

Dali



**Data Literacy
for Citizenship**

**GAME BASED NETWORK LEARNING
SYSTEM HANDBOOK**



Erasmus+

***Play is our brain's favourite
way of learning.***

- Diane Ackerman

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DALI: Data Literacy for Citizenship

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Preface

Data is all around us in our daily lives and it's crucial to navigate this data-rich society with confidence. To achieve data literacy, adult education assumes a significant role.

The DALI project is a collaborative initiative involving five institutions (University of Bergen, Coventry University, Friedrich-Alexander-Universität, University of Balearic Islands, and University of Murcia) from four countries (Germany, Norway, Spain, and the UK). Its main aim is to address the need for Data Literacy among citizens, starting with adults who have significant influence over the treatment of citizen data.

To achieve this goal, the DALI Project:

- Presents an overview of data literacy research
- Introduces a general framework to understand data literacy
- Illustrates the data literacy needs of different user groups (young adults, general adults, seniors)
- Defines flexible pedagogical strategies using a playful learning approach to foster adult data literacy in various informal contexts
- Offers a multilingual toolkit with playful and game-based resources
- Provides a framework for implementing the learning materials and toolkit in different contexts
- Contributes policy recommendations for a European Data Literacy framework for citizens
- Supplies guidelines for other adult education institutions to address data literacy through educational measures.

DALI created resources that promote data literacy for adults in local, regional, and European non-formal contexts. Over the past three years, the project has developed various resources, including:

1. Mapping of Data Literacy: identifies key competences citizens need for data awareness, protection, and informed decision-making in the digital media ecosystem. This includes a scoping review, DALI Data Literacy framework, target group profiles, and a repository of existing data literacy activities and resources.

2. DALI Learning Approach: defines a playful and flexible pedagogical approach called Game-Based Networked Learning Strategies (GBNLS) to foster adult data literacy in informal settings.
3. DALI Playful Learning Toolkit: comprises co-created games and tools that facilitate playful learning experiences for adults to develop data literacy. The toolkit includes learning games, a handbook, facilitators' guide, and policy recommendations tailored to young adults, general adults, and seniors.
4. Implementation Framework: a handbook and facilitators' guide for effectively implementing the DALI resources, along with field trial analysis in different contexts and target groups.
5. Policy Recommendations and Guidelines: guidelines for adult education institutions interested in addressing data literacy and policy recommendations for citizen data literacy development, adults in particular.

These resources have been developed and validated through collaborative processes involving teams from the five institutions and participants from various associated partners across Europe in co-creation dynamics.

For more information and resources from DALI, visit our webpage: <https://dalicitizens.eu/> or scan the QR-code below.



Introduction

The document you have in your hands serves as an educational guide to help you make the most of DALI resources, ensuring they are engaging and useful.

DALI has co-created a series of educational games to develop basic data literacy for adults in non-formal contexts. However, these games are intended to go beyond mere entertainment and are the result of careful pedagogical planning.

Before creating the games, we established a framework that provides a clear training horizon, allowing us to define the educational objectives we wanted to achieve with these games. Additionally, we carefully integrated a pedagogical approach based on Game-based/Playful learning & Networked Learning. This approach ensures that the games not only facilitate learning but also align with our specific educational vision.

In this handbook we present Game Based Networked Learning Strategies, or GBNLS, the pedagogical proposals that underlie our games. These will give education specialists, especially those in adult education, a better understanding of the pedagogical design and help them effectively use these games in their educational endeavours. Moreover, having access to these might even inspire you to adapt, modify, or create your own games with new objectives.

Part I provides a table presenting a simple description of the games, along with their learning objective(s) based on the DALI data literacy framework. Additionally, key facts about each game are included. As you continue reading, you'll discover the GBNLS for each game. This section contains insights into the initial inspiration behind the game and its set, epistemic, and social design aspects.

Our intention is that this guide will be a valuable resource. It can be used as a teaching guide, to get recommendations for game use, a reference list to the games, or even as just an interesting read. We hope that it will assist you in implementing these games effectively.

Feel free to explore and make the most of these resources in your educational endeavours!

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Generate Discussion Around Data Literacy

DALI Framework

- **Element:** Understanding Data.
- **Sub Element:** Awareness.
- **Skill:** Being Aware, Knowing about the Existence of Data.

Learning Indicators

Players should be able to exhibit knowledge of the data literacy aspects detailed within the game's cards content. They should be able to understand both positive and negative aspects of these items, and how to better protect themselves against the dangers of giving away, or allowing people to access, their data. Players should also be able to better recognise possible scam situations, and where false information has been provided to them.

Game Inspiration

- **Games:** The Game of Life (GoL), Magic the Gathering (MtG).
- **Rules & Mechanics Reflected:** MtG Card Effects.
- **Elements & Materials Reflected:** GoL Board Layout.

Dali Life

Game Description

Dali Life is a game designed to inform and generate conversation around the subject of data literacy, in particular, the dangers associated with data usage and its application in daily life.

The game utilises a board which the players move around, and two sets of cards which provide information relating to data literacy concepts, allowing a facilitator to begin conversations around them. For example, one card discusses the use of public Wi-Fi, which leaves devices vulnerable to hackers. Variations of each card provide positive and negative outcomes. In a positive outcome, the player is rewarded with advancement on the board, in a negative outcome the player is inhibited or sent backwards. This reflects how our personal use of data can affect our daily life in both positive and negative ways.

Epistemic Design

Objective of the Game

Be the first player to traverse the game board and reach the finishing circle.

Game Mechanics

The following describes the flow of a round in Dali Life.

- Dice Roll >> Movement >> Event Phase >> Action Phase >> Draw Phase.
- Next Player.

Estimated Playing Time

Approximately 30 minutes to 1 hour plus, depending on how the game is played.

Ethics & Privacy

There are no concerns about ethics and privacy from a player perspective. However, many of the game cards provide information relating to the safeguarding and use of personal data on social media, mobile devices, computers, etc. This highlights the dangers faced in today's society and helps inform players how to retain privacy and protect their data where it may be at risk. In doing this, the game is capable of starting conversations around the subjects included within the game, and therefore raising awareness of issues which may not otherwise be discussed.

Social Design

Social Aspects

Dali Life utilises cards based around data literacy themes which have been designed to generate conversation amongst players and facilitators. These conversations should be encouraged.

Number of Players

Dali Life has been designed for 2 to 5 players.

Roles

There are no defined roles within Dali Life other than that of the players. The players themselves are responsible for following the rules and pointing out where discrepancies have taken place if a facilitator is not present.

Physical Requirements

Players will need to be capable of rolling dice, moving a token, drawing cards, and reading the information written upon them. Depending on how the board is positioned between the players, there may be a degree of standing, and stretching over the board required.

Rules

1. Move Phase

The first player rolls 1 x 6-sided dice (1d6) and moves their token the number of places shown on the dice. If the board shows alternative routes are possible, the player may decide which route to take.

2. Event Phase

If a player lands on a space marked with the 'Event' icon, three fanned cards, the player must draw an Event card and read its contents aloud. Event cards can have either a negative or positive effect on the player or their opponents and can only be blocked by specific action cards. Once an Event card has been used, it should be placed into the discard pile.

3. Action Phase

Once any events have played out, the player may play up to 3 Action cards, should they wish to. Any Action cards played out of this sequence, to counter Event cards for example, do not count towards this number. Players who are targeted by Action cards may counter their effects by playing their own action cards if able to. Once an Action card has been used, it should be placed into the discard pile.

4. Draw Phase

Once the Action phase is complete, the player ends their turn by replenishing their hand, up to a maximum of 5 cards, from the Action card draw pile. If the player holds more than 5 cards at this point, they must discard cards at random, placing them into the Action card discard pile, until they only hold the maximum of 5.

5. Next Player

Once the Draw phase is complete, the sequence begins again, starting with the draw phase, with the next player to the left.

6. Winning the Game

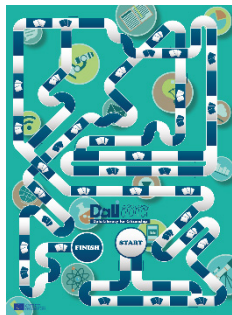
The winner of the game is the first person to reach the circle marked FINISH.

Set Design

Game Materials

The Game Board

The board has a start point and a finish point connected by a path of tiles. Some tiles contain an icon resembling fanned cards. If the player lands on these, they must pick up an Event card and perform the action written upon it. Occasionally, the player will be given the option to take one of two different paths, a shorter path that offers a faster route to the finish, and a longer path that provides the chance to collect Event cards, and the possibility of gaining greater advantage.



Action Cards

Players can play up to 3 Action cards during their turn. Used Action cards are discarded into a pile. At the end of the turn, the player refills their hand up to a maximum of 5 cards. If you run out of Action cards, shuffle the discard pile to create a new draw pile.



Event Cards

When a player lands on a tile containing the Event icon, they draw an Event card, read its contents aloud, and follow its instructions. Event cards are placed into their own discard pile. If you run out of Event cards, shuffle the discard pile to create a new draw pile.



Tokens

The game uses a set of 5 coloured tokens to represent the players upon the board. Each player should select a token prior to beginning the game.



Adaptations

The time taken to complete the game may be adapted by altering the number of dice rolled by the players each turn. The following shows approximate estimations of playing time, however, these will also be affected by additional factors such as player age, inquisitiveness, and understanding.

- 1 x 6-sided Dice: 1 hour +.
- 2 x 6-sided Dice: 1 hour.
- 3 x 6-sided Dice: 45 minutes – 1 hour.
- 4 x 6-sided Dice: 30 – 45 minutes.

Before Playing

Before playing the game, players should shuffle both the Action cards and the Event cards into separate piles. The Event cards should be placed to create a draw pile somewhere convenient. Each player is dealt 5 cards from the Action card pile, the remaining Action cards should then be placed to form a draw pile separate from the Event cards. Each player then rolls 1x 6-sided dice. The player with the highest dice roll will take the first turn. If two or more players roll the highest number, those players should continue to re-roll until a winner is determined. All player tokens should be placed onto the board within the circle marked START.

Characteristics of Different Target Groups

Young Adults

The game is relevant to young adults as it caters to their competitive nature. It also includes information that is highly relevant to the life of a young adult.

General Adults

The game is relevant to general adults as it contains information which may be unknown to a person who is not so technologically knowledgeable.

Workers

The game is relevant to workers as it can be adapted to suit the time requirements of people with less free time. Again, the game also contains information which is likely to be unknown to a worker who is not so technologically knowledgeable.

Seniors

The game is relevant to seniors as it is easy to play and understand. Importantly, the game includes information which may be new to people of a more senior age who are unlikely to be as technologically knowledgeable as young adults who have been brought up in the computer age.

Other Aspects

This game utilises the natural competitiveness and inquisitive nature of players to generate a fun and informative learning experience. Competitiveness amongst players is to be encouraged as this will result in funny and humorous rivalries as the game progresses. Players should be unscrupulous when using the cards they have drawn to gain a tactical advantage over their rival players.

