

Evolution plan for Invest4All

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This evolution plan was created as an synthetic case for testing the evolution planning methodology and supporting materials.

Executive Summary

Current state: Invest4All is an investment banking application for mid-income private individuals and families in The Netherlands, allowing lost-cost and low-risk investment into the AEX stock market. Invest4All currently has 4,000 users.

Invest4All is currently available as web application with support from all major browsers. On the server-side the system runs on a group of servers hosted in-house.

Invest4All is currently not profitable.

Opportunity: Low and even negative interest rates on savings accounts has increased interest among private individuals and families in investment banking. This rise in interest occurs in The Netherlands, but also in other European countries. Current (Dutch) users of Invest4All have strong interest in investing not only in the AEX, but in exchanges worldwide.

Ambition: Make Invest4All available to users across the European Union, allowing them to invest in all major European exchanges. Let the number of users grow from 4,000 now, to 100,000 in three years.

Steps: (1) Enable connection to more exchanges, (2) Increase scalability in terms of number of users and number of transaction, (3) Support internationalisation.

Situation

Invest4All is an **investment banking application** for mid-income private individuals and families in The Netherlands, allowing lost-cost and low-risk investment in the **AEX stock market** and related funds.

Functionalities: Users can inspect the current status of their investments, make changes to specific investments, adapt their investment strategy, and obtain a multi-year projection of the value of their investments.

Users: Invest4All currently has **4,000 users**. About 65% of these users checks the status of their investments each month. About 10% of these users make a change to their investments or their investment strategy each month.

Software profile: Invest4All is currently available as web application with support from all major browsers. On the server-side the system runs on a group of servers hosted in-house. The client-side is programmed in Angular and the server-side is programmed in C#. The total code base has a rebuild value of **50 person-years**. The quality of the code base is above market average. The development team works according to Agile-Scrum, uses a modern development environment, and has **fully automated** integration, testing, and deployment.

Supervision: The application is regularly **audited**, and audit reports are shared with the Dutch and European national banks and the Dutch financial markets authority (AFM).

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Situation

Problems: The system has experienced brief moments of **unavailability** as a result of peak loads occurring at the end of each working day.

Investment4All currently **runs at a loss**. Operation and maintenance of Invest4All is currently €65,000 per month. Revenue from subscriptions and transaction fees amounts to €60,000 per month.

Ambition

Make Invest4All available to users across the European Union, allowing them to invest in all major European exchanges. Let the number of users grow from 4,000 now, to 100,000 in three years.

Ambition		
Goal	Stakeholder interest	Motivation
What to achieve in 12-18 months?	Who benefits and how?	Which strength is used to seize which opportunity? Which weakness is remediated to mitigate which threat?
Increase user based and associated revenue to achieve at least a 40% profit.	CFO	The current user base is restricted to the Dutch market but can be expanded to other European countries.
Ensure stability, also under high peak loads.	COO	Current in-house deployment is not scalable. High-quality code and development process allow re-deployment on cloud infrastructure.
Increase user satisfaction by widening investment possibilities.	Customers	Current limitation to Dutch exchange can be removed to give users access to broad investment possibilities.

Gap analysis

Gaps				
Gap	Type of the gap	Current state	Ambition state	Possible solution directions
What is the name of the gap?	What is the area of the gap?	What are you now?	What would you like to be?	What are the possible or alternative ways to solve the gaps?
Lack of availability	Performance gap	Application is sometimes unavailable during peak load	100% availability, also under peak loads	Make the application scale better
Low number of users	Market gap	4,000 users	100,000 users	Roll out to more countries
Not profitable	Profit gap	€5,000 loss per month	at least €500,000 profit per month	Increase revenue (at least 10-fold) more than costs (at most 3-fold)

Design moves

Design Moves

Design move	Strategic intent outcome	Criteria of done output	Actions	Cost	Risks [What could go wrong?]
What is the name of the design move?	What benefit are you trying to achieve? What is the marked effect or influence of this design move?	What is the measure of success?	What changes need to be made to the software? What other actions need to be taken?	What are the costs, in terms of effort, required expertise, prerequisites that need to be fulfilled?	What risks need to be controlled to assure a successful outcome?
Cloud deployment	Ensure scalability	Automatic scaling under increased load	(1) Migrate server-side code to Azure, (2) Configure auto-scaling, (3) Test and audit	6 person-month initial effort, then cloud operation expense of €2 per user per month	Current dev team has no cloud experience
Extensible architecture	Allow fast connection of new exchanges	New exchange can be added without changing existing code	(1) Isolate AEX-specific code, (2) Create exchange configuration interface, (3) Support AEX through configuration, not code	6 person-months development effort	Errors may be introduced by code changes. Code base becomes more complex.
(Continued)					

