



Building AI responsibly for mental healthcare



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Congress 2022





A workspace for therapists to provide  
**effective and efficient care**



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84 million

People in EU with mental health problems / year

[source: [oecd](#)]

350.000

Registered psychologists in EU

[source: [EFPA](#)]

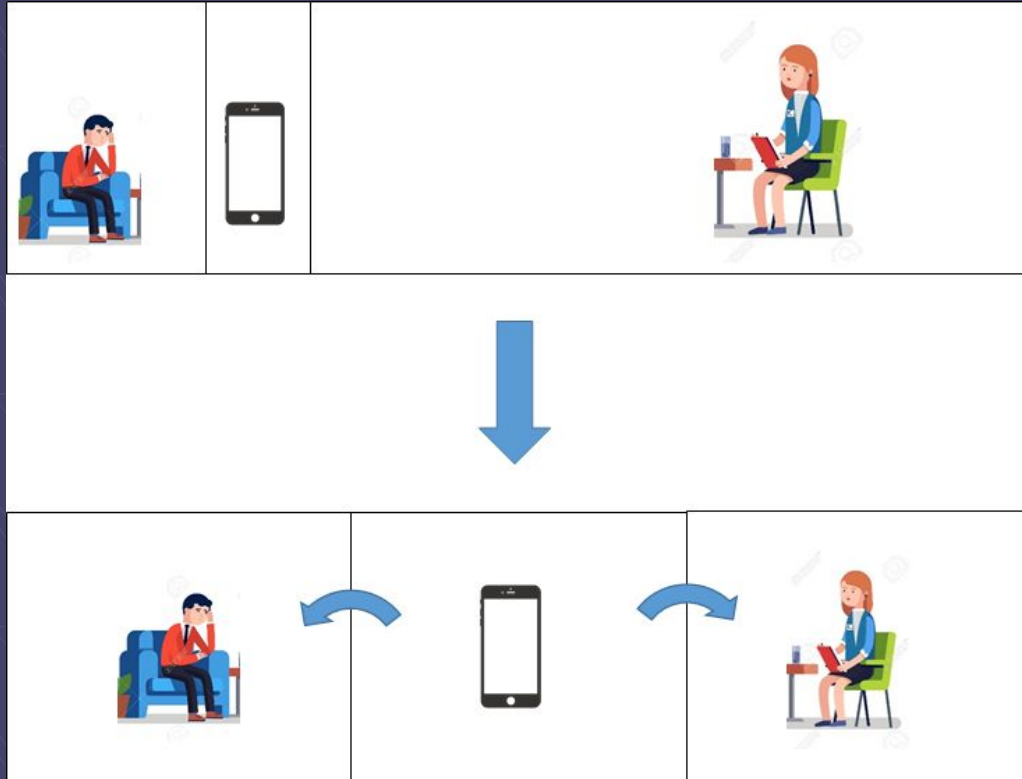


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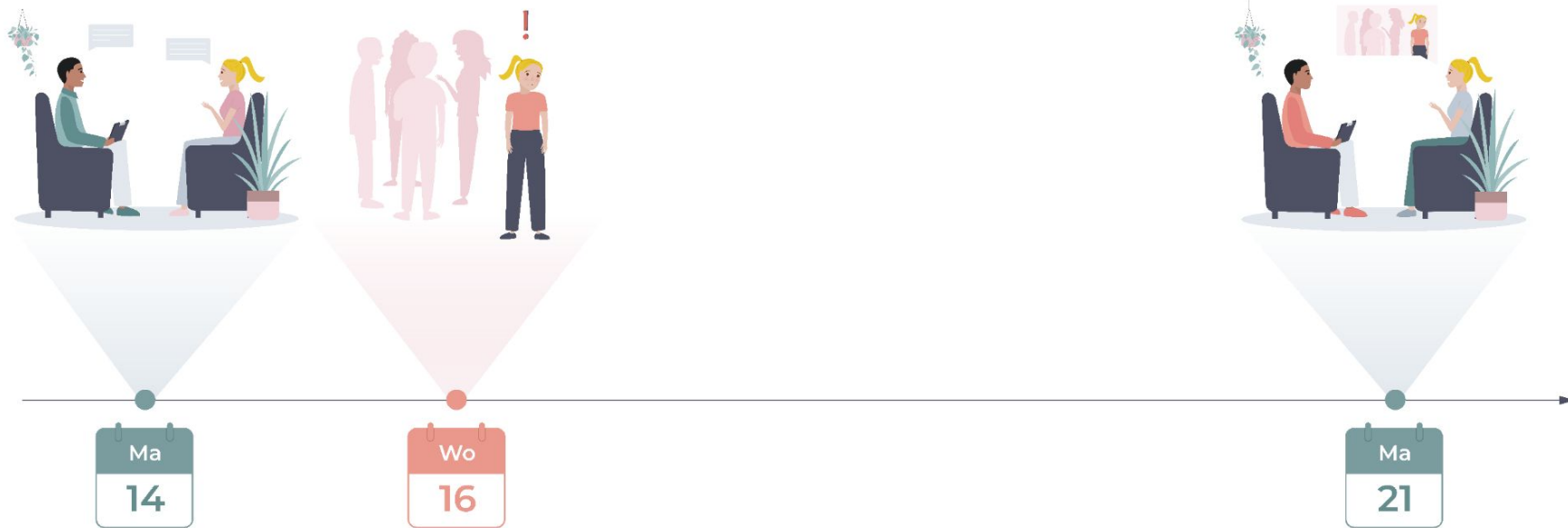
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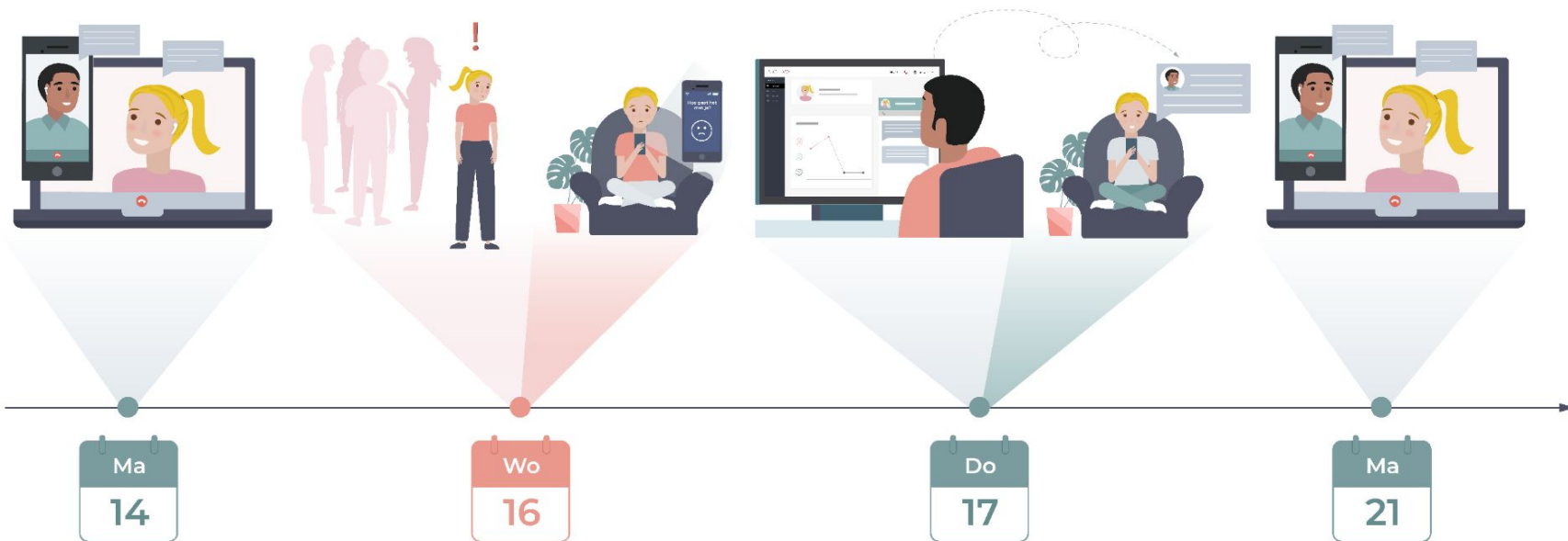
# Make mental healthcare more cost-effective and efficient



