

# TAPFLOW

TAP INTO LEADS. LET THEM FLOW.

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## Master Blueprint

AI-Powered Lead Generation Platform

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# 1 Executive Summary

*This document consolidates the complete product vision, technical architecture, brand identity, and implementation plan for Tapflow—an AI-powered lead generation platform that transforms how businesses find and reach their ideal customers.*

## 1.1 The Opportunity

The lead generation market represents a **\$10B+ opportunity** growing at 10-15% annually. Despite the proliferation of tools, a critical gap exists: **no platform delivers true end-to-end automation** from prospect discovery to personalized outreach.



## 1.2 Our Differentiation

**The Tapflow Advantage:** While competitors like Clay require users to build complex workflows and Apollo requires manual list building, Tapflow delivers a complete pipeline from a single input: *“Find restaurant owners in Denver who need websites.”*

Capability	Clay	Apollo	Instantly	Tapflow
Prospecting	Manual	Search	None	✓ Auto
Enrichment	✓ Yes	Basic	None	✓ Yes
Personalization	Templates	Basic	Basic	✓ AI
Outreach	None	Built-in	✓ Best	✓ Int.
Automation	Workflows	Manual	Sending	✓ Full

## 1.3 Key Decisions

### Product Name

**Tapflow** — “Tap into leads. Let them flow.”  
Short, memorable, product-sounding.

### Target Market

SMB sales teams and lead gen agencies who waste hours on manual prospecting.

### Pricing Strategy

- Starter: \$99/mo (500 leads)
- Growth: \$299/mo (2,500 leads)
- Scale: \$799/mo (10,000 leads)

### Tech Stack

Next.js 14 + Supabase + Inngest + Vercel  
Zero-ops, scales to 10K users without re-architecture.

### AI Strategy

7-agent swarm with Claude Sonnet 4 for research and content generation. True autonomous operation.

### Go-to-Market

Eat our own dogfood → ProductHunt launch  
→ Content + Paid acquisition.

## 1.4 Financial Projections

Metric	MVP Cost	Scale Cost	Gross Margin
Cost per Lead	\$0.15-0.43	\$0.10-0.12	—
Starter (\$99)	\$0.08/lead	\$0.04/lead	60%
Growth (\$299)	\$0.05/lead	\$0.03/lead	58%
Scale (\$799)	\$0.04/lead	\$0.02/lead	50%

## 2 Part I: Market & Strategy

*Based on comprehensive research into the lead generation SaaS market, competitive landscape, and pricing dynamics.*

### 2.1 Market Landscape

The lead generation technology market is fragmented across multiple categories, with no single player owning the complete pipeline:

Category	Players	Our Position
Sales Intelligence	Apollo, ZoomInfo, Clearbit	Data source partner
Email Outreach	Instantly, Lemlist, Smartlead	Integration partner
Enrichment	Clay, Hunter, Snov.io	Lightweight alternative
Lead Lists	Hunter, Snov.io, Lusha	Feature overlap—more automated
<b>Full-Stack Lead Gen</b>	<b>Empty</b>	<b>Tapflow (first mover)</b>

### 2.2 Competitive Analysis

#### 2.2.1 Clay.com — Closest Competitor

Clay is an enrichment orchestration platform with 100+ data providers. They're trusted by OpenAI, Anthropic, and Ramp.

#### Pricing Structure:

Plan	Monthly	Credits/Year	Key Gate
Free	\$0	1,200	100/search limit
Starter	\$134	24K	BYOK API keys
Explorer	\$314	120K	Webhooks
Pro	\$720	600K	CRM integrations

**Our Angle:** “Clay makes you build workflows. We just find leads.” Clay requires users to bring their own lists and construct complex data flows. Tapflow handles the entire pipeline from a single input.

### 2.2.2 Apollo.io — Sales Intelligence Leader

Apollo offers a 275M+ contact database with email sequencing and basic AI features.

**Weaknesses:**

- “AI” is basic templates, not true research
- Per-seat pricing kills team scaling
- No autonomous prospecting—manual list building required

**Our Position:** Use Apollo’s API as a data source, not as a competitor.

### 2.2.3 Instantly.ai — Cold Email Champion

Instantly dominates cold email with unlimited accounts and best-in-class warmup.

**Our Position:** Integration partner. Tapflow creates leads and emails; Instantly sends them.

## 2.3 Pricing Strategy

### 2.3.1 Recommended Pricing Tiers

#### Starter

**\$99**/mo

- 500 leads/month
- Google Maps + Yelp sourcing
- Basic enrichment
- Manual email copy
- Email verification
- CSV export

Target: Freelancers, solo consultants

#### MOST POPULAR

#### Growth

**\$299**/mo

- 2,500 leads/month
- All sources + directories
- Full enrichment (tech stack, revenue)
- AI-generated personalized emails
- Instantly integration
- CRM export (HubSpot, Salesforce)

Target: SMB sales teams, growing agencies

#### Scale

**\$799**/mo

- 10,000 leads/month
- Everything in Growth
- API access

#### Enterprise

**Custom**

- Unlimited leads
- Dedicated infrastructure
- Custom AI training



- White-label
- Multi-user (up to 5 seats)
- Priority support

Target: Lead gen agencies, larger teams

- SLA guarantees
- Dedicated account manager
- On-premise option

Target: Large enterprises, high-volume ops

### 2.3.2 Unit Economics

Plan	Price	Leads	Cost/Lead	Margin
Starter	\$99	500	\$0.08	60%
Growth	\$299	2,500	\$0.05	58%
Scale	\$799	10,000	\$0.04	50%

## 2.4 Go-to-Market Strategy

### 2.4.1 Phase 1: Eat Our Own Dogfood (Weeks 1-4)

Use the product to sell the product. Build MVP targeting web design agencies, use Tapflow to find 100 agencies in Utah, send outreach offering free pilot, close 10 beta customers.