Discussion of the various subjects detailed upon the game's cards should also be supported, and facilitators are advised to examine the cards content prior to hosting the game to ensure they can discuss this information with the players should questions arise.

The game itself has been designed with simple instructions and large print to make it easier for seniors to play.

Discovering the Language of Data Literacy

DALI Framework

- **Element:** Engaging Through Data.
- **Sub Element:** Policy and Regulation.
- **Skill:** Understanding how society shapes data use/influences policy making.

Learning Indicators

Through conversation based around the card's titles and actions, the player's vocabulary and understanding of data literacy themes should exhibit greater understanding.

Game Inspiration

- **Games:** Monopoly Deal, Magic the Gathering (MtG)
- **Rules & Mechanics Reflected:** Set Collection, Card Effects
- **Elements & Materials Reflected:** Artefact Card Sets, Card Actions

Daliopoly

Game Description

Daliopoly is a card game within which players must collect sets of artefact cards. Each artefact card is titled for an aspect of data literacy, with the artefact card sets being based on a more general area of data literacy. Each set of artefact cards consists of either 2, 3 or 4 cards. Once a set has been completed, the controlling player can use the effects associated with the artefact set to alter the game.

The player may also affect the game by playing action cards, each of which performs an action relating to the cards title; for example, a web search allows the player to draw 2 extra cards; a paradigm for gaining information. The winner of the game is the first person to collect 3 complete sets of artefact cards under their personal control.

Epistemic Design

Objective of the Game

Be the first player to collect 3 complete sets of artefact cards under your control.

Game Mechanics

The following describes the flow of a round in Daliopoly.

- Draw 2 Cards >> Play 3 Cards >> Discard Down to 5 Cards.
- Next Player.

Rules

1. Shuffle the cards.
2. Deal 5 cards to each player and place the remaining cards into the centre of the table, to form a draw pile.
3. Determine who will go first.
4. The first player draws 2 cards from the draw pile.
5. The player may then play up to 3 cards maximum on their turn. Cards may be artefacts, which remain on the table unless removed by an effect, or action cards.
6. Most action cards are discarded once their effects have been used, however, some action cards, like the 'Data Protection' card, remain in play unless removed by another effect.
7. Once the player has played all the cards they wish to, up to a maximum of 3, they may end their turn. If the player has more than 5 cards in their hand, they must discard cards down to the maximum of 5.
8. Play moves to the next player, and so on until one player collects 3 complete sets of artefact cards.
9. If there are no cards remaining in the draw pile, shuffle the discard pile, and create a new draw pile from it.

Estimated Playing Time

Approximately 1 hour.

Ethics & Privacy

There are no ethical or privacy concerns about the game. However, players will hopefully use the data literate terms found within the cards to discuss ethical and privacy issues. This should be encouraged by facilitators where possible.

Social Design

Social Aspects

Daliopoly uses cards which are titled after digital literacy themes and includes cards that attempt to replicate the behaviour of those themes. Discussion amongst players about these themes should be encouraged with questions such as 'what is your understanding of the cards title', 'do you know what X is', or 'have you ever experienced X', where X is the cards theme.

Number of Players

Daliopoly is designed for between 2 and 5 players.

Roles

There are no defined roles within Daliopoly beyond those of card dealer, and player. As with all of the DALI games, the presence of a facilitator who can guide players' inquisitiveness and understanding would be of benefit.

Physical Requirements

The only two physical requirements for playing Daliopoly are the ability to pick up cards, and the ability to read.

Adaptations

In order to make the game more difficult, and last longer, remove the Wildcard artefact cards. This will also reduce the number of cards available within the game's draw pile.

Before Playing

Determine who will be the dealer for the first turn, this role becomes defunct thereafter. Have the dealer thoroughly shuffle the game's cards, deal each player 5 cards, then place the remaining cards onto the table to form a draw pile. If you run out of cards, reshuffle the discarded cards, and create a new draw pile from them.

Characteristics of Different Target Groups

Young Adults

Young adults will appreciate the competitive nature of Daliopoly. In addition, it will provide many young people with new data literate terms, and subsequently information, that is relevant to their everyday lives.

General Adults

As a relatively fast-paced, tactical game, Daliopoly should appeal to General Adults who are looking to learn more about the language, and thereafter themes, of data literacy.

Workers

As a relatively fast-paced, tactical game, Daliopoly should appeal to Workers who are time constrained yet looking to learn more about the language, and thereafter themes, of data literacy.

Seniors

With its simple yet appealing gameplay, Daliopoly should appeal to Seniors who are looking for a gentle introduction to data literacy terms.

Set Design

Game Materials

Artefact Cards



Artefact cards come in sets of two, three, or four cards. Each different set is indicated by its colour and some text upon the face of the card. For example, the cards within the Social Contribution set are coloured orange. The number of cards within each set is shown in brackets. When played, artefact cards should be placed face up on the table where they will remain unless affected. Artefact cards from the same set should be grouped together. If you complete a set of artefacts, you may utilise the effect stated upon them. You cannot utilise an effect if the set is incomplete unless one of the cards has been replaced with a Wildcard artefact. Whenever you use an artefact effect, you must clearly announce that you are doing so, and may not utilise that effect again until the start of your next turn.

Action Cards



Generally, action cards have an immediate effect which comes into play and then the card is discarded. There are, however, some exceptions to this rule, and where this is the case, it is indicated upon the card itself. For example, a Denial of Service card can be played outside of your turn to counter the effects of a card played by another player. Cards which have been placed into storage using the Data Storage card may also be used at any time.

Other Aspects

Daliopoly has been designed to introduce people to the terminology of data literacy. Discussion of these terms should then be utilised in order to expand upon them. In many respects, Daliopoly's gameplay reflects the aspect or theme of the cards. For example, a Web Search card provides the player with additional information in the form of two extra cards, whereas Hack lets them take control of a set of cards belonging to another player. Where possible, the introduced terms, and the cards effect should be discussed, or even researched by the players themselves, so that they gain a greater understanding of the modern data literacy world.

The cards themselves have been designed with a range of players in mind, using simple language so as not to confuse, and large fonts to make reading them easier.

Data and Citizenship

DALF Framework

- **Element:** Acting on Data.
- **Sub Element:** Collecting Data.
- **Skill:** Share and communicate data sets that already exist under ethical considerations.

Learning Indicators

At the close of the game, players should be able to access and discover a range of data and materials from various online sources. Players should also gain a better understanding of each other's likes and dislikes, their lives, and past history.

Game Inspiration

- **Games:** Cards Against Humanity.
- **Rules & Mechanics Reflected:** Role of Referee, Winning Scenario.
- **Elements & Materials Reflected:** Card Design.

Game of Phones

Game Description

Game of Phones (GoP) has been designed to make players more aware of the availability and use of online data. It also has the important side effect of increasing a sense of camaraderie, friendship, and interest amongst players, all of which enhances citizenship. The game itself is simple to play, and can be extremely fun.

The game utilises a large set of cards, each of which ask players to find a specific item online. One player begins the game in the role of referee, drawing a card and reading out its contents aloud. Players must then search for the item detailed upon the card using a mobile device, or computer. After 30 seconds have elapsed, all players show the item they have found and explain it. The referee then chooses what they believe is the best item. The winning player retains the drawn card as a record of their victory, and becomes the new referee for the subsequent round. This process continues until one player has won 5 rounds.

Epistemic Design

Objective of the Game

Be the first person to win 5 rounds and collect 5 Game of Phones cards.

Game Mechanics

- Select Referee >> Draw Card >> Read Card Contents >> Search for Item >> Show Item >> Select Winner >> Winner Retains Card >> Winner Becomes New Referee.
- Next Round.

Rules

1. Randomly select a player, that player becomes the Referee for the first turn of the game.
2. The Referee shuffles the Game of Phones cards, or delegates the task to someone else, and then places the cards face down, in a pile, in the centre of the playing area.
3. The Referee draws the first card from the top of the pile and reads the statement written on it aloud.
4. Each of the other players must then use their mobile phone, laptop, etc, to find the item requested upon the card.
5. After 30 seconds has elapsed, the Referee asks each player, in turn, to show them the items that they have found.
6. The Referee selects their favourite item from all of those shown and declares one player the winner.
7. The winning player takes the previously used Game of Phones card to act as a marker of their victory and they become the Referee for the following turn.
8. Play continues in this fashion until one player has gained a total of 5 Game of Phones cards, at which point they are declared the winner.
9. If you would like to extend or shorten the time taken to play the game, simply increase or decrease the number of cards required to win the game.

Estimated Playing Time

Approximately 1 hour or less depending on how the game is played.

Ethics & Privacy

Each player should ethically use their mobile devices, or computer, to find information on the web and share it with their co-players. Players should not distort or mislead co-players with false information found from non-reliable sources. The cards have been designed in an ethical manner, meaning that the contents do not target specific groups, religions, or ethnicity. Rather they are focused on aspects of data literacy that relate to non-invasive, public information important to the players.

Game of Phones can be used to highlight the ethical aspects of sharing and communicating datasets as emanated through the cards. Facilitators may ask questions such as 'what is the copyright of the image you have shared?', or, 'have you checked that you can share an image that was created by others'.

Social Design

Social Aspects

Whilst players act as individuals when playing Game of Phones, they will often discover common ground within its contents. The game is an exceptional social experience with players discovering shared likes and dislikes, interesting or bizarre facts about each other, and uncovering elements of each other's past. This can often lead to conversations about people's lives, generating a sense of camaraderie, and improving people's knowledge of each other, and hence increasing their sense of citizenship.

Number of Players

Game of Phones has been designed for 2 to 6 players. However, due to the large amount of cards found within the game, this number could be increased substantially.

Roles

Game of Phones utilises a player in the role of Referee. The role of Referee is initially assigned by player consensus. After this, the role of Referee changes between players, with the winner of a round becoming the new Referee for the following round.

Referees are in charge of drawing a card and reading its contents out aloud at the start of a round. The Referee should then give players 30 seconds to find the item detailed upon the card before calling the round to a halt and asking players to show and explain the items they have discovered. At the end of a round, once all players have shown and explained their items, the Referee selects the best item and declares it's finder the rounds winner. The winner of the round then becomes the new Referee for the following turn.

Set Design

Game Materials

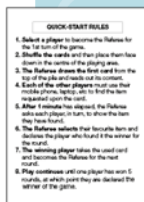
Game of Phones Cards

Game of Phones consists of 120 cards, each of which asks the player to find an item such as an image, video, or piece of music, online. Whilst some cards follow similar themes, no two cards ask players to find exactly the same item, providing excellent replay value.



Action Cards

Generally, action cards have an immediate effect which comes into play and then the card is discarded. There are, however, some exceptions to this rule, and where this is the case, it is indicated upon the card itself. For example, a Denial of Service card can be played outside of your turn to counter the effects of a card played by another player. Cards which have been placed into storage using the Data Storage card may also be used at any time.



