Producing EHCPs Using AI & Analytics

Technical & Analytics Pack
v0.09

25 March 2019

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Project impact

Project impact summary

1. **Applied AI to improve efficiency and efficacy in the EHCP process.**

    - Consistent assessment grading, data collection and data storage

    - Automated synthesis and recommendation

    - Creation of pupil progress feedback loops (continuous system recommendation improvement)

2. **Targeting 25%+ time saving on process implies**

    - Equivalent to reducing a 26 week process by 7+ weeks to 19 weeks.

3. **Easy transition to new workflow**

Value quantification (England)

1. **Potential £63m annual saving**

   - **Based on estimated £253m national spend (25% time saving)**

   - **Benefits from process consistency and follow on support package efficacy not quantified**

2. **Benefits realisation:**

   - **Alpha phase: feasibility & prototype**

   - **Beta phase: 1-3 local authorities over 6 months**

   - **National roll-out**

Alpha & beyond: high level project & commercial plan

1. **Alpha phase**

   - 3 months, cost: £0.1m, outcomes: prototype, analytics, business case, plan

2. **Beta phase**

   - 6 months, cost £1.4m, outcomes: completed pilots across 1-2 local authorities, large scale data ingest / algo training, benefits realisation, commercial plan, production ready system

3. **Live phase**

   - System roll-out, operation and further development

   - Current cost of assessment £5,000+, target saving £1,350+

   - Cost per pupil model: £250 per pupil set-up, then £50 per pupil / year

Assessment cost breakdown

Typical new case EHCP process costs £5,000+

Average Full EHCP Process	Days	Council Funded	Loaded Day Rate £	Total Cost £		Time Reduction	Value
SENCO	nm	No	nm	nm	*Not part of budget*		
ECHO / Project Co-ordinator	8	Yes	241	1,928	*Process info & loaded costs*	30%	578
Specialists (OT/PT/etc.)	10	Yes	311	3,109	*Process info & loaded costs*	25%	777
Panel	0.25	Yes	1,750	438	*Process info & loaded costs*	0%	-
Total cost per assessment				**5,474**		**25%**	**1,356**

National impact

25% saving on EHCP process

Implies:

- 26 week process completed in 19 weeks (25% shorter)
- Potential average saving by local authority £420k
- National impact £63m

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		
EHCP Co-ordinator	1,928	30%	578
Specialists (OT/PT/etc.)	3,109	25%	777
Panel	438	0%	-
Total cost per assessment	**5,474**	**25%**	**1,356**

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

						LA's
						150
					Assessment Reduction %	Average LA
EHCP Review Funnel	Pupils	% of New Case Effort	Cost £m	Saving	Total	Total
New Cases (Not Qualified)	**3,043**	40%	6.66	25%	1.65	0.01
New Cases (Qualify)	**32,212**	100%	176.34	25%	43.67	0.29
Reviews (20% of total)	63,964	20%	70.03	25%	17.34	0.12
Total	**99,219**		**253.03**		**62.66**	**0.42**
					25%	

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:

Impact mapped to high level process

	Pre-Assessment	Assessment	Provision	Review
Pupils, Parents & Carers		• Perceived needs • Feedback on EHCP		• Perceived needs • Feedback on EHCP
SENCO	• EHCP request • Initial observations • Perceived need review			• EHCP request • Initial observations • Perceived need review
Co-ordinator		• Process checklist • Draft EHCP • Recommendation • Provision plan • Budget	• Draft EHCP • Final EHCP	
EP		• Assessment • Perceived needs • Recommendation		
OP		• Assessment • Perceived needs • Recommendation		
Other Specialist		• Assessment • Perceived needs • Recommendation		
Health & Social Services		• Assessment • Perceived needs • Recommendation		
Panel		• EHCP		

Estimated 30% process saving

Estimated 25% process saving

Impact & change summary mapped to workflow

	Process Level 0	1. Pre-Assessment		2. Assessment					3. Provision	4. Review
	Process Level 1	Initial Need Identification	Preliminary Need Classification	Initial Requirements Review	Co-ordination of Review	Expert Review & Data Capture	Data Synthesis & Recommendations	Assessment Agreement	Supplier Provision	Feedback & Needs Update
Current State	Target Timing	When required	Varies	<2 weeks	Throughout process	<16 weeks	<2 weeks	Panel meeting	As required	Ad hoc
	Role	SENCO	SENCO	Co-ordinator	Co-ordinator	Specialists	Co-ordinator	Panel	Supplier	Supplier / Parents
	Data	Feedback notes	EHCP request data	EHCP request data	None	Review docs & confirmation docs	ERSA / EHCP / Plans	ERSA / EHCP / Plans	ERSA / EHCP / Plans	ERSA / EHCP / Plans
	Tech	Word / PDF	Word / PDF	Mosaic/OO/Word / PDF/Other	Mosaic/OO/Word / PDF/Other	Mosaic/OO/Word / PDF/Other	Mosaic/OO/Word / PDF/Other	Mosaic/OO/Word / PDF/Other	Mosaic/OO/Word / PDF/Other	Mosaic/OO/Word / PDF/Other
	Key Pain Points	Case dependent	No common format	No common format	Lack of common reqs framework	Lack of common format / system	No scales, common format	Panel review windows	Lack of common progress reporting	No formal review structure in place
Project Impact	Summary of Change		Common preassessment & automated reference framework	Automated checklist based on initial pre-assessment		Common format, review scales & verbatim data capture	Automated framework reference			Efficacy measures
	Benefits		Process time saving & consistency	Process time saving & consistency		Process time saving & consistency	Process time saving & consistency			Efficacy: improved outcomes & better categorization
	AI		NLP verbatim summarisation, AI Categorizer, Support Package Predictor	nm		nm	NLP verbatim summarisation, AI Categorizer, Support Package Predictor			Review Flag AI
	Data		Initial summary data	Checklist data		Common format, scales & verbatim	Common format EHCP & category			Supplier & Parent Feedback
	Tech		Form data, scales, verbatim, database stored XML	Form data, scales, verbatim, database stored XML		Form data, scales, verbatim, database stored XML	Form data, scales, verbatim, database stored XML			Form data, scales, verbatim, database stored XML

Key: nm = not meaningful

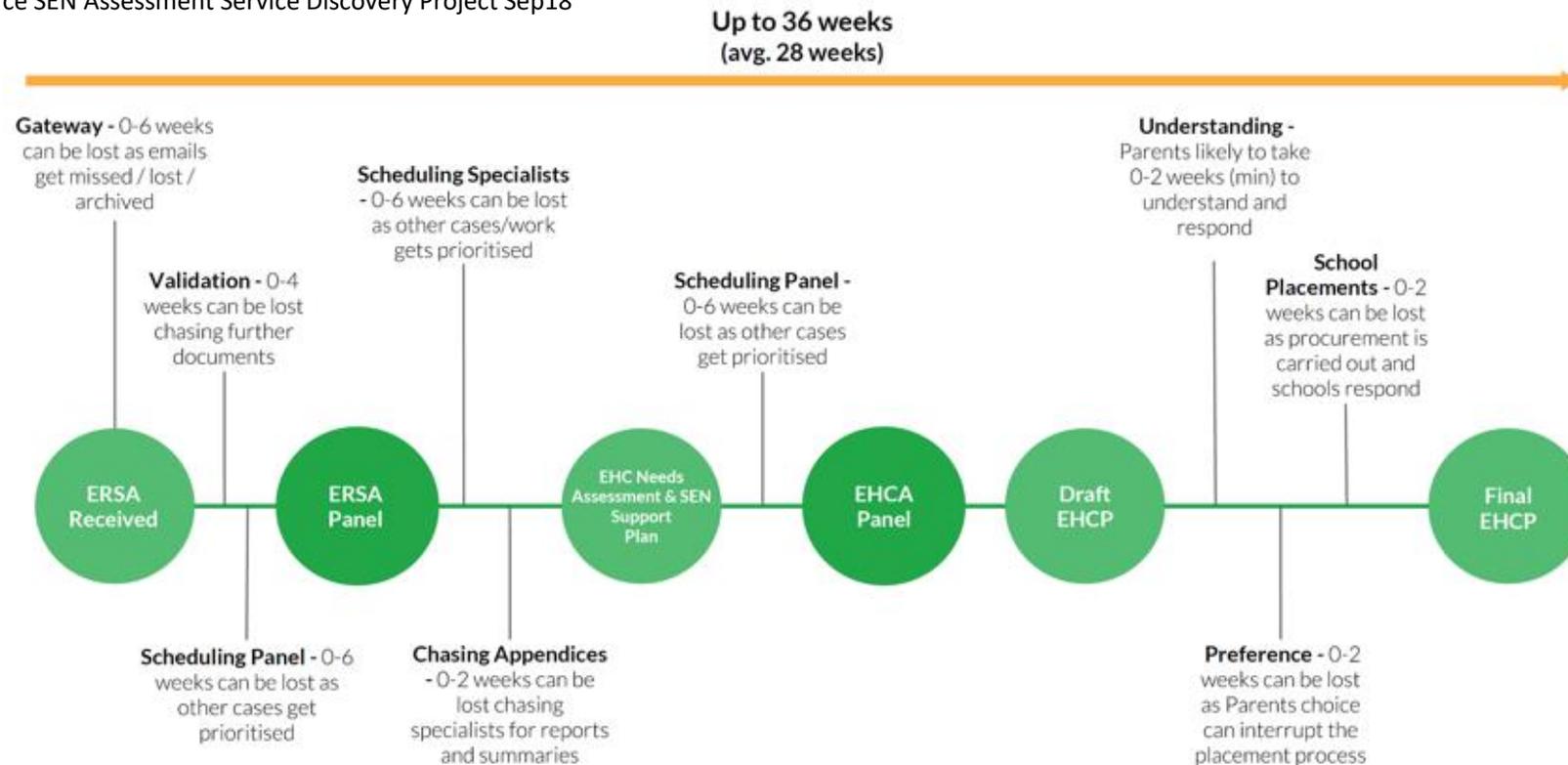# Process comparison

Process comparison: 3 local authorities

SOCIAL KEMISTRI ♡

- **Very similar overall processes**

- **Small differences in pre-EHCP assessment process**

- **Same challenges on time spent (process co-ordination, information aggregation & assimilation, processing reports of varying styles and formats)**

	Pre-EHCP qualification		EHCP assessment process and production of draft plan	Panel	Placement & production of final EHCP	Review process
Ealing	ERSA process	ERSA panel	EHCP assessment	Panel	Placement	Review
Suffolk	County Inclusion Service & Outreach Services reports		EHCP assessment	Panel	Placement	Review
Stafford	Clear criteria for submitting a referral for assessment		EHCP assessment	Panel	Placement	Review

Learnings from Ealing

- Use of ERSA (Ealing Request for Statutory Assessment) as a pre-cursor to 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

Up to 36 weeks
(avg. 28 weeks)

Gateway - 0-6 weeks
can be lost as emails
get missed / lost /
archived

Validation - 0-4
weeks can be lost
chasing further
documents

Scheduling Specialists
- 0-6 weeks can be lost
as other cases/work
gets prioritised

Scheduling Panel -
0-6 weeks can be
lost as other cases
get prioritised

Understanding -
Parents likely to take
0-2 weeks (min) to
understand and
respond

School
Placements - 0-2
weeks can be lost
as procurement is
carried out and
schools respond

ERSA Received | ERSA Panel | EHC Needs Assessment & SEN Support Plan | EHCA Panel | Draft EHCP | Final EHCP

Scheduling Panel - 0-6
weeks can be lost as
other cases get
prioritised

Chasing Appendices
- 0-2 weeks can be
lost chasing
specialists for reports
and summaries

Preference - 0-2
weeks can be lost
as Parents choice
can interrupt the
placement process

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

Learnings from Suffolk

- EHCO = Family Services Co-Ordinator

- Average EP EHC Assessment = 2.75 days (Context – EPs not part of early intervention at present therefore not knowing children or young people before EHC NA)

- Use of County Inclusion Support Service to provide support and early intervention funded by 'Schools Budget'.

- Actively developing a Multi Agency Assessment Programme (and use of Outreach services)

- Process key documents: initial questionnaire | pre-panel sheet | EHCP doc & supporting reports.

- Delays to process are mainly: placement (availability of places) & delays in reports from health

- Just completed recent reorganisation / transformation to a pupil centric / constant touch-point model

- Priorities for service development: smooth system, faster, co-production with families, reduce admin time and increase parent face time

Learnings from Staffordshire

- Staffordshire highest performing of the three councils in 2017

- 2017 data showing 88.6% of EHCPs completed on or below 20 weeks

- Demand management was a high priority

- Higher proportion of special school placements

- The EHCP bundles provided for project were very detailed & thorough

- Assessment capacity constraints now having significant impact on 20 week threshold

- Clear lines drawn about level of support and reports required by schools for EHCP request

- Ambition and determination to increase assessment performance & efficacy

- Highlighted the need to end 'postcode lottery' – national standards for needs quantification

Service Analytics & Algorithm Development

Analytics process

1. Initial needs analysis, outcomes mapping and support package mapping, age & spend data:

   - National level

   - LA (top down from summary data)

   - LA (bottom up from EHCP forms)

   - LA (bottom up machine reading of EHCP bundles producing keyword summaries)

2. Development of assessment requirements and scales

3. Development of algorithms

4. Prototype

Applied AI overview

1. **Document summary (Natural Language Processing NLP verbatim synthesis)**

   - **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 phase: first iterations

Beta phase

National data

- **320k pupils with EHCP's in England in 2018**

- **Growing at 11% per annum**

- **14% of pupils with EHCP's are new assessments (70% of these are <11 years old)**

England: EHCP Pupil Dynamics & Breakdown

EHCP's in England	2011	2012	2013	2014	2015	2016	2017	2018	Latest % Split	2016-17 Growth
Under 5 years of age	9,433	9,674	10,416	10,944	11,250	10,513	11,629	12,516	3.9%	10.6%
Aged 5-10	80,635	80,724	82,360	84,843	91,045	92,213	97,379	105,689	33.0%	5.6%
Aged 11-15	117,934	116,791	115,992	114,966	112,340	111,225	112,540	117,354	36.7%	1.2%
Aged 16-19	20,219	21,828	21,388	22,678	25,538	41,300	58,034	70,084	21.9%	40.5%
Aged 20-25	.	.	.	.		10	1,064	7,708	14,176	4.4%	624.4%
Total	228,221	229,017	230,156	233,431	240,183	256,315	287,290	319,819	100.0%	12.1%
Change		796	1,139	3,275	6,752	16,132	30,975	32,529		
% Change		0.3%	0.5%	1.4%	2.9%	6.7%	12.1%	11.3%		

New EHCP Applications	2011	2012	2013	2014	2015	2016	2017		Latest % Split	2016-17 Growth
Under 5 years of age	7,054	7,605	8,134	8,221	8,026	9,054	9,774		23%	8.0%
Aged 5-10	12,327	13,073	13,726	12,843	12,457	16,166	19,251		46%	19.1%
Aged 11-15	6,356	6,624	6,601	5,813	5,863	8,097	9,881		23%	22.0%
Aged 16-19	150	145	175	260	1,305	2,030	2,340		6%	15.3%
Aged 20-25	.	.	.	2	272	747	916		2%	22.6%
Total	25,887	27,447	28,636	27,139	27,923	36,094	42,162		100%	16.8%
% of All EHCP's	11.3%	12.0%	12.4%	11.6%	11.6%	14.1%	14.7%			

Source: SENS2

Top down: primary needs mix

- **4 largest primary needs categories across all pupils are: SLC, MLD, SLD & ASD (see Glossary)**

- **SLC is pre-dominantly a primary need diagnosis handled by primary schools**

- **Ealing has a higher proportion of SLC, but lower proportion of the other big 4 primary needs categories**

- *Note lack of detail breakout at national level for pupils with EHCP by primary need & age band*

Needs Mix: % Primary Need across All Pupils
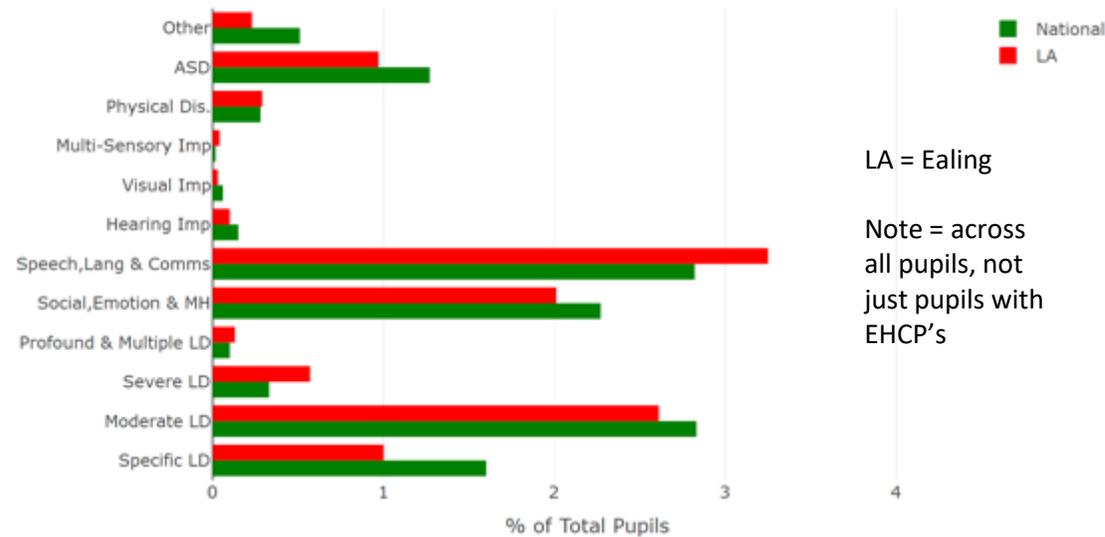
LA = Ealing

Note = across all pupils, not just pupils with EHCP's

National Level % Breakdown of Total Primary Needs by Establishment Type

Source: https://socialkemistri.shinyapps.io/SENS2
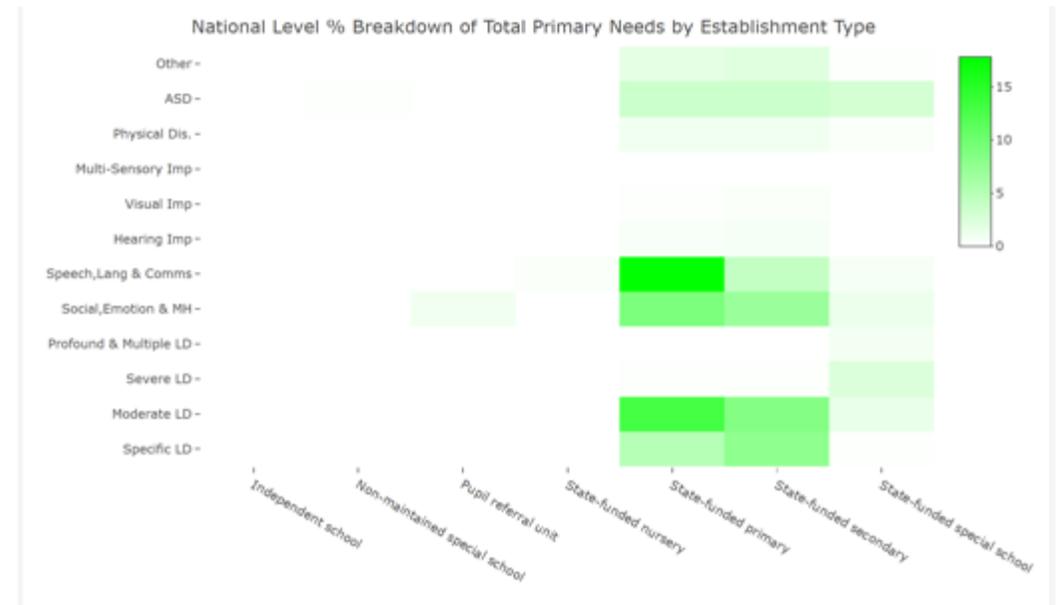
National & local authority analytics

- **Local Authority SENS profile benchmarking tool:** https://socialkemistri.shinyapps.io/SENS2
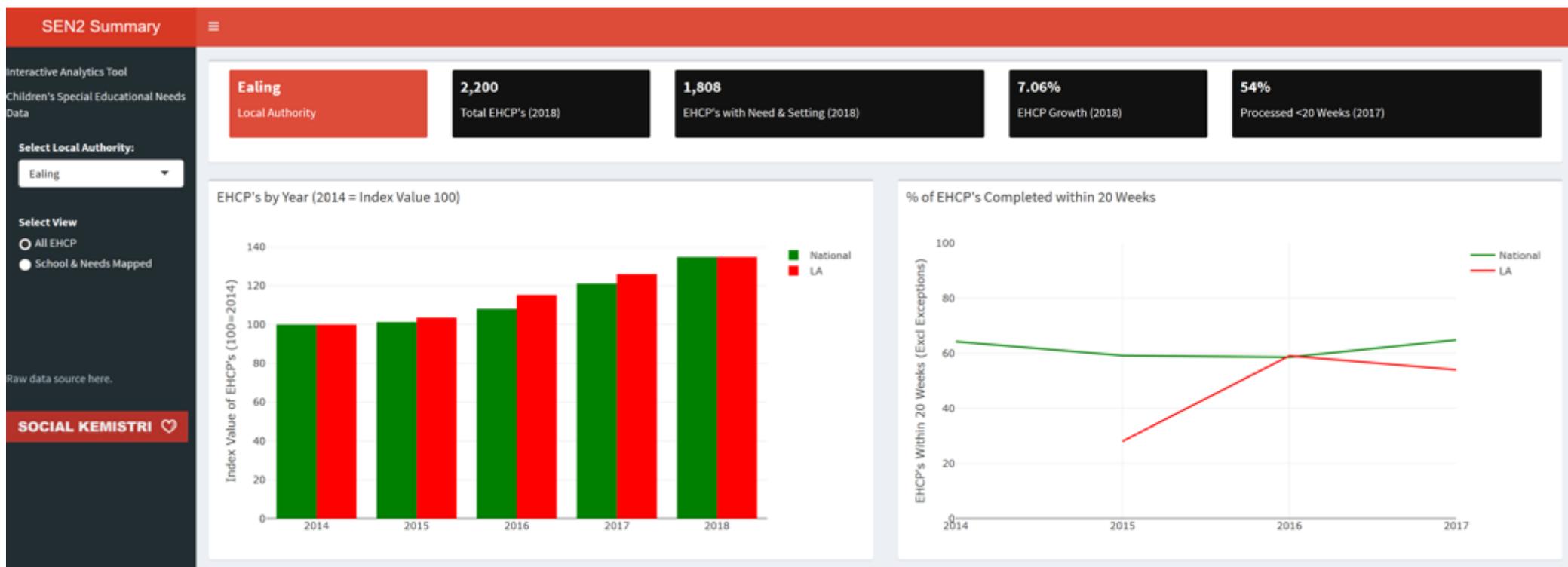
Top down:
Ealing Pupils with EHCP by Primary Needs & Age Band

