

SAP Innovation Awards 2022 Entry Pitch Deck

AI Learning Helper -The future of personalized education

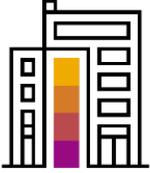
NTT DATA BUSINESS SOLUTIONS

PUBLIC



THE BEST RUN 

Company Information



Headquarters Bielefeld, Germany

Industry IT consulting

Web Site <https://nttdata-solutions.com>

- Founded in 1989
- 10,000+ employees in 30+ countries
- SAP Platinum Partner
- Present in several industries, e.g. High Education, Chemical, Pharma, Wholesale and Consumer Products
- Offers consulting and develops own IP within e.g. Customer Service, Supply Chain Execution, Human Capital Management and Procurement
- Thousands of satisfied customers have placed their trust in itelligence, many of them since the company was founded 30 years ago. NTT Data Business Solutions contribution to innovation and long-term business success has been confirmed by numerous SAP awards and leading market analysts. itelligence is part of the global NTT DATA group.

AI Learning Helper - The future of personalized education

NTT DATA

Challenge

There can be many different reasons why children cannot attend school. Disability, temporary illness, psychological problems, parent's or guardian's choice, or something as unlikely as a global pandemic. Homeschooling is time and energy consuming both for students, teachers and parents, and it can be a source of stress especially for vulnerable children. It is furthermore a large burden on the schools budget.

Solution

What if technology could help children learn, teachers teach, and parents homeschool? The solution is a personalized learning helper for every child, powered by a teaching engine. The learning helper is emotionally responsive and tailored to each child to fit their learning curve.

Outcome

Our AI Learning Helper enables schools to act as intelligent enterprises reducing costs, while improving the lives of both students, parents and teachers.

Please see this video showcasing the solution:

https://www.youtube.com/watch?v=9GMIDwGHRkU&feature=youtu.be&ab_channel=itelligence

50% Estimated reduction in cost of homeschooling

5% Estimated reduction in the school's overall budget



Improving the lives of children, teachers and parents all over the world.



As a teacher, I have such limited time when teaching pupils in their own homes. By making the homeschool solution available to students, I have a much better idea of how well each pupil is doing and in which areas the pupil needs most help from me. This allows me to be more efficient while still providing the best education to each pupil.

NTT DATA
Global IT Innovator



Participating Partner Information



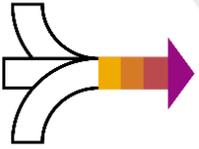
This solution was implemented in collaboration with 2 pilot customers:

- 1. School District Toender Municipality**
- 2. A hospital school in London (name can be published after the pilot).**



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Business Challenges and Objectives



Business Challenges

- There can be many different reasons why children cannot attend school – disability, temporary illness, psychological problems, parent's or guardian's choice, or even a global pandemic.

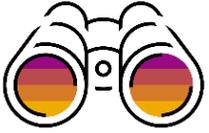
If a child going to elementary school is prevented from attending physically due to e.g. long term illness, the school must still provide education for that pupil within their own home.

- Homeschooling is time- and energy-consuming both for pupils, teachers, and parents, and it can be a source of stress, especially for vulnerable pupils.
- Homeschooling is also a large burden on the school's budget. In some cases up to 10% of the school's budget is used on less than 1% of these vulnerable pupils who must be homeschooled

Project Objectives

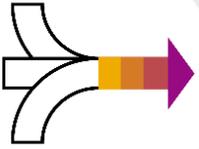
- The primary objective is to create a schoolwork solution, for children who cannot physically attend school, that is emotionally responsive and tailored to each pupil to fit their learning curve. Secondary objectives include:
 - Supplement the teacher's presence in the homes of vulnerable pupils, to lessen the time and energy consumption for both pupils and teachers
 - Enhance the pupil's subject knowledge through a focused and emotionally tailored effort on that specific pupil
 - Distribute the school's budget more equally across all pupils to ensure optimal learning for everyone

Project or Use Case Details



- The “AI Learning Helper” is an artificial intelligence companion living on a screen. Each student will have their own.
- Just like a real teacher, the AI Learning Helper understands the needs and learning journey of the individual child. It will be able to understand the child's emotions and change teaching strategy if, for example, he or she detects that the child is frustrated, de-motivated or does not have the right learning flow.
- The AI Learning Helper is very patient and has all the time in the world to focus on the individual child.
- The pupil interacts with the AI Learning Helper with their own natural language and it speaks to them in the same way. Eye contact, micro expressions, body language, and emotional feedback are important parameters.
- The human teacher can evaluate the pupil’s experience with the schoolwork app and adjust their own teaching and future computer-based content accordingly.
- Pupils can work on exercises and lessons at any time when they are motivated and not only at the set times, when the real teacher is present
- The solution is based on cutting-edge AI technology with models for text summarization, Q&A and language understanding [GPT-2, BERT, PreSumm ertc.]
- The solution is based on our NTT DATA Digital Human Platform which enables us to integrate real-time interactive (emotional responsive) avatar characters into the learning universe of the AI Learning Helper.

