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Sergey Chekriy

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Issue Date
Jan 25, 2020

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Director, Training and Certification

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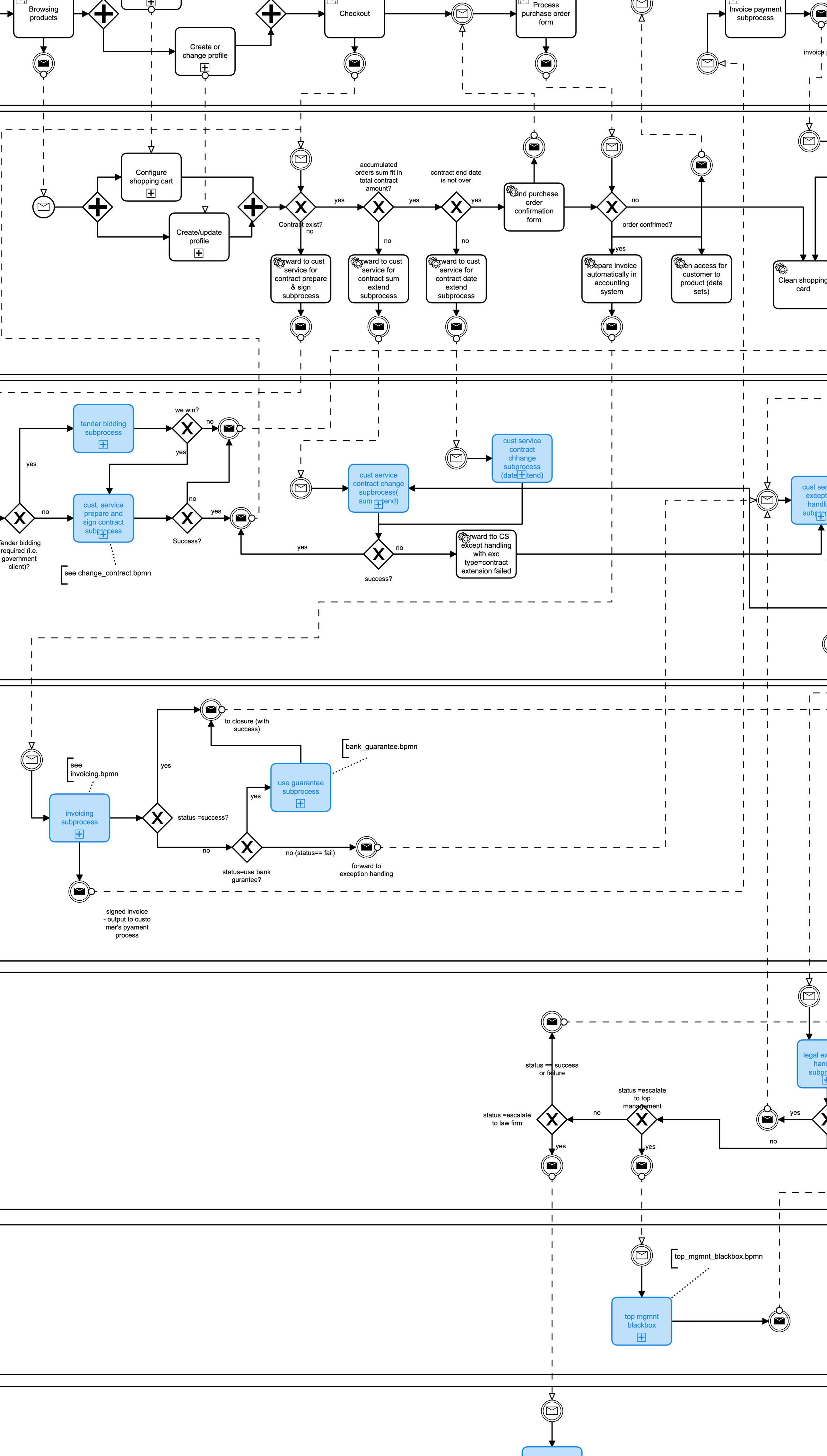

Browsing products
Create or change profile
Checkout
Process purchase order form
Invoice payment subprocess
Configure shopping cart
Create/update profile
Contract exist?
yes
no
accumulated orders sum fit in total contract amount?
contract end date is not over
Send purchase order confirmation form
order confrimed?
Forward to cust service for contract prepare & sign subprocess
Forward to cust service for contract sum extend subprocess
Forward to cust service for contract date extend subprocess
Prepare invoice automatically in accounting system
Open access for customer to product (data sets)
Clean shopping card
tender bidding subprocess
we win?
Tender bidding required (i.e. government client)?
cust. service prepare and sign contract subprocess
Success?
see change_contract.bpmn
cust service contract change supbrocess(sum extend)
cust service contract chhange subprocess (date extend)
success?
Forward tto CS except handling with exc type=contract extension failed
to closure (with success)
bank_guarantee.bpmn
see invoicing.bpmn
invoicing subprocess
status =success?
use guarantee subprocess
status=use bank gurantee?
no (status== fail)
forward to exception handing
signed invoice - output to custo mer's pyament process
status == success or failure
status =escalate to top management
status =escalate to law firm
top_mgmnt_blackbox.bpmn
top mgmnt blackbox

GAMEFICATIONSYS solution architectural recommendations

Short summary

Below you can find suggested GAMEFICATIONSYS architecture and recommendation for implementation.
GAMEFICATIONSYS is gamification platform for B2B and C2C market.

Recommendations for “to be” architecture

See scheme:

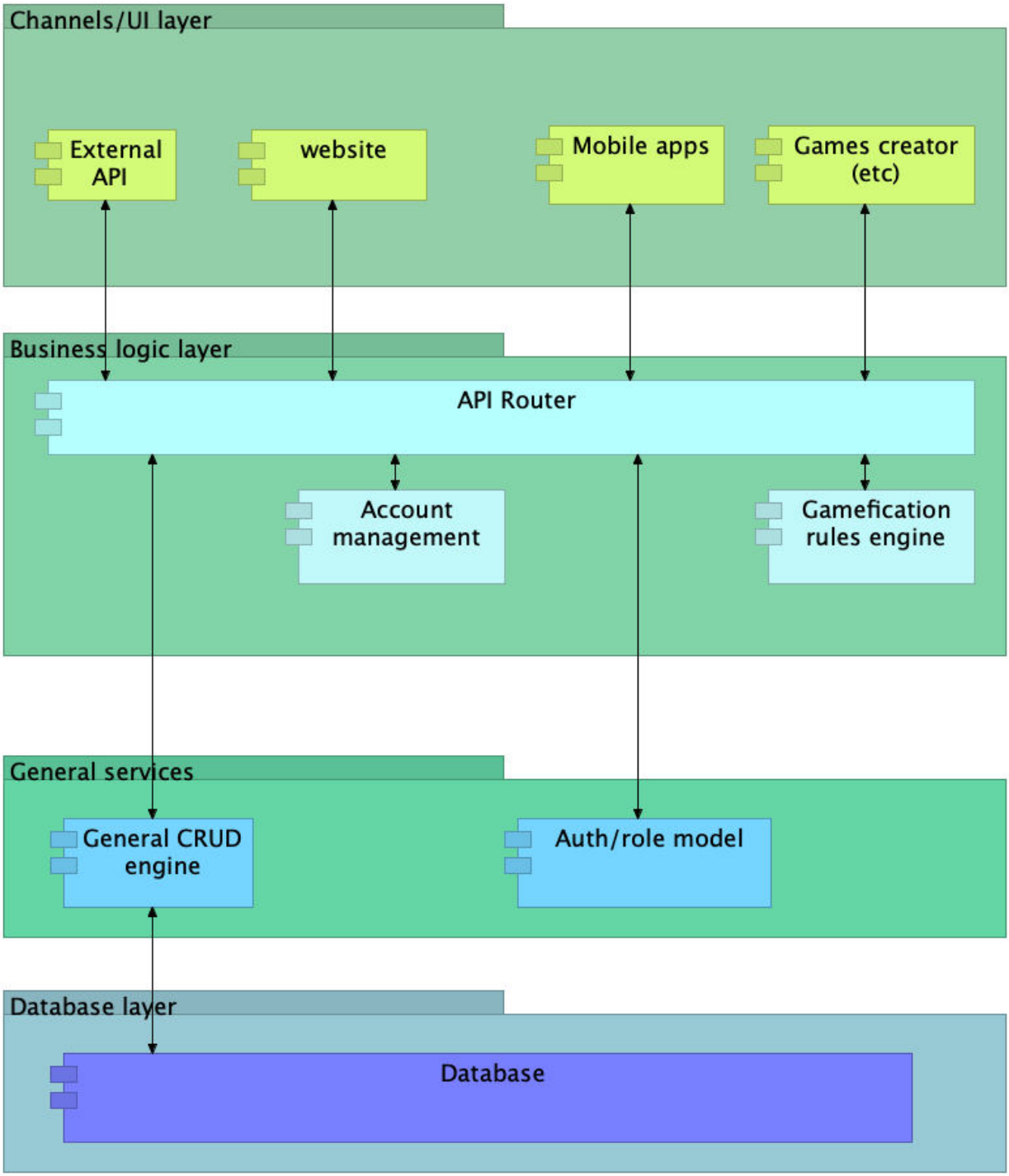


Figure 1. Recommended "to be" high-level architecture

GAMEFICATIONSYS solution architectural recommendations

It is suggested to make layered architecture approach more distinctive.
You can find "to be" architecture above. Below I have listed key points.

1. On the top layer we have UI (User Interface) and API (Application Program Interface) for external systems. UI – it could be website, mobile applications, in future Game creator app etc. API is introduced mainly to take into account needs of corporate clients.
   API should allow all possible functions of the system which is done by UI but on API level.
   For instance, add new user, or extract report, etc. It will be used mainly for integration with company IT lansdscape and **API will be source of additional income for Platform owner (development of integrations)**. For instance, integration with SAP SuccessFactors or internal learning system etc.)
2. On the next layer key component to review is API Router. API router accepts requests from UI and API from top level, optionally makes some additional processing and passes request to different microservices.
   Also it "routes" requests between microservices.
   Examples (just for illustration, not implying specifics of implementation).

   Example 1) request from UI - "/getlistoflocation" will go to router and then directly to General Services layer and return list of available locations from database.
   Example 2) request from UI "/[user_id]/[object_id]/get_access_rights" will be routed by API router to Auth/role model microservice.
   Example 3) the same request ""/[user_id]/[object_id]/get_access_rights" from General CRUD Engine to will go to router and routed to Auth/role model microservice again.

   Important – on scheme above all microservices can talk to each other (like Auth with CRUD Engine, or Gamefication rules engine with all of them, but they connect not directly, but through API router.

   Exact scenarios and exact list of microservices can be suggested by developers, architectural scheme describes principle.

   Importantly, API Router abstracts end-points of microservices, due to it in complex upgrade scenario you can have to end-points for Accounts (old version and new version) and by configuring API Router you can change how routing will go. You need to account costs of future system development now, right architecture will lower those costs.

3. General CRUD Engine it is microservice that abstracts database operations. But it is not ORM, it is web-service. Unfortunately, ORM approach according to modern practice suggest making a lot of decisions for developer which sometimes is suboptimal.
   (see https://blog.logrocket.com/why-you-should-avoid-orms-with-examples-in-node-js-e0baab73fa5/ , for instance)

   It is suggested to use simple 'broker' approach to communicate with database layer.
   See my old implementation, code and ideas can be freely used
   https://github.com/sergey-chekriy/node-sqlbroker

Approach to corporate clients rollout – architectural solution

It is suggested to implement "programmable infrastructure" solution.

GAMEFICATIONSYS solution architectural recommendations

Let's review the following scenario, when Best Corp decided to buy software, paid for corporate account and responsible person setup system for the 1st time:

1. New corporate customer from Best Corp signs up on landing site for corporate clients, confirms payment (or pays directly by card), selects that his portal page will be bestcorp. platformdomain.com.
2. After customer confirm choices, script in cloud created new container on existing server (optionally created a server). Almost all clouds have API to create servers, container on server will be created by custom script (need to be developed). Container configuration parameter is selected subdomain name (bestcorp. platformdomain.com).
3. Containers starts and customer get access to bestcorp. platformdomain.com.
   Note: financially this valid. Yearly hosting of 16 GB RAM server is around $1K (based on Linode prices), it can host up to 3 containers with App, if we base on pricing model by Atlassian, price for customer will be at least $1000/per application, and in average $2500. And could be up to $150K/year.
   Which means cash-out $1K and cash-in from $3K (min) to $7,5K per server (average).

   Note: SSL certificate for *. platformdomain.com need to be acquired (domain incl subdomains) to ensure https access to subdomains.

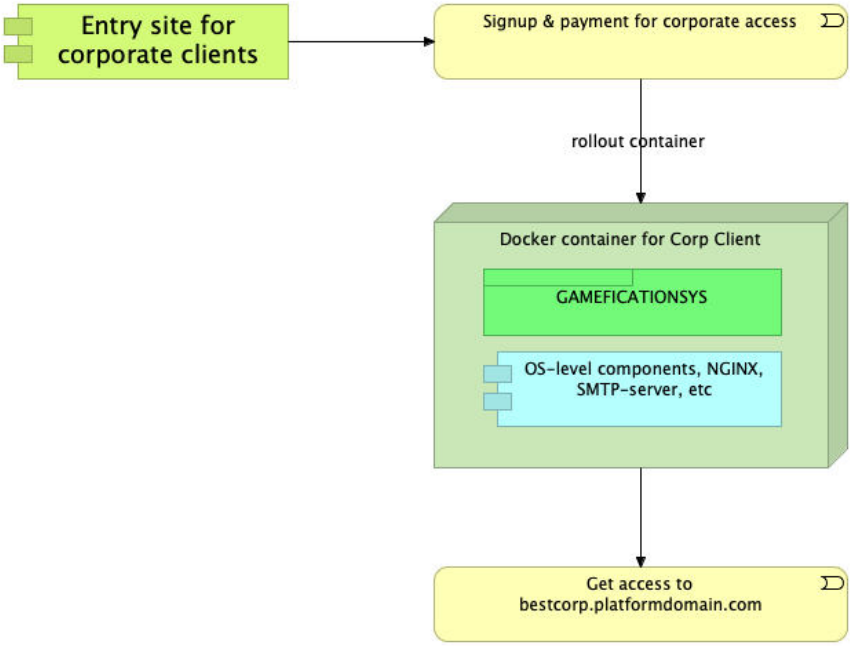


Figure 2. Approach to rollout for corporate clients

In this scenario, we have corporate clients like IBM, CISCO, Coca-Cola, all of them using application in dedicated containers: ibm.platformdomain.com, cisco. platformdomain.com, cocacola. platformdomain.com.
Number of simultaneous users even in biggest companies can't exceed 500-1000, and based on suggested architecture with some vertical scaling of server (i.e. increase memory) should be enough to process such number.
This architecture also highly marketable. Corporate clients will value that their data/system is in dedicated container.

Approach to "community" version scaling – architectural solution

From other hand we also have "community version" of application (C2C), where number of simultaneous users optimistically can grow above 10000. Which is at least 1 million of registered users.

By using the same pattern we can allocate users to different containers and scale horizontally. But to ensure single data source we will need to slightly adjust architecture, when it will come to this load. See Fig.3 below.