Physical Requirements

Players must be able to read the instructions on the cards. They must also be able to operate a mobile device or computer. Knowledge of specific types of software, such as web browsers, or websites, such as Google or YouTube, are advantageous.

Adaptations

Game of Phones can be adapted by decreasing or increasing the number of players. Reducing the number of players will speed up the game, as less people will be sharing items. Increasing the number of players will slow down the game, however, the large amount of cards available means that the game can be played with large numbers of people, perhaps in a classroom environment.

The time required to play Game of Phones can also be lowered by reducing the number of cards to win the game. The standard game requires a player to win 5 rounds, and collect 5 cards, before being declared the games winner. However, reducing this to just 3 or 4 cards would speed up the game substantially. Of course, if the number of rounds required to win is increased, the amount of time required to complete the game will also be extended.

Before Playing

Select a player to act as a Referee for the first round. Selection can be undertaken in a manner of ways, for example, by consensus, by age (oldest or youngest player), by birthdate (earliest birthday or latest birthday in the year), etc. Once a Referee has been selected, they should shuffle the cards thoroughly or assign this task to another player.

Characteristics of Different Target Groups

Young Adults

Game of Phones includes cards that are of particular relevance to young players. The fast pace of the game also appeals to their competitive nature.

General Adults

Game of Phones should be relevant to general adults as it contains cards that are particularly relevant to them. The game is also a highly social experience.

Workers

Game of Phones is relevant to workers as it contains cards that are of particular relevance to them. The game also contains a wide range of differing items for players to find and discuss and can be adapted so that it takes up a short amount of time.

Seniors

Game of Phones is relevant to seniors as it contains cards that specifically target them. Again, it is also a very social game which allows for conversation and reminiscences.

Other Aspects

The game may benefit from the presence of a facilitator who can ask the players questions about the items they have discovered. These questions may range from simple enquiries about the items found such as 'why did you select that item', to much more serious questions such as 'how would you reflect on the item you have picked with associated ethical and privacy concerns'.

Citizenship Through Data Activism

DALI Framework

- **Element:** Engaging Through Data.
- **Sub Element:** Data Activism.
- **Skill:** Data as a Basis for Activism and Engagement.

Learning Indicators

Data activism is a rather recent concept that has not reached mainstream discussions just yet. By playing Data Chain, players should be able to recognize data activism as a series of identifiable actions that they can take to advocate for their rights regarding their personal data.

Game Inspiration

- **Games:** Magic the Gathering (MtG).
- **Rules & Mechanics Reflected:** MtG Card Effects.
- **Elements & Materials Reflected:** MtG Card Mechanics.

Data Chain

Game Description

Data Chain is a game designed to inform players about the existence of data activism. Two teams of two players oppose each other: the data activists vs. the data brokers. The cards of these two teams might seem different, but it is only in terms of flavour. The data activists represent lawful and ethical data practices, while the data brokers represent the unlawful and unethical side of them.

In terms of gameplay, each team fights for the board by strategically playing cards with various effects. Once a chain of 6 cards has been formed between two teammates, they are declared the winners and the game ends. At the end of each round, players are invited to talk about one of the cards present on the board; these interactions are rewarded if they are positive (good answers).

Epistemic Design

Objective of the Game

Be the first team to create a chain of 6 artefact cards between two players of the same team.

Game Mechanics

The following is a description of the flow of a turn. A round is composed of 4 turns and each player has one turn per round:

- Draw >> Play cards >> Activate artefact card (once per round) >> Discard >> Discuss.
- Next player.

Estimated Playing Time

Between 30 and 45 minutes. The game can last longer if players are taking more time to discuss the meaning of the artefact cards and debate about them.

Ethics & Privacy

There are no concerns about ethics and privacy from a player perspective. Since data activism is literally promoting ethics and privacy, players' awareness on the matter should increase significantly during the game.

Social Design

Social Aspects

The game is designed for two opposing teams of players and can be quite competitive. Communication is extremely important during the game, especially when it comes to a team's strategy and discussing the artefact cards. Since the game is setting the players to communicate verbally, other types of exchanges should happen naturally.

Number of Players

4 players are required to play the game, it is not possible to play the game with any more or any less.

Roles

Players take the 'roles' of data activists and data brokers, if it does not have a significant impact regarding gameplay, it can have an epistemological impact. A facilitator with solid knowledge in data literacy would be very helpful, as it could be hard for the players, if they are all beginners, to know if the explanations and the examples they are providing are correct.

Rules

1. Draw

Every turn starts with the player drawing a card from the draw pile, regardless of the amount of cards that they have in their hands.

2. Play Cards

There are two types of cards: action cards and artefact cards. There are two types of artefact cards: data activist artefact cards and data broker artefact cards. Each type of artefact card can only be played by their corresponding team. Each turn, a player can play up to two cards, one of them being an artefact card of their corresponding team. They cannot play two artefact cards in a single turn.

Action cards' effects play out the moment said cards are being played, artefact cards work differently (see next paragraph).

3. Activate Artefact Card

Once per round, each team can activate one of the artefact cards they have placed on the board. Activating an artefact card triggers its effects. Since artefact cards can only be activated once per round, players of the same team should discuss when and what artefact they should activate in order to get a strategic edge.

4. Discard

Players cannot hold more than 5 cards. At the end of their turn, if they hold more than 5 cards, they must discard as many cards as necessary in order to have 5 cards in their hands.

5. Discuss

At the end of each round, if there are 2 artefact cards or more on the table, each team points to one of them, discusses its meaning, and provides at least one example. Artefact cards that have previously been explained in this way cannot be selected again. If everyone agrees with the explaining team, players from that team can draw a card from the draw pile.

6. Winning the game

At the end of a round (not a turn), if one of the team has 6 artefact cards on the table and has formed a chain between its players, they win the game.

Set Design

Game Materials

Action Cards

Action cards can be recognized by their dark background and the arrow-looking icons on top of the card. Since players can play up to two cards per turn, it is possible, if one of the cards is not an artefact card, for players to play two action cards. All action cards' effects play out the moment they are played. Some action cards can be played outside of a player's turn and do not count towards the two cards limit per turn.



Artefact Cards

There are ten artefact cards per team. The first team able to place 6 of these cards on the table in a chain wins the game. There are two types of artefact cards: they can be recognized by the colour of their background and the icons at the top of the cards. Data brokers' artefact cards have a darker background, darker and different icons on top of the cards. Data activists' artefact cards are lighter.

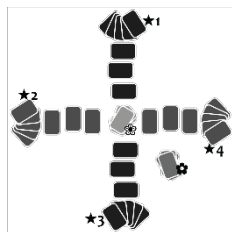


Glossary

Players can refer to the glossary at the beginning or end of the game. They can also consult it during the game, but not while discussing one of the artefact cards. They can consult it afterwards to verify if their answer was right or not though. The glossary gives a definition of all 20 artefact cards.

Physical Requirements

Since players on the same team are trying to form a chain of artefact cards between them, it could be hard for the other players to read the cards that are not facing them. A lot of cards' manipulation should be expected during the game and would require arm extension several times. Players should help each other out so that everyone, regardless of their team, can be aware of the various cards' effects without having to stand up and walk around the table.



Adaptations

Players can decide to play with the 'chaos rule'. The 'chaos rule' involves playing the game faster with a less strategic mindset: players adopting this rule immediately play out the card they are drawing at the beginning of their turn. If it is an artefact card of the opposing team, it is discarded. The turn plays out normally afterwards. At the end of the turn, with the 'chaos rule', players who have less than two cards in their hands can draw as many cards as necessary to have up to two cards. A glossary with all the terms mentioned on the artefact cards is available. It can be used before the game to learn more about the flavour of the cards, and data activism in general. It can also be used during the game to see if the explanation of an artefact card they provided is correct or not.

For workers: 'Data Chain' is a good choice if you wish to learn more about data activism and data trading. Reasons to play this game in a professional context: (1) Since the game utilises two opposing teams with conflicting interests, it allows the players to understand both sides. (2) If players are unfamiliar with some of the terms on the cards, there is a glossary to help their learning. (3) This game could be used as a starting point if your colleagues or employees wish to learn more about the regulations enforced in Europe by the General Data Protection Regulations (GDPR).

Before Playing

Before starting the game, all the cards need to be shuffled into a single draw pile. The deck should be composed of 52 cards in total. Since the game is featuring two teams of two players, the participants should decide which team they would like to form beforehand. In terms of gameplay, it does not matter if the players are part of the data activists' team or the data brokers' team.

Characteristics of Different Target Groups

Young Adults

The game is very relevant to young adults. With the rapidly increasing development of AI technology, automatic treatments of data have never been so prevalent. It is important for young adults to be aware that there are laws, that they have rights, and that they are able to take action if necessary.

General Adults

The game is fit for, and should be played by general adults as well. Parents especially should be aware of the existence of data activism and the various regulations enforcing personal data usage in their respective countries.

Workers

The game is relevant to workers. Whatever the side someone might be when it comes to data activism, it is important to be aware of the different regulations and the potential outcomes of unlawful data practices. Since data has become a key component in all professional fields, all workers should be involved one way or another in the topic. Managers and workers handling data should be particularly concerned.

Senior Adults

The game is fit to be played by senior adults. To avoid being the victim of unlawful data practices, senior citizens should be aware of the actions that can be taken regarding their personal data.

Other Aspects

Since they are different cards' effects, it is important for a facilitator to know how they can interact with each other (there is a specific paragraph in the instructions about that topic). Facilitators should be vigilant about the different phases of the game as well. To keep the game balanced, only one artefact card per turn can be played, and only one artefact card per round can be activated. If the players are not keeping track of this, it is important for the facilitators to do so. Finally, the pedagogical impact of the game comes from the discussions the players can have at the end of each round. If the players are encountering problems to start a discussion, they should be encouraged to do so. Said encouragement should be adapted based on the profiles of the players.

Substantiating the Value of Data

DALI Framework

- **Element:** Understanding Data.
- **Sub Element:** Critical Thinking.
- **Skill:** Realising the Value of Data.

Learning Indicators

By the end of the game, players should be able to understand that data is valuable. They should be aware that they are creating and sometimes providing a lot of personal data of their own free will. They should understand that personal data they are generating in this way is collected and considered to be very valuable by the institutions and companies using it.

Game Inspiration

- **Games:** Coup.
- **Rules & Mechanics Reflected:** Bluffing.
- **Elements & Materials Reflected:** Types of power actors and special abilities.

Data Takeover

Game Description

In Data Takeover, players are acting as the CEO of a big tech company looking to make as much profit as possible for their shareholders. Profits take the form of tokens (Real Coins), which are gathered by converting another type of token (Data Nuggets), among other ways. Real Coins can be invested in various ways to take down the other players.

Powerful actors, and what players decide to do with them, is the key aspect of the game. Each powerful actor has a special ability that can be used strategically by other players to gain an edge. Each player has two powerful actor cards and players are not aware of any of the powerful cards being held but their own. They can decide to bluff and use the special abilities of powerful actors they do not currently hold, which can be challenged.