**Why agencies:** They understand lead gen, have budget, and can become product champions.

### 2.4.2 Phase 2: ProductHunt + Content (Weeks 5-8)

- Launch on ProductHunt with “True AI Lead Gen” positioning
- Publish comparison content: “Clay vs Tapflow”, “Apollo + Instantly vs Tapflow”
- Create demo videos showing agent orchestration in action
- Target keywords: “ai lead generation”, “automated prospecting”

### 2.4.3 Phase 3: Paid + Partnerships (Weeks 9-12)

- Google Ads on competitor brand terms
- Partner with CRM consultants for referrals
- Integrate with Zapier and Make
- Launch agency partner program (white-label + revenue share)

## 2.5 Target Customer Profiles

### ICP 1: Solo Consultant

**Pain:** Hours on manual prospecting  
**Budget:** \$100-300/mo  
**Channel:** Twitter, IndieHackers  
**Message:** “Find leads while you sleep”

### ICP 2: SMB Sales Team

**Pain:** SDRs waste time on bad leads  
**Budget:** \$500-1,500/mo  
**Channel:** LinkedIn, G2  
**Message:** “Qualified leads, not busywork”

### ICP 3: Lead Gen Agency

**Pain:** Margins shrinking  
**Budget:** \$1,000-5,000/mo  
**Channel:** Agency communities  
**Message:** “White-label AI for clients”

## 2.6 Positioning Statement

*For sales teams and lead gen agencies who waste hours on manual prospecting,*

***Tapflow** is an **AI-powered lead generation platform** that **autonomously finds, researches, and qualifies prospects** based on your ideal customer profile.*

*Unlike **Clay, Apollo, or Instantly** which require manual list building,*

***we handle the entire pipeline** from “I need leads” to “ready-to-send emails.”*

## 3 Part II: Product Design

UI/UX specification prioritizing speed to value. V1 focuses on proving value—polish comes in V2.

### 3.1 Design Principles

#### 3.1.1 V1 Mantras

##### 1. “One click to value”

Minimize steps to see first leads

##### 2. “Show the work”

Make AI agent activity visible (trust through transparency)

##### 3. “Progressive disclosure”

Simple defaults, power features hidden until needed

##### 4. “Copy > Design”

Words matter more than pixels at this stage

#### 3.1.2 Technical Constraints

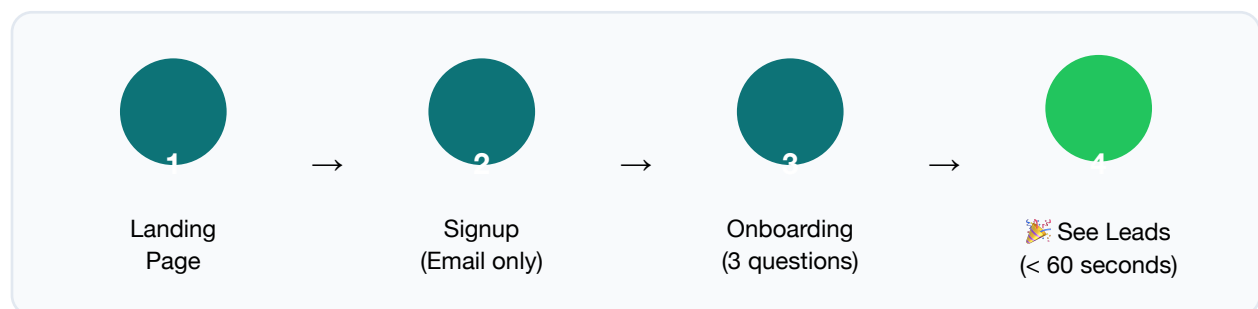
- **Stack:** Next.js 14 + Tailwind + shadcn/ui
- **No custom components** — shadcn/ui only
- **No animations** (V1) — add delight in V2
- **Mobile-responsive** — not mobile-first

#### 3.1.3 Visual Direction

- Clean, dense data views (like Linear)
- Monospace fonts for data/stats
- High contrast, accessible colors
- Dark mode optional for V1

