

# Producing Education Health & Care Plans Using AI

Developed by Social Kemistri for:

London Borough of Ealing in partnership with Suffolk  
County Council & Staffordshire County Council

2 May 2019

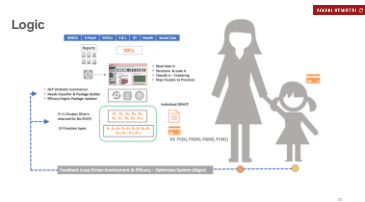
# Executive summary (1)

## Feedback & quality



- This project was led by the London Borough of Ealing (LBE)
- Funding was provided by the Ministry of Housing & Local Government through the Local Digital Fund
- Three councils worked together with Social Kemistri over 16 weeks to complete this project. We designed and built a prototype service system that promises to deliver significant benefits
- The other partners were Staffordshire County Council (Staffordshire) & Suffolk County Council (Suffolk)
- At the heart of this prototype is an AI Engine which simplifies what is otherwise a complex and time consuming service. It's currently characterised by large amounts of manual data processing, messaging, document handling and report writing
- The results are impressive. The evidence strongly suggests that using digital technologies there are opportunities to produce EHCPs faster and more efficiently
- We estimate cost and/or time savings of around 25%. That equates to annual savings of more than £60M nationally, and an average saving of £420k per Local Authority that adopts the technology

# Executive summary (2)



- Our primary purpose was to significantly reduce the time required to produce an Education Health & Care Plan (EHCP)
- This plan is central to meeting the needs of children with special educational needs and disability (SEND)
- There is a statutory requirement to complete a plan in no more than 20 weeks
- Delays in producing plans or making provision for children with SEND can have serious impacts on a child's development
- We wanted to create a system that would give parents, children and young people more of a say, greater involvement and control over outcomes
- Our priorities and focus were set by a discovery process completed in summer 2018 into the SEND process in Ealing; this included extensive research with parents, young people, schools, professionals and SEND staff. It showed that users found the process stressful and they felt disempowered to engage. Staff who were committed to the best outcomes for children and young people were constrained by the systems and processes in place, and spent more time on manual processes and administration than in direct engagement with users.

# Executive summary (3)

## Feedback & quality



- We have simplified the assessment process to help EPs be more effective
- Reduced administrative burden, producing more structured & consistent EHCPs
- Internal process continues to be led and controlled by EPs
- EPs have more time for 1-2-1 interventions and focus on individual needs
- The system can be used by any of the professional contributors
- Platform that will facilitate real-time feedback from parents, children and young people
- Supports more effective commissioning and market shaping

# Executive summary (4)

Prototype



## Key Project Outputs

- Data Analytics
- Functional Prototype
- Value Model
- SEN2 Dashboard Analysis
- Technical architecture
- Beta project plan & costing
- Alpha Closing Workshop

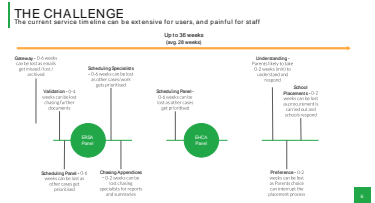
# Executive summary (5)

## Considerations for Beta

- **Efficiency benefits - validation, cashable vs non cashable, package vs assessment costs**
- **GDPR / data security**
- **Parent / professional / school engagement**
- **Definition of 'good', quality assurance & link to outcomes**
- **Commercial considerations – financial model, IP**
- **Digital considerations - integration into existing systems vs open access**

**See also EHCP Alpha Closing Workshop Notes**

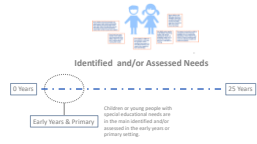
# Discovery process



- Comprehensive process conducted by LB Ealing in the second half of 2018
- Extensive piece of user research (more than 4 months activity & 50 page report – to be made available)
- Personas developed for all the main actors and stakeholders
- Survey of parents with more than 260 responses
- Detailed service map and blueprint
- Wardley mapping exercise examining processes, data, tools and transformation potential
- Included visits to schools, shadowing sessions, expert interviews and user interviews

# Discovery outputs (1)

## Special Educational Needs & Disabilities

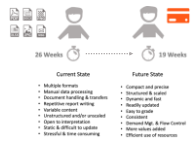


- Multiple stakeholders are frustrated and hampered by administrative tasks and manual processes
- Many end users find this important process highly emotional and stressful
- Little capacity for engagement and early intervention by EPs
- Parents feel disconnected from the process and the outcomes
- EHCP reviews are infrequent and usually at the demand of parent or providers



# Discovery outputs (2)

Digital EHCP

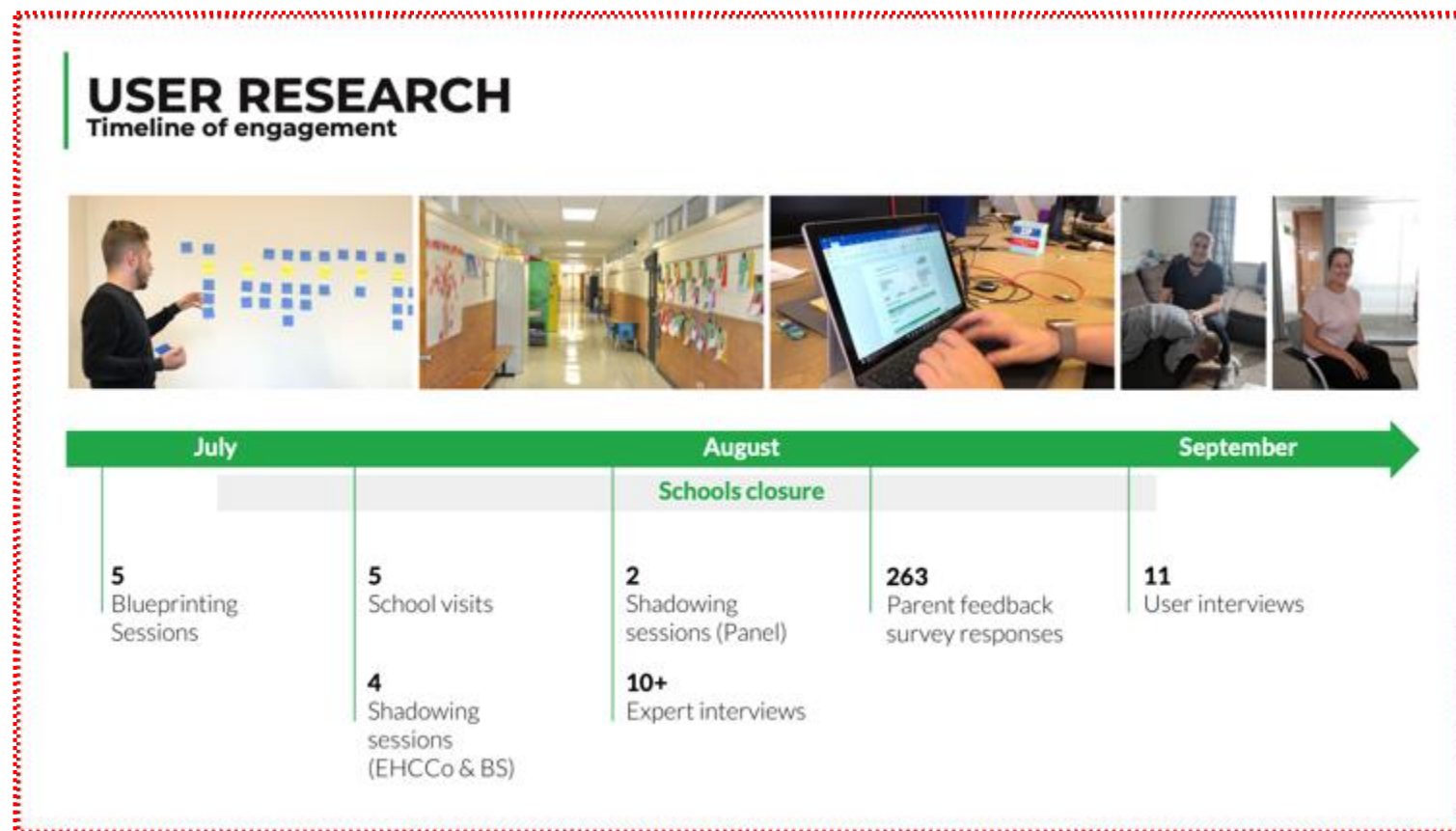


- Educational psychologists lead the assessment process
- They are supported by other professionals in making an assessment
- The assessment takes account of health and care needs and their impact on a child's education
- An EHCP combines inputs from other professionals including some who may already be engaged with the family
- All these are summarised in the plan and mapped to interventions provided by schools and other organisations
- These provisions are part of a Local Offer
- Some specialist needs may need to be provided outside of a borough or council locality

# Discovery outputs (3) – customer journey & pain points

PHASES & TIME	PERSONA	BEFORE			REQUEST				
					The dock starts				
CUSTOMER JOURNEY	PARENT	Becomes aware of an issue and needs, looks for available information and guidance	Consults a GP / Teacher / Coordinator / Charity worker	May contact SENAS. Agrees to proceed with ERSAs	May provide required documentation. Fills their part of ERSAs independently or with SENCo	May supply additional / missing documentation		May receive a confirmation of ERSAs being received OR calls to request an update	Is contacted about the ERSAs going to first panel
	YOUNG ADULT								
	SCHOOL REP.	Might be made aware of needs by teacher. Observes the student and makes recommendations	Has a conversation with the Parent and School's EP, Therapists, Social services	May contact SENAS on Parent's behalf. Requests agreement from Parent to do ERSAs	Provides required documentation and sends ERSAs (often email or letter). May help parent fill ERSAs	May supply additional / missing documentation		Receives confirmation of ERSAs being received	Is contacted about the ERSAs going to first panel
CHANNELS									
FRONT STAGE	COORDINATOR		May consult the Parent	Explains the process to the Parent either phone or email. Requests docs			Receives an email with a new caseload	Validates the documentation	
	ADMINISTRATOR		May consult the Parent		Receives the request to email, validates it, and creates a case on Synergy	May request additional/missing documents	Logs the case onto a spreadsheet and allocates it to a Coordinator	Sends conf. and Coord. details to parent and school	Informs the Parent / School Rep that the case will be reviewed by the Panel. Specifies decision date
BACK STAGE	PANELIST								
SUPPORTING PROCESSES	SPECIALIST	May be already aware of many of the children that will be having an ERSAs	May give consultation to Parent/School rep. May visit the child to observe and create a report						
	FINANCE								
SYSTEMS			Outlook	Outlook	Outlook, Synergy, Joint folder	Outlook	Outlook, Excel	Outlook	Outlook
PAIN POINTS		- Parents don't know what to do - Parents might be reluctant to believe their child needs support OR think more support is needed than in reality	- It's often difficult to get the SENCo's time - Expectations might be set high by school - EP's time is like gold dust - last resort	- Parents often need information as they don't understand the process and there's not clear enough information available	- Often insufficient information - Parents might not know what the fields in ERSAs mean - Unexpected ERSAs's EP's causes time problems for EP	- SEN can't start case until all necessary documentation - Parental ERSAs can be more time consuming	- BS uses multiple systems and tools - Parents/schools contact for update	- Processing the request is very time consuming due to the system and various tools	- Keeping comms with parents takes effort and time - Often parents call for updates

# Discovery outputs (4)




# Discovery outputs (5)

## USER FEEDBACK

Highlights from our survey on the EHC Assessment process, responded to by 262 parents and carers


40%



Are satisfied with the provision of EHCP

From 144 responses, just over 40% are satisfied with the provision set out in the EHCP, whilst 12.5% are very dissatisfied


38%



Think EHCP is reflecting and addressing the child's needs well

From 144 respondents, 38% on average, believe the EHCP is reflecting the child's Educational (39%), Social (37%) and Health (38%) needs well.