Business Process Details



Process Before

- The need for online learning tools propelled during the pandemic, but the demand was always there. There are several circumstances that make home-schooling ideal: for kids with disabilities, psychological problems and temporary illnesses, it's key to continue learning in a safe, comfortable environment.
- On a greater scale, access to education becomes more democratized as nations get access to the internet and thereby thousands of ways to get educated. In creating their solution, NTT Data looked to AI to make a society-wide solution.

Process After

- Just like a real teacher, the AI Learning Helper helps children learn how to read. It's designed to both understand what a child says and pick up on his or her emotions. If the child is disengaged or expresses frustration, it can change its teaching strategy. It puts all its focus on one child only and personalizes education through recommendations and even tailored appearances.

The focus of the solution is to teach kids how to read and it does this through AI disciplines like micro expression and body language detection, emotional feedback, summarization algorithms and Q&A generation, to name a few.

A learning friend who is accessible at any time on any device, and who has all the time in the world for each child.

Benefits and Outcomes



Business or Social

1. **Scalability** – This solution is infinitely scalable and has all the time in the world for every child.
2. **50%** estimated **reduction** in cost of homeschooling, resulting in an estimated cost saving of 5% of the whole school's budget
3. **Enhanced working environment** for teachers
4. **Enhanced learning experience** and subject knowledge for pupils

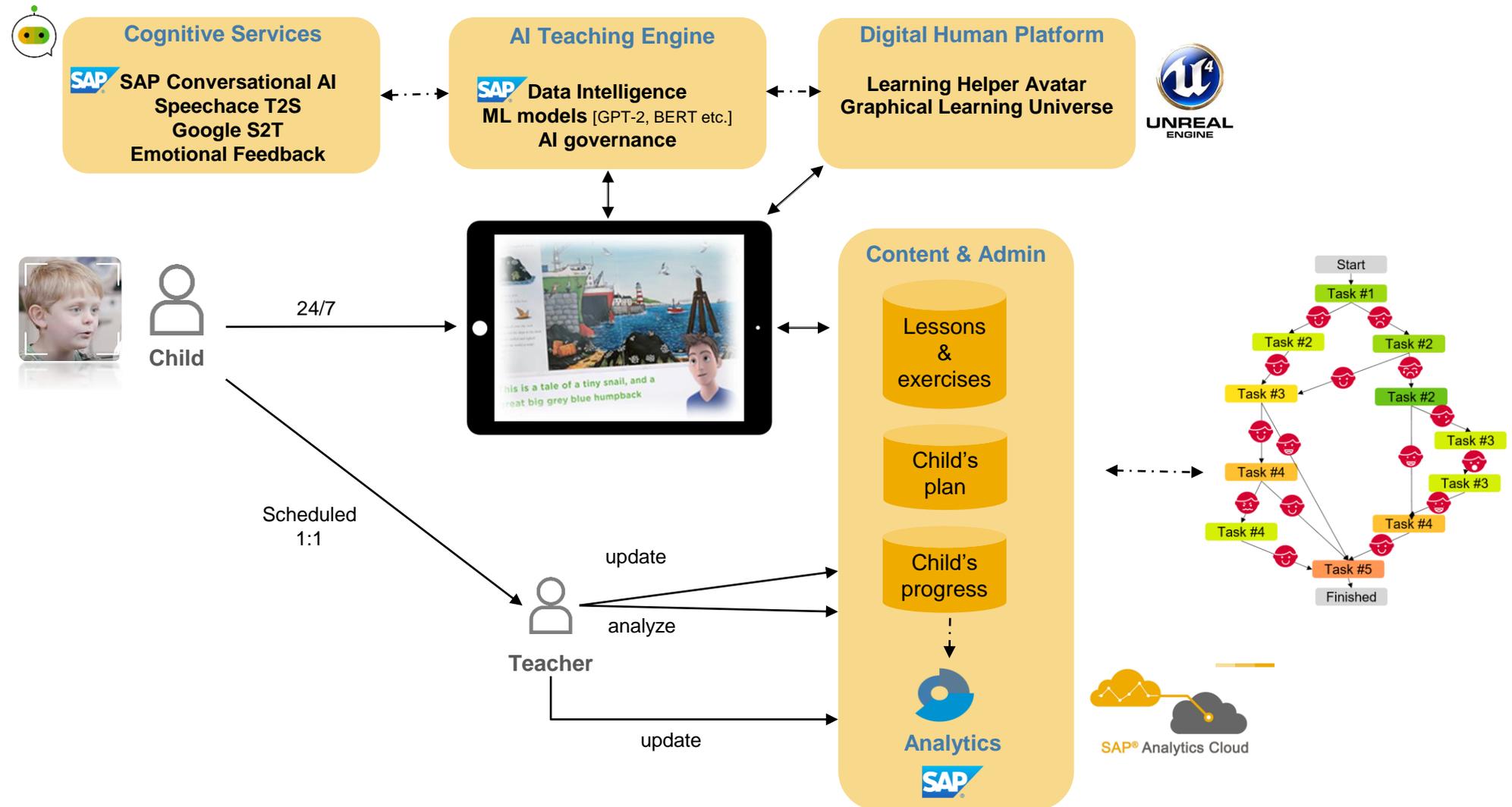
IT*

1. Each pupil's learning progress and subject knowledge level can be measured and analyzed in a **non-invasive** way, by doing it through their everyday schoolwork instead of through tests
2. When updating the **learning plan** and creating new schoolwork, it only has to be uploaded and maintained in one central place to reach all pupils who are homeschooled
3. **Privacy** by design as default ensuring GDPR compliance

