

# How to Execute a Pharma Project to Meet US FDA / EMA Requirements

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# Takeaway from this Talk

**“The more familiar your facility and processes look to an FDA or EMA health authority, the greater the likelihood of approval.”**

# Entrepreneurs, Risk, and Priorities

Entrepreneurs want to:

- Make a profit
- Avoid spending money when possible

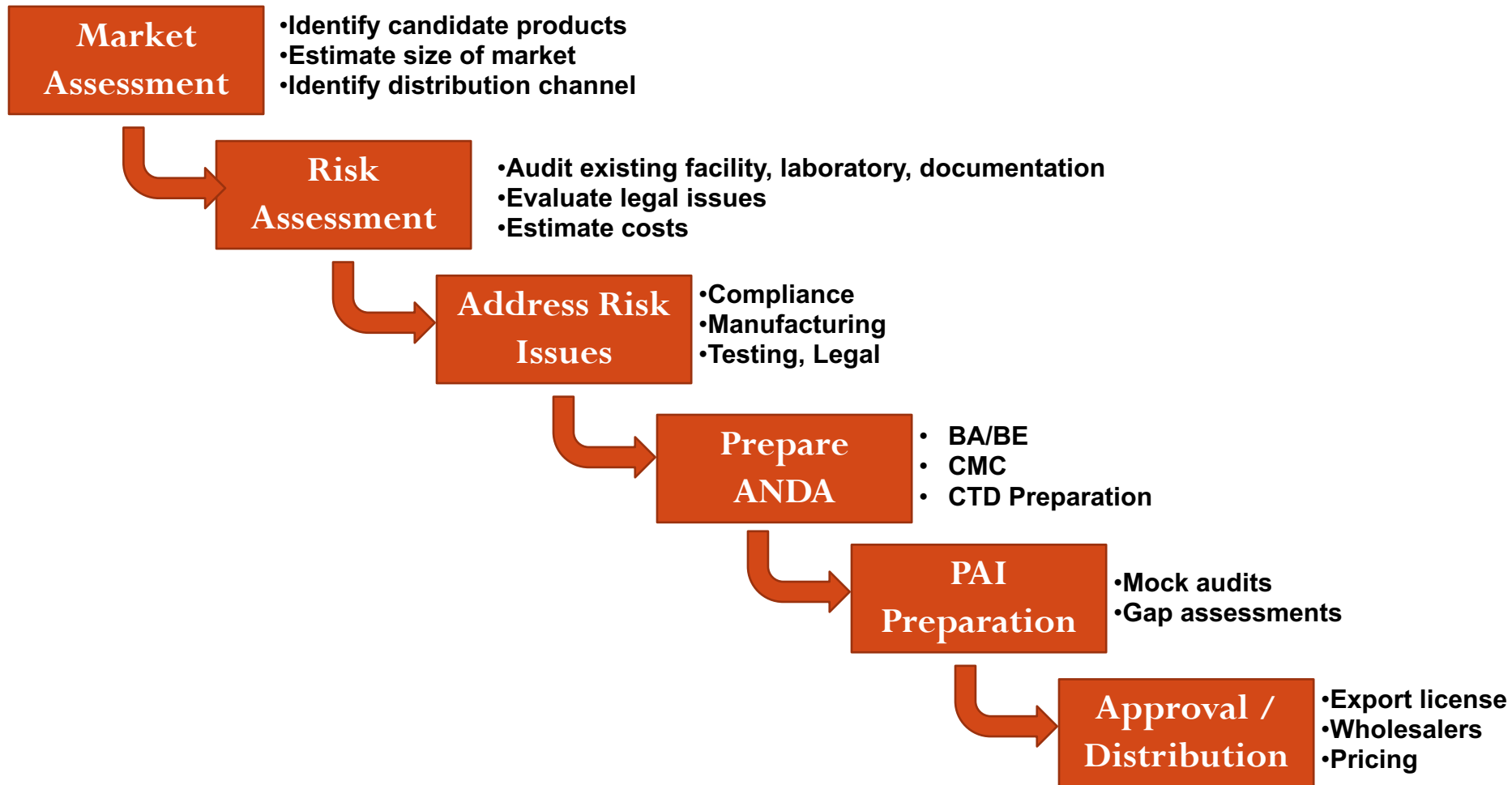
But, when it comes to GMP facilities...