53%



Got information on how to apply from a SENCO

Majority of 132 respondents found out how to apply for the EHC assessment from School SEN Coordinator, whilst only 3% found it from the Local Offer website.


36.5%



Said they were personally involved in the process

Many of 134 respondents said they spoke and / or met with the EHC Coordinator several times over the course of the assessment process, whilst 9.7% had no involvement at all.


29%



Were neither satisfied / dissatisfied with the level of support and guidance

From 134 respondents 29% were neither satisfied or dissatisfied with the level of support but equally 29% were satisfied, whilst 9.7% did not receive any support or guidance.

35%



Felt stressed during the assessment process

From 134 respondents the assessment process made 35% feel stressed, whilst **31% felt hopeless** and **22% felt powerless**

Full survey findings and insights can be found here.

# Discovery outputs (6)

**USER PERSONAS**  
The groups who use or help to deliver the service

SERVICE USERS	EDUCATION	SEN STAFF	EXPERTS	SUPPORT
 Daniel the VOCAL PARENT	 Leo the SCHOOL REP.	 Corinne the ADMIN	 Howard the SPECIALIST	 Pamela the SUPPORTER
 Meera the SILENT PARENT		 Laura the COORDINATOR	 Sonia the PANELIST	
		 Stuart the LEADER		

# Discovery outputs (7)



## Howard the **SPECIALIST**

He is an Educational Psychologist responsible for providing reports as part of the Needs Assessment EHC Plans. Liaising with schools on a regular basis gives him a fair understanding of the number of Assessment Requests arriving at the Local Authority. He is usually already familiar with the children he visits for assessment. Sometimes he is already in contact with the SEN Coordinators or Parents before they request an assessment, and might be asked to write a report for it before it's sent.

I am an **Occupational Therapist, Language and Speech Therapist, Educational Psychologist, Health Specialist**

You will typically find me doing:

”

*"I feel like there's too much admin work expected of me - instead of doing the assessments I need to write pointless summaries"*

*"I don't trust the Coordinators have the needed skills to write plans - they are essentially admins"*



COMMUNICATING WITH PARENTS AND SCHOOLS



PROVIDING SPECIALIST OPINIONS



VISITING AND OBSERVING CHILDREN



WRITING REPORTS

### Needs

- Needs to visit schools to observe children if requested to do so by SENCo or Teachers
- Needs to give recommendations for children, whether that is for progress plan or making an ERSA
- When requested by EHCCo, has to provide Appendixes for SEN support plan

### Challenges

- Writing additional summaries in the report for the Coordinators is time-consuming
- Feel that time is very stretched and don't always have time to write up reports fully
- Unexpected ERSA requests from parents and some SENCo's take up additional time that hasn't been planned in

14

# Discovery outputs (8)

## THE CHALLENGE

The current service offering to users needs some focused change

### A service that...



Costs **c.£52m p/a** to provide service to **over 2300 users** (with c.£32m on school placements alone)



Needs to meet **statutory timescales of 20 weeks** from 'apply' to 'award' (averaging 28 weeks, 10% within timescale)



Hampers multiple stakeholders with **administrative tasks** and **manual processes**



Is **very important** to users and is **highly emotional** and **stressful**

### A process that...



Leaves **little capacity** for engagement and early intervention



Does not collect **enough data** to inform change



Does not **empower** parents with information













Leaves children **falling through the cracks**

Note: avg. 28 weeks – data available mid 2018)  
Additional resourcing (2 FTE, cost £90k) in 2019, plus additional management measures, has resulted in avg. time of 21 weeks at April 2019


















# Discovery outputs (9)

PHASES & TIME	PERSONA	PRE-ASSESSMENT <small>max. 6 weeks</small>			ASSESSMENT <small>max. 16 weeks</small>				
CUSTOMER JOURNEY	PARENT	Might try to chase EHCCo or asks SENCo to do so		May receive an update or contacts for one	May take the child to the Specialist	Receives a draft of the plan and has ability to request changes	Has 15 days to request changes to the draft		Receives decision, and draft EHCP. May request changes in funding and provision within 15 days. The case may go to another Panel
	YOUNG ADULT								
	SCHOOL REP.	Often has to chase on Parents request		Receives a request for Appendix B - School report	Sends Appendix B	Receives a draft of the plan and has ability to request changes (usually email)			Receives notification of decision and draft EHCP. May request amendments
CHANNELS		 				 			 
FRONT STAGE	COORDINATOR	Collates a bundle of documents. May be contacted by the Parent or SENCo	Prints files. Attends a weekly meeting to intro the case to Panel	Chooses Specialists for appendices and sends a request	Chases Specialists/School for reports	Drafts SEN Support Plan, Fills in RAS, shares the draft	Logs case to panel	Prints files/ Attends a panel review, takes minute notes.	Sends letter to parents and School, notifying the Panel decision. Updates Synergy
	ADMINISTRATOR				Receives Appendices and files them onto Synergy				
BACK STAGE	PANELIST		Attends a weekly meeting to review cases and make decisions					Attends to review cases and make decisions on needs, funding and provision	
SUPPORTING PROCESSES	SPECIALIST			Receives request for Appendix and arranges visits	Examines the child and writes a report				
	FINANCE								
SYSTEMS		Outlook, MSWord	Outlook	Outlook	Outlook, Synergy, Joint folder	Outlook, MSWord, CareCalc		Outlook	MSWord, Mail Merge, Outlook, Printer
PAIN POINTS		- Parents/School not sure what is going on - Calls from Parents /School disturbing work	- High volume of paper - Insufficient details stall decision making - Reports can't be older than 12 months - first thing is to check dates	- Multiple, inconsistent processes & systems for pupils of schools not assigned to them or the requests are sat in a tray and not being assigned	- EHCCo has to chase the appendices - reports and appendices often late/after deadline - EPs feel the summaries are taking too long of their time	- Collaboration for goals setting between EP and other specialists is non-existent - Emails have replaced meetings with Parents - Parent might not understand the draft plan a	- Parents often need to go through the draft with SENCo or EHCCo as it's not easy to understand	- Amendments and quality insurance takes time in Panel - RAS not always included - Inconsistent key milestones in plans - creating them difficult	- Parents often out of the loop and barely involved in the process until the draft plan - No meeting to view the plan



# Discovery outputs (10)

PHASES & TIME	PERSONA	ASSESSMENT			NEGOTIATIONS & FUNDING			OUTCOME max. 20 weeks	
 CUSTOMER JOURNEY	PARENT		Goes to school with the child for interviews	May request an update from EHCCo or ask SENCo to do so	Receives the school's decision			Might try to chase EHCCo or ask SENCo to do so	Receives the final plan with the school named. Might contact supporting organisation or school for help or appeal
	YOUNG ADULT								
	SCHOOL REP.	New school needs to agree that they can meet the needs. Contacts parents to arrange interviews/observations	Meets with the Parents and the child/young person for an observation/ interview	Informs the Coordinator about the decision on admission within 15 days				Might chase the EHCCo for an update about the final plan	- Both schools receive the final plan - Logs into EGL to see the list of students
CHANNELS		  		  					
 FRONT STAGE	COORDINATOR	Shares Synergy -generated spreadsheet with Schools. Updates Synergy		Receives decision from school	Forwards the school decision to Parent once agreed	Creates the final version of EHCP, names the school	Requests a sign-off from mgmt of services which will deliver the service, updates the system	SLT signs off the final EHCP	Sends final plan and decision to the Parent and School Rep.
	ADMINISTRATOR	Commissioning Team engages with independent providers.							
 BACK STAGE	PANELIST								
	SPECIALIST						Managers of services sign off the final EHCP		Receives a copy of final plan and decision
 SUPPORTING PROCESSES	FINANCE	Accounting receives Synergy-generated spreadsheet with payable amounts							Makes the first payment. Different times for different school
	SYSTEMS	Spreadsheet, Synergy				Word	Outlook, Synergy	Joint folder	MSWord, Printer, Mail Merge
PAIN POINTS		- Finance information not dealt with in Synergy	- School might not be able to meet the child and are not sure if they can meet their needs, but often accepts offer anyway to keep funding	- Informal negotiations with the school/parent about funding via phone			- Sign off from each Service Manager slows down the process	- The overall process is currently taking longer than the statutory timescale (20 weeks)	- Difficult to understand for non-english speakers - Some specialists receive a copy of final plan but not always - The list is not always accurate - some details might be missing

# Local Digital Fund



Ministry of Housing,  
Communities &  
Local Government

Our mission is to support a national ‘Local Digital Movement’ that brings together everyone required to make local public services excellent for users and taxpayers.

- Co-publishing the Local Digital Declaration with our partners. This is a shared ambition for the future of local public services, written by a collective of local authorities, sector bodies and government departments. It outlines our shared goals and commitments, and it invites all organisations working to improve local services to join in by signing up. Over a third of English principal local authorities have already signed since it’s launch in July 2018.
- Providing a support function through the Collaboration Unit at MHCLG. This Unit’s goal is to help the local public sector achieve the aspiration set out in the Local Digital Declaration.
- Launching an Innovation Fund of £7.5M for councils to bid for. This is being used by councils to develop common solutions to common shared challenges, and to build capacity in the sector to implement the Local Digital Declaration.

# Exemplars



Ministry of Housing,  
Communities &  
Local Government

This part of the fund will be used to support councils with digital projects that can be used by others, maximising efficiency savings and moving us towards common data standards and common design patterns for local services.

- Demonstrate the benefit to local public services, helping local authorities to make savings and deliver better outcomes for people in their communities
- Be scalable by design, developed by 2 or more local authorities to meet the needs of many organisations
- Aim to deliver products that help others use or build on their work. These could include standardised user research findings, service design patterns, benefits cases, code repositories and other sharing platforms.
- Show how they meet the principles outlined in the declaration
- Commit to making all tools and outputs from the project completely open and freely available for any organisation to reuse.

