Delivering Medical Supplies to War Zones: Emergency Ukraine

GLOBAL INNOVATION CHALLENGE 2022: Designing for Crisis

06 Aug 2022 - Germany and USA

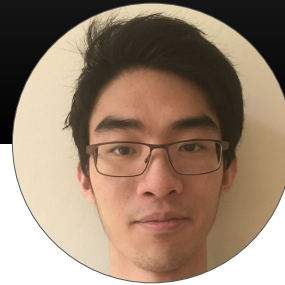Team Fantastic4

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WHAT HAPPENS WHEN THE NEEDED MEDICATION DOESN'T ARRIVE IN UKRAINE?

According to *WHO (World Health Organization)* at least 3000 Ukrainians have died due to the **lack of chronic health treatments.**

➔ Priority to life-threatening burn, bullet and shrapnel injuries;
➔ 40% of households have at least one member in need of chronic treatment that they can no longer find.

https://www.axios.com/2022/05/10/ukraine-death-chronic-treatment-who

"Ukrainian soldiers practicing applying bandages in a tactical medical training exercise in Kyiv, on July 1."

FLAWS IN THE SYSTEM

40%-70% of donations do not comply with the WHO strict guidelines. This creates large amounts of inevitably **wasted effort.**

Poor communication between medical facilities results in sending **excessive and unneeded medical supplies**, taking up valuable limited storage space.
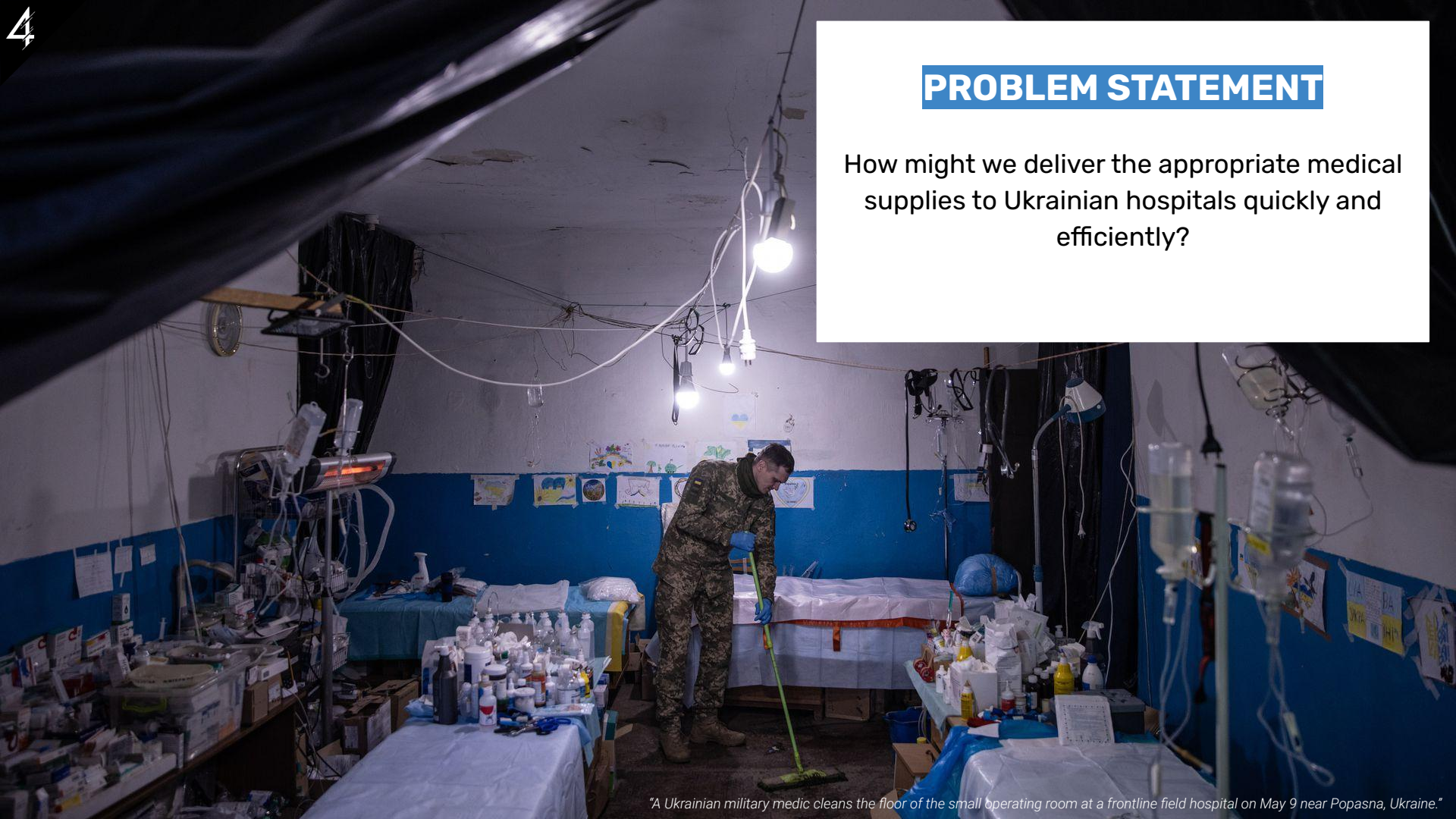
Civilians who live in war zones continue to suffer from the lack of the **correct** medical supplies.

https://academic.oup.com/inthealth/article/11/5/379/5420717?login=false

PROBLEM STATEMENT

How might we deliver the appropriate medical supplies to Ukrainian hospitals quickly and efficiently?

