

Design Sprint - Final Presentation

Innovation & Business Models

Team 8

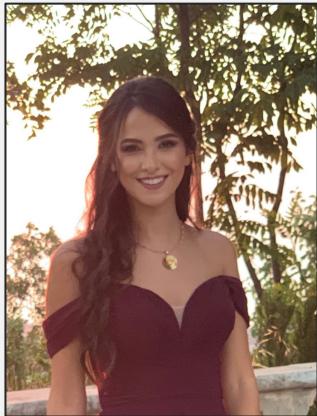
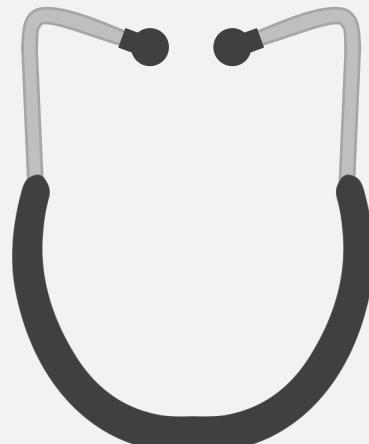
Casper Kirch, Johanna Dankert, Lasse Jakobsen, Christelle Boueiri, Matteo Giardini

14th Feb. 2022



Team 8

Who is behind this amazing presentation?



Christelle
Boueiri



Johanna
Dankert



Casper
Kirch



Matteo
Giardini



Lasse
Jakobsen

Agenda

1

Problem

- i. Problem definition
 - ii. Current (sub) optimal solution
 - iii. How might we solve this problem?
-

2

Our Solution

- i. Proposed business model
 - ii. Our prototype: How does it work?
-

3

Interviews & Validation

- i. Main takeaways from interviews
 - ii. Solution-related findings
-

4

Key Learnings & Next Steps

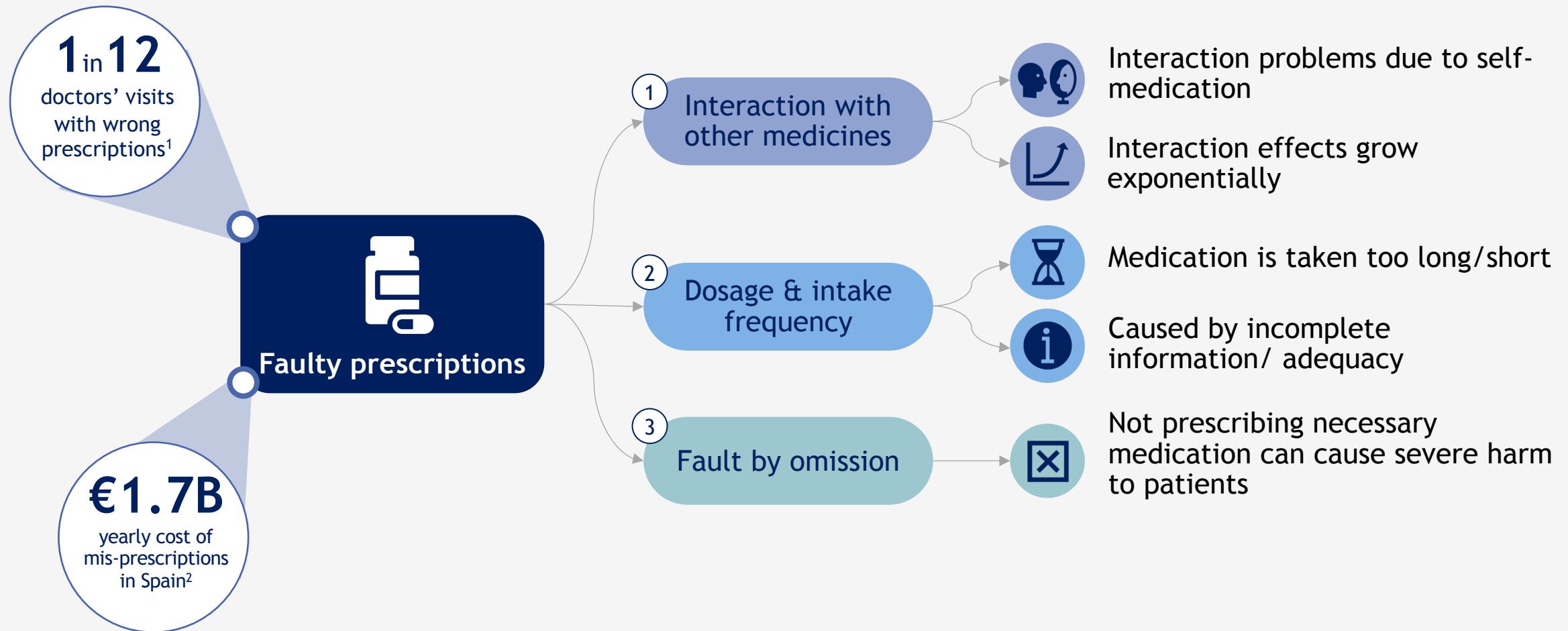
- i. Action plan looking forward
 - ii. Next steps
-

A graphic of a stethoscope is positioned on the left side of the slide. It features a white tube with black earpieces and a blue bell-shaped chest piece. The stethoscope is draped over a white shirt collar and a blue tie.