# Three Partner LAs



- The London Borough of Ealing (Ealing) is the lead partner.
- Ealing ran a discovery project in 2018 which highlighted potential changes that would create new efficiencies if implemented
- Suffolk County Council (Suffolk) & Staffordshire County Council (Staffordshire) are rural local authorities and are very different in many ways to a typical London borough e.g. their geography and scale
- However our research shows that in regard to SENs service systems and economics there are no major differences. Any such differences are nuanced and/or semantic
- Our value model is based on top-down calculations from nationally reported data (DfE May 2018) and also bottom up data provided in the main from Ealing
- We have validated these data with each of the partners by reconciling activities, resources, workflows, and volumes

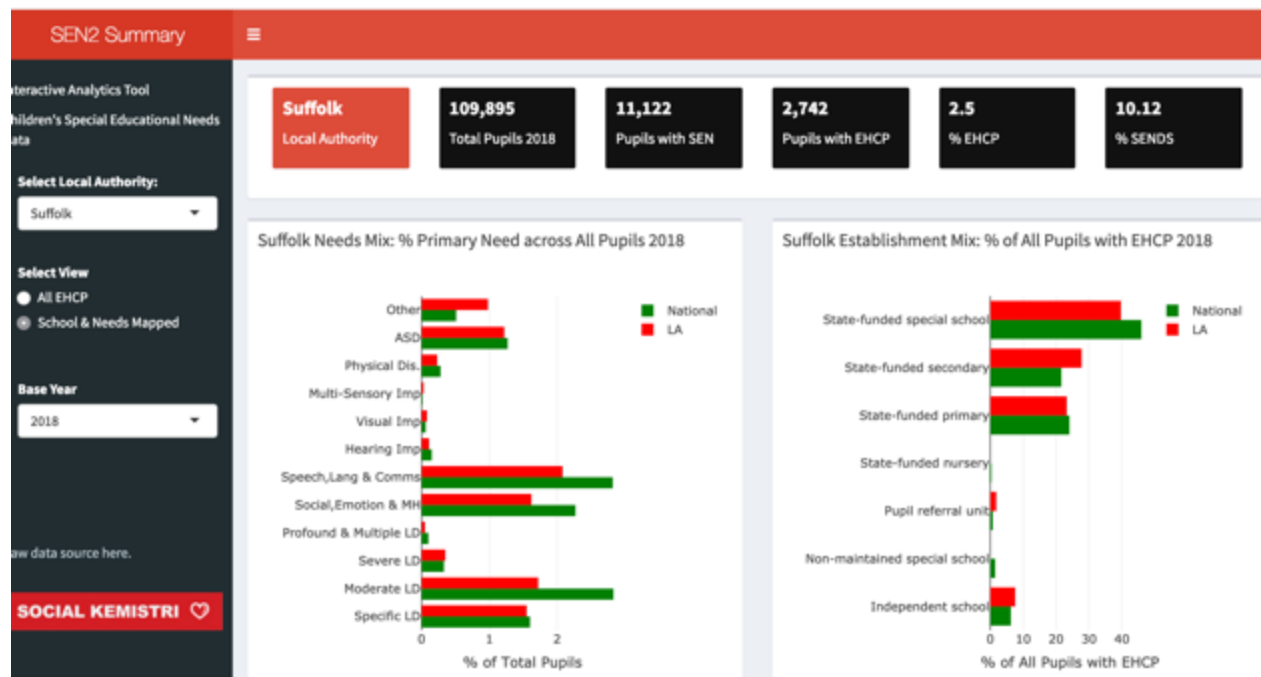
# Higher level comparison of partner local authorities

	National	Ealing	Staffordshire	Suffolk
Pupils	8.7m	59,339	122,902	109,895
% SENS	11.69%	10.80%	9.54%	10.12%
% EHCP *	2.90%	3.05%	3.13%	2.50%
Pupils with EHCP in schools 2018 *	253,680	1,808	3,852	2,742
New EHCP requests in 2017	64,555	344	1,152	1,113
% EHCP <= 20 weeks	64.9%	54.0%	88.6%	47.2%

Special educational needs in England: 2018. Table 1 & Table 8

\* All Schools (1) : Pupils with special educational needs by school type and type of provision (2)(3)

# SEN2 Data Benchmarking Tool



<https://socialkemistri.shinyapps.io/SENS2/>

# What's an Alpha

**Part of a 4 stage Agile Development Process**



**Develops, tests and makes the case for further investment regarding potential service improvements identified by the discovery process**

# Alpha project

- **Follows on from the discovery process**
- **Central idea or hypothesis**
- **Prove/disprove – Pivot**
- **Gathering evidence and building a case**
- **Foundations for a successful Beta project**

- Demonstrate the technology
- Build functional prototype
- Show consideration for and address user needs
- Provide an outline business case/model
- How it fits with legacy systems & processes
- A project plan and costing for Beta project
- That the service system is scalable
- Maps onto cultural economic realities



# Alpha project

- **Demonstrate the technology**
- **Build functional prototype**
- **Show consideration for and address user needs**
- **Provide an outline business case/model**
- **How it fits with legacy systems & processes**
- **Maps onto cultural economic realities**
- **That the revised service system is scalable**
- **Beta project plan and costings**

- **Follows on from the discovery process**
- **Central idea or hypothesis**
- **Prove/disprove – Pivot**
- **Gathering evidence and building a case**
- **Foundations for a successful Beta project**

# Discovery results

- **Opportunities for improving the service**
- **Swamped by admin, report writing and bureaucracy**
- **People working under time pressure and stress**
- **Large amounts of manual data-processing**
- **Significant delays in constructing EHCPs**
- **Having to make quick decisions with sparse data/ information**
- **Coming to terms with the RAS which often produces 'inaccurate' results**

# Big idea

**‘Producing EHCPs Using AI & Analytics’**

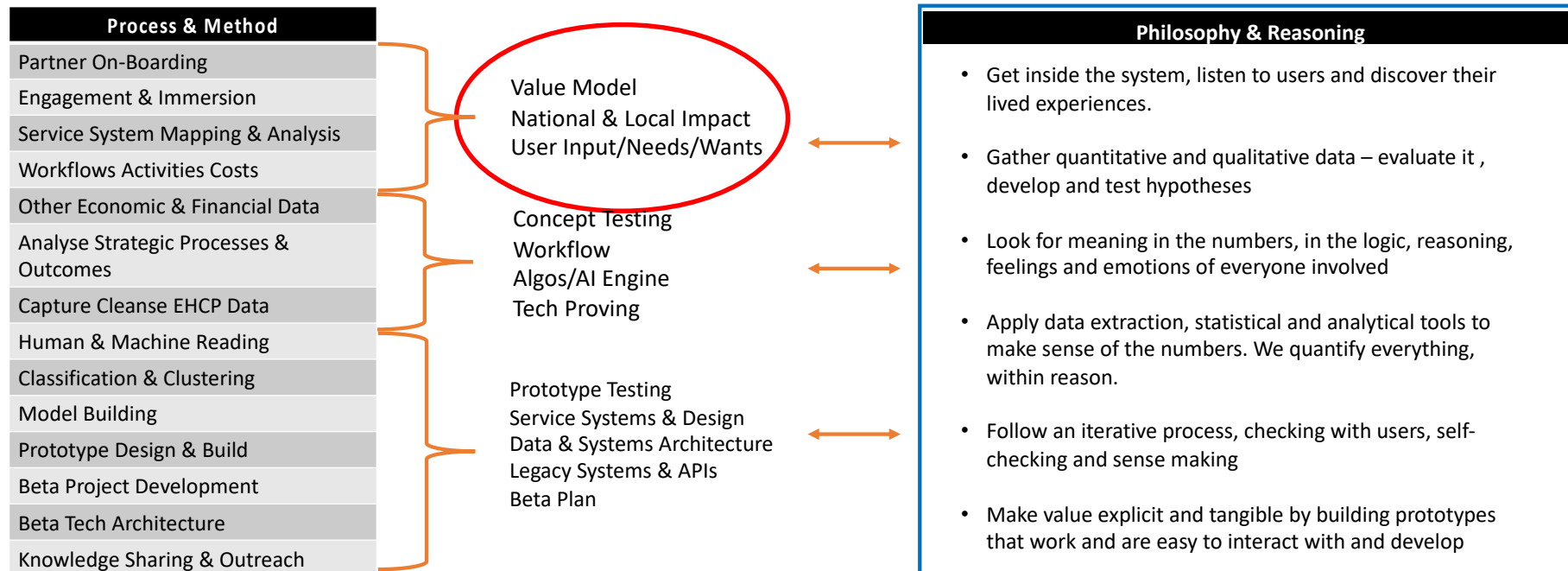
Can the SENs assessment service system be improved to produce faster, more cost effective EHCPs using Data Analytics and AI?

**YES**

# Methodology

- **Immersive process**
- **Extensive desk based research/reading**
- **Understand the legislation - Families & Children Act 2014**
- **Deep dive into SENs system end-2-end**
- **Multiple meetings & workshops with key people**
- **Head of EP, EP, Service Leads, Head of Digital, Head of Corporate, EHCP Coordinators**
- **Capture & analyse economic, value and process data**

# Project impact summary



- Applied AI for improved efficiency & efficacy In SENs assessment process
- Targeting 25% time saving
- Smooth transition to new workflow

# Project plan

## SK Project Plan Readout

v0.07

		Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
		07-Jan	14-Jan	21-Jan	28-Jan	04-Feb	11-Feb	18-Feb	25-Feb	04-Mar	11-Mar	18-Mar	25-Mar
<b>Phase</b>	<b>Activity</b>												
<b>Scope</b>	Workshops / Data & Reports Capture	█	█	█	█								
<b>Initial Design</b>	Service Design Activities		█	█	█	█	█						
	Value Quantification with Data Insights					█	█						
<b>Data &amp; Analysis</b>	Data, Insight & Algos		█	█	█	█	█	█	█	█			
	Service Design Validation							█	█	█			
<b>Prototype</b>	Prototype building							█	█	█	█		
	User validation									█	█	█	
<b>Final Deliverables</b>	Report / Value / Plan										█	█	
	Prototype finalisation												█

# Outputs aligned with plan

GOV.UK Alpha Requirements •.....• Project Chunk Plan •.....• Agreed Work Schedule

- Demonstrate the technology
- Build functional prototype
- Show consideration for and address user needs
- Provide an outline business case/model
- How it fits with legacy systems & processes
- Maps onto cultural economic realities
- That the revised service system is scalable
- A project plan and costing for Beta project

SK Project Plan Readout  
v0.07

Phase	Activity	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
		07-Jan	14-Jan	21-Jan	28-Jan	04-Feb	11-Feb	18-Feb	25-Feb	04-Mar	11-Mar	18-Mar	25-Mar
Scope	Workshops / Data & Reports Capture	█	█	█	█								
Initial Design	Service Design Activities		█	█	█	█	█						
	Value Quantification with Data Insights					█	█	█	█				
Data & Analysis	Data, insight & Algos		█	█	█	█	█	█	█	█			
	Service Design Validation							█	█	█	█	█	
Prototype	Prototype building								█	█	█	█	
	User validation										█	█	█
Final Deliverables	Report / Value / Plan											█	█
	Prototype finalisation												█

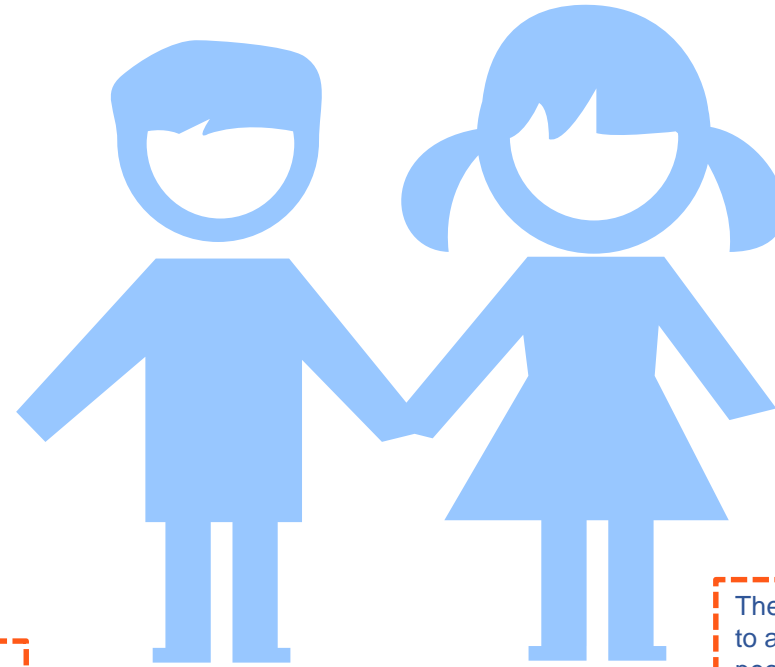
Activity/Outcome	Done
Data Acquisition & Cleansing	✓
Analytics/Clustering/Classification	✓
Insights Generation	✓
Data Modelling	✓
Service Re-Design	✓
Systems/Data Architecture	✓
Dashboard Design UX/UI	✓
Business Case Development	✓
Prototype Design & Build	✓
User Testing	✓
Workshop/Seminar Development	✓
Giving Workshops/Seminars	✓
Governance	✓
Project Management	✓

# Key outputs

1. **Data Analytics**
2. **Functional Prototype**
3. **Value Model**
4. **SEN2 Dashboard Analysis**
5. **Technical architecture**
6. **Beta project plan & costing**
7. **Workshop/ Seminar development**



# Special Educational Needs & Disabilities (SEND)



Some children and young people may require more help to learn and develop than children and young people of the same age. If this is the case they may be classed as having special educational needs and/or disability (SEND) so they can get extra support.