- Overspend on equipment
- Underspend on practical things that improve likelihood of approval

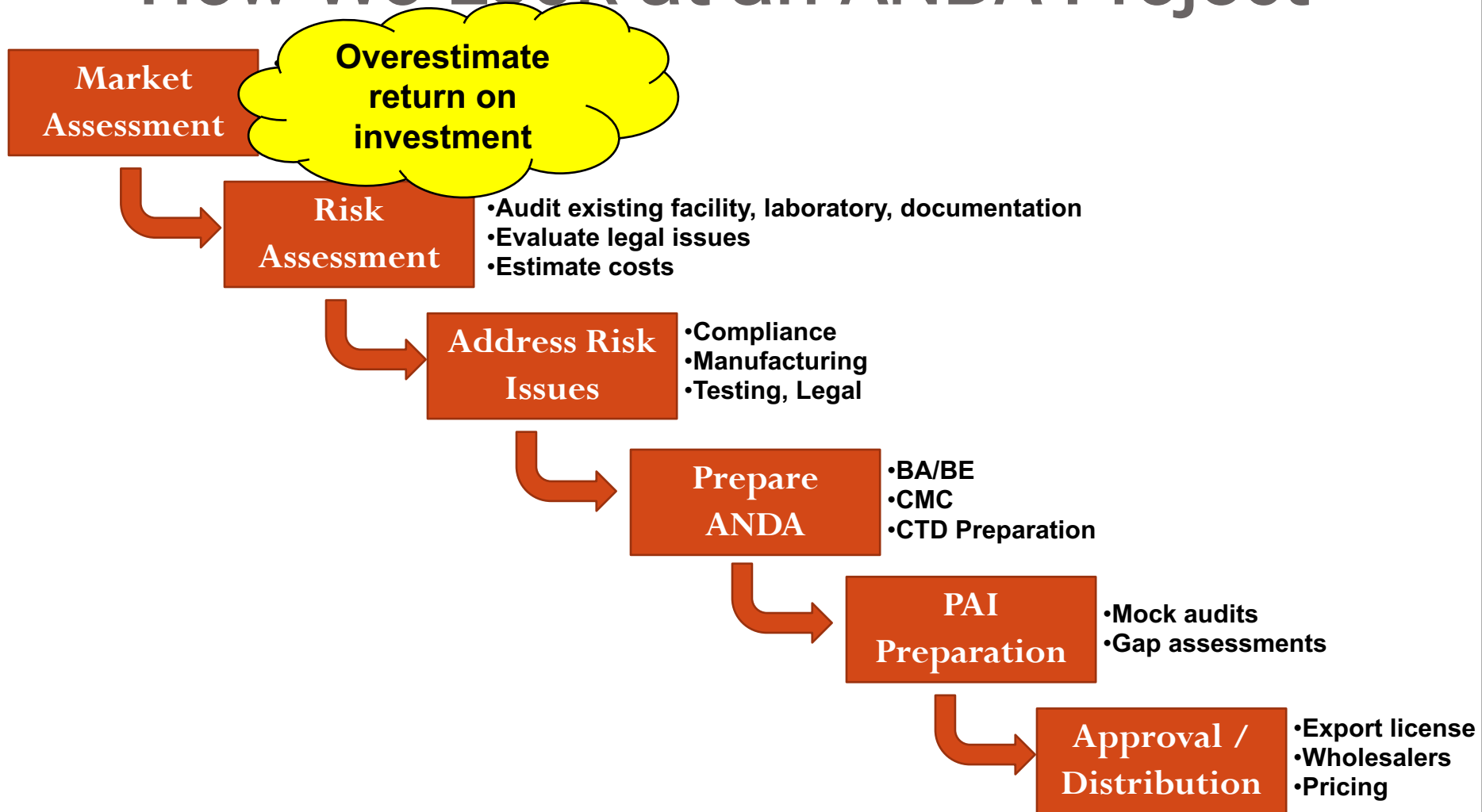
# Agenda

- ANDA Process
- Project Phases
- Points of Failure
- Typical Process Failures
- Typical Project Failures