### 3.2 User Flow: Signup to First Leads

Time to value target: < 3 minutes from signup to first leads



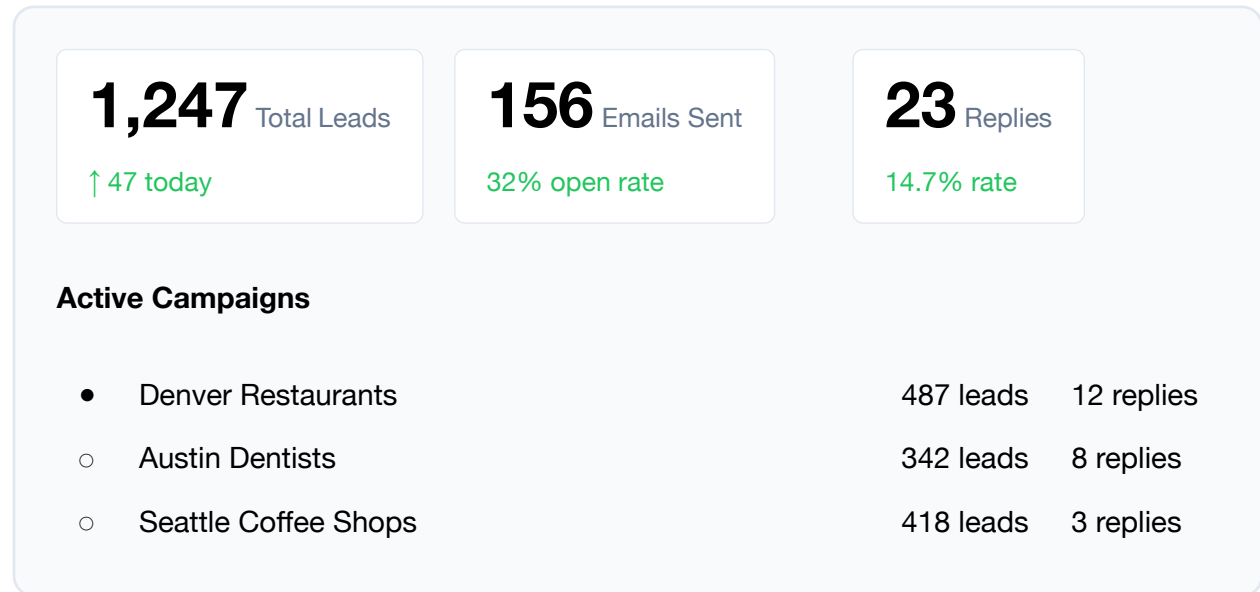
**Step-by-step:**

1. **Landing Page** → Click “Start Free Trial” (no credit card)
2. **Signup** → Email + password only (no name, no company—friction kills)
3. **Onboarding 1** → “What do you sell?” (dropdown)
4. **Onboarding 2** → “Who’s your ideal customer?” (dropdown)
5. **Onboarding 3** → “Where?” (location picker)
6. **Dashboard** → Big CTA: “Find Your First 50 Leads”
7. **Campaign Created** → Realtime agent activity starts
8. **Leads Appear** → 30-60 seconds for first results

### 3.3 Key Screens

#### 3.3.1 Dashboard

The dashboard provides a high-level overview of all lead generation activity.



#### 3.3.2 Lead List View

Dense table with filters sidebar for efficient lead management.

<input type="checkbox"/>	Company	Score	Tier	Website	Contact
<input checked="" type="checkbox"/>	Mike's Pizza	87	A	Poor	✓ Mike
<input type="checkbox"/>	Sushi Palace	72	B	OK	✓ Jun
<input checked="" type="checkbox"/>	Taco Town	91	A	Poor	✓ Maria
<input type="checkbox"/>	Burger Joint	45	C	Good	×
<input type="checkbox"/>	Thai Kitchen	68	B	OK	✓ Lin

**Bulk actions:** Generate Outreach | Add to List | Archive | Export

### 3.3.3 Lead Detail Panel

Slide-in panel (60% width) showing complete prospect intelligence.

#### Header Section

- Company name + address
- Phone + website link
- Tier badge (A/B/C)

#### Lead Score Breakdown

✓ Slow website (8.2s)	+20 pts
✓ Not mobile-friendly	+25 pts
✓ No SSL certificate	+15 pts
✓ Low rating (3.2★)	+10 pts
✗ Has online ordering	-10 pts
✓ Contact found	+17 pts

#### Contacts

 **Mike Johnson** (Owner)  
mike@mikespizza.com ✓ verified  
LinkedIn: /in/mikejohnson

#### Pain Points Detected

- Slow page load hurting SEO
- Not ranking for “pizza denver”
- Competitor “Tony’s” outranks them

[Generate Personalized Email →](#)

### 3.3.4 Outreach Queue

Two-panel view for efficient email approval workflow.

#### Pending Approval (23)

- Mike’s Pizza  
2h ago
- Sushi Palace  
2h ago
- Taco Town  
3h ago

**To:** mike@mikespizza.com

**Subject:** Quick question about your website...

Hi Mike,

I was looking for pizza in Denver last night and found Mike’s Pizza. Great reviews!

I noticed your website takes about 8 seconds to load — that’s costing you customers who won’t wait...

[Approve](#)






[Edit](#)

[Reject](#)

### 3.4 Realtime Elements

**Why Realtime Matters:** Clay's best UX feature is showing work happening live. Users trust the product more when they see "87 records enriched" incrementing in realtime.

#### Agent Activity Feed States:

	Discovery Agent	Blue
	Enrichment Agent	Purple
	Scoring Agent	Yellow
	Content Agent	Green
	Outreach Agent	Teal



## 3.5 Component Library

### 3.5.1 shadcn/ui Base Components

All UI built exclusively with shadcn/ui primitives for V1:

- Button
- Input
- Select
- Checkbox
- Radio Group
- Switch
- Card
- Table
- Badge
- Dialog
- Sheet
- Tabs
- Progress
- Skeleton
- Toast (Sonner)
- Avatar
- Command
- Slider

### 3.5.2 Custom Additions

<b>LeadScoreBadge</b>	Visual badge with color based on score (green/yellow/red)
<b>TierBadge</b>	A/B/C tier indicator with appropriate coloring
<b>AgentActivityFeed</b>	Realtime activity list for campaign monitoring
<b>EmailPreview</b>	Renders email with editable fields for approval flow

## 3.6 Mobile Considerations

### V1 Approach: Responsive, Not Mobile-First

Our users are B2B salespeople who work on desktop. Mobile is “check stats on the go” not “run campaigns.”

