

# Workplace Social Graph Explorer — Master Plan (10-Day Build)

**Team Members:** Sudhan & Ganapati

**Goal:** Build a Zoho Cliq + Catalyst-powered AI-driven organizational insights tool within 10 days.

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## 1. Introduction (For Team Understanding)

Modern workplaces rely on collaboration across teams, functions, and roles. Yet, most organizations struggle to understand **how people actually interact**, who the real **connectors** are, where **communication bottlenecks** exist, or which teams are **isolated** from each other.

Traditional metrics like attendance, meeting logs, or task assignments fail to capture the deeper truth:

**Real culture and productivity are shaped by how people talk to each other.**

👉 **The Workplace Social Graph Explorer** is a Zoho Cliq extension + Catalyst backend that: - Collects **safe, opt-in message interaction metadata** from Cliq channels - Constructs a **weighted social interaction graph** between employees - Visualizes it as an **interactive, force-directed network graph** - Uses AI to generate **insights about connectors, silos, communication risks, and overload points** - Posts periodic **Org Health Summaries** back into Cliq channels

This tool helps organizations: - Identify cross-team collaboration patterns - Detect emerging silos early - Spot overloaded individuals acting as bottlenecks - Improve team culture and reduce miscommunication - Make data-driven decisions for org restructuring, onboarding, and project assignments

The idea is **rare**, highly **judge-friendly**, and combines teamwork + AI + visualization + analytics — perfect for Cliqtrix.

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## 2. Project Scope (Expanded Version for 2 People)

To scale the project up (because two members + AI-assisted tools = more bandwidth), our full scope includes:

## ☑ Core MVP

- Cliq Bot (opt-in, slash commands, data fetch)
- Metadata capture (message sender, mentions, replies, reactions)
- Weighted social graph computation
- Graph metrics: degree, betweenness (approx), community detection
- AI insight generator
- Visualizer (Cytoscape.js)
- Weekly Org Health Digest
- Privacy & anonymization controls

## ⚡ Extended Features (Stretch Goals)

- **Time-lapse mode:** Compare graphs over weekly snapshots
- **Ego network view:** `/socialgraph --user <id>`
- **Sentiment-aware edge coloring**
- **Anomaly detection:** sudden drop in communication, over-reliance on one person
- **Role inference:** AI guesses user's function based on interaction patterns
- **Cross-team bridge recommendations:** AI suggests who should connect with whom
- **Graph Export:** CSV/JSON for HR analytics

These stretch goals are realistic if we distribute tasks well and use AI tools for code generation, data parsing, and visualization snippets.

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## 3. Tech Stack Overview

### 🧩 Zoho Cliq

- Bot events
- Slash commands
- Cards for UI

### 🧩 Zoho Catalyst

- Functions → graph builder
- Data Store → message metadata
- Cron jobs → scheduled snapshots
- Hosting → visualizer page

## Libraries

- Cytoscape.js or D3.js for graph visual
- Simple JS for UI

## AI Tools

- OpenAI/Claude for insights
  - AI code generation for JS/Deluge functions
  - No-code automations for internal testing
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# 4. Data Pipeline Overview

## 1. Capture Events via Cliq Bot

(sender → mentions, replies, reactions)

### 2. **Store Metadata** in Catalyst

**No actual message text** unless opted-in

### 3. **Graph Builder Function**

- Aggregate edge weights: mentions × 3, replies × 2, reactions × 1

- Normalize weights weekly ### 4. **Graph Analytics Module**

- Degree centrality

- Betweenness (approx BFS)

- Community detection (Louvain/Label Propagation) ### 5. **Graph Snapshot JSON**

### 6. **Visualizer Page**

- Nodes sized by degree

- Colors = clusters

- Hover data: name, metrics ### 7. **Insight Engine (AI)**

- Identify connectors, silos, clusters, overloaded people ### 8. **Report Posting**

Cliq bot posts Org Health Digest weekly

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# 5. Work Division — 10-Day Sprint (Sudhan & Ganapati)

Each day includes **Core Tasks** + **Optional Tasks** (if ahead of schedule).