Epistemic Design

Objective of the Game

Be the only player left with powerful actor cards in your hand.

Game Mechanics

The game flow of the game is extremely simple. The subtleties lie within the abilities, the counters and the challenges being chosen by the players. All of these will be explained in the next section.

- Using an ability >> Being countered by another player (or not) >> Being challenged (or not) >> Next player.

Rules

1. Abilities

Each turn, the players choose ability and say out loud the ability that they have chosen. Depending on the ability, it can be countered and/or challenged. There are 9 abilities in total. 4 abilities are common to all players and can be chosen without being challenged. Only 'new tracking technology' can be countered.

- **Data Extraction**

A player can use Data Extraction to mine 1 DataNugget. Data Extraction cannot be countered and is a safe action.

- **New Tracking Technology**

A player can use New Tracking Technology to mine 2 DataNuggets. New Tracking Technology can be countered by Lawyers. It is more rewarding than Data Extraction but is more risky.

- **Monetisation**

At the end of a player's turn, if they are holding 3 DataNuggets, they are automatically converted into 1 RealCoin. Monetisation does not count as an action.

- **Hostile Acquisition**

A player can use Hostile Acquisition at the cost of 3 RealCoins. A player launching a Hostile Acquisition targets another player: this player will lose one Powerful Actor card of their choosing. If a player owns 5 or more RealCoins at the start of their turn, they are forced to launch a Hostile Acquisition. The following abilities are exclusive to powerful actors:

- ***Cyber Attack***

Hackers use Cyber Attack; this ability allows players to pay 1 RealCoin to release a cyber-attack and choose a player to lose a powerful actor. If the Cyber Attack is blocked, the player cannot recover the cost of 1 RealCoin.

- ***Divert***

Influencers use Divert; this ability allows players to take 1 DataNugget from each player in the game.

- ***Scoop/Expose***

Journalists have the ability to Scoop/Expose; this means that players can select another player to reveal one of their cards to them. From there, the player can either decide to let the other player keep their card, or force them to discard it and draw a new one.

- ***Litigate***

Lawyers use Litigate as their action, they can choose a player to take 1 RealCoin from during the player's turn.

- ***Campaign***

PR Consultants use their ability to Campaign, meaning the value of a player's shares goes up and they gain 1 RealCoin.

2. Counters

Once a player has declared an ability, if this ability can be countered, the other players can decide to do so. Influencers can counter 'Divert', PR consultants can counter 'Campaign', Journalists can counter 'Cyber Attack' and Lawyers can counter 'New Tracking Technology'.

3. Challenge

At any point during the game, when an ability or a counter ability is being used, any player can decide to challenge the player using an ability, asking them to prove that they have the powerful actor card able to launch the ability or counter ability they are trying to use. If the challenged player is able to prove their identity by revealing the corresponding powerful actor card, the challenger must discard one of their powerful actor cards. If the challenged player cannot prove their identity, they must discard one of their powerful actor cards.

4. Losing and Winning the Game

If a player is out of powerful actor cards, they have lost the game. If there is only one player left with at least one powerful actor card, they have won the game.

Estimated Playing Time

Depending on the approach the players have of the game and the number of players, it can be very short (15 minutes) or rather long (45 minutes).

Ethics & Privacy

There are no concerns about ethics and privacy from a player perspective.

Social Design

Social Aspects

Data Takeover is an educational game on data literacy as much as a social experiment. Players' interactions, perception, ability to bluff, and persuade are absolutely central to the game. The players are facing each other and the game can become quite competitive.

Number of Players

The game requires at least 3 players and can be played with a maximum of 5.

Roles

Other than the 'roles' that the players are taking during the game through their powerful actor cards or lack thereof, there are no special roles the players should assume. Facilitators can help pacing the game if the players have never played a similar game before, but other than that, players should be rather independent.

Physical Requirements

There are no particular physical requirements to play the game. It is only necessary to draw powerful actor cards at the beginning of the game. Tokens are quite small and would require basic small objects handling skills, but they should be within reach of all players to obtain or to discard.

Adaptations

The terms used in the game are quite specific and can be confusing for players who have not started their professional career just yet. For this reason, a glossary has been created to make sure that all players understand the terms that are being used in the game. It is important that all players can read the powerful actor cards and their summary cards properly. Since there is a lot of text, there is a version of the game with bigger cards for players who might need it. The tokens and the token tracker have shapes that should be easily recognisable, regardless of their size.

For workers, there are several reasons to play this game in a professional context: (1) Data Takeover can help workers understand data monetisation better. (2) In this game featuring an 'every person for themselves' format, players are compelled to craft the best strategies to come out on top. Bluffing and challenging bluffs are important game mechanics. In a teambuilding situation, this game can help you and your colleagues understand each other better through the way each of them plays the game.

Set Design

Game Materials

Powerful Actor Cards

There are 5 different types of powerful actor cards: hackers, journalists, influencers, lawyers and PR consultants. At the beginning of the game, players draw 2 cards from a powerful card deck composed of 15 powerful actor cards in total (3 of each).



Tokens: Data Nuggets and Real Coins

Data Nuggets and Real Coins are the two currencies of the game. Once a player has 3 Data Nuggets, they are automatically converted into a Real Coin. Data Nuggets cannot be spent in any other way, while Real Coins can be used to attack the powerful actor cards of the other players.



Token Tracker

All players have a token tracker that they need to use to store the data nuggets and the real coins they are gathering. A player cannot hold more than 5 Real Coins at a time: at the beginning of their turn, if a player has 5 Real Coins, they are forced to use the 'Hostile Takeover' ability.



Summary Card

As it can be quite overwhelming for new players, all of them should use the summary card whenever they think it is necessary. The summary card summarises all abilities and counter abilities the players can use during the game. On the other side of the summary card, players will find an overview of the rules of the game.



Before Playing

Before playing, all players should familiarise themselves with the rules, the abilities, and the different currencies. The game is best enjoyed when there is a certain pace to it, so players should be aware of the sort of abilities they will be using to imagine a semblance

of strategy. Once all players have drawn two cards from the powerful actor card deck, which needs to be shuffled prior to that, they are ready to play the game.

Characteristics of Different Target Groups

Young Adults

The game is fit to be played by young adults: it is a very good introduction to the power struggles generated by data collection and the various actors playing a key role in them, regardless of their side.

General Adults

General adults will most likely be familiar with all the powerful actors displayed in this game. Playing the game would be a good introduction to the concept of data as a currency if they are not aware of it just yet. If they are, the strong social aspects of the game should be enjoyable nonetheless.

Workers

The game is relevant to workers because data monetization has become a key aspect of any successful business. As a social experiment, the game is also a great way to learn more about different colleagues through their way of playing the game.

Senior Adults

The game is fit to be played by senior adults. Social media are becoming increasingly more popular in this population, and they should be aware that the information they are sharing is of great value to several companies looking to profit from it.

Other Aspects

Facilitators should have played the game a couple of times before facilitating a game session featuring Data Takeover or at the very least be extremely familiar with the rules. The game needs to keep a certain pace to be truly enjoyable, and the role of the facilitator would be to provide help to struggling players relying too much on the summary card.

Taking Decisions with the Help of Data

DAI Framework

- **Element:** Engaging Through Data.
- **Sub Element:** Taking Decisions.
- **Skill:** Understanding Civil Action / Individual Potential to use Data.

Learning Indicators

Players should feel reassured about their ability to engage through data. They should understand better what civil action in connection to data implies.

Game Inspiration

- **Games:** The What is your Story (WyS), developed by Coventry University.
- **Rules & Mechanics Reflected:** WyS Story Telling.
- **Elements & Materials Reflected:** WyS Cards.

Where is Data in Your Story?

Game Description

Where is Data in your Story? is a game designed to generate discussion around the subject of data literacy, in particular, around the situations that can occur in daily life where engaging through data might be important. The game utilises four sets of cards which each define one category that the players' story should contain. These categories are Datatype, Activity, Location, and Individual, meaning that a story should contain a defined individual in a defined location with a given activity, making use of a given data type ranging from human generated data to non-visible metadata. This reflects how our personal engagement through data can affect our daily life and the lives of others in a proposedly positive way.

Epistemic Design

Objective of the Game

Enrich the world with a story and contribute to a better world.

Game Mechanics

The following describes the flow of a round in Where is Data in your Story?.

- Take data type card >> take three cards >> create a story >> tell the story >> add to the story >> decide over the best story.
- Next round.

Rules

1. Take Data Type Card

One random player takes a data type card and shows it to all as it is valid for all players' stories of that round.

2. Take Three Cards

All players take one card of each remaining pile, i.e. one activity, location and individual card.

3. Create a Story

Players have now 2 minutes to think of a possible story that would include the four given facts on data type, activity, location, and individual. One random player observes the time.

4. Add to the Story

Once the 2 minutes are up, players take turns to tell their story, while revealing their cards to the others. If the story-teller agrees, the others might add to the story, pose questions, adding to the creative process.

5. Decide the Best Story

Finally, players decide which story they liked most. One random player notes the result each round.

Estimated Playing Time

Approximately 20 to 45 minutes depending on the number of players.

Ethics & Privacy

There are no concerns about ethics and privacy.

Social Design

Social Aspects

Where is Data in your Story? is expected to evoke discussions around data literacy themes and develop the social aspect of engaging through data within players' thinking.

Number of Players

Where is Data in your Story? has been designed for 5 to 8 players.

Roles

There are no defined roles within Where is Data in your Story? other than that of the players. The players themselves are responsible for following the rules. Random players will watch the time and note the results.

Physical Requirements

Players will need to be capable of drawing cards and seeing the picture shown on them.

Adaptations

Players do not necessarily need to play this game competitively, it can be played without deciding which story is the best.

The adaptations for different adult groups (young, general, working, and senior adults) contain additional cards.

Before Playing

Before playing the game, players should sit around a table and shuffle the Datatype, Activity, Location, and Individual cards into separate piles. The four piles are placed in the middle of the table, with the cards facing down. One random player should prepare the timer of their mobile phone and provide a pen and a piece of paper if the game is played competitively.

Characteristics of Different Target Groups

Young Adults

The game is relevant to young adults as it fosters their creativity and their thinking of a better world.

General Adults

The game is relevant to general adults as it reminds them of their will to engage for a better world.

Workers

The game is relevant to workers as it can be played in relatively little time which suits the time requirements of people with less free time. Additionally, the creative character of the game can serve as a welcome switch of the brain hemisphere which can support mental health.

Seniors

The game is relevant to seniors as it is easy to play and understand. It can help seniors to develop their data literacy in a very easy way, by using their own imagination and getting help from the other players.

Set Design

Game Materials

Datatype Cards

Each round, one Datatype card is valid for all players. There are four datatype cards, symbolising human generated data (person icon), human-machine generated data (mobile with hand icon), visible metadata (graph on screen icon), and non-visible metadata (strikethrough eye icon).



