



KRAKEN

**BROKERAGE AND MARKET PLATFORM
FOR PERSONAL DATA**

*D5.2 Final Pilot Marketplaces User
stories*

www.krakenh2020.eu



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D5.2 Final Pilot Marketplaces User stories

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List of Acronyms

Acronym	Description
T5.1	Task 5.1
DX.Y	Deliverable X.Y
WP X	Work Package X
sMPC	secure Multi-Party-Computation
SSI	Self-Sovereign-Identity
DID	Decentralised Identifier
MeSH	Medical Subjects Heading
FE	Functional Encryption
HR	Human-Resource
GA	Grant Agreement

Executive Summary

This document states the final report describing the user stories of the **KRAKEN marketplace**. It is the final deliverable of Task 5.1 **User Stories refining (T5.1)**. Throughout the project, the task evolved depending on the needs for Work Package 5 (**WP5**). The objective of WP5 is to implement the pilot marketplace for the KRAKEN infrastructure, necessary for the eHealth and education pilot.

T5.1 intends to create user stories that reflect the core features of KRAKEN. Initially, the task was to refine the identified use-cases by the proposal. Later, the task evolved mainly to contacting real-world persons and institutions to get information on the problems they face and how we, as a project, may help solve them. As the task description premised, we followed a user-driven approach. In the later stages of the task, the main focus shifted to creating user stories and refining the core features of the KRAKEN platform. During the lifetime of the task, we were able to create a total of 303 user stories. Additionally, at the time of writing, we managed to complete 63% of those user stories.

This document will give some examples of user stories that the WP used to advance their work. Furthermore, we will complement the first deliverable of this task, Deliverable 5.1 (D5.1 Initial Pilot Marketplaces User stories, delivered in August 2021)[7], with the information we gathered after finishing the initial deliverable. This completion includes our final survey results and the last conducted interview.

1 Introduction

1.1 Purpose of the document

This document aims to provide the final report describing the KRAKEN education and eHealth marketplace user stories. To that end, it explains the methodology we used to derive the user stories and how the methodology evolved in the project. Furthermore, we will give complementary information from external sources we obtained during the first half of 2021, which helped us to create the user stories in a user-centered approach.

According to the Description of Work, this task aims to create user stories that reflect the core features and functionalities of KRAKEN. These user stories need to be easily understandable. They serve as a basis for communication and collaboration and as a source for the development of software components.

1.2 Structure of the document

In the first section of the document, we introduce the deliverable. Section 2 explains some background knowledge, including the methodology we used to derive the user stories. Next, in section 3, we discuss the results from our survey and how they influenced other tasks. Afterward, section 4 gives some representative user stories. Section 5 presents the quantitative results of T5. 1 User Stories refining. Finally, section 6 concludes the deliverable.

2 Methodology

This section describes the methodology used to derive the KRAKEN marketplace user stories. We used an iterative and incremental process to refine the user stories in dedicated sessions. Additionally, this approach enabled us to use an online Kanban board to define release roadmaps and further track the project's progress.

2.1 User Story Mapping

User Story Mapping is a process described in Jeff & Economy [1] that, through a visual representation, fosters the creation of a shared understanding of the features to be implemented in a product.

A user story is a way to describe a feature, telling, from the user perspective, why and how the user interacts with the product when they want to accomplish a task. Its purpose is to foster a discussion with the users or product's stakeholders, leading to a shared understanding.

Story mapping is an extension of the concept of user stories.

A story map tells, always from the user's perspective, the user's journey while they use the product. This journey is a sequence of steps, and on each step, the user performs one or more tasks using a product's feature. We later translate the tasks into user stories that describe the product's features needed to perform the tasks.

Figure 1 shows a sample result of this process.