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Add exchanges	Add new exchanges for large markets	German, French, Italian, Spanish, Belgian exchanges are connected	(1) Configure each exchange (2) Take into operation	1 person-months configuration effort per exchange	APIs of various exchanges may not work as documented.
Internationalisation	Make the application accesible to non-Dutch users	Users from all EU countries are using the application.	(1) Support multiple languages, (2) Support multiple identification mechanisms	6 person-months development effort	Development team is not proficient in the supported languages

Benefit generation for stakeholders

Benefits				
Action/ Design move	Responsible stakeholder	Benefiting stakeholder	Immediate benefit	Long term benefit
By which design moves or in which step in the roadmap the benefit gets created?	Which stakeholder is responsible for this benefit generation?	Which stakeholder is benefiting from the benefit generation?	What is the short term goal? What immediate benefit is?	What is the long term benefit?
Internationalisation	CTO, COO	CFO	None.	Invest4All will become profitable
Cloud deployment	CTO, COO	User	Always available	Always available
Add exchanges	CTO, COO	User	More investment possibilities	Better spread, better yield
...				

Risk assessment

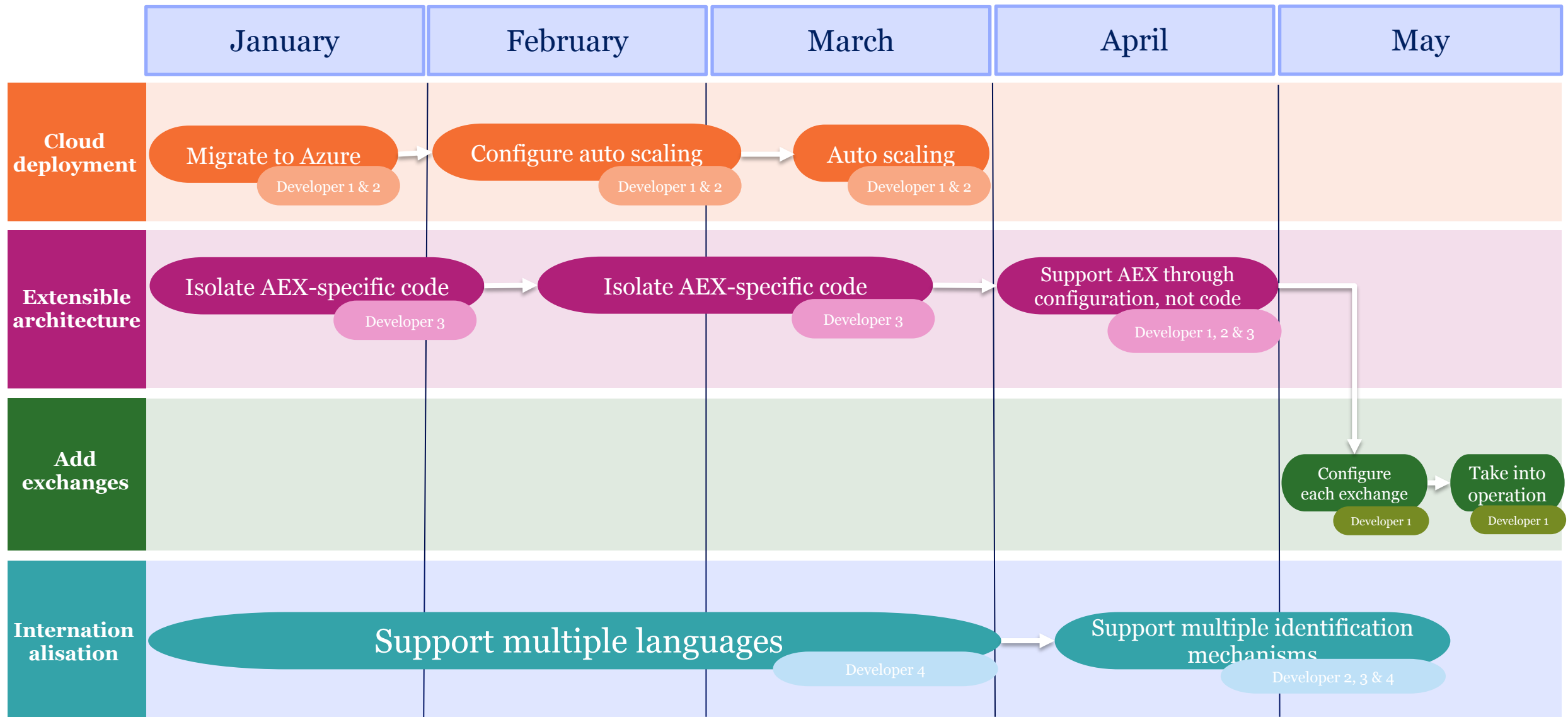
Risks						
Risk ID	Risk	Related design move	Risk Description	Risk Impact	Risk Likelihood	Risk Level
What is the risk ID?	What is the name of the risk?	During which design move might this risk occur?	What is the description of the risk?	If a risk occurs and is not mitigated, what is the impact of the most likely problem that will occur?	What is the state of being probable or chance of a threat occurring?	What is the level of the risk?
1	Cloud skills	Cloud deployment	The current dev team has no cloud experience	Major	Likely	Extreme
2	New errors (Bugs)	Extensible architecture	Code changes may introduce errors.	Major	Possible	High
3	Code complexity	Extensible architecture	Code base becomes more complex by code changes.	Major	Possible	High
4	Poor API documentation	Add exchanges	APIs of various exchanges may not work as documented.	Major	Likely	Extreme
5	Lack of proficiency in supported languages	Internationalisation	The development team is not proficient in the supported languages	Moderate	Possible	High

