

# Business Problem Summary: EE HH Recommendation System

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**Author:** Mihkel Putrinš

**Project:** Elektrum Estonia Household Customer Acquisition

**Document Purpose:** Clear explanation of business problem for IT implementation planning

**Domain Terminology:** See *Domain\_Glossary.md* for acronyms and key terms

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## 1. The Core Business Challenge

### Current Situation

- Estonia household (HH) electricity market is competitive
- Customer acquisition through traditional sales channels is expensive
- Self-service platform (Elektrum.ee) already operational and successful
- Need more attractions to drive self-service adoption (cheapest acquisition channel)

### The Opportunity

Elektrum has **over 1000 self-service agreements signed** in a short period, proving customers are willing to sign up without sales assistance. The business wants to **amplify this success** by turning existing satisfied customers into brand ambassadors.

## 2. The Solution: Referral/Recommendation Program

### How It Works (Like Wolt/Bolt)

#### Step 1: Existing Customer Gets Promo Code

- Customer “Mihkel” has active electricity contract with Elektrum
- System generates unique promo code: MIHKEL2025
- Mihkel sees this code in:
  - CC&B billing system (for Elektrum staff)
  - Elektrum.ee self-service portal (for Mihkel)
  - Mobile app (Android/iOS)
- Code is **shareable** with predefined text and link

#### Step 2: Mihkel Shares with Friends

- Tells colleague: “Use my code MIHKEL2025 when signing up with Elektrum”
- Colleague clicks shared link or manually enters code in self-service
- System validates: Is code valid? Is it active?

#### Step 3: New Customer Signs Up

- Colleague enters MIHKEL2025 during contract signup
- Sees discount amount displayed: “You’ll get €7 discount!”
- Completes contract with start date (e.g., April 1)
- Contract must **activate** before discounts apply

#### Step 4: Contract Activates -> Discounts Applied

- When contract enters into force (becomes active)
- System automatically applies:
  - **€10-15 discount** to Mihkel's account (referrer)
  - **€7-12 discount** to colleague's account (new customer)
- Both discounts added as "Continuous bill discount" (applied to future bills)

#### Step 5: Repeat

- Mihkel can share code with unlimited people
- Gets discount **every single time** someone uses his code and activates
- Example: 10 successful referrals =  $10 \times \text{€}10-15 = \text{€}100-150$  in discounts for Mihkel!

### 3. Business Rules & Logic

#### 3.1 Promo Code Lifecycle

Generate → Active → Used → Discount Applied

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Inactive (if contract terminated or manually disabled)

##### Generation:

- **Existing customers:** All current electricity customers get code immediately
- **New customers:** Code generated when they sign contract (active when contract activates)
- **Ex-customers:** If they return, new code generated automatically
- **Manual override:** Staff can generate code manually in CC&B if auto-generation fails

##### Duration:

- Active as long as customer has active electricity/gas contract
- Becomes inactive when contract terminates
- Can be manually inactivated (e.g., if used for fraud)
- If customer has multiple codes, only one can be active at a time (no overlapping periods)

##### Likely Business Motivations:

- Simplifies tracking and prevents system gaming
- Ensures fair referral distribution across customers
- Maintains financial sustainability of the program
- Reduces technical complexity
- Allows quick response to suspicious activity, protecting program integrity

##### Devil's Advocate Perspective:

- May frustrate power users and reduce total referral volume
- Creates operational overhead and potential for arbitrary enforcement
- Competitors with more flexible referral programs could have advantage
- Automated fraud detection might be more effective than manual intervention
- Multiple concurrent campaigns with different codes could drive higher engagement

### Validation:

- When new customer enters code, system checks:
  - Does code exist?
  - Is code currently active?
  - If invalid: Show error message “Code cannot be used”
  - If valid: Show discount amount and accept signup

### 3.2 Discount Amounts (Three Groups)

The discount is a **fixed EUR amount** (not per kWh), organized into 3 groups:

Group	Who Gets It	Amount
1	Existing customer (referrer)	€10
2	New customer (referee, self-service)	€7
3	New customer (referee, manual)	€6

### Key Rules:

- Discount amount is **effective at contract concluding moment** (not start date!)
- Business can change amounts over time with effective periods
- Each group can have different amounts and effective periods
- No overlap within same group, but groups can overlap

### Example Timeline:

Jan 2021: Referrer €10, New customer €7

Mar 2021: Referrer changes to €15 (new gets stays €7)

Apr 2021: New customer changes to €12

### Timeline:

Jan 15: New customer B signs → Referrer gets €10, B gets €7

Feb 10: New customer C signs → Referrer gets €10, C gets €7

Mar 20: New customer D signs → Referrer gets €15, D gets €7

May 05: New customer E signs → Referrer gets €15, E gets €12

### 3.3 When Discounts Are Applied

**Critical Rule:** Discount applied only when **new customer’s contract activates** (enters into force)

### NOT applied:

- When contract is signed (only recorded)
- If new customer never activates contract
- If existing customer adds service to current contract (code only for NEW customers)

### **Process Flow:**

1. New customer signs contract with promo code on **January 15**
2. Contract has start date **February 1**
3. Contract activates on **February 1**
4. **On February 1** -> System automatically:
  - Adds discount to referrer's account
  - Adds discount to new customer's account
  - Both applied as "Continuous bill discount" type

## **4. Integration Points**

### **Systems Involved**

#### **CC&B (Customer Care & Billing):**

- Core billing system
- Stores promo codes, tracks usage
- Displays code info: code, start/end date, status
- Manual code generation capability
- Discount application and tracking

#### **Elektrum.ee Self-Service Portal:**

- Customer-facing web portal
- Displays promo code to existing customers
- Shareable with predefined text + link
- New customers enter code during signup
- Shows discount amount to new customer
- Validates code in real-time

#### **Sales Portal:**

- Used by Elektrum sales staff
- Manual promo code entry for phone/in-person sales
- Discount amount display
- Validation warnings (not blocking)
- Special handling for cases when self-service fails

#### **Mobile Apps (Android/iOS):**

- Display promo code
- Share functionality
- Code must be usable on mobile

#### **Case Management (LT-SUPCRQ):**

- "Supplier Change Request" cases
- If self-service signup fails -> creates case
- Promo code and discount amount must transfer to case
- New characteristics needed: "Promo code", "Discount amount"

## 5. User Stories

### For Existing Customers (Referrers)

**Story 1:** As an existing customer, I want to see my promo code in self-service portal so I can easily share it with friends.