Every local area must identify which children and young people have SEND so that it can plan how it will go about meeting their needs.

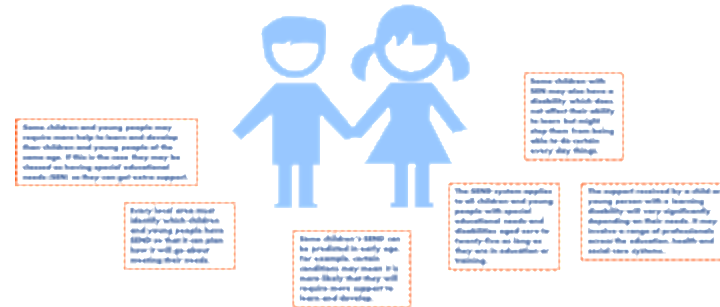
Some children's SEND can be predicted in early age. For example, certain conditions may mean it is more likely that they will require more support to learn and develop.

Some children with SEN may also have a disability which does not affect their ability to learn but might stop them from being able to do certain every day things.

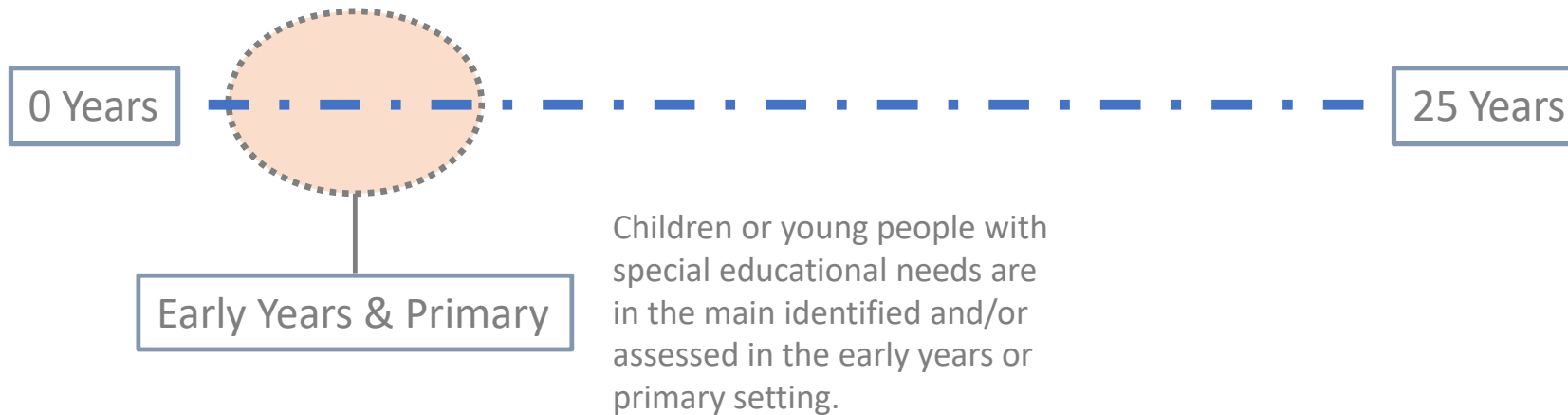
The SEND system applies to all children and young people with special educational needs and disabilities aged zero to twenty-five as long as they are in education or training.

The support received by a child or young person with a learning disability will vary significantly depending on their needs. It may involve a range of professionals across the education, health and social care systems..

# Special Educational Needs & Disabilities



## Identified and/or Assessed Needs



# SEND Needs by age

## EHCP by Primary Needs & Age Band (Ealing)

	Age Band					Total	% of All
	<5	5-10	11-15	16-19	20-25		
ASD	24	204	138	59	18	443	22%
HI	5	20	13	12	5	55	3%
MLD	33	156	166	84	21	460	22%
PD	5	60	39	24	7	135	7%
PMLD	6	32	25	9	3	75	4%
SEMH	4	53	87	30	1	175	9%
SLCN	25	204	93	33	3	358	17%
SLD	29	98	63	37	34	261	13%
SPLD	4	12	32	12	2	62	3%
VI	4	15	5	3	1	28	1%
<b>Total</b>	<b>139</b>	<b>854</b>	<b>661</b>	<b>303</b>	<b>95</b>	<b>2052</b>	<b>100%</b>
% of All	7%	42%	32%	15%	5%	100%	
National split	4%	34%	39%	20%	3%		

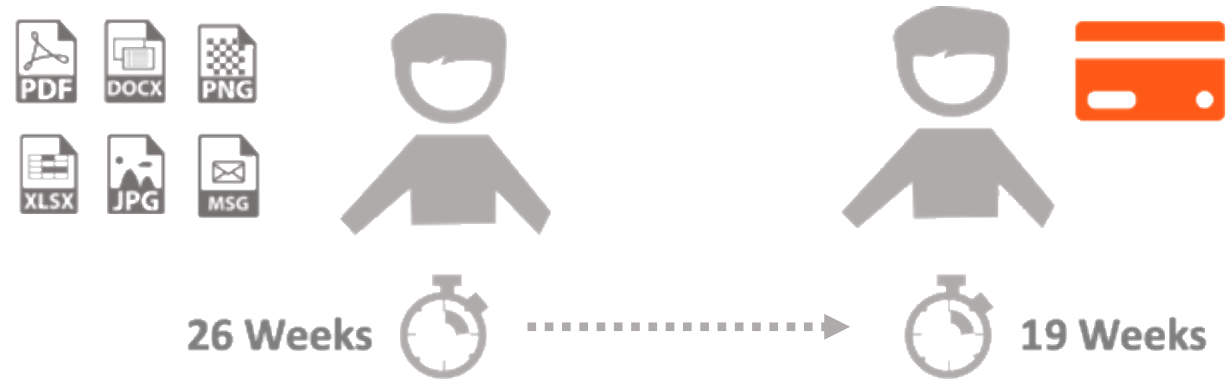
Source: Ealing Jan17

	Age Band				
	<5	5-10	11-15	16-19	20-25
ASD	1.2%	9.9%	6.7%	2.9%	0.9%
HI	0.2%	1.0%	0.6%	0.6%	0.2%
MLD	1.6%	7.6%	8.1%	4.1%	1.0%
PD	0.2%	2.9%	1.9%	1.2%	0.3%
PMLD	0.3%	1.6%	1.2%	0.4%	0.1%
SEMH	0.2%	2.6%	4.2%	1.5%	0.0%
SLCN	1.2%	9.9%	4.5%	1.6%	0.1%
SLD	1.4%	4.8%	3.1%	1.8%	1.7%
SPLD	0.2%	0.6%	1.6%	0.6%	0.1%
VI	0.2%	0.7%	0.2%	0.1%	0.0%

- Higher proportion of younger pupils with EHCP
- Big 4 primary needs patterns all also reflected in pupils with EHCP's
- Heatmap demonstrates a 5 age band x 10 core needs grouping
- 55% of all pupils are in 8 groups: 4 needs bands (ASD, Moderate LD, Severe LD & SLC) \* 2 age bands

Detail in Tech & Analytics (T & A) Pack  
 Glossary SEND terms & acronyms – see separate document

# Digital EHCP



## Current State

- Multiple formats
- Manual data processing
- Document handling & transfers
- Repetitive report writing
- Variable content
- Unstructured and/or unscaled
- Open to interpretation
- Static & difficult to update
- Stressful & time consuming

## Future State

- Compact and precise
- Structured & scaled
- Dynamic and fast
- Readily updated
- Easy to grade
- Consistent
- Demand Mgt. & Flow Control
- More values added
- Efficient use of resources

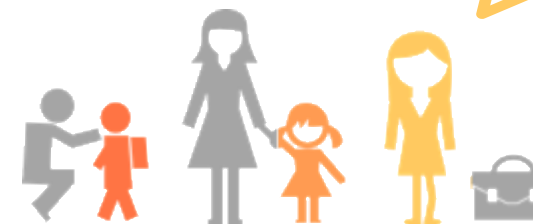
# Feedback & quality




Less than 20 Weeks



- Feedback mapped to needs & outcomes
- Greater sense of control and involvement for children, young people, parents and carers.
- Children and young people more motivated and engaged with their chosen outcomes as they progress with their personal learning & development journey
- Smarter algos and systems
- Better matching of needs to value
- Overall more accountable and better quality system



- 
- My Life
  - Outcomes
  - L&D

# Prototype

Digital EHCP
☰

PROTOTYPE

Alpha phase prototype demonstrator built as part of 'Using AI to reduce EHCP production time'. For further information please contact Social Kemistri.

Show introduction text box.

**Action View**

- Review Pupil
- Supporting Documents
- Reference Charts
- Create New Pupil
- EHCP Generator
- Progress Feedback

**Pupil ID**

EX2

Show definitions for Pupil Assessment input at bottom of page.

WORK IN PROGRESS. This prototype is in 'alpha development' stage. The examples below are constructed from dummy data and used as a placeholder for demonstration and testing purposes. Any resemblance to actual individuals is not intended and is purely coincidental.

EX2  
Pupil ID

X2  
Cluster

ASD  
Primary Need

5-10  
Age

No  
Health

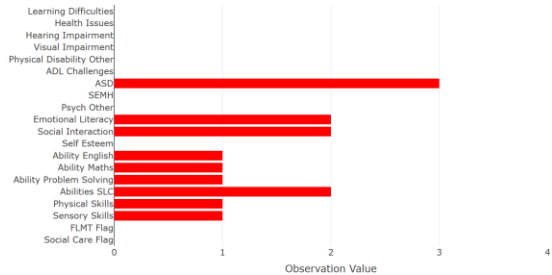
No  
PD

No  
Social

Yes  
Panel

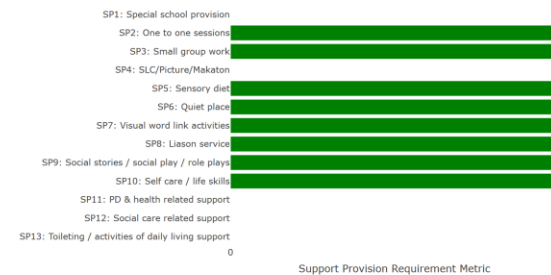
Yes  
Final

Summary assessment metrics



Category	Observation Value
Learning Difficulties	0
Health Issues	0
Hearing Impairment	0
Visual Impairment	0
Physical Disability Other	0
ADL Challenges	0
ASD	3
SEN	0
Psych Other	0
Emotional Literacy	2
Social Interaction	2
Self Esteem	0
Ability English	1
Ability Math	1
Ability Problem Solving	1
Abilities SLC	2
Physical Skills	1
Sensory Skills	1
FLMT Flag	0
Social Care Flag	0

Suggested Provision Requirement for EHCP



Provision	Support Provision Requirement Metric
SP1: Special school provision	1
SP2: One to one sessions	1
SP3: Small group work	1
SP4: SLC/Picture/Makaton	1
SP5: Sensory diet	1
SP6: Quiet place	1
SP7: Visual word link activities	1
SP8: Lison service	1
SP9: Social stories / social play / role plays	1
SP10: Self care / life skills	1
SP11: PD & health related support	1
SP12: Social care related support	1
SP13: Toileting / activities of daily living support	1

