Business 360: Mobile-First Cash Flow Management Platform

Product Requirements Document - PNC Bank Integration

Executive Summary

Business 360 is a new mobile-first tab within the SMB banking platform that provides real-time cash flow visibility, AI-powered insights, and intelligent upgrade prompts. The initial release focuses on single-bank (PNC) cash flow visualization with **generic insights**, strategically positioning a **bottom-screen upgrade CTA** that unlocks **hyper-personalized multi-bank insights** when users connect additional accounts.

Key Features:

- Interactive 30-day cash flow graph (PNC Bank data)
- 3 generic AI-generated insights (single-bank analysis)
- Strategic upgrade prompt (bottom 25% of screen)
- Feature discovery cards (premium tier differentiation)
- Mobile-first responsive design (375px-1024px+)

User Journey:

1. User taps "Business 360" in sidebar
2. Sees PNC-only cash flow graph with basic insights
3. Scrolls to upgrade CTA explaining multi-bank benefits
4. Connects additional banks → Unlocks hyper-personalized insights

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1. Screen Layout Overview

Mobile Viewport Structure (375px width, iPhone standard)

The Business 360 screen is organized into **5 vertical zones** optimized for mobile-first engagement:

Zone	Height	Content	Premium Status
Zone 1: Navigation	60px fixed	Collapsible sidebar menu + top bar	Free tier
Zone 2: Hero Section	40% viewport (~280px)	Cash flow graph + time selector	Free tier (PNC only)
Zone 3: Insights Panel	35% viewport (~250px)	3 generic insight cards	Free tier (generic)
Zone 4: Upgrade CTA	25% viewport (~180px)	Sticky premium upgrade prompt	**UPGRADE PROMPT**
Zone 5: Feature Cards	Below fold (~600px)	6 feature discovery cards	Mixed (free + premium)

Total scrollable height: ~1,370px (mobile portrait)

Visual Hierarchy Principle

The layout follows a strategic **freemium funnel**:
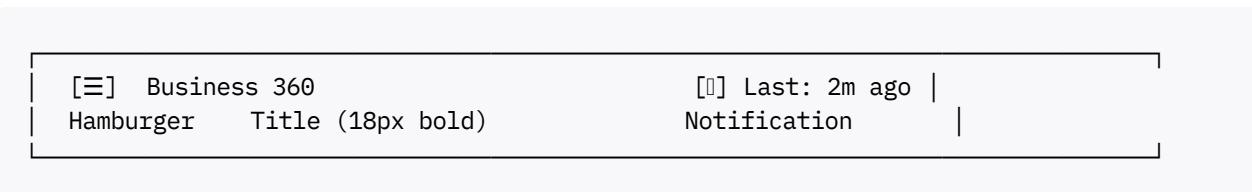
1. **Hook** (Hero): Show immediate value with PNC cash flow graph
2. **Value** (Insights): Provide 3 actionable generic insights
3. **Upgrade** (CTA): Present compelling reason to connect more banks
4. **Discover** (Features): Show what's possible with premium tier

2. Zone-by-Zone Specifications

Zone 1: Navigation Bar (Fixed Top, 60px)

Component: Collapsible Sidebar Menu + Top Bar

Layout:

```
┌─────────────────────────────────────────────────────────────┐
│  [≡]   Business 360                    [🔔] Last: 2m ago  │
│  Hamburger    Title (18px bold)              Notification        │
└─────────────────────────────────────────────────────────────┘
```

Design Specifications:

- **Background:** White (#FFFFFF) with bottom border shadow (0 2px 4px rgba(0,0,0,0.06))
- **Height:** 60px fixed position
- **Hamburger Icon:** Teal (#21808D), 24px × 24px
- **Title:** "Business 360" in 18px bold, dark gray (#1F2121)

- **Notification Badge:** Red dot (#EF4444) if alerts present
- **Active State:** Teal text + 4px teal left border when selected

Sidebar Menu Items (Collapsed):

- Dashboard
- **Business 360** (active)
- Payments
- Reports
- Settings

Mobile Interaction:

- Tap hamburger → Full-screen overlay sidebar slides from left (300ms ease)
- Tap outside sidebar → Closes with fade animation
- Active menu item highlighted with teal background (#21808D at 10% opacity)

Zone 2: Hero Section - Cash Flow Graph (Top 40%, ~280px)

Component 2.1: Account Filter Badge

Location: Top-right of graph container

Layout:

```
┌───────────────────────────────────────────┐
│  [PNC Logo] PNC Bank Only  [i]   Last updated: 2m │
└───────────────────────────────────────────┘
```
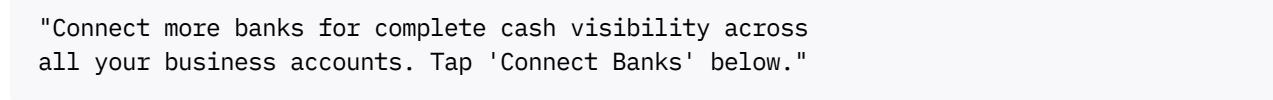
Design:

- **Background:** Light gray pill (#F5F5F5)
- **Padding:** 8px horizontal, 4px vertical
- **Border radius:** 20px (fully rounded pill)
- **Text:** 12px medium gray (#626464)
- **PNC Logo:** 16px × 16px, left-aligned
- **Info icon:** 16px, tap to show tooltip

Tooltip (on tap i):

```
"Connect more banks for complete cash visibility across
all your business accounts. Tap 'Connect Banks' below."
```
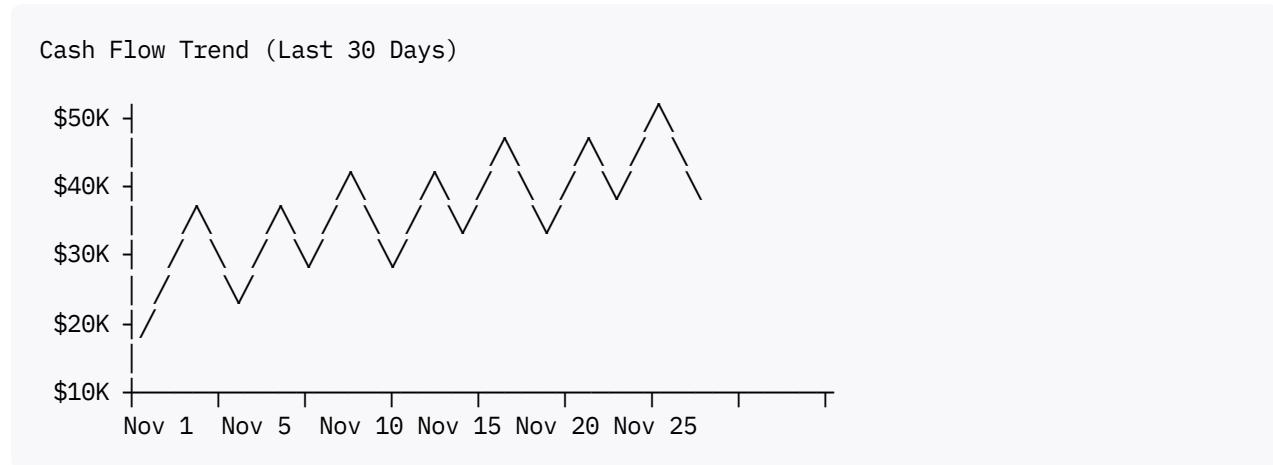
Component 2.2: Interactive Cash Flow Graph

Dimensions: Full width (343px on 375px screen with 16px padding), 200px height

Graph Type: Area chart with gradient fill

Visual Design:

```
Cash Flow Trend (Last 30 Days)

$50K ┤                                    /\
     │                                   /  \
$40K ┤          /\        /\      /\    /    \
     │         /  \      /  \    /  \  /      \
$30K ┤        /    \    /    \  /    \/
     │       /      \  /      \/
$20K ┤  /   /        \/
     │ /
$10K ┼──┬────┬─────┬─────┬─────┬─────┬─────┬─────┬──
     Nov 1  Nov 5  Nov 10 Nov 15 Nov 20 Nov 25
```