- **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**

	Age Band						
	<5	5-10	11-15	16-19	20-25	**Total**	% of All
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%
Total	139	854	661	303	95	**2052**	100%
% 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%

EHCP's collected from 3 local authorities

1. **Ealing, Suffolk & Staffordshire**

2. **Process similarity underlines opportunity for scalable solution**

3. **All work with multi-format, unstructured data**

4. **EHCP outputs follow the mandatory structure but have different styles**

5. **Large variation in supporting documents at the individual case level, not across local authorities**

High 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%
# EHCP's	319,819	2,200	4,456	4,039
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 within 20 weeks (excluding exception cases 2017)	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)

Bottom up data:
EHCP bundle review

Typical EHCP preparation bundles can span many documents and multiple formats

1. **SENCO letter**

2. **Letters & emails from parents**

3. **"Known to service" validation letters and replies**

4. **School reports**

5. **EP reports**

6. **Checklists**

7. **Panel review documents**

8. **Pre-EHCP's (e.g. ERSA)**

9. **Draft EHCP**

10. **Final EHCP**

11. **Provision plans**

12. **Specialist reports**

13. **Health reports**

14. **Co-ordinator telephone call logs**

15. **Other**

Learnings from EHCP document review process

1. Large variation in the length of reports and depth of content in reports

2. Large variation in the difference of support package names and details of frequency of requirement and for how long

3. Outcomes are sometimes boiler plates, sometimes not mentioned or sometimes confused with support package prescription

4. Summaries vary considerably

5. Primary need classification is not always present

6. Some detail hours per week & cost info, others do not

7. Detail of travel support not generally included

8. Wide variation in review process frequency and detail

9. Limited value from inclusion of pictures and constant reference to name of child

Sample overview: bottom up EHCP data set

- **Sample of 95 cases across 3 local authorities**

- **Generally representative:**

  - **Small sample constraints**

  - **Broadly in line with Ealing primary need classification top down mix (higher SLC & ASD with less MLD)**

  - **Higher weighting to younger children compared to Ealing and national distribution.**

Primary Needs

	SpecLD	ModLD	SevLD	PMLD	SEMH	SLC	Hearing Imp	Visual Imp	MSI	PD	ASD
Ealing Top Down Mix	3%	22%	13%	3%	9%	17%	3%	1%		7%	22%
Sample	2%	13%	13%	1%	5%	25%	5%	1%	0%	5%	29%

Age bands

Age Band	Count	Sample %	Ealing %	National %
Under 5	31	33%	7%	4%
5-10	42	44%	42%	34%
11-15	16	17%	32%	39%
16-19	5	5%	15%	20%
20-25	1	1%	5%	3%
All	95			

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 identifiers**
  - **Learning difficulties**
  - **Health and physical disabilities**
  - **ADL**
  - **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 needs
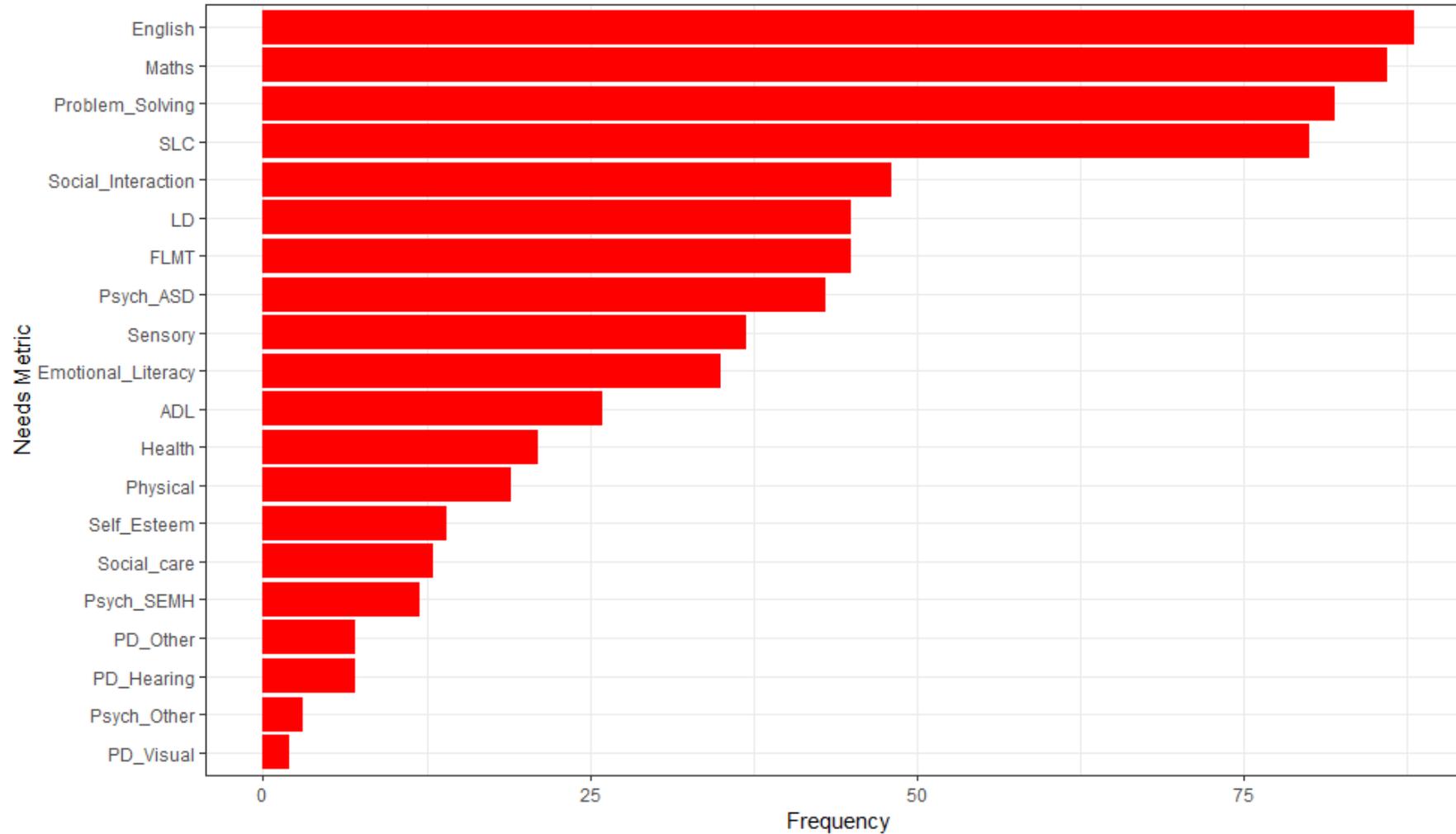
Note:
- 95 cases
- Need counted as 1 or 0 irrespective of severity score

Sample: summary of stated outcomes

- **Mixed level of outcome definition across EHCPs**

- **High level of boilerplate outcomes**
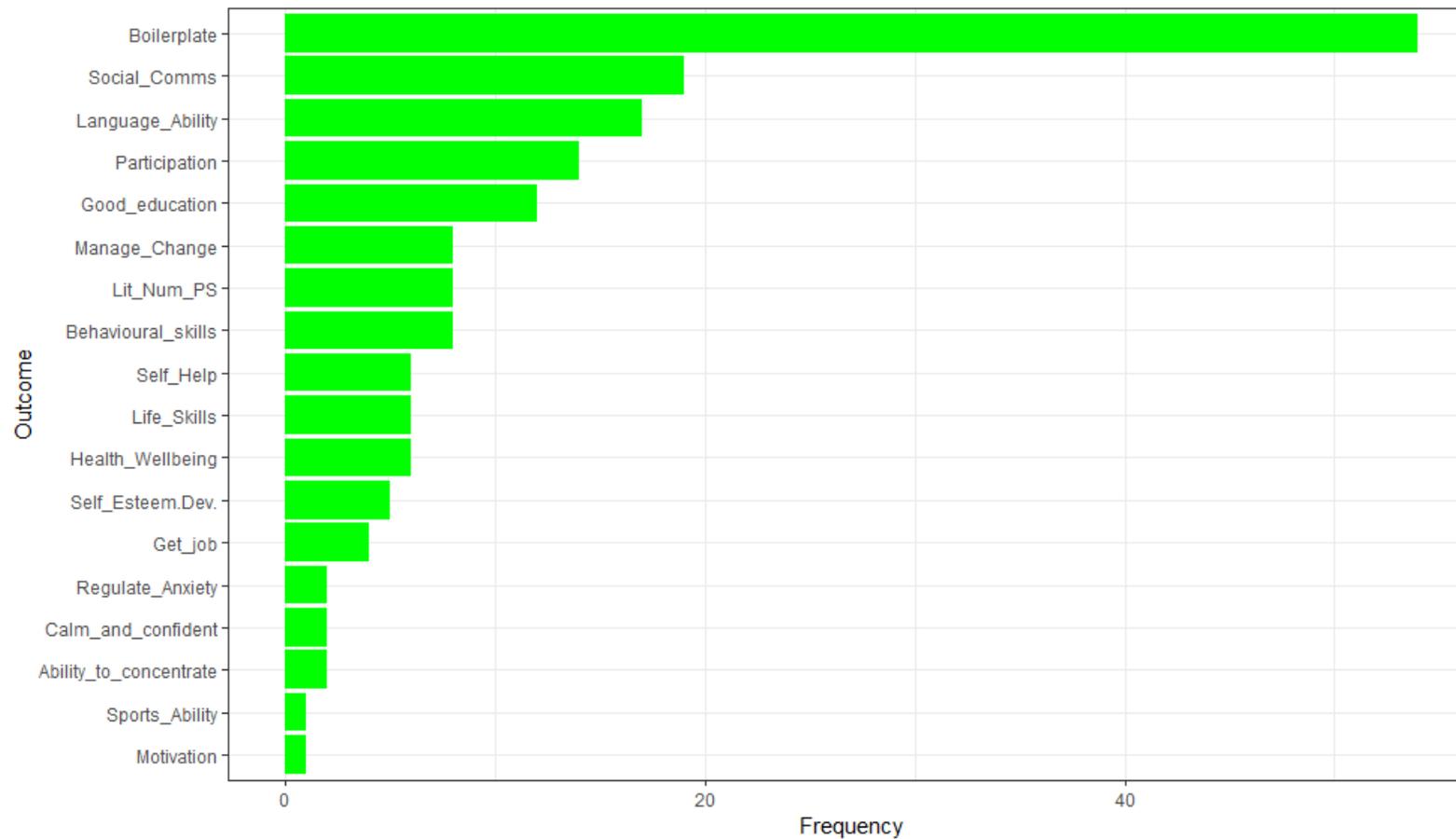
Note:
- 95 cases

Sample: summary of support packages

- **<10 core support packages with a longer tail of related support packages**
- **Precision of hours, frequency and costs varies**
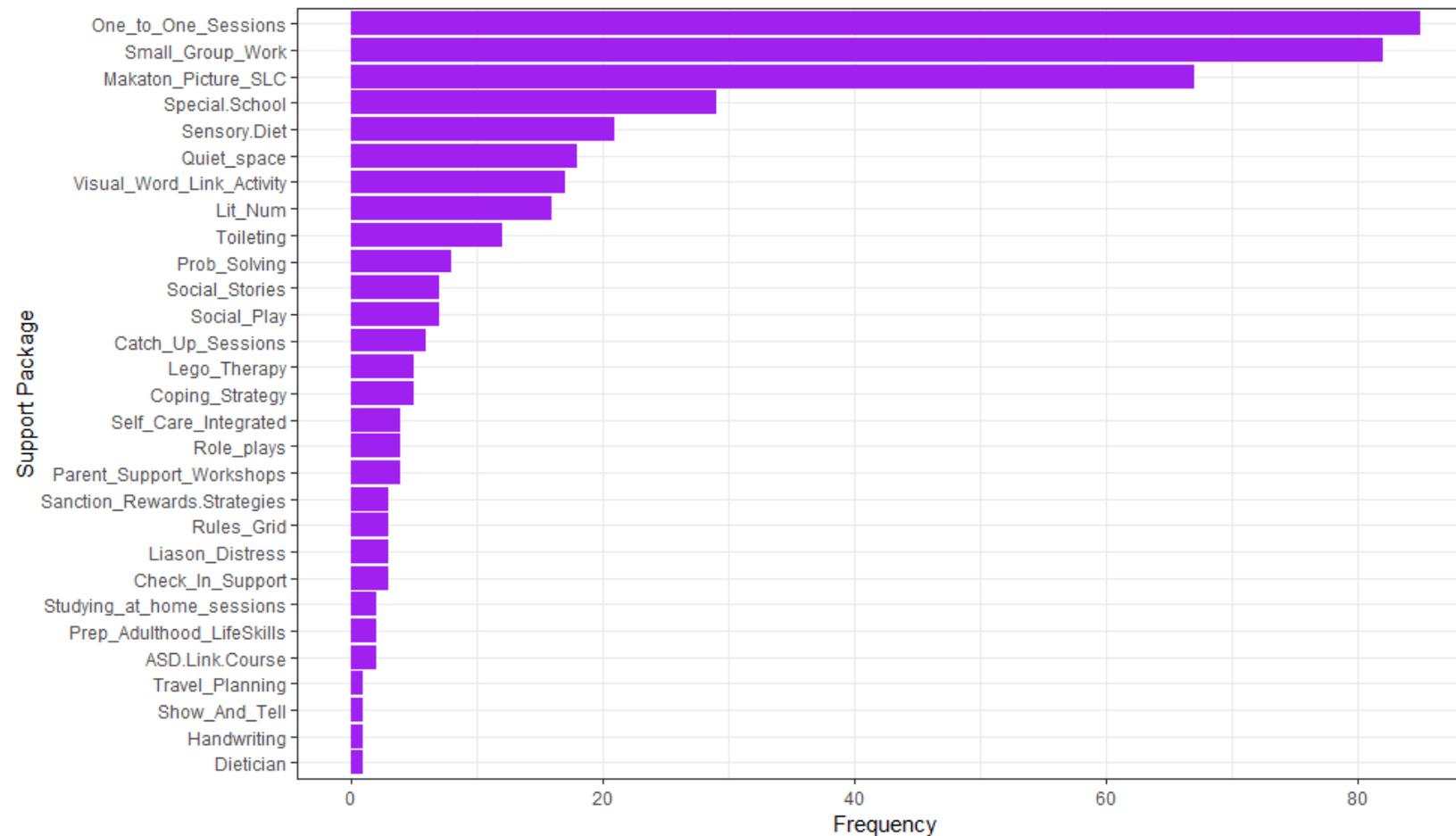
Note:
- 95 cases

Correlations across needs

- **Positive correlation:**

  - **Abilities spanning English, maths & problem solving**

  - **Physical skills & physical disabilities**

  - **Self-esteem and age**

- **Negative correlation:**

  - **SLC and age**

  - **Abilities and age**
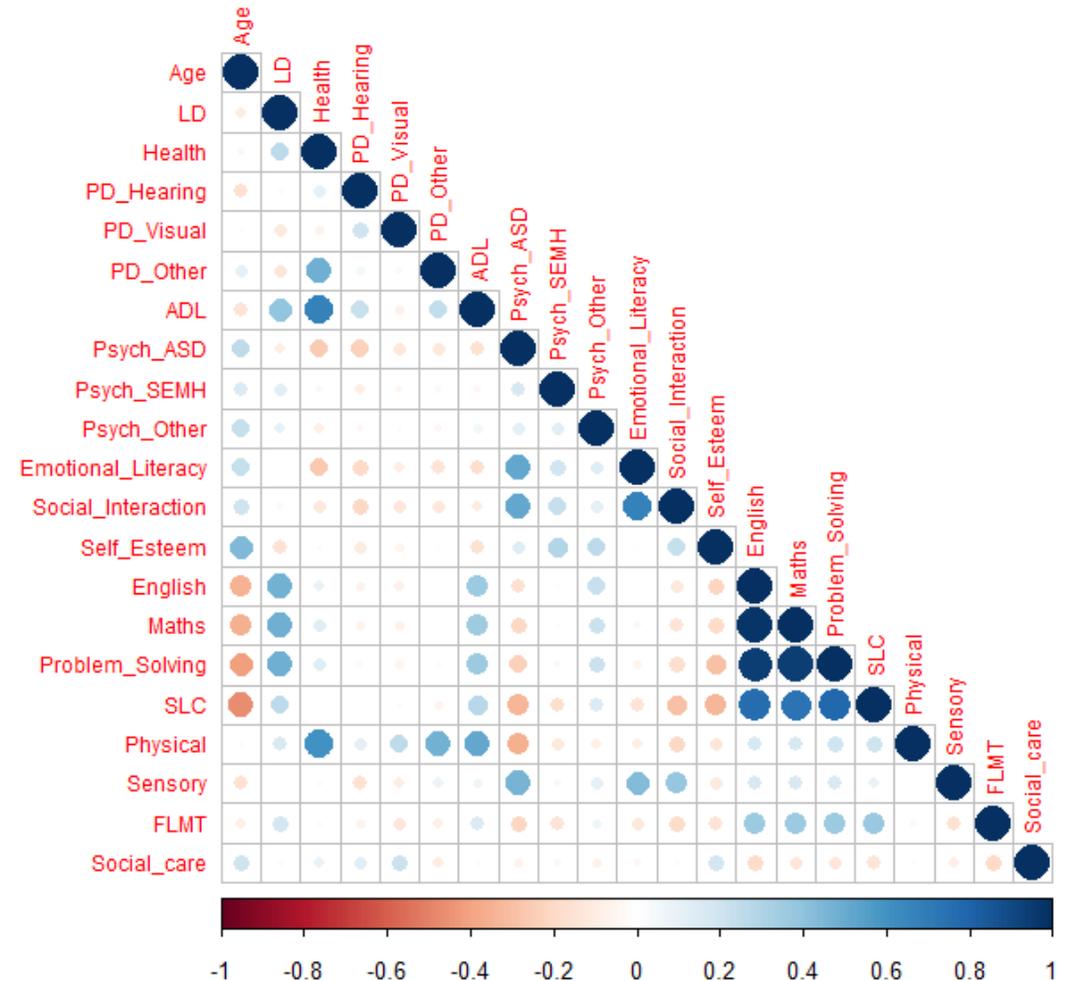
Correlations across outcomes

Groupings around:

- **Ability to communicate**

- **Educational achievement**

- **Ability to cope**

Example boilerplate:

Meet the long term aspirations for learning, good health, relationships and independence to prepare for adulthood.
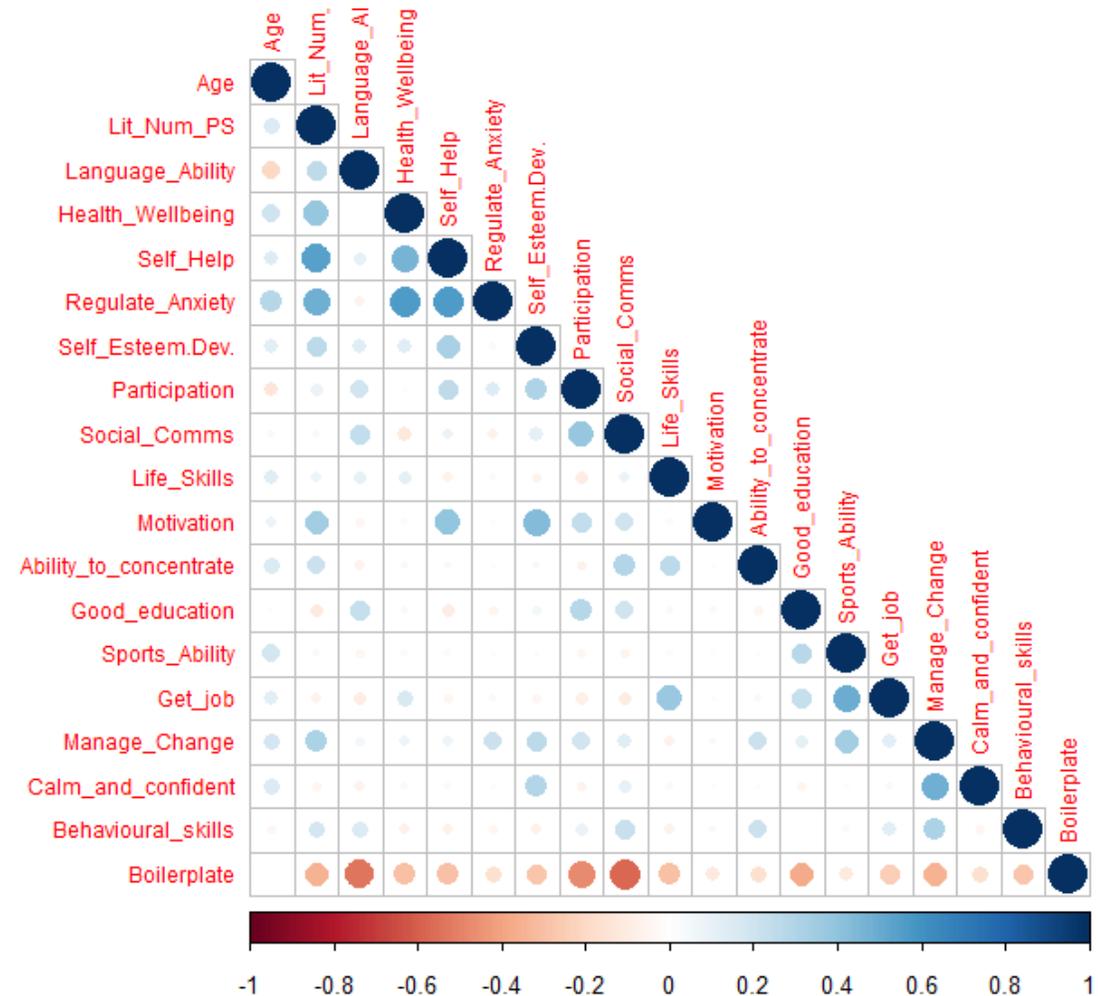
Correlations across support packages