"A Ukrainian military medic cleans the floor of the small operating room at a frontline field hospital on May 9 near Popasna, Ukraine."

SYSTEMS/ GOVERNANCE

How can the official institutions across Europe **facilitate** the donation of medical supplies and send them to the hospitals in Ukraine?
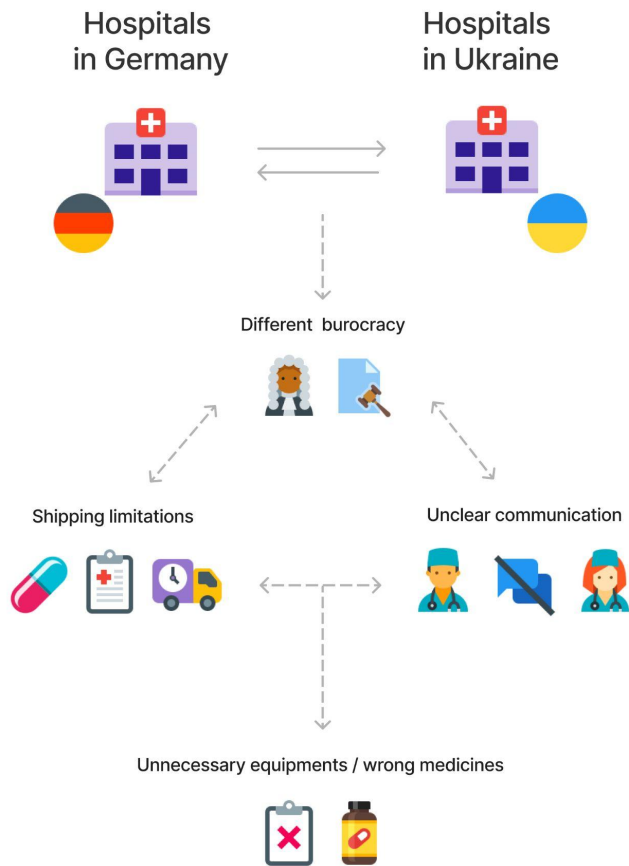
"A Ukrainian soldier who was wounded by artillery being treated at a bus stop turned aid station near Bakhmut on June 23."

Ukraine is not the only country affected by war nowadays.
Other countries like Syria, Yemen, Eritrea **have been suffering** from lack of medical supplies for a long time.
Figuring out *how to connect* donors with countries outside of Europe is **crucial to help millions of other civilians** who have been living the terror of having a war at their doorstep.

Hospitals in Germany — Hospitals in Ukraine

Different burocracy

Shipping limitations

Unclear communication

Unnecessary equipments / wrong medicines

WHY IS IT AN URGENT PROBLEM?

- Many civilians in Ukraine **cannot get proper medical help**, because the necessary supplies are not available.
- The *donations need to reach* people who need them.
- **Improve the communication** between hospitals in Ukraine and hospitals in the EU, for example Germany.
- Bring the **right supplies** to the right people.
- It is difficult to **find information on which medicines can be shipped** (even with a medical prescription) *without or with limitations.*

GOALS & VALUES

Goals:
- Treat her patients with the appropriate medication
- Be able to treat war injured patients
- Get in contact with hospitals able to send help for her patients

Values:
- Hippocratic Oath
- Empathy
- Moral Duty
- Peaceful person

Motivations:
- Get the necessary medical supplies to resume her activities
- Care for her patients
- Actively help her country to defeat medical shortages

PAIN POINTS

Fears:
- Bomb attack that destroy the medical facilities
- Being injured and unable to help

Frustrations:
- Not being able to help or be helped due to lack of supplies

Challenges:
- Shortages in various areas (food, hygiene items, etc.)
- Communication problems preventing her to get necessary supplies

FEELINGS

Worries:
- If the medical supplies will arrive in time
- Keep her family safe

Influences:
- Family and Friends
- People who fight for peace
- "Doctors without Borders"

RUSLANA K.

Cardiologist/ General Physician at a public clinic in Lviv

Married, Mother of 1 Child

GOALS & VALUES

Goals:
- Continue treating cancer patients appropriately
- Get in touch with hospitals that received patients, to provide medical records

Values:
- Hippocratic Oath
- Patriotism
- Justice

Motivations:
- Provide an appropriated cancer diagnosis and treatment
- Care for his patients
- Help patients to get treated despite the war
- Provide medical assistance for war injured people

PAIN POINTS

Fears:
- Bomb attack that destroy the medical facilities
- Losing his family to the war or to a sickness that can't be treated

Frustrations:
- Inability to provide information about his patients to the hospitals that are now treating them
- Not having enough medication to treat chemotherapy patients properly

Challenges:
- Communication problems between hospitals in Ukraine and hospitals across Europe receiving Ukrainian patients

FEELINGS

Worries:
- If the patients who managed to flee the country will get treated properly, since they don't carry any medical records

Influences:
- Family and Friends
- "Doctors without Borders"

NIKOLAI S.

ONCOLOGIST/ General Physician at a Cancer Research Center in Kyiv

Widowed, Father of 2 Children, 5 Grandchildren

Explorations

"How might we's...?"