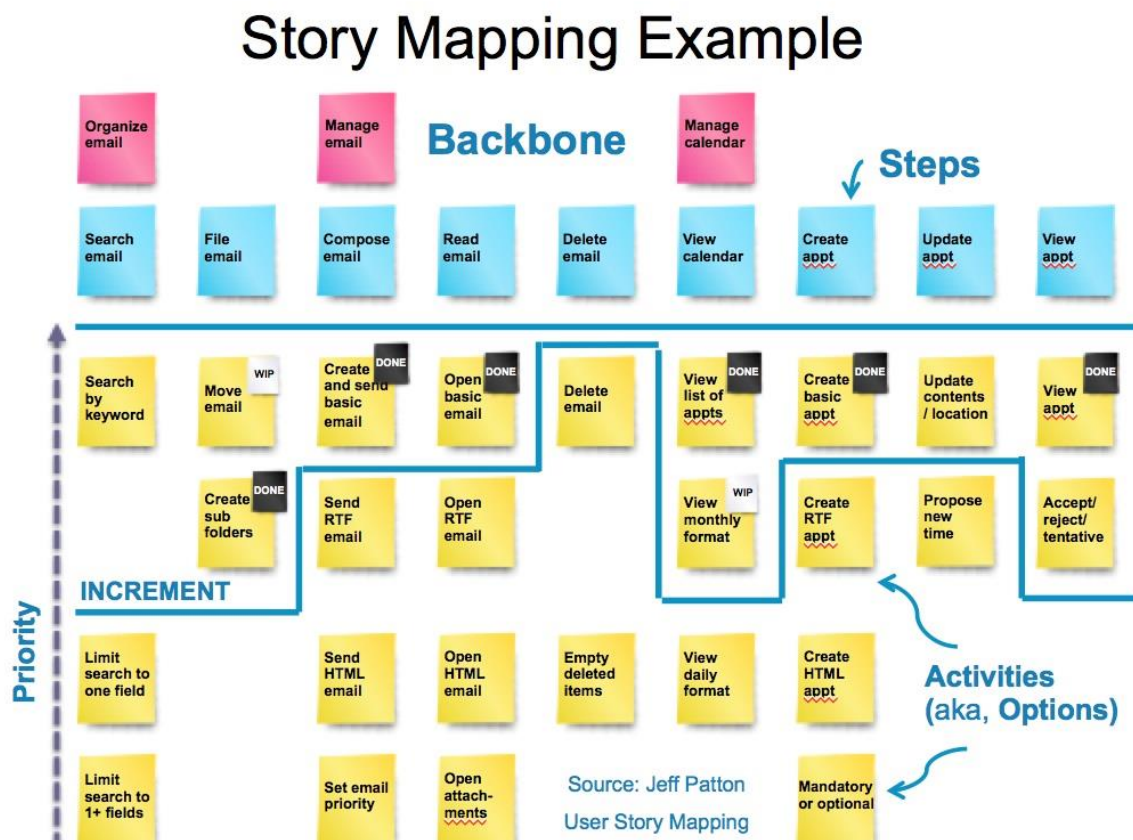


Figure 1: Story Mapping Example

The stages of this process are the following:

1. Identify the purpose of the product and its potential users.
2. Map the user's journey, from left to right, following the 'narrative flow' throughout the product identifying all the interactions between the users and the product. These are the steps made by the user in her/his journey.
3. Below each step, add details identifying the actions performed by the user in that interaction with the product. For every task, we create a user story describing the tools or features used by the user.
4. Slice the tasks to define the content of the iterative increments
5. Group the increments into releases or in a minimum-viable-product and build a release plan.

Figure 2 shows the slicing of the user stories into consecutive increment.

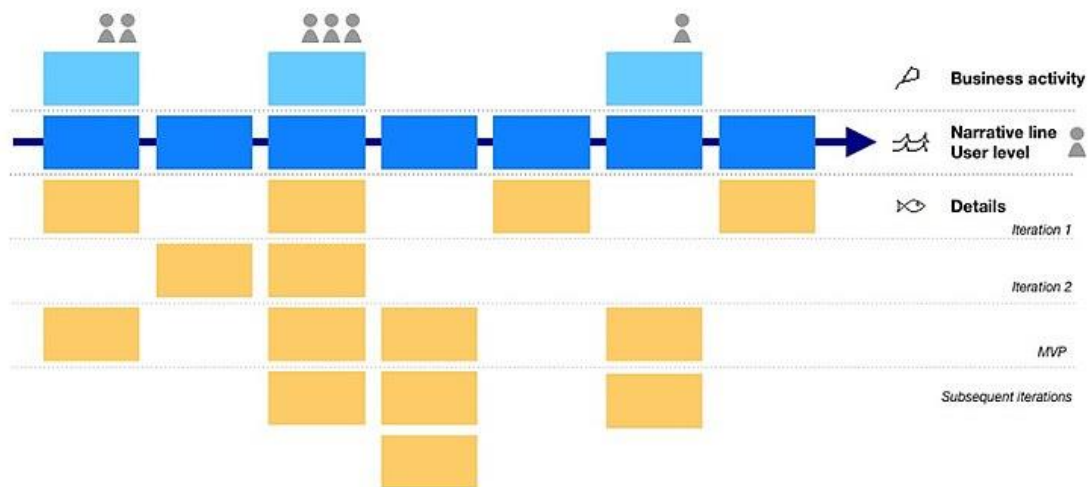


Figure 2: User Story Mapping [4]

2.2 Story Mapping Workshop

In the early stages of the project, we held two story mapping sessions, averaging 15 attendees. The inputs for this process were the project's goals described in the Grant Agreement (GA), the initial use-cases, and all the work described in D5.1 Initial Pilot Marketplaces User stories, mainly the market analysis and the user personas.

Due to the pandemic, all the workshop sessions have been online meetings, so we supported our work with the online whiteboard Mural. Using Mural¹ and online conference tools, we have conducted the workshop in a very effective way.

2.3 Backlog Refinement

To manage and plan our work, we adapted the Scrum [2] framework to the KRAKEN context.

Scrum has its roots in the Toyota Production System. Parts of it focus on reducing waste in the development process. We have introduced the iterative and incremental development that is part of Scrum with a length of three weeks for our iterations. Scrum calls these iterations "Sprints". At the end of each iteration, we conduct a demonstration (a Sprint Review). We use the knowledge obtained in

¹ <https://www.mural.co/>

the Sprint Review, alongside the acquired information from all the partners' feedback at the demo to adapt our plans.

Starting to develop a user story and discover that there are impediments would be a waste of time during the iteration. Furthermore, putting effort into analyzing low-priority user stories and maybe discard them after the next demo would also be considered waste.