Design Specifications:
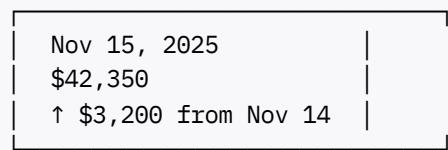
- **Line color:** Teal (#21808D), 2px stroke width
- **Fill gradient:** Linear from rgba(33,128,141,0.3) at top to rgba(33,128,141,0.05) at bottom
- **Grid lines:** Light gray (#E5E5E5), 1px, horizontal only
- **Axis labels:** 12px medium gray (#626464)
- **Current balance:** Large bold "$42,350" top-right corner, 24px teal (#21808D)
- **Background:** White with subtle shadow (0 2px 8px rgba(0,0,0,0.06))
- **Border radius:** 12px
- **Padding:** 16px all sides

Data Points:

- Display 30 data points (daily balances for last 30 days)
- Smooth curve interpolation (cubic bezier)
- Y-axis: Auto-scaled based on min/max balance
- X-axis: Date labels at 5-day intervals

Interactions:

- **Tap data point:** Show tooltip with exact balance and date

```
┌─────────────────────────┐
│  Nov 15, 2025           │
│  $42,350                │
│  ↑ $3,200 from Nov 14   │
└─────────────────────────┘
```

- **Swipe left/right:** Navigate to previous/next 30-day period
- **Pinch zoom:** Zoom in to see hourly granularity (premium feature)
- **Tooltip auto-dismiss:** After 3 seconds or tap elsewhere

Component 2.3: Time Period Selector

Location: Below graph, horizontally scrolling pill selector

Layout:

```
[ 7D ]  [ 30D ]  [ 90D ]  [ 1Y ]  [ All ]
```

Design:
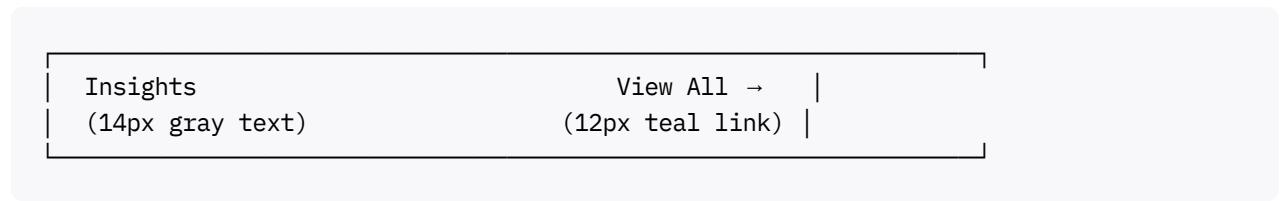
- **Pill size:** 60px width × 32px height
- **Active state:** Teal background (#21808D), white text (14px medium)
- **Inactive state:** White background, gray outline (1px #D1D5DB), dark gray text
- **Border radius:** 16px (fully rounded)
- **Spacing:** 8px gap between pills
- **Scroll behavior:** Horizontal scroll with snap-to-pill on mobile

Interaction:

- Tap pill → Smooth transition (400ms) to new time period
- Active pill scales slightly (1.05×) with subtle shadow
- Graph animates from left with new data

Zone 3: Insights Panel (Middle 35%, ~250px)

Header:

```
┌──────────────────────────────────────────────┐
|  Insights                        View All →   |
|  (14px gray text)              (12px teal link) |
└──────────────────────────────────────────────┘
```

Layout: Vertical stack of 3 insight cards, 12px gap between cards

Insight Card 1: Low Balance Alert

```
┌────────────────────────────────────────────┐
│  ⚠  Low balance detected            [&gt;]  │
│                                              │
│  Your checking balance ($8,420) is below your   │
│  typical minimum. Consider moving $5,000 from    │
│  savings to maintain comfortable operating buffer. │
└────────────────────────────────────────────┘
```

Design:

- **Background:** White (#FFFFFF)
- **Left border:** 4px solid orange (#E68161)
- **Icon:** Warning triangle emoji (⚠), 24px
- **Padding:** 16px all sides
- **Border radius:** 8px
- **Shadow:** 0 2px 6px rgba(0,0,0,0.08)
- **Headline:** 16px bold, dark gray (#1F2121)
- **Body text:** 14px regular, medium gray (#626464)
- **Chevron:** 16px gray, right-aligned

Interaction:

- **Collapsed state:** Shows headline + 2 lines of body
- **Tap card:** Expands to show full text + action buttons
- **Expanded state:**
  - "Transfer Now" button (teal)
  - "Dismiss" button (gray outline)
  - "Remind me tomorrow" link (small gray)
- **Animation:** 300ms ease expansion

Data Source: ML model analyzing PNC transaction patterns over last 90 days

Insight Card 2: Positive Trend

```
┌────────────────────────────────────────────┐
│  ▯  Balance trending up              [&gt;]  │
│                                              │
│  Your average daily balance is 15% higher than   │
│  last month ($38,200 vs $33,200). Great cash      │
│  management!                                      │
└────────────────────────────────────────────┘
```

Design:
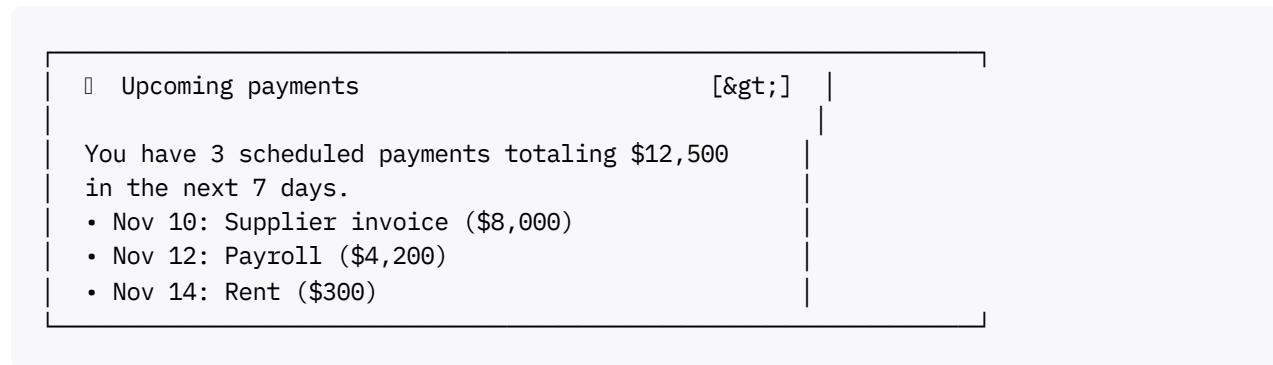
- **Left border:** 4px solid green (#22C55E)
- **Icon:** Chart up emoji (), 24px
- All other specs same as Card 1

Expanded state:

- Month-over-month comparison chart
- "View detailed trend" link → Analytics page

Data Source: Calculated from PNC historical balances (last 60 days)

Insight Card 3: Upcoming Payments

```
┌──────────────────────────────────────────────┐
│  ⬜  Upcoming payments                 [&gt;]   │
│                                                │
│  You have 3 scheduled payments totaling $12,500│
│  in the next 7 days.                           │
│  • Nov 10: Supplier invoice ($8,000)           │
│  • Nov 12: Payroll ($4,200)                    │
│  • Nov 14: Rent ($300)                         │
└──────────────────────────────────────────────┘
```

Design:

- **Left border:** 4px solid blue (#3B82F6)
- **Icon:** Credit card emoji (), 24px
- Payment list: Bullet points with date, description, amount

Expanded state:

- Full payment schedule (next 30 days)
- "Edit schedule" button
- Calendar view toggle
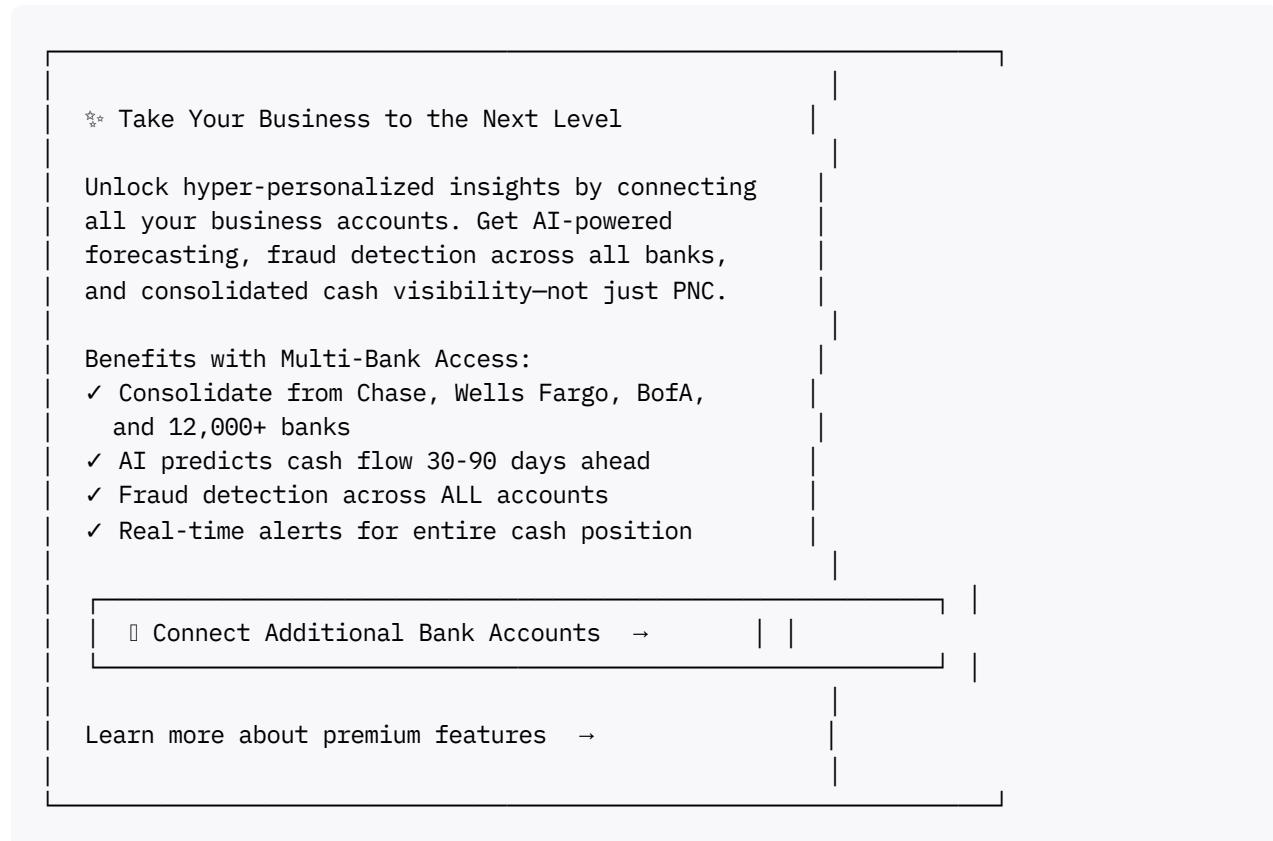
Data Source: PNC scheduled transaction data + recurring payment history

View All Link:

- Tap → Navigate to full Insights Dashboard
- Shows 10+ insights with filtering and search
- Historical insight archive

Zone 4: Upgrade CTA Banner (Bottom 25%, ~180px - STICKY)

Critical Feature: This section is **sticky on scroll** and persists as the user explores the screen.

```
┌──────────────────────────────────────────┐
│                                          │
│  ✨ Take Your Business to the Next Level   │
│                                          │
│  Unlock hyper-personalized insights by connecting  │
│  all your business accounts. Get AI-powered         │
│  forecasting, fraud detection across all banks,    │
│  and consolidated cash visibility—not just PNC.    │
│                                          │
│  Benefits with Multi-Bank Access:        │
│  ✓ Consolidate from Chase, Wells Fargo, BofA,      │
│     and 12,000+ banks                    │
│  ✓ AI predicts cash flow 30-90 days ahead          │
│  ✓ Fraud detection across ALL accounts   │
│  ✓ Real-time alerts for entire cash position       │
│                                          │  │
│  ┌───────────────────────────────────┐  │  │
│  │  🔗 Connect Additional Bank Accounts  →     │ │  │
│  └───────────────────────────────────┘  │  │
│                                          │  │
│  Learn more about premium features  →    │
│                                          │
└──────────────────────────────────────────┘
```

Design Specifications:

Container:

- **Background:** Gradient from teal (#21808D) to blue (#1E3A8A) at 20% opacity
- **Border:** 1px solid rgba(33,128,141,0.2)
- **Border radius:** 12px (top corners only if sticky to bottom)
- **Padding:** 20px all sides
- **Shadow:** 0 -4px 12px rgba(0,0,0,0.1) (upward shadow for depth)
- **Position:** Sticky, remains visible as user scrolls down
- **Z-index:** 100 (above feature cards but below navigation)

Typography:

- **Headline:** 18px bold, dark gray (#1F2121)
- **Emoji:** Sparkles (✨), 24px, left of headline
- **Body text:** 14px regular, medium gray (#626464)
- **Benefits list:** 13px with checkmark icons (✓), green (#22C55E)

Primary Button:

- **Background:** Teal (#21808D)

- **Text:** "Connect Additional Bank Accounts", white, 16px bold

- **Height:** 48px

- **Width:** Full width (minus 20px padding)

- **Border radius:** 8px

- **Icon:** 🔗 link icon, 20px, left-aligned

- **Hover state:** Darker teal (#1E6F7A)

- **Active state:** Scale 0.98× with slight shadow reduction

Secondary Link:

- **Text:** "Learn more about premium features", 12px gray

- **Decoration:** Underline on hover

- **Arrow:** Small right arrow (→), 12px

Dismissible:

- Small X icon (16px) top-right corner

- Tap X → Fades out with 200ms animation

- Persists for session, reappears on next login

- User preference stored: "dismissed_upgrade_cta_timestamp"

Mobile Optimization:

- **Compact mode (<375px):** Benefits list collapses to "View benefits +" expandable

- **Button:** Full width on all mobile sizes

- **Sticky behavior:** Remains at bottom on scroll, slides up when user reaches bottom of page

Zone 5: Feature Cards (Below Fold, ~600px)

Header:

```
Explore Features
(18px bold, dark gray)
```

Grid Layout:

- **Mobile (375px):** 2 columns, 8px gap

- **Tablet (768px):** 3 columns, 12px gap

- **Desktop (1024px+):** 4 columns, 16px gap
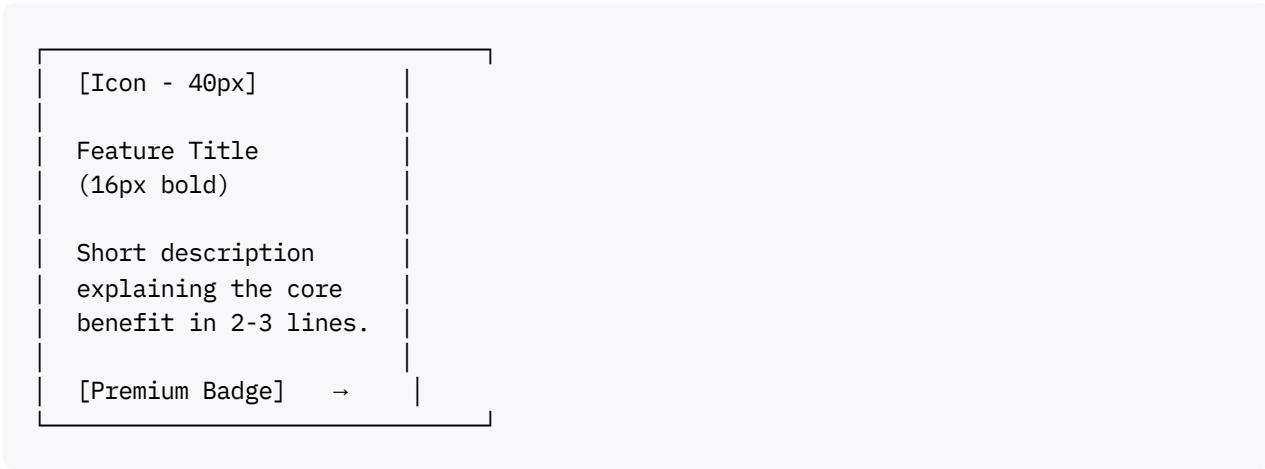
Card Dimensions:

- **Width:** 160px (mobile), auto (responsive grid)