Problem 1: **Improve the delivery process of medical supplies to Ukraine**

- How might we improve the donation to make sure the hospitals get the medical supplies they need?
- How might we make the process of receiving medical supplies take less time?
- How might we better understand the bureaucratic processes to experience less friction in receiving the proper medical supply?

"How might we's...?"

Problem 2: **Transferring patient records between hospitals**

- How might we facilitate the upload of medical data that guarantees the safety of the information for both hospitals and patients?
- How might we make the transferring of patient data between hospitals easier?
- How might we overcome the language barrier concerning the medical records?

Possible Solutions

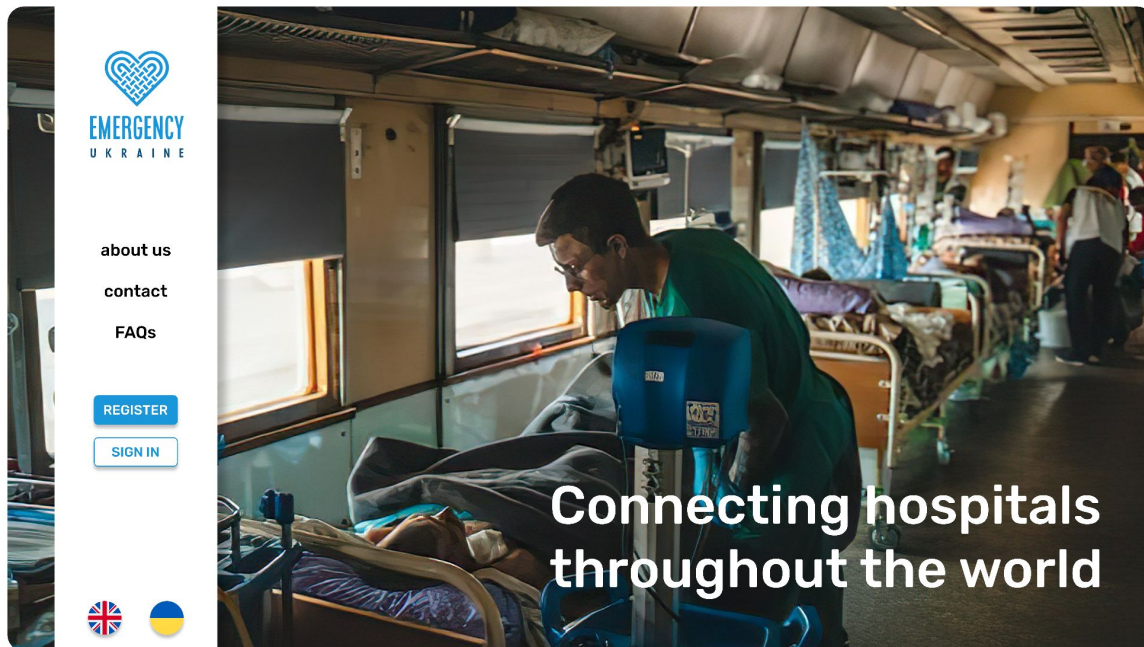- Create an accessible platform that connect hospitals in Ukraine with hospitals in the European Union

- Create a delivery service that provides feedback about whether the medical supplies were delivered and if the hospitals still need them

- Create a data transferring app that allows patient data to be quickly available whenever the patients need them

There are platforms collecting donations from all over Europe. However, they are too broad, meaning that they are not focused only on medical supplies.

Just like with the platforms, there are delivery services providing all kinds of supplies across Ukraine. Nevertheless, prescription medication, like the ones used for cancer treatment, is usually unavailable.

One of the big challenges about patient records is the data protection laws that might not allow an easy process of transferring data. The other big problem is the language barrier, since the records are in Ukrainian and the patients might flee to a country that speaks a different language.

EMERGENCY
UKRAINE

about us

contact

FAQs

REGISTER

SIGN IN

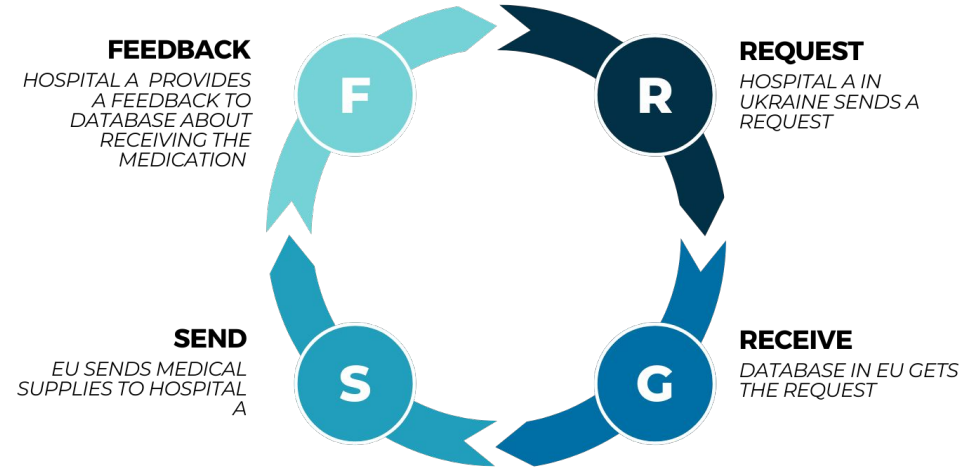Connecting hospitals throughout the world

EMERGENCY
UKRAINE

EMERGENCY UKRAINE is a responsive platform for effective communication, where Ukrainian doctors can request medicines and supply they need, upload and access medical records, and exchange information.