#### Breakpoints:

- sm: 640px (Large phones landscape)
- md: 768px (Tablets)
- lg: 1024px (Laptops)
- xl: 1280px (Desktops)

#### Mobile Adaptations:

Screen	Desktop	Mobile (<768px)
Dashboard	3-column stats	Stacked cards
Lead list	Full table	Card view

Lead detail	Slide-in panel	Full screen sheet
Settings	Sidebar + content	Tabs on top

**Not Supported on Mobile (V1):**

- Campaign creation wizard (redirect to desktop)
- Bulk actions (>10 items)
- Settings changes
- API access

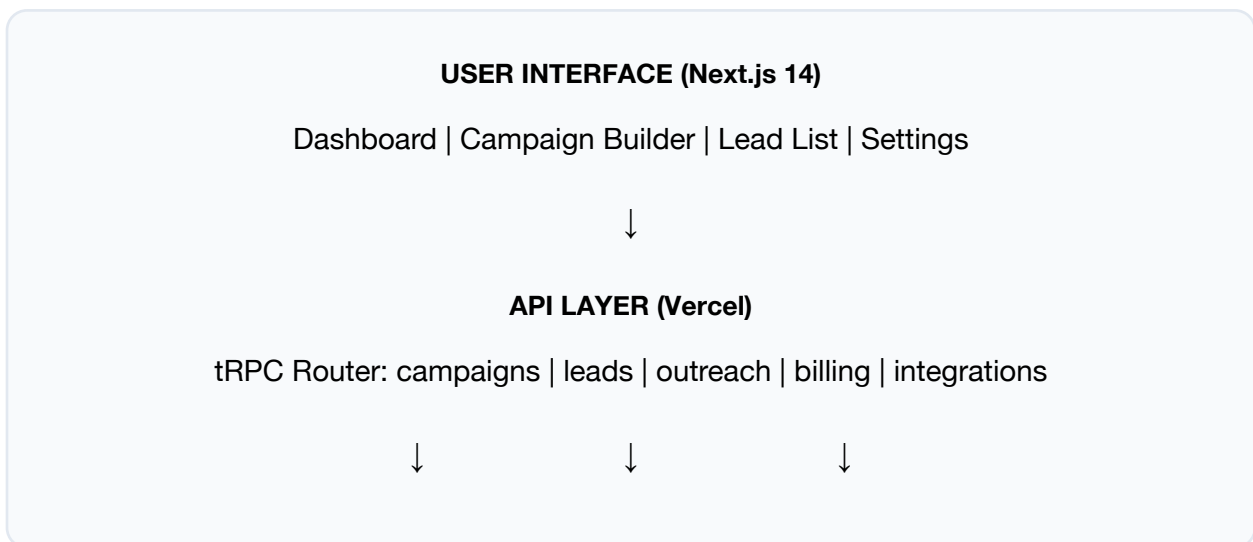
## 4 Part III: Technical Architecture

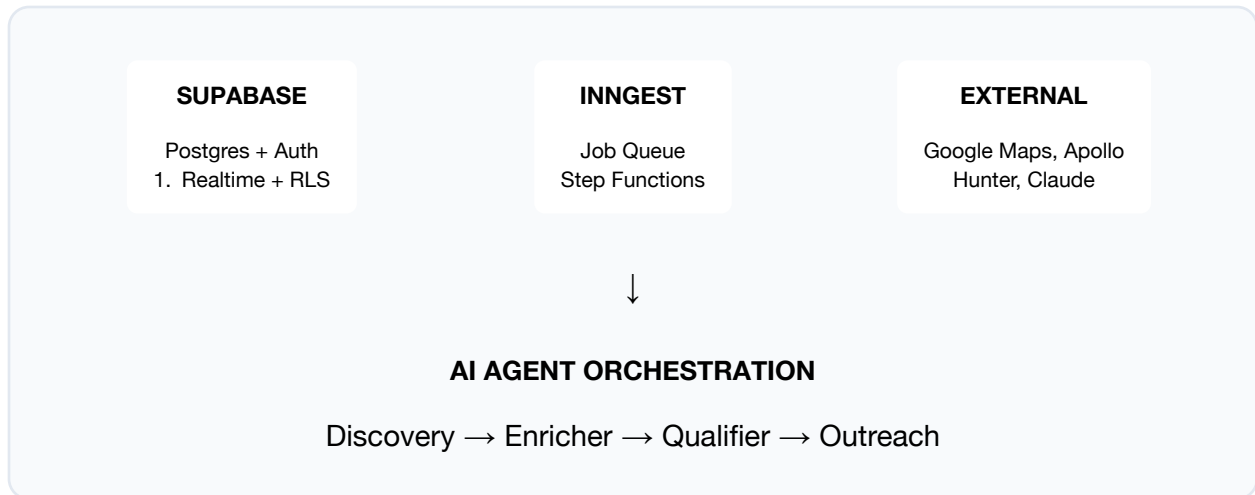
*Complete technical stack decisions. Every decision is final—no hedging. Goal: ship MVP in 4 weeks, scale to 10K users without re-architecture.*