- **Height:** 180px

- **Aspect ratio:** Maintained across breakpoints

Feature Card Design System

Standard Card Structure:

```
┌─────────────────────┐
│  [Icon - 40px]      │
│                     │
│  Feature Title      │
│  (16px bold)        │
│                     │
│  Short description  │
│  explaining the core│
│  benefit in 2-3 lines.│
│                     │
│  [Premium Badge]  → │
└─────────────────────┘
```

Design Specifications:

- **Background:** White (#FFFFFF)

- **Border:** 1px solid #E5E5E5

- **Border radius:** 10px

- **Padding:** 16px

- **Shadow:** 0 2px 6px rgba(0,0,0,0.08)

- **Icon:** 40px emoji or icon font, centered

- **Title:** 16px bold, dark gray (#1F2121)

- **Description:** 13px regular, medium gray (#626464)
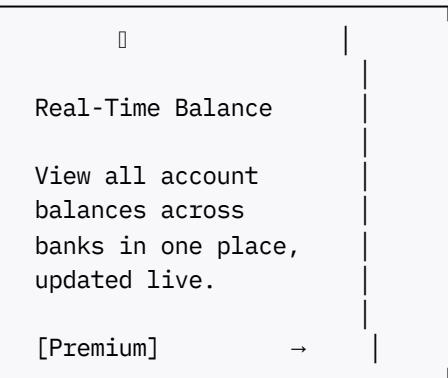
Premium Badge:

- **Premium tier:** Small pill, teal background (#21808D), white text, "Premium", 11px

- **Free tier:** Small pill, gray outline (#D1D5DB), dark gray text, "Free", 11px

Interaction:

- **Hover (desktop):** Scale 1.02× with increased shadow

- **Tap (mobile):** Navigate to feature detail page or upgrade modal

- **Premium badge tap:** Opens upgrade modal with feature comparison table

Feature Card 1: Real-Time Balance Visibility

```
┌─────────────────────────┐
│          🛍           │
│                         │
│  Real-Time Balance      │
│                         │
│  View all account       │
│  balances across        │
│  banks in one place,    │
│  updated live.          │
│                         │
│  [Premium]         →    │
└─────────────────────────┘
```
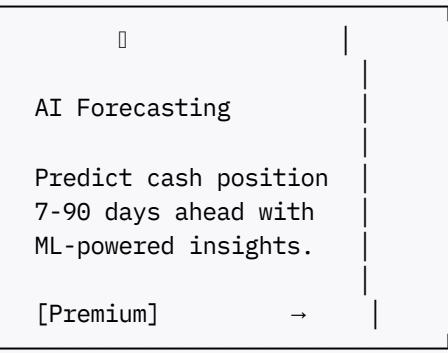
Icon: Money bag emoji (🛍) or currency icon
Premium Status: Premium feature (multi-bank)
**Detail Page:** Shows demo of multi-account dashboard

Feature Card 2: AI Cash Flow Forecasting

```
┌─────────────────────────┐
│          🛍           │
│                         │
│  AI Forecasting         │
│                         │
│  Predict cash position  │
│  7-90 days ahead with   │
│  ML-powered insights.   │
│                         │
│  [Premium]         →    │
└─────────────────────────┘
```
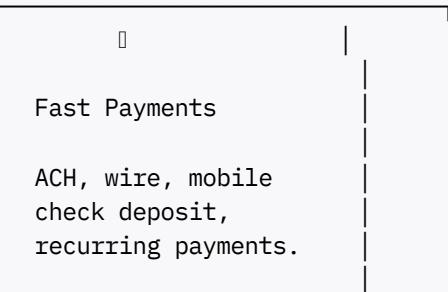
Icon: Crystal ball emoji (🛍) or chart icon
Premium Status: Premium feature
**Detail Page:** Shows example forecast chart with accuracy metrics

Feature Card 3: Fast Payment Processing

```
┌─────────────────────────┐
│          🛍           │
│                         │
│  Fast Payments          │
│                         │
│  ACH, wire, mobile      │
│  check deposit,         │
│  recurring payments.    │
│                         │
```

```
| [Free]              →     |
|_____|
```

Icon: Money with wings emoji (🤑) or payment icon
Premium Status: Free tier (basic functionality)
Detail Page: Shows payment options and processing times

Feature Card 4: Fraud Detection

```
 _____
|                        |
|        🛡              |
|                        |
|  Fraud Protection      |
|                        |
|  Positive Pay for      |
|  checks &amp; ACH,        |
|  anomaly detection.    |
|                        |
|  [Premium]       →     |
|_____|
```

Icon: Shield emoji (🛡) or security icon
Premium Status: Premium feature
Detail Page: Explains fraud detection algorithms and alerts

Feature Card 5: Invoice Automation

```
 _____
|                        |
|        📄              |
|                        |
|  Invoice Automation    |
|                        |
|  Auto-generate         |
|  invoices, payment     |
|  links, reminders.     |
|                        |
|  [Premium]       →     |
|_____|
```
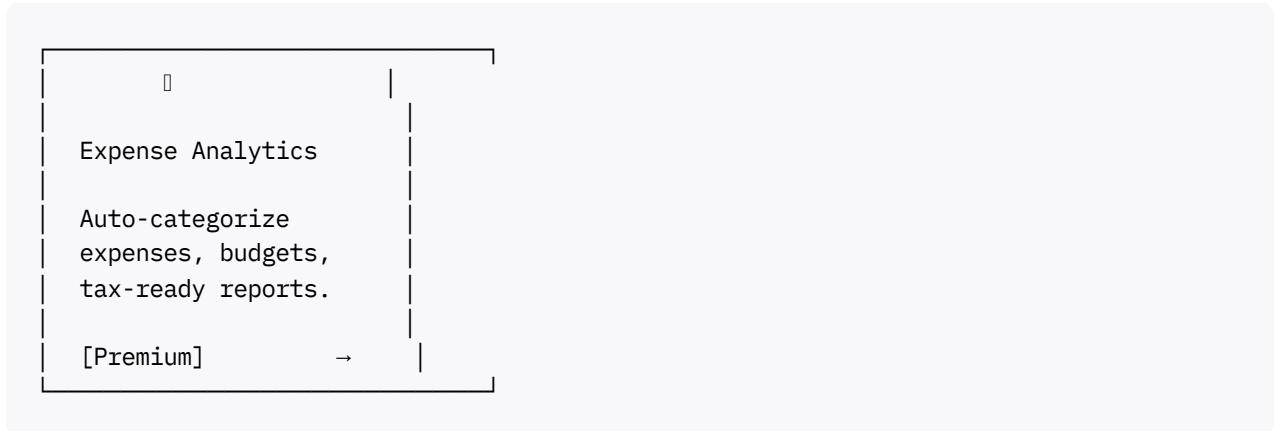
Icon: Page facing up emoji (📄) or document icon
Premium Status: Premium feature
Detail Page: Shows invoice template builder and automation rules

Feature Card 6: Expense Analytics

```
┌─────────────────────────────┐
│         ▱               │
│                             │
│  Expense Analytics          │
│                             │
│  Auto-categorize            │
│  expenses, budgets,         │
│  tax-ready reports.         │
│                             │
│  [Premium]         →    │
└─────────────────────────────┘
```

Icon: Bar chart emoji (▱) or analytics icon
Premium Status: Premium feature
Detail Page: Shows expense breakdown by category with budgets

3. Component Design System

Color Palette

Primary Colors:

- **Teal Primary:** #21808D (brand color, buttons, active states)

- **Teal Hover:** #1E6F7A (button hover state)

- **Teal Active:** #1A5F6A (button pressed state)

- **Teal Light:** rgba(33,128,141,0.1) (backgrounds, subtle highlights)

Neutral Colors:

- **White:** #FFFFFF (card backgrounds, primary surface)

- **Cream Background:** #FCFCF9 (page background)

- **Light Gray:** #F5F5F5 (secondary backgrounds, inactive pills)

- **Border Gray:** #E5E5E5 (card borders, dividers)

- **Medium Gray:** #626464 (body text, descriptions)

- **Dark Gray:** #1F2121 (headlines, primary text)

Semantic Colors:

- **Success Green:** #22C55E (positive trends, success messages)

- **Warning Orange:** #E68161 (alerts, low balance warnings)

- **Error Red:** #EF4444 (critical alerts, errors)