Starting from the initial product backlog, we can add, modify or delete product backlog items. We do this in a specific meeting called Product Backlog refinement.

In this process, the product backlog is an emergent artifact that can change at each iteration.

The backlog refinement meeting aims to discuss the user stories with the highest priority and verify that they are ready. In this agile context, ready means that we can start to work on the user story, confident that we will be able to implement and release it at the end of the iteration.

2.4 Release planning

As described in D1.1 Project handbook [6], delivered in February 2020, KRAKEN has adopted Taiga², an open-source web tool, to manage development activities. Using it to also manage the releases seemed the easiest choice.

For the release plan, Taiga enables us to use a hierarchical structure with a 1 to many relationship: 1 epic to many user stories. An epic illustrates the requirement of a software component on a high level, usually phrased with everyday language.

We defined multiple epics to track KRAKEN's intermediate releases. Linking the required user stories to the epic links the content of these releases. The releases act as milestones during the project.

For example, this process is depicted in Figure 3 that describes the user stories included in the project last release and their status at a particular moment in time. As already said, we map releases to important milestones identified in the GA.

² <https://www.taiga.io>

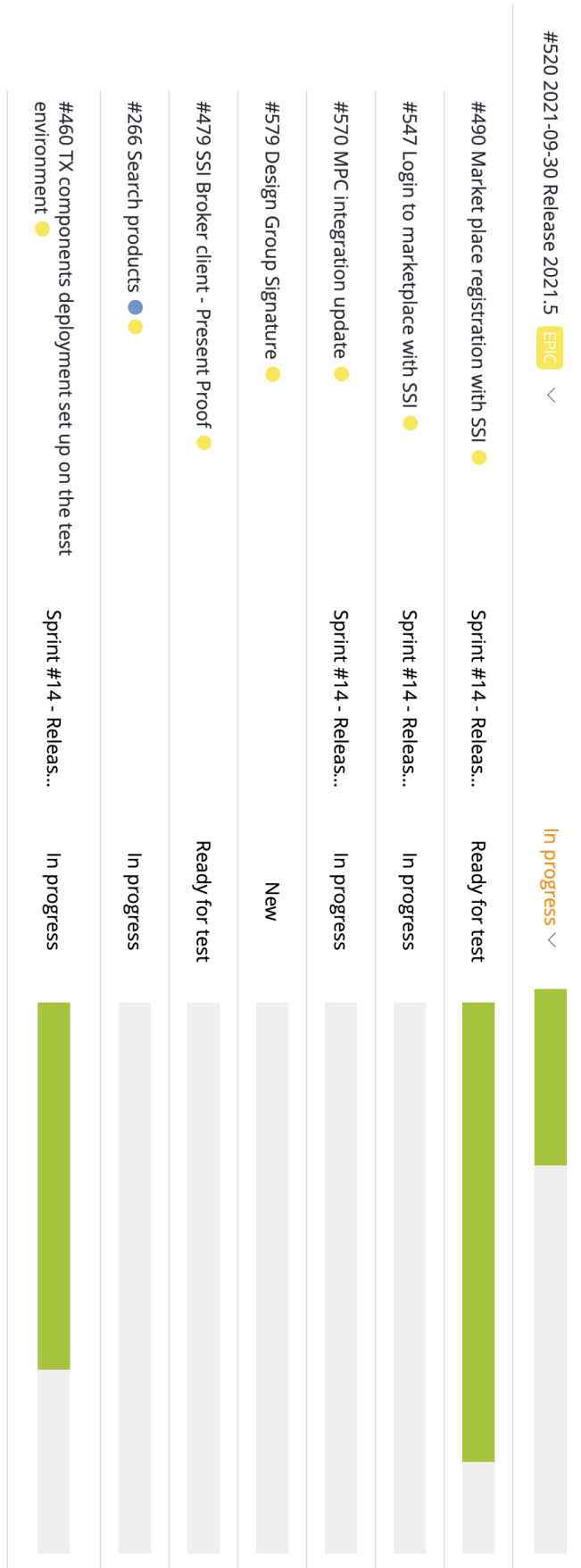


Figure 3: Epic Release Plan September 2021

3 Survey Results

The survey conducted in the previous period and exhaustively described in D5.1 Initial Pilot Marketplaces User stories, included questions that have been essential drivers of requirements definitions, designs, and functionality currently being implemented in the KRAKEN marketplace. Furthermore, we complemented the survey with interviews with representative user groups. In Annex A

we present an interview with Data Consumer in the education use-case. We refer to D5.1 for the remaining interviews.

To give an example, in the survey, most respondents have indicated that they now use external data assets as part of their business operations, pointing to a level of maturity in the data ecosystem that was somehow not yet entirely ascertained at the beginning of the project. See Figure 4 below.