### 4.1 Stack at a Glance

Layer	Decision	Reason
Hosting	<b>Vercel</b>	Zero-ops, edge functions, generous free tier
Database	<b>Supabase</b>	Postgres + Auth + Realtime in one
Queue	<b>Inngest</b>	Serverless-native, no Redis to manage
Auth	<b>Supabase Auth</b>	Already using Supabase, one less vendor
AI	<b>Claude Sonnet 4</b>	Best cost/quality for writing tasks
Email	<b>Resend + Instantly</b>	Modern APIs, best deliverability
Payments	<b>Stripe</b>	Industry standard










### 4.2 System Architecture

















## 4.3 Infrastructure Decisions

### 4.3.1 Hosting: Vercel

Factor	Vercel	Railway	AWS
Zero-config	 Yes	 Yes	 No
Edge functions	 Global	 Regional	 Complex
Free tier	100GB BW	\$5 credit	Pay-per-use
Next.js	 Native	 Good	 Manual
Ops overhead	Zero	Low	High

**Reasoning:** We're building Next.js—Vercel made Next.js. Zero ops means shipping faster.

### 4.3.2 Database: Supabase

Factor	Supabase	PlanetScale	Neon
Postgres	 Real	 MySQL	 Real
Free tier	500MB	5GB	0.5GB
Built-in Auth	 Yes	 No	 No
Realtime	 WebSocket	 No	 No
RLS	 Native	 No	 No

**Reasoning:** Auth + Database + Realtime + Storage in one vendor = fewer integrations. RLS makes multi-tenancy trivial.

### 4.3.3 Queue: Inngest

#### Why Inngest over BullMQ:

- No Redis to manage = zero ops
- Step functions for resumable agent stages
- Automatic retries with exponential backoff
- 25K free runs covers MVP
- Native Vercel integration

## 4.4 Database Schema

### 4.4.1 Core Tables

```
-- Users (extended from Supabase Auth)
users: id, email, full_name, avatar_url

-- Organizations (for team features)
organizations: id, name, slug, owner_id, plan, stripe_customer_id

-- Campaigns
campaigns: id, org_id, name, business_type, target_location,
           target_radius, status, total_prospects, enriched_count

-- Prospects
prospects: id, campaign_id, company_name, website, phone,
           address, source, status, domain (generated)

-- Contacts
contacts: id, prospect_id, name, title, email,
          email_verified, linkedin_url, is_primary

-- Enrichment Data
enrichment_data: id, prospect_id, website_score, mobile_score,
                 tech_stack, pain_points, company_summary

-- Lead Scores
lead_scores: id, prospect_id, score (0-100), tier (A/B/C/D),
             scoring_factors, scoring_notes

-- Outreach
outreach_sequences: id, campaign_id, prospect_id, contact_id,
                   sequence_type, status, approved_by
outreach_emails: id, sequence_id, step_number, subject,
                 body_html, status, sent_at, opens, clicks
```

## 4.4.2 Row Level Security

All tables use RLS for multi-tenant data isolation:

```
-- Policy: Campaign access through organization membership
CREATE POLICY "Org members can access campaigns" ON public.campaigns
FOR ALL USING (
  organization_id IN (
    SELECT organization_id FROM public.organization_members
    WHERE user_id = auth.uid()
  )
);
```

## 4.5 API Design (tRPC)

### 4.5.1 Router Structure

Router	Endpoints
auth	login, signup, logout, resetPassword
campaigns	list, get, create, updateStatus, delete
prospects	list, get, enrich, updateStatus, export
contacts	list, get, create, verify
outreach	getForProspect, generate, approve, send, stats
organization	get, update, inviteUser, removeUser
billing	getSubscription, createCheckout, portal
integrations	connect, disconnect, sync

### 4.5.2 Example: Create Campaign

```
create: protectedProcedure
  .input(z.object({
    name: z.string().min(1).max(100),
    businessType: z.string().min(1),
    targetLocation: z.string().min(1),
    targetRadius: z.number().min(1).max(100).default(25),
  }))
  .mutation(async ({ ctx, input }) => {
    // 1. Create campaign in DB
    const campaign = await ctx.db.campaigns.create({ ... });

    // 2. Trigger discovery job
    await ingest.send({
```

```

    name: "campaign/created",
    data: { campaignId: campaign.id, ...input }
  });

  return campaign;
}),

```

## 4.6 Third-Party Integrations

Service	Use Case	Cost (MVP)	Cost (Scale)
Google Maps	Prospecting	\$0 (scraping)	\$100-275/mo
Hunter.io	Email verification	\$34-104/mo	\$209/mo
Apollo.io	Enrichment	\$49-99/mo	\$149/mo
Instantly	Email sending	\$37-97/mo	\$97/mo
Firecrawl	Web scraping	\$16-83/mo	\$333/mo
Twilio	SMS/Voice	\$20-50/mo	\$100+/mo
<b>TOTAL</b>		<b>\$156-433/mo</b>	<b>\$988-1,163/mo</b>



## 5 Part IV: Brand Identity

*Establishing the brand identity for Tapflow—our AI-powered lead generation platform.*

### 5.1 Product Name: Tapflow

#### 5.1.1 Why Tapflow

**“Tap into leads. Let them flow.”**

##### Strengths:

- 7 characters, 2 syllables
- Product-sounding (not agency-like)
- Meaningful compound word
- Domain likely available (.io or get-)
- No AI in name (timeless)
- Easy to create distinctive logo
- Trademark clear