- **Info Blue:** #3B82F6 (informational cards, upcoming events)

Gradient:

- **Upgrade CTA:** Linear gradient from #21808D (teal) to #1E3A8A (blue) at 20% opacity

Typography

Font Family:

- **Primary:** -apple-system, BlinkMacSystemFont, 'Segoe UI', 'Roboto', sans-serif
- **Monospace:** 'Berkeley Mono', monospace (for numbers, balances)

Font Sizes:

- **Display:** 24px (current balance on graph)
- **Headline 1:** 18px (section headers, CTA headline)
- **Headline 2:** 16px (card titles, insight headlines)
- **Body:** 14px (descriptions, body text)
- **Caption:** 13px (secondary info, feature card descriptions)
- **Small:** 12px (labels, timestamps, links)
- **Micro:** 11px (badges, footnotes)

Font Weights:

- **Bold:** 600 (headlines, important text)
- **Medium:** 500 (labels, semi-important text)
- **Regular:** 400 (body text, descriptions)

Line Heights:

- **Tight:** 1.2 (headlines, display text)
- **Normal:** 1.5 (body text, paragraphs)
- **Relaxed:** 1.75 (long-form content)

Spacing Scale

Padding/Margin:

- **4px:** Micro spacing (tight elements)
- **8px:** Small spacing (between related elements)
- **12px:** Medium spacing (card gaps)
- **16px:** Standard spacing (card padding, section margins)
- **20px:** Large spacing (zone separations)
- **24px:** XL spacing (major section breaks)

Border Radius

- **Small:** 8px (cards, buttons, pills)

- **Medium:** 10px (feature cards)

- **Large:** 12px (graph container, upgrade CTA)

- **Full:** 20px (pill badges, fully rounded elements)

Shadows

Elevation Levels:

- **Level 1 (Subtle):** 0 2px 4px rgba(0,0,0,0.06) (navigation bar)

- **Level 2 (Card):** 0 2px 6px rgba(0,0,0,0.08) (insight cards, feature cards)

- **Level 3 (Graph):** 0 2px 8px rgba(0,0,0,0.06) (hero graph container)

- **Level 4 (Elevated):** 0 -4px 12px rgba(0,0,0,0.1) (upgrade CTA upward shadow)

4. Interaction Flows

Flow 1: Initial Page Load

User Action: Taps "Business 360" in sidebar

System Response:

1. **Navigation (0ms):** Highlights "Business 360" in sidebar with teal background

2. **Hero Animation (200ms):** Cash flow graph slides in from left with fade

3. **Insight Cards (400ms):** Cards fade in sequentially with 100ms stagger

4. **Upgrade CTA (2000ms):** Slides up from bottom after 2-second delay

5. **Feature Cards:** Lazy-load as user scrolls into viewport

Animation Details:

- Graph: `transform: translateX(-100%)` → `translateX(0)`, `opacity: 0` → 1, 200ms ease

- Cards: `opacity: 0` → 1, 300ms ease, 100ms stagger

- CTA: `transform: translateY(100%)` → `translateY(0)`, 400ms ease

Performance:

- Total animation time: 2.4 seconds

- No layout shift (CLS): All elements have reserved space

- Lazy-loading: Images and feature cards load on scroll
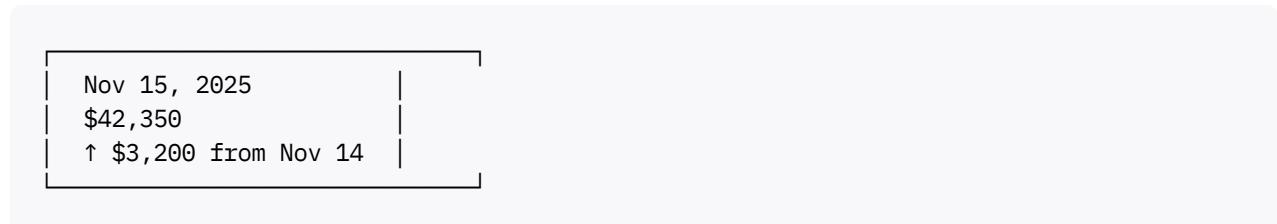
Flow 2: Tap Cash Flow Graph Data Point

User Action: Taps any point on the graph line

System Response:

1. **Tooltip Appears (100ms):** Positioned above tapped point
2. **Content Display:** Shows date, balance, and change from previous day
3. **Auto-Dismiss (3000ms):** Fades out after 3 seconds or tap elsewhere

Tooltip Design:

```
┌─────────────────────────┐
│  Nov 15, 2025           │
│  $42,350                │
│  ↑ $3,200 from Nov 14   │
└─────────────────────────┘
```

Tooltip Specifications:

- **Background:** White with shadow (0 4px 12px rgba(0,0,0,0.15))
- **Border radius:** 8px
- **Padding:** 12px
- **Arrow:** 8px triangle pointing to tapped point
- **Animation:** `opacity: 0 → 1`, `transform: scale(0.9) → scale(1)`, 100ms ease

Edge Cases:

- If tooltip would overflow screen edge, reposition to opposite side of point
- On tap elsewhere, dismiss immediately without animation
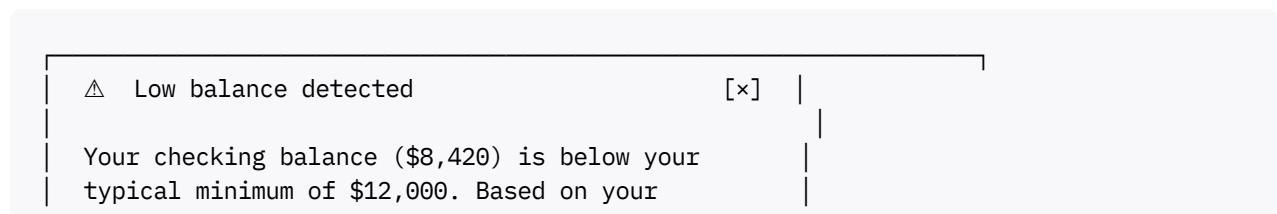
Flow 3: Expand Insight Card

User Action: Taps insight card (e.g., "Low balance detected")

System Response:

1. **Card Expansion (300ms):** Height animates from collapsed to expanded
2. **Content Reveal:** Additional details and action buttons fade in
3. **Scroll Adjustment:** Page auto-scrolls to keep expanded card in view

Expanded Card Structure:

```
┌──────────────────────────────────────────┐
│  ⚠  Low balance detected          [×]   │
│                                          │
│  Your checking balance ($8,420) is below your   │
│  typical minimum of $12,000. Based on your      │
```

```
|   upcoming expenses, we recommend maintaining at   |
|   least $15,000 to avoid overdraft fees.           |
|                                                    |
|   Suggested Actions:                               |
|   • Transfer $5,000 from PNC Savings (Acct: ••0042) |
|   • Delay $2,500 vendor payment by 3 days          |
|   • Review upcoming payroll ($4,200 on Nov 12)     |
|                                                    |
|   ┌────────────────┐  ┌────────────────────┐       |
|   | Transfer Now   |  |    Dismiss         |       |
|   └────────────────┘  └────────────────────┘       |
|                                                    |
|   Remind me tomorrow                               |
```

Animation:

- Height: `180px` → `auto` (300ms ease)
- Buttons: `opacity: 0` → `1` (200ms ease, 100ms delay)
- Other cards: Smoothly shift down to accommodate expansion

Collapse:

- Tap [×] or tap outside card → Reverse animation
- State persists until page reload

Flow 4: Connect Additional Bank Accounts (Critical Flow)

User Action: Taps "Connect Additional Bank Accounts" button in upgrade CTA

System Response:

Step 1: Modal Launch (400ms)

