

Take Home Assignment
Senior Operations Analyst
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Fulfillio's warehouse operations are reaching a breaking point

With rising order volumes, late deliveries and workforce strain are exposing cracks in our operations.

This analysis dives deep into the data behind Q1 operations;
Quantifying risks and exploring mitigation strategies that can turn pressure on operations into performance advantages.

Case Study 1

Operations Performance Review

Analysis of warehouse performance data from Q1 to identify key trends, visualize results and brief leadership on operational risks and opportunities.

Case Study 2

Prioritization & Decision-Making

Evaluation of five simultaneous operational issues ranked by prioritization and outline of immediate actions for the top priority.

Case Study 3

Process Mapping

Design of a clear process flow for the new Express Fulfillment service plus identification of one key operational risk and one opportunity it presents.

Case Study 1

Operations Performance Review

Key Trend #1

Operations Deterioration Outpacing Volume Growth

Q1's 30% volume growth has exposed critical capacity constraints. *Operations metrics are deteriorating at 2-3x the rate of volume growth* signaling systemic issues, not temporary.

Key Trend #2

Unsustainable Resource Strain

Our warehouse operations are optimized for lower volumes and simpler orders. We're now experiencing an operations collapse, *particularly on large orders (>5 items)*, which now represent 10.4% of total orders but 40% of all errors.

Picking Errors: Growing 3.5x faster than order volume growth

Large Order Error Rate: Nearly doubled in 90 days

Staff Burnout: Clear signals in absenteeism spike

Processing Efficiency: Declining 17.7%

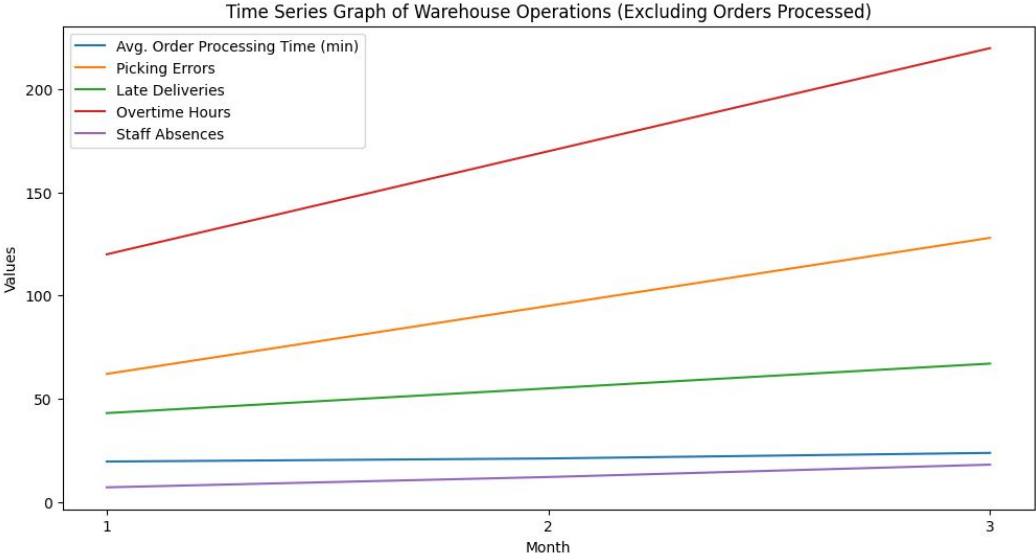
January: 12,500 orders processed in 19.5 min avg = 3.1 orders/hour processed

March: 16,300 orders processed in 23.7 min avg = 2.5 orders/hour processed

Let's visualize the data...

Q1 Dataset (%Δ Jan-Mar)	
Orders Processed	30.4%
Avg. Order Processing Time (min)	21.5%
Picking Errors	106.5%
Late Deliveries	55.8%
Overtime Hours	83.3%
Staff Absences	157.1%

Subset (%Δ Jan-Mar)	
Orders >5 Items	36.00%
Picking Errors (Large Orders)	145.45%
Error Rate (%)	80.68%



Orders vs Errors (Q1)