- **Generally low levels of correlation**

- **Wide variation in names of support packages**
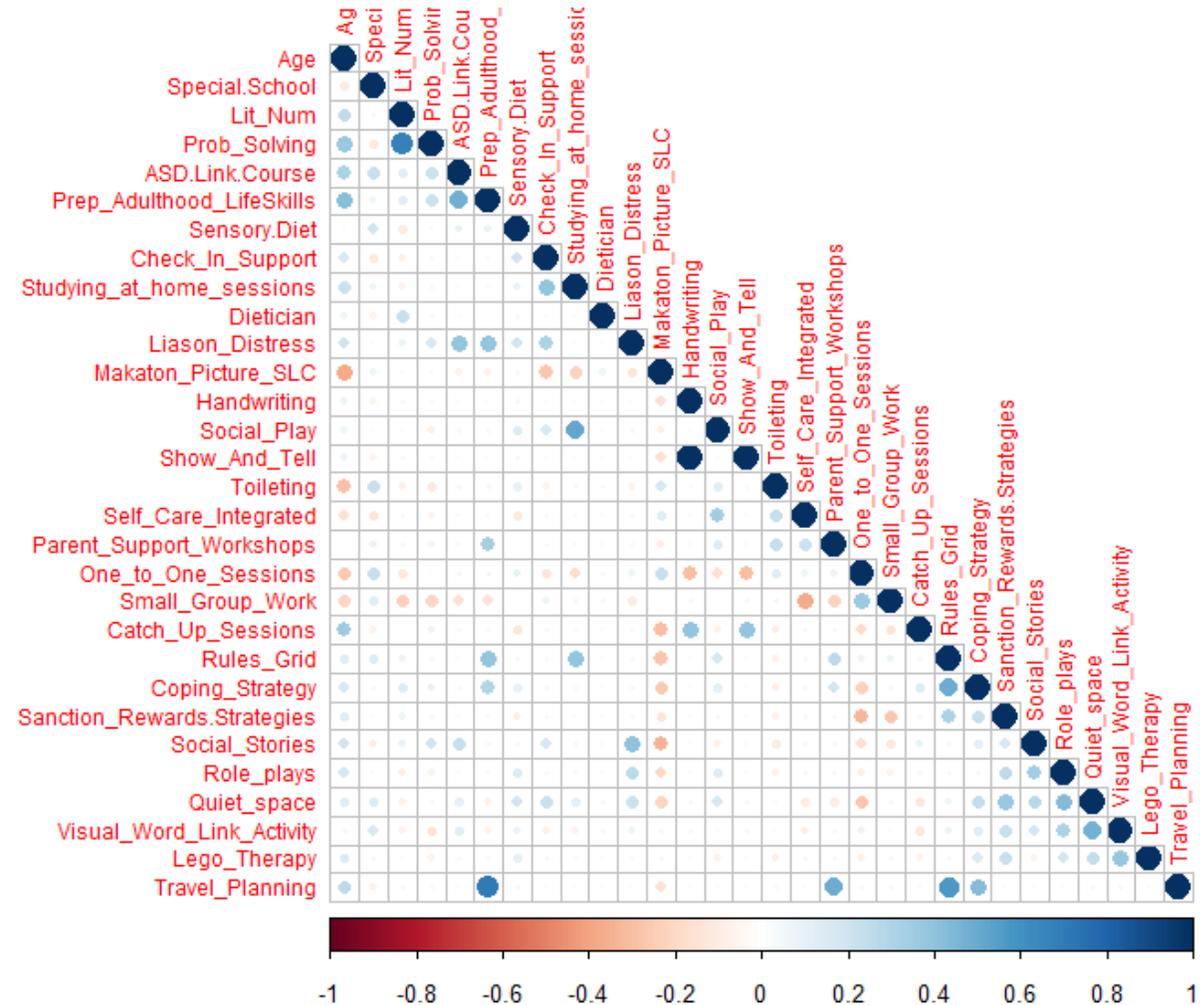
Needs clustering

At the highest level points to physical health groupings, mental health groupings and age related communications groupings
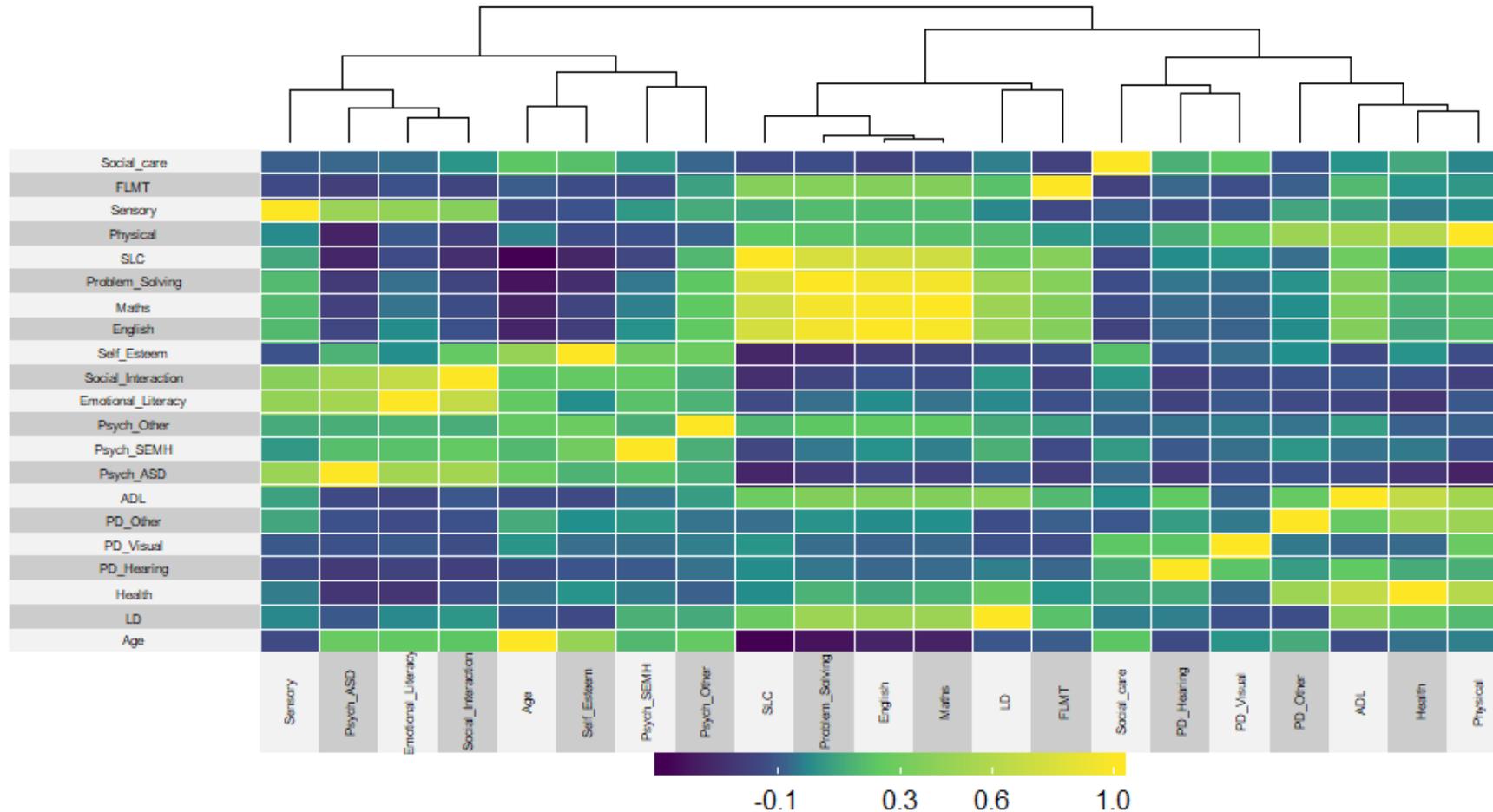
Needs clustering suggests 10 groups

- 9 specific groups and 1 'no EHCP' group

- Based on hierarchical clustering of sample

- Number of clusters broadly aligns to top down LA needs v age groupings

Cluster Dendrogram
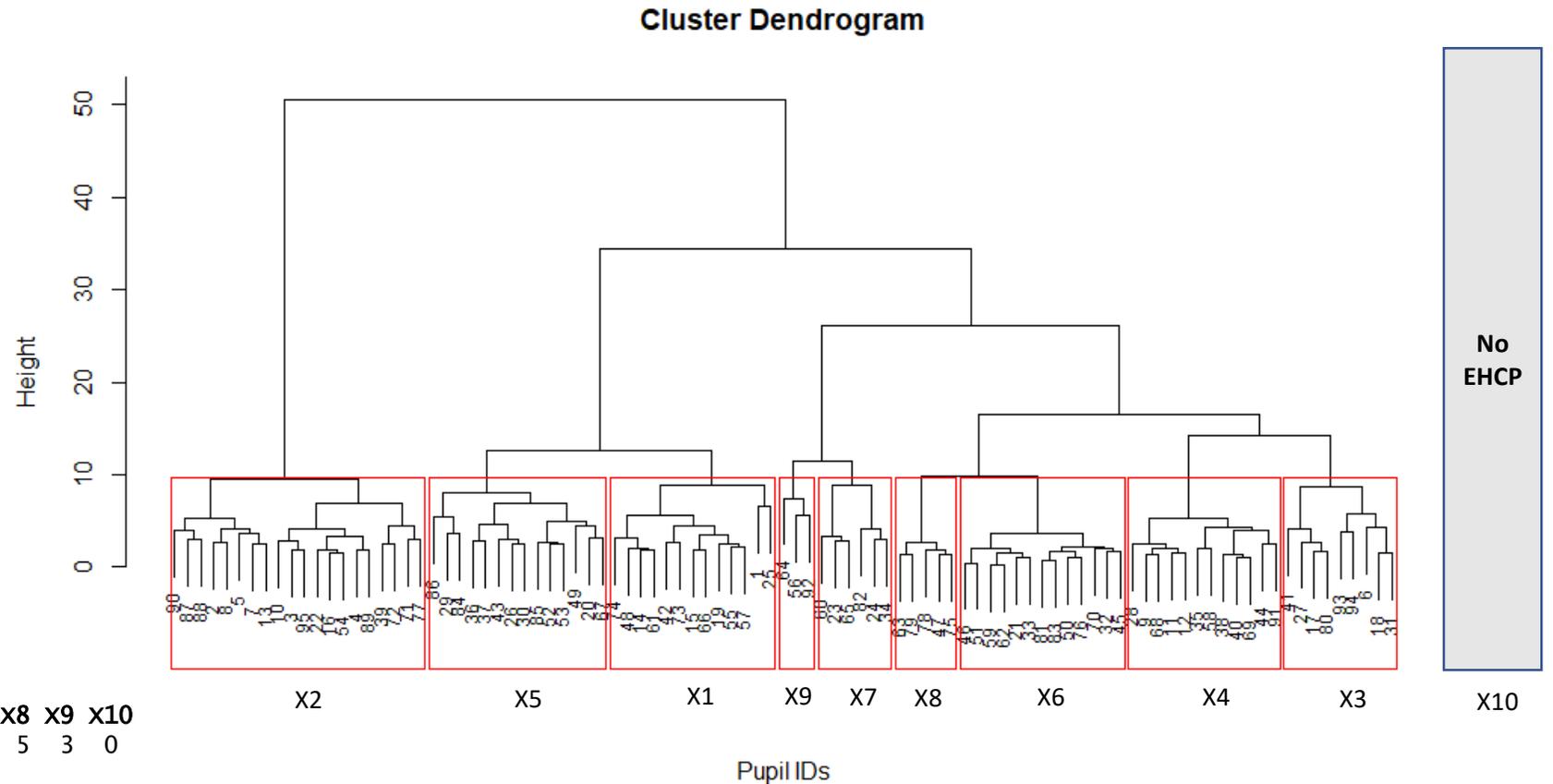
Cluster:	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10
Number in Cluster:	13	20	9	12	14	13	6	5	3	0

High level cluster mapping to needs / age grid

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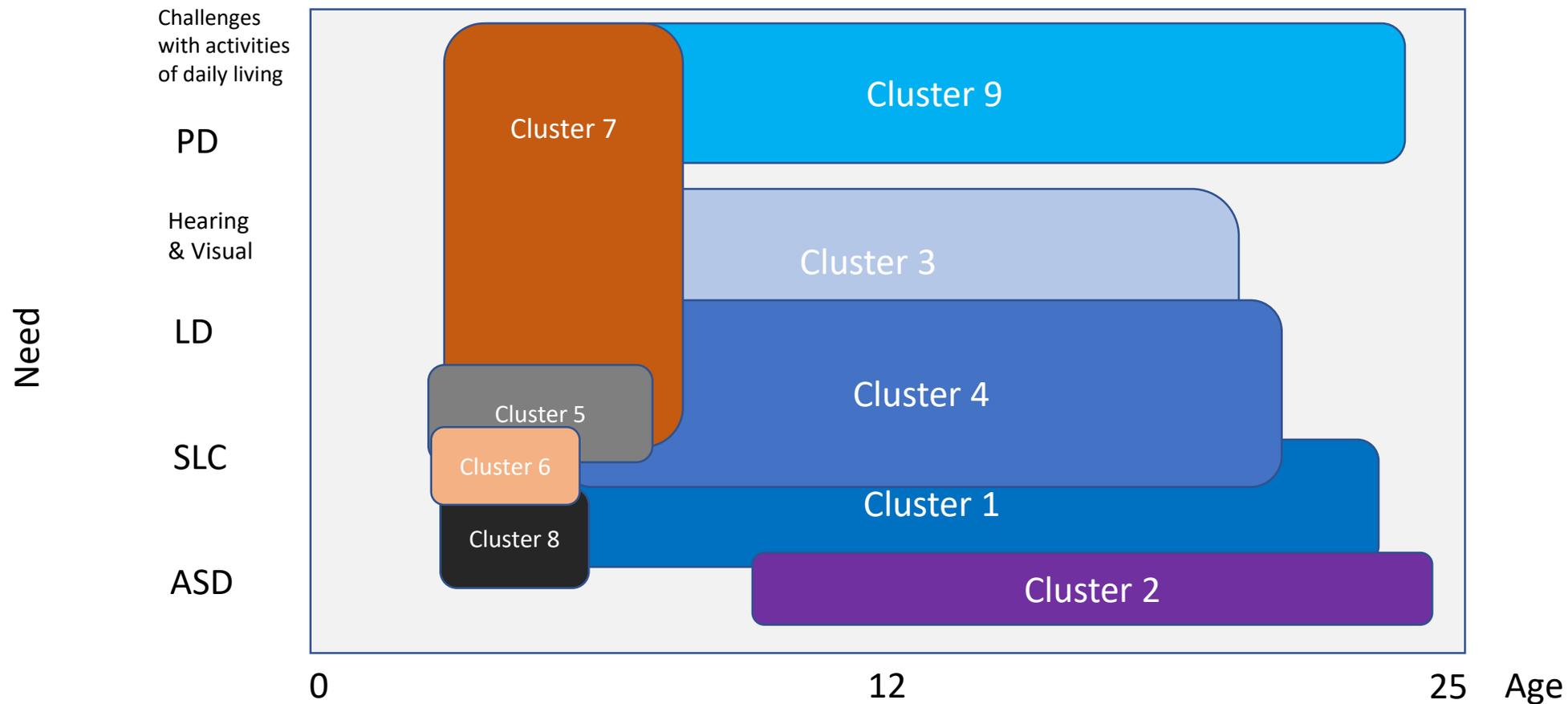
Cluster profiles

SOCIAL KEMISTRI

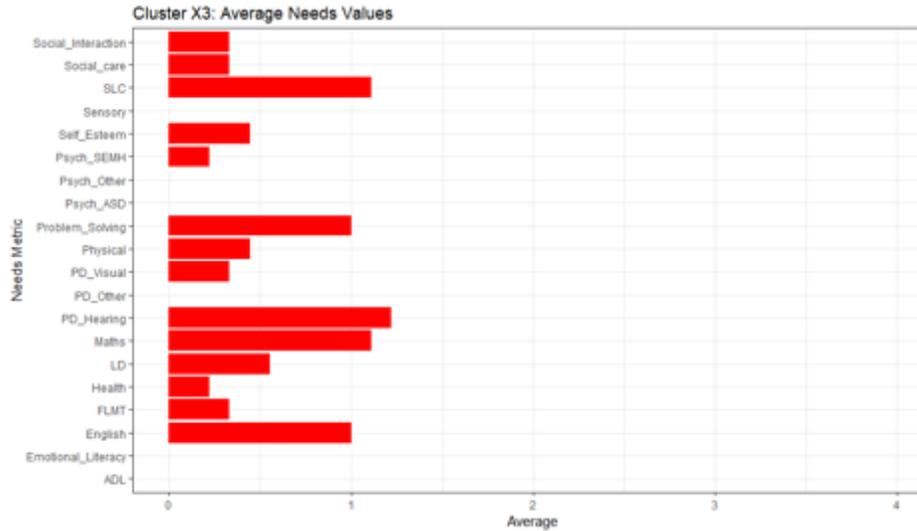| Cluster	Needs profile	Outcomes summary	Support packages
X1	Across age groups, ASD & SLC, low PD, poor social interaction	Change management, social communication and language abilities	Special school placement, 1:1, group, comms support & ASD support
X2	Mainly secondary, predominantly ASD, challenges with social interaction and emotional literacy	Life skills, participation and communications	Mainstream placement, 1:1, quiet space ASD support packages and life skills
X3	Across age groups, higher incidence of SLC & hearing loss, mild needs scores	Meet aspirations for learning, good health, relationships and independence	Mainstream placement, limited 1:1, some small group work and SLC related support
X4	Across age ranges, higher incidence of LD with SLC	Language ability and participation	Mainstream placement, high degree of 1:1, small group work, SLC related support
X5	Nursery / primary, predominantly SLC with moderate / severe challenges around social interaction & emotional literacy	Social communication and participation	Special school /special schooling needs, 1:1, sensory packages, SLC
X6	Nursery / early primary, core SLC challenges	Language ability and communications	Mainstream placement, 1:1, small group work, SLC related support
X7	Nursery / Early Primary, mix of SLC and moderate / severe LD, challenges with activities of daily living & health	Meet aspirations for learning, good health, relationships and independence	Special school placement, 1:1, group, packages to support activities of daily living
X8	Nursery, mix of SLC / potential early ASD, sensory challenges	Social communication and participation	Special school /special schooling needs, 1:1, sensory packages, SLC, ASD related
X9	Across age groups, moderate / severe physical disability & health centric challenges	Meet aspirations for learning, good health, relationships and independence	Special school placement, 1:1, group, packages to support PD
X10	No EHCP	No EHCP	No EHCP

Cluster profile metrics

Metric	X1	X2	X3	X4	X5	X6	X7	X8	X9
Social_Interaction	2.00	1.85	0.33	0.00	1.93	0.00	0.33	0.00	0.00
Social_care	0.00	0.25	0.33	0.25	0.00	0.00	0.33	0.00	0.00
SLC	2.15	0.55	1.11	2.08	2.57	2.46	2.50	2.40	1.67
Sensory	1.46	0.55	0.00	0.08	0.64	0.15	0.17	1.20	1.00
Self_Esteem	0.00	0.75	0.44	0.00	0.43	0.08	0.00	0.00	0.33
Psych_SEMH	0.23	0.35	0.22	0.08	0.57	0.00	0.00	0.00	0.33
Psych_Other	0.15	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.00
Psych_ASD	2.46	2.05	0.00	0.33	0.29	0.00	0.00	2.00	0.00
Problem_Solving	2.23	0.55	1.00	2.00	2.21	2.00	2.33	2.00	1.67
Physical	0.08	0.00	0.44	0.08	0.50	0.08	1.67	0.00	2.33
PD_Visual	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00
PD_Other	0.08	0.10	0.00	0.00	0.07	0.00	0.33	0.00	3.33
PD_Hearing	0.00	0.00	1.22	0.00	0.00	0.00	1.50	0.00	0.00
Maths	2.23	0.75	1.11	2.00	2.21	2.00	2.33	2.00	1.67
LD	1.77	0.05	0.56	2.17	1.50	0.15	2.50	0.20	0.00
Health	0.08	0.25	0.22	0.50	0.21	0.00	2.33	0.00	2.33
FLMT	0.54	0.15	0.33	0.42	0.64	0.69	0.67	0.80	0.33
English	2.23	0.85	1.00	2.00	2.21	2.00	2.33	2.00	1.67
Emotional_Literacy	1.77	1.15	0.00	0.08	1.07	0.00	0.00	0.00	0.00
Age	7.15	11.20	8.11	7.17	5.71	5.08	5.67	4.60	12.00
ADL	0.46	0.05	0.00	0.17	0.43	0.15	2.67	0.60	1.33

Cluster (x-axis), Metric (y-axis)

Note:
- 95 cases
- Scores are averages
- See prototype for scales and metrics maps

```
Cluster:            X1 X2 X3 X4 X5 X6 X7 X8 X9 X10
Number in Cluster:  13 20  9 12 14 13  6  5  3  0
```

Cluster X1

in cluster = 13

Average age = 7.1

Cluster characteristics:

- **Across age groups**
- **ASD & SLC**
- **Low physical disability**
- **Poor social interaction**
- **High special school requirement**