# Traditional Care



# Care with NiceDay





Make **each** therapist as good as the **best**



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## Measure

Effectiveness of treatment in  
NiceDay

Measure

Way of  
working

Implement

## Implement

Make every therapist as good as  
the best therapist

Generate  
Insights

## Generate insights

Create insights that indicate what the  
best treatment practices are



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 Niceday



# Bringing AI beyond a research setting

> 63.000 treatments

> 2.000 therapists



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Our journey towards responsible AI



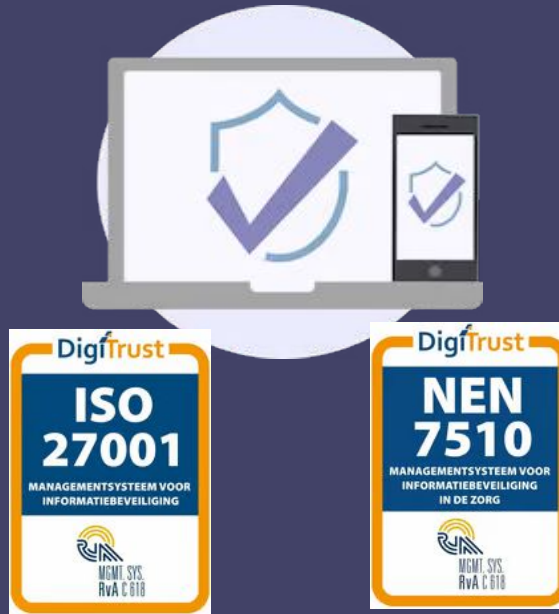
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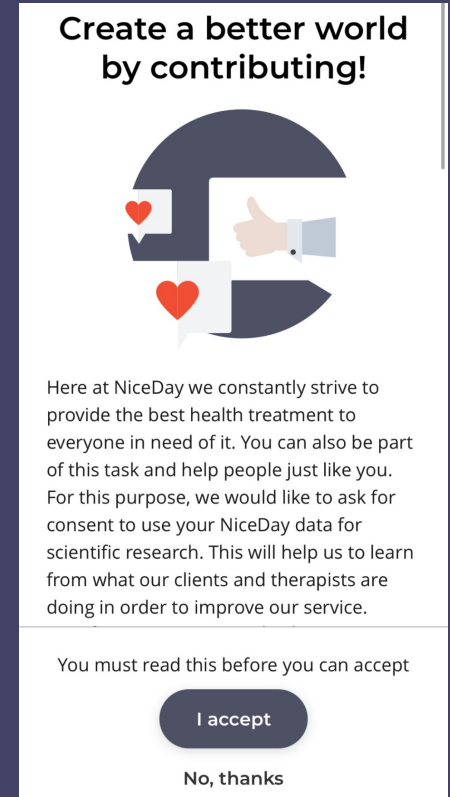
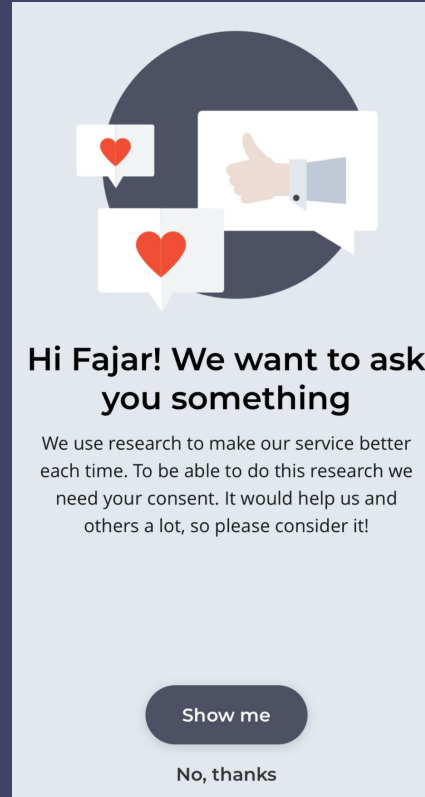
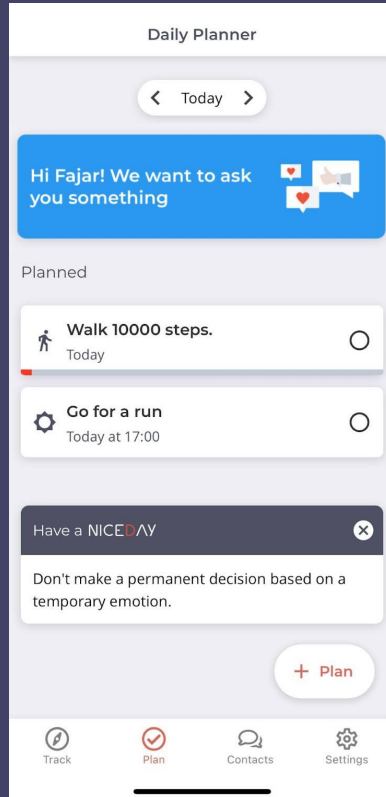
# Strong foundations