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## 📅 Day 1 — Kickoff & Setup

### Sudhan

- Set up **Catalyst project**, DB tables (messages, users, snapshots)
- Connect OpenAI API for future use

### Ganapati

- Set up **Cliq bot** skeleton (opt-in command, test responses)
- Configure webhook to receive message events

### Deliverables

- Working bot
  - Working DB
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## 📅 Day 2 — Event Capture Pipeline

### Sudhan

- Create endpoint in Catalyst to receive message metadata
- Parse fields (sender, mentions, reactions, replies)

### Ganapati

- Bot sends event payload to Catalyst
- Build opt-in/opt-out flow

### Deliverables

- Metadata successfully stored
  - Opt-in works
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## 📅 Day 3 — Graph Builder V1

### Sudhan

- Build edge aggregation logic in Deluge/Catalyst function
- Compute simple degree centrality

## Ganapati

- Develop utility to fetch last 7 days' messages
- Generate adjacency list structure

## Deliverables

- graph\_snapshot JSON (nodes + weighted edges)
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# Day 4 — Graph Analytics (Clusters + Betweenness)

## Sudhan

- Implement community detection
- Color cluster assignment

## Ganapati

- Implement approximate betweenness centrality
- Node scoring tags

## Deliverables

- Enhanced graph JSON
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# Day 5 — Visualizer Page (Cytoscape.js)

## Sudhan

- Set up Catalyst web hosting
- Build HTML + JS scaffold

## Ganapati

- Integrate Cytoscape.js
- Node styling (size by degree, color by cluster)

## Deliverables

- Working interactive graph page
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## **Day 6 — AI Insight Engine**

### Sudhan

- Prepare metric → summary template prompts
- Integrate AI summarizer endpoint

### Ganapati

- Build summary component in visualizer page
- Format insights into readable card blocks

### Deliverables

- Auto-generated insights for each snapshot
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## **Day 7 — Cliq Slash Commands & Reports**

### Sudhan

- Implement `/socialgraph`, `/socialgraph --user`, `/socialgraph --weekly`

### Ganapati

- Auto-post Org Health Summary to channel
- Integrate visualizer link into card

### Deliverables

- Full bot interaction
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## **Day 8 — Privacy Controls + Polishing**

### Sudhan

- Anonymization toggle
- Data retention rule

### Ganapati

- Admin panel for toggles
- Add disclaimers in bot messages

## Deliverables

- Privacy-compliant version ready
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## Day 9 — Testing + Stretch Features

### Sudhan

(Choose any 1–2 stretch goals) - Time-lapse graph viewer  
- Ego network view

### Ganapati

(Choose any 1–2 stretch goals) - Sentiment-based edge coloring  
- Anomaly alerts module

## Deliverables

- Stretch features added
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## Day 10 — Demo Prep & Final Submission

### Sudhan

- Create demo script
- Record 1–2 demo clips

### Ganapati

- Build pitch slides
- Prepare repository + documentation

## Deliverables

- Final submission
  - Pitch-ready deck
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## 6. Stretch Feature Ideas (If Ahead of Schedule)

Here are additional ideas we can implement using AI + magic tools: - **Leadership Vulnerability Metric**: detect if too many decisions funnel through one person - **Sentiment**

**Heatmap** per cluster - **Role Inference**: infer role from communication pattern - “**Bridge Suggestion**” AI: recommend who should talk to whom - **Org Health Timeline** slider - **Graph Export for HR** - **Slack/Teams adapter** (future)

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## 7. What Will Impress Judges

- Beautiful, clean, moving graph visualization
- Crisp AI-generated insights
- Unique metrics (organizational health score)
- Privacy-first design
- Professional pitch deck & demo flow