Activity Cards

Players draw one Activity card per round and combine it with a Location and a Individual card, creating a story out of these cards that additionally meets the needs of the Datatype card.



Location Cards

Players draw one Location card per round and combine it with an Activity and an Individual card, creating a story out of these cards that additionally meets the needs of the Datatype card.



Individual Cards

Players draw one Individual card per round and combine it with a Activity and a Location card, creating a story out of these cards that additionally meets the needs of the Datatype card.



Timer, Pen and Paper

Not included in the package but needed to measure the time and to note the results.

Other Aspects

This game utilises the creativity and imagination of players to generate a fun learning experience. Competitiveness amongst players can be encouraged as this might result in especially funny and humorous stories, but it is not mandatory. This can be decided according to the character of the players.

Players shall be given maximum freedom in the interpretation of their cards and in relation to the datatype card. Discussions about the stories should also be supported, as this adds to the fun, it makes the game even more social, and it adds to its educating character.

Understanding Data Generation Happens Everywhere

DALI Framework

- **Element:** Understanding Data.
- **Sub Element:** Awareness.
- **Skill:** Being Aware - Knowing About the Existence of Data.

Learning Indicators

The game motivates the players to activate previous knowledge and to extend it by playing. Players should be able to exhibit knowledge of the data literacy aspects detailed within the game cards content. They should be able to understand both positive and negative aspects of these items, and how to better protect themselves against the dangers of giving away, or allowing others to access, their data.

Game Inspiration

- **Games:** Snakes and Ladders.
- **Rules & Mechanics Reflected:** Snakes and Ladders board.
- **Elements & Materials Reflected:** Snakes and Ladders board layout.

Wifi and Data!

Game Description

Wifi and Data! is a game designed to activate and extend knowledge around the subject of data literacy, and the various aspects data have in daily life. The game utilises a board which the players move around, and three sets of cards that provide questions and tasks relating to data literacy concepts. For example, one card asks the player to check the phone settings for the particular rights an application is given and to reflect if they are really according to the rights the user wants to allow. Another card asks what Cookies are. The player is rewarded with advancement on the board, when the task or question is solved. In a negative outcome, the player is inhibited or set backwards. This reflects how the understanding and awareness of data can bring us forward in life.

Epistemic Design

Objective of the Game

Be the first player to traverse the game board and reach the final position.

Game Mechanics

The following describes the flow of a round in Wifi and Data!.

- Dice Roll >> Movement >> Action Phase.
- Next Player.

Rules

1. Move Phase

The first player rolls 1 x 6-sided dice (1d6) and moves their token the number of places indicated on the dice.

2. Action Phase

If a player lands on a position that displays an icon, they take a card from the deck that corresponds to the icon (a bulb, a mobile device, or a magnifying glass) and the player to their left should read the question, or task, aloud. If the answer is correct, the player keeps the new position, otherwise they return their figure to its prior position. If a player lands on a space marked with a Wifi icon or marking the top of a cable icon, they climb up vertically for the number of rows defined by the Wifi coverage or slide down to the bottom of the cable respectively. Only if they answer the question or task that awaits them there correctly, do they keep the new position (Wifi icon), or return to the position at the top of the cable.

3. Next Player

Once the Action phase is complete the sequence begins again, starting with the move phase of the next player to the left.

4. Winning the Game

The winner of the game is the first person to reach the final position marked by a flag icon.

Estimated Playing Time

Approximately 30 minutes to 1 hour depending on the number of players and their luck with the dice.

Ethics & Privacy

There are no concerns about ethics and privacy from a player perspective. However, many of the game cards trigger previous knowledge and provide information relating to the safeguarding and use of personal data on social media, mobile devices, computers, etc. This highlights the dangers faced in today's society and helps inform players how to retain privacy and protect their data where it may be at risk. In doing this, the game is

capable of starting conversations around the subjects included within the game, and therefore raising awareness of issues which may not otherwise be discussed.

Social Design

Social Aspects

Wifi and Data! utilises cards based around data literacy themes which have been designed to generate discussion amongst players and facilitators. These discussions should be encouraged.

Number of Players

Wifi and Data! has been designed for 2 to 4 players.

Roles

There are no defined roles within Wifi and Data! other than that of the players. The players themselves are responsible for following the rules.

Physical Requirements

Players will need to be capable of rolling dice, moving the figure, drawing cards, and reading the information written upon them. Depending on how the board is positioned between the players, there may be a degree of standing, and stretching over the board required.

Adaptations

The game can be simplified by altering the instructions:

- When players land on the top of a cable, they slide down and stay there until their next turn without answering a question.
- Players do not have to answer a question on the position they reach by climbing the rows using a wifi symbol.

The adaptation for senior adults includes bigger cards and adapted instructions (only 1 correct answer needed when there is more than one option, and some extra time for correct answers).

The adaptation for general adults includes additional cards with new questions.

The adaptation for workers includes an additional paragraph in the instructions, suggesting to play this game in the work hours.

Before Playing

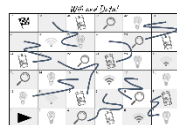
Before playing the game, players should shuffle the Knowledge, Action and Event cards into separate piles beside the board, cards face down. The players agree on how long they have owned a mobile device, the one with the oldest will take the first turn. All player figures should be placed onto the start tile of the board.

Set Design

Game Materials

The Game Board

The board has a start and finish point in the opposite corners of a chessboard with 36 tiles. Some tiles contain a “card” icon resembling a bulb, a mobile phone, or a magnifying glass. If the player lands on these, they must pick up a card and answer the question or solve the task written upon it. Other tiles contain a Wi-Fi or a cable symbol. If a player lands on these, they jump up a number of rows (Wi-Fi) or slide down to the end of the cable symbol where a card icon awaits them.



Playing Figures

Four ordinary playing figures in different colours that act as player avatars, one for each player to move along the game board.

Dice

Players throw the dice to define the movement of their figure.

Knowledge Cards

A player who lands on a “bulb” tile draws a knowledge card and answers the question written on it.

29. If a music app tracks your most downloaded music, what does it do with these data? Name at least one aspect.

It uses them to offer me suggestions according to my taste. And it uses them to further develop the app.



20. Look at the settings of your camera app. Is the option that voice control can learn from the way you use it is selected?

No one right answer



26. Data are not obligatorily electronic data. Think: How many hours do you normally listen to music during the weekend? Share your findings with the other players.

No one right answer



Action Cards

A player who lands on a “mobile” tile draws an action card and solves the task written on it.

Situation Cards

A player who lands on a “magnifying glass” tile draws a situation card and answers the question written on it.

Characteristics of Different Target Groups

Young Adults

The game is relevant to young adults as it caters to their competitive nature. It also includes information that is highly relevant to the life of a young adult.

General Adults

The game is relevant to general adults as it contains information which may be unknown to a person who is not so technologically knowledgeable or who tends to ignore certain aspects of data literacy as they are inconvenient.

Workers

The game is relevant to workers as it can be played during working hours. Again, the game also contains information which is likely to be unknown to a worker who is not so technologically knowledgeable or who tends to ignore certain aspects of data literacy as they are inconvenient.

Seniors

The game is relevant to seniors as it is easy to play and understand, and the game mechanics are based on a traditional board game they might know (Snakes and Ladders). Importantly, the game includes information which may be new to people of a more senior age who are unlikely to be as technologically knowledgeable as young adults.

Other Aspects

This game utilises the natural competitiveness and inquisitive nature of players to generate a fun and informative learning experience. The needed luck with the dice increases the fun character of the game. Discussion of the various subjects detailed upon the game's cards should also be supported, and facilitators are advised to examine the cards content prior to hosting the game to ensure they can discuss this information with the players should questions arise.

Relating Digital Activity with Data Creation

DALI Framework

- **Element:** Understanding Data.
- **Sub Element:** Knowledge.
- **Skill:** Data Sources, Types and Formats.

Learning Indicators

Primarily, players should be able to understand the difference between simple types of data after playing the game. They should also be able to understand the difference between input and output, as it is an effective strategy for pairing the various cards of the game. Since the game features many common daily life examples, they should be able to apply the same concepts to their own personal daily lives. Secondly, players should become aware of the amount of data they are generating without being aware of it, as invisible metadata is the consequence of their actions when interacting directly, or indirectly, with connected equipment.

Game Inspiration

- **Games:** Memory Game.
- **Rules & Mechanics Reflected:** Cards' placement on the table, revealing cards to make associations, winning the pair of cards if they match, and being able to play again afterwards.
- **Elements & Materials Reflected:** Type of visual element on the cards (icon).

Data Iceberg

Game Description

Data Iceberg is a game designed to teach the players about different types of data and how to recognize them in their daily life. It features various situations that the players may have encountered and invites them to reflect on said situations to understand the type of data that was generated, either by them, or consequently from their interactions with connected equipment. The game is essentially divided into two parts. The first part is a guessing game, players need to find pairs of cards and remember the position of the cards they previously revealed. In the second part, they need to identify the type of data the cards are depicting and place it on their board.

Epistemic Design

Objective of the Game

Discover as many pairs of cards as possible and associate them with the right type of data.

Game Mechanics

- 1 - Reveal a card >> Reveal a second card.
- 2A- If the cards are not a match, turn both cards back over without changing their position >> Next player.
- 2B- If the cards are a match, remove them from the table >> Place the pair of cards on the personal player's board >> Return to 1.

Rules

1. Reveal Cards

The first player picks two of the face down cards placed on the table and reveals them. If the cards are a match (same icon, same number, different letter), the game moves to the next phase, otherwise they turn the cards back over, so they are face down, and the next player takes their turn.

2. Match Cards Data Type

Players who find a pair of cards during their turn have to identify the type of data and place the cards on their board in the correct location. They may then look at the solution sheet to see if they were correct or incorrect. Being right or wrong has no influence until all cards have been picked to make pairs. The player continues revealing cards until they pick two non-matching cards, ending their turn.

3. Winning the Game

The game ends when no more cards are left on the table. At this point, each player counts how many pairs of cards they manage to find AND associate with the correct type of data. The player who has the most pairs that were correctly associated with the type of data that the cards were depicting wins the game.

Estimated Playing Time

The game should take between 30 and 45 minutes. It could potentially take longer depending on the adaptation or shorter if the players have already played the game before.

Ethics & Privacy

There are no concerns about ethics and privacy from a player perspective. Importantly, since the game introduces the topic of invisible metadata creation, players' awareness should increase in terms of ethics and privacy, especially regarding their personal data.

Physical Requirements

There are no particular physical requirements to play the game. The board should be printed in A3 to be big enough to be read properly.

Adaptations

The 'challenge rule' and an extra set of cards have been provided as adaptations of the game. The 'challenge rule' involves testing players' knowledge on data type if some of them fall behind too much. The extra set of cards provides more daily life examples of data production and can increase the difficulty of the game if necessary.