Innovation

FEATURE 1: An effective communication channel

Database

- **Platform connecting local and charitable medical organizations** to each other to access supply and demand
- *Allow medical facilities* **to request the proper and correct medical supply needed** at the time
- **Scan feature** to recognize medical supplies to bypass need to type each medical supply on keyboard


FEEDBACK
HOSPITAL A PROVIDES A FEEDBACK TO DATABASE ABOUT RECEIVING THE MEDICATION

REQUEST
HOSPITAL A IN UKRAINE SENDS A REQUEST

SEND
EU SENDS MEDICAL SUPPLIES TO HOSPITAL A

RECEIVE
DATABASE IN EU GETS THE REQUEST

F R S G

FEATURE 2: Communication between hospitals

<u>**Networking**</u>

- **Communication between doctors**, where they can *share information* about patients in a **safe platform** and **come up with solutions** together
- Allows the medical facilities to send excess medical supplies to the medical facilities that need the medical supply

<u>**Language**</u>

- **Efficient translation tool** for medication names and patient records
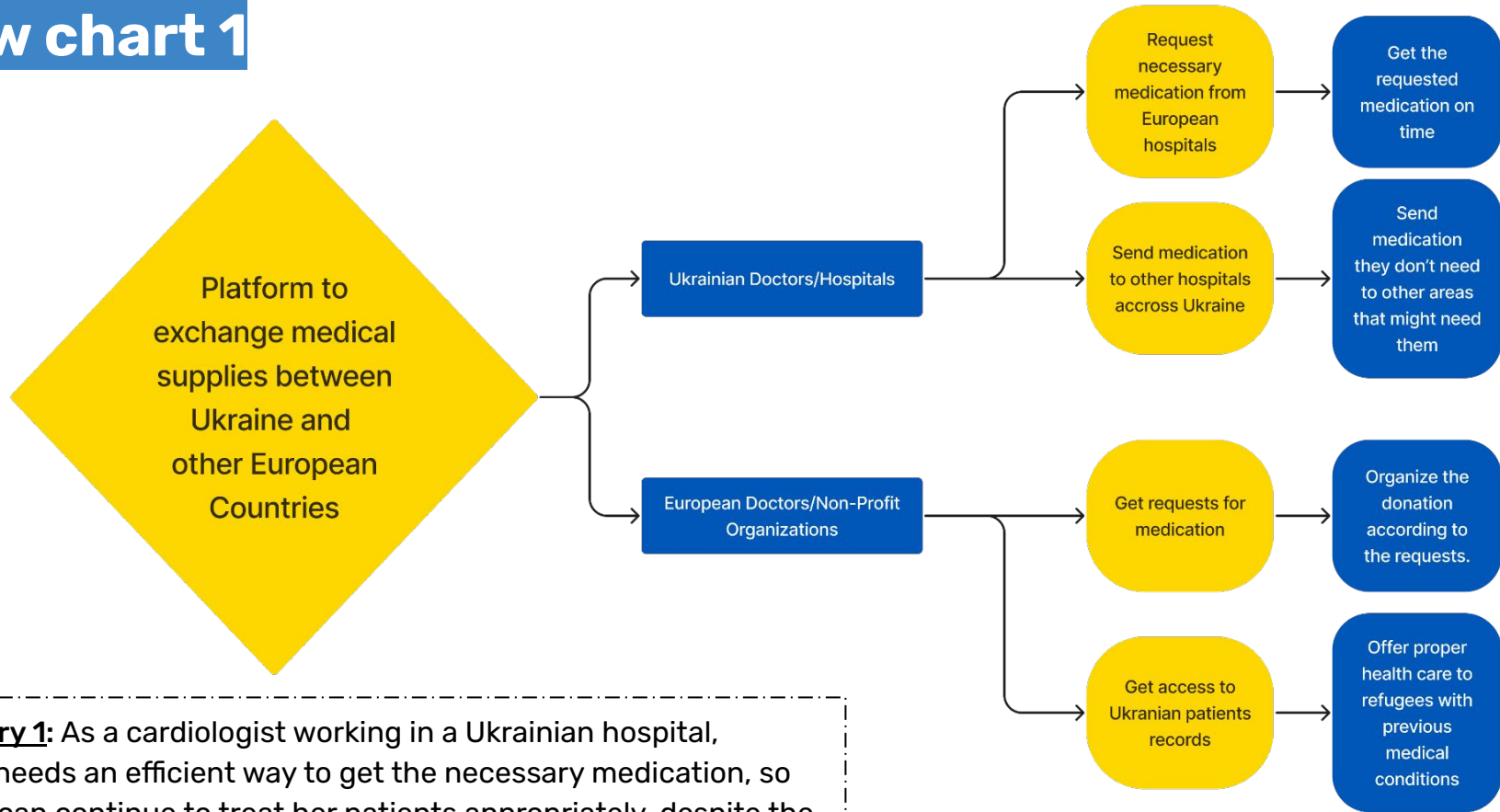- Platform designed in Ukrainian and English
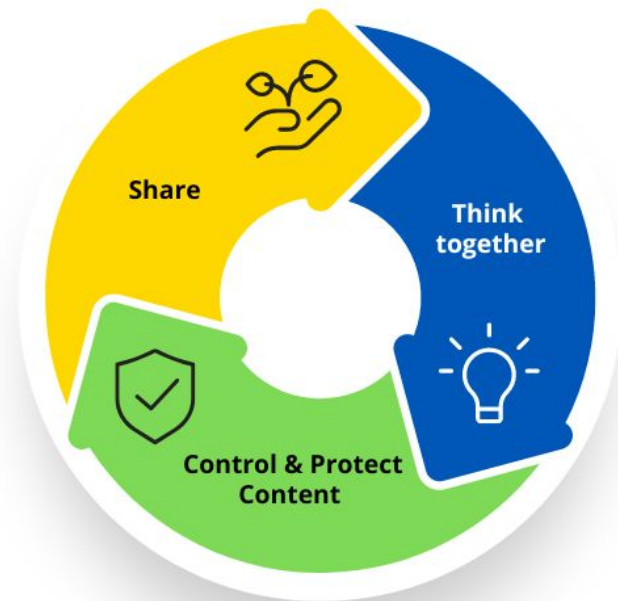
Documentation