#### 5.1.2 Name Analysis

Domain .com	⚠️ Verify
Domain .io	✅ Available
gettapflow.com	✅ Available
Twitter @tapflow	⚠️ Verify
Trademark	Low risk
<b>Rating</b>	<b>8/10</b>

##### Runners-up:

- Wellspring (more evocative)
- Maplead (literal meaning)

### 5.2 Tagline Options

#### For “Tapflow” specifically:

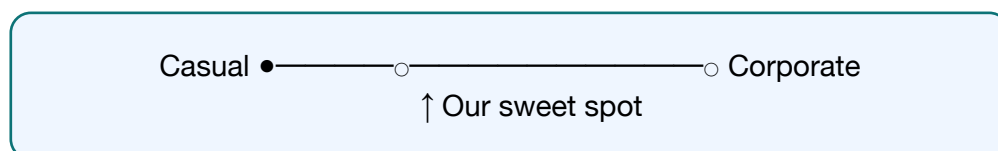
1. “Tap into leads. Let them flow.”
2. “Turn on your pipeline”
3. “Leads on demand”
4. “Discovery to deal, automated”
5. “Your always-on prospecting engine”

#### Universal (work for any name):

1. “From ICP to inbox, automated”
2. “Leads found. Qualified. Delivered.”
3. “Your outbound team, automated”
4. “AI that actually prospects”
5. “Pipeline without the busywork”

### 5.3 Brand Voice

#### 5.3.1 Tone: Smart Casual



### 5.3.2 Voice Characteristics

Trait	How We Sound	How We Don't Sound
Confident	"This is how lead gen should work"	"We think maybe this could help"
Direct	"Get 2,500 leads/month for \$299"	"Our flexible pricing tiers..."
Technical but accessible	"AI agents research each prospect"	"Proprietary neural networks..."
Honest	"We're not Clay — we're simpler"	"Best-in-class enterprise solution"
Human	"Built by salespeople, for salespeople"	"Leverage synergies across verticals"

### 5.3.3 Voice Examples

#### ✗ Don't say:

"Revolutionizing lead generation through AI-powered automation solutions"

#### ✓ Say this:

"You tell us who to find. We find them, research them, and write the email. You hit send."

## 5.4 Visual Direction

### 5.4.1 Color Palette



#### Why This Palette:

- **Not blue** — Every SaaS tool is blue. We differentiate visually.
- **Teal = intelligence + trust** — Feels smart without being cold.
- **Amber = action + warmth** — Conveys energy and results.
- **Modern but not trendy** — Will age well, won't feel dated in 2 years.

### 5.4.2 Typography

Use	Font	Examples
Headlines	Inter (Bold)	Clean, modern, used by Linear, Vercel
Body	Inter (Regular)	Consistent family, excellent for UI
Code/Data	JetBrains Mono	Scores, timestamps, API docs

### 5.4.3 Logo Direction

Three concepts for exploration:

1. **Flowing Pipeline** — Abstract lines suggesting flow/movement
2. **Discovery Symbol** — Stylized compass or radar element
3. **Monogram** — Clean letter-based mark (T for Tapflow)

## 6 Part V: Agent Swarm

*The AI agent swarm architecture transforms simple user requests into qualified, ready-to-contact leads with personalized outreach sequences.*

### 6.1 Agent Roster

#	Agent	Purpose	Reuse
1	<b>Discovery</b>	Find prospects from external sources	90%
2	<b>Research</b>	Deep-dive on individual prospects	100%
3	<b>Enrichment</b>	Find emails, tech stack, company data	New
4	<b>Scoring</b>	Assign A/B/C tier based on fit	100%
5	<b>Content</b>	Generate personalized email copy	80%
6	<b>Outreach</b>	Manage sequences and sending	100%
7	<b>QA</b>	Verify data quality before handoffs	New

### 6.2 Design Principles

#### 1. Single Responsibility

Each agent does one thing well

#### 2. Explicit Handoffs

Clear data contracts between agents

#### 3. Parallel When Possible

Maximize throughput

#### 4. Human-in-the-Loop

Critical decisions require approval

#### 5. Graceful Degradation

Partial results beat total failure

#### 6. Observable

Show work in realtime for trust

## 6.3 Agent Specifications

### 6.3.1 1. Discovery Agent

**Purpose:** Find raw prospect data from Google Maps, Yelp, directories based on campaign criteria.

**Inputs:**

- Campaign ID
- Business type (“restaurant”)
- Location (“Denver, CO”)
- Radius (25 miles)
- Max results (100)
- Filters (min reviews, rating)

**Outputs:**

- Prospect list with:
  - Name, address, phone
  - Website URL
  - Source (google\_maps/yelp)
  - Rating, review count
  - Raw API data

**Tools:** Google Maps API, Yelp Fusion, Puppeteer scraper

### 6.3.2 2. Research Agent

**Purpose:** Conduct deep research on individual prospects to understand pain points and opportunities.

**Outputs:**

- Company summary (2-3 sentences)
- Key people identified
- Website analysis (mobile, speed, SSL)
- Pain points detected
- Opportunities identified
- Research confidence score (0-1)

**Tools:** Firecrawl, Lighthouse API, social media APIs

### 6.3.3 3. Enrichment Agent

**Purpose:** Find contact information and company data.

**Waterfall Strategy:**

1. Try Hunter.io first (cheapest, good accuracy)
2. If no result → try Apollo.io
3. If still no result → pattern matching (first@domain.com)
4. Always verify with Hunter before marking valid