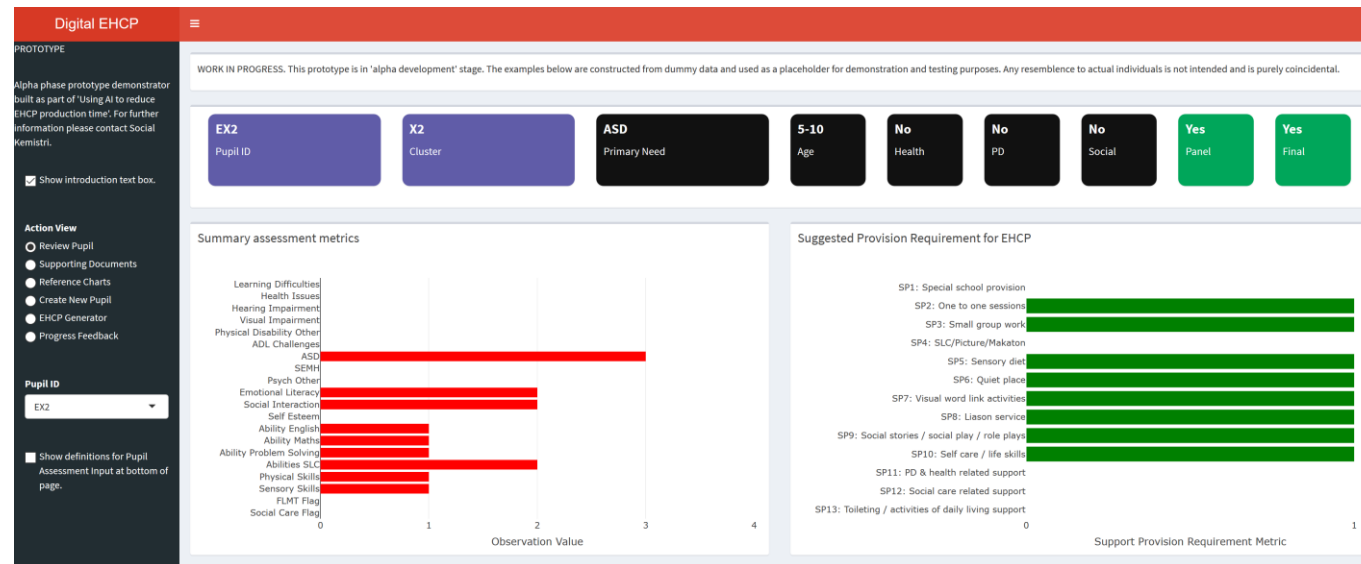
<https://socialkemistri.shinyapps.io/digitalehcp/>

38

# Prototype

## Key Features

- Efficient, clean & simple
- Overlays existing systems
- Low dependency/touch
- User centric



**Digital EHCP**

PROTOTYPE

Alpha phase prototype demonstrator built as part of 'Using AI to reduce EHCP production time'. For further information please contact Social kemistri.

Show introduction text box.

**Action View**

- Review Pupil
- Supporting Documents
- Reference Charts
- Create New Pupil
- EHCP Generator
- Progress Feedback

**Pupil ID**

EX2

Show definitions for Pupil Assessment input at bottom of page.

WORK IN PROGRESS. This prototype is in 'alpha development' stage. The examples below are constructed from dummy data and used as a placeholder for demonstration and testing purposes. Any resemblance to actual individuals is not intended and is purely coincidental.

EX2 Pupil ID    X2 Cluster    ASD Primary Need    5-10 Age    No Health    No PD    No Social    Yes Panel    Yes Final

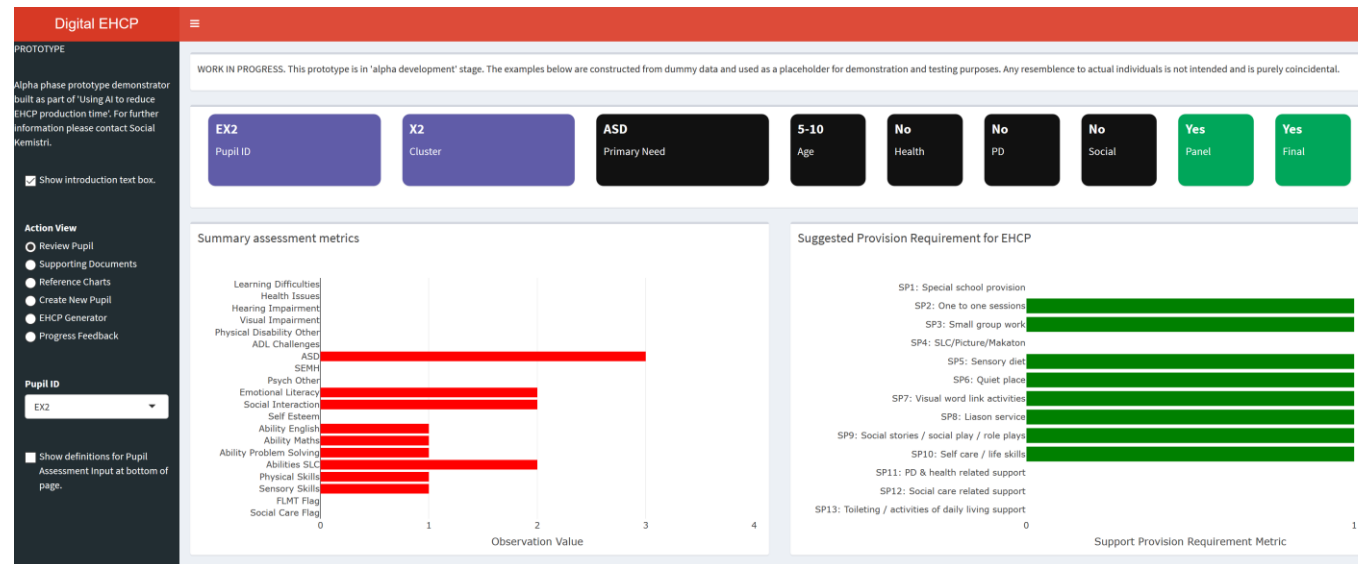
**Summary assessment metrics**

Metric	Observation Value
Learning Difficulties	0
Health Issues	0
Hearing Impairment	0
Visual Impairment	0
Physical Disability Other	0
ADL Challenges	0
ASD	3
SEN	0
Psych Other	0
Emotional Literacy	2
Social Interaction	2
Self Esteem	0
Ability English	1
Ability Maths	1
Ability Problem Solving	2
Abilities SLC	0
Physical Skills	1
Sensory Skills	1
FLMT Flag	0
Social Care Flag	0

**Suggested Provision Requirement for EHCP**

Requirement	Support Provision Requirement Metric
SP1: Special school provision	1
SP2: One to one sessions	1
SP3: Small group work	1
SP4: SLC/Picture/Makaton	1
SP5: Sensory diet	1
SP6: Quiet place	1
SP7: Visual word link activities	1
SP8: Liason service	1
SP9: Social stories / social play / role plays	1
SP10: Self care / life skills	1
SP11: PD & health related support	0
SP12: Social care related support	0
SP13: Toileting / activities of daily living support	0

# Functionality



## Functionality

- Fast efficient input, update, review and validation of of pupil data
- Potential for threshold setting and monitoring
- Provides snapshot summary of supporting documents & source
- Allows easy comparison to other or similar cases
- Automatic generation of Digital EHCP
- Easy to personalise, adjust or amend
- Placeholder to facilitate feedback and/or efficacy info/score
- Provision mapping and placement builder



# User centric

- The T&A Pack describes functionality in detail
- Includes a user journey map from Set-Up to Digital EHCP
- It also documents 8 separate use cases
- Key specialist roles are all covered:
  - Educational Psychologist
  - Coordinator
  - Panel Members
  - Speech & Language
  - Occupational Therapy

# User journey mapped to prototype

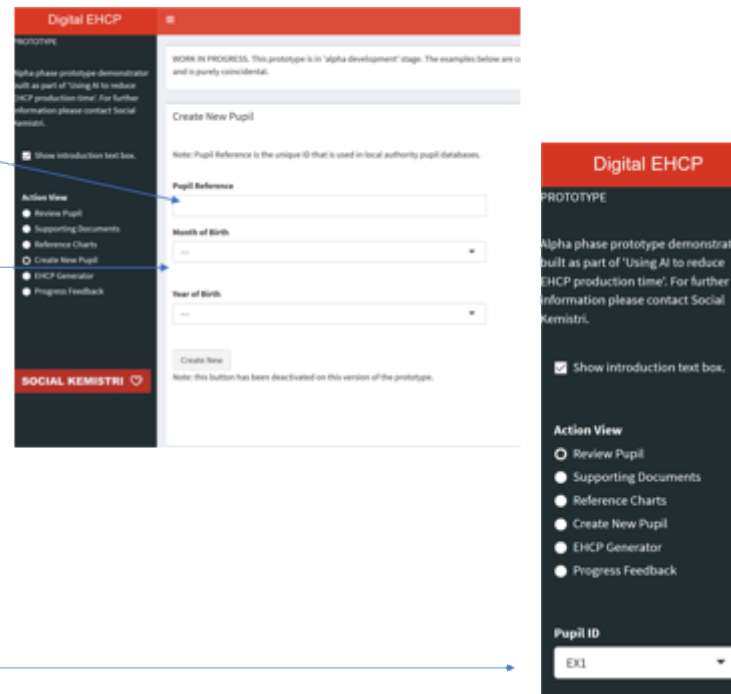
Process Step	Role	Process detail	System detail	Benefit
Set up new pupil	Co-ordinator	New ID set up.	Input reference ID detail and create blank new record on system	None.
Input initial summary	Co-ordinator	Uses SENCO / parent information to populate Pupil Assessment area. Passes to EP for review.	Uploads initial documents for automatic summarisation and uses as basis for initial input in pupil assessment.	Ingest summarisation saves 30% time.
Initial review (pre-EHCP plan requirement)	Co-Ordinator	Ensure meets minimum criteria for development of EHCP	First gate to proceed and acts as check list for supporting assessment / inputs.	Co-ordinated, consistent approach to initial decision gate.
EP report	EP	Update pupil assessment input and add verbatim notes	Notes & validation completed, requirement for long detailed report removed. Adds statement of key observations & basis for decision using short paragraph.	Report writing reduced by 25%
Other specialist	Other specialists / Co-ordinator	Submit short report and/or update pupil assessment input and add verbatim notes	Notes & validation completed, requirement for long detailed report removed. Adds statement of key observations & basis for decision using short paragraph.	Report writing reduced by 25%. EHCO co-ordination time reduced by 30%.
Preparation of draft EHCP	Co-ordinator	Edit auto-generated EHCP to personalise to pupil.	Edit EHCP screen to produce recommended Word output of plan.	Auto generation saves 30% time.
Panel review	Panel	Review recommendation on system	Review screens: summary / assessment / documents / EHCP	Consistency
Placement	Co-ordinator	Use system to agree placement with school & parents	Reliance of EHCP generated by system.	Consistency & ease of editing
Final agreed EHCP	Co-ordinator	Agree final plan	Agree plan & begin feedback process for school and parents.	Consistency & beginning of feedback loop

Detail from Tech & Analytics Pack

# Use cases

**Use case 1:**  
**Step: Set up a new pupil**  
**Role: Co-ordinator**

1. Co-ordinator gets reference data from central data systems using unique ID for consistent cross referencing
2. Month and year of birth are needed as part of cluster allocation that helps fast track pre-population of EHCP
3. The new ID appears in the Digital EHCP system and can be accessed from the drop down pupil selector