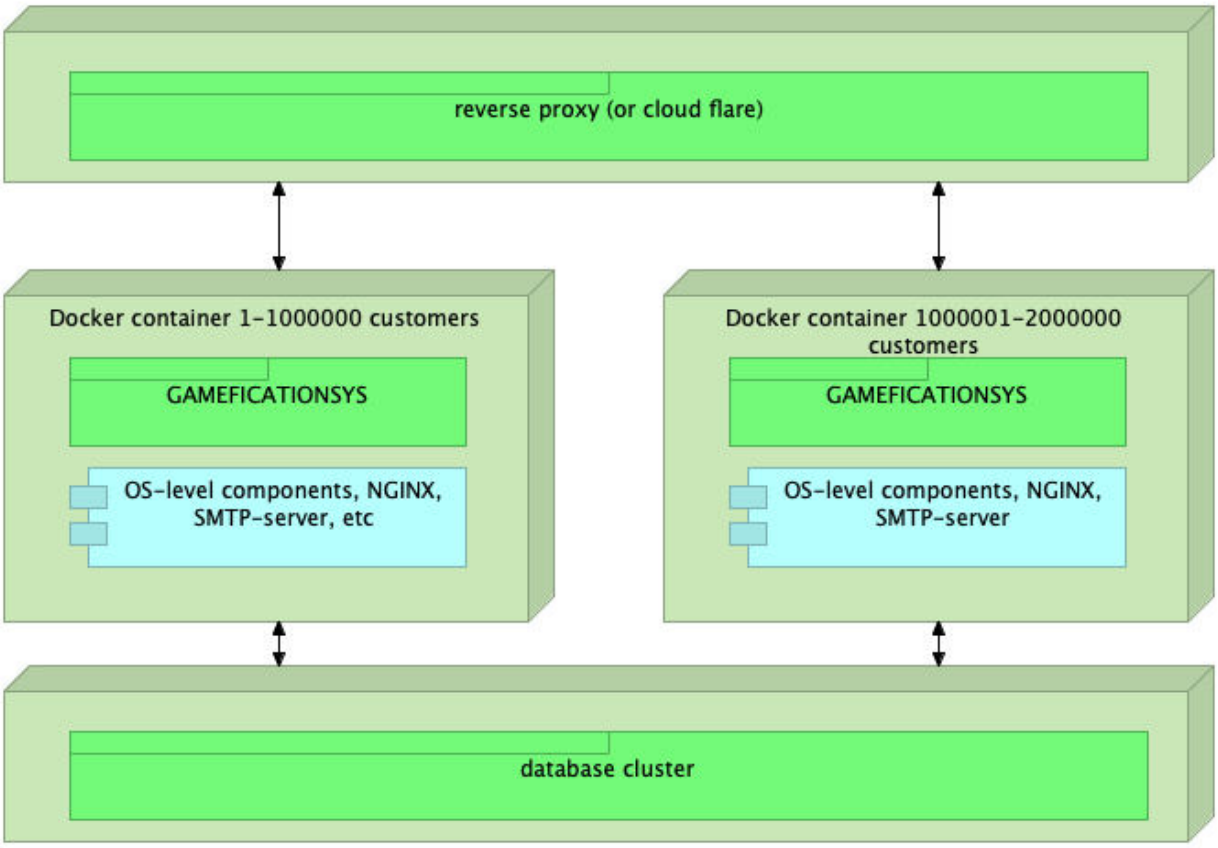


Figure 3. Possible scaling approach for community version

What will change:

1) Database layer will be moved out of containers and will be replaced by cluster database solution;
2) "General CRUD engine" microservice will be replaced possibly (depends on implementation)

This approach is not considered in details, as it is hardly possible to face scalability issues of community version in foreseeable future, and our task here is to ensure that proposed architecture (Fig.1) enables scalability of "community" version in general.

Recommendations summary

1. Take into account layered architecture approach in development, as per description above.
2. Implement system delivery in docker container
3. Implement scripts of containers auto-rollout ("programmable infrastructure") for corporate scenario and auto-scalability of "community version"

I-Chain Platform Description

This section provides the description of **i-chain** platform architecture. It outlines architecture layers, platform use cases and roles of users. It wraps up with a summary of how platform is linked to Ethereum network.

Concept-level Architecture

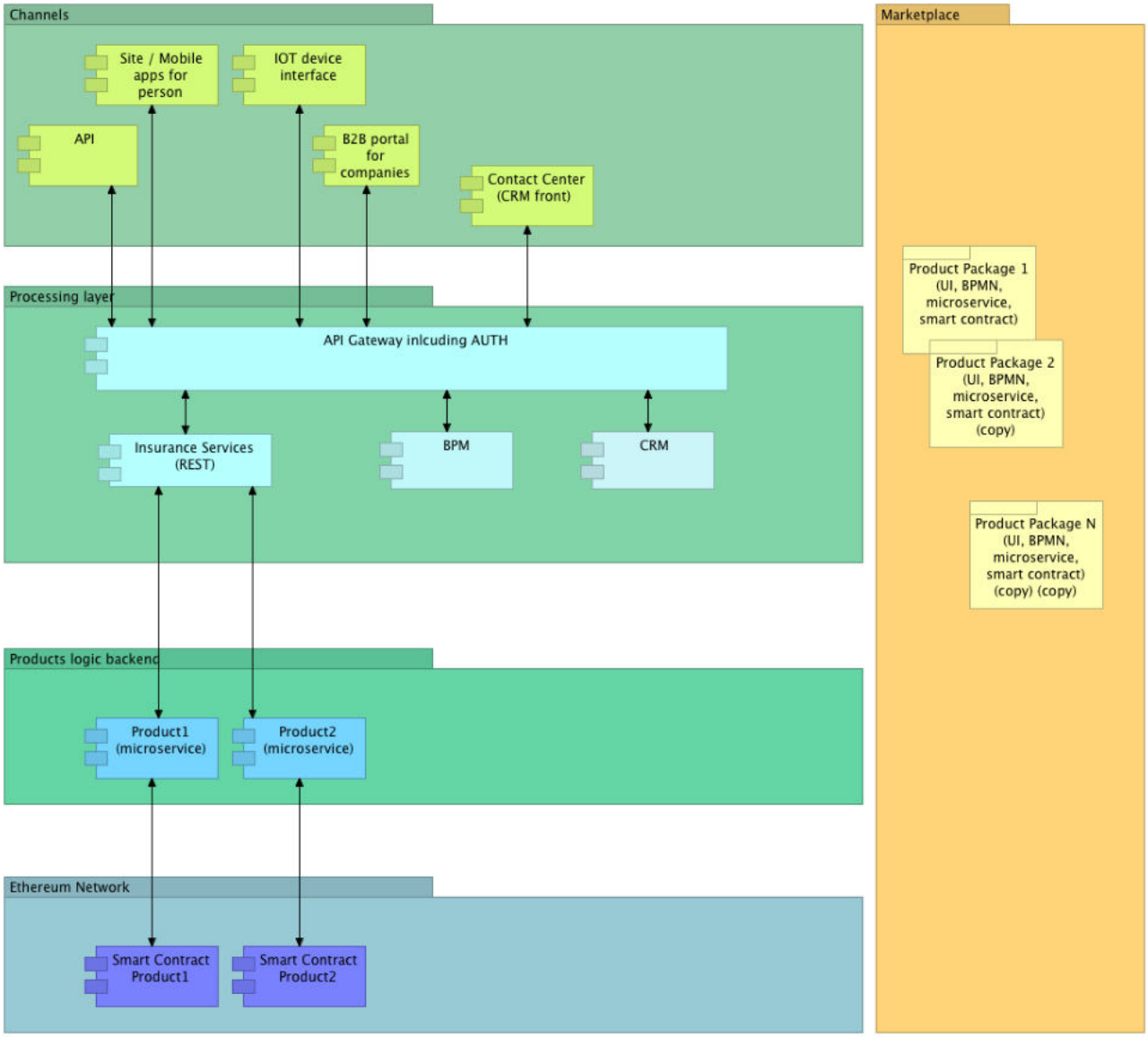


Figure 2. Insurance Platform Concept-level Architecture

Our Insurance Platform consists of 4 layers. First layer it is **Ethereum** network where insurance products are designed as smart contracts. To perform smartcontract logic and service functions the next layer exist – **Product logic backend**, where micro-services matching smart contracts reside. Ethereum and Product logic backend talk to each other via Oraclize interface. sNext layer – **Processing** ensures common functionality of all insurance products, application service Insurance Services provides set of methods which are common for all insurance products and also needed by CRM and BPM. At the same time CRM-backend is responsible for data storage (not shown here to simplify picture) and customers service functions. BMP holds processes within system (like products sales, claim processing etc.) and connected with CRM. Both CRM and BPM are using Insurance Sevices. Next layer – **Channels** – provides different channels to talk with plaform, channel can have

UI (web, mobile applications), or do not have it (API). Channel can be “old-school” like Contact Center or innovative like IOT device interface. List of channels is not final, it will grow. Platform Architecture is also not made in stone, it can grow and change with time.

Platform Architecture Layers

In table below Platform Architecture layers described in details.

Table 3. Architecture layers

Architecture layer	Description
Ethereum Network	Ethereum network holds smart-contracts related to insurance products.
Product logic backend	Product logic backend holds insurance products, implemented as micro-services.
Processing layer	Processing layer it is core of the platform, it consists of specialized CRM, BPM managing insurance processes and specialized services for Insurance. The key component here is Insurance Services which is used by CRM, BPM and product layer
Channels	User interface layer, where user can be person, company, IOT device, partner. Person – site/mobile apps Company – B2B portal, API IOT device – IOT device interface, API Partner - API

Platform Actors

Table below outlines platform actors (or user roles) and gives short description on each actor.

Table 4. List of platform actors

Actor	Architecture layer(s)	Description
Customer	Channels, Product logic backend	Person or institution purchased insurance product. All activity (purchase, claim etc.) is done through Channels layer, product itself is located on Product logic backend layer
Investor	Products logic backend, Ethereum Network	Institution or individual investing into product risk pool. Investor provides financial resources to cover
i-chain Strategist	All	**i-chain** employee responsible for **i-chain** further development
i-chain Platform Developer	All	**i-chain.net** employee responsible for Platform extension/improvement

Claim expert	Processing layer, Products logic backend	Independent expert needs to understand the product(s) and plays key role in claim review process
Insurance Partner	Processing layer, Products logic backend, Ethereum Network, Channels	Insurance partner is entrepreneur (individual, institution) running own insurance business (i.e. set of products) on the Platform.
Product Designer	Products logic backend, Ethereum Network, Channels	Product designer is usually employee of insurance partner developing insurance product(s) and/or new Channels
Client manager	Processing layer, Products logic backend	Client manager is usually employee of insurance partner working with client, mainly in sales and claim management process. He needs to understand product(s) (Products logic backend) and works on Platform level to serve clients.
Product Business Developer	Channels	Product Business Developer is usually employee of insurance partner responsible for sales growth across Channels

Insurance Services Architecture and Link to Ethereum Network

Product logic backend architecture layer is linked to Ethereum network layer with insurance products implemented as smart-contracts on Ethereum Network. Each smart-contract is using related microservice implemented on Product logic backend layer.

Core Platform Processes

List of processes is not fixed and can be extended on BPM module of architecture. 'Out of the box' platform has the following processes implemented, see Table 5.

Table 5. List of processes implemented 'out-of-the-box'

Process	**Description**
Customer onboarding	Classic process when new customer is acquired and registered in the system (CRM).
Product sale	Sale of insurance product
Claim processing	Processing of customer claim.
Product publishing	Publishing of new product on the Platform.
Product decommission	Decommission of product from the Platform.

Platform Use-cases

Table 6. Platform use-cases

Use-case	Description
Use insurance	Straightforward case: just be customer and buy insurance products from platform
Run insurance business	Run your insurance company on the platform. Publish products, sell them, use CRM and BPM functionality, setup call center, manage claims etc.
Invest into insurance risk pool	For company or private investor – invest your money into risk pool, enjoy higher ROI than bank deposits/treasuries together with predictable risk.
Design and sell insurance products to insurance companies on platform marketplace.	Develop insurance products as complex of related smart-contract, microservice, financial model, UI and sell it to insurance company. Platform will provide marketplace.
Provide services to insurance companies	Serve as contact center or sales team, or claim expert

BLOCK 1

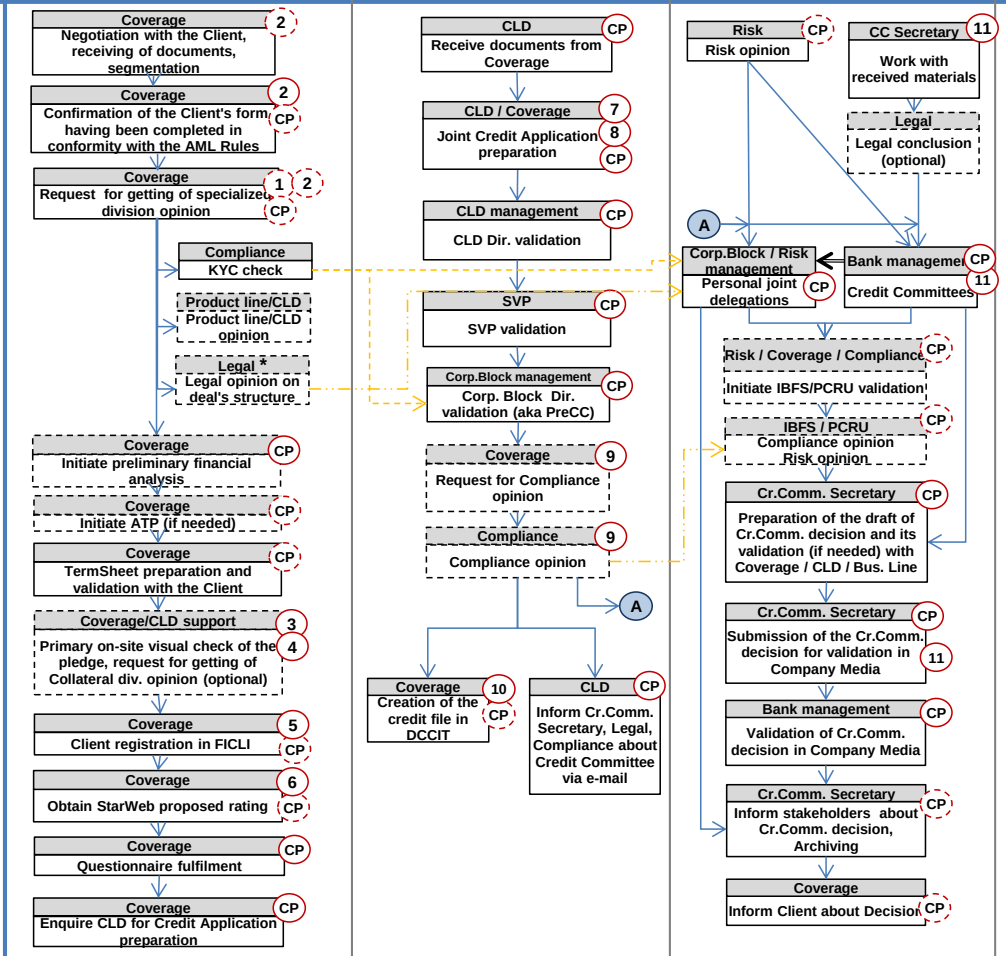
Stages

Stage1 – Customer Relationship – preliminary work with the client

Stage2 – Preparation of Credit Application (incl. checks)**

Stage3 – Decision making per credit deal/limit

Macro process steps



* Legal - in case of non-standard structure of the transacrtion, foreign elements in the transaction or pledge of rights (claims) as a security.

** Credit Procedure includes differences of Credit Application preparation and validation in HO and in branches through direct and indirect process.

LEGEND

- CP – Fully covered by Credit Procedure
- CP – Partially covered by Credit Procedure
- # – Fully covered by other normative document
- # – Partially covered by other normative document
- # – Normative document is required to be created
- Information flow
- Repetitive steps
- TBD – Optional step

Credit Procedure (chapters)

Process map of the Stage 1
- Main tasks
- Preliminary financial analysis
- Approval to proceed
- Work with Questionnaire
- Enquiry for Credit Application creation

Process map of the Stage 2
- Main tasks
- Accept an Enquiry
- Credit Application filling
- Credit Application approval
- Credit file formation
- Credit file approval in CBD
- Creation of the credit file in DCCIT

Process map of the Stage 3
- Format of the documents in Credit file
- Validation of the credit file in DCCIT
- Credit file validation
- Credit decision making by collective body
- Credit decision making by authorized person

Other normative documents

LEGEND

Short name of the document
Owner of the document
Status of the document
Deadline for document finalization (if applicable)

OWNER	STATUS
bank documents	Done
IBFS documents	On-going
	Not started

1. **Business process of Legal Entity Subscription**
   Responsible: Compliance
   Status: Done
2. **AML rules (ПВК ПОД ФТ)**
   Responsible: Compliance
   Status: Done
3. **Pledge procedure**
   Responsible: Risk
   Status: Done
4. **Procedure of Pledge's photography**
   Responsible: Risk
   Status: Done
5. **FICLI WEB Implementation Guide**
   Responsible: IBFS
   Status: Done
6. **StarWeb - User Guide**
   Responsible: RESG/BSC/RIS
   Status: Done
7. **Credit Application guidance**
   Responsible: CLD
   Status: Done
8. **IBFS credit application template /Guidelines**
   Responsible: IBFS
   Status: Done
9. **Procedure of compliance opinion**
   Responsible: Compliance
   Status: Done
10. **DCCIT User Guide**
    Responsible: IBSF / DSI
    Status: Done
11. **Credit Committees rules**
    Responsible: DPO
    Status: Done

1. Introduction

This program will be a general accounting ledger. The user of the program is intended to be an accountant or someone with accounting knowledge. The user will be able to enter transactions to the ledger's transaction log and be able to print an Adjusted Trial Balance, Income Statement, Retained Earnings Statement, and Balance Sheet reports.

