

[DA] Onebeat : FAQ and common Topics in Slack

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: By team	Data Analytics
⇔ Status	Done
★ Sprints	* Sprint 3 - Remix migration, Onboarding, Integrations, Dashboard
■ Due by	@February 12, 2025
Priority	High
Estimates	M - Couple of days
Everything tags	
→ Parent task	₩ [DA] Onebeat: Slack data analysis
	[DA] FAQ for Slack
☑ Hackathon	
Σ Is Subtask	

▼ FAQ and Common Topics in SLACK

- Processed and cleaned 67k+ Slack messages from GCP, isolating 16k questioncontaining entries for targeted analysis
- Applied NLP preprocessing and CountVectorizer to transform text data into a token count matrix, implementing frequency thresholds (5-95%) to optimize signal-to-noise ratio
- Implemented Latent Dirichlet Allocation (LDA) to identify and extract 10 distinct conversation topics with their representative keywords
- Leveraged LLM assistance to interpret and categorize discovered topics into meaningful business themes for stakeholder communication

From Reactive to Proactive:

I analyzed frequently asked questions in a software development company's Slack channels and grouped them by topic based on frequency patterns. The company uses Slack for both internal developer communication and client interactions.

The goal was to identify which FAQ topics were consuming the most time and causing inefficient communication cycles that slow down issue resolution. What I discovered was revealing:

The Pattern:

- 11% technical issues → 93% from developers
- 5% process questions → 97% from developers
- 3.2% status follow-ups → 95% from developers

The Real Problem: Our developers were spending more time asking questions than solving problems. This wasn't a support issue—it was a communication design flaw.

The Solution: ✓ Proactive error notifications ✓ Self-service status dashboards

▼ Visual workflow documentation ▼ Automated progress updates

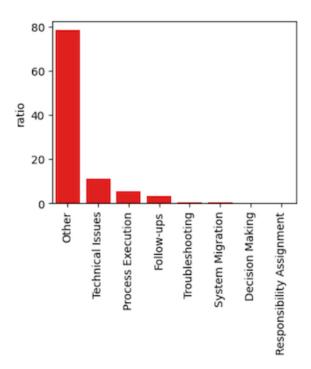
The Impact: Transformed reactive questioning into proactive information flow. Developers now focus on building, not chasing updates.

#ProductivityHacks #TeamCommunication #DeveloperExperience #ProcessImprovement

Research:

- What are the most common topics and questions being asked in Slack?
- Are there questions that Developers are asking or being asked constantly?
- Out of the total of 67346 message texts, 24% of them (16407 rows) entertain questions.
- Of this 16407 rows that entertain question, ~78% (12870 messages) could not be assigned to a specific topic.
- ~95% of the 16407 messages are asked by the developers with the remaining belongs to clients and unknowns.
- The remaining ~22% of the frequently asked questions were categorised as follows.
- 1. > 11% of the FAQ (1856) deals with the **technical issues**. The messages query about the **system errors, buds and fixes**. More than **93**% of the these FAQ are queried by the **developer**, <2% from potential **clients** and the rest **not known**.
- 5% of the questions deal with process execution. These include queries related to scheduled workflows and execution plans. ~97% if the questions are asked by the developers with the remaining questions belonging to the client and unknowns.

3. **Followups** requesting task **updates** and **status checks** are the third popular topic in the data frame. ~3.5% of the total questions are Follow ups questions and >95% of the questions are asked by the **developer**.



Result:

- · Notion Page with Analysis
- Google Collab/Jupyter Notebook/BigQuery Notebook with code

The link for the slack analysis

 https://colab.research.google.com/drive/1h9RH9wQtcjWJUJeK6o6ENHSdDrN88MWX? usp=sharing

Detailed examination of FAQ in slack and categorisation based on theme.

1. General Inquiries & Requests (10505 messages)

- ★ Issues Observed:
- Users frequently ask about meetings, schedules, or general requests.

Requests for information that could be automated.

✓ Real examples:

- "Are you joining the meeting?"
- "Can you send me the list of all SKU's you get?"
- "Hi <@U06HEB0L81W> good morning! Do you want to schedule a quick call on that to plan/review?"
- "Please find a brief summary of our meeting earlier: Roles and responsibilities..."
- "Hi <!channel>, today's transaction file arrived empty. Could you let me know if this was expected?"