1. Problem

Problem Statement

“After my diagnosis, I had to switch medication six times in two years before the doctor found one that worked for me”



1. <https://www.medleague.com/medication-errors-and-prescriptions-a-dangerous-trend/>

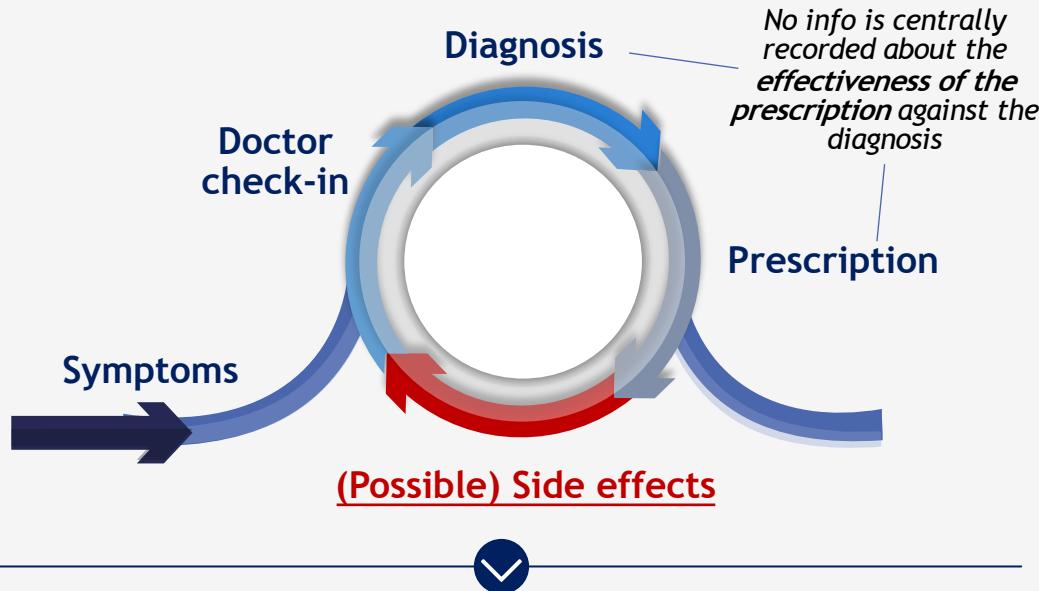
2. <https://www.ncbi.nlm.nih.gov/books/NBK519065/>

Current (sub-optimal) solution

Mistakes are rooted into the prescription process and doctors are not up-to-date with latest medical developments

1

Ineffective communication



Lengthy process + Reactive communication +
No doctor-patient facilitator

2

Doctors lag behind latest drug developments



Spanish National Health System (NHS)
determines guidelines and updates on
prescription medicines



Monthly reports on latest medicine updates are
emanated



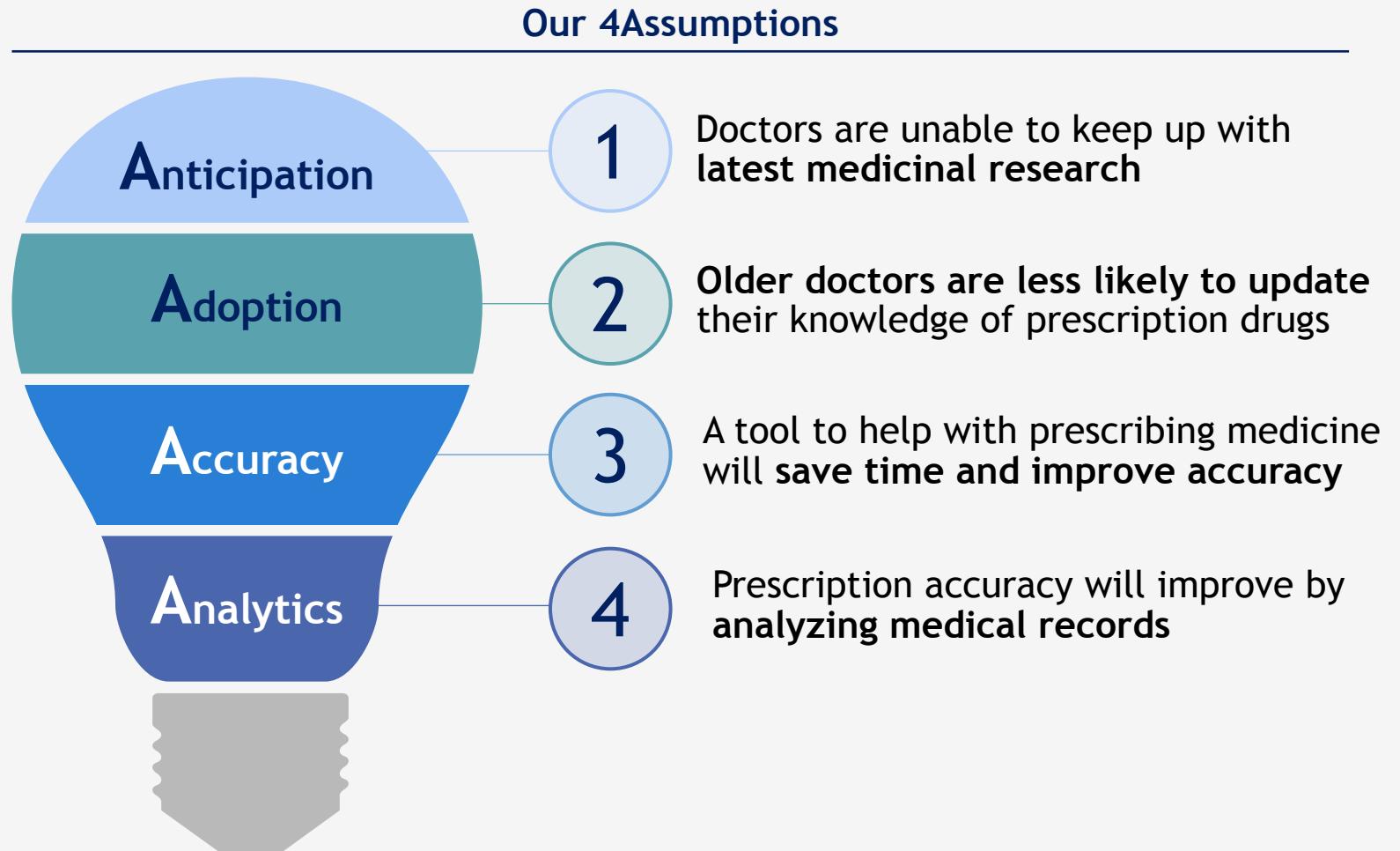
Doctors receive reports and are obliged to
memorize them to stay up-to-date