2. Use Cases

2.1. Use Case diagram

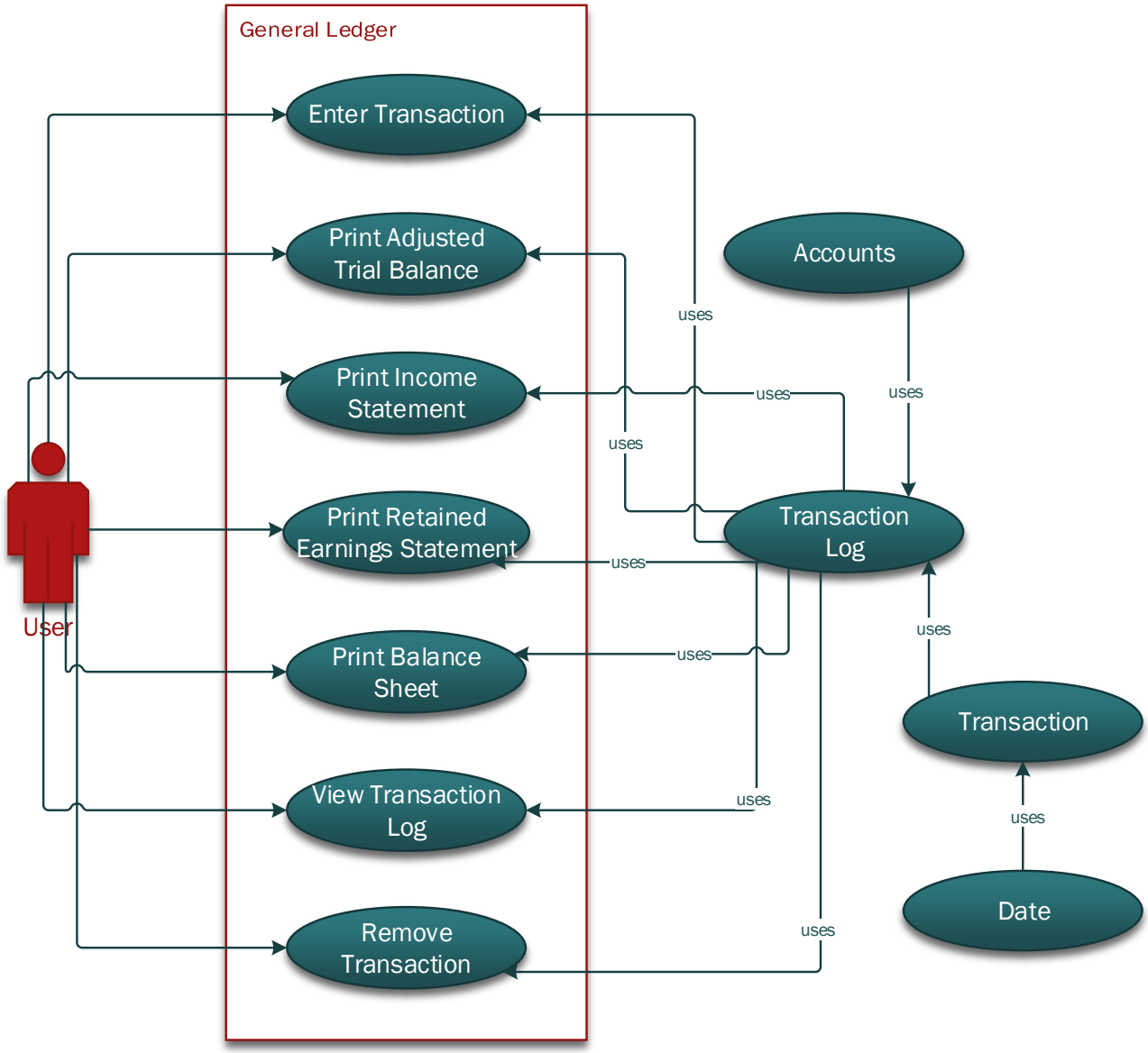


Figure 1. General Ledger Use Case Diagram

2.2. Use Case descriptions

2.2.1. Use Case 1: Enter Transaction

Actors: User
Preconditions: User must choose at least one account to debit and one account to credit and the total amount being debited must equal the total amount being credited.
Description: Transaction is processed: selected accounts are debited and credited accordingly, and transaction is given a transaction number and added to the transaction log.
Exceptions: N/A
Post-conditions: Transaction has been processed.

2.2.2. Use Case 2: Print Adjusted Trial Balance

Actors: User
Preconditions: N/A
Description: Prints an Adjusted Trial Balance which displays the balance of all accounts.
Exceptions: N/A
Post-conditions: Adjusted Trial Balance has been printed.

2.2.3. Use Case 3: Print Income Statement

Actors: User
Preconditions: N/A
Description: Prints an Income Statement which displays the net income.
Exceptions: N/A
Post-conditions: Income Statement has been printed.

2.2.4. Use Case 4: Print Retained Earnings Statement

Actors: User
Preconditions: N/A
Description: Prints a Retained Earnings Statement which displays retained earnings.
Exceptions: N/A
Post-conditions: Retained Earnings Statement has been printed.

2.2.5. Use Case 5: Print Balance Sheet

Actors: User
Preconditions: N/A
Description: Prints an Balance Sheet which displays assets against liabilities and stockholder's equity
Exceptions: N/A
Post-conditions: Balance Sheet has been printed.

2.2.6. Use Case 6: View Transaction Log

Actors: User
Preconditions: N/A
Description: Shows the log of transaction, if any exist
Exceptions: N/A
Post-conditions: Transaction Log is displayed

2.2.7. Use Case 7: Remove Transaction

Actors: User
Preconditions: Transaction ID entered must match a transaction ID in the Transaction Log
Description: Removes specified transaction from the Transaction Log
Exceptions: N/A

Post-conditions: Transaction is permanently deleted

3. Requirements

Presents the list of requirements for the system. Technical requirements present the requirements for the hardware/software platform, whereas the functional requirements define the requirements for the developed software.

Priorities:
1=must implement
2=should implement (time allowing)
3=be nice to have

3.1. Technical Requirements

Table 1. Technical Requirements

#No	Description	Priority
1.1	System must be able to run Java	1

3.2. Functional Requirements

Table 2. Functional Requirements

#No	Description	Referred Use Cases	Priority
1.1	Transaction: User must choose at least one account to debit and one account to credit and the total amount being debited must equal the total amount being credited.	1	1

4. Architectural analysis

4.1. System overview

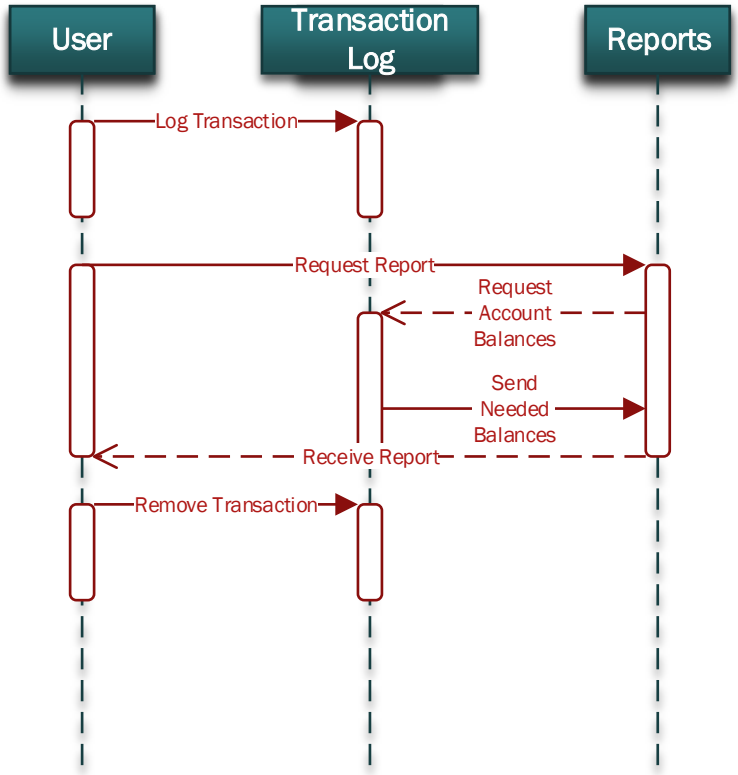


Figure 2. General Ledger Sequence Overview

4.2. Entity-relationship diagram

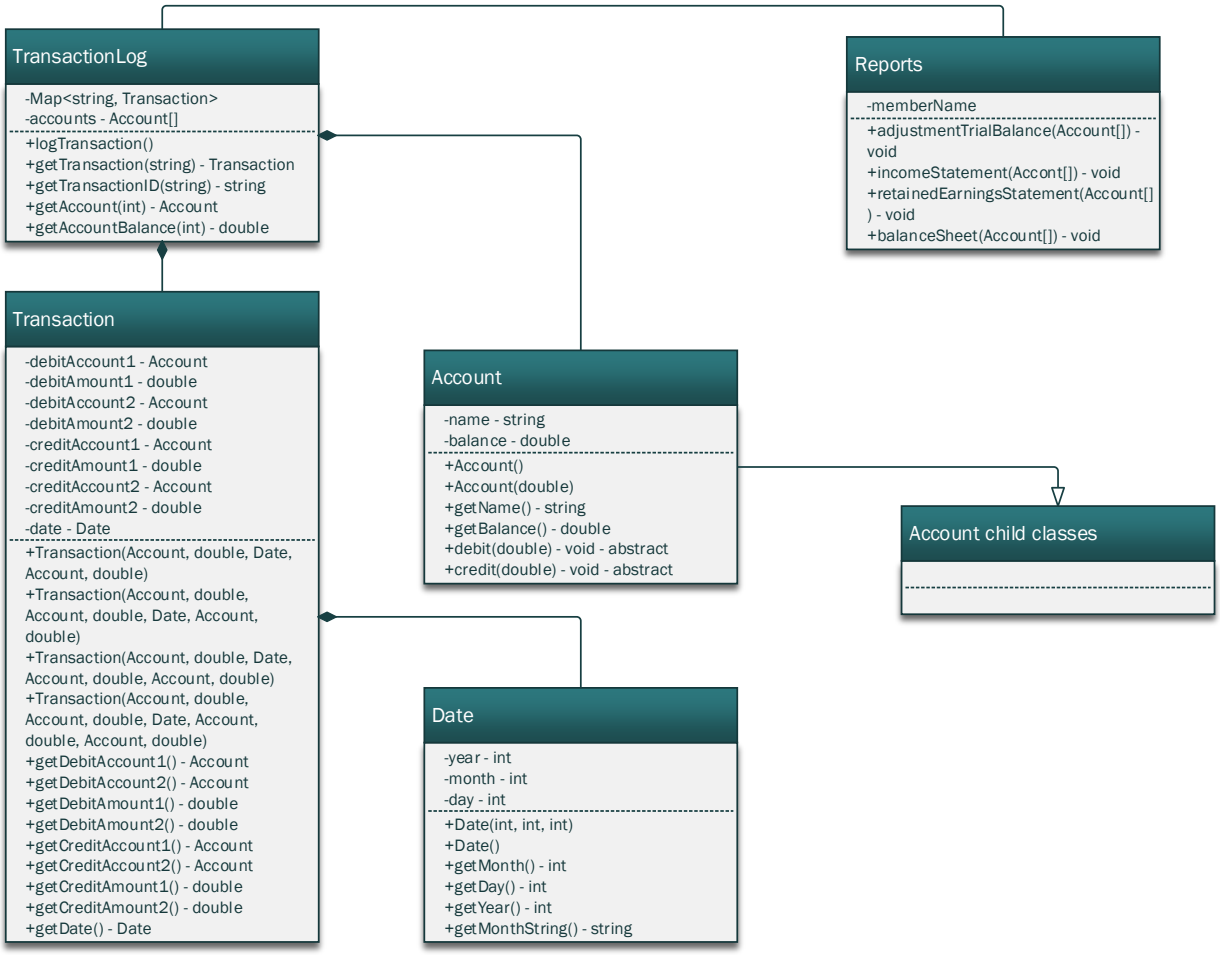


Figure 3. General Ledger Entity Relationship Diagram

Figure 4. Final Account classes

5. User Interface Specification

5.1. GUI

Screenshots of the program GUI

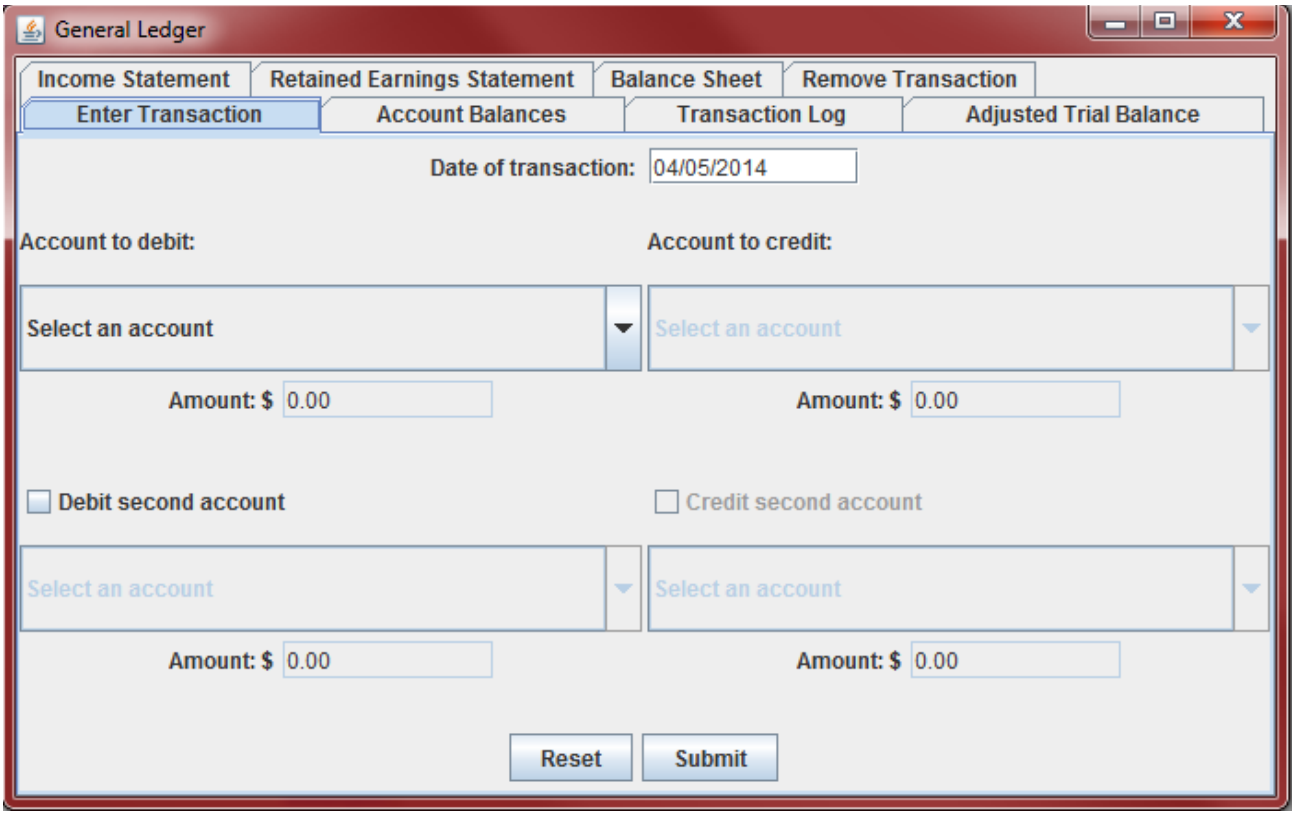


Figure 5. General Ledger Transaction GUI

5.2. UI Tasks

5.2.1. Task list

Program task list:

1. *Enter Transaction*
2. *Print Adjustment Trial Balance*
3. *Print Income Statement*
4. *Print Retained Earnings Statement*
5. *Print Balance Sheet*
6. *View Transaction Log*
7. *Remove Transaction*

5.2.2. Task specifications

Program task specifications:

1. *Task #1: Enter Transaction*

Retail-bank for Y - generation

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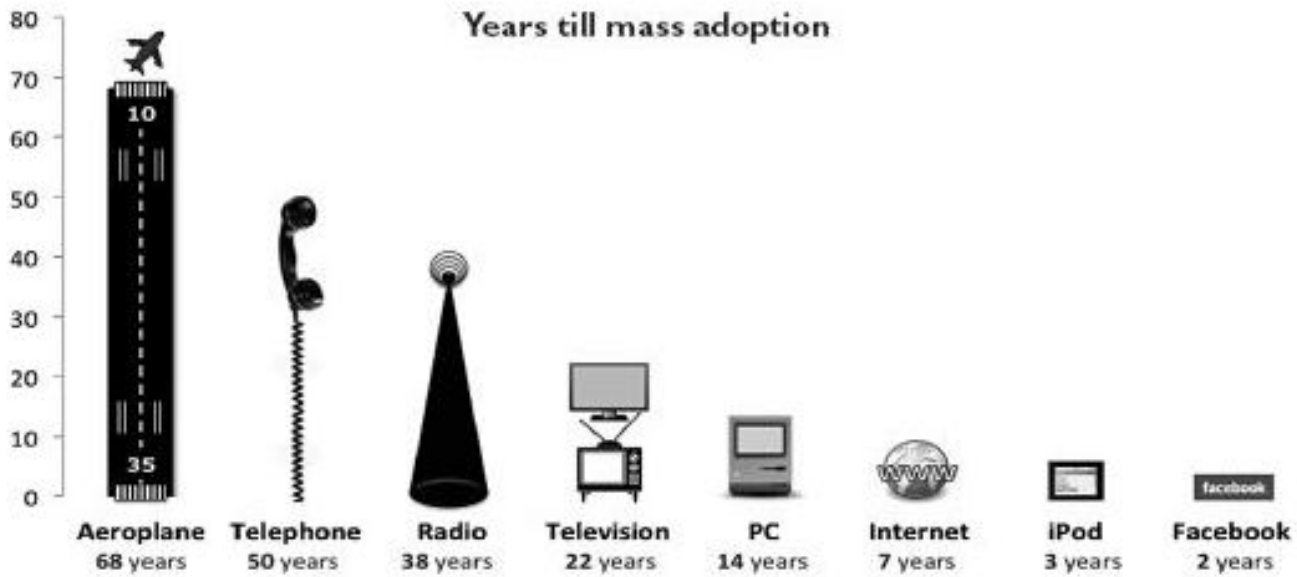
Information to consider

- Bank very soon will not be defined (or already not defined?) by physical distribution network. Develop branches network now - it is the same as develop video rent branch network 15 year ago..
- PayPal – one of the biggest financial institutes already now.. (check figures), and some still think that it is start-up..
- Square: from 0 to 4$ bln in 2 years..
- Simple, MovenBank and other “non-banks”, providing banking services grow very fast, faster than any bank.