Orders: +30% vs Errors: +106%

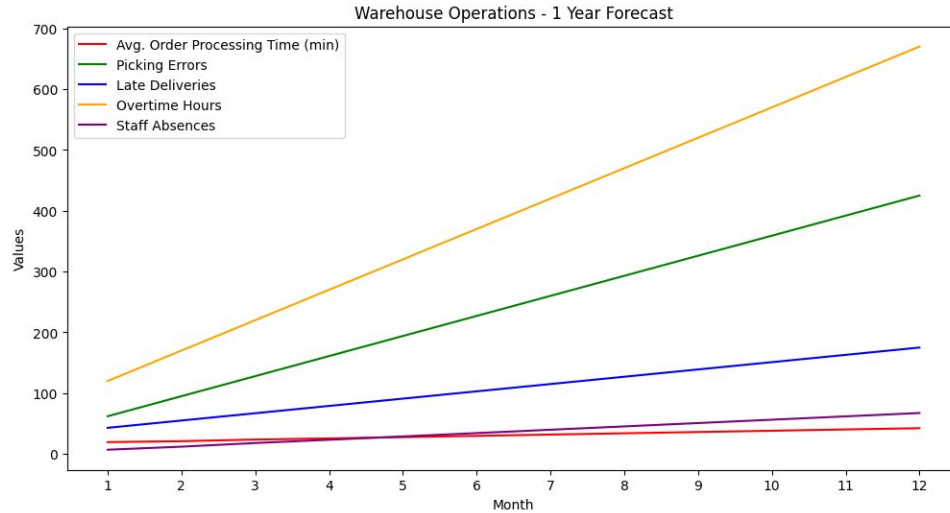
Time Management (Q1)

Avg Time: +22% (19.5→23.7 min)
Overtime: +83% (120→220 hrs)

Large Orders Error Rate:

January: 1.76%
February: 2.35%
March: 3.18%

Consequences of inaction



Operational Risks

Cost increases due to overtime

Customer churn due to late deliveries

Staff burnout due to increasing overtime

Recommendations

Immediately: Implement a dedicated large-order picking workflow/force to mitigate delays

Short-term: Hiring plan to replace structural overtime with sustainable capacity

Q2: Invest in picking technology/automation specifically for orders >5 items

Case Study 2

Task Priority Ranking & Rationale

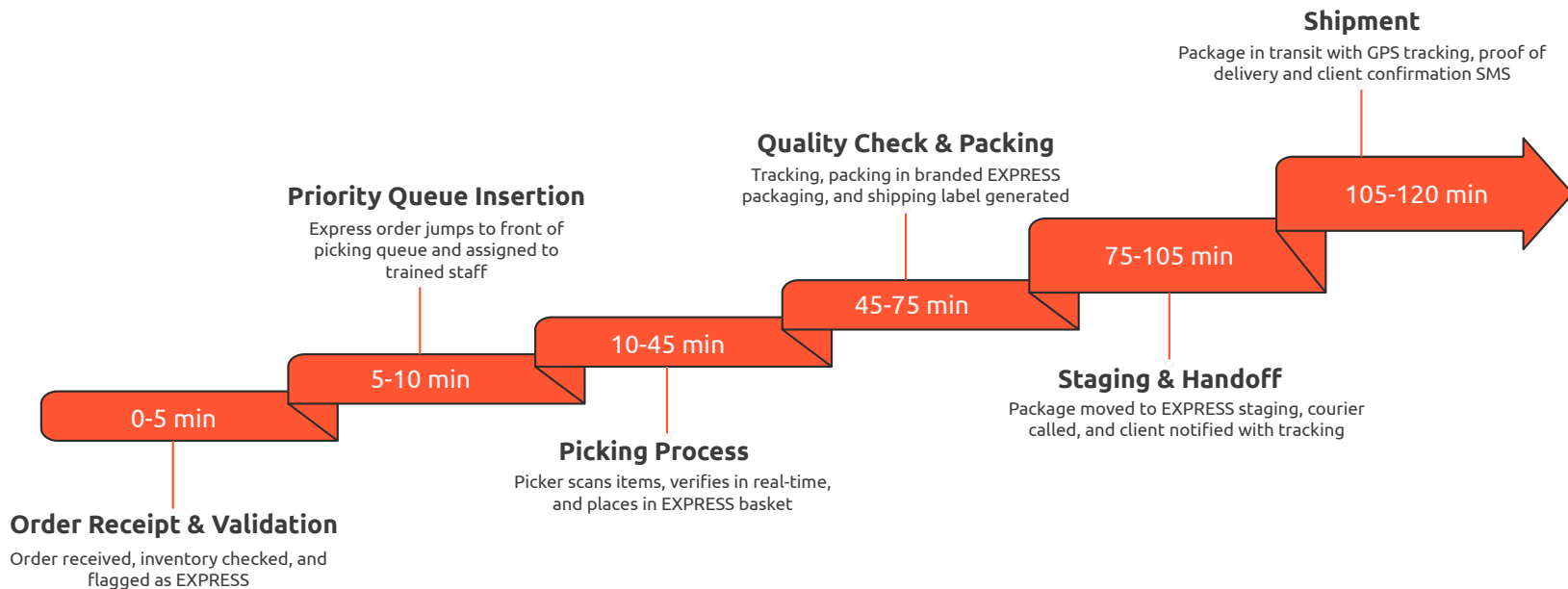
	Major client - 15 late deliveries last week	Picking system 10% error rate on orders with >5 items)	Spike in warehouse staff absenteeism	Manager report: overtime impact on error rates	IT input on barcode scanner test plan
Prioritization	#1	#2	#3	#4	#5
Rationale	Immediate revenue risk, relationship in jeopardy, contractual implications	Systemic problem causing late deliveries and client issues	Leading indicator of retention problems, driving errors and delays	Analytical request, important for planning but not crisis	Future improvement, doesn't block IT timeline significantly
Impact	Could lose major client	Affects multiple clients daily, quality foundation issue	Root cause contributor to other issues	Informs future hiring vs overtime decisions	Long-term efficiency, current scanners functional
Time Sensitivity	Already escalating: damage control mode	Has time for proper solution vs immediate firefighting	Can be addressed over 1-2 weeks	Can be scheduled, internal stakeholder only, low effort	Scheduled rollout, planned change