Resistance from doctors + High workload

How might we and our assumptions

To validate our solution, 4 assumptions have been brought forward

How might we
help doctors and patients
reduce fault prescriptions?



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2. Our Solution

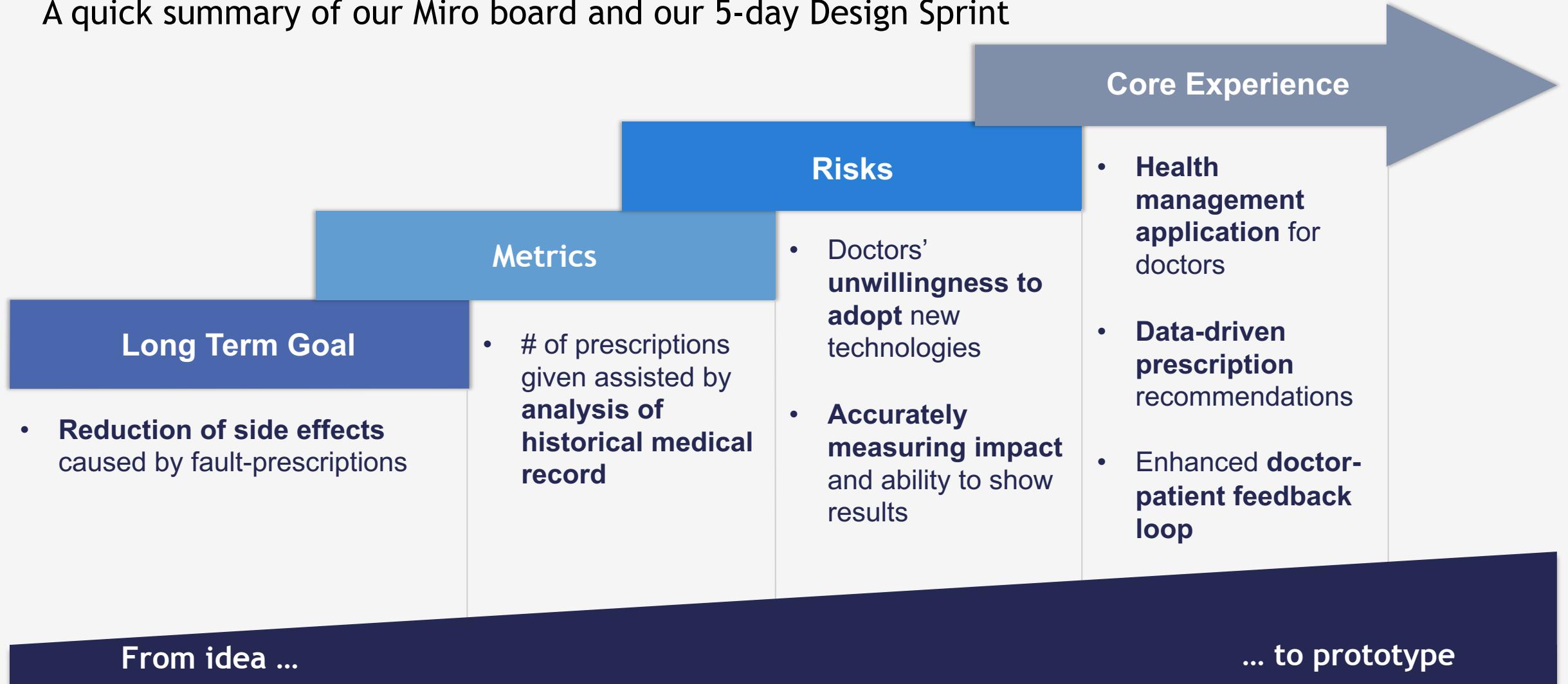
Proposed Lean Business Model

Focus on value delivered, unfair advantage and customer segment during first validation round