For workers: the rules of the Data Iceberg are based on a memory game and are easy to understand. **Reasons to play this game in a professional context:** (1) Data Iceberg can be a good icebreaker. (2) Engaging in a playful activity provides a safe and fun way to introduce your colleagues or employees to basic data literacy concepts, and initiate further discussions on the topic. A web-game is also available should the players wish to further their learning on data literacy in a playful way.

Before Playing

Before playing, the cards should be properly shuffled before being placed down on the table. If the cards are not properly shuffled, then the matching pairs would be close to one another. Even if players can brush up their knowledge on data types during the game, they should read how it is defined in the game rules to avoid any confusion.

Characteristics of Different Target Groups

Young Adults

The game is fit to be played by young adults. Being the population interacting the most with connected objects, playing the game should notably increase their awareness of the existence of invisible metadata.

General Adults

General adults would enjoy playing this game as the rules are very easy to understand and knowledge would be acquired fast. Children could lack the requirements to understand the type of data, but the memory aspect of the game could make it a fun and pedagogical family activity.

Workers

The game is relevant to workers as their company or institution would most likely encounter all types of data displayed in the game on a daily basis.

Seniors

The game is fit to be played by seniors; the cards and the board have been designed to be easily readable. As the most experienced population, they most likely encounter most, if not all, situations displayed on the cards.

Other Aspects

Overall, the game is a very good icebreaker. The simplicity of the rules makes it an excellent introduction to any sort of group activity with people willing to learn more about data. Data Iceberg is also interesting to develop and train cognitive abilities such as short term memory.

Relating Digital Activity with Opportunities to Learn About Ourselves

DALI Framework

- **Element:** Acting on Data.
- **Sub Element:** Collecting Data.
- **Skill:** Use External Devices / Apps to Collect Data.

Learning Indicators

After playing this game, players should have better awareness about online behaviours, their benefits and their consequences. They should also have a better understanding of data collecting platforms.

Game Inspiration

- **Games:** The Goose Game.
- **Rules & Mechanics Reflected:** The player throws the dice to move their token through the board.
- **Elements & Materials Reflected:** Board, tokens, and dice.

Protearn Your Data!

Game Description

The game features a board and multiple data cards displaying various situations that anyone could encounter while performing digital activities. By collecting data cards and guessing their corresponding icon cards, players receive points while reflecting on their own online behaviours. Most situations described on the data cards are rather common and should be relatable to any type of player, whether they have a strong online presence or not.

Epistemic Design

Objective of the Game

Be the player with the most points when the game ends.

Game Mechanics

- Roll 1 x 6-sided Dice >> If You Roll 1-4 >> Movement >> Draw >> Assign >> Next Player.
- If You Roll 5-6 >> Next Player.

Rules

1. Dice Roll

Each turn starts with the player rolling 1 x 6-sided dice (1d6). A result between 1-4 will allow the player to proceed and play out the rest of the turn, while a result of 5 or 6 will be too high and the player will have to pass the rest of their turn.

2. Movement

If the result is below 5, the player moves their token by a number of boxes equal to the number represented on the dice that was previously rolled.

3. Draw

If the player lands on a box with an icon, they must draw a corresponding card. If the card drawn is a data card, they display it in front of them. If the card drawn is any other card, they can either play it or keep it in their hands.

4. Assign

Players earn points by covering the data cards they collect with their corresponding icon cards. Whenever during the game, players can reflect on a situation displayed on a data card and, if they think they have the corresponding icon card, they can choose to cover said data card with it.

5. Winning the Game

As long as a player has not reached the end box on the board, the game keeps going. Whenever a player has reached the end of the board, each player counts how many data cards they appropriately covered. Each data card appropriately covered counts as a good answer. The player with the most good answers wins the game.

Estimated Playing Time

Between 45 minutes and 1 hour, depending on the number of players and how they decide to win the game.

Ethics & Privacy

There are no real concerns about ethics or privacy from a player perspective while playing the game. However, it is important to note that the players will most likely reflect on the morality of some specific online behaviours while playing the game.

Social Design

Social Aspects

The game has no particular strong social component to it. Since it is every player for themselves and given that it is possible to steal cards from other players, playing 'Protearn your data!' could be quite competitive.

Number of Players

A minimum of 2 players and a maximum of 4 players at the same time.

Roles

Players do not need to take on any particular roles to play this game. The presence of a facilitator could help establish a pace of the game, but it is not an absolute necessity.

Physical Requirements

The players are required to throw a dice and draw cards, otherwise, there are no specific physical requirements to play the game. The board does not have text on it and should not need to be turned around to identify the different boxes that the players can land on.

Adaptations

Adaptations have been designed as follows:

- For the young: smaller size of cards.
- For workers: contextualization of the game against workers' skills.
- For general adults: blank data cards to be completed by players.

Before Playing

Before playing, if a dice is not available, one of the players should look for a website that can ask for a random number between 1 and 6. This can be achieved in various ways and should be easily found after a very quick research. Tokens to represent the players' position can be created from pieces of paper or through using different small objects (penny, paperclip, folded post it, etc.). Data cards should be shuffled properly.

Characteristics of Different Target Groups

The game is relevant for the different target groups because it answers to their specific profiles in diverse ways:

Young Adults

The game includes references to activities with social media and digital apps, which are normally carried out in the daily life of young adults.

General Adults

The game allows personalization so that general adults can enjoy the possibility to adapt the game to their unique context, including children and diverse sociocultural contexts.

Workers

The game allows enacting agentic abilities that can be useful for workers to improve their professional skills.

Seniors

The game includes extra material and an example card that can be useful for seniors.

Set Design

Game Materials

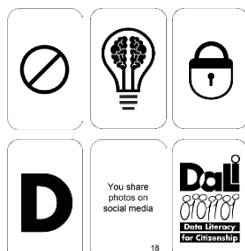
Board

Without counting the starting position, there are a total of 48 boxes in this 6x8 board. All of the filled boxes have different icons that are also featured in the cards.



Cards

Cards have 5 different backs: forbidden, bulb, lock, data and DALI. Each card has a different purpose, and only the data cards have text on the front. There are 72 data cards in total, 24 can be paired with a forbidden card, 24 can be paired with a bulb card and 24 can be paired with a lock card.



Other Aspects

Depending on the profile of the players, it could be useful for the facilitators to encourage players to help each other and debate when they are covering their data cards with different icon cards. **If the players are not very competitive, these conversations might be spontaneous and** would not need to be encouraged. If the game is played as an ice breaker with players who do not know each other, it might be more suited to not encourage this sort of debate; however, if the players know each other and have a clear intent of knowing more about data, it could help their learning.

Save and Manage Data and Time

DALI Framework

- **Element:** Acting on Data.
- **Sub Element:** Managing Data.
- **Skill:** Creating, editing and storing simple file formats like .txt or .xsl to manually insert the data.

Learning Indicators

Players' boards are an indicator of learning. Through their boards it could be observed how players interpret, represent and manage data.

Game Inspiration

- **Games:** Nobel Run.
- **Rules & Mechanics Reflected:** Cards are placed in the centre of the table, and each player takes turns selecting cards that are visible to all players.
- **Elements & Materials Reflected:** Negative cards that penalise players.

DALicious Week

Game Description

DALicious Week is a multiplayer game focused on the managing of time and data while sharing activities with others. The main goal is to achieve your "ideal week" by efficiently organising your schedule and engaging in activities related to energy, rest, exercise, and love. Each round represents a day of the week, and players take turns selecting activity cards from the centre. These cards offer various advantages such as earning action points or influencing other players. The game fosters learning by observing how players interpret, represent, and manage data through their personalised boards. With the inclusion of normal, collective, and harmful cards, strategic elements and dilemmas are introduced, creating an engaging experience. Although the game is competitive, collaboration can emerge through the utilisation of collective cards. DALicious Week caters to a diverse range of players, including young adults, general adults, workers, and seniors, with the flexibility to adapt to their specific characteristics.

Epistemic Design

Objective of the Game

The goal of the game is to complete your "ideal week", managing your time, and what every activity provides you with (energy, rest, exercise and/or love).

Game Mechanics

Turn Order Mechanic

At the beginning of the game, the turn order is established and remains consistent throughout. There are three alternatives provided in the game's instructions to determine the starting player; the player with the most installed apps on their phone, the player with the highest screen time from the previous day, or using a web-based raffle tool like <https://wheelofnames.com>. Once the starting player is determined, the turns proceed in a clockwise direction for the remainder of the game.

Random Production Mechanic

Resources in the game are generated through a random process, with players not knowing which cards will be available in the playing area. These resources are then distributed to qualifying players.

Each Player's Turn

During their turn, players engage in a drafting mechanic. They choose cards from the centre that collectively add up to a maximum of 5 hours. Players can select one or more cards from the options available. However, no new cards are added until the player's turn is completed. If a player chooses not to use all 5 hours, they can save the remaining hours to be spent on the following day, recording them on their board.

After choosing cards, players must play them, taking various actions such as adding points to their board (Action points), inviting another player with a collective card (Action points & Event), or using a card that harms another player (Event). Once these actions are completed, the player's turn is finished and the corresponding number of new cards is added to the centre for the next player.

Each round concludes when all players have taken their turns. It's important to note that players may need to fill their boards multiple times within a round, for example, if they are invited to an activity. Points earned should be recorded in the same column on the board to reflect that it is the same day.

Players aim to fulfil the table on their boards according to their graphics, working towards special goals that go beyond simply being the first to complete them. These goals require coordination and planning. In this game, the progress of each player's board is public, allowing all players to compete and see each other's progress.

Estimated Playing Time

10 to 25 minutes. Depending on the number of players.

Rules

As the game represents a week in the player's life there will be 7 rounds, with each round representing a day of the week. Each day there will be as many turns as players.

Defining Objects and Concepts

Each card represents an activity you do in your week and it takes up some of your time, but it can make you feel better in other aspects of your life.

Restricting Actions

- You can't spend more than 5 hours per day, unless you are playing with leftover hours.
- You must share what a collective card provides you with, minimum, another player.
- You should choose the cards which are displayed in your turn.

Ethics & Privacy

In this Game Based Network Learning System (GBNLS), there are several ethics and privacy considerations embedded in the game. Firstly, the game respects the privacy of players by not requiring or accessing personal data from their devices. The determination of turn order is based on non-intrusive criteria such as the number of installed apps or screen time, ensuring the privacy of players' personal information. Secondly, the game promotes fair play by following a random production mechanic for generating resources, where players do not have advance knowledge of the cards available. This randomness prevents any unfair advantage or bias. Additionally, the game encourages collaboration and sharing through collective cards, emphasising the importance of cooperation among players. Lastly, the game acknowledges conflicts and dilemmas, reflecting real-life ethical considerations in decision-making, as players must carefully choose cards that align with their goals while potentially impacting others.