Trends

- 2011: Internet surpassed television and newspapers as main source of information Y-generation.
- 2011: time, spent on mobile apps, surpassed time, spend in internet at PC.
- 2011: UN declared internet access as basic human right.
- 2012: Sales of tablets surpasses sales of laptops and, a fortiori, desktop PC.
- Being connected – key foundation of modern world (smartphone, tablet, PC, gaming console etc.): modern customer is «hyper-connected».
- We will soon will not be able to find customer is not a member of at least one social network.
- Clients sign-on to internet bank 7-10 times a month, mobile bank - 10-30 times a month, branch – few times a year (of course, if you will give clients internet/mobile bank).
- Those trends can't be turned back.
  Internet, mobile apps, social networks – it is already not innovations, but part of life.

Business environment: Acceleration



Customers expectation on product service timing

Product	1980	2008
Credit card	14 days	Instant
Personal loan	7-14 days	Pre-approved, or 24 hours
Mortgage	30 days+	24 hours

Customers expectations from Bank

- Key expectation – Bank will be part of «new life», will not stand aside.
- Bank have to ensure access to products and services via Internet and mobile applications, present in social networks, there is no other choice..
- Bank have to introduce innovations in customers banking experience with the same speed, as customers accept innovations, and correspond to customers expectations to speed of work.

? Bank will become mainly technological (IT) company, providing access to products and services through technology ?

Branches and profit

- Branches ~~generates~~ assign all profit
  - Accounts for new clients: sales is generated not in branch, but via internet and contact-center, customer visit of branch is only required due to regulator requirements;
  - Sales of services to existing clients: customers come to branch only if Bank was “lazy” to introduce sales via internet-bank.

Vicious circle: the less Bank use distant channels, the more report numbers confirm dependence of sales from branches and «uselessness» of distant channels.

If distant channels are implemented really good, in customer’s view they will become priority.

Branches and profit II

Customer behavior in developed economics when choosing financial products:

Product	Time spend in internet when choosing product	%% time spend in internet from total time spend on choosing product
Deposits and credit cards	3 hours 20 min	78%
Mortgage, loan secured by real estate	11 hours 25 min	62%

31% customers with to specific Bank product select product of other Bank after research in Internet.
68 % customers prefer to sign-on to product online.
89% prefer online, if Bank makes approval process also online.
82% high-income customers make all research only online.
74% high-income customers prefer sign-on to product online.
We can skip return on investments to branch network..

Research from Google Reviews and Global Finance, 2010

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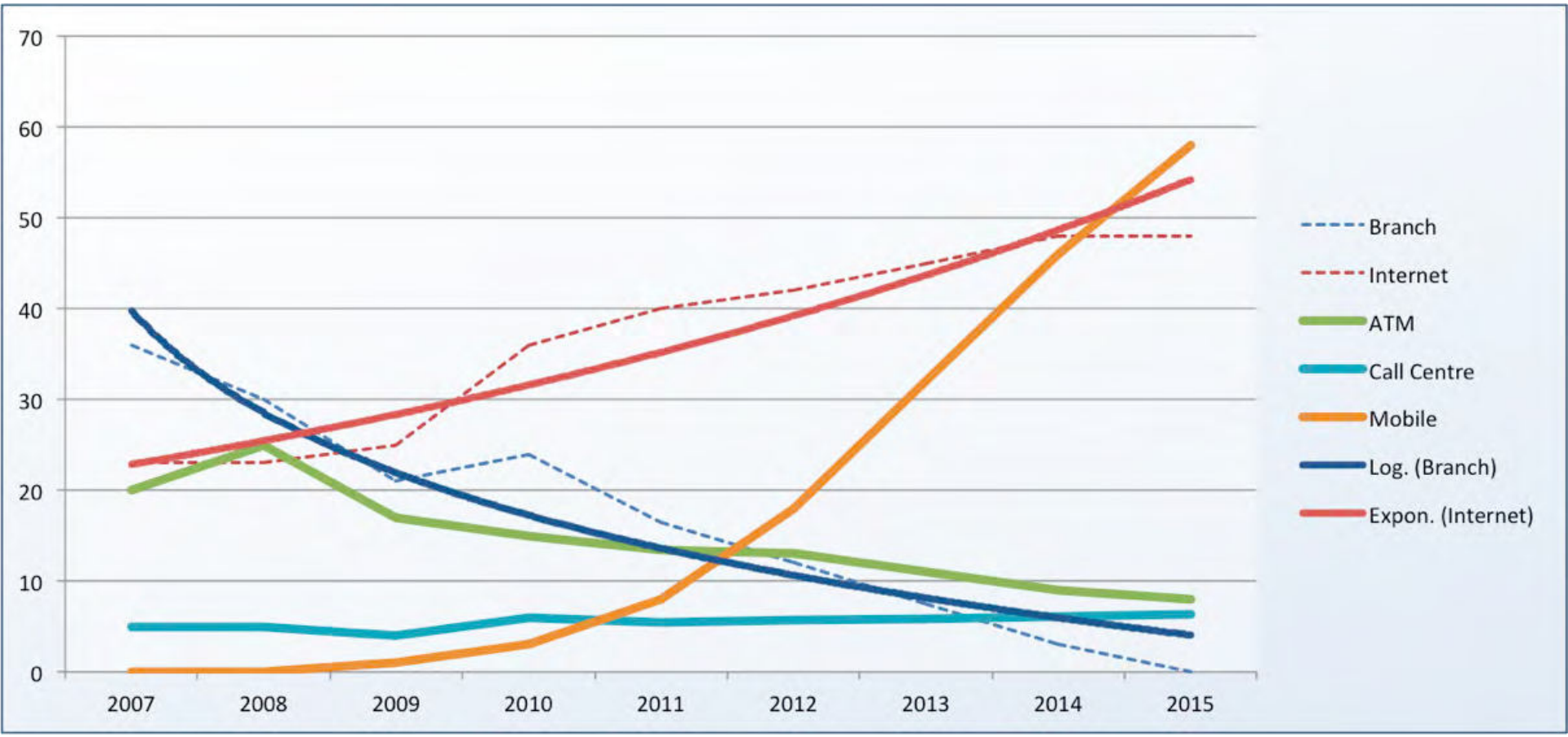
Customers distribution across channels



ABA, Nielsen Research, Javelin Strategy & Research

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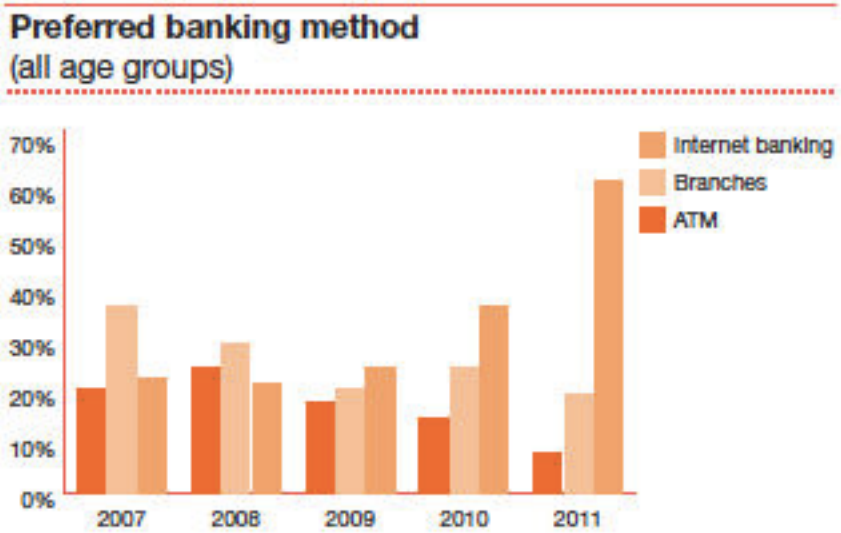
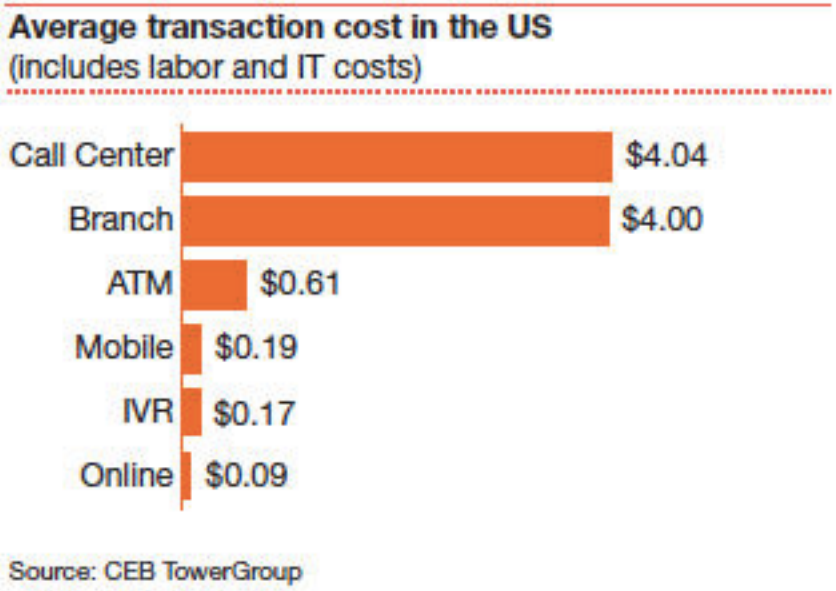
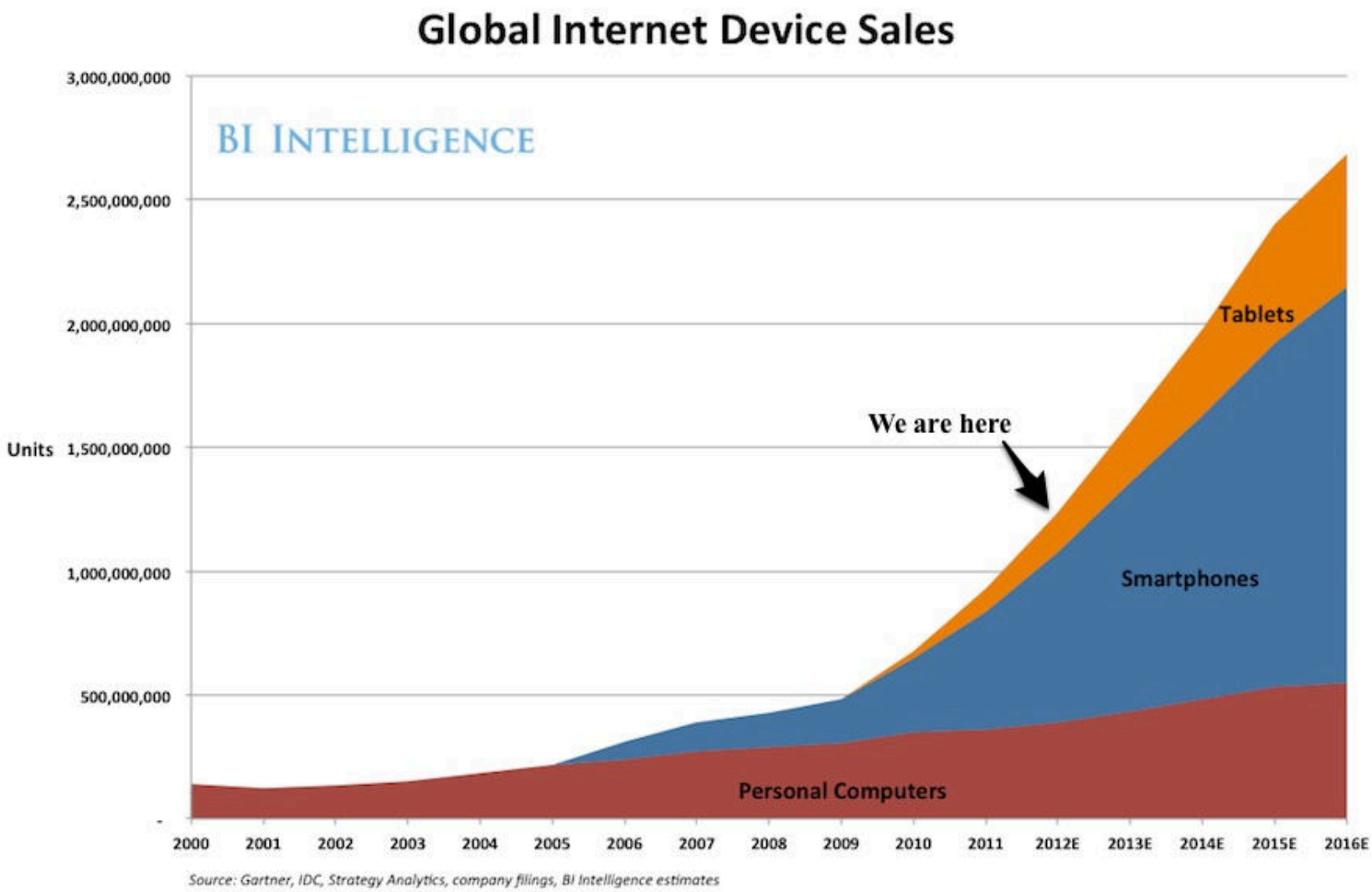
Follow customers preferences is profitable..