Problem	Solution	Value	Unfair Adv.	Customers
Mis-prescription or prescription omission	Centralized Health mgmt. application with embedded recommendation algorithm	Centralized ecosystem with historical medical record to <u>assist doctors in prescription decisions</u>	Unique recommendation <u>algorithm for patient-specific prescriptions</u>	<u>Private clinics</u> with ~45 doctors
Alternatives	Metrics	High-Level	Channels	Early Adopters
Doctors rely on past experience and individual medical research	# drugs prescribed through recommendation system	Prescription recommender system	Salesforce and direct marketing	Tech-savvy private clinics
Costs	Software development & maintenance costs, direct marketing to clinics	Revenues	Monthly fee (per doctor) paid by clinic	

Our Journey from Idea to (Goldilocks) Prototype

A quick summary of our Miro board and our 5-day Design Sprint



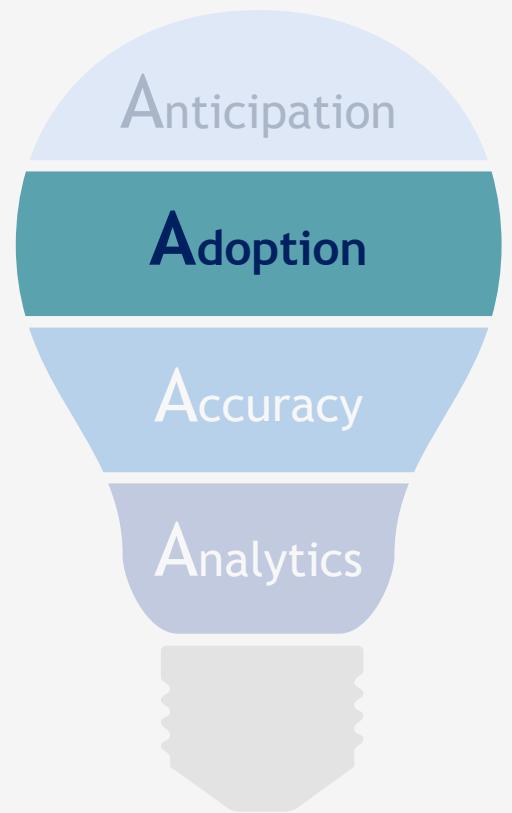
Prescription Recommendation Algorithm

Assisting doctor's decision-making by analyzing of historical medical records

The screenshot shows the DocT application interface. On the left is a sidebar with icons for Dashboard, Patients, Calendar, and Knowledge Base. The main area displays patient information for Mrs. Jane Cooper, including her photo, name, age (34 years, Female), email (jane.cooper@email.com), phone number (704) 555-0127, and date of birth (14 February 1988). It also shows her practitioner, MARIA ROSSI, General Practitioner. Below this is a section titled "Recommendations" which lists four prescription suggestions:

Prescription	Intake Frequency	Patient-specific side effects
1 Sumatriptan	3 times a day, 10 days	Abdominal or stomach pain, anxiety, chest pain or tightness
2 Rizatriptan	3 times a day, 8 days	Chest/jaw/neck tightness, pain, or pressure
3 Migranal	3 times a day, 5 days	Muscle pain in your arms or legs, leg weakness, itching in any part of your body
4 Lasmiditan	2 times a day, 15 days	Tremor, sleep abnormalities including sleep disturbance and abnormal dreams

Below the recommendations is a section titled "Insert New Prescription" with fields for "Enter prescription" and "Enter intake frequency". There are "BACK" and "CONFIRM" buttons at the bottom.



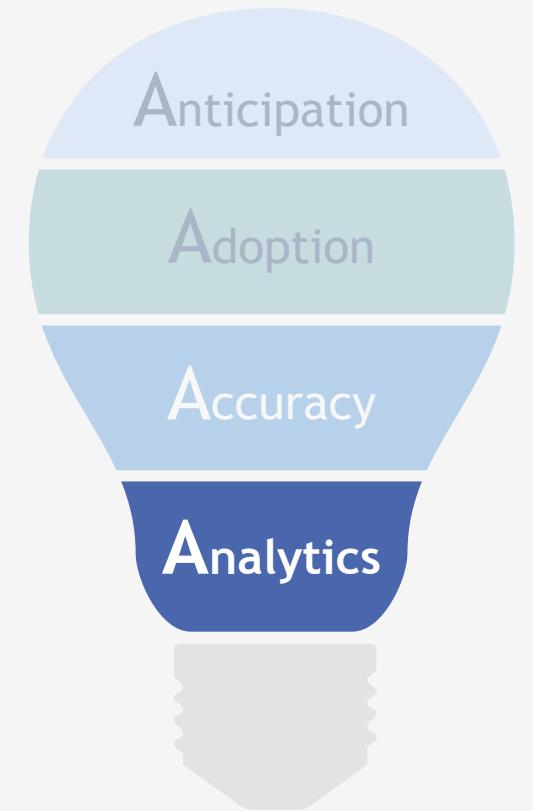
Tailor prescriptions to specific patients