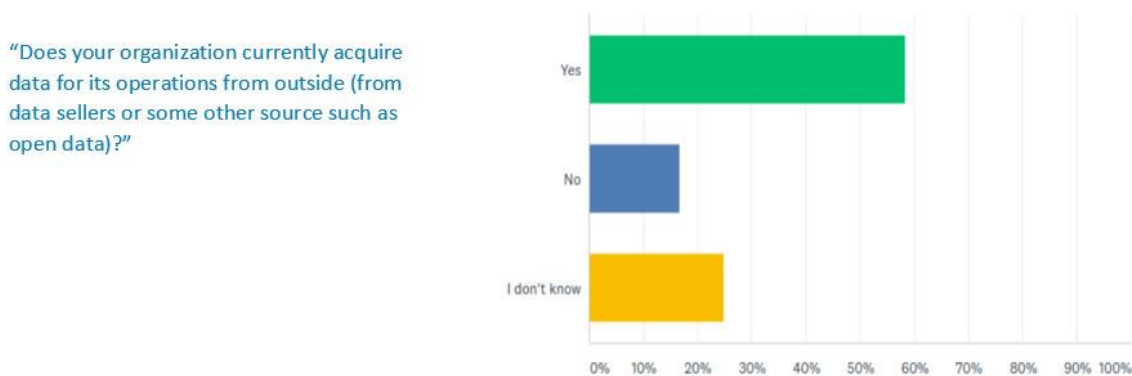


Figure 4 External Data Acquisition

In addition, the role of data brokers, clearly evidenced by the survey, indicates the potential for our marketplace to disintermediate and lower the costs of ongoing data transactions. See Figure 5 below.

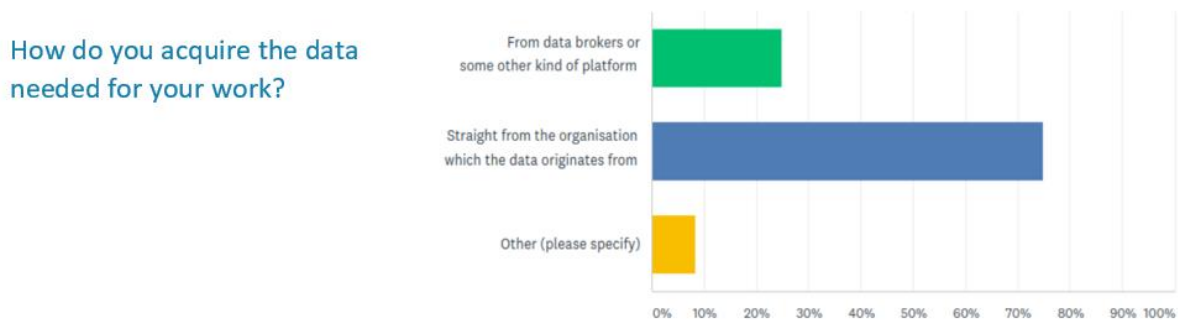


Figure 5 Type of Data Acquisition

At the same time, the survey has helped to prioritize lines of work on crucial platform functionalities such as payment systems. See Figure 6 below.

Would you be willing to receive cryptocurrency in exchange for data?

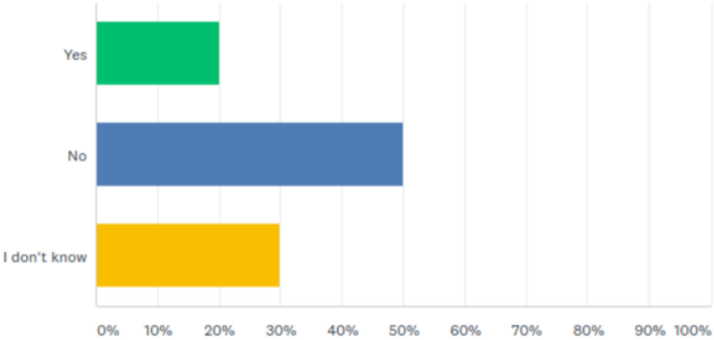


Figure 6 Preference for Cryptocurrency Payment

After learning from the survey that electronic tokens would not be the preferred mechanism to reward data owners, the attention has shifted to using fiat money to execute purchases. We currently design the workflow for such payments and plan to start implementation in the coming months.

4 User Stories

In this section, we present representative user stories that we created in the task. We chose these specific user stories to showcase that we mapped all technologies (SSI, sMPC, marketplace,...) of KRAKEN as user stories. Furthermore, they show the focus on the two pilots. It is, of course, not possible to state all the user stories currently registered in Taiga, our Project Management Tool, as this would exceed the limit of this deliverable. For the amount of created user stories, we refer to section 5.

Most of the user stories resulted from the process described in section 2. However, we also created some user stories out-of-bound. Nevertheless, eventually we added all user stories to the backlog to further add them to a sprint.

Next, we describe the template for the user stories and their basic syntax.

4.1 Template

This section describes the basic template we used to create our user stories. We emphasize that the structure is a guideline and not a strict rule. Some user stories are not precisely in the form we describe here, but the key takeaways are the same. We already gave the template in D5.1 Initial Pilot Marketplaces User stories, but we give it again here for the read-flow. We used the following template [2][3]:

As a <type of user>
I want to <do something>
So that <I can achieve some business value>

All user stories semantically incorporate the same message. It describes a user group (see D5.1 for identified user groups) that performs some action to gain value from the system.

Additionally, we use a basic template for **Acceptance Criteria (AC)** associated with a user story. Acceptance Criteria describe some prerequisites developers must fulfill to mark the user story as complete. The template looks as follows:

Given <context>
When <action>
Then <expected result>

We use the same approach for the acceptance criteria as for the user stories. Again, the template is a guideline and not a mandatory formula to follow. Sometimes they are even omitted.