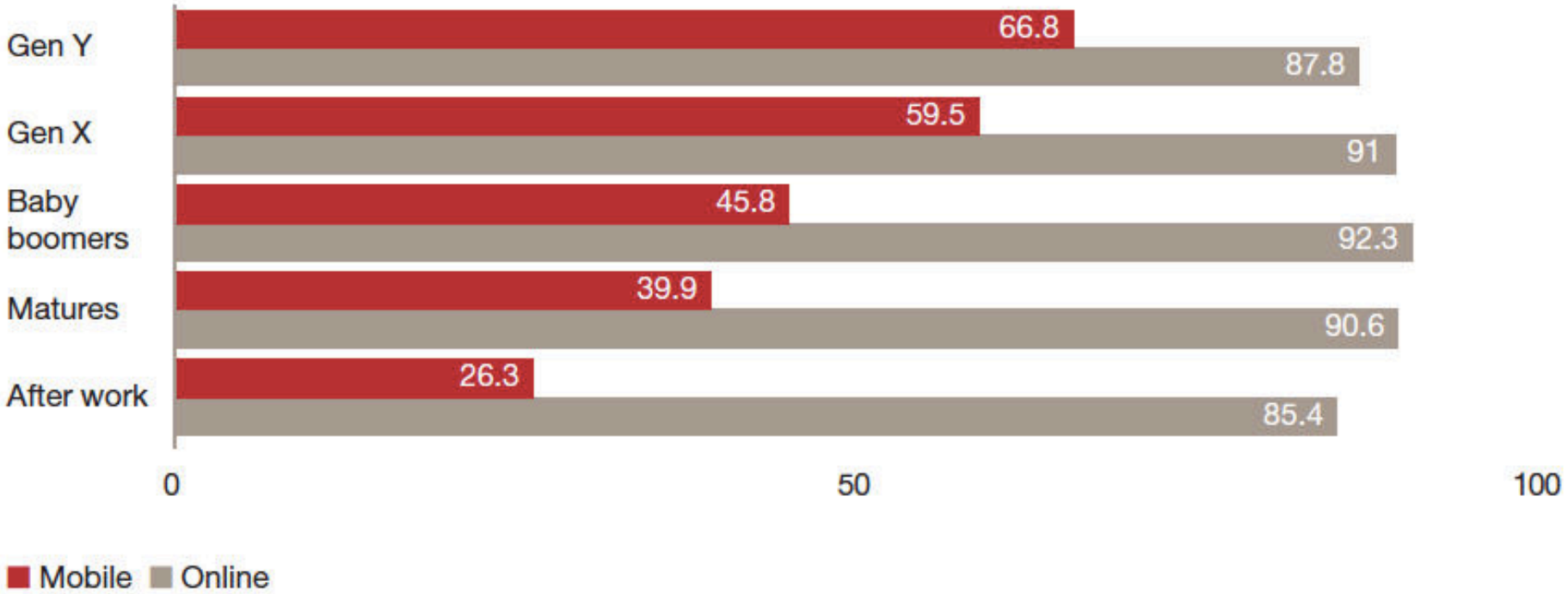




Priority platform for customers



Priority platform for customers



Combined proportion of respondents who are 'currently using' or 'considering using' online or mobile banking services

Source: PwC Digital Tipping Point Survey 2011

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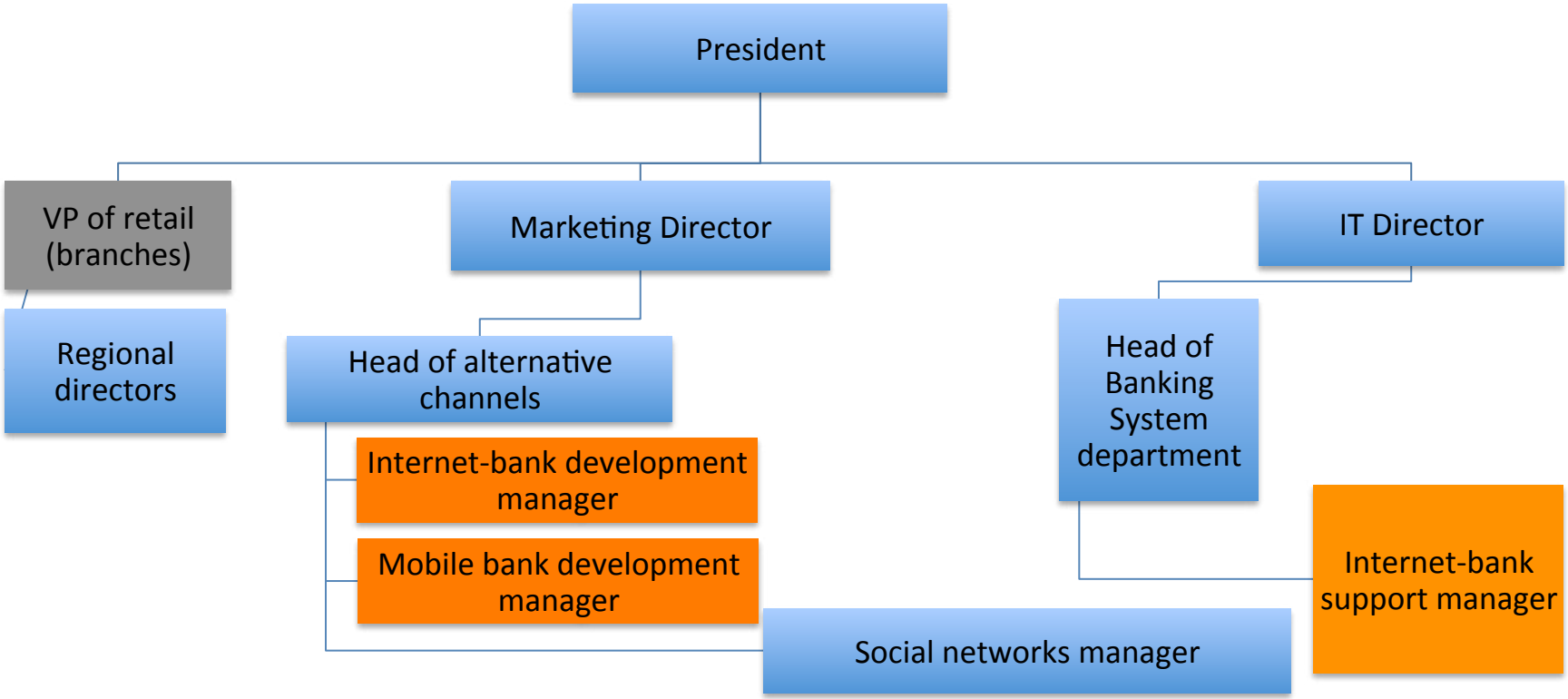
Customers priorities vs Bank priorities



Manager of most important for customers channel resides on 3-4 level of hierarchy and vice versa .. And if compare budgets? For branches and internet-bank? Time for transformation..

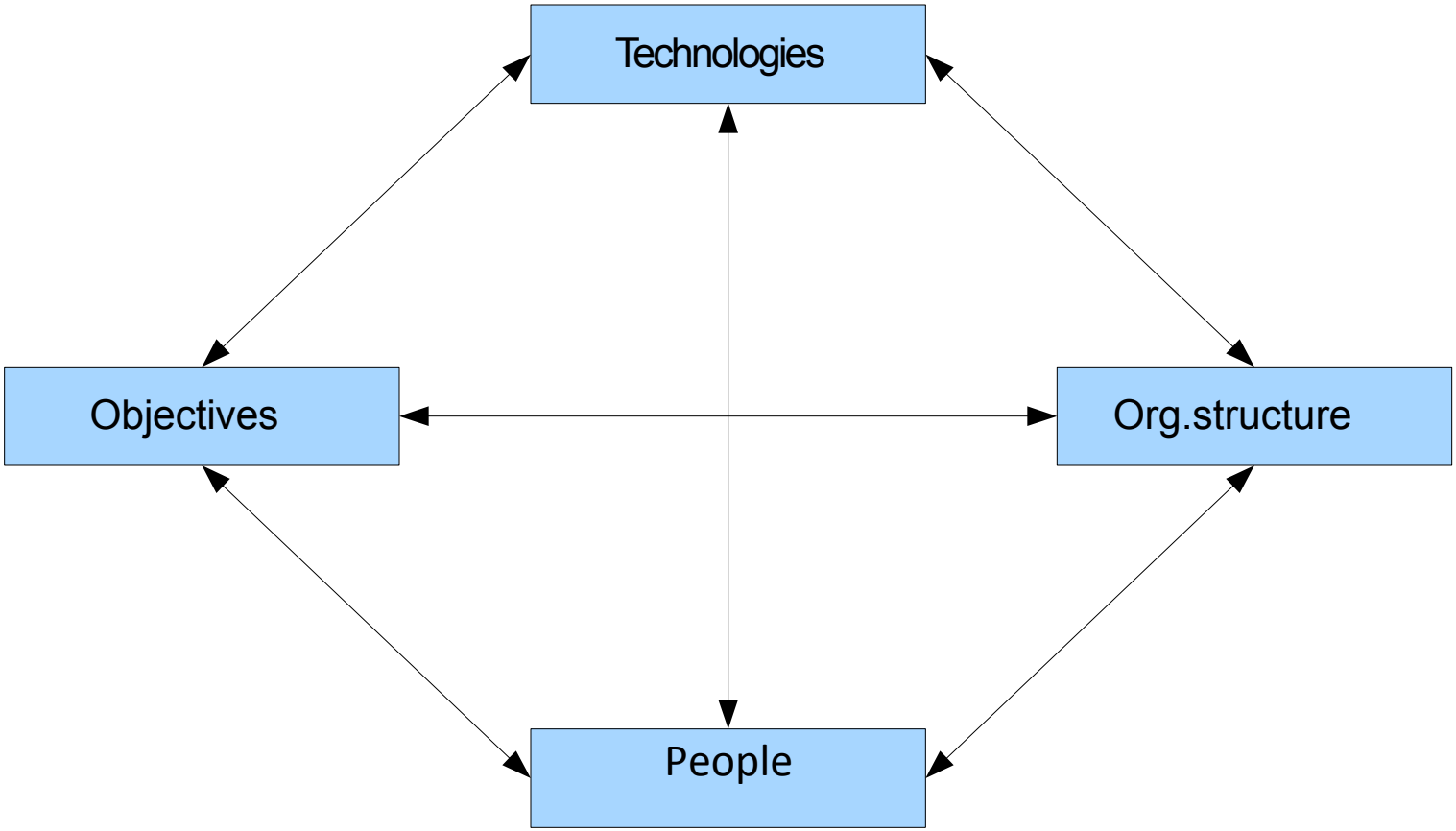
Critical part is over, now constructive part.

New generation Bank

New generation Bank: what is changing

- Branches format
- Interaction with customers
- Organizational structure
- Products
- Bank internal engine

Socio-technical view on Bank



Organization – interconnection of Objectives, People, Structure and Technologies

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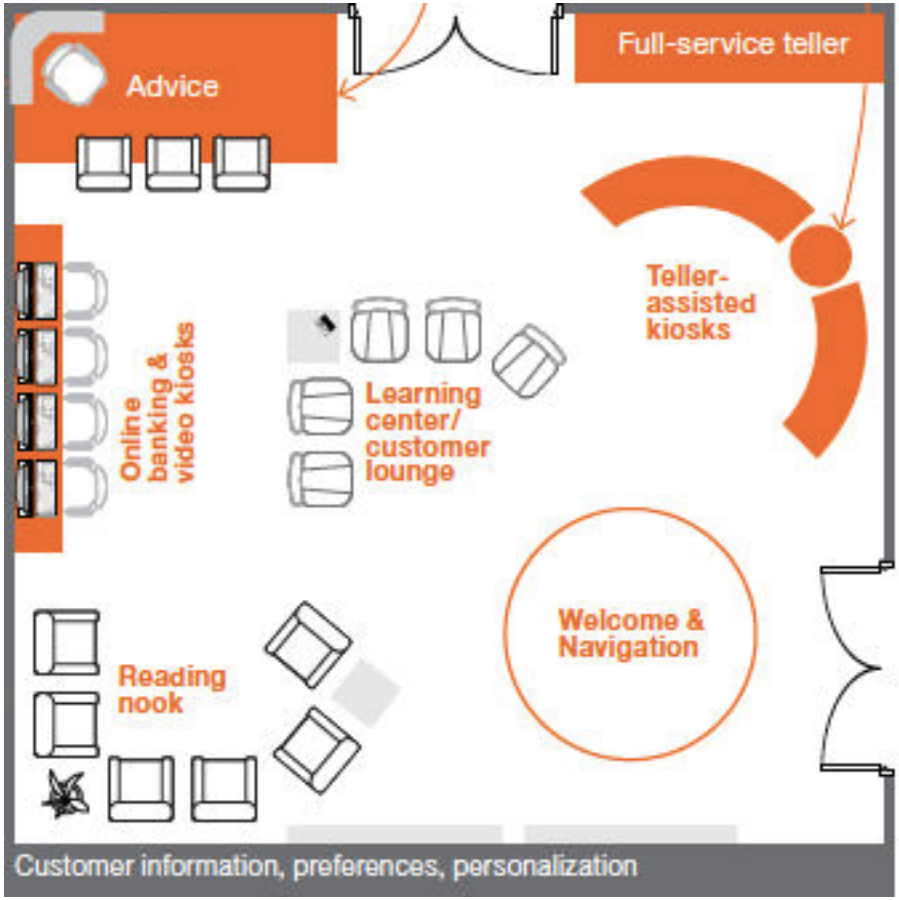
New branches format

- «Apple store»
- eKiosk
- «At partner»
- Mobile advisor

New branches format. eKiosk

New branches format. Mobile advisor with tablet

New branches format. «Apple store»



New branches format. Checklist

- Self-service technologies
- Automatic recognition
- Behavioral analysis
- Pre-cognitive sales management
- Mobile technologies for staff
- Business processes simplification (friction-free)
- Real-time credit decisions
- Usability
- Scenario planning

New interaction with clients..

..Will require Bank org. structure transformation

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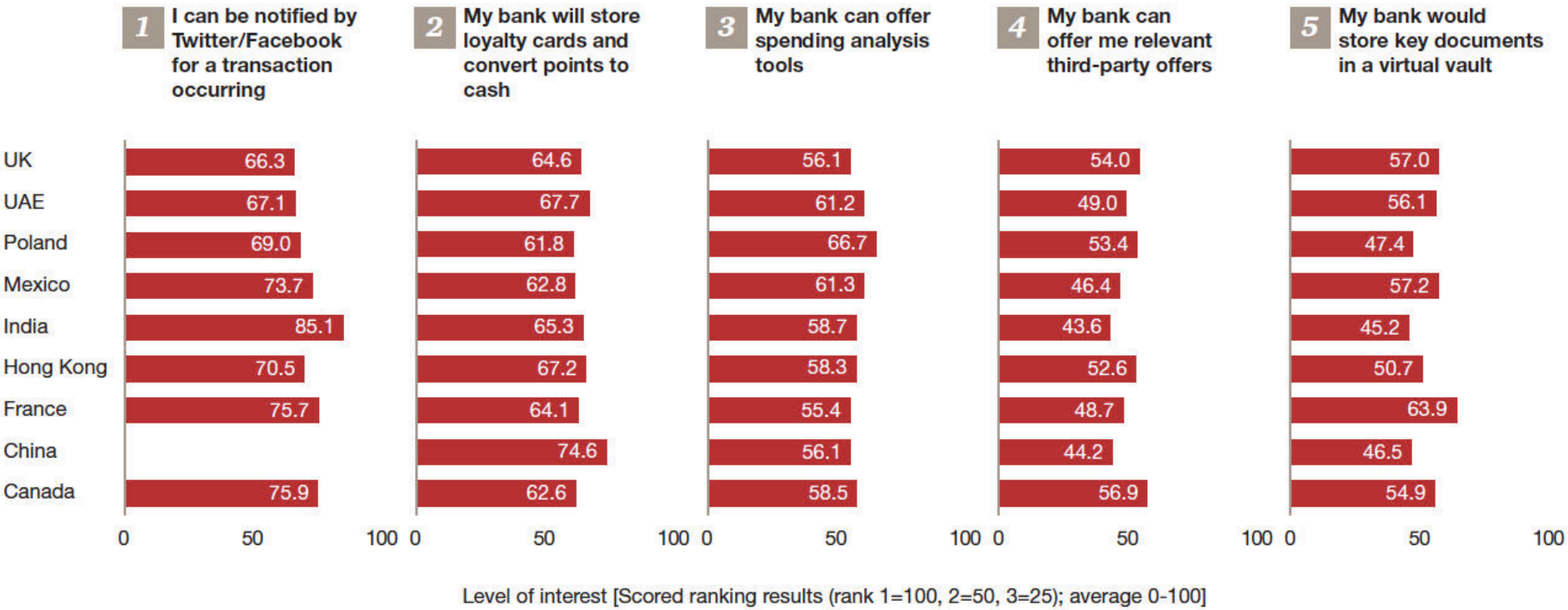
New interaction with clients. Checklist

- Personnel appraisal for good service
- Full integration of e-mail, VOIP, Twitter, Facebook in the contact-center
- IVR, convenient for client
- Single system for contact-center (single screen)
- Service-oriented culture
- BI, customer data analysis
- Cross-selling, dynamically generated offers
- Transformation of controlling departments into internal consulting department with KIP – ensure customer service across products

New products. Limit complexity, ask customers what they want (like FMCG does)

'Which of the following would you be willing to pay for, please rank your top 3?'



Source: PwC Digital Tipping Point Survey 2011

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New products

- Based on customers priorites
- Accessible across all channels
- Work in context of customer data (i.e., geo-location)

New Bank internal engine

- Org. structure relevant to customers priorities
- «Product factory»
- Big Data
- Cloud technologies

Lessons learned from real (successful) project

- Start from building of relevant org. structure with “product factory” as core.
- Priority of marketing and product development should be higher than controlling and operational functions.
- Build IT solution in cloud from the beginning and use IT-outsourcing and SAAS at maximum level.
- Use experience of industries with developed consumer marketing, invite people from those industries.
- Not save on talents.