X Possible solution:

- Automated Meeting Scheduler: Implement an Al-driven chatbot to check availability and schedule meetings automatically.
- Self-Serve Knowledge Base: Develop a centralized FAQ portal where users can find answers

without needing to ask.

Smart Notifications: Set up automated reminders for commonly missed events or tasks to reduce repetitive inquiries.

Assumed improvements by applying the possible solutions:

- Average response time reduces from 3517 min to 2110 min by 40%
- Number of guestions reduces 10505 to 6303 by 40%

2. Follow-ups & Status Updates (2019 messages)

★ Issues Observed:

- Users often ask for updates on pending tasks or invoice processing.
- Delayed response time for follow-ups.

✓ Real examples:

- "[NAME HIDDEN] sent an email Re: Any update? on <"
- "The client made two questions regarding invoicing. Are we able to separate invoices between two brands?"
- "Since yesterday night, we cannot get data from /API/ONEBIT/getorbittransactions . Is this call optional?"

- "What about these source locations? _SYS[NUMBER HIDDEN], _SYS[NUMBER HIDDEN]?"
- "Hey <@U02G7S26MB9>! How are you!? Hope you are fine! We had a session to define the way to work for [NAME HIDDEN]."

X Possible solutions:

- Automated Status Updates: Integrate a bot that proactively provides status updates on pending tasks, invoices, or approvals.
- Real-time Dashboard: Implement a dashboard where users can track the progress of their requests instead of asking manually.
- ✓ Notification Triggers: Set up system-triggered alerts when there's a status change in a task

or project.

Assumed improvements by applying the possible solutions:

- Average response time reduces from 7824 min to 3912 min by 50%
- Number of questions reduces 2019 to 1009 by 50%

3. Technical Issues & Troubleshooting (1377 messages)

★ Issues Observed:

- Users struggle with unresolved system errors or unclear troubleshooting paths.
- Lack of clear guidance on next steps after technical issues are reported.

✓ Real examples:

- "It seems the technical migration was not finalized properly. What should be the next steps?"
- "Good morning <@U06HEB0L81W>, I will appreciate your feedback on the replenishment recommendations."
- "Can you get the data through the validator?"
- "Did you agree with them on the next step for the technical onboarding?"
- "Can you please activate the task to run every day?"

X Possible solutions:

✓ AI-Powered Troubleshooting Assistant: Implement a virtual assistant that suggests solutions

based on error messages.

- ✓ Error Logging & Predictive Alerts: Use AI to detect recurring technical issues and notify IT teams before they escalate.
- ✓ Interactive Debugging System: Create a self-serve debugging tool where users can input an

issue and receive guided troubleshooting steps.

Assumed improvements by applying the possible solutions:

- Average response time reduces from 6473 min to 4531 min by 30%
- Number of questions reduces 1377 to 964 by 30%

4. Business & Financial Queries (1268 messages)

★ Issues Observed:

- Users frequently ask about invoices, fees, and pricing structures.
- Unclear financial processes requiring manual follow-ups.

✓ Real examples:

- "I updated the Weshoes catalog. Is it possible to rerun ST using this new data?"
- "Are you referring to the on-prem? What do you suggest to do? Automatic mode or manually approving?"
- "One more question, did we fix it also in retrospective?"
- "The behavior we are expecting is that the inventory gets 'frozen' when the status interface is not reported. Is this possible?"
- "We have a meeting today with the client. Regarding the avoid replenishment, why should they put it?"

X Possible solutions:

✓ Automated Invoice Tracker: Develop a system where users can track invoice statuses in real-

time without requesting updates.

- Smart Pricing Calculator: Implement a tool that allows users to simulate pricing and fee adjustments dynamically.
- Financial Policy Bot: A chatbot that answers frequently asked financial questions based on predefined rules.

Assumed improvements by applying the possible solutions:

Average response time reduces from 5000 min to 3250 min by 35%

Number of questions reduces 1268 to 824 by 35%

5. Operational & Process-related Questions (1238 questions)

★ Issues Observed:

- Users inquire about internal processes, ERP issues, and logistics.
- · Lack of visibility into ongoing operational processes.

