware, etc. throughout entire project

It is all about defining and delivering what is NEEDED
Bringing Clarity to Chaos?
What Is a Systems Engineer (SE)?

Section Three

Others Talk,
We Listen.
SE Brief History

Systems Engineers: Technical and Interdisciplinary

• Design and manage:
  • Complex Engineering Systems
  • Over their Life Cycles

• Ensure likely aspects of a system are considered
  • Integrated into a whole
  • More systems / software-based

INCOSE Definition (2004)

• “An interdisciplinary approach and means to enable the realization of successful systems”
Who or What Governs the SE Profession?

International Council on Systems Engineering (INCOSE)
  - www.incose.org/
  - Started in San Diego, CA
  - 26 years old
  - SE Body of Knowledge (SEBoK)
    - http://sebokwiki.org/
  - INCOSE Systems Engineering Handbook
  - Three certifications:
    - Associate Systems Engineering Professional (ASEP)
    - Certified Systems Engineering Professional (CSEP)
    - Expert Systems Engineering Professional (ESEP)
  - New PMI-PBA certification potential impacts

Systems Engineering Body of Knowledge
  - Three types of systems engineering:
    - Product Systems Engineering (PSE) - traditional systems engineering focused on the design of physical systems consisting of hardware and software
    - Enterprise Systems Engineering (ESE) - view of enterprises, organizations, or combinations of organizations as systems
    - Service Systems Engineering (SSE) - engineering of service systems
EIA 731.1 (1999) -“Systems engineering: An inter-disciplinary approach and means to enable the realization of successful systems”
Part Science / Part Art

**Science**
- Events can be reproduced over time and space
- Answer is always the same each time the process is performed

**Art**
- Events are uniquely developed even when performing the same process
- Results are not exactly the same
- Though not necessarily large, differences are discernible

**System Science Engineering**

**System Thinking Architecture**
Elements of SE

Needs / Goals / Objectives
Mission Engineering
Functional Analysis / Allocation
Requirements Analysis / Allocation
Architecture Design / Synthesis
Alternatives Analysis / Evaluation
Technical Performance Measurement (TPM)
Life Cycle Costing (LCC)
Risk Analysis
Concurrent Engineering (CE)
Specification development
Functional flow block diagram (FFBD)
Model-based design
Data Flow Diagram (DFD)
Sequence diagram
Block diagram
Signal-flow graph
USL Function Maps and Type Maps
Integrated Logistics Support (ILS)
Reliability, Maintainability, Availability (RMA)

Quality Assurance / Management
Enterprise Architecture frameworks
Configuration Management (CM)
Specialty Engineering
Pre-Planned Product Improvement (P3I)
Operations and Maintenance (O&M)
IDEF0 Diagram
Use case diagram
Systemic Textual Analysis
Viewpoint Analysis
Functional Modelling
Need Means Analysis
Functional Failure Mode and Effects Analysis
Quality Function Deployment
Function Means Analysis
N2 Analysis
Pugh Matrix
Holistic Requirements Model
Stakeholder Map
Matrix Diagram
Context Diagram
What Is a Business Analyst (BA)?

Section Four

Others Talk, We Listen.
BA Brief History

Software/Systems Strategists: Less technical and cover wide area

Systems/Software Analysts (Design Document)
- Connected by Architect work
- More software-based

IIBA BA vision (2003)
- In project focus on need based on defined project scope
- Less complicated / regulated projects
- **Part of SDLC specialization trend**

2015 beyond “out of project” definition of need and understanding of business function
- Enterprise Analysis / Business Architecture
- Closer and closer to the business
Who or What Governs the BA Profession?

International Institute of Business Analysis (IIBA)

- www.iiba.org
- Started in Canada and based in Canada
- 11 years old
- BA Body of Knowledge (BABOK)
  - Moved to 3.0 April 2015
- Two certifications:
  - Certified Business Analyst Professional (CBAP)
  - Certification of Competency in Business Analysis (CCBA)
- New PMI-PBA certification potential impacts

Overall

- Still in infancy
- Doers know it and love it; companies confused about what it is or offers
- BA position means something slightly different to different organizations
All About the Soft Skills

- Facilitation and Negotiation
- Conflict Management
- Change Management
- Emotional Intelligence
- Influence
Elements of BA

Business Activity Model (BAM)
Benefit–cost analysis (BCA)
Business event analysis
Business process modelling (BPM)
Context diagram
Cost–benefit analysis (CBA)
CRUD matrix
Decision tables and decision trees
Document analysis
Entity relationship diagrams (ERDs)
Feasibility analysis
Gap analysis
Impact analysis
Interviewing
Key performance indicators
Logical data modelling (LDM)
Mind maps
MoSCoW prioritization
Observation
Political, Economic, Socio-cultural, Technological, Legal, International, Environmental (or Ecological), Demographic (PESTLIED) Analysis
Power/impact (P/I) grid
Questionnaires
Process maps
Prototyping
RACI charts
Requirements traceability matrix
Requirements validation
Resource analysis
Risk analysis
Sampling
Scenarios
Semantic networks
Shadowing
Stakeholder map
Storyboarding
Surveys
Swimlane diagrams
SWOT analysis
System event analysis
Timeboxing
Use case diagrams
Value chain analysis
Value proposition analysis
Workshops
What Is a Project Manager (PM)?