Direct

INTERNET-CENTRIC BANK IN RUSSIA

BUSINESS-MODEL

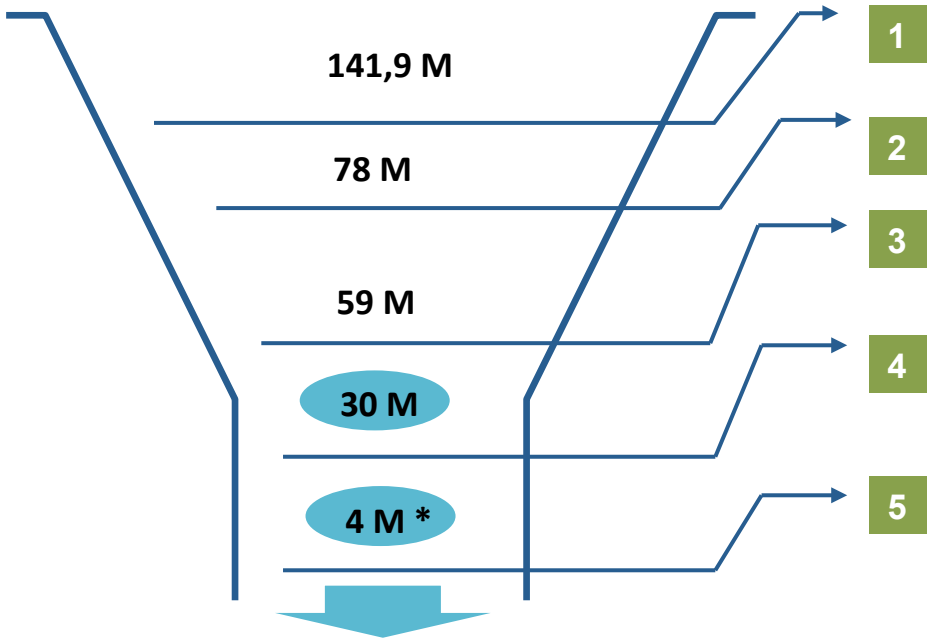
Direct

• Content

1. Target audience
2. Products and Services
3. Distribution and Communication channels
4. Technology
5. Finance

1. Strategic Customer Target Group

Strategic Customer Target Group of the New Generation Bank in Russia according to criteria of Internet usage and Internet Banking propensity trend



Population of Russia

Age 15-44

Internet users

Price sensitive, convenience seeking, e-commerce customers – **potential target group**

Internet Banking customers today – people who tried and appreciate 'Internet bank concept'. They are self-direct, they could easily change the bank if the offer of direct bank is very attractive

* Data from 2011, in 2013 – 8 mln Internet Bank users

•potential target group **is already strong in numbers. Immediate target group is about to surge, when an attractive direct bank offer comes to the market**

• **Immediate target group** are the customers that can join the Internet Bank, within short time after banks entrance on the market. They are already familiar with the Internet Banking channel and will immediately understand benefits of direct bank's revolutionary offer

• **I-Banking customers** possess most of the features that make them appreciate the offer. Some of them will join Internet Bank soon,

• Above mentioned groups have considerable influence on others, so the target will keep growing

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1. Strategic Customer Target Group

New Generation of Customers Emerging on the Financial Market

New Client's characteristics

- Familiarity & ease in using new technologies
- Appreciates convenience benefits, seeks new solutions
- Becomes sensitive to quality of products and services
- Price sensitive
- Aware of own needs
- Self-dependent, self-directed

A wave of NEW GENERATION CUSTOMERS

New Generation Customers

Observations from the market

- Habits of life are rapidly changing, in all client groups (no matter the age)
- Self-directed customers are growing in number and share
- High ability to adopt new, customer-friendly technology
- New tools and technology making advice available and easy to use in Internet

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2. Initial Business Model: Products and Services

initial offer based on breakthrough hook products

Direct Max – maximum freedom and highest interest rate on daily savings
eDirect – Current Account for free
Business Direct – best banking relationship for Microenterprises

DEPOSITS AND LOANS

Direct Max	Direct Save	Direct Loan
Instant Access Saving Account	Term deposits (RUR, FX)	Consumer loan (i.e. car loan)

TRANSACTIONS

eDirect	Business Direct
Current Account with overdraft	Business Account for Microenterprises with overdraft

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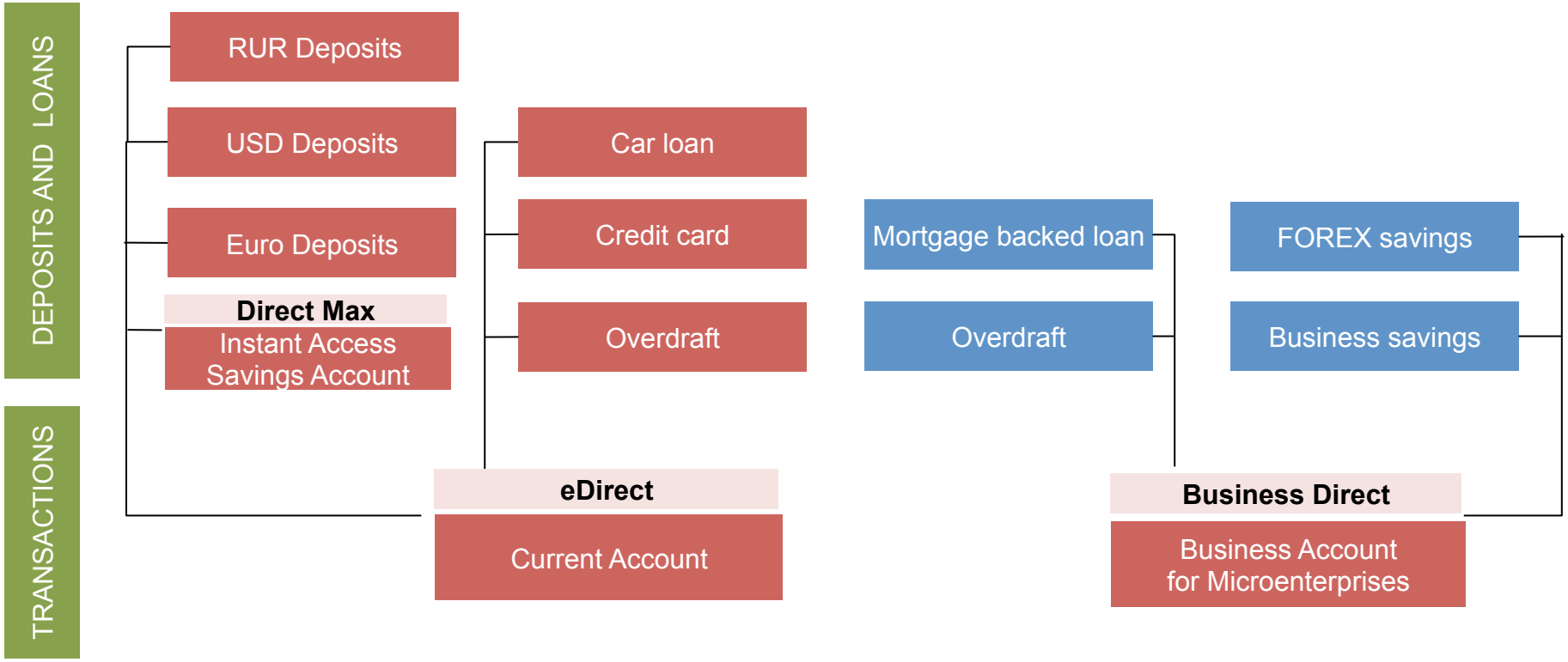
2. Products and services

Direct offers the essential products and services fitting the most important target customer needs



Strategic - hook products for launch phase

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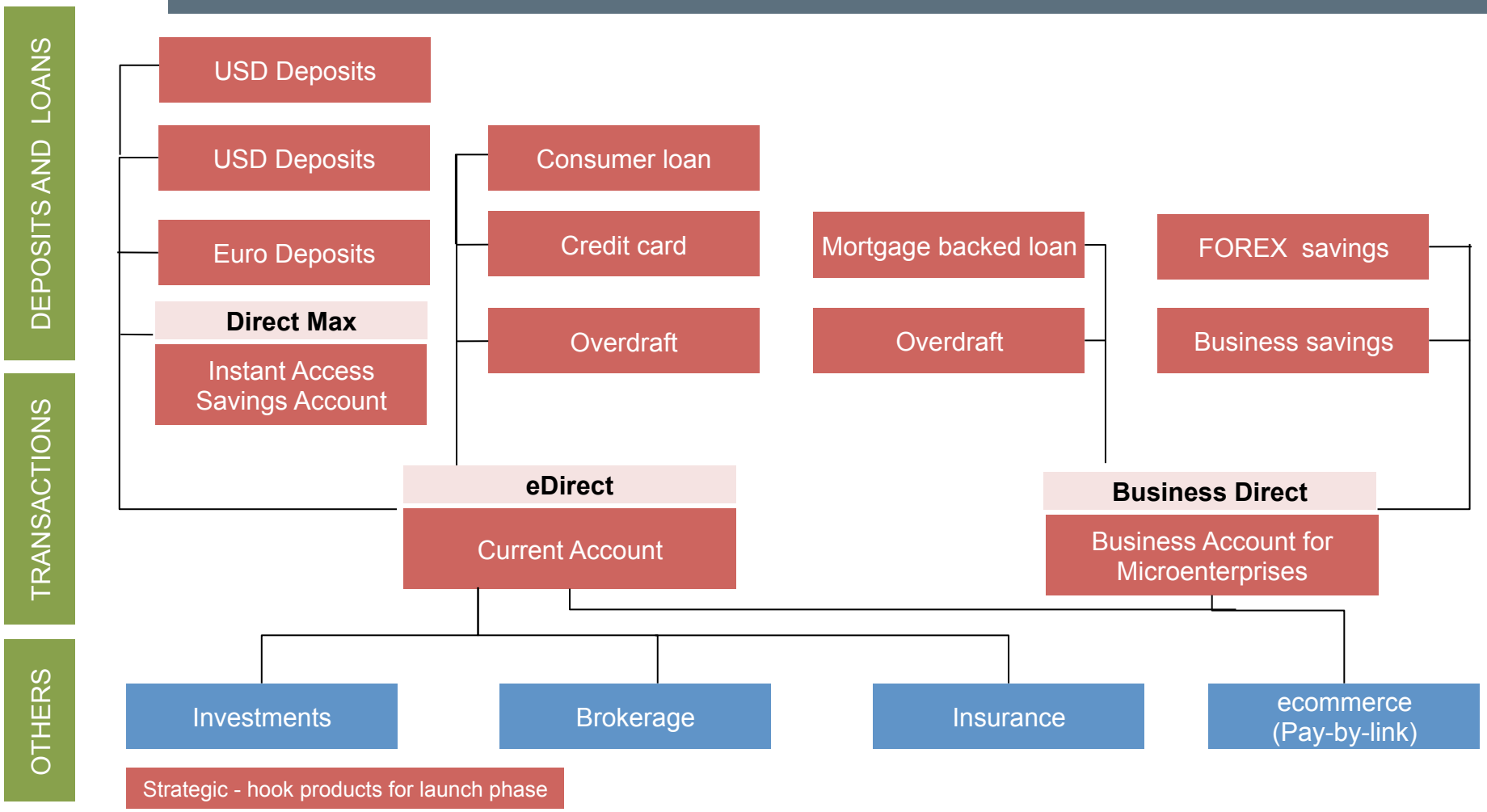
2. Initial Business Model: Products and Services

Direct - the best financial institution for demanding individual customers



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2. Initial Business Model: Products and Services

eDirect Current Account extended functionalities developed to make personal finance management as easy and intuitive as possible

eDirect Current Account

Incoming transfers
- from other banks
- from eDirect

Money deposit
- ATMs
- Terminals of payment systems
- Partner banks offices

Money withdrawal
- ATMs

Outgoing transfers
- standard
  - to other banks
  - to eDirect (online)
- predefined
  - to other banks
  - to eDirect (online)
- services (mobile phone, internet, etc)

Debit card for
- money withdrawal
- POS payments
- internet payments

Term deposit set up

Credit card repayment

Insurance acquisition

Mutual funds acquisition

Shares acquisition

Source: Omega Team analysis

2. Initial Business Model: Products and Services

Overdraft in the Current Account is an interesting alternative to credit card

Overdraft/credit line in eDirect Current Account)

General features
- This is the revolving credit directly linked to the Current account. Client can use the money whenever needed to assure personal finance liquidity

Convenience
- No collateral is needed
- All conditions are transparent and attractive

General disbursement conditions
- No need to remember about repayment schedule, it is done automatically every month
- Regular monthly source of income is required

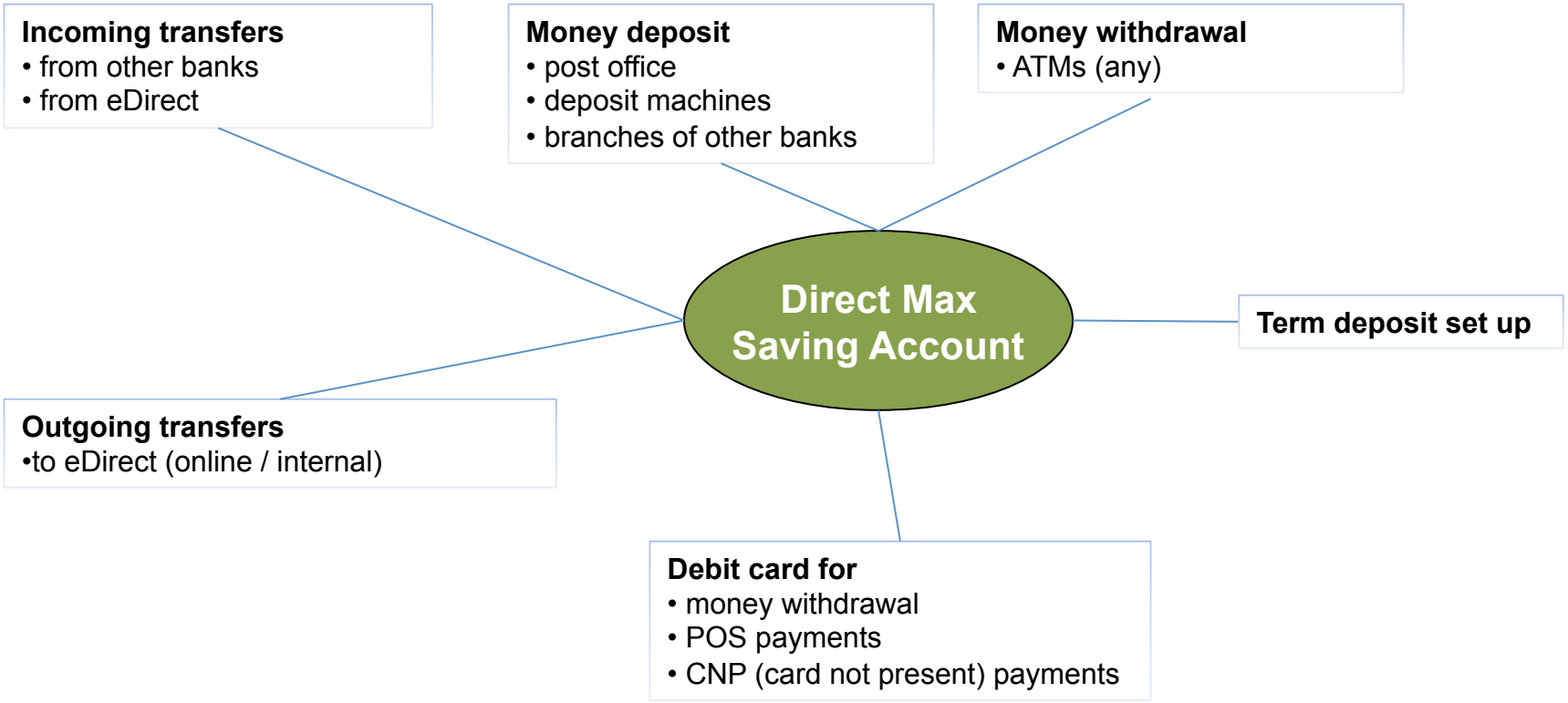
Maturity
- The credit has 12 months maturity
- It can be automatically prolonged for another 12 months period
- Client needs to have at least 6 months of the history to apply for the credit