**Story 2:** As an existing customer, I want to share my code with a link and predefined text so sharing is quick and professional.

**Story 3:** As an existing customer, I want to see how many times my code was used and how much discount I've earned so I'm motivated to share more.

### For New Customers (Referees)

**Story 4:** As a potential customer, I want to enter a promo code during signup so I can get the discount my friend told me about.

**Story 5:** As a potential customer, I want to see immediately if my promo code is valid and how much discount I'll get so I know the deal is real.

**Story 6:** As a new customer, I want my discount applied automatically when my contract starts so I don't have to follow up.

### For Sales Staff

**Story 7:** As a sales agent, I want to manually enter promo codes for customers calling by phone so they can get referral discounts even without using self-service.

**Story 8:** As a sales agent, I want to see a warning if a promo code is inactive so I can explain to customer or find alternative.

**Story 9:** As a sales agent, I want to override discount group when finishing a case that started in self-service so customer gets the self-service discount amount they expected.

### For System Administrators

**Story 10:** As an admin, I want to manually generate or inactivate promo codes so I can handle edge cases and fraud prevention.

**Story 11:** As an admin, I want to configure discount amounts with effective periods so we can adjust incentives based on market conditions.

**Story 12:** As an admin, I want to export reports on promo code usage (Sent/Used) so I can measure campaign effectiveness.

## 6. Success Metrics

### Customer Acquisition:

- Number of new contracts via promo codes (target: 20% of all new signups)
- Customer acquisition cost reduction (benchmark: traditional sales channel cost)
- Self-service conversion rate increase

### Engagement:

- % of customers who share their promo code (target: 30%)
- Average referrals per active referrer (target: 2-3)
- Code usage rate (used codes / shared codes)

### Technical:

- System availability: 99.5%
- Code validation response time: <500ms
- Discount application accuracy: 100%

### Financial:

- Total discount liability (budget management)
- Customer lifetime value of referred customers vs. traditional
- Return on investment: acquisition cost vs. discount cost

## 7. Future Expansion Plans

### Phase 2 (mentioned in spec):

- Solar panel/park sales
- Other products
- Business customers (micro BUS segment)
- Gas customers

**Implication:** System must be flexible and configurable for different product types and customer segments.

## 8. Edge Cases & Special Scenarios

### Scenario 1: Self-Service Failure

- Customer starts signup in self-service with promo code
- Technical issue -> Case LT-SUPCRQ created
- Sales agent finishes in Sales Portal days later
- **Problem:** Code might be inactive now, or discount amount changed
- **Solution:** Sales Portal allows using inactive code and discount amount that was valid at original signup moment

### Scenario 2: Early Termination

- New customer gets €7 discount, uses €3, then terminates contract
- **Current:** Early termination fee will be added manually
- **Future CR:** Automated early termination fee calculation

### Scenario 3: Customer Has Multiple Accounts

- Customer can transfer unused discount to another account if contract terminates
- Prevents losing earned discount value

### Scenario 4: Ex-Customer Returns

- Had promo code “ABC123” (now inactive)
- Signs new contract
- **Action:** New unique promo code generated automatically

### Scenario 5: Fraud Prevention

- Code “XYZ789” is being used inappropriately
- **Action:** Admin manually inactivates code with end date
- No new code generated automatically

## 9. Technical Requirements Summary

### Core Functionality:

- Unique promo code generation algorithm
- Code lifecycle management (active/inactive states)
- Real-time validation API
- Discount calculation engine with configurable amounts
- Discount application integration with billing system

### Data Storage:

- Promo code table (code, account\_id, start\_date, end\_date, status)
- Referral transaction table (transaction\_id, code, referrer\_account, referee\_account, locked\_discount\_amounts, contract\_concluded\_date, contract\_activation\_date, status)
- Discount configuration (group, amount, effective\_from, effective\_to)

### Integration APIs:

- CC&B <-> Self-Service Portal
- CC&B <-> Sales Portal
- CC&B <-> Mobile Apps
- CC&B <-> Case Management

### Reporting:

- Promo code usage statistics
- Discount liability tracking
- Campaign effectiveness metrics
- Export functionality

### Security:

- Code uniqueness enforcement
- Validation to prevent double-use within same timeframe
- Fraud detection (usage patterns)
- Audit trail for manual interventions

## 10. Why This Matters

### Customer Perspective:

- Save money on electricity
- Help friends save money
- Feel valued as brand ambassador
- Simple, transparent process

### Business Perspective:

- Lowest cost customer acquisition channel (no sales staff needed)
- Leverage satisfied customer base
- Scalable growth mechanism
- Competitive advantage in open market
- Data-driven campaign optimization

### Market Context:

- EE (Estonia) household electricity market recently opened/competitive
- Self-service trend proven successful (1000+ signups)
- Need to maintain competitiveness vs. other providers
- Customer recommendations are trusted more than advertising