- **Providing medical records for patients** with *difficult medical conditions:*
  - ex. Cancer, PTSD, heart diseases

Data Protection

- **Encrypt patient records** in a *three-step process*, where the patient, the hospital that treated them first and the hospital to continue the treatment will have access to the data
- Ensure that **the data will have a limited storage time**, and that it will be *destroyed once the storage period is over*
- Require at least two-step process to access the data as a patient or a doctor, to *prevent hackers from cracking the system*
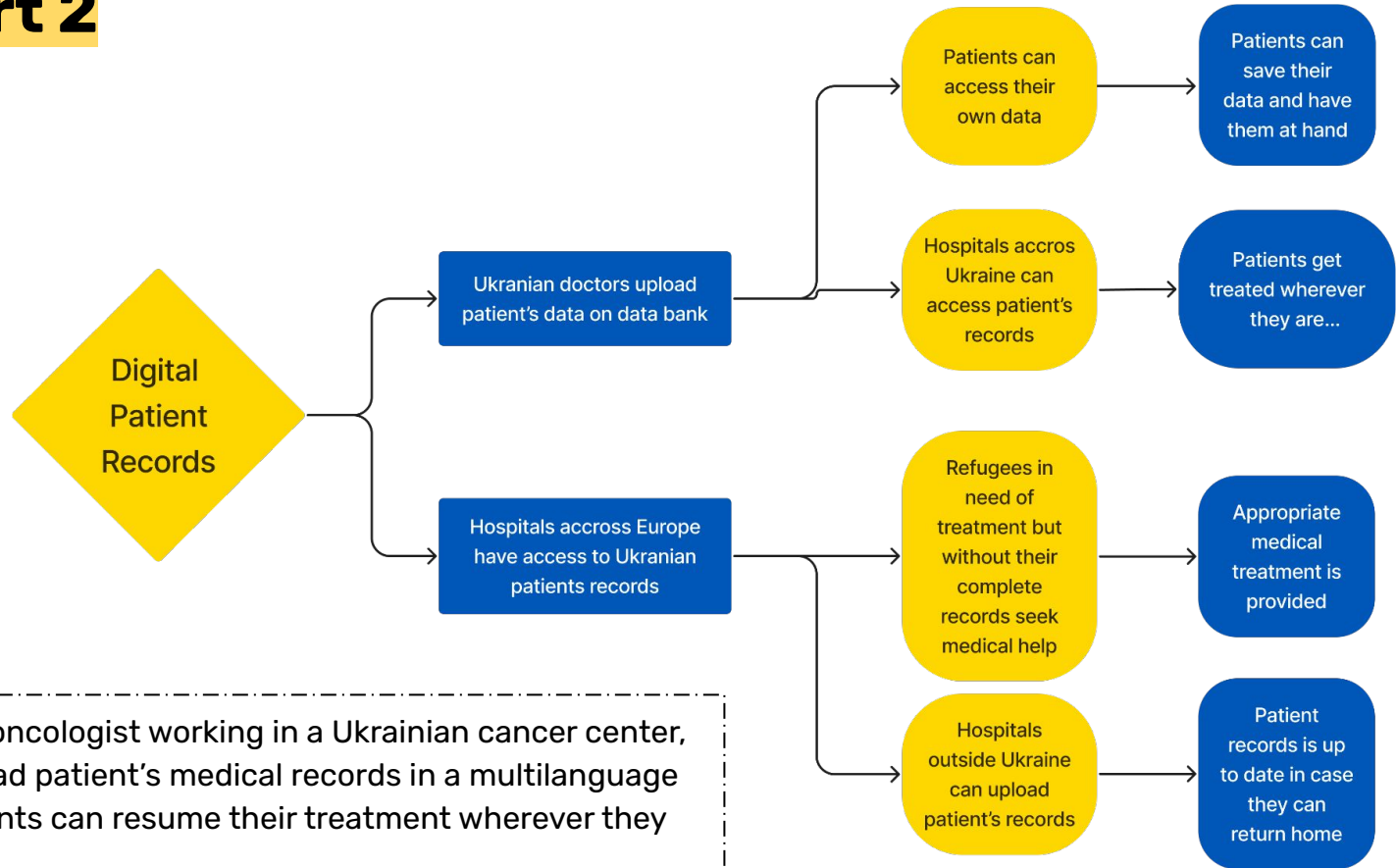
Flow chart 1

Platform to exchange medical supplies between Ukraine and other European Countries

Ukrainian Doctors/Hospitals

Request necessary medication from European hospitals

Get the requested medication on time

Send medication to other hospitals accross Ukraine

Send medication they don't need to other areas that might need them

European Doctors/Non-Profit Organizations

Get requests for medication

Organize the donation according to the requests.