4.2 Chosen User Stories

This section give a few representative user stories that we created with the methodology described in section 2. We further split this section into three subsections: one for user stories addressing the education pilot, one for user stories addressing the eHealth pilot, and a subsection to discuss user stories that are fundamental for both pilots.

4.2.1 Education Pilot User Stories

In this section, we provide three user stories that describe features that are relevant to the education pilot. The following exemplary user stories focus on the educational data exporter, a tool hosted at the university which students use to export their academic data into their KRAKEN mobile wallet in the form of verifiable credentials. Additionally, we give a user story for the interaction of the mobile wallet with the marketplace itself.

User Story #294 Self-Sovereign Identity (SSI) Authentication at the Edu Exporter

AS A student

I WANT TO connect my Decentralized Identifier (DID) with my university (exporter) account
SO THAT I can receive credentials in my KRAKEN wallet app.

AC1: Given that I open the exporter page on my desktop computer,
when I am logged in and I scan the QR code with my wallet app and everything worked,
then the result of the established connection is displayed and the connected account/DID is shown.

After students use their university identifier (or electronic government identity) to authenticate at the KRAKEN educational data exporter frontend, they need to “connect” their wallet to the connector to export their data. Since KRAKEN utilizes the Hyperledger Aries framework for communication between SSI agents, the system asks the user to establish a DID connection between the mobile wallet (mobile agent) and the university system (university agent). User story #294 is concerned with the implementation and integration of this process.

User Story #312 Import diploma into KRAKEN wallet

AS A student

I WANT TO import my university diplomas as credentials (VCs) into my KRAKEN wallet on my phone
SO THAT I have sovereign access to my credentials.

AC1: Given that I open my wallet on my phone,
when I export a diploma credential using the exporter and the export is complete,
then I can see (and use) the diploma credentials in the phone app.

User Story #312 describes how a student initializes the educational data exporter, displaying a scannable code containing an invite for the Aries agent. Afterward, the student scans the invitation using their mobile wallet app (on the phone) and includes all information needed by the agents to establish a connection. After the student accepts the offered link, both the exporter’s user interface in the student’s browser and the interface on the phone app confirm that the connection has succeeded. The user can now export various academic data into their wallet without the need to scan the code again.

User Story #318 Sell educational data credentials

AS A student

I WANT TO create a Data Product listing on the marketplace

SO THAT my educational data (grades, diplomas, transcript of records) can be bought by Interested (and qualified) buyers.

AC1: The KRAKEN marketplace app provides an interface to create this listing where the user can select which data items should be included (grades, diplomas, ...).

AC2: The KRAKEN marketplace app provides an interface to define an access policy, e.g., the selection of potential buyers, etc.

User Story #318 shows the final step of the process. After exporting their educational data, students are able to create a data product on the marketplace.

4.2.2 eHealth Pilot User Stories

In this section, we provide three user stories that describe features that are relevant to the eHealth pilot. These user stories primarily focus on features developed within the marketplace application, as this is where users participating in the eHealth pilot will mainly interact with the KRAKEN platform.

User Story #266 Search Products

AS A buyer,

I WANT TO search the marketplace catalogue, using keywords that are autocompleted (using a biomedical ontology synonym set).

SO THAT I can select autocompleted terms that match my search, in order to point me towards Data Products within the data catalogue that contain the searched biomedical terms.

AC1: The data catalogue will display only the Data Products that contain the standard terms/fields.

AC2: The retrieved data sets are selected from all of the available Data Products

User story #266 identifies the need for a user looking for a particular Data Product within the eHealth sector to more easily filter out Data Products within the data catalog that are not within their scope of interest. It is necessary to use a standard pre-defined set of terms when tagging Data Products in the eHealth pilot to ensure improved categorization of Data Products when a buyer tries to locate them while using the marketplace catalog's search functionality. This tagging, which occurs during the publication of a Data Product, allows the data catalog only to display the Data Products of interest to the Data Consumer. We took the pre-defined set of terms used for this purpose from the Medical Subjects Heading (MeSH) ontology described in D3.3.

User Story #448 eHealth Pilot-specific Data Product publication workflow

AS A data provider within the eHealth pilot,

I WANT to use the eHealth pilot-specific Data Product publication workflow

SO THAT I can publish and categorize my Data product in the correct eHealth sector.

AC1: the specific sections of the workflow required for the eHealth pilot are retrieved and displayed on the Data Product publication page when the health market sector is selected in the workflow.

User story #448 reflects the requirement for a different workflow to be used by data providers publishing a Data Product in the eHealth pilot. The main difference in the workflow for the eHealth pilot is the requirements to tag Data Products with terms derived from the MeSH ontology, the criteria to select different purposes of use, and various types of organizations permitted to access the Data Product in comparison to the education pilot.

User Story #423 Download and decryption of the dataset by the buyer

AS A buyer,

I WANT TO download and decrypt a batch data set associated with a published Data Product.

SO THAT I can gain access to the data within a Data Product that I have paid access for in the marketplace.

AC1: The dataset is downloaded using the link to the cloud storage provided by the corresponding seller

AC2: The dataset is decrypted using the key provided by the seller.

