Internal Analysis & Target-Based Planning

December 24, 2024

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1 Part I: Internal Analysis

1.1 Overview

Explanation

Internal Analysis is designed to help organizations understand and optimize their team interactions, dependencies, and workflow efficiency. This analysis focuses on three key aspects:

- Team dependencies and their impact
- Work distribution and flow efficiency
- Coordination costs and optimization opportunities

2 Team Dependency Analysis

2.1 Motivation

Explanation

Team dependencies in modern organizations can significantly impact productivity, lead times, and costs. Understanding these dependencies helps:

- Identify bottlenecks and inefficiencies
- Optimize team structures and interactions
- Reduce coordination overhead
- Improve delivery predictability

2.2 Key Metrics and Formulations

2.2.1 Dependency Impact Score (DIS)

Definition: Dependency Impact Score

$$DIS = \sum(W_i \times D_i \times C_i)$$

Where:

- W_i = Work item volume between teams i
- D_i = Dependency strength (1-5 scale)
- C_i = Coordination cost factor

Observation

Dependency Strength Scale:

- 1: Minimal - Occasional information sharing
- 2: Low - Regular updates needed
- 3: Medium - Shared deliverables
- 4: High - Critical path dependencies
- 5: Critical - Blocking dependencies

2.2.2 Flow Efficiency Analysis

Definition: Flow Efficiency

$$FE = \frac{\sum VAT}{\sum LT} \times 100\%$$

Where:

- VAT = Value-added time (actual work)
- LT = Total lead time (including wait times)

Explanation

This metric helps understand:

- Actual value-adding activities vs. wait times
- Process efficiency
- Opportunity areas for improvement

2.3 Input Parameters

Definition: Input Parameters

Key parameters for analysis:

- Team Size: Number of team members (Integer)
- Dependencies: Team dependency mapping (Matrix)
- WIP Limits: Maximum concurrent work (Integer)
- Throughput: Items completed per time (Float)

Example Dependency Matrix:

	$T1$	$T2$	$T3$	$T4$
$T1$	–	3	1	0
$T2$	3	–	2	1
$T3$	1	2	–	4
$T4$	0	1	4	–

2.4 System Performance Indicators

Definition: Performance Metrics

- Flow Efficiency: $FE = \frac{VAT}{LT}$ (Target: ¿ 40%)
- WIP Impact: $WIS = \sum(\frac{WIP_i}{T_i})$ (Target: ¡ 1.5)
- Lead Time: $SLT = \sum(LT_i \times \frac{D_i}{D_{max}})$ (Target: Varies)

3 Distribution Models

3.1 Even Distribution Model

Definition: Dependency Balance Index

$$DBI = \frac{\sigma(D_i)}{\mu(D_i)}$$

Target: DBI ¡ 0.3 indicates good balance

Explanation

Key Characteristics:

- Equal number of dependencies per team
- Balanced workload distribution
- Minimized coordination overhead

3.2 Uneven Distribution (Hub-and-Spoke)

Definition: Centrality Impact

$$CI = \left(\frac{D_c}{D_{avg}}\right) \times \left(\frac{T_c}{T_{avg}}\right)$$

Where:

- D_c = Central team dependencies
- D_{avg} = Average team dependencies
- T_c = Central team throughput
- T_{avg} = Average team throughput

3.3 Cost Analysis

Definition: Cost Structure

Total Cost = Direct Costs + Indirect Costs + Overhead
Where:

- Direct Costs = Meeting costs + Communication time
- Indirect Costs = Context switching + Wait times
- Overhead = Management coordination + Tools

Annual Cost per Team:

$$AC = BC \times (1 + DF)$$

Where:

- BC = Team Size × Hourly Rate × Annual Hours
- DF = Number of Dependencies × 0.15

4 Part II: Target-Based Planning

Explanation

Target-Based Planning simplifies platform solution development by working backwards:

- Start with the desired business outcome (e.g., "reduce ticket processing time by 30%")
- Define clear, measurable targets
- Design the minimum viable platform features needed to achieve these targets

This approach helps avoid over-engineering by focusing only on platform capabilities that directly contribute to target achievement.

Observation

Two main approaches for platform solutions:

- Team-Based Platform: Focuses on team collaboration and workflow automation
- Ticket-Based Platform: Emphasizes process automation and routing optimization

The choice depends on which metrics you want to improve most: team efficiency or process throughput.

4.1 Model-Specific Analysis

4.1.1 Team-Based Planning

Explanation

Team-based planning focuses on human resource optimization. Instead of starting with detailed team structures and workflows, it begins with target outcomes:

- Desired cost savings or efficiency improvements
- Required service level maintenance or improvements
- Acceptable timeline for changes

This approach helps avoid over-engineering team structures and focuses on necessary changes to meet business goals.

Definition: Maximum Allowable Investment (Team)

$$MAI_{team} = \min(0.5 \times AC_{team}, 1.5 \times TS)$$

Where:

- AC_{team} = Annual labor cost (team-based)
- TS = Target savings over ROI period

Observation

The MAI formula enforces two key constraints:

- Investment cannot exceed 50% of current annual costs (practicality constraint)
- Investment must be justified by 150% of target savings (ROI constraint)

These constraints help ensure that proposed changes remain practical and economically viable.