Detail from Tech & Analytics Pack

# Value model

- 25% saving
- National impact £63m
- Potential average saving by local authority £420k

Value Calculator: National

Context of EHCP	2016	2017	2018	CAGR
Pupils with statements / EHCP	256,315	287,290	319,819	11.7%

Average Full EHCP Process	Total Cost £	Time Reduction	Value
SENCO	nm		
ECHO / Project Co-ordinator	1,928	30%	578
Specialists (OT/PT/etc.)	3,109	25%	777
Panel	438	0%	-
<b>Total cost per assessment</b>	<b>5,474</b>	<b>25%</b>	<b>1,356</b>

Change in EHCP plans during 2017	30,975
<b>2017 Activity</b>	
New EHCP Requests	45,205
Still ongoing	12,993
New cases processed	32,212

EHCP Review Funnel	Pupils	% of New Case Effort	Assessment Reduction %		
			Cost £m	Saving	Total
New Cases (Not Qualified)	3,043	40%	6.66	25%	1.65
New Cases (Qualify)	32,212	100%	176.34	25%	43.67
Reviews (20% of total)	63,964	20%	70.03	25%	17.34
<b>Total</b>	<b>99,219</b>		<b>253.03</b>	<b>62.66</b>	<b>25%</b>

LA's	150
Average LA	
Total	0.01
	0.29
	0.12
	<b>0.42</b>

Top down benchmark: SEN and Ed Psychology spend 2017/18 = £290m

Other sources:

SEN\_2018\_LA\_Table, process estimates based on estimates based on Ealing, Staff & Suffolk

SEN18 Table 7: Assessment of children and young people:

Detail from Tech & Analytics Pack  
See also Value Model and explanatory notes

# Glossary of terms

## **EHCP**

**An Education, Health and Care Plan or EHCP is a legally binding document which sets out a child or young person's special educational needs and disabilities and the support they require. Only those children with the most complex special educational needs will qualify for an EHCP.. EHCPs replace the former Statement of Special Educational Needs.**

## **SENCO**

**A Special Educational Needs Co-ordinator or SENCO is a member of staff in school who is responsible for co-ordinating additional support for pupils with special educational needs and disabilities. The SENCO will liaise with parents, teachers and other professionals. The SENCO has responsibility for requesting the involvement of an Educational Psychologist and other external services. SENCOs can assist parents in deciding when to request an EHC assessment.**

## **EHCCo**

**The Educational Health & Care Coordinator works within the local authority. This role is often simply called Coordinator. The EHCCo brings together all the information required to build an EHCP and presents reports to a review panel.**

# Glossary of terms

## **OT**

**An occupational therapist or OT is a medical professional who practices occupational therapy. Occupational therapy is the assessment and treatment of physical and psychiatric conditions using activities to limit the impact of the disability and promote independence. OTs can be important in assessing and supporting children and young people with special educational needs.**

## **S&L**

**Speech and Language Therapists, SALT or SLT assess and treat speech, language and communication problems in people of all ages to help them better communicate. They also work with people who have eating and swallowing problems. SLTs can be important in assessing children and young people with special educational needs and providing them with additional support.**

## **Health**

**Health care specialist who are already involved with the child make reports on conditions that they are aware of that might impact the educational development of the child.**

# Glossary of terms

## **EP or E-Psych**

**An educational psychologist or EP is a medical professional trained to assess and diagnose learning difficulties, social and emotional problems and developmental disorders. They are typically central to assessing special educational needs, recommending support and differentiation of the curriculum.**

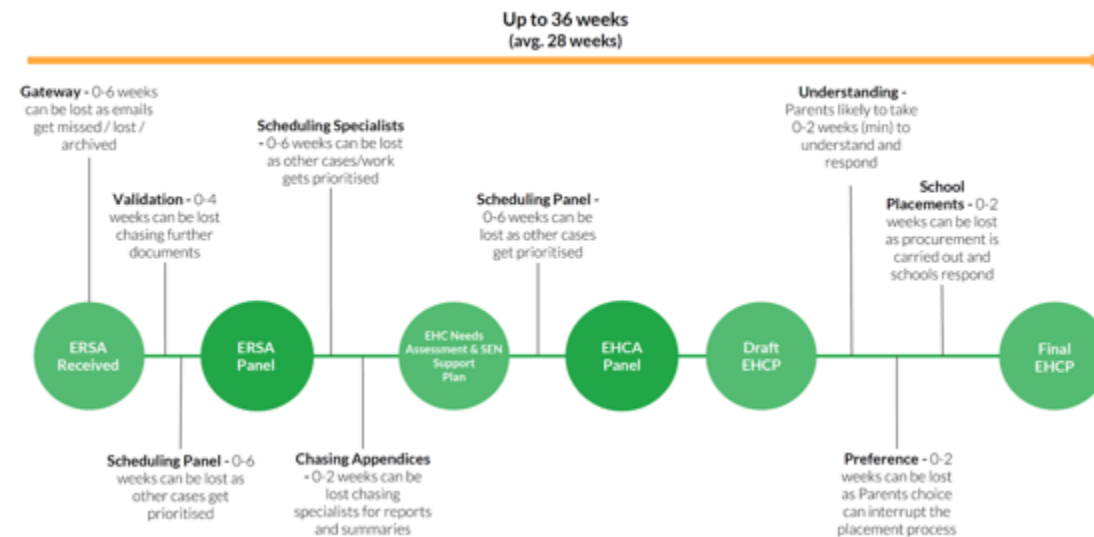
## **Social Care**

**Social care looks at the the activities of daily living for the child. It supports children and families who are vulnerable and need assistance. Some social care work focuses on mental health, emotional and behavioural issues.**

# EHCP production process (Ealing)

- Use of a Ealing Request for Statutory Assessment (ERSA) is a pre-cursor to the EHCP process. The ERSA process is the gateway to starting EHCP and forms the core of information fed into an EHCP.
- Use of a Resource Allocation System (RAS) for early banding and benchmarking

Ealing process: source SEN Assessment Service Discovery Project Sep18



Note: avg. 28 weeks – data available mid 2018)  
Additional resourcing (2 FTE, cost £90k) in 2019, plus additional management measures, has resulted in avg. time of 21 weeks at April 2019

Detail from Tech & Analytics Pack



# EHCP data sources

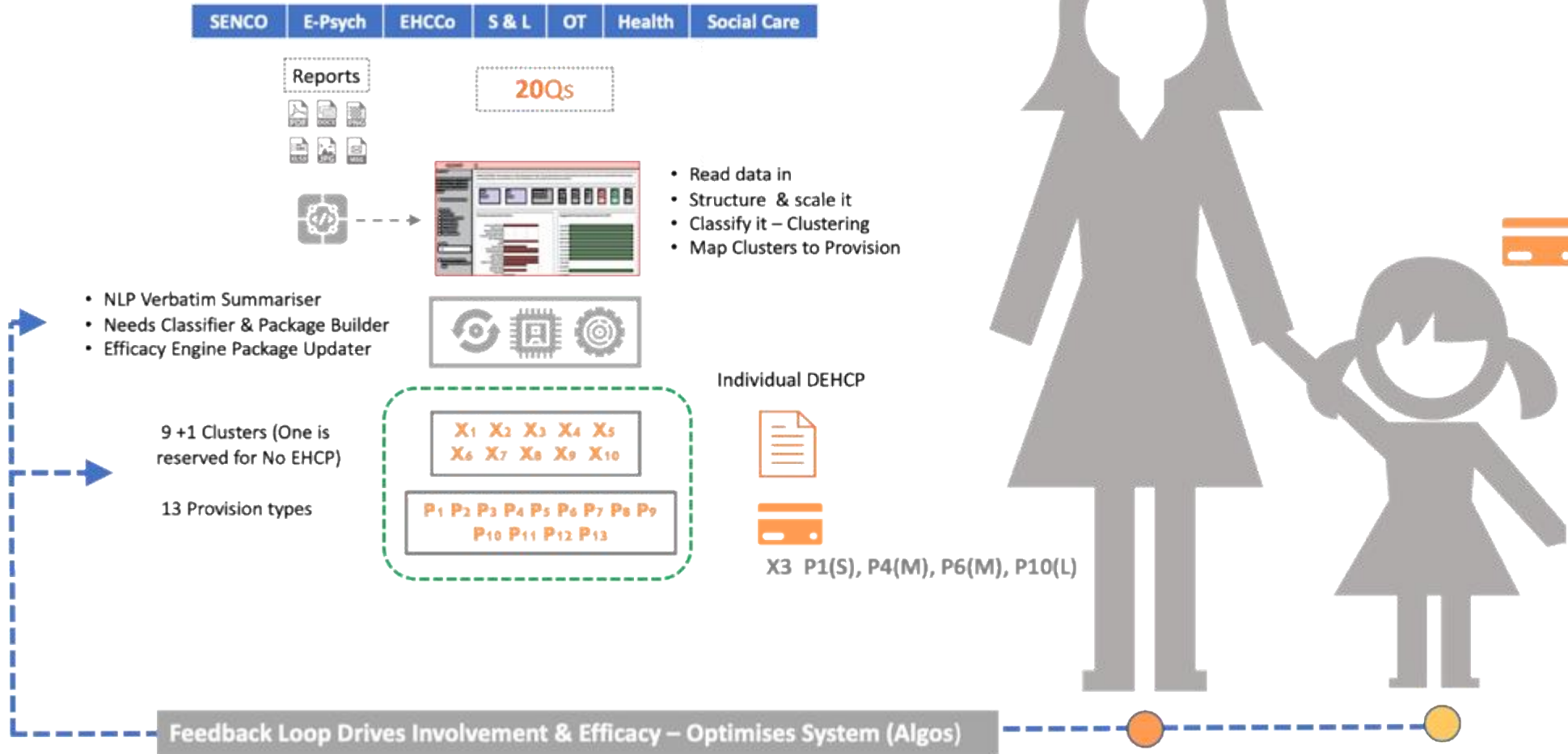
	Pre-Assessment	Assessment	Provision	Review
Pupil Parents Carers		<ul style="list-style-type: none"> <li>Perceived needs</li> <li>Feedback on EHCP</li> </ul>		<ul style="list-style-type: none"> <li>Perceived needs</li> <li>Feedback on EHCP</li> </ul>
SENCO	<ul style="list-style-type: none"> <li>EHCP request</li> <li>Initial observations</li> <li>Perceived need review</li> </ul>			<ul style="list-style-type: none"> <li>EHCP request</li> <li>Initial observations</li> <li>Perceived need review</li> </ul>
Co-ordinator		<ul style="list-style-type: none"> <li>Process checklist</li> <li>Draft EHCP</li> <li>Recommendation</li> <li>Provision plan</li> <li>Budget</li> </ul>	<ul style="list-style-type: none"> <li>Draft EHCP</li> <li>Final EHCP</li> </ul>	
EP		<ul style="list-style-type: none"> <li>Assessment</li> <li>Perceived needs</li> <li>Recommendation</li> </ul>		
OP		<ul style="list-style-type: none"> <li>Assessment</li> <li>Perceived needs</li> <li>Recommendation</li> </ul>		
Other Specialist		<ul style="list-style-type: none"> <li>Assessment</li> <li>Perceived needs</li> <li>Recommendation</li> </ul>		
Health & Social Services		<ul style="list-style-type: none"> <li>Assessment</li> <li>Perceived needs</li> <li>Recommendation</li> </ul>		
Panel		<ul style="list-style-type: none"> <li>EHCP</li> </ul>		

Estimated 30% process saving

Estimated 25% process saving

Detail from Tech & Analytics Pack

# Logic



# Benefits summary – digital EHCP (DEHCP)

## Current State

Specialists submit or write reports which are summarised & interpreted by coordinators. Writing reports with similar core data/information is time consuming & tedious. Static and cumbersome to update and manage



**Specialists Reports**



As much as 6 weeks



- Multiple formats
- Manual data processing
- Document handling & transfers
- Repetitive report writing
- Variable content
- Unstructured and/or unscaled
- Open to interpretation
- Static & difficult to update
- Stressful & time consuming




26 Weeks

## Future State

DEHCP System allows fast data capture with verbatim comments. Structured & Scaled Framework. Builds summaries and reports that are consistent. Dynamic platform for feedback and quality improvement and outcome focused.