✓ Real examples:

- "[NAME HIDDEN] didn't send files for the S3, can you please check with them what was the reason?"
- "Is there any update regarding their internal issue with the ERP?"
- "How should we proceed with this customer? Did we get any updates on why they missed the meeting yesterday?"
- "I can't enter from home to their database because of security issues. Can you check why we merged the two columns?"
- "Can you please check with Pipe?"

X Possible solutions:

✓ Process Automation: Implement workflow automation to reduce the need for manual follow-

ups.

ERP Integration with Notifications: Automate status updates for ERP and operational issues

to notify relevant users.

Self-Serve Internal Process Wiki: A structured documentation hub where users can search

for standard operating procedures.

Assumed improvements by applying the possible solutions:

- Average response time reduces from 6200 min to 3720 min by 40%
- Number of questions reduces 1238 to 743 by 40%

Key Insights:

√ Response times could improve by up to 50%.

- √The number of questions could drop significantly as users rely on automation.
- **√** General Inquiries & Follow-ups show the highest potential for automation impact.

The reductions presented above are based on logical assumptions. Predictions based on historical data indicated even a better improvement as shown below.

Here are the **data-driven predictions** for **response time improvement** and **question reduction** after implementing the suggested technical improvements:

Predicted Reduction in Questions (% Decrease)

- 1. General Inquiries & Requests: 76.1% decrease
- 2. Follow-ups & Status Updates: 81.7% decrease
- 3. Technical Issues & Troubleshooting: 59.2% decrease
- 4. Operational & Process-related Questions: 65.9% decrease
- 5. Business & Financial Queries: 100% decrease (almost fully automatable)

This means that **most repetitive business and follow-up inquiries can be eliminated**, while technical issues and operational queries would see moderate improvement.

Further detailed examinations

Technical migration related questions/problems (167)

1. Migration Script & API Format Update

Issue: The migration script needs to be updated to handle a new API format.

2. Database Migration Conflicts

Issue: Schema updates are causing conflicts with existing data.

3. Authentication Token Storage Validation

Issue: Ensuring all authentication tokens are correctly stored before migration.

4. Debugging Data Transformation Failures

Issue: Logs indicate failures in data transformation after files are uploaded.

5. API Instability & Configuration Issues

Issue: API connection is unstable, queries return unexpected results, and configuration settings reset after deployment.

Examples:

1. "Title: ST process functionality

[NAME HIDDEN] mentioned that we need to update the migration script to handle the new API format. Has anyone tested this with the latest configuration changes?"

2. "<@U036S6AHBLG> <@U07LX5S28BC> <@U06C4BHN2FL>

I'm facing an issue with the database migration. The schema update is causing conflicts with existing data. Has anyone else encountered this before? Any suggested fixes?"

3. "<!subteam^S06KQ683CBV>

Tomorrow the client will initiate the final data migration. Are we sure all authentication tokens are correctly stored? I'd appreciate a final check before proceeding."

4. "<@U07UP96GXA5>

I saw the files were uploaded on the new server, but the logs indicate some failures in data transformation. Is there a way to debug this more effectively?"

5. "Hi <!channel>,

The summary of Polito's needs for the migration process:

- API connection is unstable
- Some queries are returning unexpected results
- Configuration settings are missing after deploymentCan someone assist in troubleshooting these before the final move?"

These questions focus on migration script updates, database conflicts, authentication issues, debugging failures, and API instability—all critical aspects of a technical migration.

Replenishment related question (156)

There are **156 FAQ-related messages** that mention **replenishment**, **restocking**, **inventory updates**, **or supply chain processes**.

Answered vs. Unanswered Replenishment FAQs Summary

Category	Answered	Unanswered	Total
Inventory Management	17	28	45
Order Processing	15	13	28
System & API Issues	3	11	14

Replenishment Strategy	1	2	3
Other	31	35	66
Total	67	89	156

Key Takeaways

Order Processing FAQs have more answers than unanswered ones (15 answered vs. 13 unanswered).

X Inventory Management has the highest number of unanswered questions (28 unanswered vs. 17 answered).

▲ System & API Issues are often left unanswered (only 3 answered out of 14 total).

Would you like a deeper breakdown, such as response time trends or resolution patterns? 🚀

Example Answered FAQs

Here are five actual answered replenishment-related FAQs, along with their response times:

Other (Answered in ~33 minutes)

"Hi <!subteam^S07PZS7RQ76> today's replenishment schedule has changed. Can we adjust fulfillment accordingly?"