First 3 Actions to take to mitigate top priority

	#1. Suggest Immediate Client Engagement	#2. Analyze Data To Identify Root Cause	#3. Implement Safeguards
Detail	<ul style="list-style-type: none">• Schedule call with client within 24 hours• Pull detailed data on all 15 late deliveries (dates, status, delay, etc.)• Mitigate issues: offer compensation if appropriate• Customers value transparency! Communicate actions.	<ul style="list-style-type: none">• Assemble team (ops, logistics, quality)• Check delays across processes (receiving, picking, packing, shipping)• Check for patterns (same picker, shift, product category, order size)• Get feedback from warehouse staff involved• Correlate with overtime/absenteeism periods	<ul style="list-style-type: none">• Picking errors: Mandatory double-check, assign best pickers• Capacity/timing: Prioritize on picking stage, real-time alerts• Ensuring staff coverage during their order windows• Create daily tracking dashboard for this client• Define/assign project owner• Measure impact of safeguards
Rationale	<ul style="list-style-type: none">• Shows that we value the client• Shows we are actively prioritising the issue• Prevents further escalation	<ul style="list-style-type: none">• We can't fix the issue without understanding it!• Might reveal deep rooted ongoing issues• Data informs whether fix is process, people, or technology	<ul style="list-style-type: none">• Buys time while fixing core issues• Shows client concrete action• Reduces risk of additional failures• Provides data on intervention effectiveness

Case Study 3

2-Hour Express Service Workflow



Risk & Opportunity

RISK

Running Standard & Express in one warehouse could cause conflicts that degrade both operations

- Cannibalizing of standard operations by diverting staff/deprioritizing clients
- Added complexity: More workflows can cause overload & more errors
- Capacity: Quality is already slipping, can we handle more?
- Quality vs Speed: High pressure from 2-h SLA might increase error rates.

Safeguards:

- Dedicated express staff + space
- Cap volumes until stable
- Mandatory training before launch
- Real-time performance dashboard

OPPORTUNITY

Express Fulfillment additional revenue stream leads to operations development

- Higher Margins: premium pricing tier for 2-h SLAs.
- Reinvestment: surplus can be reinvested to improve operations
- Improve employee and customer satisfaction!

Reinvestments:

- Picking tech upgrades
- Additional staff
- Training & inventory frameworks

Thanks!

Tech Stack



https://docs.google.com/presentation/d/1dFxxZMvRCCZGF-Kil_mSDdo7cRbzTtmhAfmL6a5S/edit?usp=sharing



<https://docs.google.com/spreadsheets/d/1Ffo5fiiu01lhFq74oo7J1nOkPZl2YuyvYxDCvF4ts0/edit?usp=sharing>



https://github.com/jonasvyma/GETYOURGUIDE_THISOA

A.I. Stack



VSCode Agent Assistant



Plotting with python:

https://deepnote.com/workspace/jonas-336b487a083f-ee99-991a-051cd029234/project/jonasvm-8010d9fd-d258-45d2-bf88-2e6a3aa0868c/notebook-2-c0fe8f96faa0d7649922fb50f70a6941b0m_source%3B%3Emodel%3B%3Eproduct%3B%3Econtext%3B%3Ecampaign%3B%3Eautm_content%3B%3E8010d9fd-d258-45d2-bf88-2e6a3aa0868c



Research & text formatting



Flowchart creation:

<https://app.napkin.ai/page/CopieC18yBx201b35f4e6d9E9Bb721a-0JmTqC7Bb17AY2MhNDZYv1RMDc-31VJY2LMWMMWMMWBRzq?se=1>