Section Five

Others Talk, We Listen.
PM Brief History

Change Agents
- Understand what projects have in common
- Lead projects from inception to execution

Tools & Techniques used for centuries
- 1950
  - Navy employed modern project management methodologies in their Polaris project
- 1960 – 1970
  - Department of Defense, NASA, and large engineering and construction companies utilized project management principles and tools to manage large budget, schedule-driven projects
- 1980
  - Manufacturing and software development sectors started to adopt and implement sophisticated project management practices
- 1990
  - project management theories, tools, and techniques were widely received by different industries and organizations

Project Management Institute Definition
- “Project management is the application of knowledge, skills, tools, and techniques to project activities in order to meet or exceed stakeholder needs and expectations.”
Who or What Governs the PM Profession?

Project Management Institute (PMI)

- www.pmi.org
- Started in Atlanta, GA
- 47 years old
- A Guide to the Project Management Body of Knowledge (PMBOK Guide)
  - Current version Fifth Edition
- Certifications:
  - Certified Associate in Project Management (CAPM)
  - Project Management Professional (PMP)
  - Program Management Professional (PgMP)
  - Portfolio Management Professional (PfMP)
  - PMI Agile Certified Practitioner (PMI-ACP)
  - PMI Risk Management Professional (PMI-RMP)
  - PMI Scheduling Professional (PMI-SP)
  - PMI Professional in Business Analysis (PMI-PBA)
Project Management

- Strategy
- Measure
- Organize
- Analyze
- Execute
- Develop

Project Management - Time, Scope, Cost

Project Management:
- Planning Processes
  - Start Processes
  - Conception
  - Delivery
  - Pilot
  - Closure Processes
- Delivery Processes
- Monitoring & Controlling
- Governance & Leadership
Engines of Success

Project managers work to ensure success in any project area or function. For example:

- people, staffing, and management
- products and services
- materials, manufacturing, and production
- IT and communications
- plant, vehicles, equipment
- storage, distribution, logistics
- buildings and premises
- finance, administration, acquisition, and divestment
- purchasing
- sales, selling, marketing
- human resources development and training
- customer service and relations
- quality, health, and safety
- legal and professional
- technical, scientific, research, and development
- new business development
- anything else which needs planning and managing within organizations
Elements of PM

Affinity diagrams
Alternatives identification
Analogous estimating
Applying leads and lags
Benchmarking
Bottom-up estimating
Brainstorming
Cause and effect diagrams
Change control meetings
Communication requirement analysis
Conflict management
Control charts
Cost aggregation
Cost-benefit analysis
Critical chain method
Critical path method
Decomposition
Earned value management (EVM)
Flowcharting
Focus group
Forecasting

Histogram
Historical relationships
Independent estimates
Interviews
Issue log
Make-or-buy Analysis
Matrix diagrams
Negotiation
Nominal group analysis
Observations
Organizational theory
Parametric estimating
Pareto chart
Precedence diagramming method
Prioritization matrices
Probability and impact matrix
Process analysis
Procurement performance reviews
Product analysis
Project management estimating software
Published estimating data
Quality audits
Quantitative risk analysis and modeling techniques
Questionnaires and surveys
Recognition and rewards

Records management system
Reporting systems
Reserve analysis
Resource leveling
Risk audits
Risk categorization
Risk data quality assessment
Risk probability and impact assessment
Risk reassessment
Risk urgency assessment
Rolling wave planning
Run chart
Scatter diagram
Schedule compression
Schedule network analysis
Scheduling tool
Stakeholder analysis
Statistical sampling
SWOT analysis
Technical performance measurement (TPM)
Three-point estimates
Variance analysis
Variance and trend analysis
What-if scenario analysis
The Solution

Section Six

Others Talk. We Listen.
S.T.I.C. to the Script

Focus on the following areas to reduce the likelihood of challenged projects:

Scope Management
Team
Interface
Communication
NOT THE SOLE RESPONSIBILITY OF THE PM!!!
Considerations for Building the Team

Have to look at complexity of the system/software being built and environment
  • How regulated / costly / complicated
  • Federal contractor / DoD / heavy on SE over BA

The BA operates in more ambiguous but less technically complicated environments
  • Very similar to an SE with focus on soft skills
  • BA growth path is into the why of project investment and how organizations are impacted by the project

The SE operates in highly technical environments
  • End state is fairly clear

Trend to meet need as quickly as possible and deliver even faster
  • Agile / DevOps deliver faster in less complicated environments to put need to use
Interface

Computer hardware or software designed to communicate information between hardware devices, between software programs, between devices and programs, or between a device and a user.

Communication or Interaction

The facts, problems, considerations, theories, practices, etc., shared by two or more disciplines, procedures, people, systems, or fields of study.
Communication is Key

Qualified personnel: 56%
High quality, error-free deliverable (i.e., no rework needed, functions as intended): 56%
Clear understanding of our requirements: 54%
Clear understanding of our industry: 52%
Successful integration with existing architecture: 51%
Frequent, clear communication: 50%
Quality architecture: 49%
Staying on-budget: 49%
Positive customer/end-user feedback: 48%
Adherence to deadlines: 48%
Meeting SLAs/KPIs: 45%
Ability to accommodate changes to requirements/scope mid-project: 40%
Agile development/project management: 39%
Low total cost of ownership (TCO): 37%

Base: 300 IT and business employees responsible for decisions related to third-party professional services providers at US enterprises

Source: A commissioned study conducted by Forrester Consulting on behalf of CapTech, February 2016
Bringing Clarity to Chaos
Thank you for your time

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