Generating patient-specific advantages and potential side effects

The screenshot shows the DocT application interface. On the left is a vertical sidebar with icons for Dashboard, Patients, Calendar, and Knowledge Base. The main area displays a patient profile for Mrs. Jane Cooper, 34 years old, Female, with email jane.cooper@email.com and phone (704) 555-0127. The date of birth is listed as 14 February 1988. A general practitioner, MARIA ROSSI, is listed. A detailed pop-up window for the medication MIGRALAN is open. The pop-up includes the generic name Dihydroergotamine, drug class Antimigraine agents, and type of use Nasal. It lists the following information:

- Intake Frequency: 3 times a day, 5 days
- Prescriptions of patients with same diagnosis: 37% of patients with migraine have been prescribed Migranal.
- Potential patient-specific advantages:
 - No history of heart disease or blood circulation problem
 - Currently no intake of antibiotics or antifungals
 - Stable and controlled blood pressure
- Potential patient-specific side effects:
 - Muscle pain in your arms or legs, leg weakness
 - Swelling or itching in any part of your body
 - Dizziness, nausea, runny nose
- Medicines to be avoided while taking this prescription:
 - Antibiotic such as telithromycin; Antifungal medicine such as fluconazole; Nefazodone

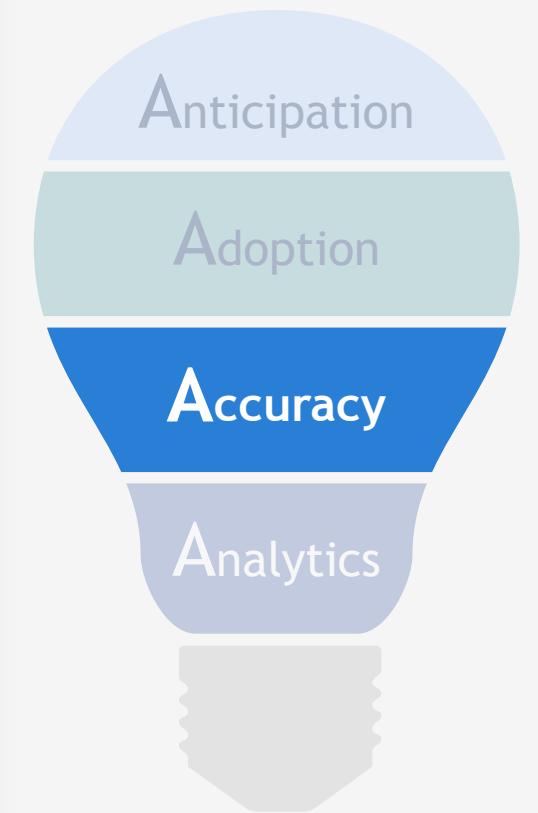
At the bottom of the pop-up are 'BACK' and 'CONFIRM' buttons.



Facilitating patient feedback

Accelerating communication with doctors with ad hoc patient feedback forms

The screenshot shows the DocT mobile application interface. On the left is a vertical navigation bar with icons for Dashboard, Patients, Calendar, and Knowledge Base. The main screen displays a "Welcome Doctor Rossi" message with a search bar. A central modal window titled "PATIENT FEEDBACK FORM" is open, showing details for "Mrs. Jane Cooper" (34 years, Female). It includes fields for Email (jane.cooper@email.com), Phone ((704) 555-0127), and Date of Birth (14 February 1988). The form contains two sections: "Prescription Effectiveness" and "Side Effects". Under "Prescription Effectiveness", it asks "To what extent is your prescription reducing your symptoms (1-min / 5-max)?", with a rating of 2 stars and a comment: "Headache duration has decreased (2 hours instead of 5), but not gone yet.". Under "Side Effects", it asks "To what degree are you experiencing side effects such as muscle pain, weakness and itching (0 = no side effects)?", with a rating of 3 - Mild side effects (to be addressed) and a comment: "Sweating during sleep, leg weakness". A blue "CONFIRM" button is at the bottom right of the modal.



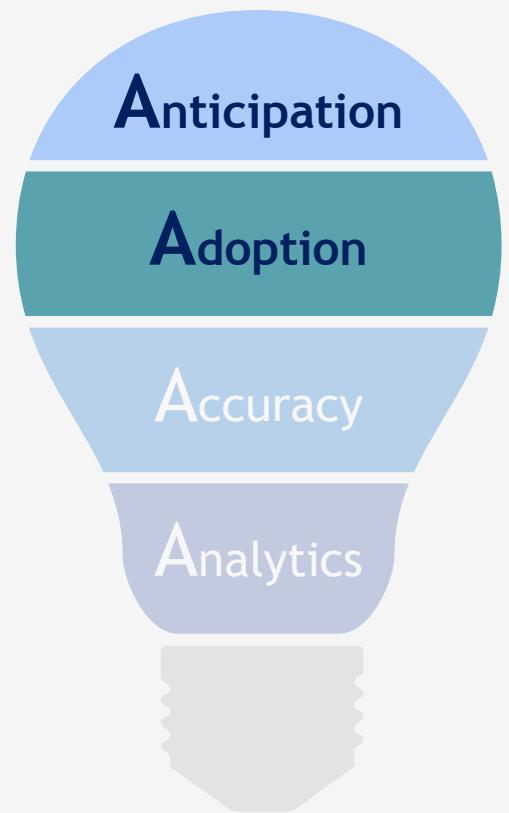
On-Demand Medical Knowledge Base

Providing doctors with in-depth (and immediate) knowledge on relevant prescription drugs