Social Design

Social Aspects

DALicious week is primarily an individual game designed for a single player to win. However, the presence of collective cards and harmful cards is intentionally incorporated to foster social interactions among players. These cards introduce dynamics where players need to comprehend how the generosity or "misfortune" of others can impact their weekly benefits as well as the data they must manage in their charts.

Number of Players

This is a multiplayer game, so there should be at least two players. The game is competitive as it is player versus player, meaning all of the players want to win the game. Even though it is competitive, some collaboration between players arises as a consequence of the collective cards. Players only can get points from collective cards if they share the same amount of points with, at least, one other player.

Roles

There are no differentiated roles in this game.

Set Design

Game Materials

Board

There are 5 different types of boards, also blank templates which allow players to create their own boards. It's not essential to print the board because you can create your own with a sheet of paper, or by writing on the PDF.

36 Normal Cards

Normal cards have an icon in the centre that gives a clue to the type of activity that will be carried out in that free time. In the top left corner, next to the hourglass, the number of hours the player will spend on that activity, and at the bottom, the benefits that activity will bring in terms of energy (the number next to the battery), rest (number next to the hammock), sport (number next to the running shoe) and affection (number next to the hands with the heart).



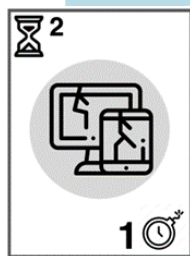
10 Collective Cards

Cards with the silhouette of a group of people in the top right-hand corner are collective cards. These cards allow you to share an activity with other players. Each time a player chooses that card, they must share it with at least one other player and no more than two other players. This means that all the benefits of that activity (energy, sport, rest and health) will be added to the week of all those who do it. Guest players enjoy the benefits but do not spend hours of their time on this activity, so it acts as "extra" hours for their benefit.



20 Harmful Cards

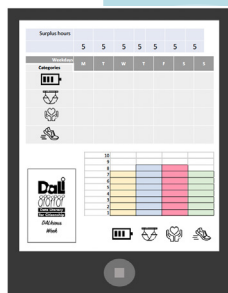
Harmful cards can be donated to another player and cause them to lose time due to an unexpected event. The number next to the hourglass (top left corner) is the time the player spends by choosing this card, and the number next to the bomb clock (bottom right corner) indicates the hours the player receiving the card loses from their 5 hours of free time per day. In the case exemplified the player spends 2 hours of his time to donate a computer malfunction to another player that will cause him to lose 1 hour of his time.



Scenario/Arena

In the case of this game, the board of each player is completed with what the player gets from the cards. Each player needs a board. Boards can be distributed randomly, choosing them by turns or being designed by each player (blank boards). It's not required that each player has a different board, they can be repeated.

The board has two main parts: the top part includes the 5 hours that each player has to do activities each day, plus there is a box on top to include those extra hours that have not been spent on previous days and that can be accumulated. This upper part has 8 columns, seven corresponding to the 7 days of the week and 4 rows corresponding to the categories of benefits provided by the activities being carried out, from top to bottom, energy (identified with a battery), rest (identified with a hammock), love (identified with hands and a heart) and sport (identified with a running shoe). These boxes are to be filled in as the player chooses and performs activities.



At the bottom of the board is a section showing the player's ideal week, which is filled in at the beginning of the game (if it is not pre-filled) by distributing 30 hours among the different benefits according to the player's own preferences or the instructions offered. These boxes should be ticked at the end of each day, when we have gained the total benefits offered by the activities carried out that day.

All the different kinds of cards are shuffled together and they are left together in a deck. Each time is a player's turn, the following should be in the centre:

- 4 cards face up if you are 2 players.
- 6 cards face up if you are more than 2 players.

Physical Requirements

Any situation in which all the players are able to place a board (it could be in a piece of paper or their devices) and cards in a shared space for all players.

Adaptations

This game was designed for general adults, nevertheless, for each target group you can play introducing some adaptations to this.

- **Young Adults**
 - Completing the ideal week in an online spreadsheet
- **Workers**
 - Presentation on instructions which explains why this game is appropriate for this context
- **Seniors**
 - Presentation on instructions which explains why this game is appropriate for this context
 - Size of the cards

Before Playing

Take advantage of each moment in the game to reflect on the elements presented during each phase. When discussing the boards, emphasise the significance of maintaining a balanced use of leisure time that aligns with our individual expectations and lifestyle. Throughout the game, emphasise the importance of interpreting the content of the cards and encourage players to verbalise their intended actions, such as saying, for example: "I'm going to watch a movie with Laura." Additionally, encourage players to reflect on the implications of harmful cards and the strategic decisions they make. Stress the importance of recording data for each activity and filling out the board to create the ideal week. By doing so, players can actively engage with the game and foster deeper insights into their time management and decision-making processes.

Characteristics of Different Target Groups

Young Adults

DALicious Week is relevant for young adults as it emphasizes time and data management while encouraging shared activities. Players aim to achieve their "ideal week" through energy, rest, exercise, and love-related tasks. The game promotes data literacy and strategic thinking with various cards, fostering engagement and collaboration among players in a competitive yet cooperative environment.

General Adults

The game fosters learning in data literacy through personalized boards and introduces strategic elements with normal, collective, and harmful cards, encouraging collaboration and engagement among players of various age groups and backgrounds.

Workers

DALicious week enhances people's abilities to illustrate and manage simple data, but can also generate conversations among colleagues and create spaces for teamwork and informal dialogue about free time, the importance of some factors to increase mental health, wellbeing, etc.

Seniors

DALicious Week can help seniors to revitalise their ability to handle data dynamically. The format of charts and dashboards offers a way of organising data that may be novel for certain age ranges and can also be used to understand simple data that appears on most dashboards offered by digital tools.

Other Aspects

In the case of this game, when a harmful card is brought into action the mechanic is changed because a player won't own the same number of hours to spend in their next turn.

Data Flux and Collaboration

DALI Framework

- **Element:** Engaging Through Data.
- **Sub Element:** Data Advocacy.
- **Skill:** Understanding your influence on peers or stakeholders to help them understand the potential and applications of data.

Learning Indicators

Players are able to understand each other's clues. Also, they should apply their creativity based on their knowledge of data in order to give clues.

Game Inspiration

- **Games:** Hanabi.
- **Rules & Mechanics Reflected:** Hanabi. Players are aware of other players' cards but not their own and attempt to play a series of cards in a specific order.
- **Elements & Materials Reflected:** Cards with numbers and categories.

DATABI

Game Description

DATABI is a cooperative card game where players engage in a joint effort to achieve sequential ordering of the five piles of cards following the four levels of data processing. Inspired by the game Hanabi, players are not allowed to see their own cards, creating a unique mechanic of "all players against the game". Throughout the game, players must give clues to describe the kind of data other players possess, leading to discussions about privacy. The game promotes understanding of one's influence on peers or stakeholders and encourages reflection on the potential and applications of data. The game fosters collaborative play and can be adapted for different target groups. DATABI provides an opportunity for players to develop their understanding of data and engage in strategic decision-making while working together as a team.

Epistemic Design

Objective of the Game

Databi is a cooperative game, which means all players are on the same team. The team's goal is to achieve sequential ordering of the four levels of data processing in each of the categories. Therefore, 5 piles of cards will be created on the table, one per category, and

together all players will have to complete the five piles with the cards following the order of the data processing levels.

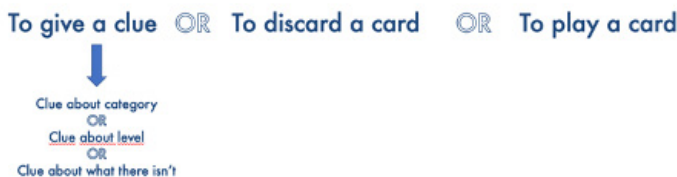
Game Mechanics

There are different ways to decide who starts:

- The player who has the most applications installed on their phone.
- The player who has spent the most screen time the previous day.
- Or you can select a random name on the web (for example: <https://wheelofnames.com>).

After that, play moves clockwise for the rest of the game.

Each turn the player should choose between these 3 actions:



To Give a Clue

Each time you give a clue you should tell the other player which card or cards you are referring to. If your clue is a condition that several cards of the other player include, you must point to all the cards that follow that condition. You can give only one clue to a player per turn. The clue can be any of the following options:

- **Clue About a Data Category**

The player who gives the clue should look for a way to describe the data category, BUT they aren't allowed to mention the name of the category.

Example

From Laura's four cards, two of them are from the Nature category, another from the Learning category and another from the Economy category, so I give a clue about the Nature category, "You take this date into account when you go on a trip to the mountains". If Laura understands me correctly, she will understand that the two cards I pointed to while I was saying the clue are from the Nature category.

- **Clue About a Level of Data Processing**

The player who provides the clue can say directly which level of data processing the card or cards belong to, collecting, analysing, sharing or publishing.

Example

From Laura's four cards, three of them belong to the Collecting level and another one to the Sharing level, so I point the cards from the Collecting level and tell her that those three belong to that level.

- **Clue About What There Isn't**

You can also give clues about what a player doesn't have among their cards.

Example

In the previous example, I can indicate to Laura that she doesn't have any card of the Publishing level.

Don't forget to take note when you use a clue.

To Discard a Card

You can't see any of your cards until you decide to discard them. Once you decide to discard it, you put the card face up, so all the players can see it, even you, and leave the card on the discard pile. Don't forget that discarding a card leads to gaining a clue, so write it down on your notepad to keep track of the clues.

To Play a card

When you play a card to put it in a central column, two situations can happen:

1. **The Chosen Card is Correct**

Congratulations! Take a new card without looking at it, and it's the next person's turn.

2. **The Chosen Card is Incorrect**

Oh no! You all lose a life. Take a new card without looking at it, and it's the next person's turn.

The Game can Finish in Three Different Ways:

1. You have each lost all of your lives. Sorry, game over. This is the only way you can lose.
2. You have all completed all of the categories... Winners!
3. Someone has picked up the last card from the deck, the game is almost over. It's the final round. After that, you should count the points; gain one point for each card which has been played correctly.

Rules

Shuffle the cards. Depending on the number of players, you should distribute the following number of cards to each person:

- **2 to 3 Players:** 5 cards each.
- **4+ Players:** 4 cards each.

Unlike other types of card games, within DATABI you are not allowed to see your own cards. Therefore, each player should hold their cards with their backs facing towards them. By doing this, the card faces should be visible to all of the other players, but not yourself.

Defining Objects and Concepts

Data category



Nature



Economy



Physiological



Learning



Social media

Level of data processing



Level 1: Collecting Data



Level 2: Analyzing Data



Level 3: Sharing Data



Level 4: Publishing Data

The life and clue board includes these elements of the game, that are shared by all the players:

Clues

Each player begins the game with 10 clues. You have to note down each time that a clue is used, for example, by crossing out a magnifying glass on the recording sheet, or hiding it with one of the small objects. You also need to note down when you win a clue. For example, you can move a small object back and forth to track the clues you have, or you can write it down in the blank space provided. Each player starts the game with 3 lives. Once lost, these lives cannot be recovered. Cross out a heart each time you lose a life. If you don't have the life and clue board don't worry, you can always use a paper and a pen or even the notes of your phone to write this information down.