User story #423 identifies the requirement for a user on the eHealth pilot's data consumption side to gain direct access to a batch dataset, e.g., a set of health / medical records stored in a data provider's cloud storage of choice. Downloading the data set from a data provider's cloud storage and the functionality for the data consumer to decrypt the dataset with their key is necessary as the marketplace has been designed to ensure the privacy and confidentiality of the Data Product's content data. The marketplace acts as a transaction broker without being exposed to any corresponding Data Product's content data.

4.2.3 User Stories Universal

In this section, we give three user stories that describe features relevant to both pilots. Remember that the user stories provided here are not the only ones addressing these topics, but we chose them specifically to showcase the creation process.

User Story #578 Authenticity of inputs to secure Multi-Party-Computation (sMPC) computation

AS A Buyer,

I WANT TO be sure that the inputs of my sMPC computation are authentic,

SO THAT I am sure that the analytics result is authentic as well.

User story #587 emphasizes the requirement that the input to the sMPC subsystem has to be authentic. Authenticity is necessary as the buyer needs to trust the result fully. They cannot verify the authenticity of the data on their own, as this information is not public.

We refer to Koch, Krenn, Pellegrino, & Ramacher [5] on how the system ensures authenticity, as this would be out-of-scope for this document.

User Story #13 Generate key material

AS A (selling) user

I WANT TO create key material

SO THAT I can sell data in a privacy-preserving way

AC1: KRAKEN supports key generation for both types of encryption, sMPC and functional encryption (FE); as well as keys for anonymization signatures (e.g. group signatures)

We created this user story early in the lifetime of the project. It describes a general step in how a user interacts with our system and belongs to the epic describing the registration process. Furthermore, the user story addresses two aspects of the project, namely SSI and cryptography. Depending on the use-case, the system has to create different key-material for the user, backed by the SSI component.

User Story #247 Define price

AS A seller

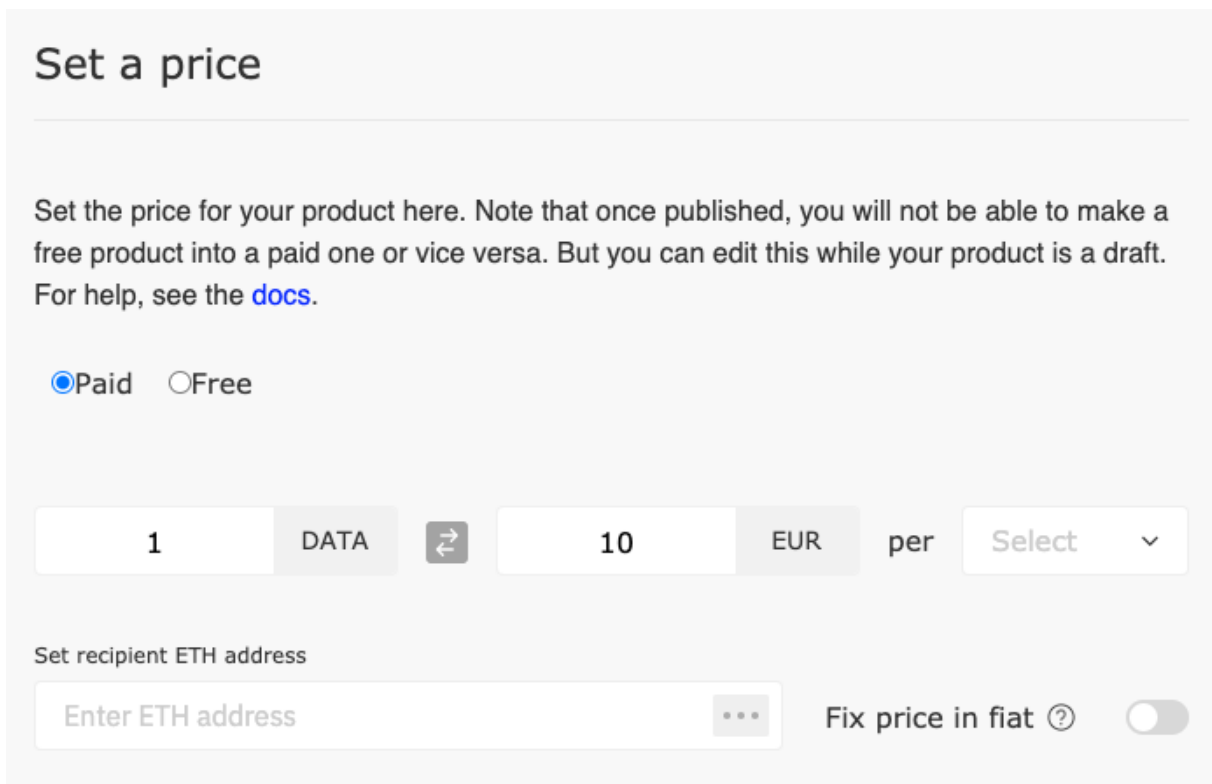
I WANT to define the price for the data

SO THAT I earn money selling the XYZ data

AC1: For the first release we will use the already established payment process

Data providers that sell their data are entitled to price the data they put on the marketplace, irrelevant which data they provide. This user story describes this fundamental feature of the KRAKEN platform.