Cluster X1: Average Needs Values

Cluster X1: % Likelihood of Outcome Chosen

Cluster X1: Mentions as a % of All Mentions

Cluster X1: % Likelihood Support Package Allocation
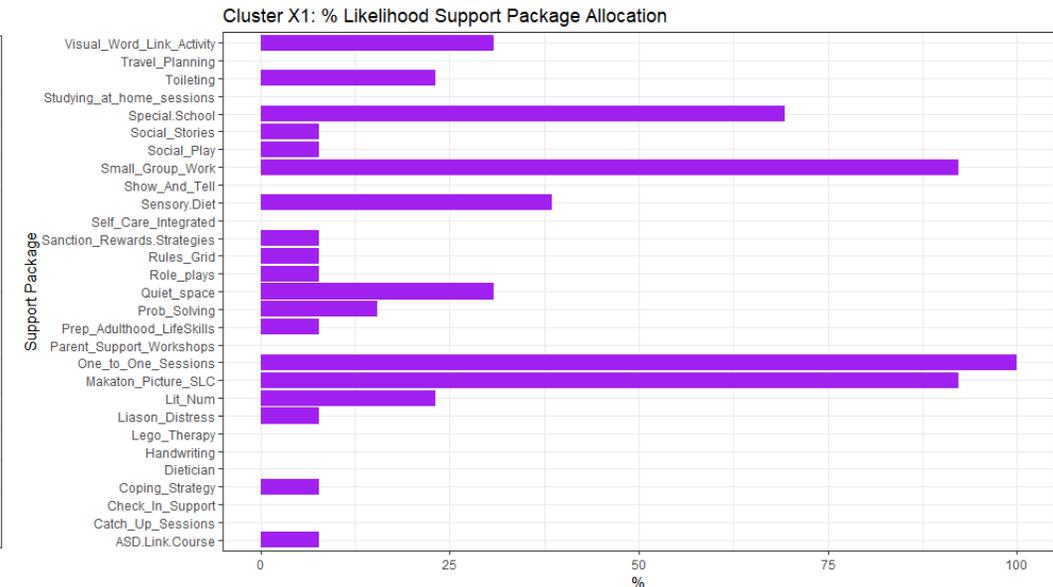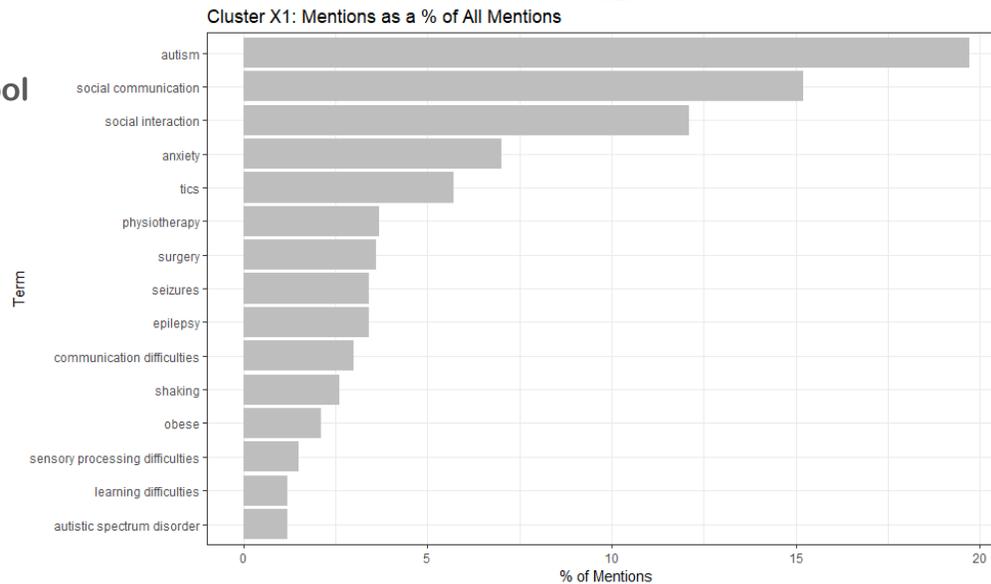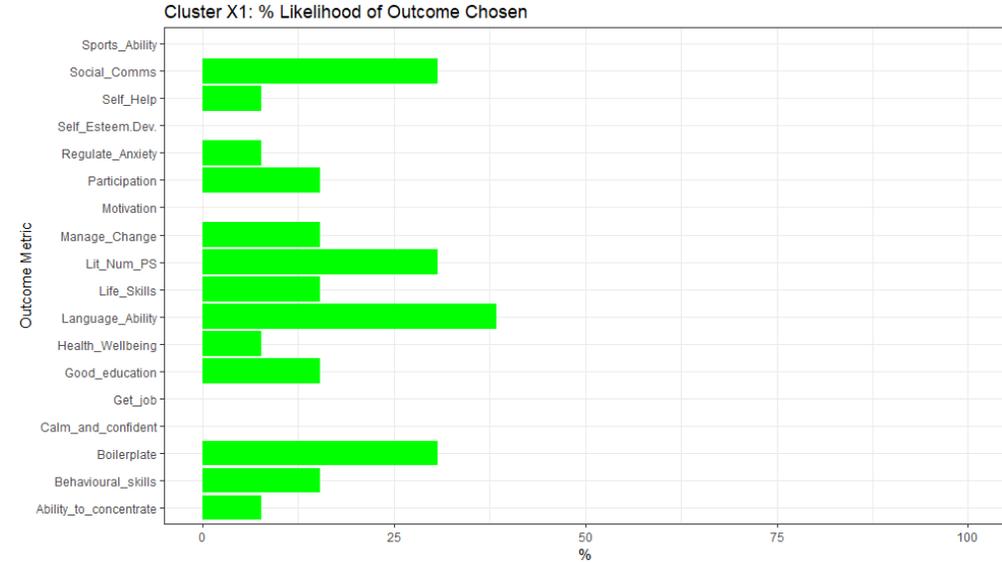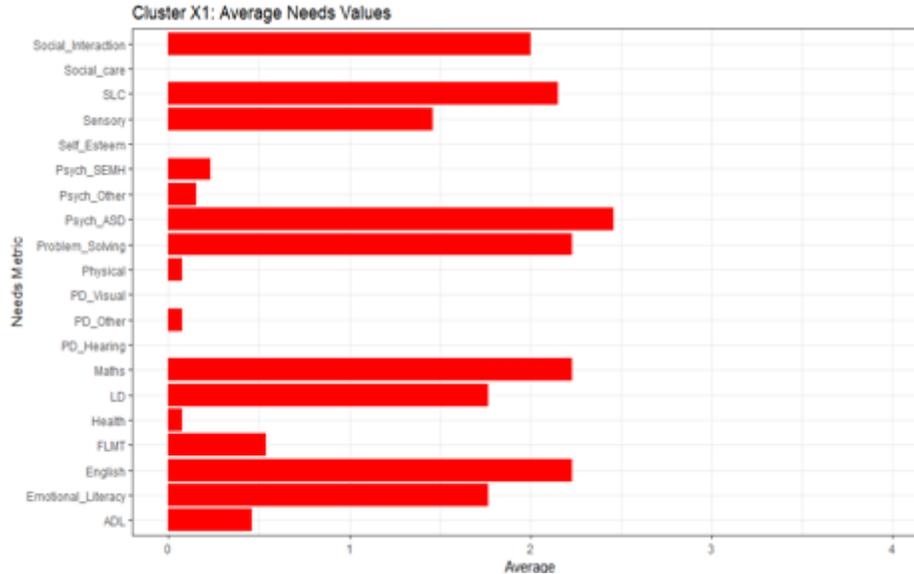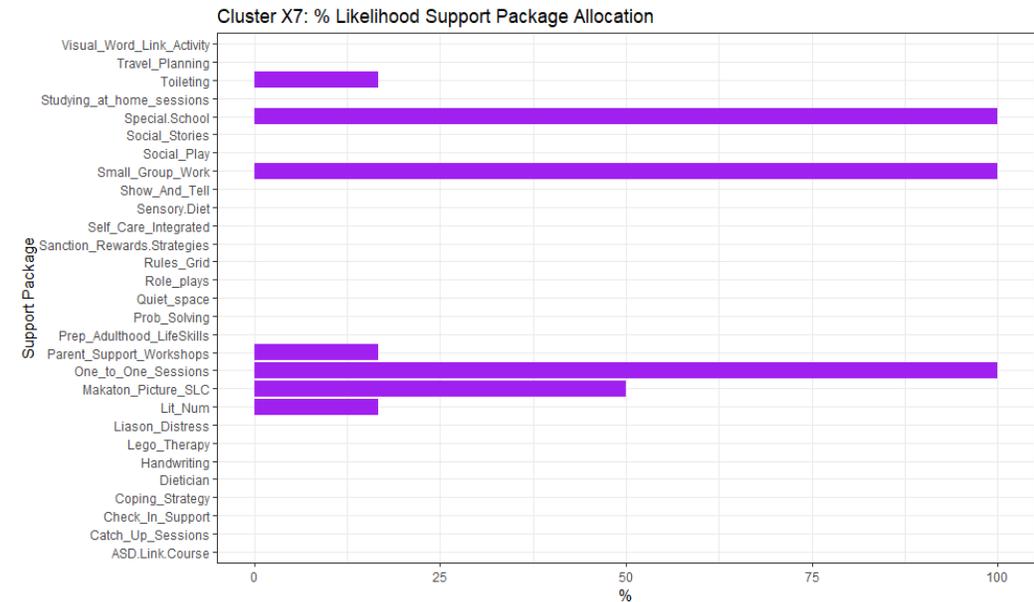
Cluster X2

 # in cluster = 20

Average age = 11.2

Cluster characteristics:

- **Mainly secondary**
- **Predominantly ASD**
- **Challenges with social interaction and emotional literacy**

Cluster X2: Average Needs Values

Cluster X2: % Likelihood of Outcome Chosen

Cluster X2: Mentions as a % of All Mentions

Cluster X2: % Likelihood Support Package Allocation
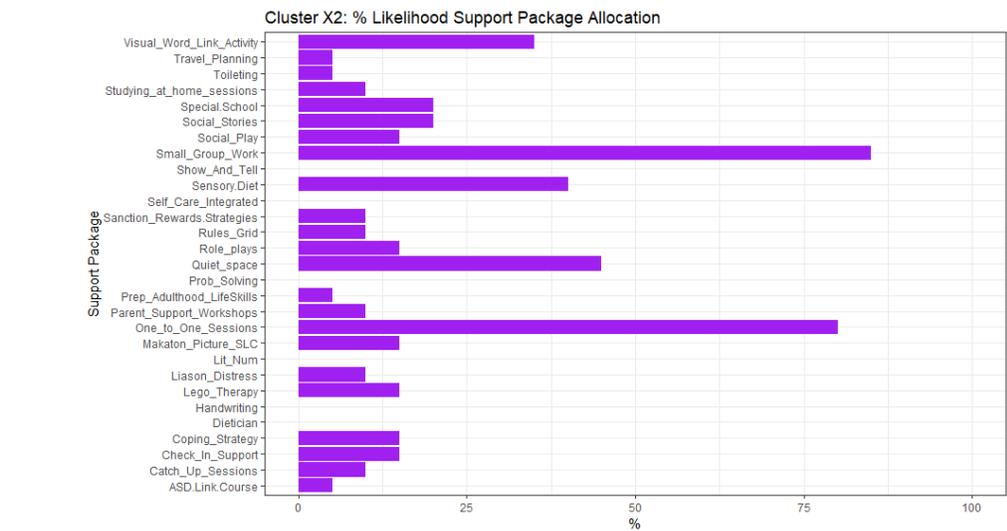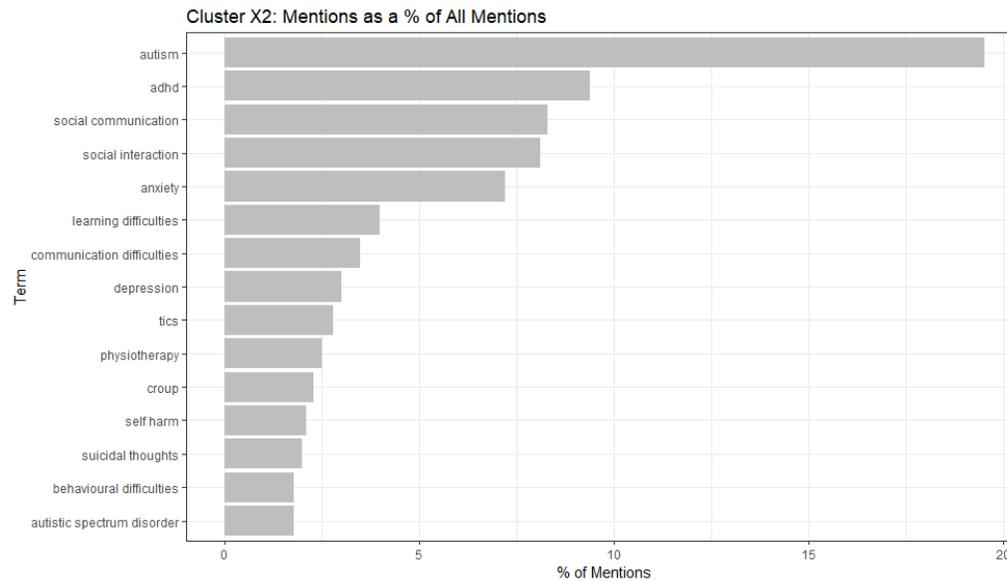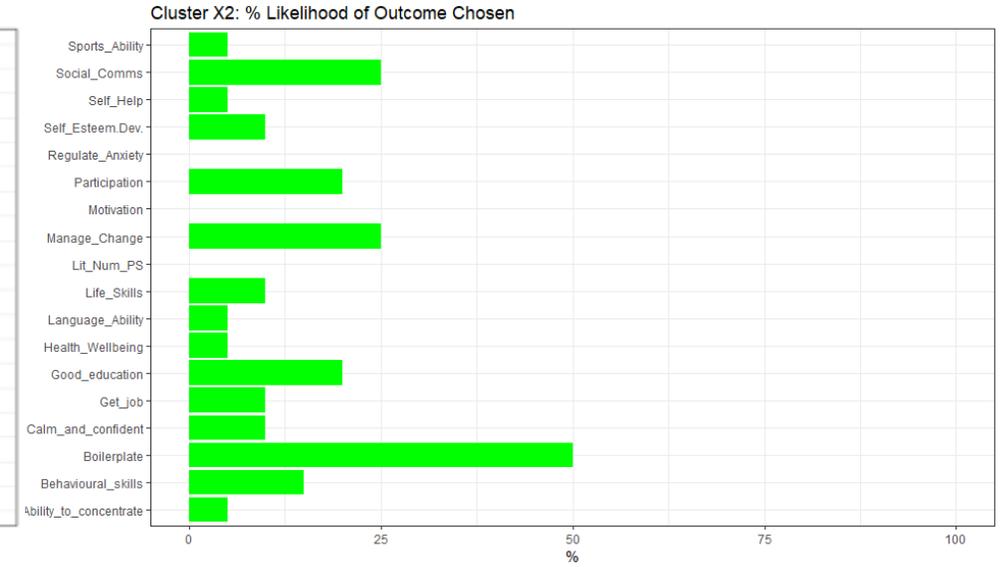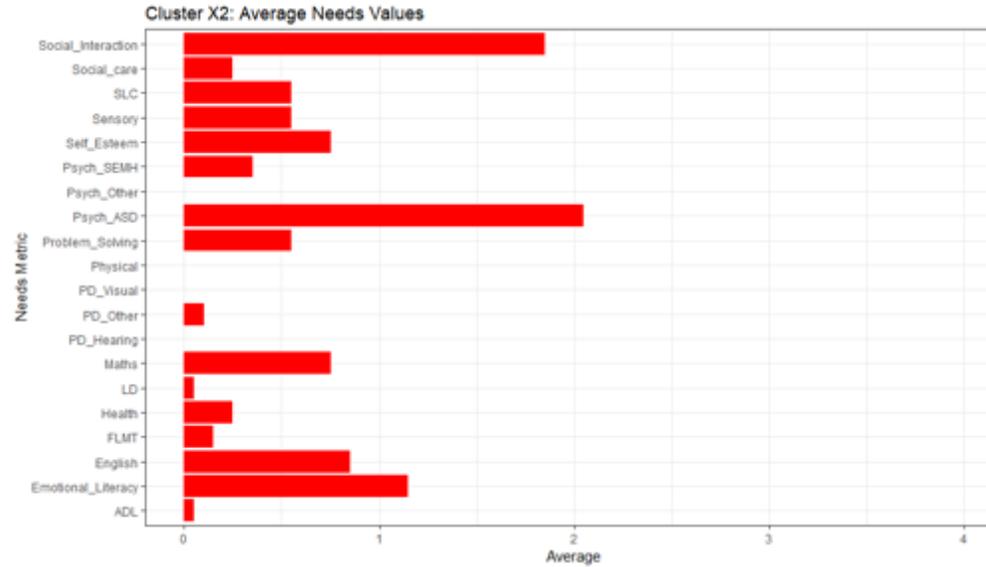
Cluster X3

in cluster = 9

Average age = 8.1

Cluster characteristics:

- Primary / secondary

- Higher incidence of SLC, Hearing Loss

- Lower average needs scores

- Majority mainstream school supplementary

Cluster X3: Average Needs Values

Cluster X3: % Likelihood of Outcome Chosen

Cluster X3: Mentions as a % of All Mentions

Cluster X3: % Likelihood Support Package Allocation
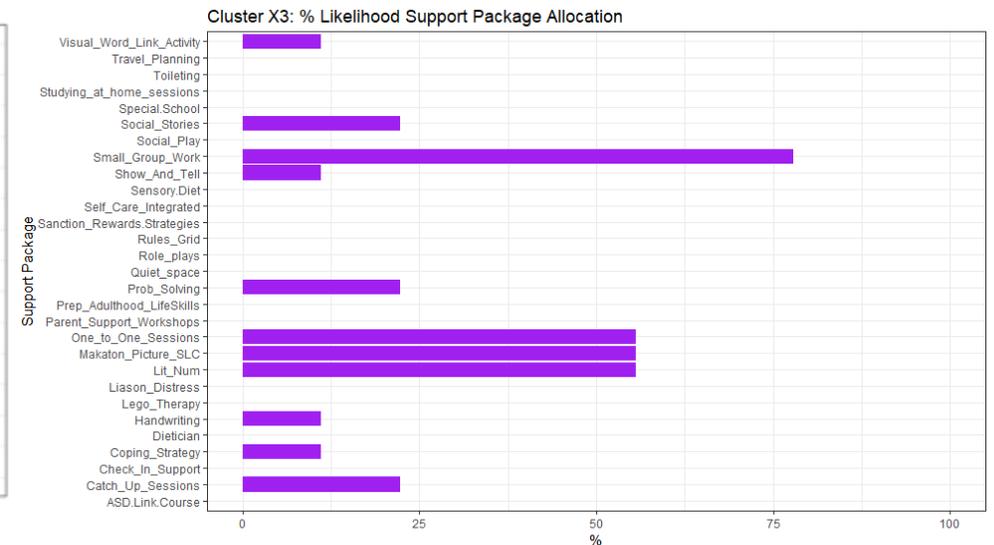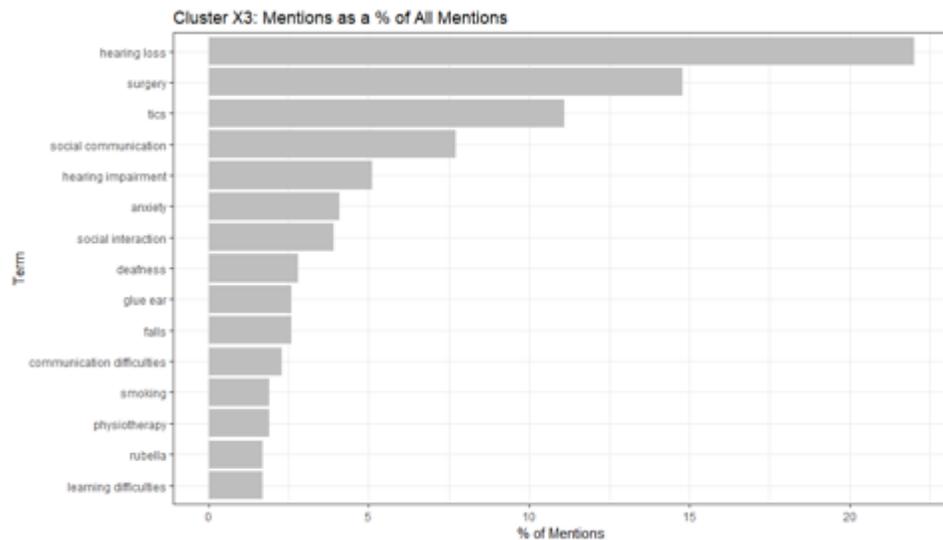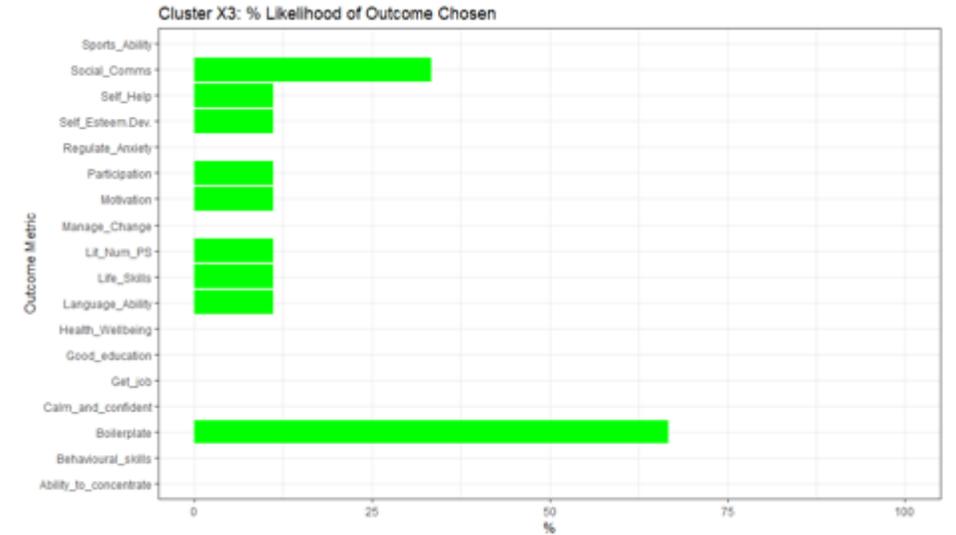
Cluster X4

 # in cluster = 12

Average age = 7.2

Cluster characteristics:

- **Across age ranges**

- **Higher incidence of LD with SLC**

- **Majority mainstream school supplementary**

Cluster X4: Average Needs Values
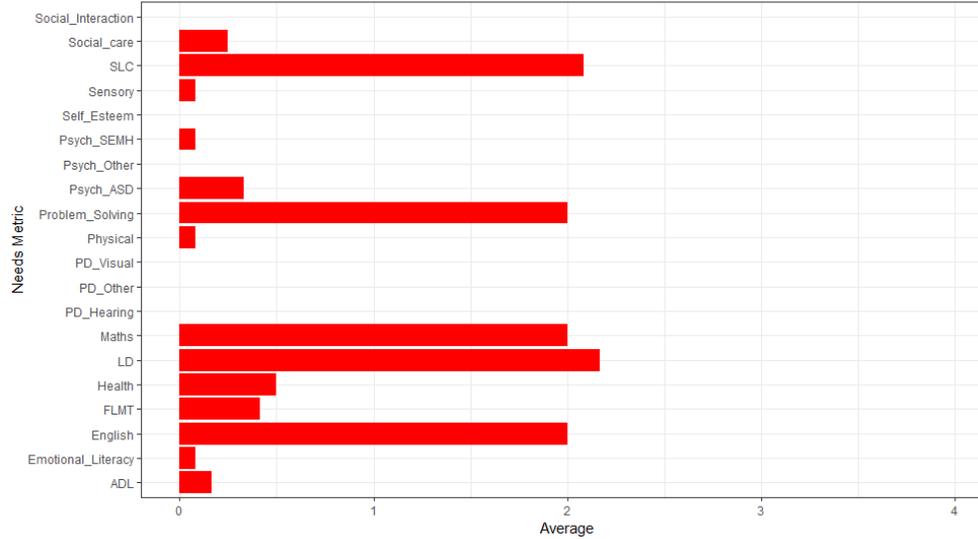
Cluster X4: % Likelihood of Outcome Chosen
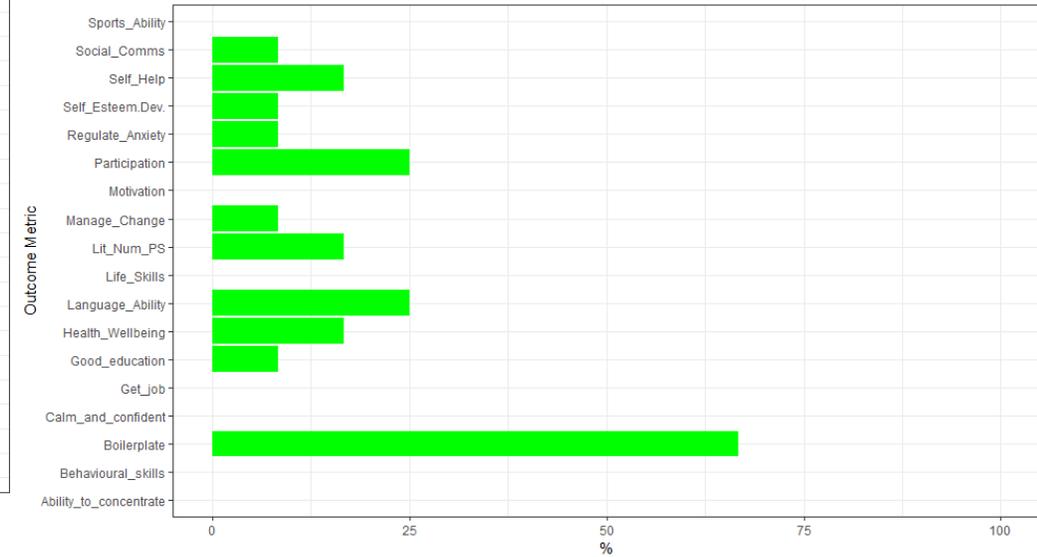
Cluster X4: Mentions as a % of All Mentions
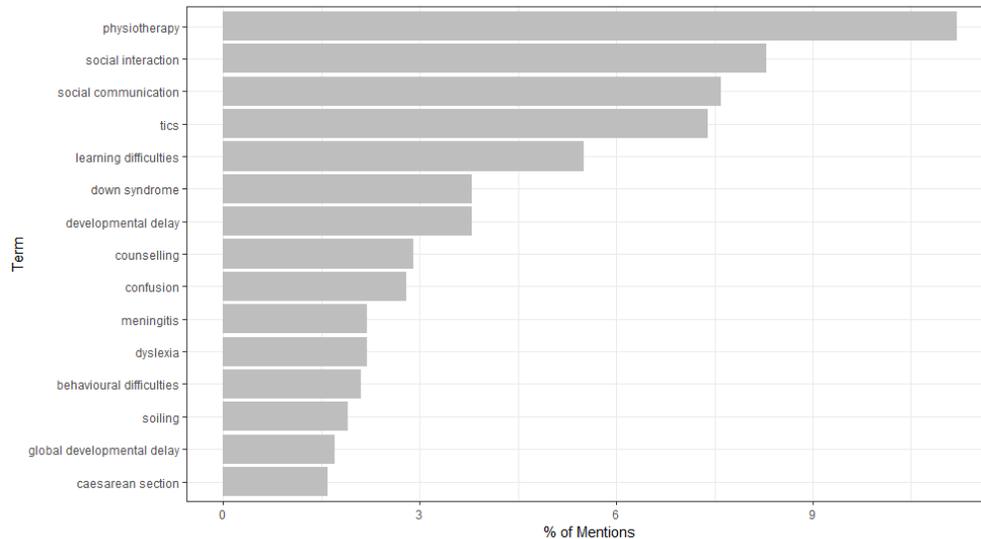
Cluster X4: % Likelihood Support Package Allocation
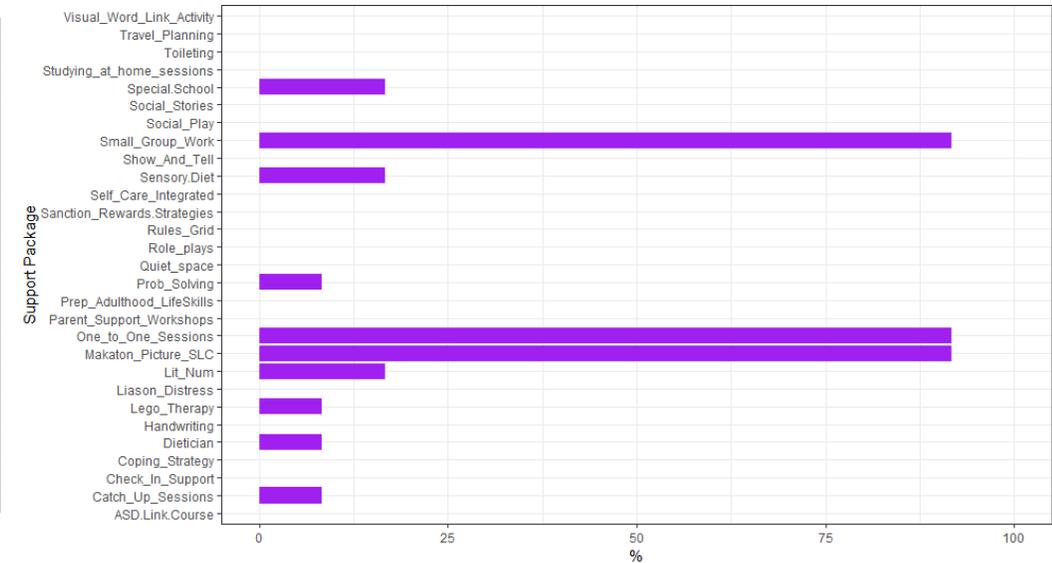
Cluster X5

 # in cluster = 14

Average age = 5.7

Cluster characteristics:

- **Nursery / primary**

- **Predominantly SLC with challenges around social interaction & emotional literacy**

- **Low incidence of PD**

Cluster X5: Average Needs Values

Cluster X5: % Likelihood of Outcome Chosen

Cluster X5: Mentions as a % of All Mentions

Cluster X5: % Likelihood Support Package Allocation
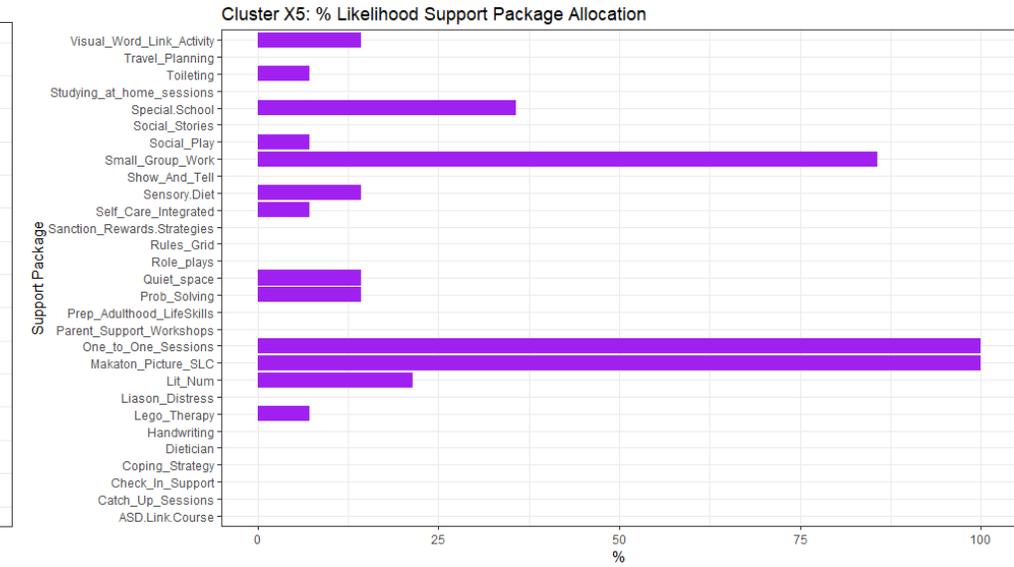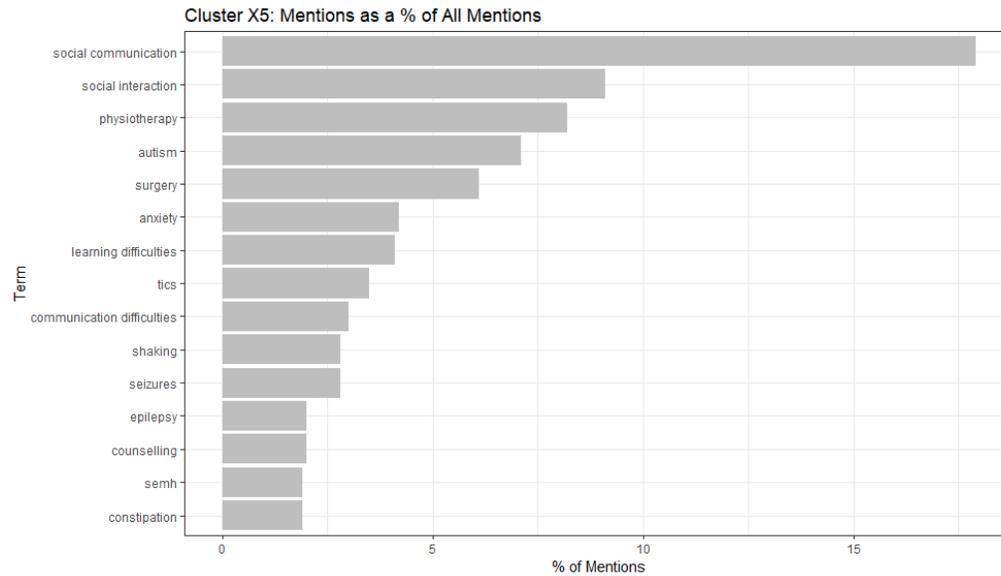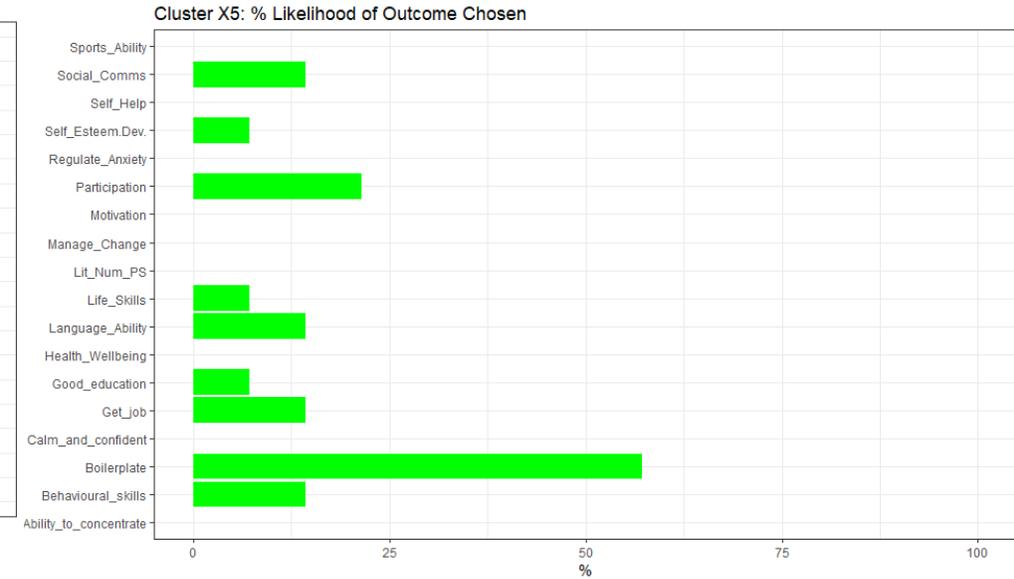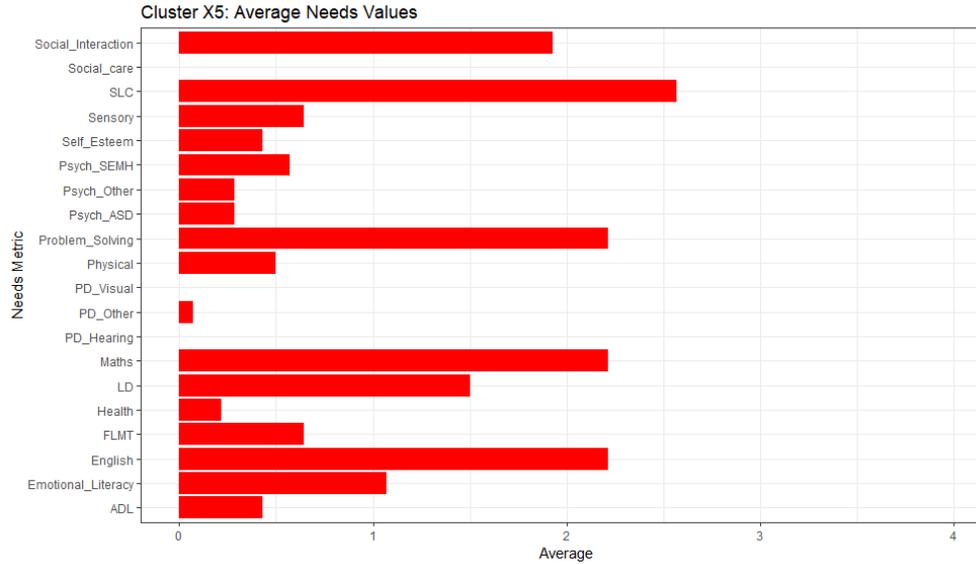
Cluster X6

in cluster = 13

Average age = 5.1

Cluster characteristics:

- **Nursery / Early Primary**

- **Core SLC challenges**

- **All supplementary support in mainstream school**

Cluster X6: Average Needs Values
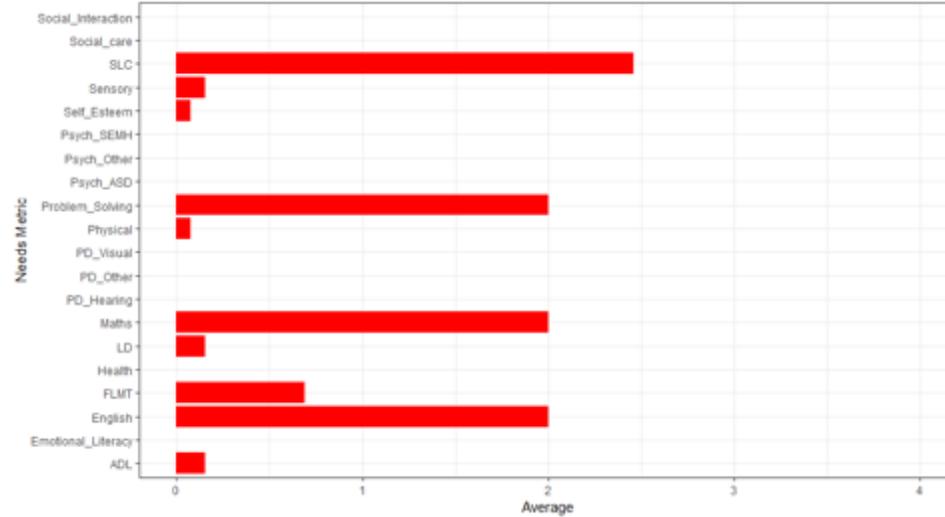
Cluster X6: % Likelihood of Outcome Chosen
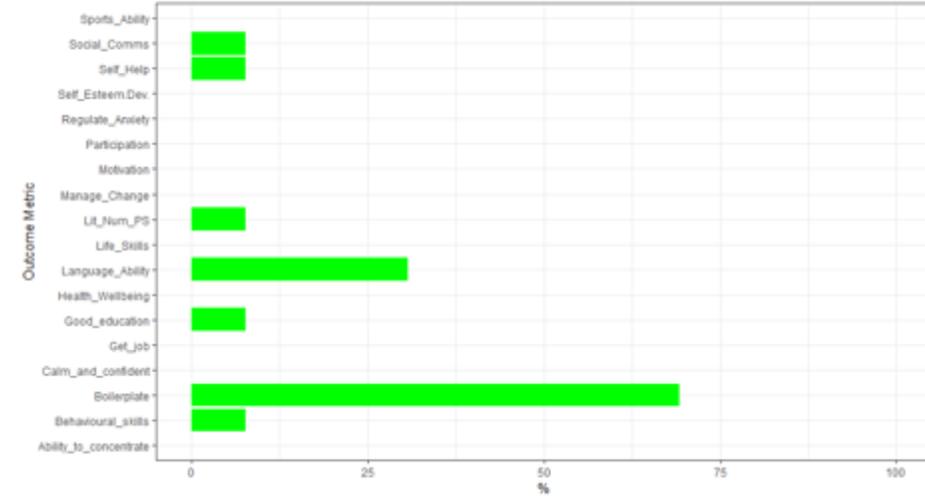
Cluster X6: Mentions as a % of All Mentions
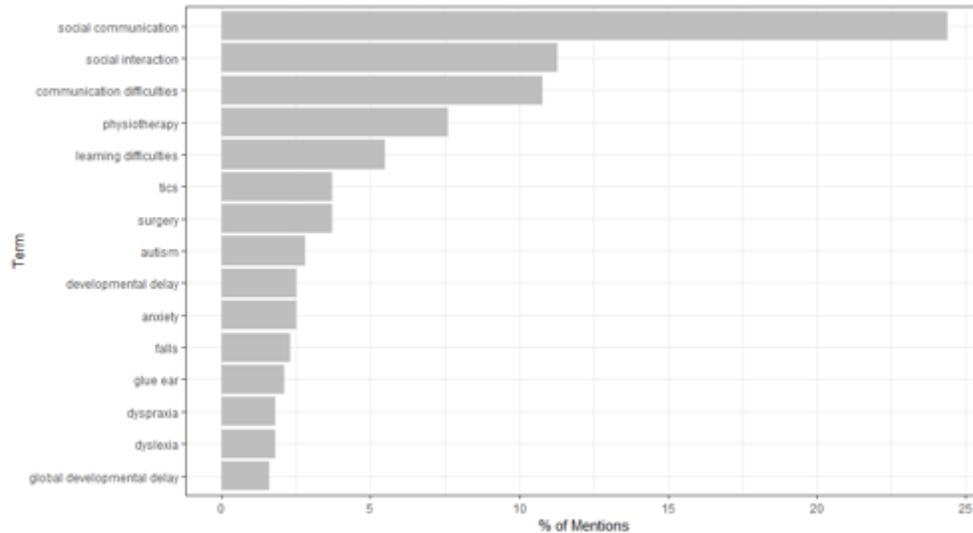
Cluster X6: % Likelihood Support Package Allocation
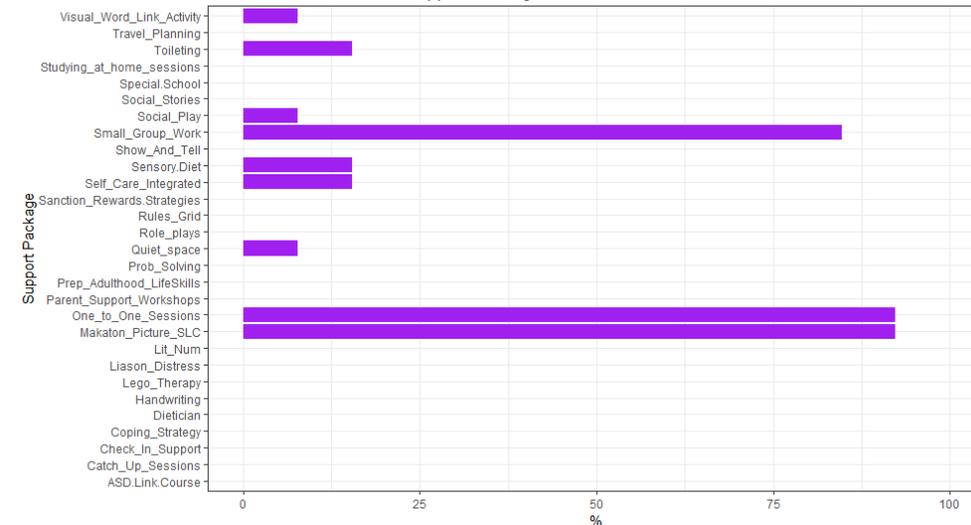
Cluster X7

in cluster = 6

Average age = 5.7

Cluster characteristics:

- **Nursery / Early Primary**

- **Mix of SLC and moderate / severe LD**

- **Challenges with ADL & Health**

- **All special school provision**

Cluster X7: Average Needs Values

Cluster X7: % Likelihood of Outcome Chosen

Not shown to preserve confidentiality

Cluster X7: % Likelihood Support Package Allocation
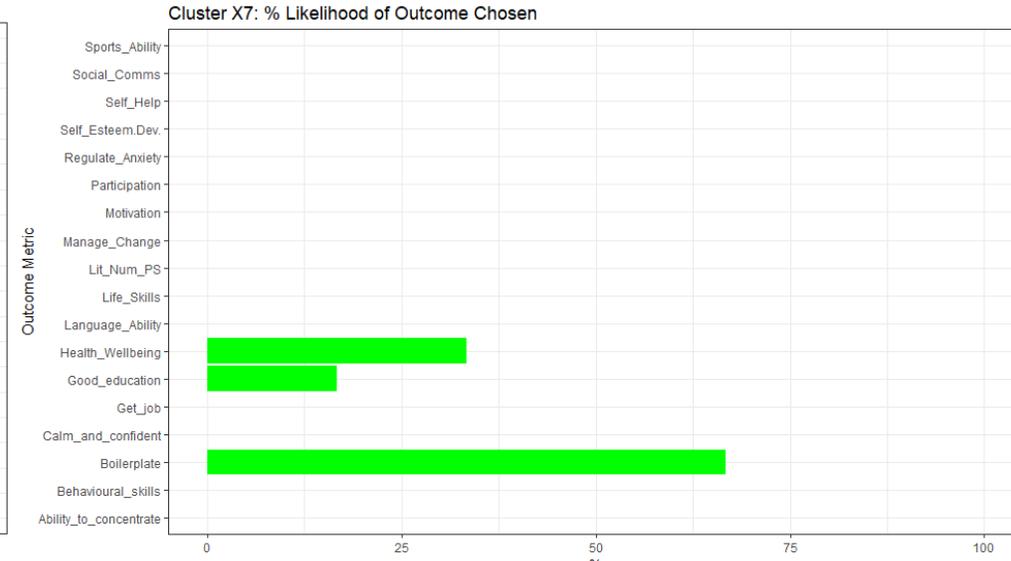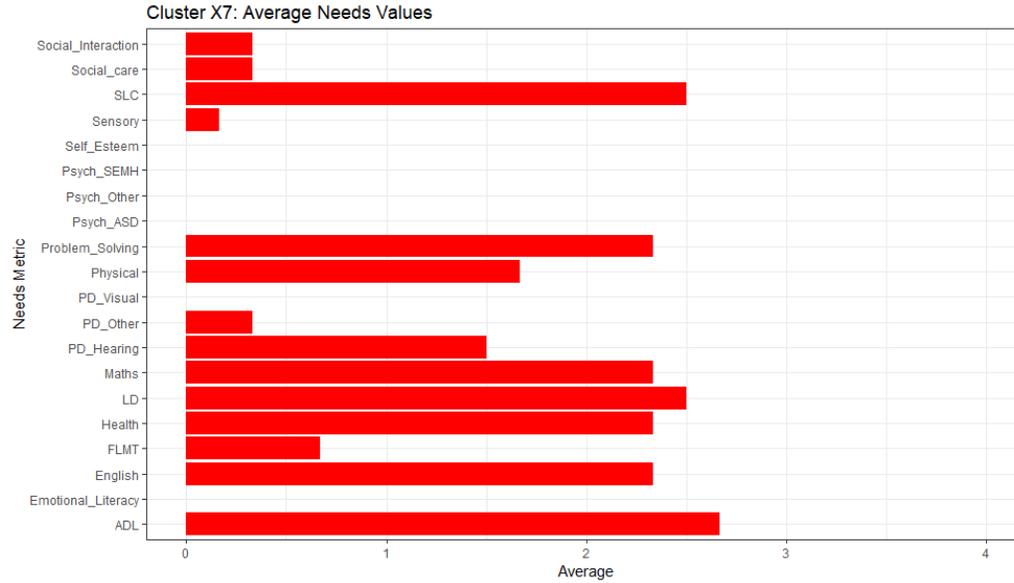
Cluster X8

 # in cluster = 5

Average age = 4.6

Cluster characteristics:

- Nursery

- Mix of SLC / potential early ASD

- Sensory challenges

Not shown to preserve confidentiality

Cluster X8: Average Needs Values

Cluster X8: % Likelihood of Outcome Chosen

Cluster X8: % Likelihood Support Package Allocation
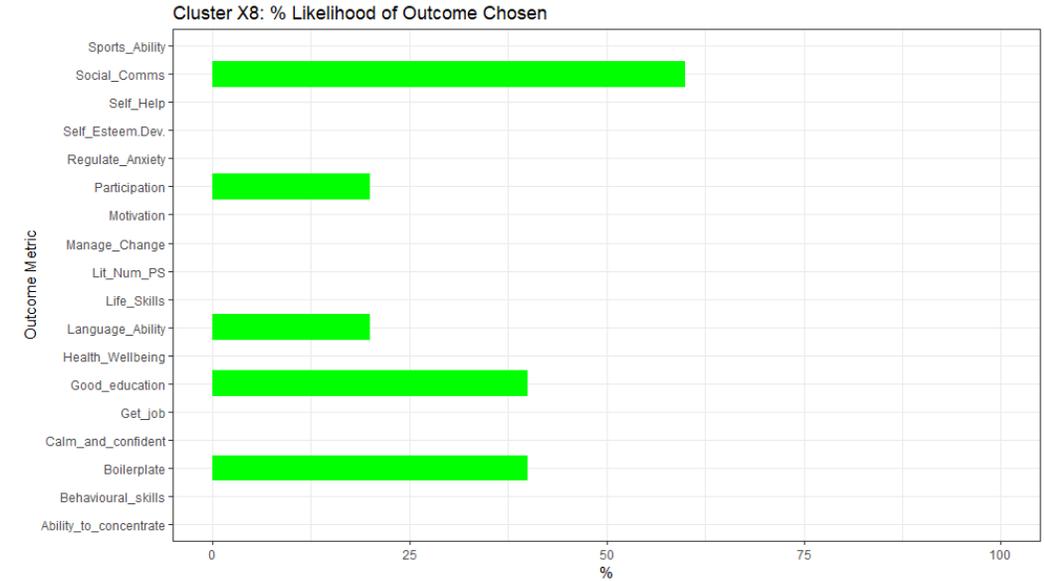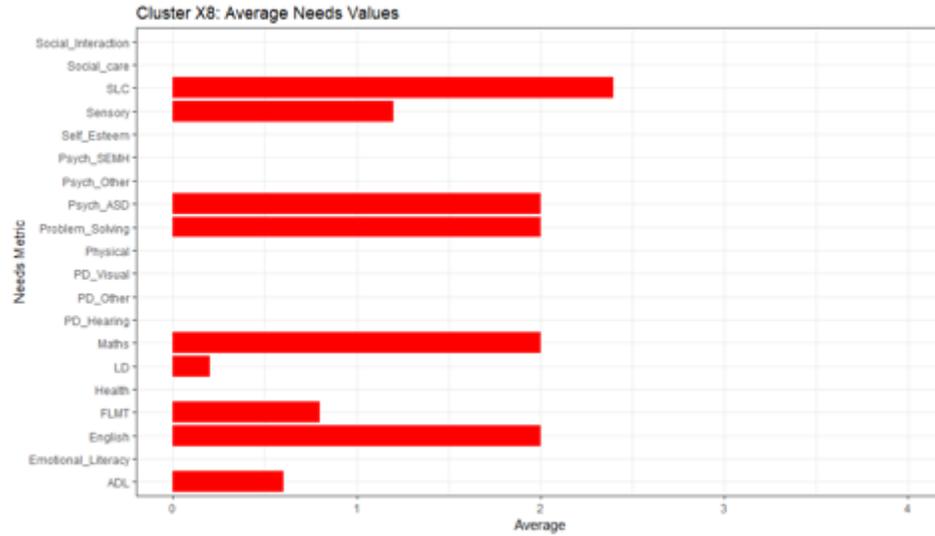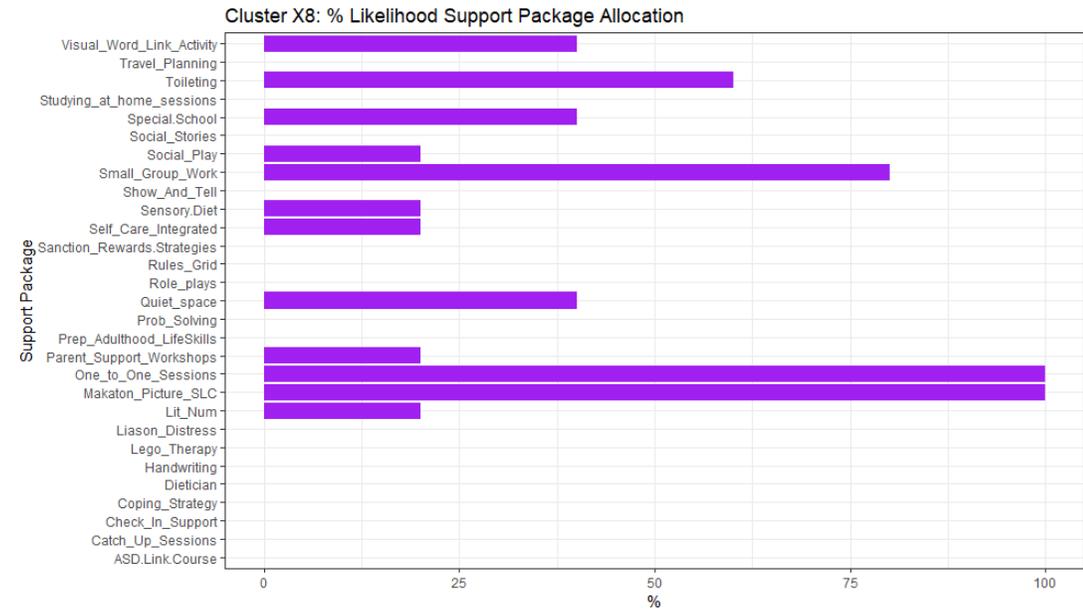
Cluster X9

in cluster = 3

Average age = 12

Cluster characteristics:

- Spans age range
- Physical disability & health centric

Not shown to preserve confidentiality

Cluster X9: Average Needs Values

Cluster X9: % Likelihood of Outcome Chosen

Cluster X9: % Likelihood Support Package Allocation
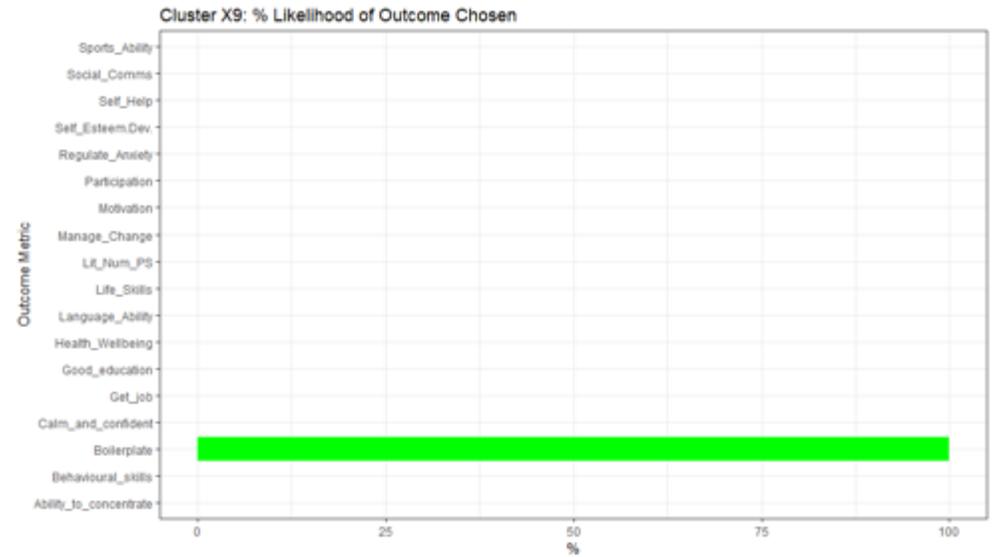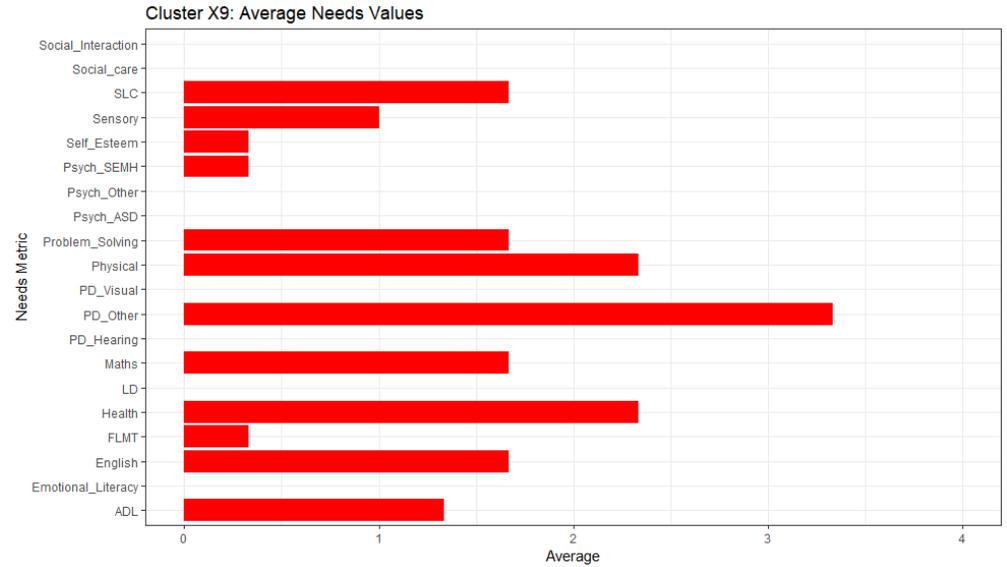
How cluster allocation drives automated EHCP's

- **New cases allocated to nearest cluster**
  - Provides reference outcomes and support packages
- **Cluster derivation and allocation is an evolutionary process**
  - System evolves as part of the beta and during production phase
  - Needs clusters evolve as the data set grows
  - Outcomes recommendations and support package recommendations evolve as amendments are made
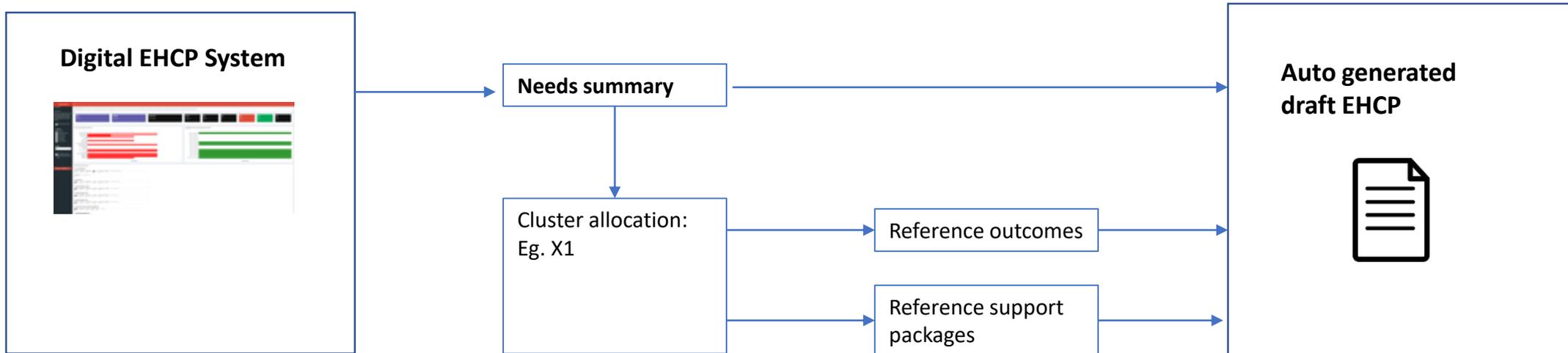
Support package mapping

- Core support packages linked to the most relevant needs cluster

- Some packages are triggered directly by needs questions

- Support packages name and scope can be easily tailored to partner local authority lexicon

- Flexible framework able to evolve

- Next steps: can link to number of hours required and associated costs

Cluster to support packages mapping summary

Clusters

Support Package Requirement	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10
SP1: Special school placement	Y				Y		Y	Y	Y	
SP2: One to one sessions	Y	Y	Low	High	Y	Low	Y	Y	Y	
SP3: Small group work	Y	Y	Low	High	Y	Low	Y	Y	Y	
SP4: SLC / Picture / Makaton	Y		Low	High	Y	Core	Y	Y		
SP5: Sensory diet	Y	Y			Y			Y		
SP6: Quiet place	Y	Y						Y		
SP7: Visual word link activities	Y	Y								
SP8: Liaison distress	Y	Y								
SP9: Social stories / social play / role plays	Y	Y					Y			
SP10: Self care / life skills		Y							Y	
SP11: PD & health related support							Y		Core	
SP12: Social care related support										
SP13: Toileting / activities of daily living support							Y		Y	

Cluster driven

Question related

Next steps

Needs classifier & support package prediction algo:

- **More data** to improve cluster definition and cluster allocation

- **More cases to improve reference outcomes and reference support packages**

- **More definition on support packages, hours required and cost of delivery for budgeting purposes**

- **More examples of No EHCP required for data to train boundary conditions for "Cluster X10: No EHCP required"**

Prototype

https://socialkemistri.shinyapps.io/digitalehcp

Design principles

- Simple

- Clean

- Fast

- User-centric

- Zero / low touch IT dependency

- Designed to overlay existing systems (dependency minimisation)

- Agile

- Dummy data to protect confidentiality, but based on representative cases.

https://socialkemistri.shinyapps.io/digitalehcp
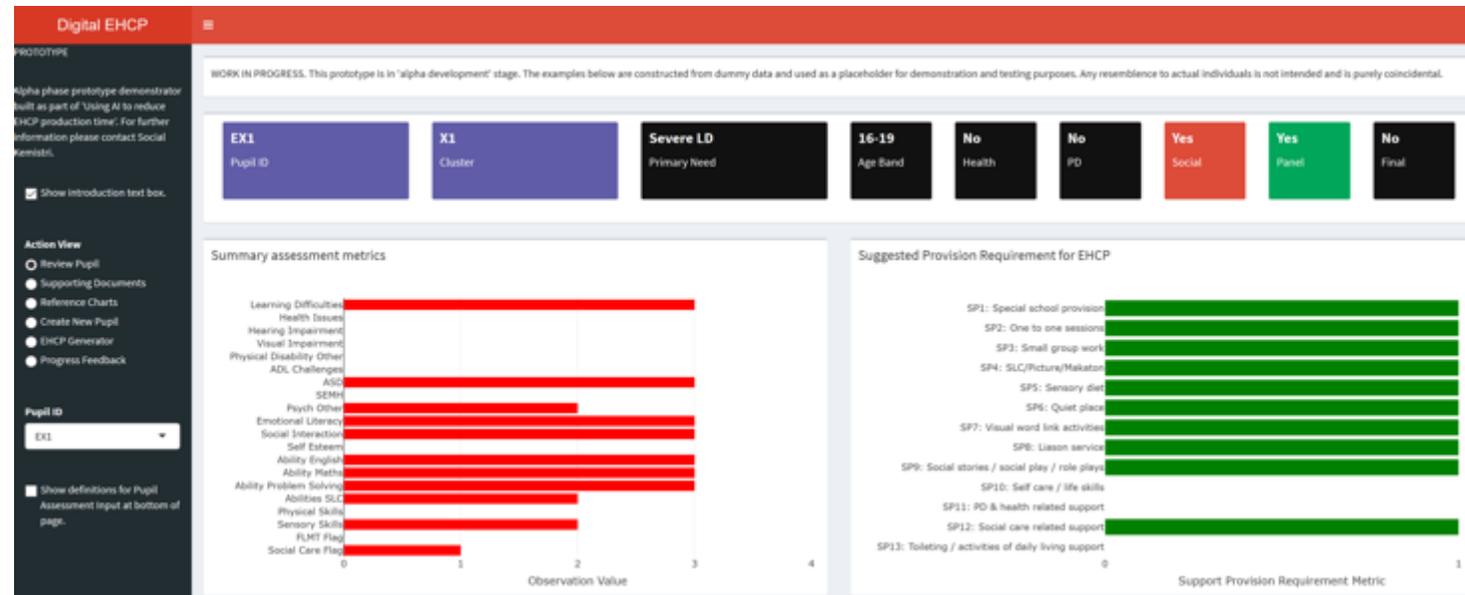
Prototype functionality

SOCIAL KEMISTRI ♡

Fast, efficient, consistent approach to EHCP generation

Views:

- Input, update, review and validate pupil needs

- Provide snapshot summary of all supporting documents (key info / findings and who has contributed)

- Reference to other cases

- Automatically generate EHCPs that can be adjusted / personalised.

- Provide placeholder feedback after EHCP process.