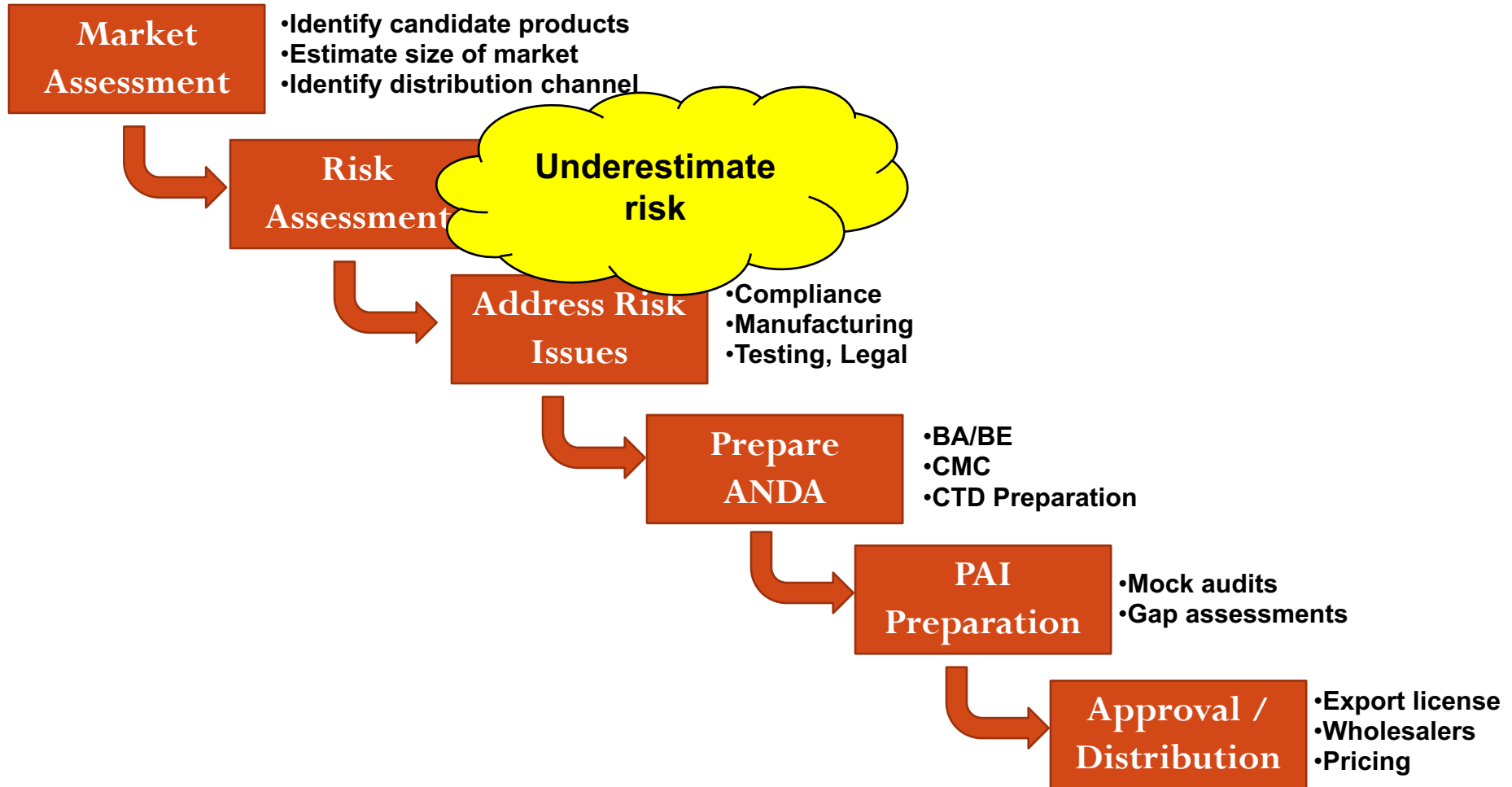
# How We Look at an ANDA Project



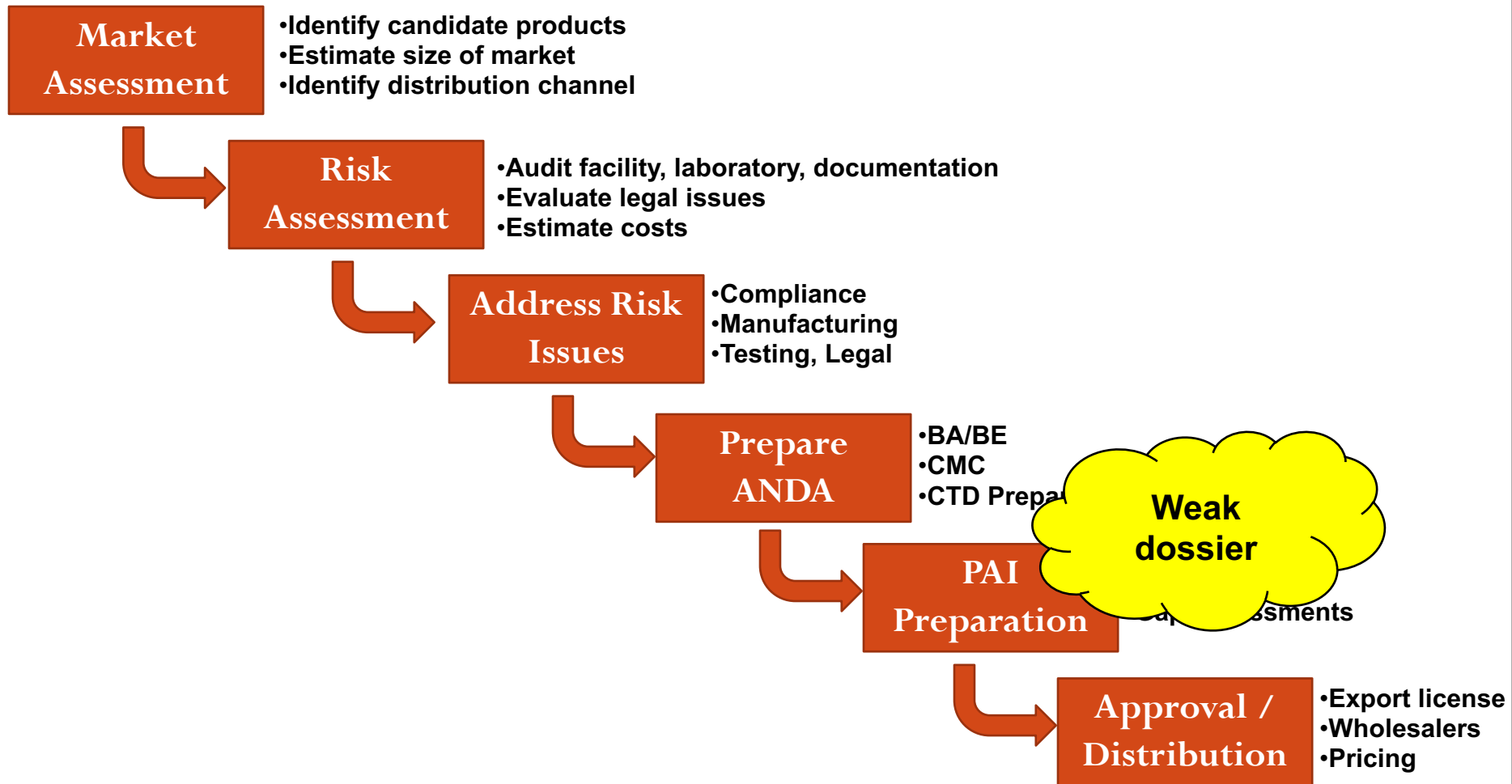