Get access to Ukranian patients records

Offer proper health care to refugees with previous medical conditions

User Story 1: As a cardiologist working in a Ukrainian hospital, Ruslana needs an efficient way to get the necessary medication, so that she can continue to treat her patients appropriately, despite the difficulties of the war.

Flow chart 2

Digital Patient Records

→ Ukranian doctors upload patient's data on data bank

- → Patients can access their own data → Patients can save their data and have them at hand

- → Hospitals accros Ukraine can access patient's records → Patients get treated wherever they are...

→ Hospitals accross Europe have access to Ukranian patients records

- → Refugees in need of treatment but without their complete records seek medical help → Appropriate medical treatment is provided

- → Hospitals outside Ukraine can upload patient's records → Patient records is up to date in case they can return home

User Story 2: As an oncologist working in a Ukrainian cancer center, Nikolai needs to upload patient's medical records in a multilanguage tool, so that his patients can resume their treatment wherever they are in the world.

User Experience
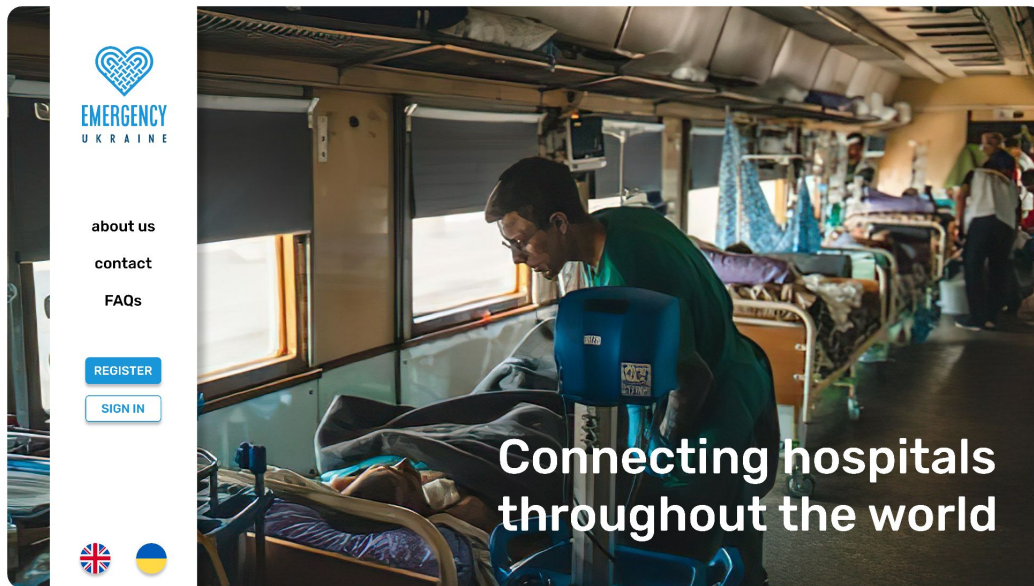
Emergency Ukraine has a simple design precisely because it is focused on functionality.

➔ The website supports two languages.
➔ The menu collects: information about the website, a contact form and a list of questions and answers for the users.
➔ The users can choose whether to register a new profile or to log in.