**Outputs:**

- Verified email addresses
- Phone numbers
- LinkedIn profiles
- Tech stack detection
- Employee count estimate
- Revenue estimate

### 6.3.4 4. Scoring Agent

**Purpose:** Analyze all prospect data and assign quality score (0-100) and tier (A/B/C).

Factor	Weight	Criteria
ICP Fit	30%	Business type, size, location match
Pain Signals	25%	Website issues, missing features
Contact Quality	20%	Valid email, decision maker access
Timing Signals	15%	Recent reviews, hiring, funding
Engagement Potential	10%	Open rate prediction, hooks

**Tier Definitions:**

- **Tier A (70-100):** Immediate outreach, manual review — Top 20%
- **Tier B (40-69):** Automated sequence, nurture — Middle 50%
- **Tier C (0-39):** Skip or long-term nurture — Bottom 30%

### 6.3.5 5. Content Agent

**Purpose:** Generate personalized outreach content based on prospect research.

**Email Sequence Structure:**

1. **Email 1 (Day 0):** Value-first intro with specific observation
2. **Email 2 (Day 3):** Case study or social proof
3. **Email 3 (Day 5):** Direct ask with clear CTA
4. **Email 4 (Day 7):** Breakup email

**Content Guidelines:**

- Subject lines < 50 chars
- Body < 150 words for cold emails
- Specific > generic (always reference their business)
- One clear CTA per email
- No attachments on first touch

### 6.3.6 6. Outreach Agent

**Purpose:** Manage sending of outreach sequences, track responses, handle follow-ups.

**Sequence Logic:**

- If opened but no reply → continue sequence
- If replied → STOP sequence, flag for human
- If bounced → mark contact invalid, try alternate
- If unsubscribed → add to DNC list forever

**Tools:** Instantly.ai, SendGrid/Resend, Twilio for SMS

### 6.3.7 7. QA Agent

**Purpose:** Verify data quality at each handoff point. Catch errors before they propagate.

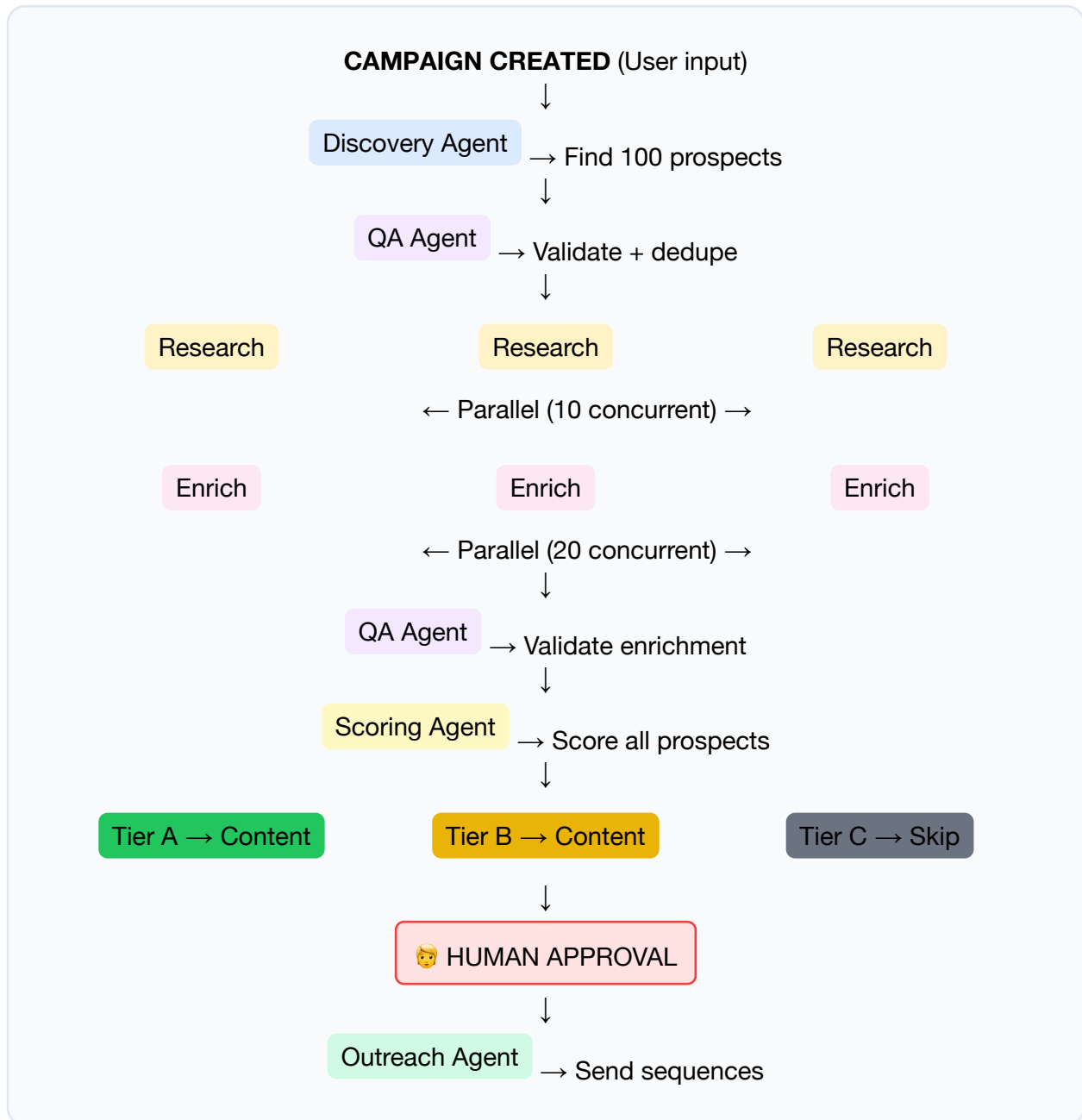
**Validation Checkpoints:**

Stage	Checks
Post-Discovery	Valid address, phone format, no duplicates
Post-Research	Website accessible, confidence > 0.5
Post-Enrichment	Email valid, email verified, has decision maker
Pre-Outreach	Not on DNC list, not already contacted