EX1

Prototype control panel

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

EX1 ▼
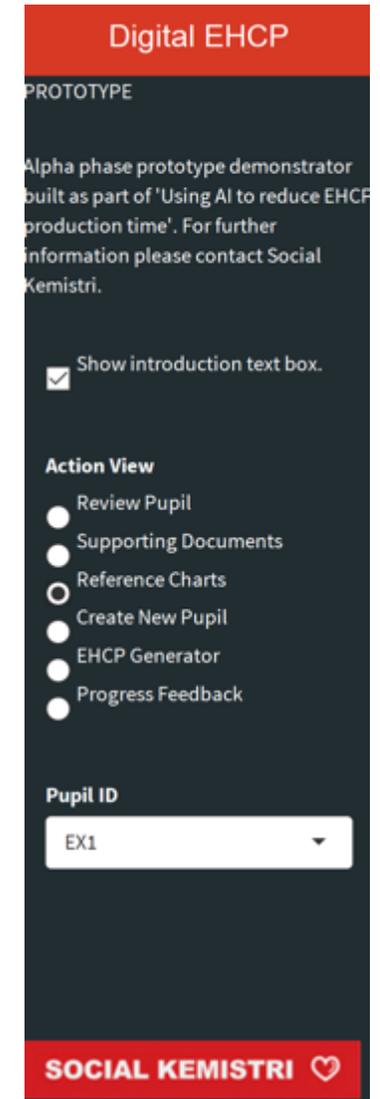
SOCIAL KEMISTRI ♡

Functionality: pupil review screen

SOCIAL KEMISTRI ♡

Intro and pupil summary

Provision recommendation

Control & view panel

Summary needs assessment
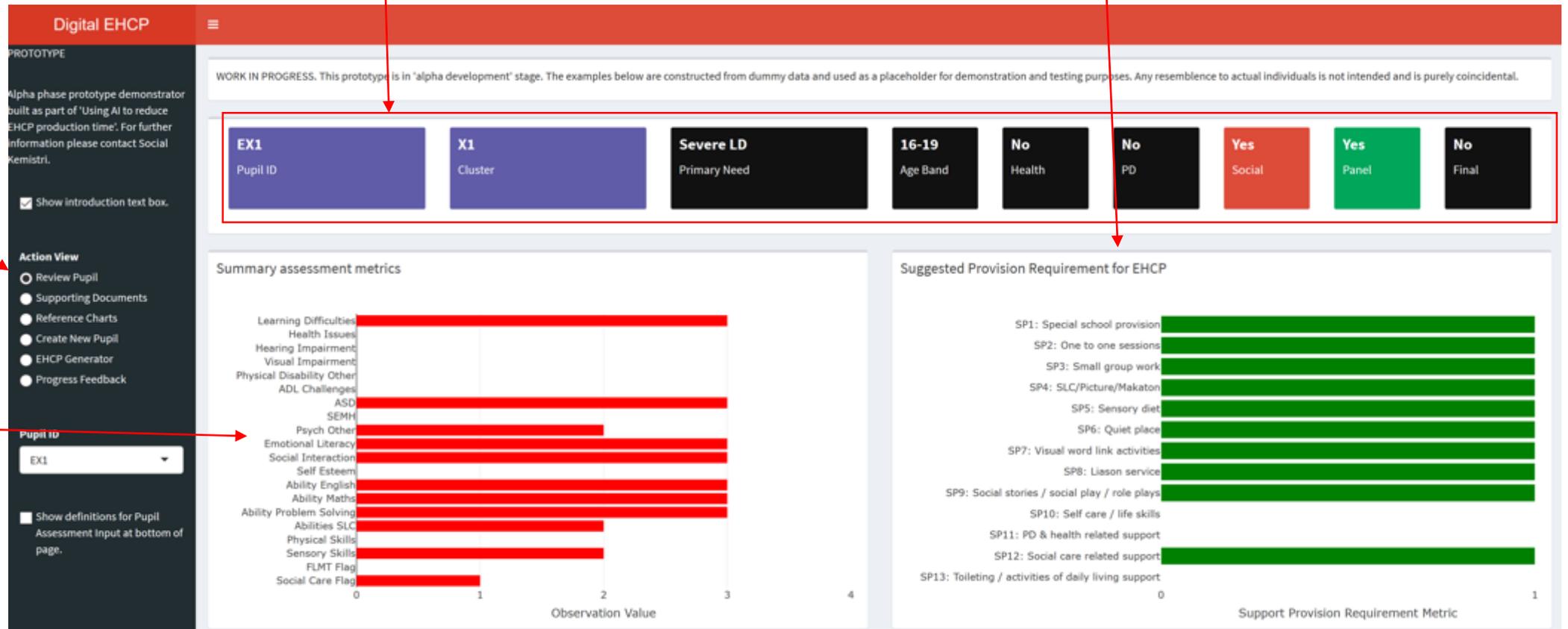
Digital EHCP

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- ○ Review Pupil
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- ○ Create New Pupil
- ○ EHCP Generator
- ○ Progress Feedback

Pupil ID
EX1 ▼

☐ 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 resemblence to actual individuals is not intended and is purely coincidental.

| EX1 Pupil ID | X1 Cluster | Severe LD Primary Need | 16-19 Age Band | No Health | No PD | Yes Social | Yes Panel | No Final |

Summary assessment metrics

Learning Difficulties, Health Issues, Hearing Impairment, Visual Impairment, Physical Disability Other, ADL Challenges, ASD, SEMH, Psych Other, Emotional Literacy, Social Interaction, Self Esteem, Ability English, Ability Maths, Ability Problem Solving, Abilities SLC, Physical Skills, Sensory Skills, FLMT Flag, Social Care Flag

Observation Value: 0, 1, 2, 3, 4

Suggested Provision Requirement for EHCP

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

Support Provision Requirement Metric: 0, 1

Pupil needs update and validation here

Functionality: EHCP generator

- **Summary of needs and reference to age group**

- **Mapping to reference target outcomes and suggested care packages (as starting point for personalisation)**

- **Auto-generation of EHCP for editing and finalisation**

Functionality: pupil update and validate area

- **20 core questions**

- **Verbatim comment space**

- **Validation check box & validation source**

Functionality: document summary view

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Medical & social care dictionary reference

Summary corpora cloud

Negative mentions summary

Total mentions by sentiment summary

Supporting docs check list

60

Functionality: add a new pupil

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- Create new pupil using reference ID used in local authority pupil database

Functionality: benchmark pupil

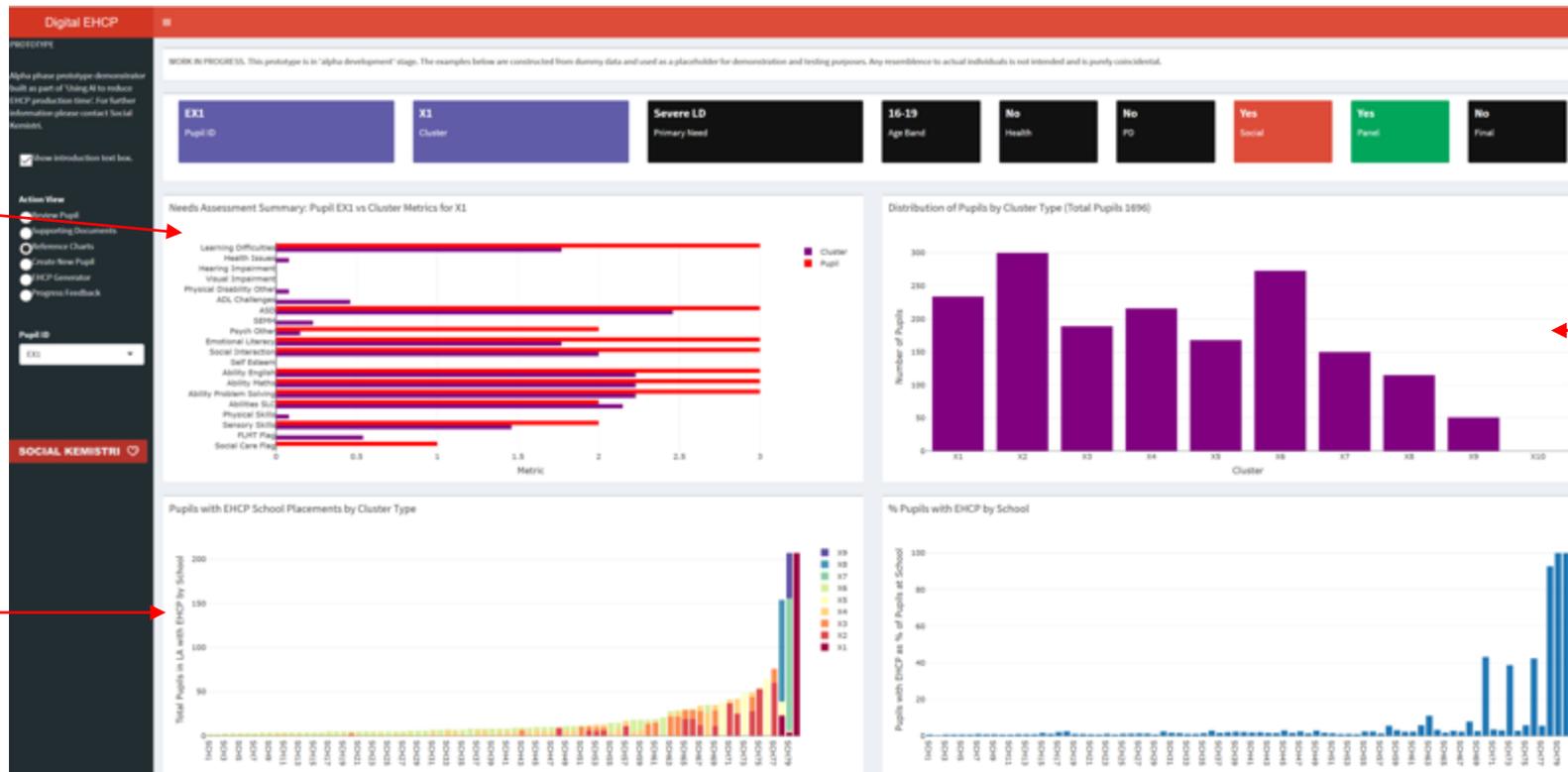**SOCIAL KEMISTRI**

- **Needs benchmarking**

- **Placement perspective for other cases that are similar**

Comparison of pupil vs cluster

Distribution of pupils by cluster type

Pupils by cluster across schools
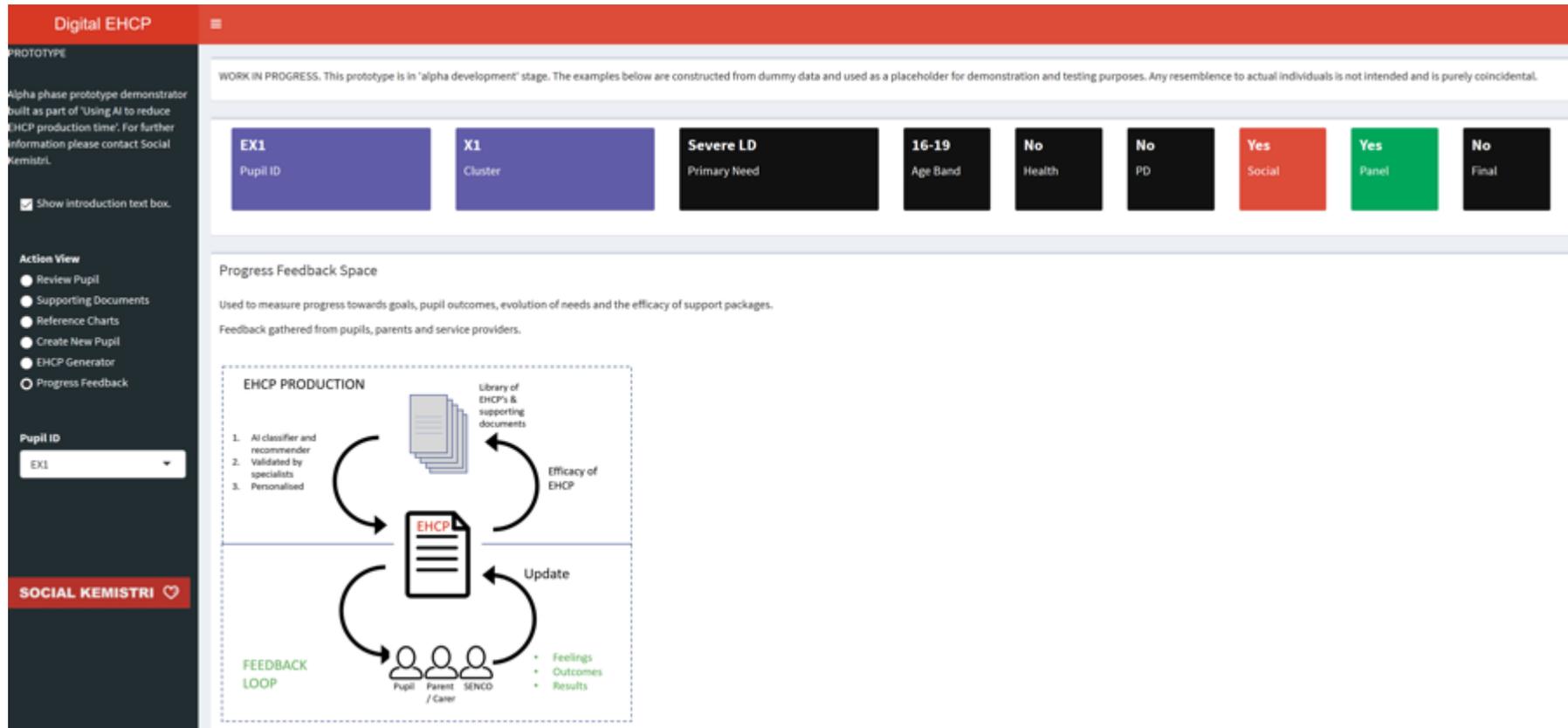
% of Pupils with EHCPs at schools

62

Functionality: progress feedback

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- **To be developed further as part of beta phase**

- **Placeholder in current prototype**

User journey mapped to prototype: From set-up to final EHCP

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 proceeed 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

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**

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
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- ● Reference Charts
- ○ Create New Pupil
- ● EHCP Generator
- ● Progress Feedback

SOCIAL KEMISTRI ♡

WORK IN PROGRESS. This prototype is in 'alpha development' stage. The examples below are c and is purely coincidental.

Create New Pupil

Note: Pupil Reference is the unique ID that is used in local authority pupil databases.

Pupil Reference

Month of Birth
... ▼

Year of Birth
... ▼

Create New

Note: this button has been deactivated on this version of the 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

EX1 ▼

Use case 2:
Initial review (pre-EHCP plan requirement)
Role: Co-ordinator

1. Co-ordinator populates the Pupil Assessment Input with info provider by SENCO using selector scales and spaces for notes

2. Any score above "none" has a validation tick box and details of how the need has been assessed

3. At the bottom of the form is the update assessment which is the first iteration save. This generates the first cluster classification and iteration of draft EHCP.

4. SENCO document can be uploaded to provide supporting document analytics

SOCIAL KEMISTRI ♡

Pupil Assessment Input

1. Learning Difficulties
○ None ○ Specific ○ Moderate ◉ Severe ○ Profound / Multiple | Learning Difficulty Note |
☐ Validated | Validation source |

2. Health Issues
◉ None ○ Specific ○ Moderate ○ Severe ○ Profound / Multiple | Health Issues Note |

3. Physical Disability: Hearing
◉ None ○ Specific ○ Moderate ○ Severe ○ Profound / Multiple | PD Hearing Note |

4. Physical Disability: Visual
◉ None ○ Specific ○ Moderate ○ Severe ○ Profound / Multiple | PD Visual Note |

5. Physical Disability: Other
◉ None ○ Specific ○ Moderate ○ Severe ○ Profound / Multiple | PD Other Note |

6. Support with Activities of Daily Living Required
◉ None ○ Specific ○ Some ○ Most ○ All | ADL Note |

7. Psychological Diagnosis: ASD
○ None ○ Mild ○ Moderate ◉ Severe | ASD Note |
☐ Validated | Validation source |

Bottom of Input

PNC selection & stage approvals along with the Update Pupil Assessment button which updates the clustering & generation of template packages.

Primary Need Classification
| Severe LD ▾ |

☑ Initial Panel Approval | Panel considerations |

☐ EHCP Final | Comments |

| Update Pupil Assessment |

Note: this button has been deactivated on this version of the prototype.

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Use case 3:
Initial review (pre-EHCP plan requirement)
Role: Co-ordinator / first panel (some LA's)

Once initial data input into system, Digital EHCP provides:

- **First cluster classification**

- **Summary needs information**

- **Suggested support packages**

- **First draft EHCP**

- **If the Cluster type is not X10 (No EHCP), it can be shared to first panel or provide green light to gateway to full EHCP validation process**

Use case 4:
EP report / specialist report
Role: EP / other specialist

- **Route 1 - EP / specialists with access:**
  - **EP / specialist has direct access to the Digital EHCP so the Pupil Assessment Input & draft EHCP can be edited directly**
  - **If there is a need for further supporting evidence, this can be uploaded and then summarised by the document summariser.**

- **Route 2 - EP / specialist without access:**
  - **EP / specialist provide report**
  - **Co-ordinator uploads report & updates the Pupil Assessment based on the document summariser**

Pupil Assessment Input

Document summarisation

Edit the draft EHCP
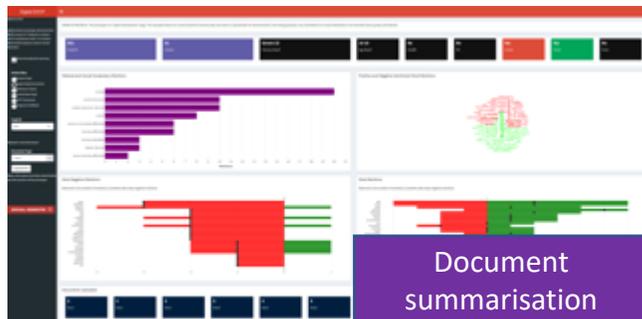
Use case 5:
Preparation of draft EHCP
Role: Co-ordinator

- **Ensures no gaps in Pupil Assessment Input**

- **Ensures the document summarisation is consistent with the Pupil Assessment Input**

- **Reviews all validations (or gaps) in the Pupil Assessment Input**

- **Reviews the draft EHCP and fills any gaps**

- **Determine preliminary placement recommendation**

Pupil Assessment Input

Document summarisation

Edit the draft EHCP

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Use case 6:
Panel review
Role: Panel

- **Review summary**
- **Review draft EHCP**
- **Approve / refer / reject**

Pupil Assessment Summary

Draft EHCP

Use case 7:
Placement & work towards approved final EHCP
Role: Co-ordinator / Panel

- **Share draft EHCP with parents / carers**

- **Select most appropriate education setting using placement benchmarks**

- **Share draft EHCP with target establishment(s)**

- **Adjust draft EHCP**

- **Agree final EHCP with panel**

Pupil Assessment Summary

Placement benchmarking

Draft EHCP
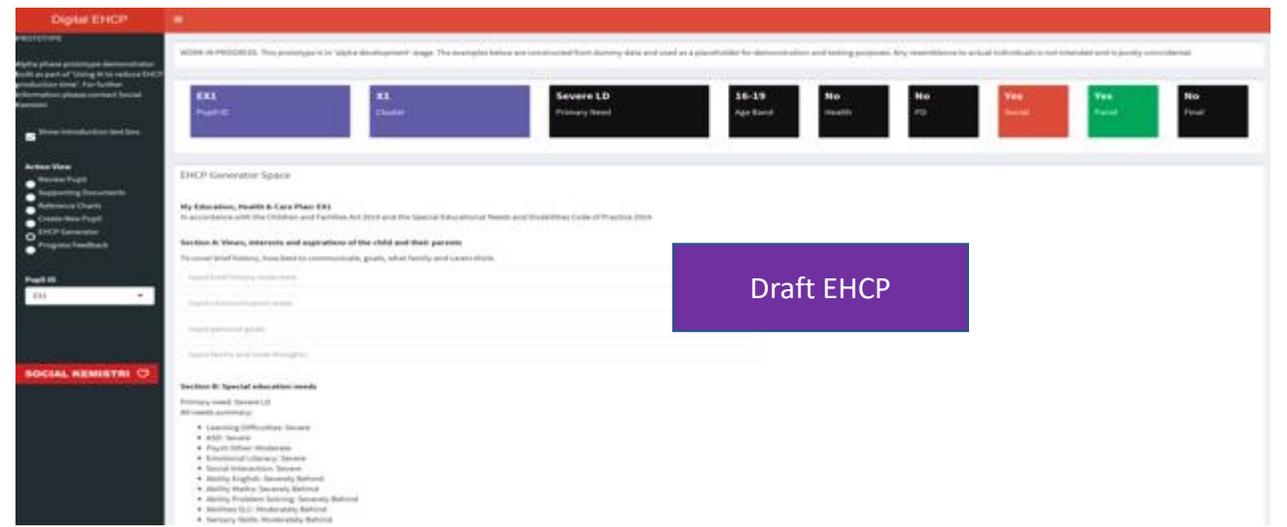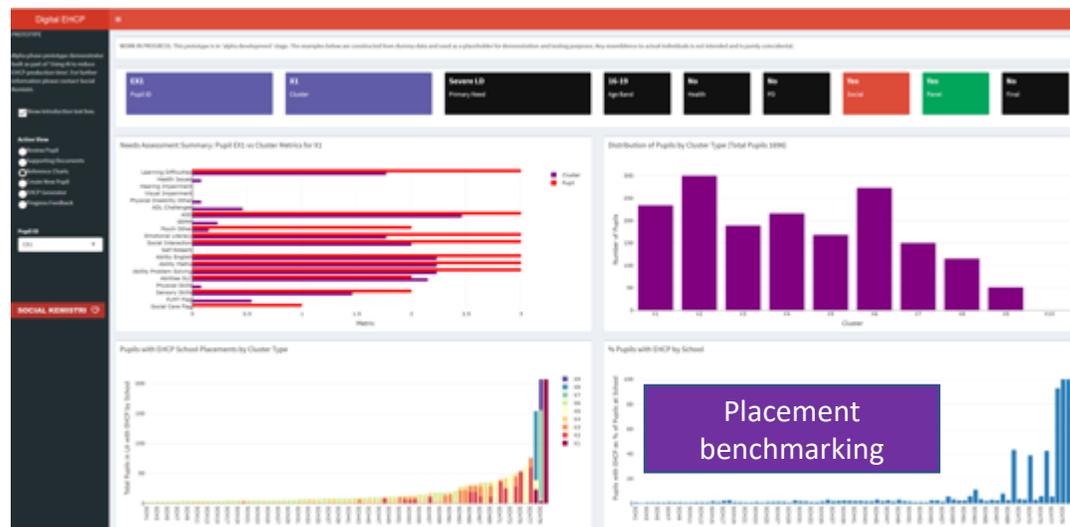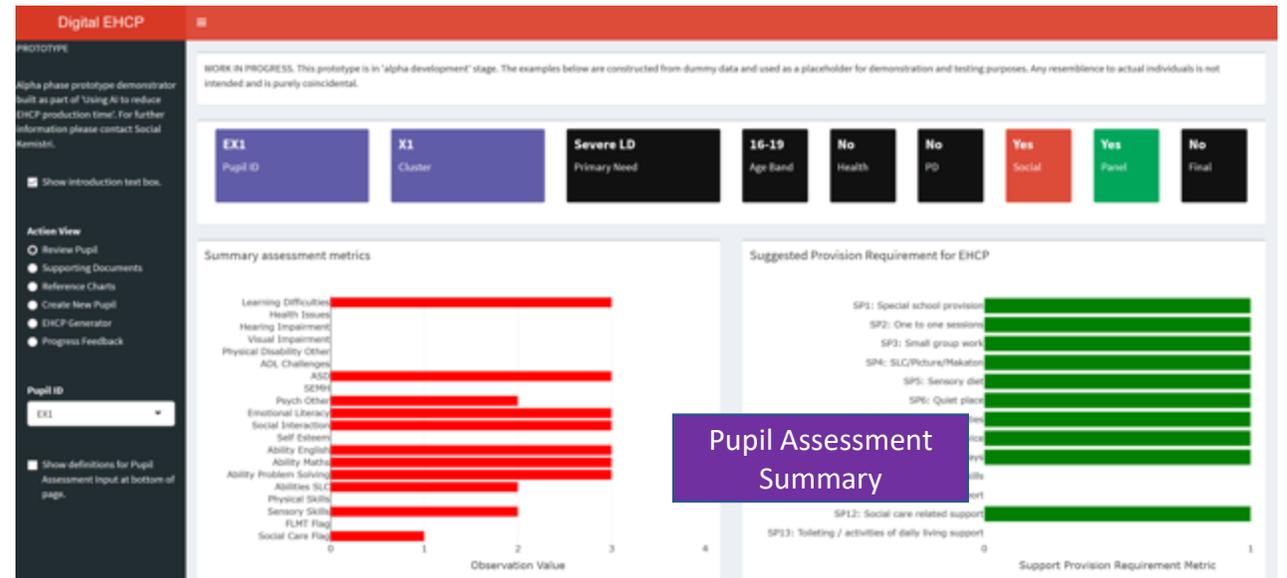
Use case 8:
Progress feedback
Role: Establishment / Parent / Carer / Pupil