User Experience
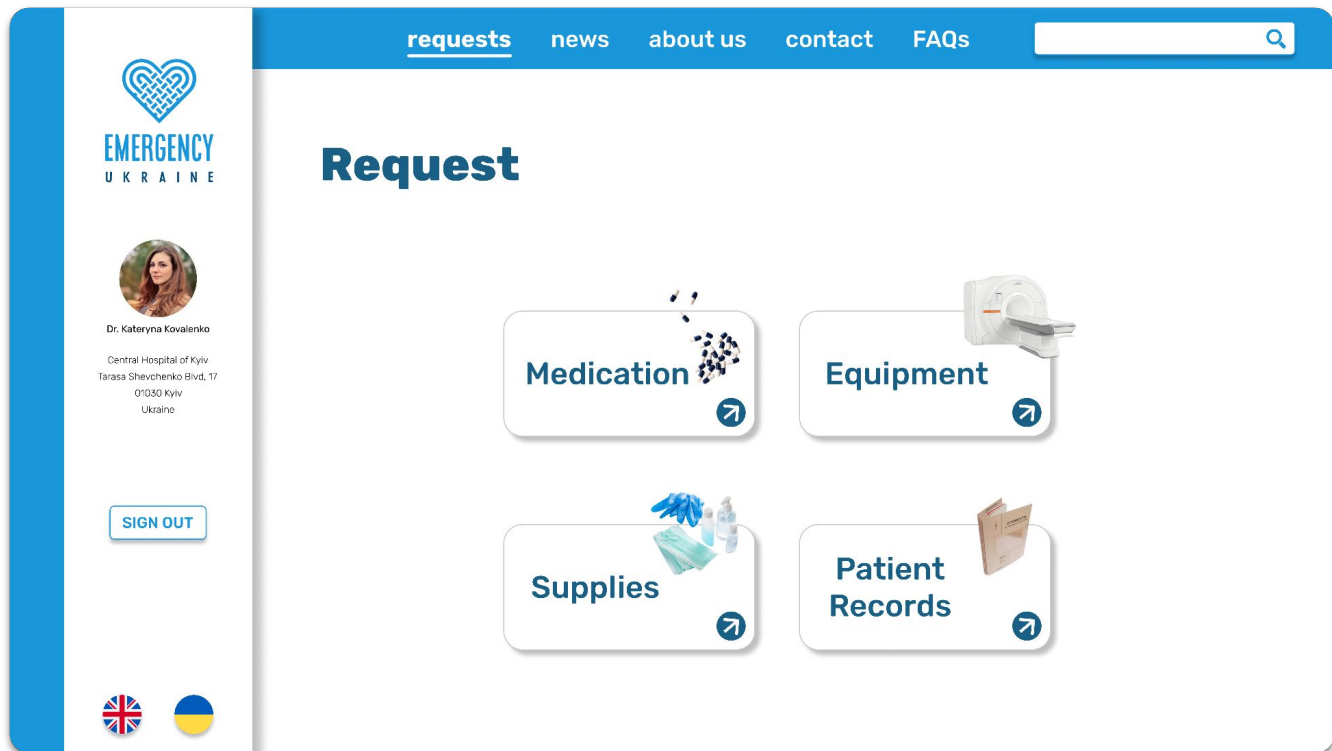
After logging in, the user has several choices divided by categories, to send requests for medical supplies and to request or provide patient records.

User Experience

On the medication request page, the user can compile a list.

The Ukrainian doctor will need to specify the full name of the medicine, the strength and quantity in order to send the request.

User Experience

The donor doctors/hospitals will receive the request.

They will have to indicate if the product is available for shipment, specify the amount they intend to donate/send and confirm.

Doctors will also be able to interact with each other if necessary.

User Experience

requests　news　about us　contact　FAQs

EMERGENCY UKRAINE

Dr. Kateryna Kovalenko

Central Hospital of Kyiv
Tarasa Shevchenko Blvd, 17
01030 Kyiv
Ukraine

SIGN OUT

Dr. Kovalenko,

in response to your request from 30/07/2022, we hereby inform you that the following items are ready to be sent to you. Please confirm if you still need the items:

Item	Strength	Quantity	Origin	Still Needed
Painkillers	Any	Any	Berlin-Germany	☑
Depressants	Any	Any	Krakow-Poland	☑
Steroids	Any	Any	Berlin-Germany	☒
Stimulants	Any	Any	Paris-France	☑

CONFIRM

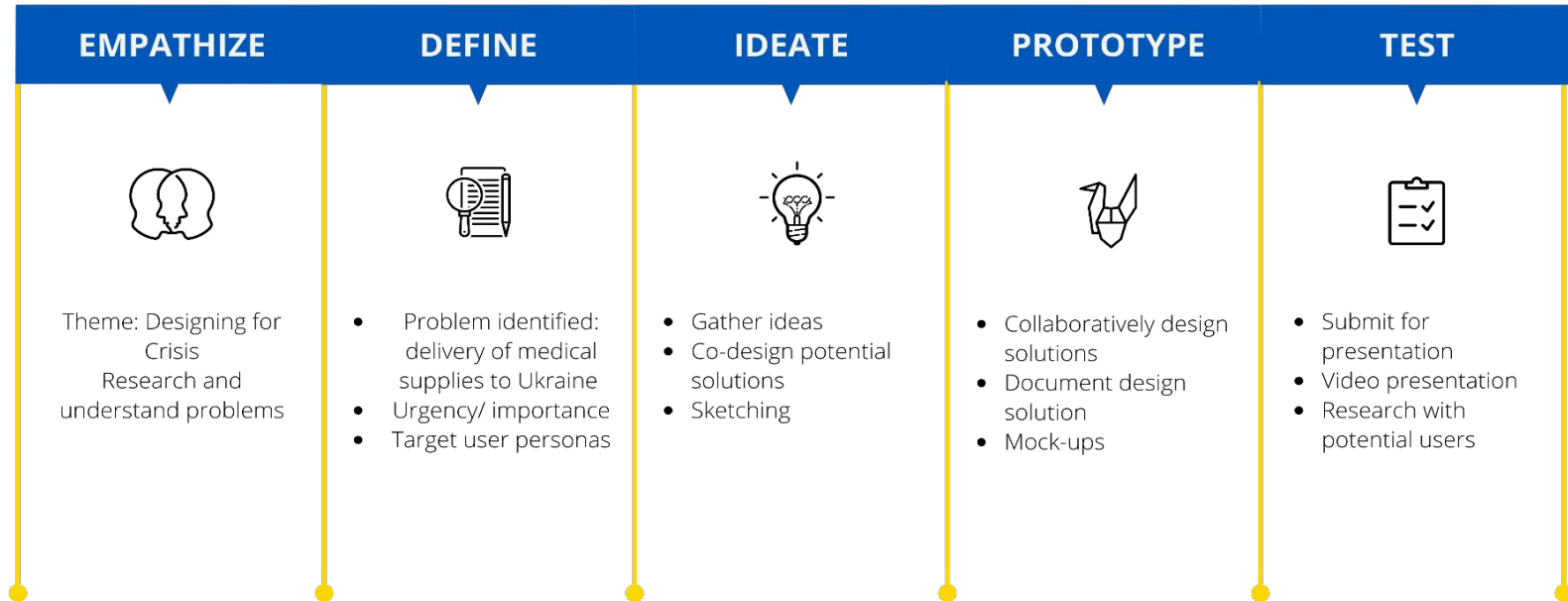The Ukrainian doctor receives feedback regarding the previous request.