2017



2018

# Explicit Research Consent



# Insights with Domain Expert

2019

nd_way_score	i1	i2	i3	i4	i5	i6	i7	i8	i9	i10	i11
80.24%	0.54	0.79	0.84	0.88	0.48	0.91	1.00	1.00	1.00	1.00	0.82
73.44%	0.27	0.89	0.78	1.00	0.30	1.00	1.00	1.00	1.00	0.72	0.33
72.25%	0.45	0.67	1.00	0.88	0.05	0.84	1.00	0.98	0.99	0.91	0.63
71.50%	0.00	1.00	1.00	0.78	0.00	1.00	1.00	1.00	0.83	1.00	1.00
70.72%	0.00	0.81	1.00	1.00	0.36	0.77	1.00	0.73	1.00	1.00	0.48
69.45%	0.00	0.74	1.00	0.75	0.04	0.98	1.00	1.00	1.00	1.00	1.00
68.81%	0.60	0.72	1.00	0.49	0.04	0.92	1.00	0.94	1.00	1.00	0.36
67.97%	1.00	0.72	0.55	0.54	0.13	0.78	1.00	0.94	1.00	0.94	0.37
65.43%	0.66	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.56	0.71	0.71
65.42%	0.00	0.89	0.45	1.00	0.48	0.83	1.00	0.57	1.00	1.00	0.60
64.91%	1.00	1.00	0.39	1.00	0.00	1.00	1.00	0.59	1.00	0.00	0.00
64.13%	0.93	0.63	0.64	0.67	0.28	0.56	0.78	0.83	1.00	0.60	0.27



# AI based client prioritization prototype

2020

The screenshot shows the Niceday web application interface. At the top, it says 'Good afternoon, Henk' and 'Here is your overview of today'. Below this, there are two summary cards: '3 New connection requests' and '8 Inactive clients', each with a 'View all' button. The main section is titled 'Priority clients' and lists several clients with their names, profile pictures, and various risk indicators. The clients listed are Iris van Megen, Peter Vendrik, Sandra de Mol, Carol Aerts, Bertie Castillo, and Max Smits. Each client entry includes a percentage (e.g., 15%, 23%, 31%, 55%, 60%, 70%) and a list of specific concerns or actions (e.g., 'Use of suicide related words', '4 days since the last login', '3 panic attacks in the last 2 days', 'Increased smoking in the last 2 days', '40% sad on last registration'). The interface also features a sidebar with navigation options like Dashboard, Library, Helpdesk, and Webinars, and a search bar for clients.

Client	Percentage	Priority Indicators
Iris van Megen	15%	Use of suicide related words.
Peter Vendrik	23%	4 days since the last login.
Sandra de Mol	31%	3 panic attacks in the last 2 days.
Carol Aerts	55%	3 days since last registration.
Bertie Castillo	60%	Increased smoking in the last 2 days.
Max Smits	70%	40% sad on last registration.