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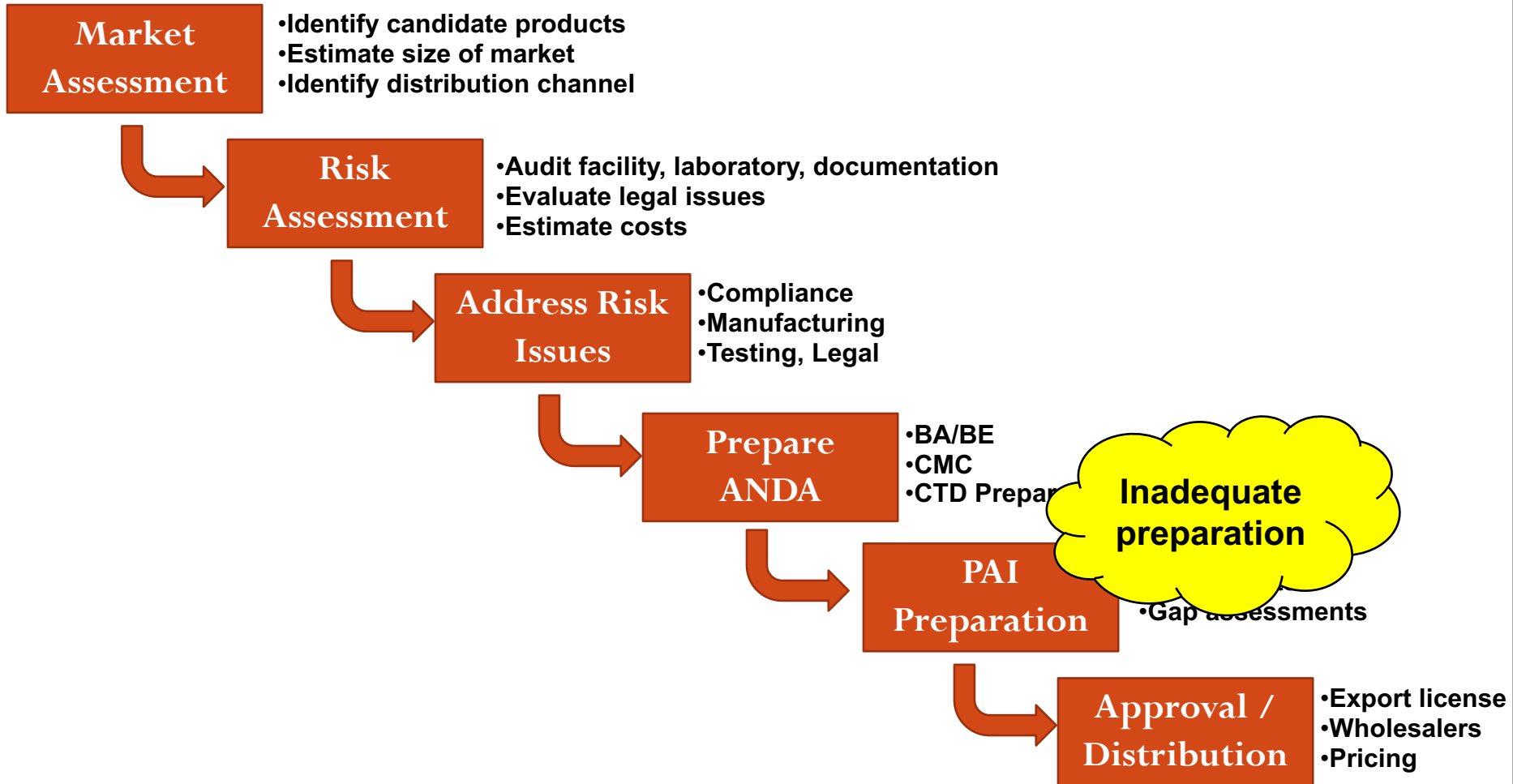