The screenshot shows the DocT mobile application interface. The left sidebar includes icons for Dashboard, Patients, Calendar, and Knowledge Base, with the Knowledge Base item currently selected. The main content area is titled "Medical Knowledge Base" and features a search bar. A section for "Migraine" is displayed, listing three categories: Triptans, Rizatriptan, and Ergot. Each category has a table with columns for Category, Generic name, Brand name, Details, and Side effects.

Category	Generic name	Brand name	Details	Side effects
Triptans	sumatriptan	Imitrex injection Tosymra nasal spray	Not with hemiplegic migraine, migraine with brainstem aura, stroke, heart disease, or uncontrolled hypertension, or pregnancy	Dizziness Tingling Flushing Feelings of chest heaviness, burning, or tightness Nausea
	rizatriptan	Maxalt	Not with hemiplegic migraine, migraine with brainstem aura, stroke, heart disease, or uncontrolled hypertension	Dizziness Tingling Flushing Nausea
Ergot	dihydroergotamine	dihydroergotamine	May be used during an aura	Nausea Numbness of fingers and toes

At the bottom are "BACK" and "CONFIRM" buttons. In the top right corner, there is a profile picture of a woman labeled "MARIA ROSSI General Practitioner".



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3. Interviews & Validation

Solution-related findings

Key insights from our interviews that go beyond our initial assumptions

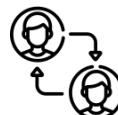
Problems/ Concerns



To build trust the system needs to be backed and updated by other doctors



No unified system that doctors use in Spain



Doctors require more interaction with their patients



The Health Ministry of Spain has to approve the system from a regulatory perspective and then all public clinics have to adapt

Opportunities



Have direct access to all patient information to act fast in emergency cases



Pharmaceutical companies can use data to improve their drugs



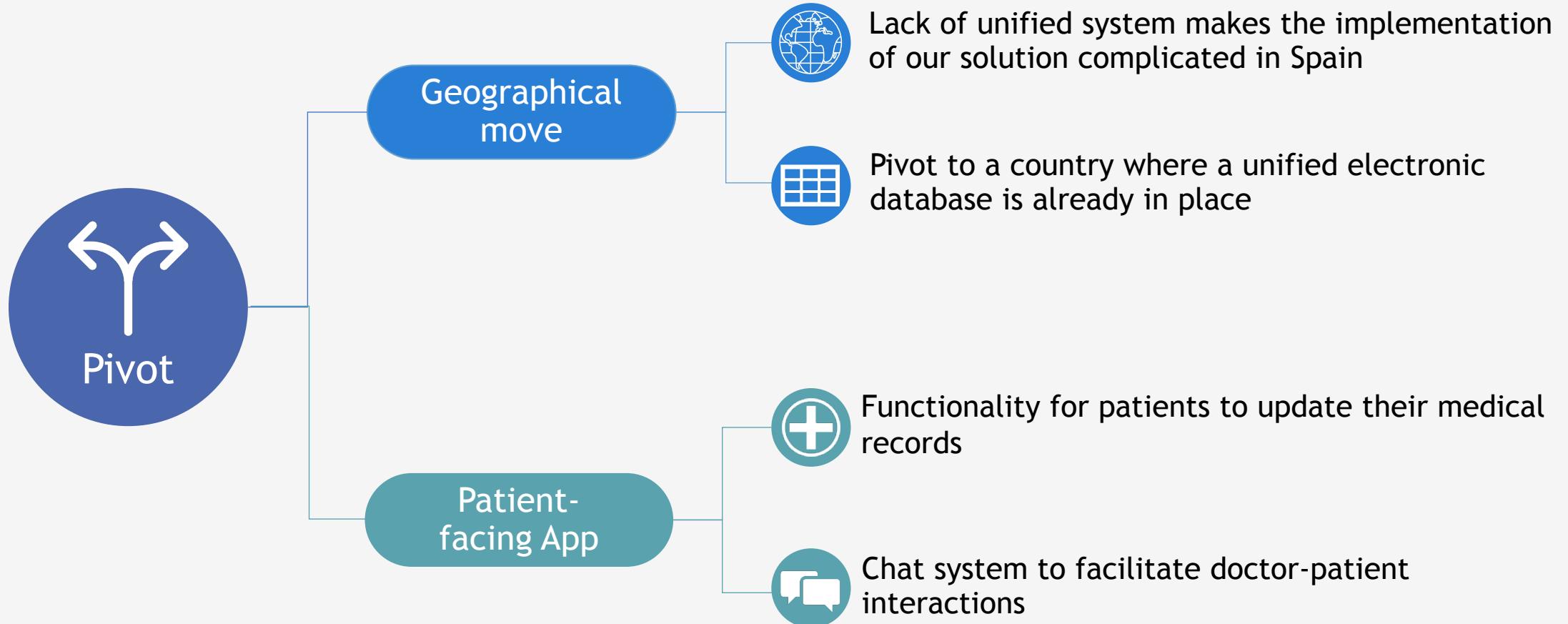
Can support researchers and lead to new scientific publications