- Bottom sheet modal slides up from screen bottom
- Overlay darkens background (rgba(0,0,0,0.5))
- Modal contains Plaid Link integration
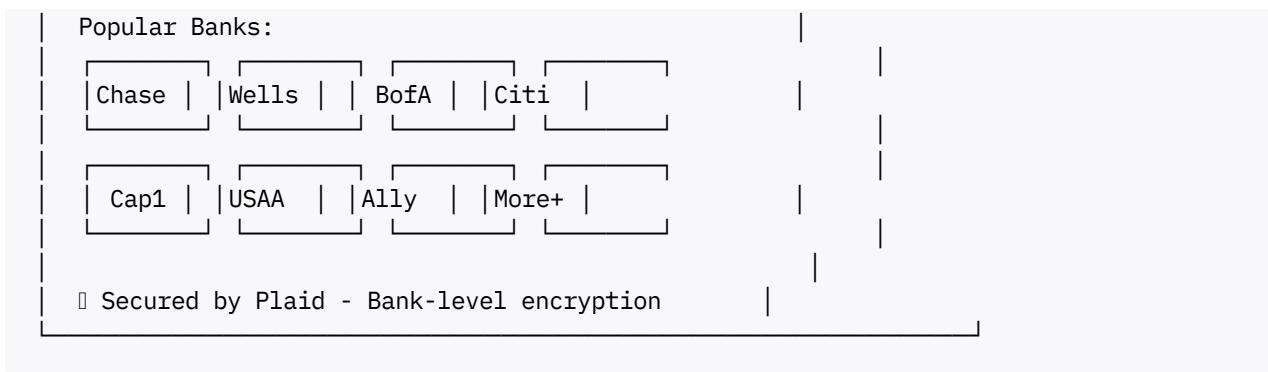
Modal Design:

```
┌──────────────────────────────────────────────────┐
|                                                    |
|   Connect Your Bank Accounts            [×]   |    |
|                                               |    |
|   Securely connect your business accounts to unlock |
|   hyper-personalized insights and complete cash   |
|   visibility.                                 |    |
|                                               |    |
|   ┌───────────────────────────────────────┐   |   |
|   |  [⌕] Search for your bank...           | |  |
|   └───────────────────────────────────────┘   |   |
|                                               |    |
```

```
│   Popular Banks:                                        │
│                                                          │
│   ┌───────┐ ┌───────┐  ┌───────┐  ┌───────┐             │
│   │Chase  │ │Wells  │  │ BofA  │  │Citi   │             │
│   └───────┘ └───────┘  └───────┘  └───────┘             │
│                                                          │
│   ┌───────┐ ┌───────┐ ┌───────┐  ┌───────┐              │
│   │ Cap1  │ │USAA   │ │Ally   │  │More+  │              │
│   └───────┘ └───────┘ └───────┘  └───────┘              │
│                                                          │
│   🔒 Secured by Plaid - Bank-level encryption       │
└──────────────────────────────────────────────────┘
```
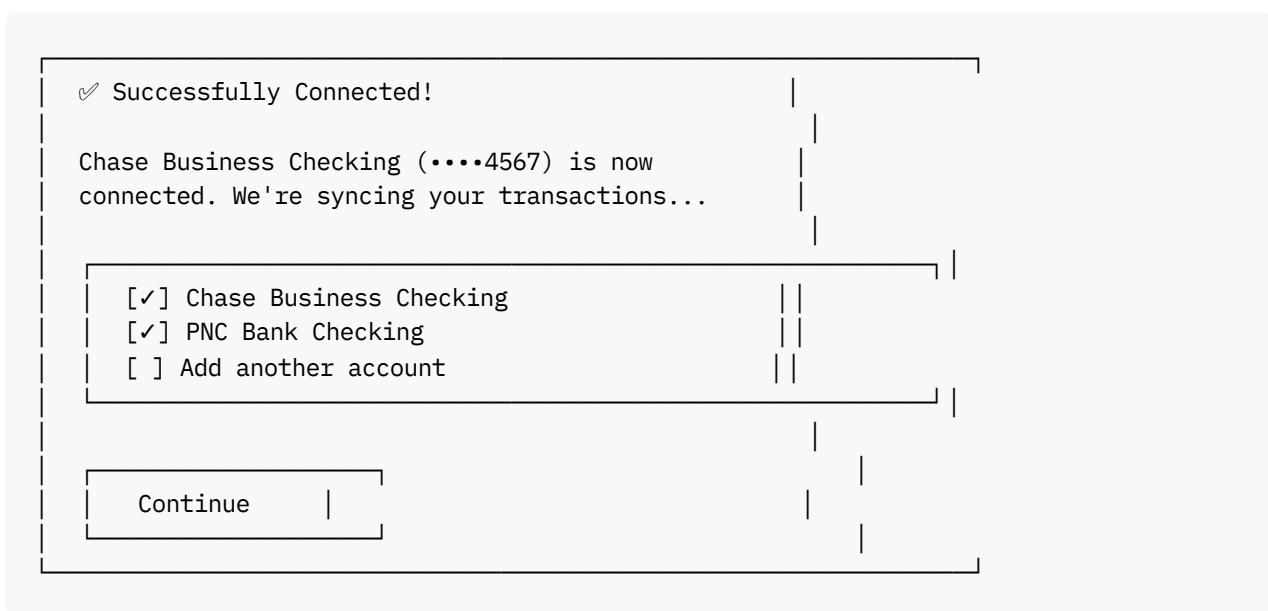
Step 2: Bank Selection

- User taps bank (e.g., "Chase")
- Launches Plaid OAuth flow in embedded iframe
- User authenticates with bank credentials
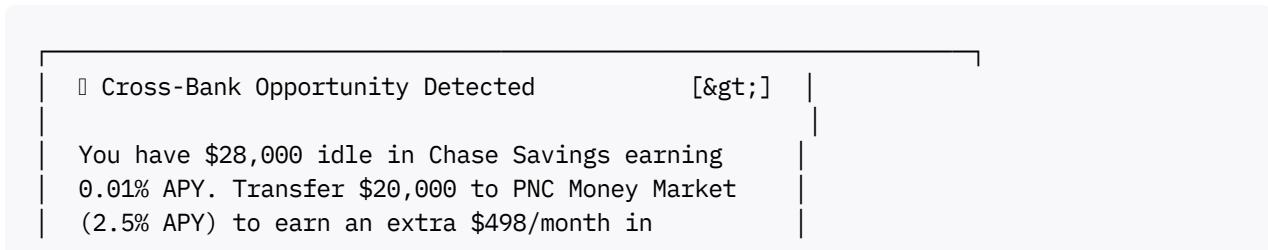
Step 3: Success Confirmation

```
┌────────────────────────────────────────────────┐
│  ✅ Successfully Connected!                      │
│                                                  │
│  Chase Business Checking (••••4567) is now       │
│  connected. We're syncing your transactions...   │
│                                                  │
│  ┌────────────────────────────────────────┐     │
│  │  [✓] Chase Business Checking           ││     │
│  │  [✓] PNC Bank Checking                 ││     │
│  │  [ ] Add another account               ││     │
│  └────────────────────────────────────────┘     │
│                                                  │
│  ┌──────────────────┐                        │   │
│  │    Continue      │                        │   │
│  └──────────────────┘                        │   │
└────────────────────────────────────────────────┘
```

Step 4: Return to Business 360

- Modal dismisses with slide-down animation (400ms)
- Business 360 screen refreshes with loading indicator
- Graph updates to show multi-bank cash flow (animated transition)
- Generic insights replaced with **hyper-personalized insights**

Hyper-Personalized Insight Example:

```
┌────────────────────────────────────────────┐
│  💡 Cross-Bank Opportunity Detected      [&gt;]  │
│                                              │
│  You have $28,000 idle in Chase Savings earning │
│  0.01% APY. Transfer $20,000 to PNC Money Market │
│  (2.5% APY) to earn an extra $498/month in       │
```

```
|   interest without impacting liquidity.          |
|                                                  |
|   Impact: +$5,976/year | Risk: Low               |
```

Upgrade CTA Replacement:

- Original CTA disappears
- Replaced with "Connected Accounts" card showing all linked banks
- New CTA: "Unlock advanced features" (fraud detection, forecasting)

Flow 5: Scroll to Feature Cards

User Action: Scrolls down past upgrade CTA

System Response:

Lazy Loading:

- Feature cards load when they enter viewport (intersection observer)
- Cards fade in with 200ms stagger (first card → last card)
- Skeleton loaders shown during load (gray rectangles)

Tap Feature Card:

- If **premium feature** → Opens upgrade modal with feature comparison
- If **free feature** → Navigate to feature detail page