Estimated Playing Time

25 to 45 minutes.

Ethics & Privacy

In DATABI, the ethics and privacy aspects come into play as players are required to describe the type of data owned by other players. This can spark discussions about the privacy of our personal data. The game encourages players to be mindful of the sensitivity and privacy of data while engaging in collaborative problem-solving.

Social Design

Social Aspects

DATABI is a highly social game centered around teamwork and collaboration. The primary goal is to win together as a team, emphasizing the significance of communication and understanding the complexity of data processing.

Number of Players

2 to 6 players.

Roles

In this game, there are no specific roles assigned to individual players; instead, all participants are considered equal members of the team, with the collective group acting as the "real player." This approach emphasizes the importance of teamwork and collaboration, as the team's success is dependent on the joint efforts of all its members.

Physical Requirements

Any situation in which all the players are able to place cards in a way that they can't see their own cards, but the rest of the players can. Besides this, the players will need a common space where cards can be placed, and all of the players can see them.

Adaptations

This game was designed for general adults, nevertheless, you can adapt the game for each target group in the following ways.

- **Workers**

Provide a presentation on instructions which explains why this game is appropriate for this context.

- **Seniors**

Provide a presentation on instructions which explains why this game is appropriate for this context. Utilise the memory helper.

- **Other**

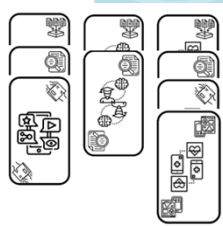
The instructions include some ideas on how to make the game more difficult.

Set Design

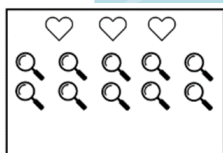
Game Materials

45 cards divided in 5 categories. In each category there are:

- 3 cards from Level 1 Collecting data, so 15 in total in all categories.
- 3 cards from Level 2 Analysing data, so 15 in total in all categories.
- 2 cards from Level 3 Sharing data, so 10 in total in all categories.
- 1 card from Level 4 Publishing data, so 5 in total in all categories.



A life and clue board or something to take notes (e.g., a notepad) Only one life and clue board is used for all players.



A memory helper for each player that requires one.

	1	2	3	4

Before Playing

Please remember in DATABI, while completing the sequence of cards is important, the true essence of the game lies in the ability to effectively communicate and make others understand the significance of each category and its corresponding level of data processing. The game serves as a platform to raise awareness about our influence on others and how we can help them recognise the value and potential of their own data. It challenges players to articulate the meaning behind each action and foster a deeper understanding of data's impact.

Characteristics of Different Target Groups

Young Adults

DATABI is relevant for young adults as a cooperative card game that promotes data literacy, strategic decision-making, and teamwork. Players work together to achieve sequential ordering of cards representing data processing levels, encouraging reflection on data privacy and applications. It fosters understanding of data influence on peers and adapts to different target groups.

General Adults

The game is relevant to general adults as a cooperative card game that enhances data literacy, teamwork, and strategic thinking. Its unique mechanic of "all players against the game" creates engaging discussions about privacy and data applications, making it adaptable for various target groups.

Workers

This understands the potential and applications of data, but also helps to consolidate cooperation dynamics and help coworkers to create dialogues and to improve their language to cooperate on complex tasks. It is also perfect for team building and team cohesion.

Seniors

DATABI will help players understand how the data that surrounds them is being processed and how this processing affects their lives, thanks to the examples provided by their friends.

Other Aspects

There is no single winner in DATABI, either all of the players win, or nobody does.

Using Simple Escape Rooms for Education

DALI Framework

- **Element:** Engaging Through Data.
- **Sub Element:** Data Advocacy.
- **Skill:** Understanding your influence on peers or stakeholders to help them understand the potential and applications of data.

Learning Indicators

Players will be more aware of the importance of secure passwords, data literacy terms, and concepts.

Game Inspiration

Escape rooms are a well-known gaming paradigm. The influences for the Dali Escape Room stem more from code-breaking and heist movies such as *The Imitation Game* or *Die Hard*, where breaking a code leads to an ultimate goal.

Dali Escape Room

Game Description

For ease of accessibility, the Dali Escape Room is an entirely paper-based experience which primarily promotes the use of secure passwords. Whilst playing the escape room, players will encounter data literate words and concepts before hopefully discovering the solution, which helps define data literacy itself.

Epistemic Design

Objective of the Game

Break the code and learn the series of passwords used to unlock the vault of multi-billionaire Bill Jobsmusk.

Game Mechanics

- Solve Puzzle x 1 >> Solve Puzzle x 2 >> Solve Puzzle x 3 >> Solve Puzzle x 4 >> Solve Puzzle x 5, Solve Puzzle x 6 >> Solve Puzzle x 7 >> Solve Puzzle x 8 >> Decipher Code Sentence >> Escape Room Complete.

Rules

The Dali Escape Room has just one rule, the players must complete the game within an allotted time frame. It is recommended that this timeframe is set to 45 minutes, beginning the moment the players look at the first puzzle. However, this can be increased by facilitators should they wish to give their players more time.

Estimated Playing Time

Approximately 1 hour.

Ethics & Privacy

There are no ethical or privacy issues associated with the Dali Escape Room.

Social Design

Social Aspects

The Dali Escape Room is a team-based exercise ideally suited for 2 to 6 players. Player's should be encouraged to work together, utilising their communication skills to inform each other of their ideas and possible approaches toward finding a solution for each individual puzzle. If player's become stuck, facilitators should try to offer them information in a manner which does not completely give the answer to the puzzle away. Making statements such as 'I wonder if item A goes with item B' often helps to focus and concentrate the players mind whilst allowing them to solve puzzles themselves.

Number of Players

The Dali Escape Room has been designed for 2 – 6 players.

Roles

Players take on the role of codebreakers who must decipher words hidden within a series of puzzles. The game also requires a facilitator. It is the job of the facilitator to introduce the game's background story, keep time, assist the players when they get stuck, and answer any questions that the players may have about data literacy when they arise.

Physical Requirements

As the Dali Escape Room is primarily based on word puzzles, player's must be literate in order to play the game. Beyond this, an aptitude for teamwork and the ability to communicate well is of benefit.

Set Design

Game Materials

The game's materials are all paper-based and require printing onto sheets of A4 paper. Some materials require cutting out, where this is the case an icon showing a pair of scissors is displayed upon the page. The following materials are included.

Crossword

A crossword focussing on digital literacy terms and their meaning. Specific spaces within the crossword are marked with red circles. By solving the crossword players can use the letters in the marked spaces to decipher a keyword.



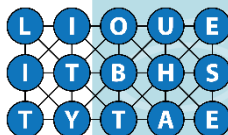
Word Alignment

A series of words with a grey background printed onto strips of paper. When placed one above the other in the correct position, both horizontally and vertically, a word will be revealed.



Word Grid

A grid of letters upon which players must trace a specific path in order to reveal some keywords.



Bonza Puzzle

A crossword puzzle broken into tiny pieces, each containing at least 2 letters. Players must piece together the puzzle, like a jigsaw, in order to reveal the keyword.



Vigenere Code

A genuine cipher system, the Vigenere code has 3 components that must be used together in order to decipher 2 keywords. Whilst the puzzle looks complex, once players understand the system used, solving the puzzle becomes simple.

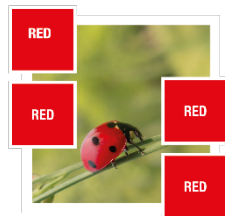


L I T E R A C Y

E W G E M I I Y E M

Pictures & Colours

A series of images showing items of a specific colour, and small coloured squares. By taking the first letter of each of the items within the images and matching the colour to the number of corresponding squares, players can decipher 2 keywords.



Odd Word Out

Six strips of paper with blue backgrounds and words printed upon them. Players must uncover which word is the odd one out. The solution to this puzzle is surprisingly simple, in fact it is written on the puzzle itself!

C R E A T E
A N I M A T E
D I G I T A L
C I T I Z E N S H I P
P R I V A C Y
R E L E V E N C E

Missing Vowels

A simple grid of squares, each of which contain a letter. Players must add in the missing vowels to decipher what is being said to them.

T	H	S	N
F	R	M	T
N	S	K	Y
T	S	L	V
N	G	T	H
P	Z	Z	L

The Rebus

A sheet of paper with images, mathematical symbols, and letters printed upon it. Player's must decipher the code to uncover the order of the keywords that they have discovered within all of the other puzzles.

This will provide them with a sentence related to the meaning of data literacy.

-sh+ -wa+, t+ -lf+, a=i+,
p=e+h+ v=, -ba+ -sto+
-di+, -lph+, f+ x=u+ -am+,
-ro+ y=v+.

Adaptations

As it is constructed from a series of interlocking puzzles, adapting the escape room is exceptionally problematic. Changing one puzzle may well break the entire game. For this reason there are no adaptations to be made beyond providing players additional time to complete the escape room should you wish to.

Before Playing

The Dali Escape Room requires a little work before it is ready to play. Each of the elements should be printed out onto A4 paper. Some elements, marked with a scissor icon, also require cutting out. Where the scissor icon is seen, cut each item to the outer edge of its black or white border. For example, in the puzzle Odd Word Out, you should end up with 6 separate strips of paper, each with individual words written upon them.

It is also recommended that all of the puzzle components be mixed up, and then placed into an envelope which can be handed to the players.

Prior to beginning the game, provide the briefing, which can be found within the game's instructions. Ask if everybody is ready to begin and tell them they have 45-minutes from the moment they open the envelope to complete the game.

Characteristics of Different Target Groups

Young Adults

The game is relevant to young adults as it caters to their inquisitive nature. Young adults are more likely to recognise and enjoy the games format than any of the other target groups.

General Adults

This game should appeal to general adults due to its puzzle-based design.

Workers

Due to the amount of time required to play this game it may not be as appealing to workers as the other target groups. However, workers will still gain a sense of achievement, and hopefully additional knowledge through solving the puzzles presented to them.

Seniors

Whilst seniors are the target group least likely to have encountered an escape room before, they are possibly the group that the Dali Escape Room will appeal to the most. Whilst it seems like a stereotype, seniors are notorious puzzle solvers, and the puzzle elements of the escape room should appeal to them a great deal. This, combined with

the social aspects of working as a team, and communicating with each other, means that the Dali Escape Room may act as the ideal educational tool for seniors.

Other Aspects

Please see the game's instructions for information on how to facilitate the escape room, and solve its many secrets!



Dali



Data Literacy for Citizenship



UNIVERSITY
OF BERGEN



SLATE



Coventry
University



Universitat
de les Illes Balears



Friedrich-Alexander-Universität
Erlangen-Nürnberg



Institut für
Lern-Innovation



Erasmus+

DALI: Data Literacy for Citizenship

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