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4. Key Learnings & Next Steps

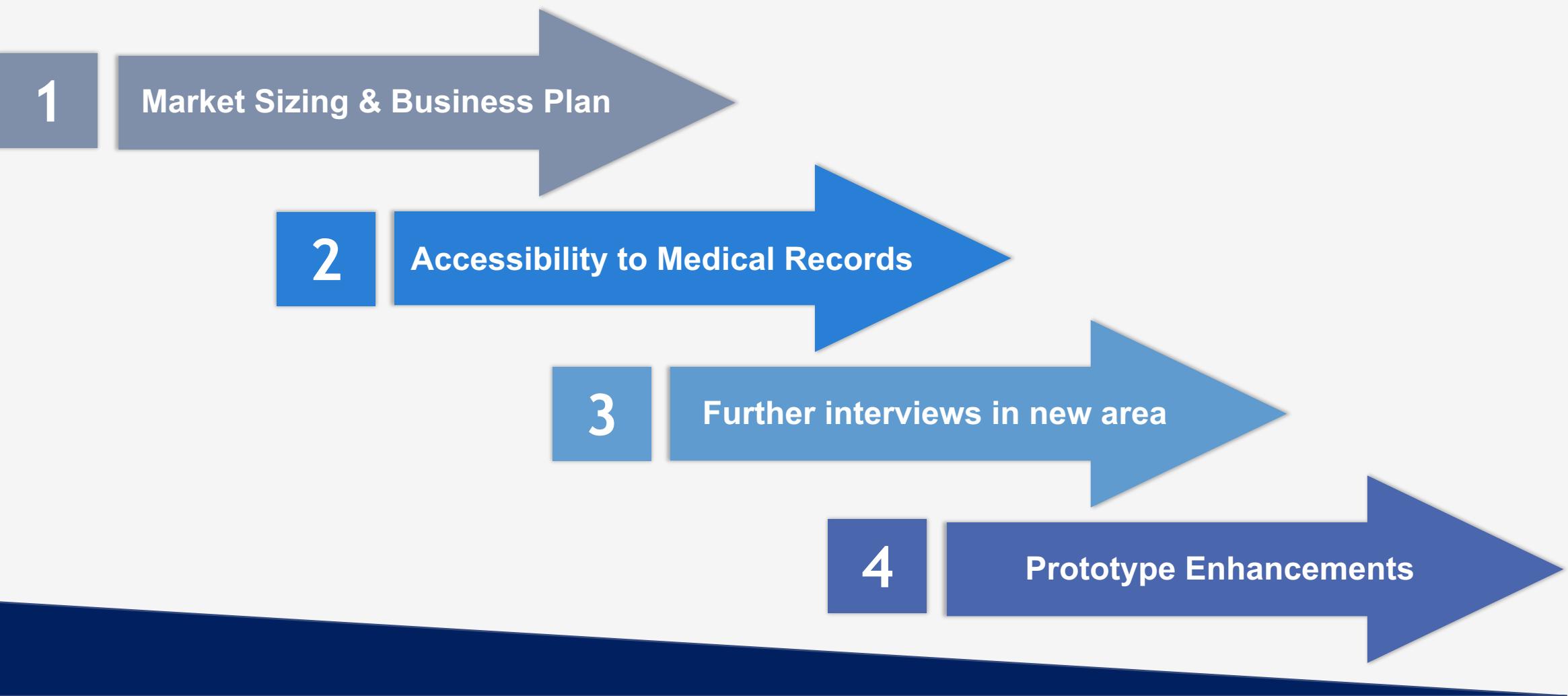
Action plan looking forward

Pivoting solution based on key insights from interviews



Next Steps

Validating and rolling out pivot to new market (i.e., Denmark) and enhancing prototype