Interest rates, fees and commissions
- Attractive interest rate which falls if the credit is replayed systematically
- 1% commission for disbursement
- Client's application is verified for free

Maximum Amount
- To be defined with the credit risk department

2. Initial Business Model: Products and Services

Direct Max Saving Account: product functionalities specification



3. Distribution and Communication Channels

Multichannel model of interaction with руДирект customers will assure nationwide presence

Distribution and communication channels

Primary

Internet

- Bank website (web site; internet-bank/mobile apps)
- Major Internet Portals
- Affiliate Internet Portals
- Search engines positioning
- Social networks

ROLE TO PLAY

- Product sales and client acquisition
- Client service and cross sell (CRM)
- Brand building
- Community building

Contact center

- Call Center
- IVR, Online chat

ROLE TO PLAY

- Information on Bank products and services for bank customers and non customers
- Performing transactions and providing clients with information on their personal finance
- Product sales: push and pull operations

Supportive

Physical channels

- Financial Centers
- eKiosk
- ATM
- External partners network

ROLE TO PLAY

- Product sales and client acquisition
- Customer self service
- Information on Bank products and services
- Brand building

4. Technology support

Technology requirements for implementation of Business Model – Full integration and centralization

Remote channels support

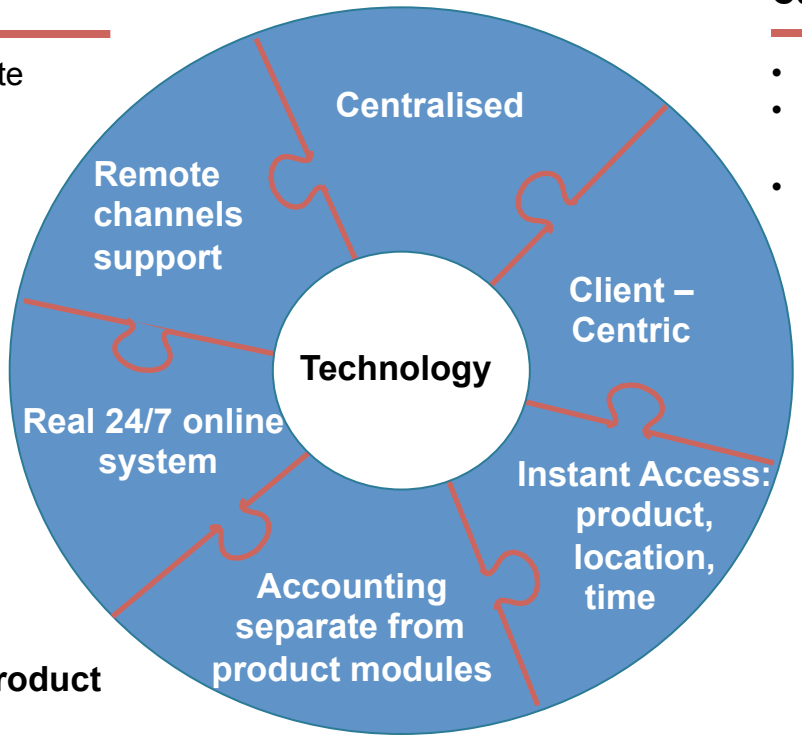
- The system supports all remote channels:
  - Call centre
  - IVR
  - Internet
  - SMS
  - mobile application

24/7 online system

- **Batch processing** does **not stop access** to the system for clients at any time

Accounting separate from product modules

- All registers are done automatically, basing on transactions parameters
- Contact centre agent sales products and serves clients, not bookkeeping



Centralization

- All processing done in one place
- Every 'unit' sees all clients of the bank
- All remote channels use existing technology – no need for additional system

Client-centric

- **'Client '** is the **main element** of the system. All **products** are **attached** to Client
- Client can access all products using **one login** and **one password**
- Many clients can be authorized to one contract

Instant Access product / location / time

- Main foundation of the system is that **every product** can be accessed from **every location** at **any time**

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Financial model key parameters, conservative scenario

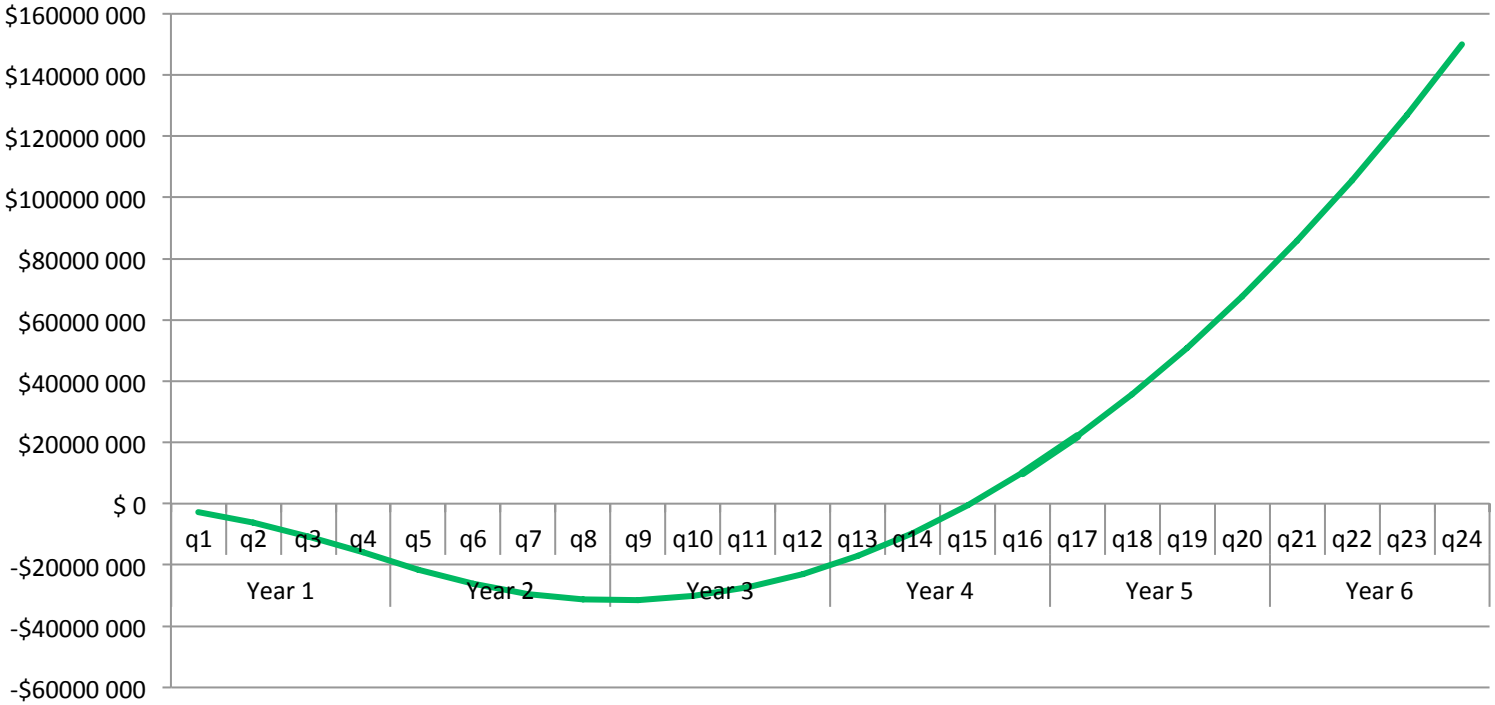
Marketing objectives		
New private clients/month		2500
New business clients/month		250
Deposites		
Private client		$5000
Business client		$7000
Monthly cash outflow		10%
Business effectiveness		
Reserves		9%
"Bad" credits		4%
Bonds quality (bonds %% accounted in cap)		20%
Deposites obligations		10%
Investements parameters	Share	Return
Bonds	50%	12%
Private clients overdrafts	25%	26%
Business clients overdrafts	25%	22%

Key cash flow details, conservative scenario

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Office, core IT infrastructure, C&B	$12,686,667	$13,280,000	$13,280,000	$13,280,000	$13,280,000	$13,280,000
Banking system, Call centre, CRM, internet bank, mobile apps, core banking products	$3,066,000	$5,362,000	$3,252,000	$3,252,000	$3,252,000	$3,252,000
Total clients private	0	15,000	45,000	75,000	105,000	135,000
Total clients business	0	1,500	4,500	7,500	10,500	13,500
Mkt costs private clients	$0	$300,000	$600,000	$600,000	$600,000	$600,000
Mkt costs business clients	$0	$150,000	$300,000	$300,000	$300,000	$300,000
Total costs	**$15,752,667**	**$19,265,250**	**$18,669,500**	**$19,857,500**	**$21,045,500**	**$22,233,500**
Cash inflow private clients	$0	$75,000,000	$150,000,000	$150,000,000	$150,000,000	$150,000,000
Cash inflow business clients	$0	$10,500,000	$21,000,000	$21,000,000	$21,000,000	$21,000,000
Cumulative cash inflow	**$0**	**$85,500,000**	**$256,500,000**	**$427,500,000**	**$598,500,000**	**$769,500,000**
Cash outflow	$0	$8,550,000	$25,650,000	$42,750,000	$59,850,000	$76,950,000
Cash balance	**$0**	**$76,950,000**	**$230,850,000**	**$384,750,000**	**$538,650,000**	**$692,550,000**
Reserves	$0	$6,925,500	$20,776,500	$34,627,500	$48,478,500	$62,329,500
Cash available	**$0**	**$70,024,500**	**$210,073,500**	**$350,122,500**	**$490,171,500**	**$630,220,500**
-in bonds	$0	$35,012,250	$105,036,750	$175,061,250	$245,085,750	$315,110,250
-in personal overdrafts	$0	$17,506,125	$52,518,375	$87,530,625	$122,542,875	$157,555,125
-in business overdrafts	$0	$17,506,125	$52,518,375	$87,530,625	$122,542,875	$157,555,125
Returns from all products/comissions/e-commerce	**$0**	**$3,770,786**	**$26,934,188**	**$52,791,008**	**$78,647,828**	**$104,504,648**
Total cumulative cashflow	**-$15,752,667**	**-$31,247,130**	**-$22,982,443**	**$9,951,065**	**$67,553,392**	**$149,824,540**
Cumulative deposit %% obligations	$0	$8,550,000	$25,650,000	$42,750,000	$59,850,000	$76,950,000
Cumulative bad credits	$0	$1,400,490	$4,201,470	$7,002,450	$9,803,430	$12,604,410
"Crash" scenario balance	**-$15,752,667**	**-$49,747,620**	**-$78,483,913**	**-$82,551,385**	**-$61,950,038**	**-$16,679,870**

Financial result, conservative scenario

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cash flow	-$15 752 667	-$31 247 130	-$22 982 443	$9 951 065	$67 553 392	$149 824 540



* Calculated for project, which was implemented based on existing bank

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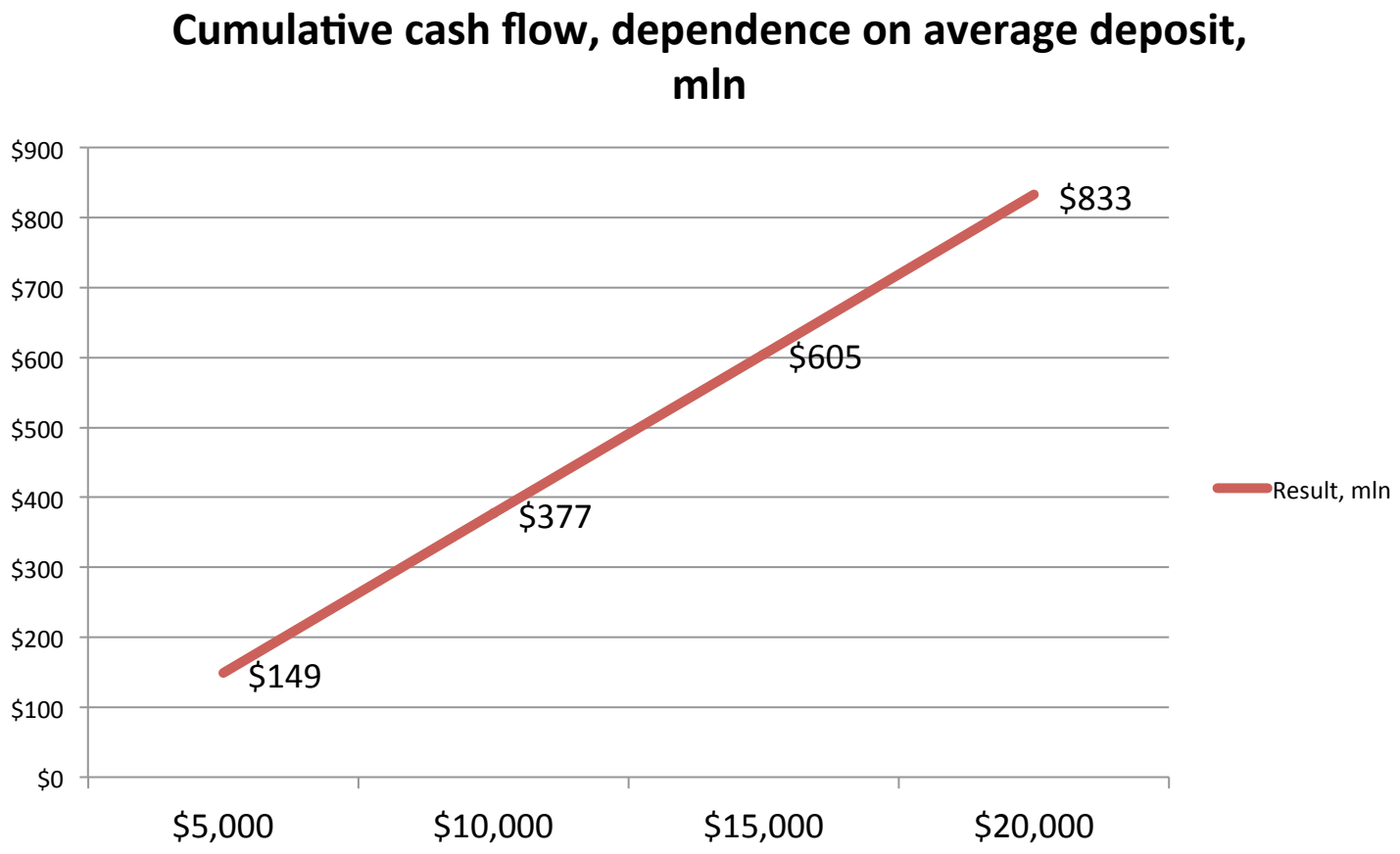
Sensitivity to key parameter



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Know-how

- Detailed project plan and cash flow
- Detailed description of key products, with business processes of their sales and service
- Detailed description of IT solution
- Professional team

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Glass Cube

- Company Glass Cube is organized in December 2017 with objective to develop blockchain technologies for businesses. Glass Cube acquired 100% of Virtual Enterprise Systems, IT company working from 2010, leader in the segment of IT platforms for business.
- Glass Cube got know-how of platform architecture and concept from Sergey Chekriy and Yuriy Mukhin, who invested into development of platform prototype personally around 1 mln EUR and 3 years (since 2015).
- Key international project of Glass Cube is – **I-CHAIN – B2B platform with focus on insurance.**
  https://i-chain.net/. Glass cube invested 6 mln EUR in platform.
- More than 20 high class IT developers are working in the Glass Cube

coinlauncher

cryptona

Russia's Growing Influence on the Crypto-Markets

Russia Is Setting The Pace In Blockchain Technology.

CRYPTOGROUND

BitChain

TechBullion

Global From Asia Investments

أطلقت الشركة في أوائل عام 2017 بتمويل أساسي قدره 4 ملايين دولار منPavel Pribylov، ونموذج I-chain في مرحلة الاختبار، ومن المقرر أن يتم إصداره في مايو/آيار للجمهور.

Forbes

Meet The Russians Behind Your Blockchain (And Cryptocurrency, Too)

TheNewsLens 關鍵評論

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Glass Cube

I-CHAIN project founders

Strategic Investor

Pavel Pribylov in

Pavel is an experienced and successful businessman with strong vision that smart technology and smart people can and should bring value to society. Pavel created one of the major pharmacy chains in Russia and always was keen on new technologies. He believes that any entrepreneur has an obligation to develop our civilization.

CTO

Sergey Chekriy in

Sergey has vast of experience in IT and real drive to develop new and better technologies. He is working in industry since 1994, has Ph.D. in computer science. Worked in CTO role in successful fintech startups. Has experience in banking and corporate world. His last position was - Chief Corporate IT Architect in Societe Generale in Russia.