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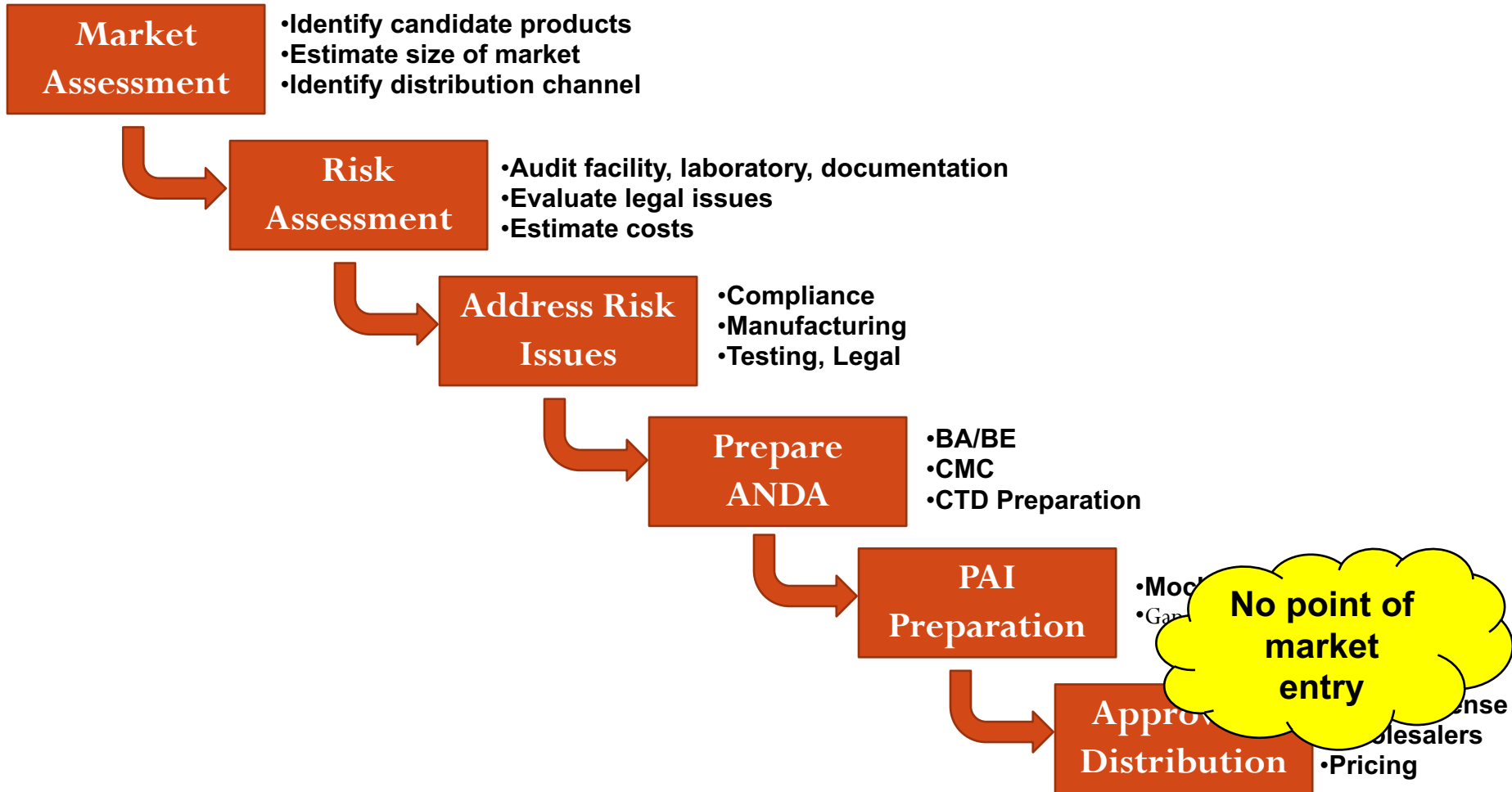