To be developed as part of beta phase

- **Use Digital EHCP to provide feedback on outcomes. These can span special education needs, health, social care, educational achievement (grades).**

- **Will help better understand efficacy of support packages (improve efficacy)**

- **Reviews can be triggered as necessary rather than after a specific period (more efficient)**

- **Specific use cases need development for:**
  - **SENCO / establishment**
  - **Parent / carer**
  - **Pupil**

Technology

Prototype technology: alpha

Design principles:

- Fast prototyping solution bringing together front end software and data science packages

- Built around user interaction and agile iteration

- Preparation for fast implementation into secure cloud environment (see Beta technology design)

- No IT requirement
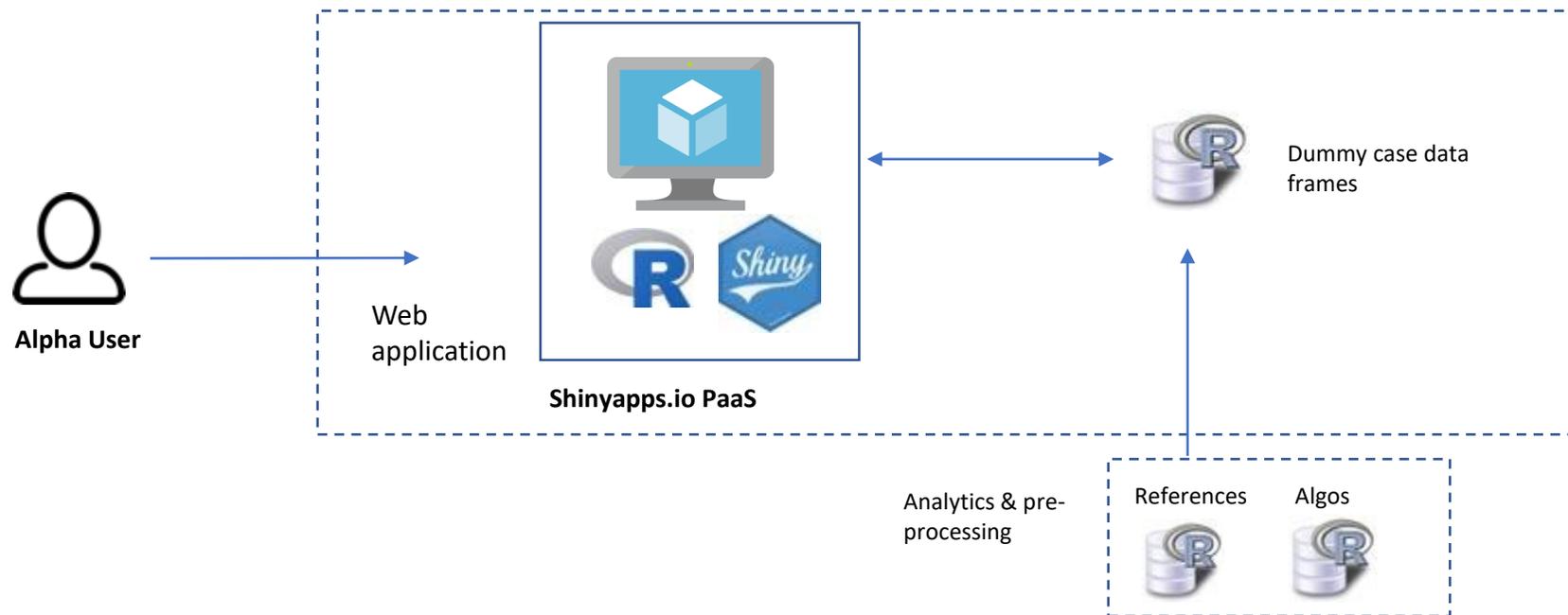
Prototype technology: pilot / beta phase

SOCIAL KEMISTRI

Design principles:

- Overlay system to prove out benefits and refine data capture and algorithm effectiveness

- Use secure cloud based technology for maximum efficiency and minimum dependency on existing systems

- Align to Government Cloud v6 design principles (https://www.microsoft.com/en-us/trustcentre/compliance/uk-g-cloud)

Azure

Resource group

Overlay EHCO / co-ordinator

Support co-ordinator with assessment completion process & load necessary reports

Secure sign on

Web application

Docker container with Azure VM, R and Shiny Server

Azure blob storage for document ingest store

Azure SQL Database

Azure SQL store for processed document output & pupil assessment data

Final EHCP & Document output of assessment / charts for reporting

EHCO / co-ordinator

Load reports, support core of existing process

Existing data systems

75

Technology: future state

Design principles:

- Use secure cloud based technology for maximum efficiency and minimum dependency on existing systems

- API interface for ease of access (if available from existing systems)

- Align to Government Cloud v6 design principles (https://www.microsoft.com/en-us/trustcentre/compliance/uk-g-cloud)

EHCO / Co-ordinator — Manage process & load supporting reports

Secure sign on

Web application

API mgmt

Processing / editing hub: Azure VM with computation, visualisation & XML editing capabilities

Resource group

Azure data factory

Optimised data store

API mgmt

Password authentication

Document store & reporting

Existing data systems
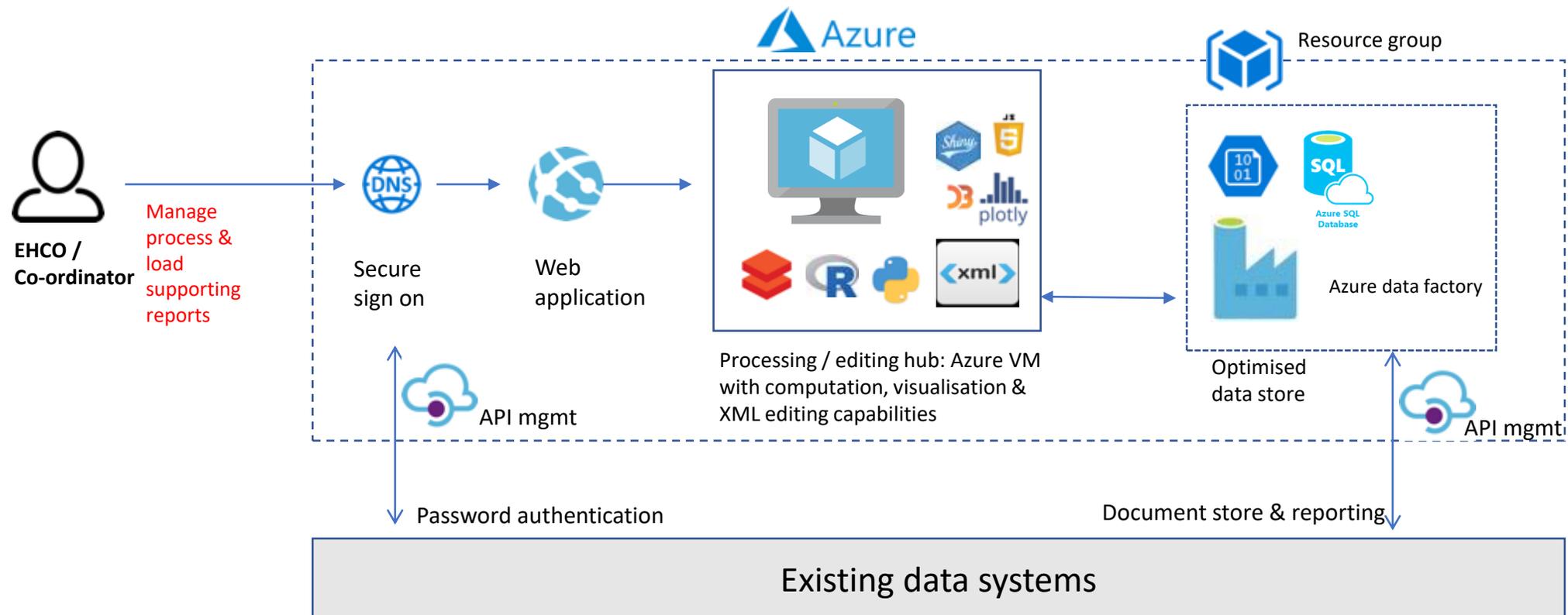
Beta

Beta: summary

- **Builds on alpha phase work**

- **Targets 1 (possibly 2) local authorities**

- **Overlays process to optimise process implementation**

- **Core activities spanning:**
  - **Process facilitation (overlay co-ordinator)**
  - **Pilot technical build**
  - **Data generation and algorithm development**
  - **Feedback design & piloting**
  - **Production system build**

- **Key outputs:**
  - **Pilot system**
  - **Validation of benefits**
  - **Change management framework for new local authority adoption**
  - **Production system**

Beta: core considerations

- **Set-up and support:**
  - Pilot co-ordinators need to identified, assigned overlay co-ordinators and process details agreed
  - Need more cases / data to evolve algorithms (AI)
  - Requires dedicated resource to summarise & add scales to existing EHCP cases
  - Prototype needs to be built into secure cloud hosted environment

- **Pilot:**
  - Data stored in existing systems and overlay system for the pilot period until the system evolves to the production / live system
  - Refinement of "No EHCP" cluster, ie cut-off conditions
  - Provide evidence of time savings from pilot (using historic comparisons from similar cases)

- **Design, development and pilot of feedback**

- **Production technology build**
  - Staged gateways & agile development

Beta: overlay process

- **Overlay system to prove out benefits and refine data capture and algorithm effectiveness**

- **Minimise disruption to processes / systems until benefits proven**

- **Agile development process**

Overlay
EHCO / co-ordinator

- Support co-ordinator with assessment completion process & load necessary reports

- Uses unique ID from existing data systems

Digital EHCP system

Final EHCP & Document output of assessment / charts for reporting can be exported into existing systems

EHCO / co-ordinator

Load reports, support core of existing process

Existing data systems
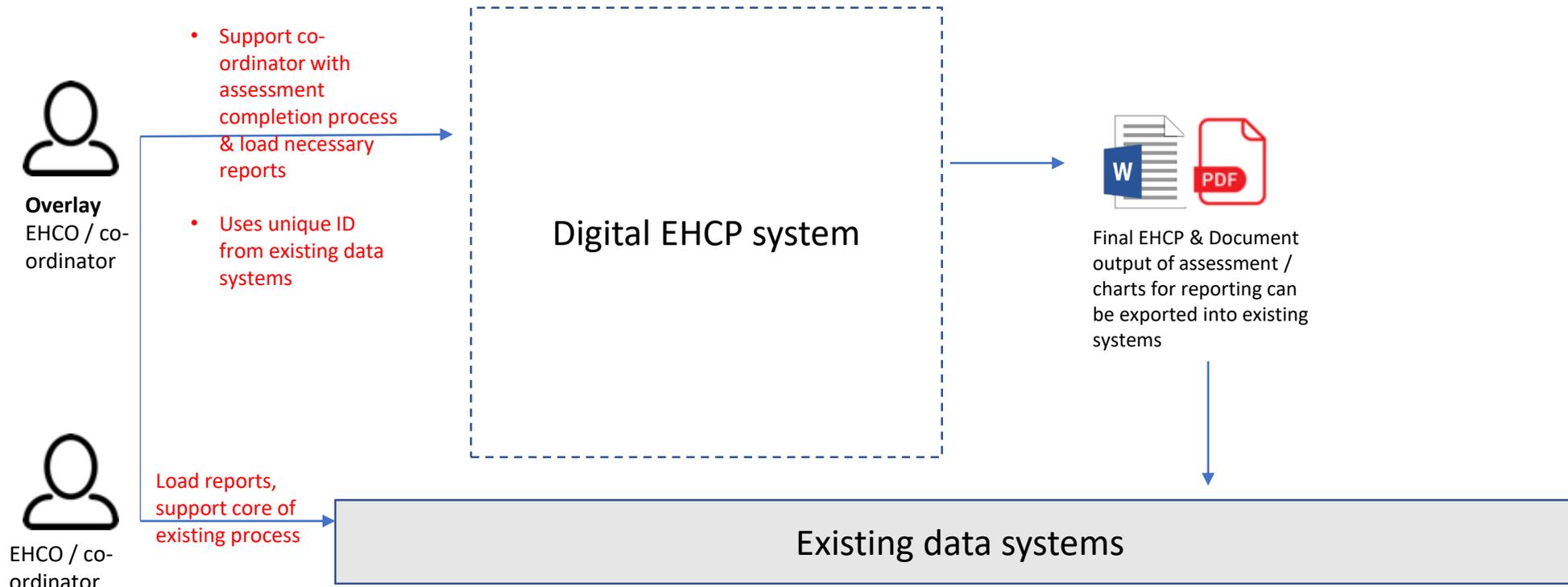
Beta: pilot technology build

Transition from alpha technology to beta pilot technology
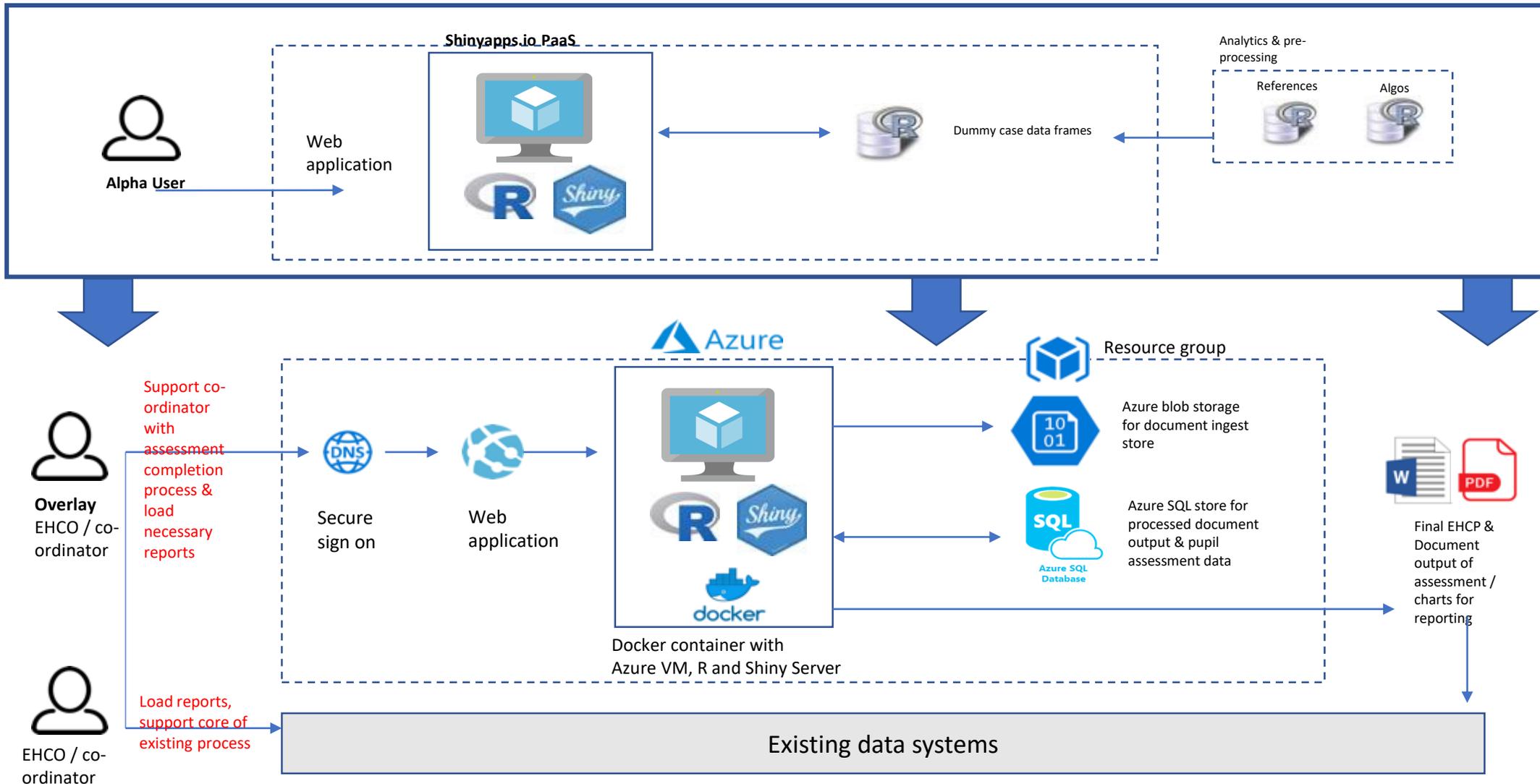
Beta: data generation and algorithm development

Data

- Grow from 95 EHCP cases to 1000+

- Assess and scale as per Digital EHCP 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, i.e. 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

Beta: feedback process

- **Design and pilot feedback process**
- **Gives EHCP participants a voice**
- **Improves service efficacy**
- **Increases co-development**
- **Introduces automated review flags, ie when needed not just when prescribed**

EHCP PRODUCTION

Library of EHCP's & supporting documents

1. AI classifier and recommender
2. Validated by specialists
3. Personalised

Efficacy of EHCP

EHCP

Update

FEEDBACK LOOP

Pupil   Parent / Carer   SENCO

- Feelings
- Outcomes
- Results
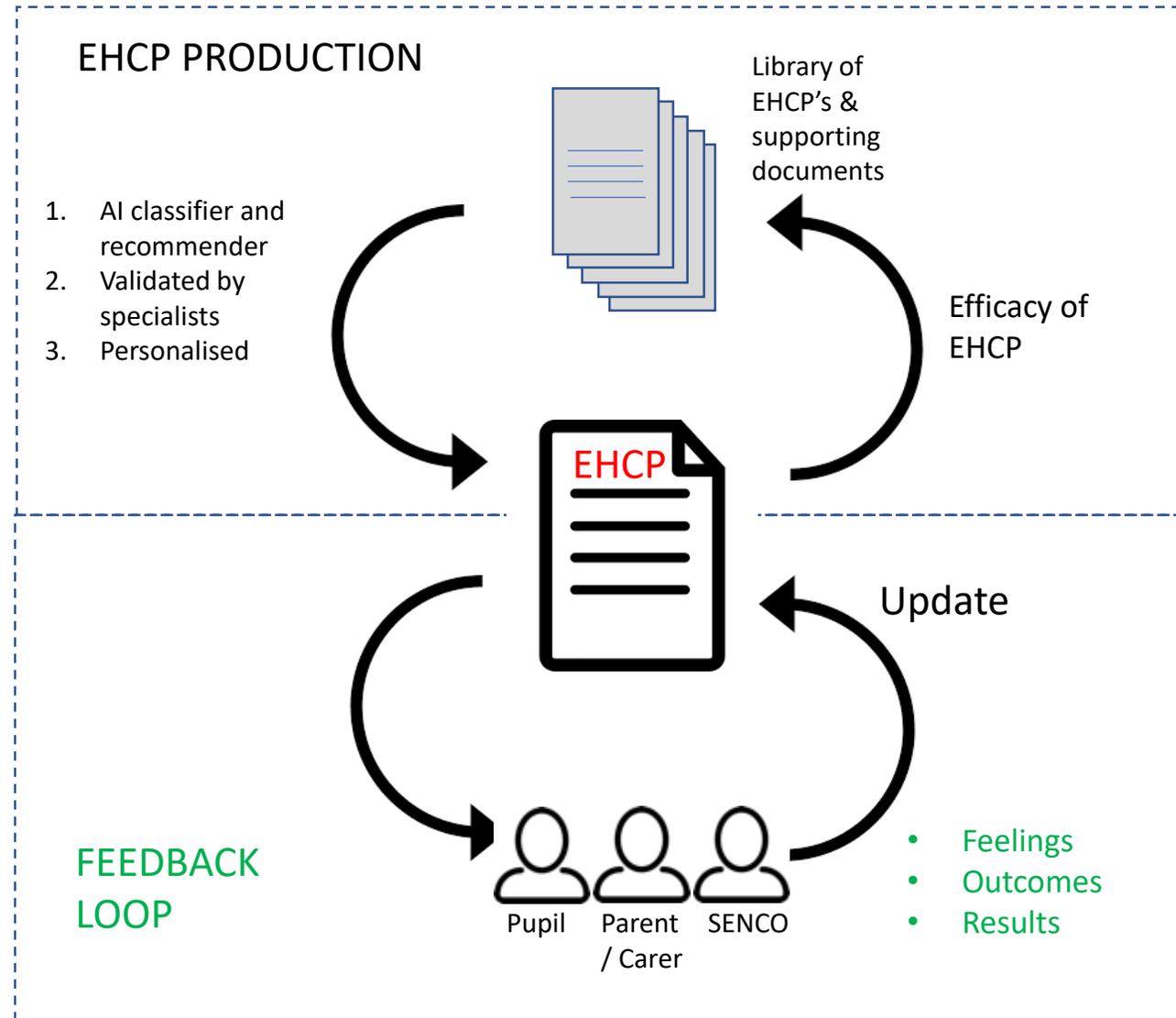
Beta: production system technology build

- Facilitate best operation and interchange with existing systems and data architecture

- Align to Government Cloud v6 design principles (https://www.microsoft.com/en-us/trustcentre/compliance/uk-g-cloud)

Azure

Resource group

EHCO / Co-ordinator

Manage process & load supporting reports

Secure sign on

Web application

API mgmt

Processing / editing hub: Azure VM with computation, visualisation & XML editing capabilities

Azure SQL Database

Azure data factory

Optimised data store

API mgmt

Password authentication

Document store & reporting

Existing data systems

Beta: draft plan by work packages

- **Based on 1 local authority**

- **Phased approach:**
  1. **Set-up**
  2. **Data collection | pilot start | feedback design & pilot**
  3. **Production system build**

Project Week

Activities	Total 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
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						
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

Beta: draft plan by activities and roles

SOCIAL KEMISTRI

Area	Detail	Roles	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
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
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
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						
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
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
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
	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
	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
	Production system coding / scripting / testing / release	Developers / Testers	18													1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Weeks

86

Beta: provisional resource & cost

Provisional :

- **Start Jun-Sep 19**

- **30 weeks duration**

- **Agile project team of up to 15 specialists**

- **Cost £1.4m**

Core activities	Estimated Cost Breakdown
Project management / reporting	17%
Data generation	10%
AI / analytics / process & system design	17%
Digital EHCP pilot support (overlay)	7%
Feedback design & pilot	11%
Productization of system	38%
Total	100%