The origin of the medicines and the quantity ready for shipment will be specified.

Furthermore, the Ukrainian doctor will have to specify if the requested medicines are still needed and confirm.

This is to not only avoid unnecessary medicines being shipped, but also to prevent waste of resources.

DESIGN THINKING
PROCESS

EMPATHIZE	DEFINE	IDEATE	PROTOTYPE	TEST

EMPATHIZE

Theme: Designing for Crisis
Research and understand problems

DEFINE

- Problem identified: delivery of medical supplies to Ukraine
- Urgency/ importance
- Target user personas

IDEATE

- Gather ideas
- Co-design potential solutions
- Sketching

PROTOTYPE

- Collaboratively design solutions
- Document design solution
- Mock-ups

TEST

- Submit for presentation
- Video presentation
- Research with potential users

Impact on the Society

For other war zones

- Improve communication between doctors during a humanitarian crisis.
- Less time to request and receive medical supplies during an emergency scenario.

For non-profit organizations donating supplies

- Raise awareness about medical conditions that have nothing to do with war, but can't be treated because the right medicine never arrives.

For society in general

- Facilitate the transfer of medical records, so that patients can easily resume the treatment anywhere in the world.

HOW IS YOUR SOLUTION SUSTAINABLE?

Long-lasting

- After the war, the platform can be used as a communication tool and for patient's records.

Sustainable

- It can improve the process of donation between countries with more resources and countries in need of medical supplies.

Good for the planet

- Reuse medical equipments by donating them to hospitals in need.
- Less waste of paper for documentation.
- Less waste of medication.

Practicality & Business Viability

HOW CAN YOUR SOLUTION BE IMPLEMENTED AND SUCCESSFUL?

- Cooperation between product owners and Ministry of Health from countries in war to ensure a safe data transfer from paper records to digital records.
- Ukraine already started a digitalization process in the health care sector, so there is an openness to use digital tools.
- Financial aid from donors and government to create and maintain the platform.
- Provide tutorials to help doctors and patients use the various tools and features.
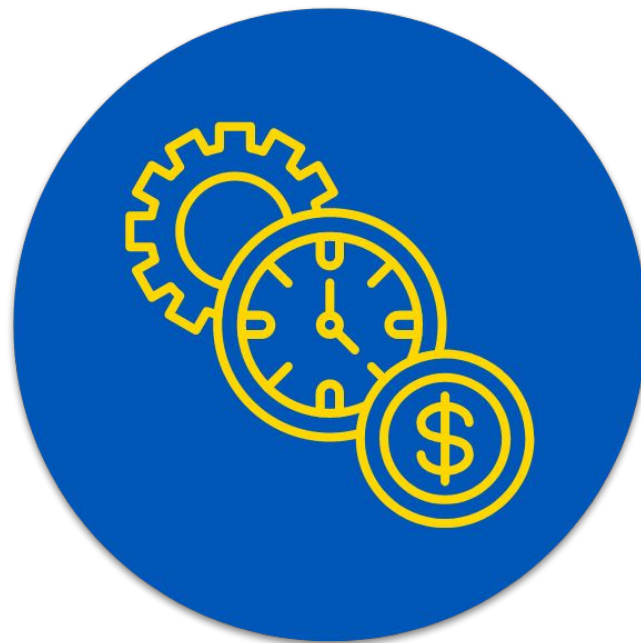
Sources:

Slide 1:
// Artist: **Sasha Korban**

Slide 3:
// **Mauricio Lima for The New York Times**
Available at: <https://www.nytimes.com/article/russia-invades-ukraine-photos.html> [Accessed 19 July 2022].

Slide 4:
// **Linsey Addario for The New York Times**
Available at: <https://www.nytimes.com/article/russia-invades-ukraine-photos.html> [Accessed 19 July 2022].

Slide 5:
// **Chris McGrath/Getty Images**
Available at: <https://www.axios.com/2022/05/10/ukraine-death-chronic-treatment-who> [Accessed 19 July 2022].

Slide 6:
// **Tyler Hicks/The New York Times**
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Slide 7:
// Figma Plugin **Icons8**

Slide 8:
// **Persona Reference**:
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https://avidmode.com/blog/creating-personas-for-products-customer-service-and-marketing

Slide 9:
// **Persona Reference**:
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https://avidmode.com/blog/creating-personas-for-products-customer-service-and-marketing

Slide 22:
Reforms in the Health Sector in Ukraine
https://thedocs.worldbank.org/en/doc/796791611679539176-0090022021/Reforms-in-the-Health-Sector-in-Ukraine