Mitigation actions

Mitigation actions					
Risk ID	Risk	Mitigation Actions	Revised-Risk Impact	Revised-Risk Likelihood	Revised-Risk Level
Which risk ID?	What is the name of the risk?	What are the actions to reduce or eliminate the risk?	What is the risk impact after risk mitigation?	What is the risk likelihood after risk mitigation?	What is the risk level after risk mitigation?
1	Cloud skills	1) Use the support of a third-party certified by the target cloud provider to assess the required needs for pinpointing in-house skills gaps 2) Hire additional personnel to fill the identified gaps	Moderate	Possible	High
2	New errors (Bugs)	High code coverage (Make sure that code coverage is 100% or more)	Minor	Possible	Moderate
3	Code complexity	100% code coverage+ Use error prediction tooling such as Rollbar and CircleCI to identify which code changes caused errors automatically	Moderate	Possible	High
4	Poor API documentation	1) Reduce reliance on the documentation and test API beforehand 2) Use CloudRail and connect up to any cloud service or device while coding.	Minor	Possible	Moderate
5	Lack of proficiency in supported languages	Put somebody in charge and get an external service such as TMS (Translation Management System) to check whether you are doing localization right or not.	Minor	Possible	Moderate

Risk mitigation matrix

Certain	Moderate	High	Extereme	Extereme	Extereme
Likely	Moderate	High	High	4 1 Extereme	Extereme
Possible	Low	4 Moderate	2 High	1 2 High	Extereme
Unlikely	Low	5 Moderate	5 Moderate	3 High	High
Rare	Low	Low	Low	Moderate	Moderate
<div> <div>Risk ID</div> <div>Effect of risk mitigation</div> </div> <div> <div>Likelihood</div> <div>Impact</div> </div>	Insignificant	Minor	Moderate	Major	Catastrophic