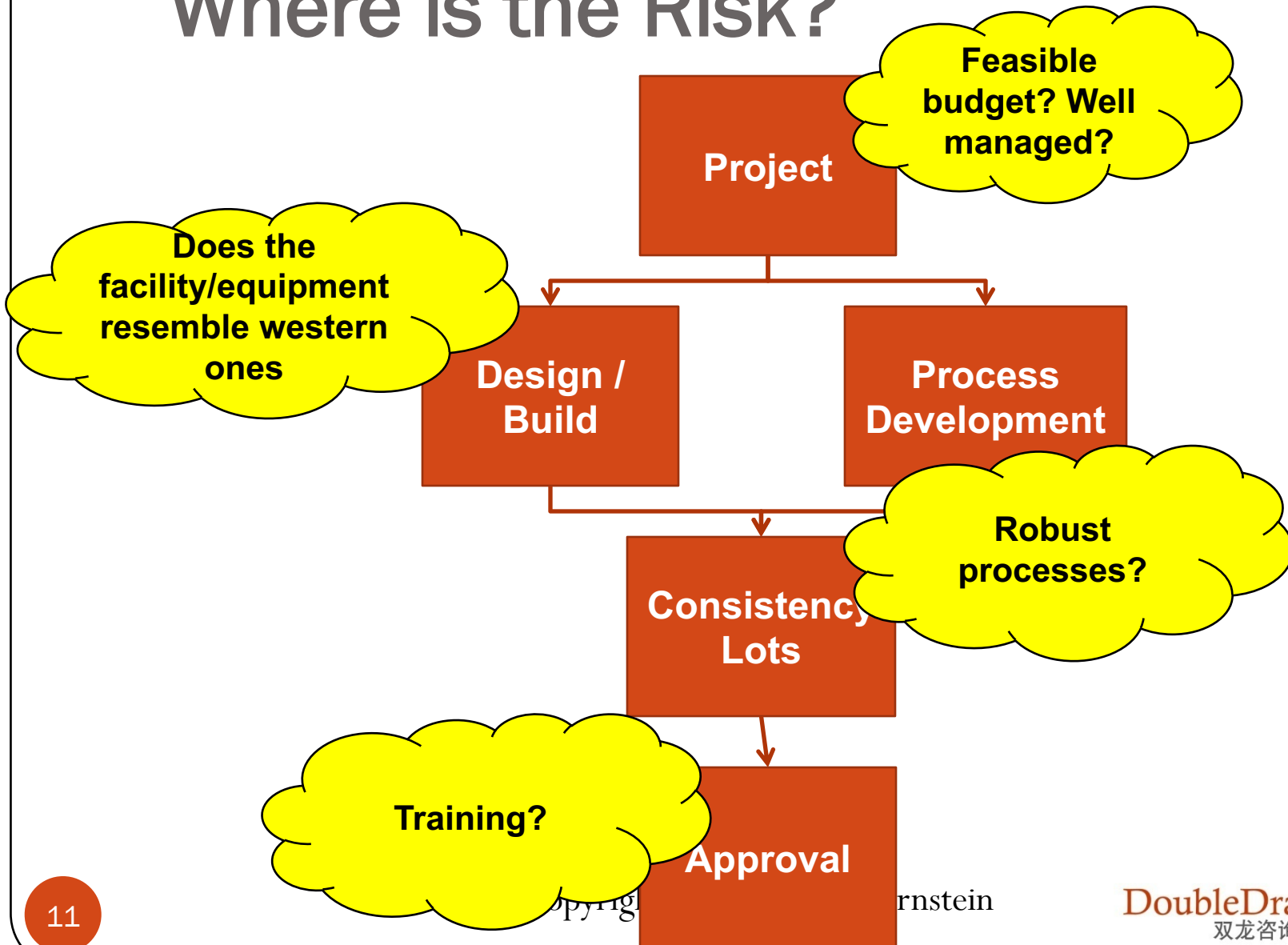
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