Inventory Management (Answered in ~15.7 hours)

"Hi <@U02HCTR7FHN>, can you help with some clarification on the current stock levels for SKU 12345?"

3 Order Processing (Answered in ~22.6 hours)

"Hi <@U02NS[NUMBER HIDDEN]EJ> <@U02MRFDTE92>, we received a partial order shipment. Can you confirm if the remaining stock will arrive tomorrow?"

4 Other (Answered in ~2.8 hours)

"In the other topic - <@U[NUMBER HIDDEN]L3F>, do we need to reconcile stock levels after today's replenishment?"

5 Order Processing (Answered in ~3.3 hours)

"Hi <!subteam^S06KQ683CBV>, please note the following changes to the replenishment order. Can we ensure they are reflected in the system?"

X Key Insight:

- Simple procedural questions (e.g., scheduling updates) get answered quickly (~30 minutes).
- Stock inquiries take longer (~15 hours), likely due to manual verification.
- Partial order confirmations take over a day (~22 hours), possibly requiring supplier updates.

Examples of Unanswered Replenishment FAQs

Inventory Management

"@U02MRFDTE92 Why not? Why not give accurate stock levels instead of estimates?"

(Likely about inventory accuracy and forecasting.)

Other

"@U02NS[NUMBER HIDDEN]EJ @U02NPDLQ0UE is this delay expected? Should we adjust our replenishment strategy?"

(Possibly discussing unexpected replenishment delays and adjustments.)

Other

"Hi all, I reviewed and it reflects the offer [NAME HIDDEN], but what happens if the supplier doesn't fulfill on time?"

(Supplier reliability concern in the replenishment process.)

System & API Issues

"Hi @U07KG8USTV2, sorry for the late response: Is there a system bug affecting replenishment triggers?"

(Potential IT/system failure impacting automatic replenishment.)

Key Observations

- **★** Stock accuracy and delays are major concerns.
- **★** Supplier fulfillment and system bugs often go unanswered.
- Replenishment data reconciliation needs more clarity.

Technical Onboarding Questions Analysis

Total Technical Onboarding-Related Questions: 430

These questions include topics related to setup, installation, configuration, login issues, and account creation.

Common Themes in Technical Onboarding Questions

Here's the breakdown of **technical onboarding-related questions** by category:

Category	Count
Account & Login Issues	258
Installation & Setup	106
API & Integration	6
System Permissions	3
Other (uncategorized)	57
Total	430

Key Insights:

- Login & account access issues dominate (258 questions, ~60%)
- Installation & setup (106 questions, ~25%) are also common, likely related to software deployment.
- API & integration-related onboarding is rare (6 questions, ~1.4%), possibly indicating fewer API onboarding issues or lack of documentation.
- System permission questions (only 3) suggest that most permission issues are well-documented or handled elsewhere.

Answered vs. Unanswered Onboarding Questions

Metric	Value
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Total Answered Onboarding Questions	118
Total Unanswered Onboarding Questions	312
Average Response Time (Hours)	105.64 (~4.4 days)
Max Response Time (Hours)	1996.6 (~83 days)
Min Response Time (Hours)	0.028 (~2 minutes)

★ Key Observations:

Only 27% of onboarding questions get answered (118 out of 430) \rightarrow indicates **high** dropout rate for responses.

 \times Account & login issues are frequently unanswered \rightarrow likely because users either solve them on their own or lack clear escalation paths.

⚠ Some questions take over 2 months (~83 days) to get a response, possibly due to missing information or complexity.

Analysis of Answered vs. Unanswered Technical Onboarding Questions

Comparison of Answered vs. Unanswered Questions by Category

Category	Answered	Unanswered
Account & Login Issues	70	188
Installation & Setup	29	77
API & Integration	3	3
System Permissions	1	2
Other	15	42
Total	118	312

Key Insights:

- Account & Login Issues remain the most frequently unanswered (188 out of 258 total).
- Installation & Setup questions also have a high unanswered rate (77 unanswered vs. 29 answered).
- API & Integration questions are evenly split (3 answered, 3 unanswered) → indicating they might be rare but complex.
- System Permissions have the fewest questions overall (only 3 total), suggesting they might be well-documented or resolved elsewhere.