**20Qs**



X1	X2	X3	X4	X5				
X6	X7	X8	X9	X10				
P1	P2	P3	P4	P5	P6	P7	P8	P9
P10	P11	P12	P13					



19 Weeks

# Analytics

## EHCP Cases



- Nearly 100 EHCPs analysed
- Human Read then machine read
- Built 2 custom reference dictionaries
- Dimensional reduction
- Needs clustering
- 10 Clusters – 13 Provision Elements
- 20 item questionnaire

## Applied AI & Algos

## Economics



- Top down & bottom up
- SEN2 National data DfE
- Local financial and resource data
- Estimated times for core functions
- Modelled local potential efficiencies
- Estimated national implications
- Quantified EHCP production

## Value Model

## Service Design



- Interviewed key service users
- Mapped system end-to-end
- Checked pain points
- Discussed causes of bottlenecks
- Investigated the why behind the what
- Validated design concepts and resources

## Prototype Functionality



## Prototype

# Analytics EHCPs

## EHCP Cases



- Finding meaning within the data
  - Reducing the crosstalk
  - Clustering techniques
  - Identify the key assessment words & features
  - Initial human read provides a baseline
  - Finding the right number of clusters
  - Smallest number that are representative
- Bottom Up Review
  - Primary Needs Data Set
  - Health & Social References
  - Summary needs
  - Data Driven Assessment Questionnaire (20Qs)
  - Need & Outcome Correlations)

### Bottom up data: EHCP bundle review

Types of EHCPs produced include: one open entry documents and multiple bundles

1. EHCP entry
2. Letters to request assessments
3. 'History of services' section letters and notes
4. Referral reports
5. IEP reports
6. Outcomes
7. Health related documents
8. The child's biography
9. Health reports
10. Physical EHCP
11. Psychological reports
12. Specialist reports
13. Health reports
14. Assessment snapshots of age

### Sample overview: bottom up EHCP data set

- Sample of 95 cases across 3 local authorities
- Generally representative:
  - local sample constraints
  - Ready for use with data primary need classification (more on higher risk & low risk see below)
  - Higher weighting to younger children compared to being and national distribution

Age Group	High Risk	Low Risk
0-4	15	10
5-9	20	15
10-14	25	20
15-19	15	10
20-24	10	5
25-29	5	5
30-34	5	5
35-39	5	5
40-44	5	5
45-49	5	5
50-54	5	5
55-59	5	5
60-64	5	5
65-69	5	5
70-74	5	5
75-79	5	5
80-84	5	5
85-89	5	5
90-94	5	5
95-99	5	5

### Sample medical and social care references

- 172 different terms referenced across 95 cases
- References used to help quickly summarise documents and help with the consistent scaling of needs

### Data driven derivation of needs assessment questions

- First review pass to capture key terms
- Second review pass to derive questions and scales across core needs areas:
  - General wellbeing
  - Learning difficulties
  - Health and physical disabilities
  - ADLs
  - Psychological diagnosis
  - Challenges
  - Abilities
  - Skills
  - Social care observations
- Link to outcomes and support package provision
- Iterative process that will evolve as part of beta as more data is collected

### Sample: summary of stated outcomes

- Mixed level of outcome definition across EHCPs
- High level of holistic outcome

### Correlations across needs

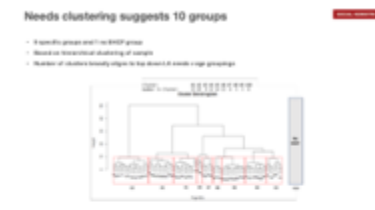
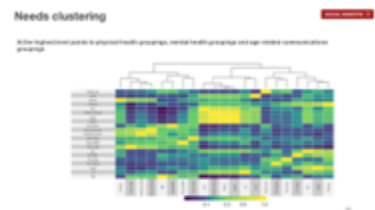
- Positive correlation:
  - Ability learning higher, with a positive writing
  - Physical with a physical disabilities
  - Self-care average
- Negative correlation:
  - ADL average
  - Ability and age

# Analytics Clustering

## Clustering

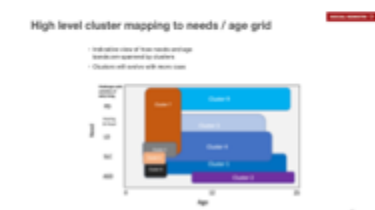
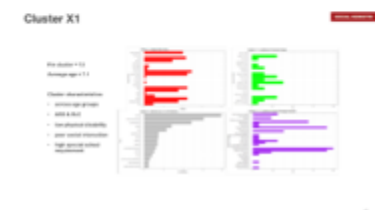


- Similarities & difference
  - Identified 9 specific needs group
  - Hierarchical clustering of sample
  - Small sample in Alpha
  - Number aligned top-down needs v age
- 10 Clusters 1-9 +(No EHCP)
  - These may change (sample Size – Beta Pilot)
  - Fully profiled by Needs – Outcome – Support Package



**Cluster profiles**

Cluster	Needs	Age
Cluster 1	...	...
Cluster 2	...	...
Cluster 3	...	...
Cluster 4	...	...
Cluster 5	...	...
Cluster 6	...	...
Cluster 7	...	...
Cluster 8	...	...
Cluster 9	...	...
Cluster 10	...	...

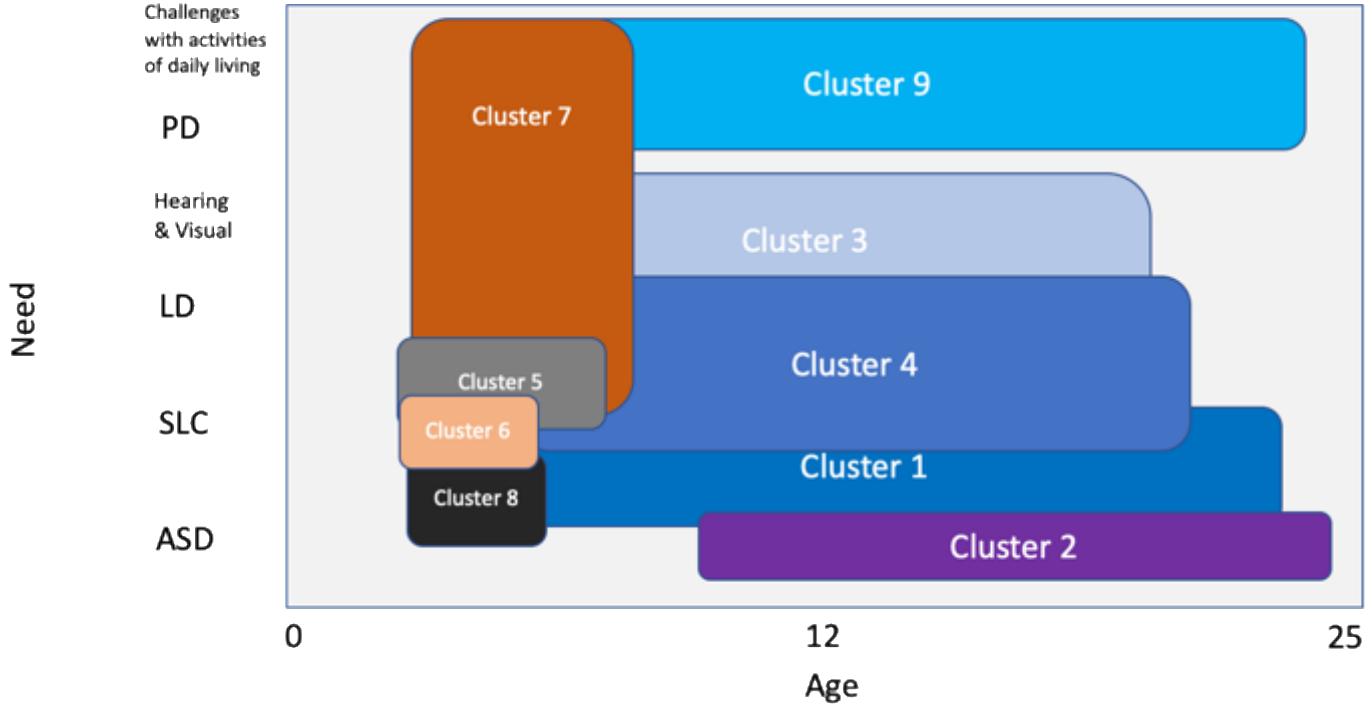


# High level cluster map

**Clustering**



- Indicative view of how needs and age bands are spanned by clusters
- Clusters will evolve with more cases



Detail from Tech & Analytics Pack

# Analytics algorithm (algo)

## Algorithms

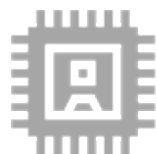


- 1. NLP Verbatim Summarisation**
  - Ingests documents, collects key terms and summarises
  - Helps define core drivers of needs assessment
  - Assists co-ordinators quickly summarize supporting documentation in EHCP bundle
- 2. Needs classifier and support package recommender**
  - Classifies type of need, suggested outcomes and support packages
  - Helps define core drivers of needs assessment
  - Provides common framework to accelerate time to decision and recommendation of co-ordinators and specialists
- 3. Feedback summariser and recommender**
  - To be built as part of service feedback loop in beta phase

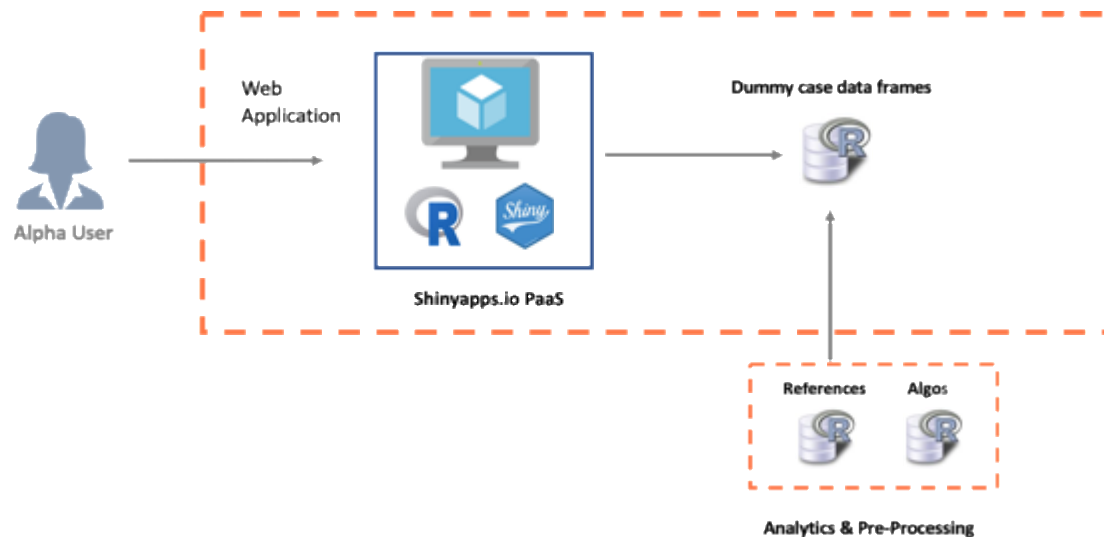


# Alpha technology

## Technology



- Fast prototyping solution
- Integrates dashboard & data science packages
- Supports user interactions & agile iterations
- Foundation for efficient implementation
- Migration to secure cloud environment
- No IT support required