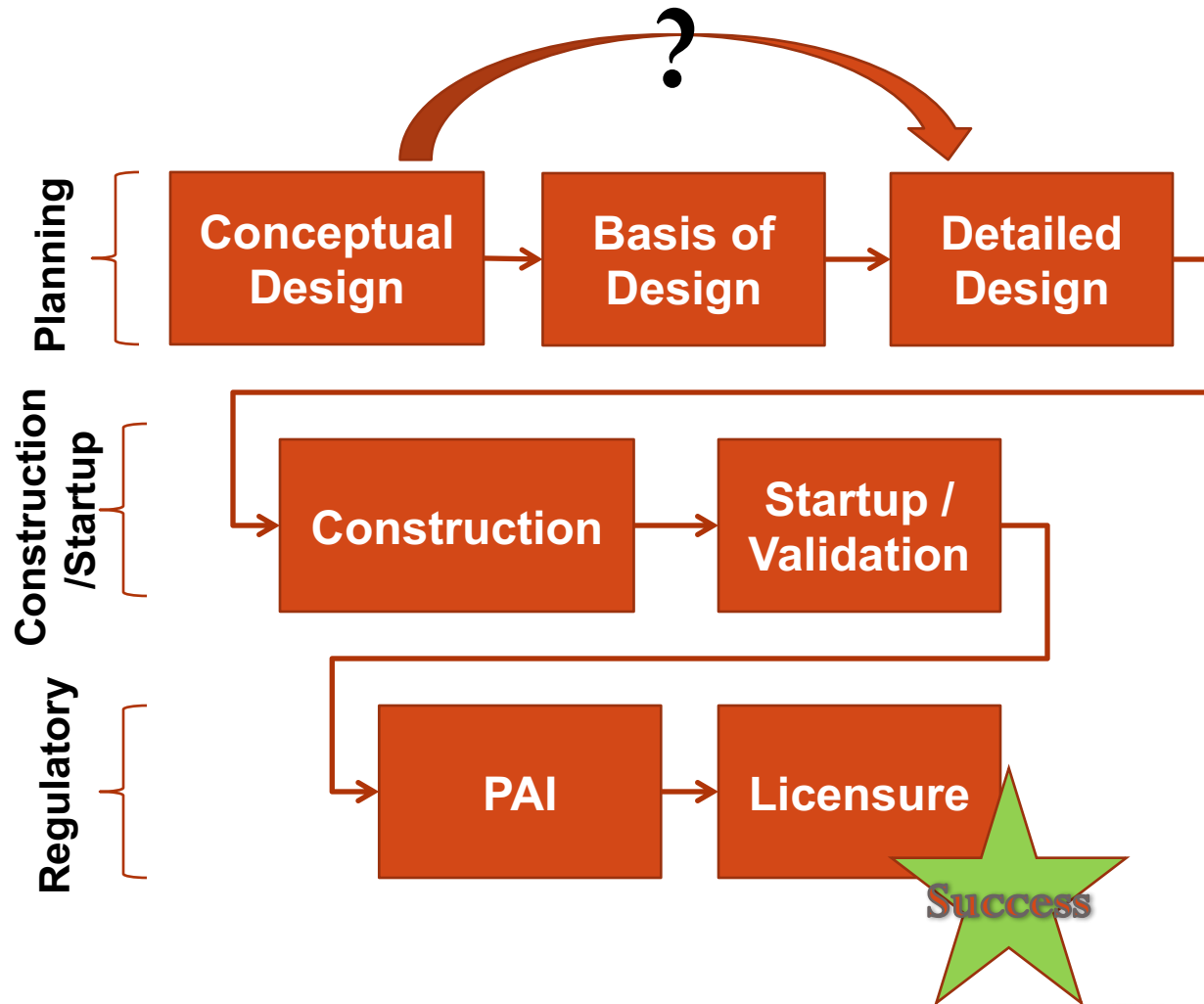
# Where is the Risk?