**Auto-Fix Capabilities:** Phone formatting, address standardization, URL normalization



## 6.4 Orchestration Flow



## 6.5 Parallelism Configuration

Stage	Parallelism	Concurrency Limit
Research	Per-prospect	10 concurrent
Enrichment	Per-prospect	5 concurrent (API limits)

Content	Per-prospect	20 concurrent
Outreach	Per-prospect	Rate-limited by provider

**Sequential (must wait):**

- Discovery → QA (need full list for dedup)
- Research + Enrichment → Scoring (need complete data)
- Content → Approval → Outreach (human gate)

## 6.6 Error Handling

### 6.6.1 Error Categories

Category	Example	Handling
Recoverable	API timeout, rate limit	Retry with backoff
Degraded	One enrichment source fails	Use partial data, continue
Blocking	No email found	Skip prospect, log
Critical	Sending API down	Pause campaign, alert user

### 6.6.2 Graceful Degradation

Failure	Degraded Behavior
Research fails	Continue with enrichment only, lower confidence
Enrichment fails	Continue with known data, skip if no email
Scoring fails	Default to Tier B, flag for review
Content fails	Use template fallback, mark as generic
Outreach fails	Queue for retry, alert after 3 failures

## 6.7 Human-in-the-Loop Checkpoints

### 6.7.1 Required Approvals

Checkpoint	What Human Reviews	Timeout
Content Approval	Email sequences before sending	24 hours
Reply Handling	Positive replies need follow-up	1 hour alert
Budget Approval	If campaign exceeds credit limit	Blocking

### 6.7.2 Optional Reviews (Configurable)

- Tier A Manual Review (high-value prospects)
- New Campaign Start (for conservative users)

- Unusual Scoring (score outliers)

## 7 Appendix: Implementation Timeline

*Consolidated 4-week implementation plan to reach MVP launch.*

### 7.1 Week 1: Core Skeleton

#	Task	Effort	Owner
1	Supabase project setup + auth configuration	4h	Backend
2	Next.js 14 scaffolding + Tailwind + shadcn/ui	4h	Frontend
3	Dashboard layout with empty states	8h	Frontend
4	Campaign creation wizard (3 steps)	8h	Frontend
5	tRPC router setup + campaign CRUD	8h	Backend
6	Inngest integration + first job type	8h	Backend

**Week 1 Deliverable:** User can sign up, log in, and create a campaign (no data yet)

### 7.2 Week 2: Data Flow

#	Task	Effort	Owner
1	Port lead-discovery.js to Inngest function	4h	Backend
2	Port website-scorer.js for enrichment	4h	Backend
3	Lead list view with filters + sorting	12h	Frontend
4	Lead detail panel (slide-in)	8h	Frontend
5	Hunter.io integration for email finding	6h	Backend
6	Scoring agent implementation	8h	Backend

**Week 2 Deliverable:** Discovery → Enrichment → Scoring pipeline working, leads appear in UI

### 7.3 Week 3: Outreach

#	Task	Effort	Owner
1	Content agent with Claude integration	8h	Backend
2	Outreach queue UI	8h	Frontend
3	Email preview + edit component	6h	Frontend
4	Approval workflow (approve/reject/edit)	6h	Full Stack
5	Instantly.ai integration	8h	Backend
6	Sending + tracking implementation	8h	Backend

**Week 3 Deliverable:** Full pipeline from discovery to email sending with approval workflow

## 7.4 Week 4: Polish & Billing

#	Task	Effort	Owner
1	Settings pages (profile, organization)	6h	Frontend
2	Stripe integration (subscriptions)	8h	Backend
3	Billing UI (plan selection, usage)	6h	Frontend
4	Realtime activity feed (Supabase)	8h	Full Stack
5	Empty states + error handling	6h	Frontend
6	Production deploy + monitoring	6h	DevOps

**Week 4 Deliverable:** Production-ready MVP with billing

## 7.5 Post-MVP Roadmap

### 7.5.1 V1.1 (Weeks 5-6)

- CRM integrations (HubSpot, Salesforce)
- Email verification with Hunter
- A/B/C tier manual override
- Team member invitations
- CSV import functionality
- Dark mode
- Keyboard shortcuts
- Mobile improvements
- Onboarding gamification
- Slack notifications

### 7.5.2 V2 (Weeks 7-12)

- LinkedIn automation
- Voice AI outreach (Vapi integration)
- Demo site generation
- Custom domains
- White-label for agencies
- API access for Scale tier
- Advanced analytics dashboard

**Total MVP Timeline: 4 Weeks**  
**160 engineering hours**

60-70% of backend code already exists in slc-lead-gen pipeline.  
Main work: API layer, user-facing UI, billing, multi-tenant deployment.

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**End of Document**

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