Figure 7 shows the user interface for defining the price when uploading some data to the marketplace:



Set a price

Set the price for your product here. Note that once published, you will not be able to make a free product into a paid one or vice versa. But you can edit this while your product is a draft. For help, see the [docs](#).

Paid Free

1 DATA  10 EUR per Select ▾

Set recipient ETH address


Enter ETH address ⋮ Fix price in fiat 

Figure 7: User Interface for setting the price of a Data Product

5 Results

This section will consist of a quantitative discussion of our results. As already hinted in earlier sections, we use an online Kanban board to manage the user stories' creation, handling and finalizing. For that purpose, we use a tool called Taiga.

According to Taiga, at the time of writing (September 2021), we created a total of 303 user stories. To further analyze the result, we looked at two metrics. The first thing we wanted to look at is the **current state of a user story**. In the expected case, a fresh user story has the tag "new" assigned to it, followed by "ready" when we add the user story to the current sprint. After a developer starts to work on the user story, the developer labels the user story as "in progress." After completion, the user story will be "ready for test" and finally "done." There are two more states, namely "impediment" and "archived."

Status	Amount
Total User Stories	303
New	73
Ready	11
In Progress	19
Ready for Test	3
Done	110
Impediment	3
Archived	84

Table 1: User Stories Status

From those 303 user stories created, we managed to finish 110. We created 73 new user stories that describe the next intermediate steps needed for the project. These user stories do not belong to a sprint so far, in contrast to the 11 user stories tagged as "ready". Furthermore, the different work packages work on 19 additional user stories, and three more are in the testing phase.

As the creation of user stories is an iterative process, sometimes user stories need to change according to the newly identified requirements. Whenever this happens, we archive a user story. To give an example, we created the following user story on 29-October of 2020:

#269 Get a notification about purchased data being available.

AS A buyer

I WANT TO see a notification that my dataset is available for download

SO THAT I can download the dataset.

AC1: I understand from the notification that my data is available for download

Initially, we thought there had to be a notification for a buyer of sMPC data products due to technical limitations. Nevertheless, WP4 proposed a synchronous solution to that problem. Therefore, we archived the user story on 10-December 2020. We did this with 84 user stories.

Finally, we tagged three user stories with an impediment. The finalization of those user stories depends on external factors, like the delivery of another software component.

Next to the status of the user stories, we **filtered the creation of the user stories by year** and set it in correlation to **the finalization of the user story**. For that, we checked all "closed" user stories (user stories that are either done or archived), which are a total of 190. The remaining 113 are not closed, so either "new," "ready," "in progress", "ready for a test," or have an impediment. Table 2 shows the results.

Status	2020	2021	Σ
Closed	80	110	190
Not Closed	49	64	113
Σ	129	174	303

Table 2: User Story Finalization by year

Analyzing the results shows that the creation of user stories ramped up in 2021, as we identified more and more requirements. Additionally, the whole team got used to the workflow, also increasing the output of user stories. We created 174 of the 303 user stories in 2021. Of those 174 produced in this period, 110 are already closed, a completion rate of approximately 63,2%. We expect to complete the majority of the 64 remaining user stories in the foreseeable future.

Inspecting the completion rate of the user stories we created in 2020, we see that it lies marginally below the rate in 2021, namely at 62%. The main reason for that is that most of those user stories describe high-level basis features of the marketplace, identified early in the process. To give an example, we look at the following user story:

#270 See the payment status

AS A buyer

I WANT I make sure that my payment is completed

SO THAT I can know that everything went ok with the payment

AC1: To see a success/failure payment message

AC2: In case of failure, I want to see an explanation of the why it has failed

This user story describes a fundamental step when a data consumer wants to purchase data. Nevertheless, the implementation of the payment and the corresponding success message depends on external factors, like other software components, and on an agreement on what kind of payments we will accept for the marketplace. Therefore, we did not add this specific user story to any sprint (so far).

To conclude this section, as we got used to the process described in section 2, we improved the put-through of created user stories. The completion rate stayed the same in both years, whereas we want to emphasize that the focus, of course, lies in completing the user stories created this year, as these user stories focus more on the current requirements.

6 Conclusion

This document provides the final report of the T5.1, describing the process of creating the user stories that define the KRAKEN marketplace. For that matter, we used the methodology described in section 2.

In regular meetings, we discussed the process of the project as a whole, identified the next intermediate steps necessary, and created user stories according to identified epics and release plans. This process resulted in many user stories, as seen in section 5, where we discuss the results of this task in a quantitative manner.

Furthermore, the document presents representative user stories to showcase the qualitative results of the task. It also complements D5.1 Initial Pilot Marketplaces User stories, delivered in August 2020, with additional information we obtained in our user-centered approach in creating the user stories.

6.1 Future Work and Lessons Learned

The created user stories provide easy-to-understand illustrations of the KRAKEN capabilities constituting a basis for communication and collaboration and serve as an essential source for defining development specifications. The development of the software components described by user stories will continue over the lifetime of the project.

Looking back, the biggest challenge we had to face was the physical distance of the involved partners, worsened by the Covid pandemic. Meetings and the modeling of the user stories prove to be more complicated in a pure virtual setting. Nevertheless, as we got used to the new situation and challenge, we improved the quality and quantity of the created user stories.