# Project Construction

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# Project Phases - Overview



# Conceptual Design

- **What is it – a study to evaluate ideas and alternatives**
- **Deliverables**
  - Block / Process Flow / Layout Diagrams
  - Major Equipment List / Layout / Control Philosophy
  - Production Capacity
  - +/- 35% cost estimate
  - Project Schedule

# Conceptual Design

- **Recommendations for Success**

- Have a realistic budget
- Your facility and processes should look familiar to health authorities and represent best practices
- Have a defined manufacturing process
- Design for flexibility
- Incorporate engineering controls rather than procedural controls where possible

Make strategic use of outside consultants

# Basis of Design

- **What is it – Refinement of Conceptual Design into a project**
- **Deliverables**
  - Requirements
  - Equipment lists /Major Instrumentation Lists / Supplier Qualifications
  - +/- 10% cost estimate
  - Project Schedule



# Basis of Design

- **Recommendations for Success**
  - Control scope change
  - Have a well-defined manufacturing process
  - Incorporate Quality by Design (QbD)
  - Include accurate estimate of start up and operational expense

Make strategic use of outside consultants

# Detailed Design

- **What is it – Refinement of Conceptual Design into a project**
- **Deliverables**
  - User Requirements Specifications
  - Process specifications
  - Utilities specifications
  - Facilities specifications
  - Equipment list / specifications
  - Final P&ID specifications, routings and specifications
  - Instrumentation specifications
  - Haz op
  - Project Schedule

# Detailed Design

- **Recommendations for success**
  - Do not start unless BoD is complete
  - Strong project management to:
    - Manage Risk (project)
    - Control scope
  - Clear / thorough documentation
  - Use outside experts (Process / Regulatory)
  - Thorough review, approvals before moving to Construction

# Construction

- **What is it – Building**
- **Deliverables**
  - Construction of facility to design specifications (including GMP Standards)
  - As-built drawings
  - Bid packages

# Construction

- **Recommendations for Success**

- Strong Project Management to:
  - Control project risk
  - Control scope
  - Minimize change orders
  - Minimize design deviations
- Clear / thorough documentation
- Utilize an owner's representative to ensure adherence to design specifications and identification of deviations

# Startup / Validation

- **What is it – Starting facility, utilities and equipment and ensuring all work as specified**
- **Deliverables**
  - User Requirements Specification
  - Validation Master Plan, SOPs, BPRs
  - Equipment FAT / SAT / Validation (IQ / OQ / PQ)
  - Facility / Utilities / Validation documentation
  - Process Validation documentation
  - Cleaning Validation documentation

# Startup / Validation

- **Recommendations for Success**

- Robust manufacturing process and process controls
- Well thought out validation strategy, documentation
- Project budget that accurately included validation, startup costs
- Training
- Procedures
- Quality systems

No start up is perfect

# Pre-approval Inspection

- **What is it – Inspection by Regulatory Authorities (US FDA, EMA) to ensure that facility, equipment, process meet CMC specifications, QMS meets GMP**
- **Deliverables**
  - Inspection report provided by Regulatory Authorities



# Pre-approval Inspection

- **Recommendations for Success**

- Be sure you are ready
- Conduct mock audits at least 3 months prior to actual inspection to identify gaps assessments and remediate
- Train staff to interact with and respond to authorities

Make strategic use of outside consultants

# Process Failure / Project Failure

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# Typical Process Failures

- **Purchased technology but not subject matter expertise**
- **Scale up issues**
- **Equipment specifications inadequate**
- **Materials specifications inadequate**
- **Operating processes inadequate**
- **Quality by Design lacking**
- **Start up / commissioning expertise**
- **Inadequate / inexperienced staffing**
- **Inadequate training**
- **Inadequate quality systems**
- **Data integrity issues**

# Typical Project Failures

- **Lack of project management expertise**
  - Scope changes
  - Project control
- **Inadequate capital investment**
- **Operating expenses estimated too low**
- **Poor risk identification / control**
- **Lack of contingency planning**
- **No owners rep**

# Quality Management



# Contact Information

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