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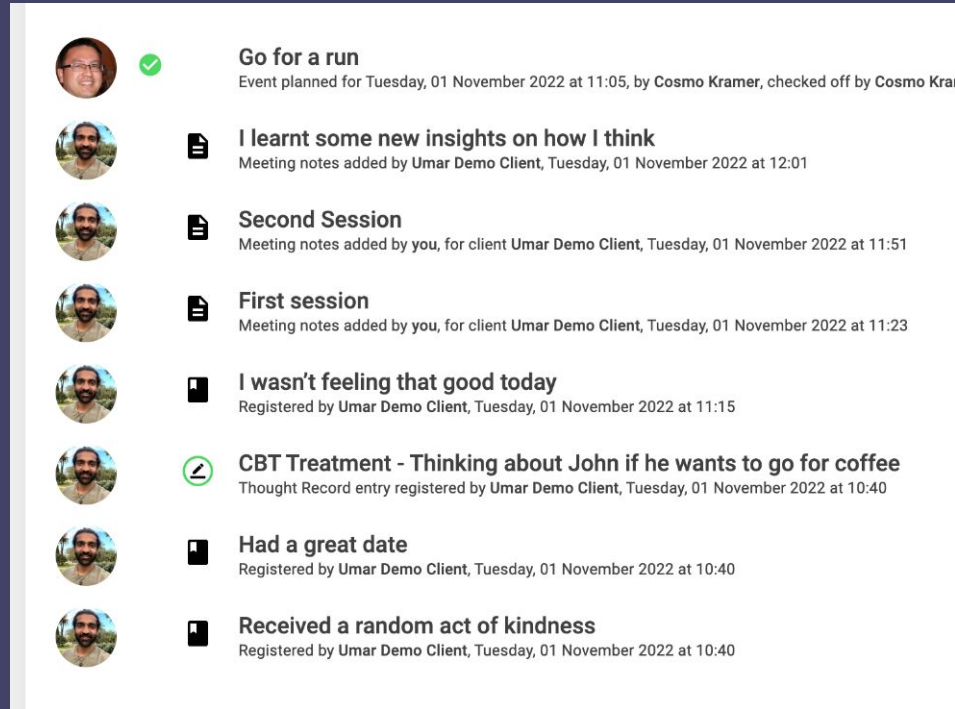
# Validating research

2021



# Explainable AI for need driven care

2022



The screenshot displays a user interface for a therapist's dashboard. It features a vertical list of items, each with a circular profile picture of a man, an icon, a title, and a description. The items are as follows:

- Go for a run**: Event planned for Tuesday, 01 November 2022 at 11:05, by Cosmo Kramer, checked off by Cosmo Kramer. (Icon: Green checkmark)
- I learnt some new insights on how I think**: Meeting notes added by Umar Demo Client, Tuesday, 01 November 2022 at 12:01. (Icon: Document)
- Second Session**: Meeting notes added by you, for client Umar Demo Client, Tuesday, 01 November 2022 at 11:51. (Icon: Document)
- First session**: Meeting notes added by you, for client Umar Demo Client, Tuesday, 01 November 2022 at 11:23. (Icon: Document)
- I wasn't feeling that good today**: Registered by Umar Demo Client, Tuesday, 01 November 2022 at 11:15. (Icon: Document)
- CBT Treatment - Thinking about John if he wants to go for coffee**: Thought Record entry registered by Umar Demo Client, Tuesday, 01 November 2022 at 10:40. (Icon: Green circle with a checkmark)
- Had a great date**: Registered by Umar Demo Client, Tuesday, 01 November 2022 at 10:40. (Icon: Document)
- Received a random act of kindness**: Registered by Umar Demo Client, Tuesday, 01 November 2022 at 10:40. (Icon: Document)

Need Driven Care Dashboard for therapists in current NiceDay



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# Explainable AI for need driven care

2022

Urgency		Most important criteria		
High	Feedback	<i>The # of <b>panic attacks</b> increased with 5 compared to last week</i>	It has been <b>4 days</b> since the <b>last intervention</b>	Felt <b>lonely 5 times</b> since the last intervention
High	Feedback	Felt <b>lonely 3 times</b> more compared to last week	The <b>social avoidance</b> intensity increased with <b>5</b> compared to last week	
High	Feedback	<b>Worried 4 times</b> more compared to last week	It has been <b>3 days</b> since the <b>last intervention</b>	The <b>loneliness</b> registrations <b>increased</b> with <b>2</b> compared to last week
Medium	Feedback	<i>The # of <b>panic attacks</b> increased with 1 compared to last week</i>	The <b>tension</b> registrations <b>increased</b> with <b>2</b> compared to last week	
Medium	Feedback	The <b>social avoidance</b> intensity increased with <b>2</b> compared to last week		
Low	Feedback	<i>The # of <b>panic attacks</b> decreased with 2 compared to last week</i>	The <b>loneliness</b> registrations <b>decreased</b> with <b>2</b> compared to last week	It has been <b>4 days</b> since the <b>last intervention</b>

Ideation of client prioritization based on expert driven AI

# Explainable AI for need driven care

2022



DEEPLY

COUNCYL

NICEDAY  
Nederland



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# Thank You!

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