Human Empowerment

1. Vulnerable pupils already suffering for the initial reason for their absence do not have to also carry the burden of getting behind in school
2. Pupils do not as often have to deal with the potential stress of teachers and parents who have to teach and help them, since they can now also learn from an app that is understanding and adjusting to their needs and current situation
3. Improving the lives of children, teachers and parents.

Architecture



Deployment Details 1 of 2



Deployment status Live Pilot

Date 01-04-2021

Number of end users N/A

Number of customers 2 pilot customers

Transaction Volume N/A

SAP® technologies used:

	SAP product	Primary product	Deployment status LIVE or POC [proof of concept]	Contribution to project
1	SAP Data Intelligence	X	Live Pilot	Used for Machine Learning (ML) lifecycle and Artificial Intelligence (AI) governance creating and managing AI pipelines and models for the Teaching Engine.
2	SAP Analytics Cloud	X	Live Pilot	Used to show data about the learning progress of the child – Teacher’s Dashboard
3	SAP Conversational AI		Live Pilot	Controls the conversation between the Child and the AI Learning Helper (intent and entity matching etc.).
4				
5				

Deployment Details 2 of 2



The following offerings from SAP Services and Support were utilized during the implementation or deployment phase

- SAP MaxAttention™
- SAP ActiveAttention™
- SAP Value Assurance
- SAP Advanced Deployment
- RISE with SAP for Industries
- Other:
- SAP Advisory Services
- SAP Customer Experience Solutions
- SAP Innovation Services
- SAP Innovative Business Solutions
- SAP Preferred Success
- SAP Enterprise Support
- SAP Solution Manager
- SAP Cloud ALM

Contribution to the project

Advanced Technologies (1 of 2)



The following **advanced technologies** were part of the project.

	Technology or use case	Product *	Contribution to project and how product used integrates with SAP products
1	Intelligent technologies A) Machine learning or artificial intelligence Conversational AI, AI-based knowledge graph, AI Business Services, Robotic process automation	1. SAP Conversational AI 2. SAP Data Intelligence for AI/ML life cycle	The solution makes use of the capabilities of SAP Conversational AI to control the conversation between the Child and the AI Learning Helper. Used for ML lifecycle and AI governance creating and managing AI pipelines and models for the Teaching Engine
	B) Blockchain		
	C) Internet of things		
2	Intelligent data management Multi-cloud and or hybrid deployment, data virtualization & governance, privacy compliance, cloud data lake service		

Advanced Technologies (2 of 2)



The following **advanced technologies** were part of the project.

	Technology or use case	Product *	Contribution to project and how product used integrates with SAP products
3	<p>Advanced cloud integration</p> <p>New business models using API's, Connecting business partner(s) with API's, Integration Advisor, Digital integration hub architecture, Event Mesh</p>		
4	<p>Advanced and augmented analytics</p> <p>Real-time and streaming analytics, spatial analytics, natural language processing, machine learning to identify trends, patterns, and outliers, predictive analytics and planning)</p>	SAP Analytics Cloud	This is being used to show data about the learning progress of the child in an analytical format embedded in the teachers dashboard.
5	<p>Combined transactions and analytics on single data set</p> <p>Reduce data latency and footprint from dedicated data marts, data warehouses and data lakes (> 1TB)</p>		

Additional Information

Please see this **video** showcasing the solution:

https://www.youtube.com/watch?v=9GMIDwGHrKU&feature=youtu.be&ab_channel=itelligence

Our Solution was selected among 2000 projects for the **Index Award Finals**

<https://theindexproject.org/stories/ai-learning-helper>

Thank you



Hi Thomas,

Thanks for getting back to me so quickly. I'm pleased to let you know that the AI Learning Helper solution has been selected as one of the finalists for the 2021 cycle. You were chosen by our international jury of experts from more than 2,000 projects — a huge achievement! Please note, this news is strictly confidential until June — we'll confirm the publishing date in the coming weeks.

If you'd like to participate, you'll then be placed in the running for one of the five top awards, announced in September 2021 - you can read more about the prizes in the attached fact sheet. There's no fee to proceed; you're just asked to confirm your participation by replying to this email with the signed non-disclosure agreement (attached) and to provide some communication material for further judging rounds.

In the meantime, feel free to ask any questions about the award or the upcoming process. We're also more than happy to jump on a call with you, if you'd like.

Congratulations, and we look forward to having you onboard!

Kind regards,

Lesley Price
Communication Director