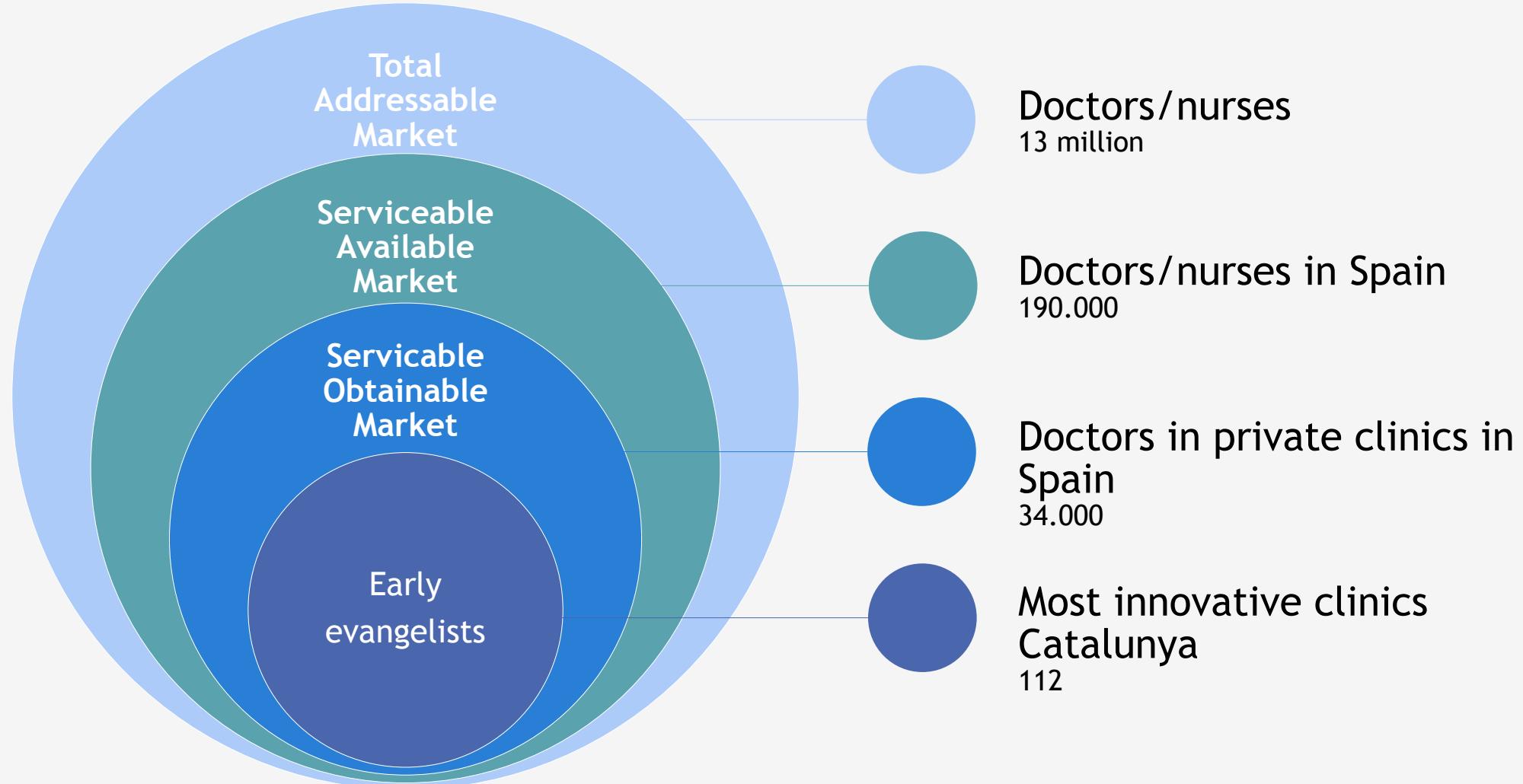
Thank you!

The background features a graphic composed of three overlapping blue suit jackets and a single blue necktie. The jackets are oriented vertically, with their collars pointing upwards. The tie is positioned centrally between the jackets. All elements are rendered in a flat, graphic style with no shading or depth.

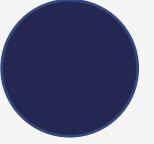
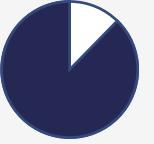
Back-up slides

Market size breakdown

Market sizing, a back-of-the-napkin estimate



Main takeaways from interviews

Assumptions	Validation	Learnings
<p>1 Doctors are unable to keep up with latest medical research</p>		<ul style="list-style-type: none">Limited offerings of receiving the latest medical research and guidelines (especially for GPs)Lack of time for further education due to high workload
<p>2 Older doctors are less likely to update their knowledge of prescription drugs</p>		<ul style="list-style-type: none">High confidence based on years of experience results in no perceived necessity for researchTrust in the knowledge of colleagues and personal pride result in overlooking mistakes
<p>3 A tool to help with prescribing medicine will save time and improve accuracy</p>		<ul style="list-style-type: none">Complex cases and differential diagnoses lead to time consuming prescription processesLarge amount of patient information takes very long to read and comprehend
<p>4 Prescription accuracy will improve by analyzing medical records</p>		<ul style="list-style-type: none">Insufficient disclosure of medical information from patients towards doctorsLack of overview of medications prescribed by other doctors

Proposed Lean Business Model

A practical problem calls for a pragmatic and value-driven solution

Problem Mis-prescription or prescription omission	Solution Centralized Health mgmt. application with embedded recommendation algorithm	Value Centralized ecosystem with historical medical record to assist doctors in prescription decisions	Unfair Adv. Unique recommendation algorithm for patient-specific prescriptions	Customers Private clinics with ~45 doctors
Alternatives Doctors rely on past experience and individual medical research	Metrics # drugs prescribed through recommendation system	High-Level Prescription recommender system	Channels Salesforce and direct marketing	Early Adopters Tech-savvy private clinics
Costs Software development & maintenance costs, direct marketing to clinics	Revenues Monthly fee (per doctor) paid by clinic			