Monitoring and evaluating the plan

	Project Summary	Indicators	Dependent on
Goal/ Ambition state	<ul style="list-style-type: none"> Move the system from on-premise to cloud computing 	<ul style="list-style-type: none"> Reducing the hours that the system is unavailable The system never gets overloaded 	<ul style="list-style-type: none"> Success in roadmaking Review the progress Good leadership Workplace cooperation
Outcomes	<ul style="list-style-type: none"> Ensure scalability Fast connection of new exchanges 	<ul style="list-style-type: none"> Increase in customer and employee satisfaction Time to bring new users Time to bring new services to market 	<ul style="list-style-type: none"> Clear agenda On schedule progress Good leadership
Outputs	<ul style="list-style-type: none"> Automatic scaling under increased load 	<ul style="list-style-type: none"> Decrease of mean time to repair or mean time between failures (time) Increase in the speed and reliability of the service 	<ul style="list-style-type: none"> Clear agenda Good leadership Protection of expertise and assets
Actions/ Design moves	<ul style="list-style-type: none"> Migrate server-side code to Azure Configure auto-scaling Test and audit 	<ul style="list-style-type: none"> Employ required staff Approve the organizational cloud readiness A created cloud roadmap 	<ul style="list-style-type: none"> Budget availability Time availability Employee availability Infrastructures availability

Use checkmarks to show the answer of following questions in the indicators column during the execution:

- 1) Have you achieved your overall goal and targets?
- 2) Which outcomes have already been achieved?
- 3) Which outputs have already been achieved?
- 4) Which actions have already been executed?

Appendices



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Stakeholder analysis

Stakeholders

Stakeholders	Impact Level	Support Level	Reasons	Actions
Who are your stakeholders or stakeholder group?	What are the impacts of stakeholders on a business?	How supportive of the project objectives the stakeholder is?	What are the reasons for resistance or support?	What are the actions to address this stakeholder group?
Customers (Audience)	Affected	Supportive	To have access to broad investment possibilities.	Removing the current limitations in Dutch exchange.
Dutch European national bank (Promoter)	Impactful	Supportive	Increase the number of users and expand the market	Make the system available to the other European countries.
Dutch Authority for the Financial Markets (AFM) (Promoter)	Decision authority	Supportive	Increase the number of users and expand the market	Make the system available to the other European countries.
Chief Financial Officer (CFO)(Latent)	Decision authority	Resistant	The CFO wants to increase profitability while reducing costs. Implementing design moves will be costly initially, and therefore, it is hard for the CFO to make this change.	The IT team should work with the CFO to justify why they need to change the current situation of the application and what the result is in the long term.
Chief Operating Officer (COO) (Promoter)	Impactful	Supportive	The COO of the companies brings the right company cultures to the organizations. And help the companies run smoothly.	During the planning phase, the COO should be invited to advise and communicate the changes across the company and identify the required skills and training.
Chief Technical Officer (CTO) (Promoter)	Decision authority	Supportive	These people are aware of potential problems regarding the technology within the organization; they can guide the IT team to undertake necessary actions to implement new changes.	These people should be invited from the beginning to the planning sessions, and their opinions need to be collected.

SWOT analysis

Strengths	Weaknesses
<ul style="list-style-type: none">• What does the system do well?• What unique capabilities does the system have?• The quality of the code base is above the market average (High-quality code)• Audition of application is being done regularly.• The system uses a modern development environment that provides fully automated integration, testing, and deployment.• The strong interest of both Dutch and non-Dutch users to use the application.	<ul style="list-style-type: none">• What could be improved?• What capabilities are lacking?• Unavailability of application as a result of peak loads occurring at the end of each working day.• Current in-house deployment is not scalable• Users only have access to Dutch exchange.
Opportunities	Threats
<ul style="list-style-type: none">• How else could the system be used?• What emerging demand could the system satisfy?• Interest of Dutch users to invest in exchanges worldwide.• Interest of non-Dutch users to use the application	<ul style="list-style-type: none">• How could the system fail?• What damage could the system do?• Investment4All currently runs at a loss• Users might use competitors' systems that provide accessibility to broad investment possibilities.

TOWS analysis

	Weaknesses	Strengths
Threats	Counter weaknesses and threats: How can you minimize the system's weaknesses to avoid identified threats?	Leverage strengths to minimize threats: How can you use the system's strengths to minimize the identified threats?
	The current limitation to Dutch exchange can be removed to give users access to broad investment possibilities and prevent users from going to competitors.	Cloud deployment to ensure stability, also under high peak loads.
Opportunities	Counter weaknesses through exploiting opportunities: What actions can you take to minimize the system's weaknesses using the identified opportunities?	Leverage strengths to maximize opportunities: Which of the system's strengths can be used to maximize the identified opportunities?
	Make Invest4All available to users across the European Union to increase user-based and associated revenue to achieve at least a 40% profit.	Make Invest4All available to users across the European Union and give users access to broad investment possibilities to increase user satisfaction.



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