Upgrade Modal:

```
|   Unlock AI Forecasting                    [×]   |
|                                                  |
|   Get 30-90 day cash flow predictions with 95%   |
|   accuracy powered by machine learning.          |
|                                                  |
|   ┌─────────────────────────────────────┐        |
|   |   [Graph Preview]                    ||
|   |   Example: "Based on patterns, expect $42K  ||
|   |   balance on Dec 15 with 95% confidence"    ||
|   └─────────────────────────────────────┘        |
|                                                  |
|   Feature Comparison:                            |
|   ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━|
|                                                  |
|   Free Tier:     7-day basic forecast            |
|   Premium Tier:  30-90 day AI forecast           |
|                  Scenario modeling               |
|                  Cash flow alerts                |
|   ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━|
|                                                  |
|   Pricing: $79/month (included in Business Pro)  |
```
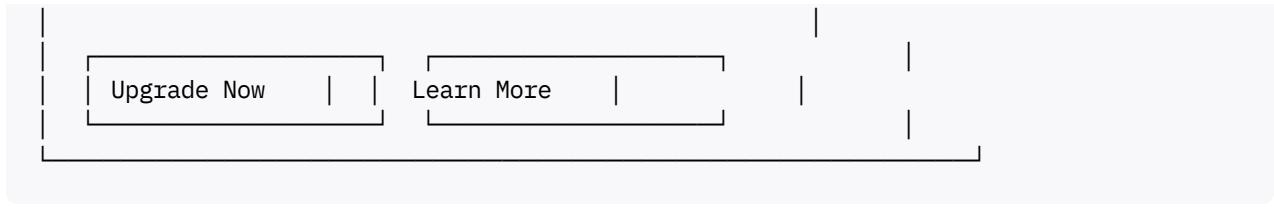
```
|                                              |          |
|    ┌──────────────────┐ ┌─────────────────┐ |        |
|    │  Upgrade Now    │ │  Learn More    │ |        |
|    └──────────────────┘ └─────────────────┘ |        |
└────────────────────────────────────────────────────┘
```

5. Responsive Breakpoints

Mobile Portrait (375px - 567px)

Layout Adjustments:

- Sidebar: Collapses to hamburger menu

- Graph: Full width (343px), 200px height

- Insights: Vertical stack, 3 cards

- Upgrade CTA: Sticky bottom, full width

- Feature cards: 2-column grid (160px each)

Spacing:

- Page padding: 16px

- Card gap: 12px

- Zone spacing: 20px

Mobile Landscape (568px - 767px)

Layout Adjustments:

- Graph: Reduced to 180px height (more horizontal space)

- Insights: Horizontal scroll, 3 cards side-by-side

- Upgrade CTA: Reduced padding (16px vs 20px)

- Feature cards: 3-column grid

Spacing:

- Page padding: 16px

- Card gap: 12px

Tablet Portrait (768px - 1023px)

Layout Adjustments:

- Sidebar: Persistent left sidebar (60px collapsed, 240px expanded)

- Graph: 60% width, right sidebar shows quick stats:

- Current balance
  - Change from yesterday
  - Week-over-week trend
- Insights: 2-column grid
- Upgrade CTA: Dismissible banner (not sticky)
- Feature cards: 3-column grid

Spacing:

- Page padding: 24px
- Card gap: 16px

Desktop (1024px+)

Layout Adjustments:

- Sidebar: Always expanded (240px fixed)
- Graph: 66% width, right sidebar with:
  - Current balance card
  - Quick actions (Transfer, Pay, Receive)
  - Recent transactions (5 most recent)
- Insights: 3-column grid
- Upgrade CTA: Dismissible banner at top of feature cards
- Feature cards: 4-column grid

Spacing:

- Page padding: 32px
- Card gap: 20px

Hover States:

- Graph: Hover data point shows tooltip (no tap required)
- Cards: Scale 1.02× with increased shadow
- Buttons: Darker background color

6. Upgrade Strategy

Free Tier (PNC Bank Only)

What's Included:

- ✅ Real-time cash flow graph (PNC only)
- ✅ 3 generic AI insights (single-bank analysis)
- ✅ Basic payment processing (ACH, wire)
- ✅ 7-day cash flow forecast (basic)
- ✅ Transaction categorization (manual)

Limitations:

- ✖ Only PNC Bank visible
- ✖ Generic insights (not personalized)
- ✖ No multi-bank consolidation
- ✖ No fraud detection
- ✖ No invoice automation
- ✖ Limited forecasting (7 days only)

Value Prop: "Get started with basic cash visibility from PNC Bank"

Premium Tier (Multi-Bank Access)

What's Unlocked:

- ✅ Consolidated multi-bank cash flow (12,000+ banks)
- ✅ **Hyper-personalized insights** (cross-bank opportunities)
- ✅ AI forecasting (30-90 days, 95% accuracy)
- ✅ Fraud detection across all accounts
- ✅ Invoice automation (auto-send, reminders, late fees)
- ✅ Advanced analytics (expense breakdown, budgets)
- ✅ Real-time alerts (low balance, fraud, payment due)
- ✅ Scenario modeling ("What if I delay this payment?")

Pricing: $79/month (Business Pro tier)

Value Prop: "Unlock complete cash visibility and AI-powered insights across all your business accounts"

Upgrade Prompts (Strategic Placement)

Prompt 1: Bottom 25% CTA (Primary)

- **Location:** Sticky banner at bottom of screen
- **Trigger:** Always visible on free tier
- **Dismissible:** Yes (persists for session, reappears on next login)
- **Conversion Goal:** Connect additional banks
- **CTA:** "Connect Additional Bank Accounts"

Prompt 2: Premium Feature Cards

- **Location:** Feature cards with [Premium] badge
- **Trigger:** Tap premium feature card
- **Modal:** Feature comparison + upgrade CTA
- **Conversion Goal:** Subscribe to Business Pro tier
- **CTA:** "Upgrade Now" + "Learn More"

Prompt 3: Generic Insight Limitation

- **Location:** Within insight card expanded view
- **Trigger:** Tap "Why is this generic?" link
- **Tooltip:** "Connect more banks to get personalized insights specific to your business patterns"
- **Conversion Goal:** Connect additional banks
- **CTA:** "Connect Banks"

Prompt 4: Graph Pinch-Zoom

- **Location:** On graph pinch-zoom attempt
- **Trigger:** User tries to pinch-zoom graph (premium feature)
- **Toast:** "Upgrade to zoom into hourly cash flow data"
- **Conversion Goal:** Upgrade to premium
- **CTA:** "Upgrade" button in toast

Conversion Funnel

Stage 1: Awareness (Free tier user sees value)

- User lands on Business 360
- Sees PNC cash flow + 3 generic insights
- Understands basic value proposition

Stage 2: Interest (User explores upgrade prompt)

- Scrolls to bottom 25% upgrade CTA

- Reads benefits of multi-bank access

- Taps "Learn more about premium features"

Stage 3: Evaluation (User considers upgrade)

- Views feature comparison table

- Sees hyper-personalized insight examples

- Calculates ROI (e.g., "Save $498/month with cross-bank optimization")

Stage 4: Decision (User upgrades)

- Taps "Connect Additional Bank Accounts"

- Completes Plaid integration

- Sees immediate value (new insights appear)

Stage 5: Retention (User stays subscribed)

- Uses hyper-personalized insights regularly

- Relies on fraud detection alerts

- Tracks 30-90 day forecasts for planning

7. Technical Requirements

Data Sources

PNC Bank API:

- **Endpoint:** `/api/v1/accounts/{accountId}/transactions`

- **Authentication:** OAuth 2.0 with refresh tokens

- **Polling:** Every 2 minutes for real-time updates

- **Cache:** 5-minute client-side cache for graph data

- **Rate Limit:** 100 requests/minute

Graph Data:

- **Query:** Last 30 days of end-of-day balances

- **Format:** JSON array of `{date: "2025-11-01", balance: 42350}`

- **Interpolation:** Cubic bezier for smooth curves

- **Missing Data:** Forward-fill from last known balance

Insight Generation:

- **ML Model:** Cloud-based microservice (`/api/v1/insights/generate`)

- **Input:** 90 days of transaction history

- **Output:** 3 generic insights ranked by priority

- **Refresh:** Every 6 hours (4 times/day)

Plaid Integration:

- **SDK:** Plaid Link Web SDK v2.0
- **Environment:** Production
- **Products:** Transactions, Auth, Balance
- **Webhook:** `/webhooks/plaid` for transaction updates

Performance Targets

Initial Load:

- **First Contentful Paint (FCP):** <1.2 seconds
- **Largest Contentful Paint (LCP):** <2.5 seconds
- **Time to Interactive (TTI):** <3.5 seconds
- **Cumulative Layout Shift (CLS):** <0.1

Runtime Performance:

- **Graph re-render:** <100ms
- **Insight card expansion:** 300ms smooth animation (60fps)
- **Scroll performance:** Maintain 60fps during scroll
- **Lazy loading:** Images/cards load within 200ms of entering viewport

API Response Times:

- **PNC transactions:** <500ms p95
- **Insight generation:** <2 seconds p95
- **Plaid connection:** <5 seconds p95

Browser/Device Support

Browsers:

- **Chrome:** 90+ (desktop), 90+ (mobile)
- **Safari:** 14+ (desktop), 14+ (iOS)
- **Firefox:** 88+
- **Edge:** 90+

Devices:

- **iOS:** 14+ (iPhone 8 and newer)
- **Android:** 10+ (2019 flagship devices and newer)

- **Tablets:** iPad 6th gen+, Samsung Tab S6+

Screen Sizes:

- **Mobile:** 375px - 767px (optimized for 375px and 414px)

- **Tablet:** 768px - 1023px

- **Desktop:** 1024px+

Security & Privacy

Data Encryption:

- **In Transit:** TLS 1.3 for all API calls

- **At Rest:** AES-256 encryption for stored balances

- **PII:** Redacted in logs and analytics

Authentication:

- **User Session:** JWT with 15-minute expiry, 7-day refresh token

- **Bank Credentials:** Never stored, handled by Plaid

- **OAuth Tokens:** Encrypted at rest, rotated every 90 days

Compliance:

- **PCI DSS:** Level 1 compliance (payment processing)

- **SOC 2 Type II:** Annual audit

- **GDPR:** Right to erasure, data portability

- **CCPA:** Opt-out of data sale (no data sold)

8. Accessibility Standards

WCAG 2.1 Level AA Compliance

Color Contrast:

- **Normal text (14px):** 4.5:1 minimum
  - Dark gray (#1F2121) on white → 18.3:1 ✅
  - Medium gray (#626464) on white → 7.2:1 ✅

- **Large text (18px+):** 3:1 minimum
  - Teal (#21808D) on white → 3.8:1 ✅

- **Interactive elements:** Focus indicators with 3:1 contrast

Keyboard Navigation:

- **Tab order:** Logical top-to-bottom, left-to-right

1. Sidebar menu

    2. Graph time period selector

    3. Insight cards (sequential)

    4. Upgrade CTA button

    5. Feature cards (row-by-row)

- **Enter/Space:** Activate buttons, expand cards

- **Escape:** Collapse expanded cards, close modals

- **Arrow keys:** Navigate between time period pills

Screen Reader Support:

ARIA Labels:

```
<div>

</div>

<div>
  Low balance detected. Your checking balance is below typical minimum.
</div>

&lt;button aria-label="Connect additional bank accounts to unlock premium features and hy
  Connect Additional Bank Accounts
&lt;/button&gt;
```

Landmark Regions:

```
&lt;nav aria-label="Main navigation"&gt;

&lt;/nav&gt;

&lt;main aria-label="Business 360 dashboard"&gt;
  &lt;section aria-labelledby="cash-flow-heading"&gt;
    <h2>Cash Flow Trend</h2>

  &lt;/section&gt;

  &lt;section aria-labelledby="insights-heading"&gt;
    <h2>Insights</h2>

  &lt;/section&gt;
&lt;/main&gt;
```

Live Regions:

- Insight cards: `aria-live="polite"` for dynamic updates

- Balance changes: Announced when user taps graph point

- Loading states: `aria-busy="true"` during API calls

Touch Target Size

Minimum Sizes:

- **Primary buttons:** 48px height × full width
- **Icon buttons:** 44px × 44px (navigation, close buttons)
- **Pill selectors:** 60px width × 32px height
- **Card tap areas:** Full card area (160px × 180px)
- **Graph data points:** 10px radius tap target (expanded from 4px visual)

Spacing:

- **Minimum gap between tappable elements:** 8px
- **Recommended gap:** 12px for comfort

Focus Indicators

Visible Focus Ring:

- **Color:** Teal (#21808D) with 40% opacity
- **Style:** 3px solid outline with 2px offset
- **Animation:** 150ms fade-in on focus

Focus States:

```css
.btn:focus-visible {
  outline: 3px solid rgba(33, 128, 141, 0.4);
  outline-offset: 2px;
}

.card:focus-visible {
  box-shadow: 0 0 0 3px rgba(33, 128, 141, 0.4);
}
```

Motion & Animation

Reduced Motion:

```css
@media (prefers-reduced-motion: reduce) {
  * {
    animation-duration: 0.01ms !important;
    animation-iteration-count: 1 !important;
    transition-duration: 0.01ms !important;
  }
}
```

Respectful Animations:

- No auto-playing videos

- No flashing content (>3 flashes/second)

- Animations can be paused/stopped

- Essential animations (loading indicators) remain functional

Appendix: Example User Scenarios

Scenario 1: First-Time User (Free Tier)

Context: Sarah, a freelance graphic designer, just signed up for PNC business banking and opens the Business 360 tab for the first time.

Journey:

1. **Initial Load:** Sarah sees her PNC checking account cash flow for the last 30 days

2. **Exploration:** She taps a data point on Nov 15 and sees "$4,250 balance, up $500 from yesterday"

3. **Insights:** Scrolls down to see 3 generic insights:

   - "Low balance detected" (she typically keeps $5K minimum)

   - "Balance trending up" (15% higher than last month)

   - "Upcoming payment" ($2,500 client invoice due Nov 18)

4. **Upgrade Prompt:** Sees sticky CTA at bottom explaining multi-bank benefits

5. **Decision:** Thinks "I have a Chase savings account too, let me connect it"

6. **Action:** Taps "Connect Additional Bank Accounts" → Plaid flow → Connects Chase

Outcome: Sarah now sees consolidated $12,000 cash position (PNC + Chase) and gets hyper-personalized insight: "Move $3,000 from Chase Savings (0.01% APY) to PNC Money Market (2.5% APY) to earn extra $74/month without losing liquidity"

Scenario 2: Established Business Owner (Multi-Bank)

Context: Mike owns a construction company with accounts at PNC (checking), Wells Fargo (payroll), and Bank of America (credit line). He's already connected all three banks.

Journey:

1. **Daily Check:** Mike opens Business 360 every morning at 7am before heading to job site

2. **Cash Position:** Sees consolidated balance across all 3 banks: $87,500 total

3. **Hyper-Personalized Insights:**

   - "Fraud alert: $1,200 unauthorized charge detected on Wells Fargo Payroll account"

- "Payment optimization: Delay $5K supplier payment by 3 days to maintain $15K minimum"
- "Credit utilization: You're at 78% on BofA credit line—pay down $10K to improve score"

4. **Action:** Taps fraud alert → Reviews transaction → Marks as fraud → Bank freezes card
5. **Forecasting:** Checks 30-day forecast → Sees cash dipping to $42K on Nov 25 due to payroll
6. **Planning:** Decides to delay equipment purchase until Dec 1 to maintain buffer

Outcome: Mike catches fraud early (saves $1,200), optimizes payment timing (avoids overdraft), and makes data-driven equipment purchase decision.

Conclusion

The Business 360 mobile-first screen provides an **intuitive, value-driven freemium experience** that:

1. **Hooks users** with immediate PNC cash flow visibility
2. **Delivers value** through 3 generic AI insights (free tier)
3. **Educates upgrade benefits** with persistent bottom-screen CTA
4. **Converts users** by unlocking hyper-personalized insights when they connect additional banks
5. **Retains subscribers** through daily-use features (fraud alerts, forecasting, cross-bank optimization)

By strategically placing the upgrade prompt at the **bottom 25% of the screen** (after users have experienced core value), we maximize conversion while minimizing friction. The mobile-first design ensures accessibility, performance, and delight across all device sizes.

Next Steps:

- **Design:** Create high-fidelity mockups in Figma
- **Engineering:** Build component library and API integrations
- **Testing:** Conduct usability testing with 20 SMB owners
- **Launch:** Phased rollout (10% → 50% → 100% over 4 weeks)