Definition: Required Team Efficiency Gains

$$RTEG = \min\left(\frac{MS}{N \times H \times W}, MC\right)$$

Where:

- MS = Monthly savings target
- N = Team size
- H = Hourly rate
- W = Working hours
- MC = Current manual work percentage

Explanation

The RTEG formula helps determine if targets are achievable:

- It calculates the minimum efficiency improvement needed
- Caps improvements at current manual work percentage (can't automate more than exists)
- Provides early warning if targets are unrealistic

This helps teams quickly identify if targets need adjustment before detailed planning begins.

4.1.2 Ticket-Based Planning

Explanation

Ticket-based planning focuses on process optimization. It starts with desired outcomes in terms of:

- Target processing times
- Quality improvements
- Cost per ticket reduction

This approach is particularly effective for service desk, customer support, and other ticket-driven operations.

Definition: Maximum Allowable Investment (Ticket)

$$MAI_{ticket} = \min(0.5 \times AC_{ticket}, 1.5 \times TS)$$

Where:

- AC_{ticket} = Annual cost (ticket volume × cost per ticket)
- TS = Target savings over ROI period

Observation

The ticket-based MAI follows similar constraints as team-based but considers:

- Volume scalability (higher volumes may justify higher investment)
- Process standardization potential
- Automation opportunity size

This helps ensure investments scale appropriately with ticket volumes and complexity.

Definition: Required Ticket Efficiency Gains

$$RTEG = \min\left(\frac{MS}{M \times T \times P}, PE\right)$$

Where:

- MS = Monthly savings target
- M = Monthly tickets
- T = Hours per ticket
- P = People per ticket
- PE = Current processing efficiency

Explanation

The ticket efficiency formula helps organizations:

- Identify minimum required improvement per ticket
- Account for current process inefficiencies
- Consider both time and resource optimization

This granular approach helps teams focus on specific aspects of ticket processing that need improvement.

5 Break-even Analysis

Explanation

Break-even analysis in target-based planning differs from traditional approaches:

- Starts with required break-even period
- Works backwards to determine required monthly improvements
- Considers different scenarios to achieve the same target

This helps teams explore multiple paths to the same goal while maintaining focus on the target timeline.

5.1 Team-Based Scenarios

Explanation

Scenarios in target-based planning provide structured paths to achieve the desired outcomes. Each scenario represents a different risk-reward balance:

- Conservative: Minimal disruption, longer timeline
- Moderate: Balanced approach, medium timeline
- Aggressive: Maximum change, shorter timeline

The key is choosing a scenario that aligns with organizational risk tolerance while meeting target deadlines.

Observation

Standard scenarios for team-based model:

- Conservative:
  - Team Reduction: 10%
  - Service Efficiency: +15%
  - Operational Overhead: -5%
  - Monthly Savings: MAI/24
- Moderate:
  - Team Reduction: 15%
  - Service Efficiency: +25%
  - Operational Overhead: -10%
  - Monthly Savings: MAI/18
- Aggressive:
  - Team Reduction: 20%

- Service Efficiency: +35%
- Operational Overhead: -15%
- Monthly Savings: MAI/12

Explanation

Each scenario component is carefully balanced:

- Team Reduction correlates with automation/efficiency gains
- Service Efficiency improvements offset reduced team size
- Operational Overhead reduction ensures sustainable operations
- Monthly Savings determine break-even timeline

This ensures that efficiency gains can realistically support team size changes while maintaining service levels.

5.2 Ticket-Based Scenarios

Explanation

Ticket-based scenarios focus on process optimization rather than organizational changes:

- Processing Time improvements through automation and streamlining
- Resource Allocation optimization through better routing and assignment
- Quality Impact through standardization and validation

Each scenario balances these elements differently to achieve the target outcome.

Observation

Standard scenarios for ticket-based model:

- Conservative:
  - Processing Time: -10%
  - Resource Allocation: -15%
  - Quality Impact: +5%
  - Monthly Savings: MAI/24
- Moderate:
  - Processing Time: -20%
  - Resource Allocation: -25%
  - Quality Impact: +10%

- Monthly Savings: MAI/18

- Aggressive:
  - Processing Time: -30%
  - Resource Allocation: -35%
  - Quality Impact: +15%
  - Monthly Savings: MAI/12

Explanation

The ticket-based scenarios are designed to:

- Achieve efficiency gains through process improvements
- Maintain or improve quality while reducing resources
- Balance speed of implementation with organizational capacity
- Ensure sustainable improvements through measured changes

This approach focuses on systematic process improvement rather than organizational restructuring.

6 Conclusion

Explanation

This technical documentation provides a framework for:

- Understanding team dependencies and their impact on efficiency
- Analyzing distribution models and cost structures
- Applying target-based planning to simplify platform solutions
- Choosing between team-based and ticket-based approaches

The methodology emphasizes:

- Working backwards from clear business targets
- Minimizing complexity in solution design
- Balancing efficiency gains with operational stability
- Adapting approaches based on organizational context