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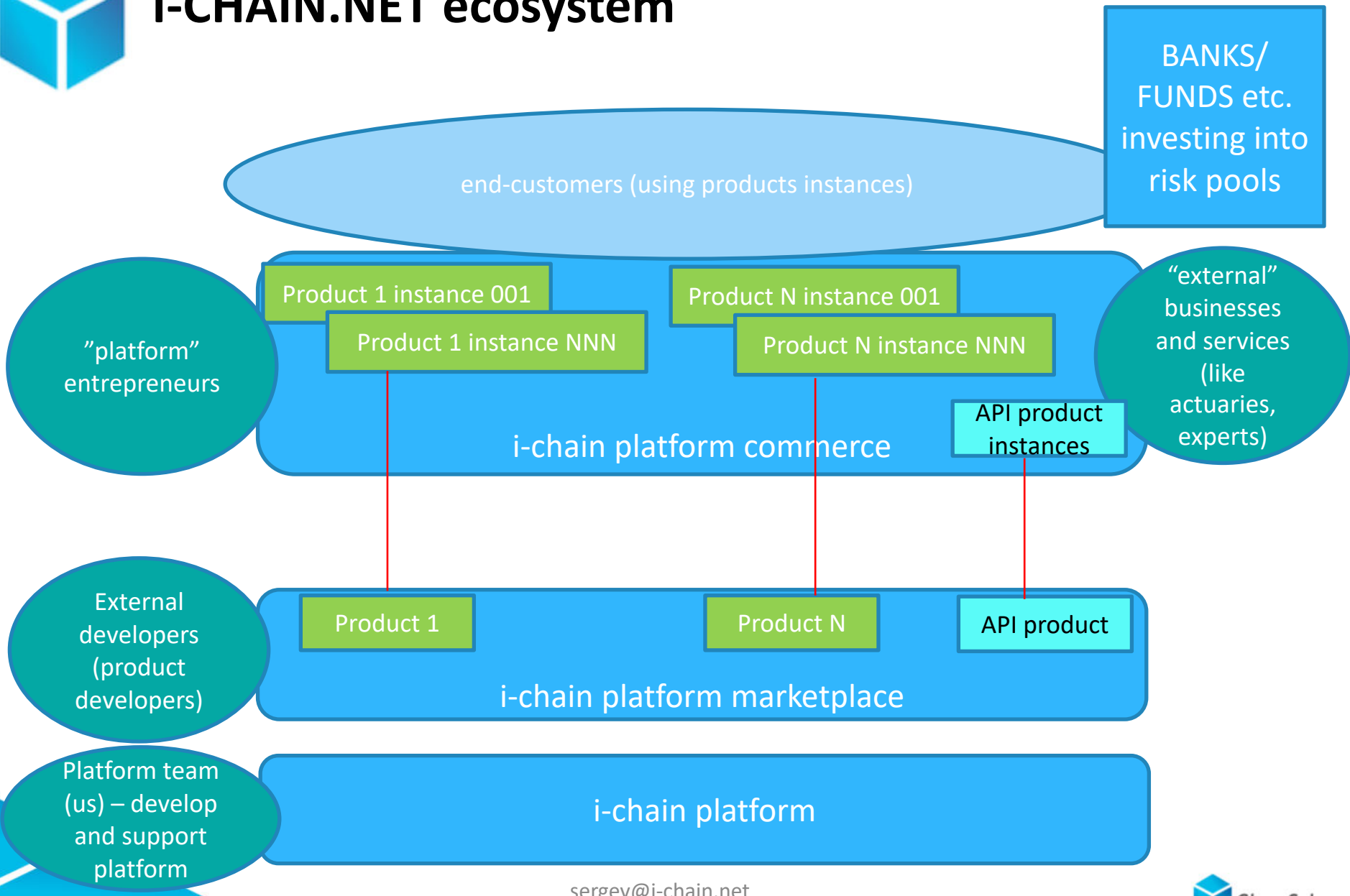
I-CHAIN.NET ecosystem



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Glass Cube

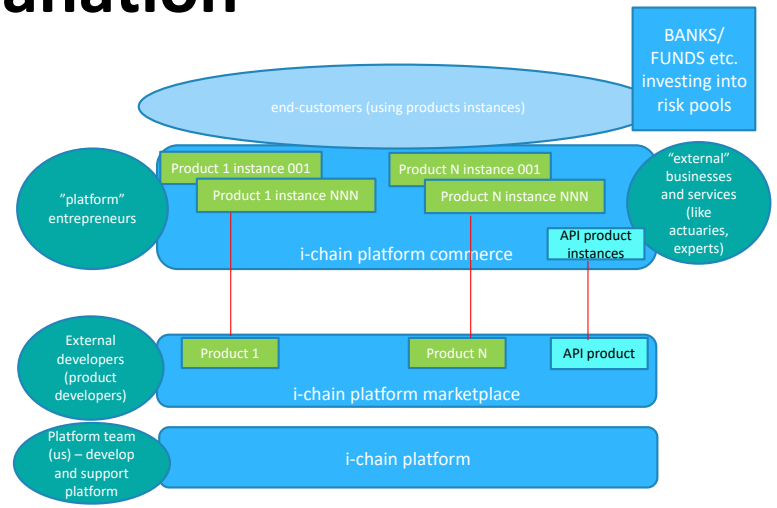
I-CHAIN.NET ecosystem explanation

Platform is processing transactions, responsible for interaction with blockchain layer, common functionality.
It is supported and developed by our team.

Marketplace gives ability external developers (anyone with skills) create own product as application as package of java microservice, BPMN processes,
UI forms and smart-contracts in Solidity.

On **e-commerce** level entrepreneurs can create own instance of specific product. For instance if 'home insurance' product is created in marketplace, specific entrepreneur in Atlanta can create own instance of this product 'Atlanta Home Insurance' with few clicks.
Established companies (say existing insurance companies) could create specific instance of API on e-commerce level and use platform services for their existing products in their ecosystems. Also professional services could be acquired through API integrations.
Banks and funds have ability to invest into risk pools for product instances. Specific 'exchange' on platform will be created for instances to compete for risk pools investors and vice versa.

Customers use product instance without need to know details of implementation, as regular web sites and mobile applications.



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Glass Cube
I-chain. Insuring every bit.

I-CHAIN platform deliverables up-to-date (December 2018)

- We have made IT platform **i-chain.net** with underlying blockchain layer. Platform architecture is patented (in process, passed expertise).
- Platform is able to host products.
- Examples of products are: crypto bank, mutual insurance (community insurance), auto insurance and others. Currently mini-bank is implemented, mutual insurance will be ready by end of January.
- We mainly position platform for insurance industry, but it is B2B marketplace.
- Platform allows external developers develop and publish their products with our API.
- Any person, group of people, company using the Platform can launch own product or service and sell it on the global market or use it themselves (within a group of companies, industrial association or a community).

- Registration at marketplace: https://youtu.be/XtprF1nsm4s

- Create own product instance (example of Mini-Bank): https://youtu.be/0HDnEiKA2Zk

I-CHAIN platform 2019 objectives

Platform key features to be delivered:

- Develop AI engine for risk estimations for products (actuary engine)
- Develop special ‘exchange’ for risk pools.

Products kinds to be developed:

- Variety of insurance products (replicas of classic)
- On the spot insurance, like insurance in gym from trauma just before exercises;
- Payment system (P2P, B2B, B2C);
- Guarantees of different kind like professional service guarantee (for lawyer, doctor), product guarantee;
- Different type of e-commerce (deals with guarantee) like art dealership etc;
- IoT insurance of different kind.

I-CHAIN 2019

Objective 2019 – **platform commercialization**

1) Acquire entrepreneurs on platform:
   objective: acquire 1000 entrepreneurs on platform during the year.
   (30 entrepreneurs /week)
   Each entrepreneur brings us in average $360 USD/year for hosting services and transactions fee (based on 0.5%) $150/year (based on 100 end-customers with average transations volume $300/year each).
   [100*$300*0,005 = $150].
   I.e. estimated revenue: [($150+$360)/2]x1000 =~ 500K USD
   [($150+$360)/2 - based on assumption of linear flow of entrepreneurs to platform during the year

1) Sales of utility tokens to entrepreneurs – 1000 *$100 = $100K;

2) Integration projects with big players (charge from API usage and custom development) ~ 2 mln USD

3) Commissions generated from external developers products published on Platform Marketplace;

4) Private versions of platform implementations for corporations/government institutions $2-6 mln USD

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I-CHAIN pilot product. Q4 2018

From September 2018 I-CHAIN project is moving into 'PRODUCT FACTORY' stage.
Platform is ready and we will be publish products on the platform:

a) With our own products team;
b) Through Marketplace - external developers will develop and publish products on the platform.

Pilot products:

Product	Description	Entrepreneur angle	Customer angle
Secure Deposit Bank	Mini bank with mono-product – 'Crypto wallet with additional security and insurance'.	With plaform with few clicks I can organize mini-bank and charge commission for my services. I only need to buy utility token for each 1000 customers, invite customers and organize support for my customers.	I get crypto-wallet with insurance of funds and ability to contact real person and get help if something goes wrong.
Community Fund	Community fund, like fund of neighbors in small city or parents in school	I am leader of local community, collect money for community tasks is my routine task, platform can help with that, drive my reputation and generate commission income for me.	Easy to vote for community decisions, transparent for me where my money are spend.
Community Insurance	'Community run' insurance business. Community decides which risks to cover (like house fight), decides level of contribution (calculated by platform)	I am leader of local community, I organize insurance fund for community and drive my reputation and generate commission income for me .	When I buy insurance from company and nothing happens – they did not return money. In case of community insurance – money stands within community and can be spend on community tasks.

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I-CHAIN project status. December, 2018

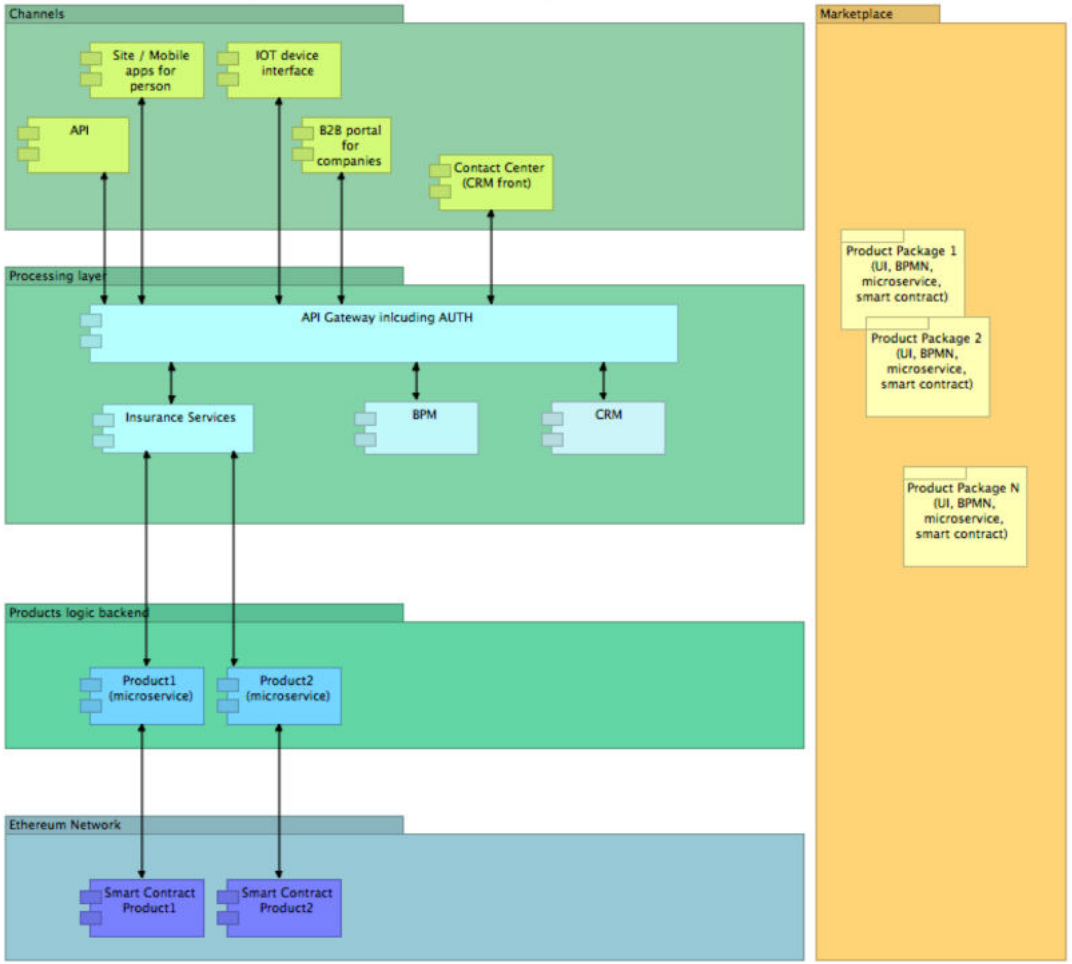
Project status:

- Team – 100%
- Whitepaper and other information – 100%
- Platform (working version) – 100%
- Advanced demo-product – travel insurance – demo.i-chain.net
- Real product – ICO insurance – guarantee.i-chain.net
- **Current stage – products factory**
- **Marketplace – ready**
- **First product on marketplace ('mini-bank') ready.**

What's next?

- Strengthening marketing communication (in progress);
- Platform improvement;
- Launching 10+ publicly-accessible real products

I-CHAIN project. A few words about technology. (Patented).



Insurance Platform consists of 4 layers .
The first layer, Ethereum, is where insurance products are designed as smart contracts. The next layer, Products logic backend helps to implement business logic and service functions, here micro-services match smart contracts.
Smart contracts and their matched micro-services interact with each other. The next layer, Processing, ensures common functionality of all insurance products and common business logic. CRM and BPM implement the functionality of business processes and interactions with customers.
Through API Gateway the forth and the highest layer, Channels, is connected (web, mobile apps, call centre, IOT etc.), the list of channels is not limited.

Third-party developers cab develop their own products on the Platform as packages consisting of interface forms bpmn-processes, micro-services (Java) and smart contracts.

The Platform is open and welcomes the development partners thus ensuring the rapid growth of the product set.

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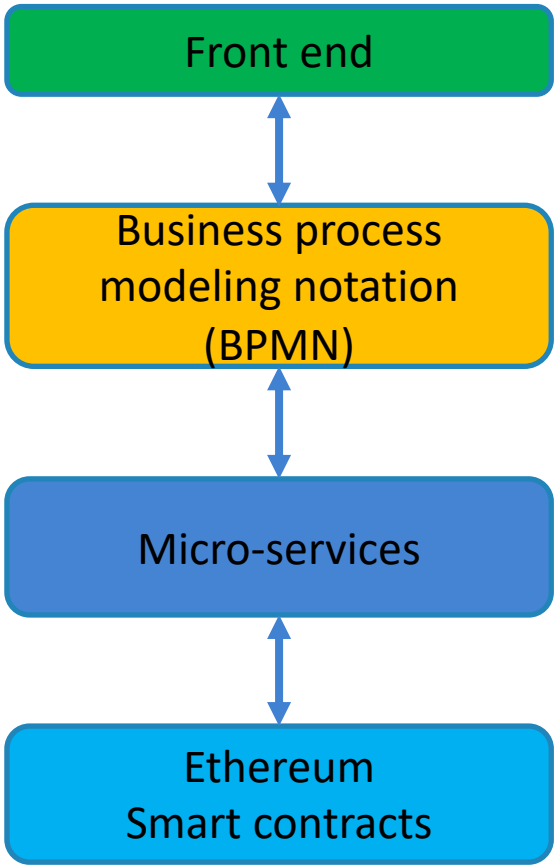
Glass Cube
I-chain. Insuring every bit.

I-CHAIN project. Opportunities for extension. (Patented)



Third-party developers can develop their own products on the Platform as packages consisting of interface forms bpmn-processes, micro-services (Java) and smart contracts using technology similar to the AppStore.

Smart contracts fix transactions in the blockchain and provide transparency and reliability.

Micro-services provide a mechanism for interaction with any external system and software logic of any complexity.

Business processes transparently fix the business logic of the system, while allowing quickly and flexibly change it.

At the same time, it is obvious that products can not only be limited to the insurance field.

The Platform thus becomes a superstructure over Ethereum, and **any industrial appliance of the platform** (not only for insurance purposes) **are possible, including enterprises' private blockchain-networks** built using Ethereum technology.

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I-CHAIN project. Investment needs

Investment needs: 15 mln EUR for 2019 to rollout products

<u>Ready to sell share of the company in exchange for investments, to be discussed with perspective investor</u>

Benefits for investor:

- Platform is ready;
- Team is working together for a year;
- Clear financial and business plan;
- Clear vision

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