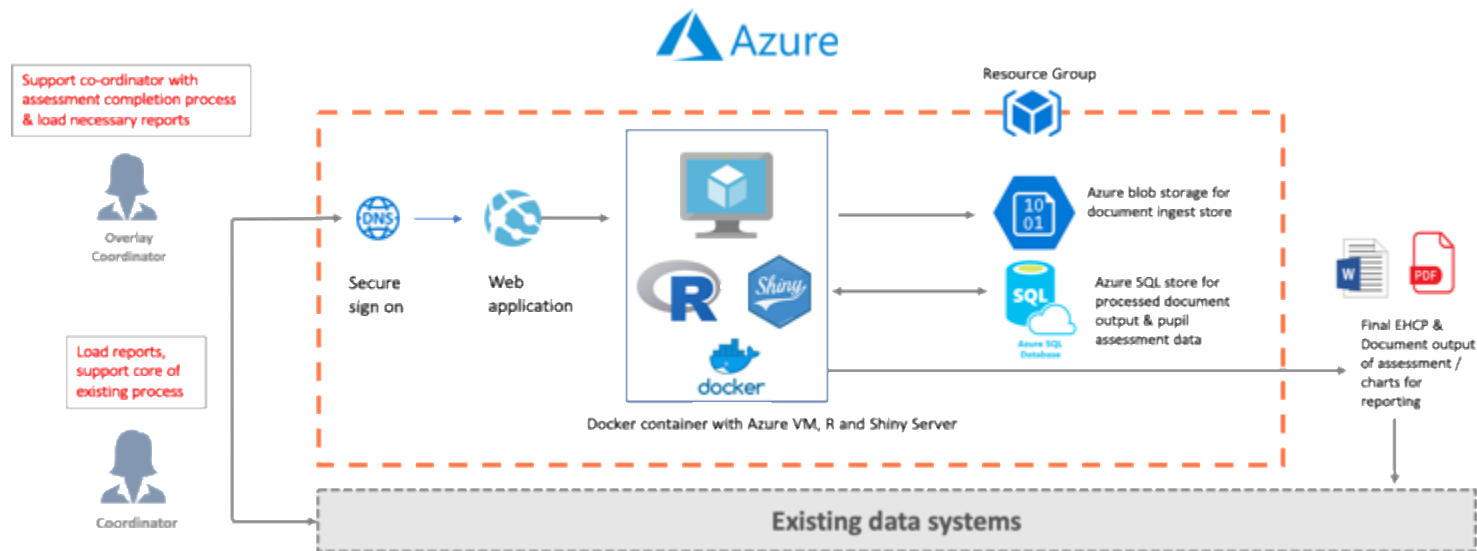


# Beta technology

## Technology

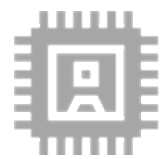


- Designed to support pilot
- Overlays existing systems and augments them
- Train and optimises algos
- Ingests historic EHCP data set
- Secure cloud environment (max efficiency + minimum dependency)
- Aligns with Government Cloud V^ design principles

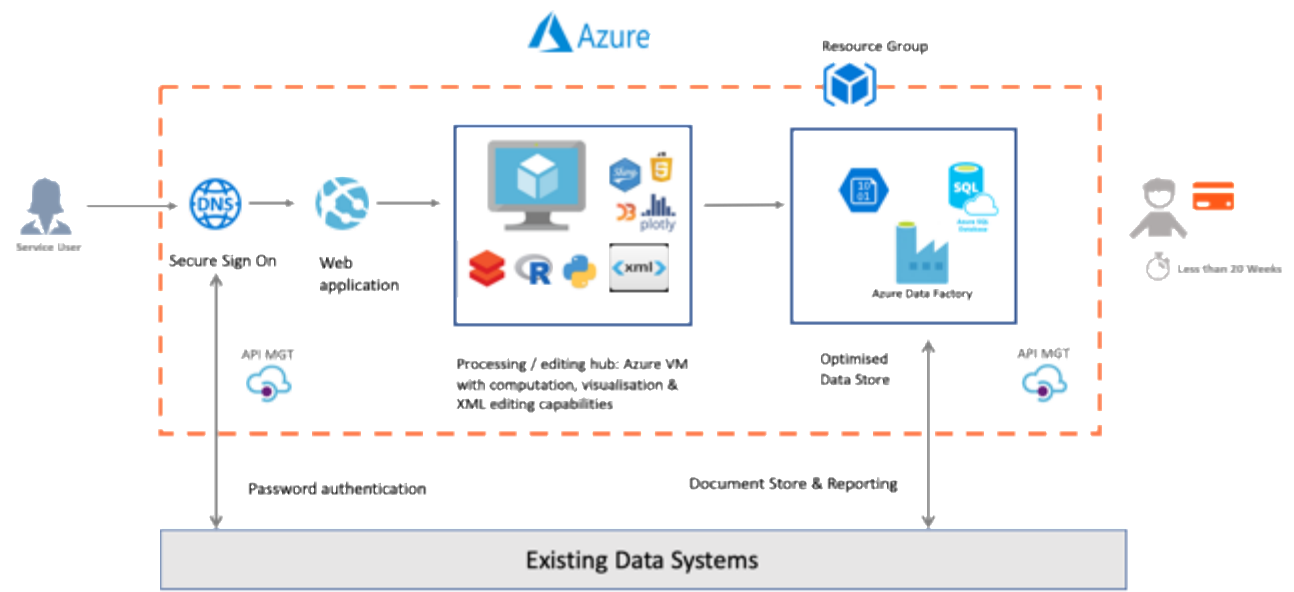


# Future state technology

## Technology



- Fast prototyping solution
- Integrates dashboard & data science packages
- Supports user interactions & agile iterations
- Foundation for efficient implementation
- Migration to secure cloud environment
- No IT support required



# BETA

Part of a 4 stage Agile Development Process



Develops, tests and makes the case for further investment regarding potential service improvements identified by the discovery process

# Beta summary (1)

## Strategy

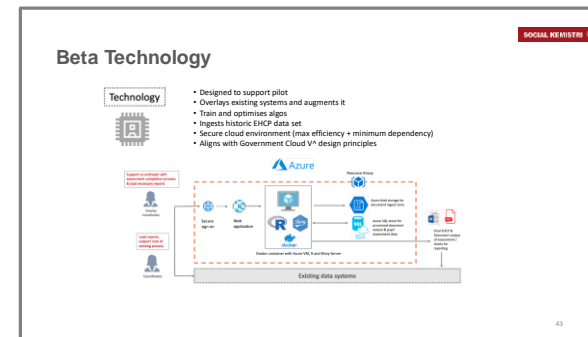
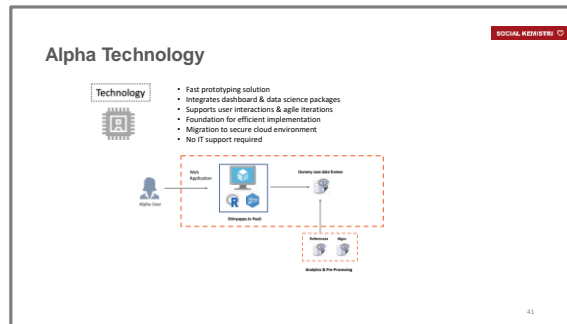
- Builds on the Alpha phase
- Overlaying DEHCP over existing service system
- More user input and involvement
- Co-producing the final service system design
- Training the algos
- Finessing user experience and interfaces
- Pilot 1 (or possibly 2) LAs
- An operational team proving tech in situ

## Core Activities

- Process facilitation
- Pilot technical build
- Data generation and algo development
- Design and pilot feedback mechanism
- Build production system

## Key Outputs

- Pilot system
- Validation of benefits
- Change management strategy & framework
- Production system



# Beta summary (2)

- Agile Project Team 15-20
- 30 Weeks Elapsed
- Estimated Cost £1.4M

- National cost reduction £63M
- Local average saving £420K
- Faster EHCPs

## Strategy

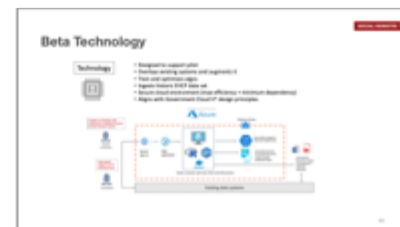
- Builds on the Alpha phase
- Overlaying DEHCP over existing service system
- More user input and involvement
- Co-producing the final service system design
- Training the algos
- Finessing user experience and interfaces
- Pilot 1 (or possibly 2) LAs
- An operational team proving tech in situ

## Core Activities

- Process facilitation
- Pilot technical build
- Data generation and algo development
- Design and pilot feedback mechanism
- Build production system

## Key Outputs

- Pilot system
- Validation of benefits
- Change management strategy & framework
- Production system



# Data generation & algo development

Key activities following on from the alpha

## Data

- Grow from 95 EHCP cases to 1000+
- Assess and scale as per Digital EHCO Assessment Input
- Work within local authority to eliminate data redaction

## AI / Algorithms

- Evolve classifier and support package recommender with more data
- Refine “No EHCP” cluster, ie cut-off conditions
- Evolve document summarisers and ingest
- Support system build requirements and required logic
- Support feedback design and pilot to complement other analytics and algorithms

# Plan & work packages

## Phased approach based on 1 LA Pilot

- Engagement & Preparation
- Data collection | Pilot Start | Feedback System
- Production System Build

Activities	Total Weeks	Project Week																													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Kick Off / Comms / Process Detail Finalisation / Pilot System Build	4	1	1	1	1																										
Data Collection / Formatting (Existing / Previous Cases)	20					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Digital EHCP Pilot	26					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Feedback Design & Pilot	26					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Product System Scope & Build	22									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



# Plan by activities & roles

Area	Detail	Roles	Weeks	Weeks																															
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Product Owner in Council	Council Lead / Co-ordinator	Product Owner	30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Project Management	Overall project management	Project Lead / Support	30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Pilot System Build Out	Build prototype in cloud	Technical Architect	4	1	1	1	1																												
Algo Dev & System Logic	Logic / NLP Engine / categorizer / feedback	Data Scientist / Specialists	30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Data Collection	Data review & input using existing cases (10 per day / analyst) = 2 analysts *10wk = 1000 cases	Data Input / Review	20					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Digital EHCP Pilot	User workshops / comms / co-ordinator shadowing for new Cases & migration of existing	Overlay EHCO / BA	26					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Feedback Design & Pilot	Design / scope / workshops / comms / review, monitoring	Service Design / Feedback Co-ordinator / BA / Specialists	26					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Production System Build	Scope / data interchange design/ production architecture / build	Technical Architect / Dev	26					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	UI / UX	UI / UX Specialist	22									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Requirements management / reporting / review & build PM	BA / Dev PM	22									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Production system coding / scripting / testing / release	Developers / Testers	18																																

# Appendices

1. **Technical Pack & Report**
2. **SEN2 Online Benchmarking Tool Explanatory Notes & Data References**
3. **Value Model Explanatory Notes and Excel Model**
4. **Glossary of SEND terms & acronyms**

# Producing Education Health & Care Plans Using AI

Developed by Social Kemistri for:

London Borough of Ealing in partnership with Suffolk  
County Council & Staffordshire County Council

1 May 2019