The GA models the software-engineering process of KRAKEN iterative. Therefore, the creation and modification of existing user stories will remain a central part. We plan to close the remaining user stories currently registered in Taiga over the next months. Future epics will also use the user stories created in this task to describe releases and milestones.

7 References

- [1] [P. Jeff and P. Economy, User Story Mapping: Discover the Whole Story, Build the Right Product, O'Reilly Media, Inc, 2014.](#)
- [2] [Schwaber K., & Sutherland J. \(2017\). The Scrum Guide, https://www.scrumguides.org/docs/scrumguide/v2017/2017-Scrum-Guide-US.pdf, retrieved September, 2021.](https://www.scrumguides.org/docs/scrumguide/v2017/2017-Scrum-Guide-US.pdf)
- [3] [Klingenberg T., & Draba T \(2020\). What is a https://t2informatik.de/en/smartpedia/user-story/, retrieved Aug 21,2020.](https://t2informatik.de/en/smartpedia/user-story/)
- [4] [https://commons.wikimedia.org/wiki/File:User_story_mapping.jpg, retrieved \(September 2021\)](https://commons.wikimedia.org/wiki/File:User_story_mapping.jpg)
- [5] [K. Koch, S. Krenn, D. Pellegrino and S. Ramacher, "Privacy-Preserving Analytics for Data Markets Using MPC," in *Privacy and Identity Management*, Springer International Publishing, 2021, pp. 226-246.](#)
- [6] [Diez Mínguez S., KRAKEN D1.1 Project handbook, February 2020](#)
- [7] [Guggi S., Nieddu F., KRAKEN D5.1 Initial Pilot Marketplaces User stories, August 2020](#)

Annex A

Interview with HR Company

As already laid out in section 2 and in D5.1, one of our fundamental tasks was to get in touch with real-world institutions, representing the different User Groups we identified in D5.1.

For how we identified the User Groups and conducted the Interviews, we refer to D5.1. To summarize, the User Groups were divided primarily regarding the pilots and how they interact with the KRAKEN marketplace. For each pilot, there were Data Providers and Data Consumers. Data Providers try to monetize their data on the market, whereas Data Consumers purchase these data.

When writing D5.1, we could not schedule an interview with a representative institution for Data Consumers in the education use-case.

Shortly after finishing writing D5.1, we found a Human-Resource (HR) Company willing to give us insight into how they operate. We will summarize the HR Company interview the same way we did in the initial Deliverable in the upcoming paragraphs.

Role in KRAKEN ecosystem:	Data Consumer
Sector:	Education
User Group:	HR Company

The two founders of HR Company initiated their company approximately three years ago in the United Kingdom. They operate in all of Europe and focus purely on recruiting Software-Engineers. Although they still delegate mid-level and junior development positions, they have a strong emphasis on high-level positions.

One of the significant contributions of the education marketplace is the possibility of accessing a large amount of education data quickly. These data include potential job-seeking persons, enabling HR companies to purchase the data of these persons in a privacy-preserving manner. Nowadays, according to the HR Company, they have never purchased data from a third party so far. Usually, they find most of their people via LinkedIn, where they pay a dedicated recruiter license to advertise roles and access better features. They built an internal database over multiple years, which they use most of the time. The CVs and data they usually get are Portable Document Format (PDF) files or written in Microsoft Word.

According to the HR Company, other third-party platforms are pretty similar to what we try to propose. They also tried to use those platforms, but apparently, they did not use those as much as LinkedIn. After we proposed multiple payment methods that we planned to use in our marketplace, the HR Company told us it is common to have a subscription model for these platforms. At least in the opinion of the HR Company, there is no interest in purchasing the data of a single applicant.

Nevertheless, in the eyes of the HR Company, a specialized use-case for purchasing data from a single applicant could exist for smaller local companies. As the KRAKEN marketplace deals mainly with new

graduates, smaller or local companies may be interested in purchasing these data, thus finding well-trained people looking for their first jobs.

Following up on our interviews with Data Providers in the education sector, we asked the HR Company if they agree that the authenticity of the brokered data is incidental. Generally speaking, they agreed with the assessment. However, they remarked that there are certain cases where applicants need certificates or something similar, especially in QA or testing.

As the HR Company primarily operates by browsing LinkedIn, they usually do not have any problems regarding consent using publicly available data or the information they can only see if their accounts are connected. Nonetheless, they always get permission before using or forwarding any CV of an applicant. With our platform, this would be, of course, be no problem.

If the HR Company finds a good candidate, they add them to their database and notify their customers, companies looking for engineers. Asked whether their customers would be willing to accept cryptocurrencies as a form of payment, they told us that certain companies would be open to that. Furthermore, they said to us that there is an interest in education statistics. The computations of the sMPC framework would enable recruiters to look for "graduates who get 92% and not 72%".

Insights

- Payment for single CVs most likely not interesting
 - Subscription model benefits their use-case
- Specific customers are open to use cryptocurrencies
- Authenticity of data only necessary in certain use-cases
- Statistics of educational data for smaller, local companies relevant
- Consent data would facilitate their work-flow



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