

LIHNN AGM 2023

6th June 2023

The Liner, Liverpool



LIHNN AGM Blue Print



9:30-10:00 Arrival and Welcome

10:00-10:15 Chair introduction, Treasurer update and update on partnership working

10:15-11:00 Alan Davies (University of Manchester) – New PG Cert in Clinical Data Science

11:00-11:30 Extended break with random coffee networking

11:30-12:30 Community Builder activity

12:30-13:30 Lunch and Networking



6th June 2023
The Liner, Liverpool

Introducing our committee

Chair (Vacant)

Susan Smith, Library Manager, Mid Cheshire Hospitals NHS FT is currently supporting until a new Chair is recruited



Secretary

Katie Nicholas, Knowledge Specialist, NHS England (handing over to Karen Storms in July 2023)



Treasurer

Tracy Owen, Evidence Services Lead, Mersey Care NHS FT



Emma Dent, Information Services Librarian, Lancashire & South Cumbria NHS FT



Siobhan Linsey, Library Manager, Lancashire Teaching Hospitals NHS FT



Gil Young, NHS LKS Development Manager, NHS England



Karen Storms, Library and Information Specialist, Northern Care Alliance NHS FT



Sinead English, Academic Liaison Librarian for Faculty of Health and Wellbeing, University of Bolton



Deconstruction

- Staffing & engagement
- Oversight: Groups, current awareness, staff handbook
- Membership
- Relations with central body (HCLU, HEE)



Building for the future

- Evolving skills and sharing practice
- Partnership
- Members as assets
- The scaffold that holds us together



Treasurer update



LIHNN Finance 2022-23

Carried forward 1st April 2022:	£27,307.83
Income from memberships: (Decrease of £30)	£2,245.00
Expenditure:	£6,059.01
Total Funds:	£23,493.82
Outstanding:	£260.00



Resources
£539.93
Website



Leavers etc
Cards & Vouchers
£210.00



AGM & Christmas
Study Day
£4,088.13



Conference
Bursaries
£1035.81



Committee members
expenses
£185.14

CILIP NW/LIHNN Professional Speakers Programme

- Partnership between CILIP North West and LIHNN
- Representatives from both committees
- Discussions began November 2022

CILIP NW/LIHNN Professional Speakers Programme

- 8 talks per year, avoiding busy periods
- Aimed at enhancing understanding of the wider profession
- Delivered virtually through MS Teams – 45 minutes per session
- Promotion through mailing lists/CILIP NW Twitter account/CILIP events page

Sessions delivered so far...

Gemma White – "Working in a school library, move to an academic library and the activities undertaken to maintain awareness of the wider profession"

Paula Younger – "Health Literacy: Lessons Learned from a collaborative project between NHS and public libraries in Somerset"

Hong-Anh Nguyen – "Colouring outside the lines"

Clare Pye and Emma Fitzsimons - "Our journey to Knowledge Management Chartership"

Upcoming planned sessions...

Kira Cox - "Scrolling
Through Success:
Using social media
to create a great
customer
experience"



Martin Kratz -
"Manchester
Poetry Library"

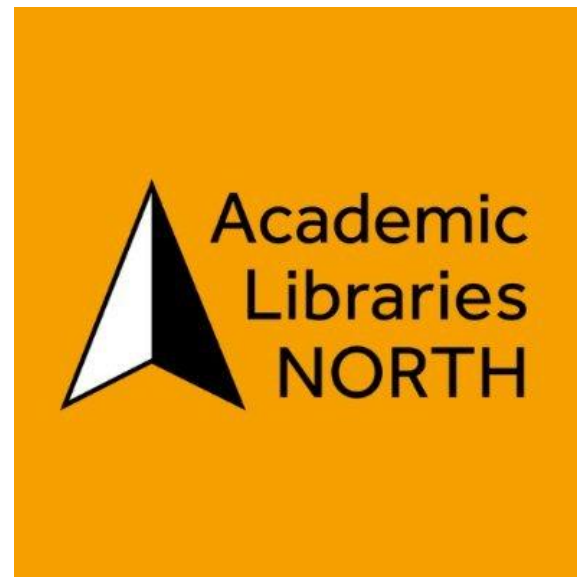
Looking forward

- Review of programme – share with wider network
- 67 attendees so far - gather feedback
- Reach out to potential speakers for next year



Health and Wellbeing event

- Joint event between LIHNN and Academic Libraries North on the health and wellbeing agenda in our libraries
- Over **40 attendees** with speakers from both academic and health libraries



Buddy scheme

- Our informal buddy scheme is designed to connect new starters with existing members to build connections, share what we know and support each other.
- Please get in touch with katie.nicholas@hee.nhs.uk if you want to be buddy, or would like a buddy

<https://www.lksnorth.nhs.uk/lihnn/lihnn-groups/lihnn-coordinating-committee/lihnn-buddy-scheme/>

Dr Alan Davies – New PG Cert in Clinician Data Science

CLINICAL DATA SCIENCE

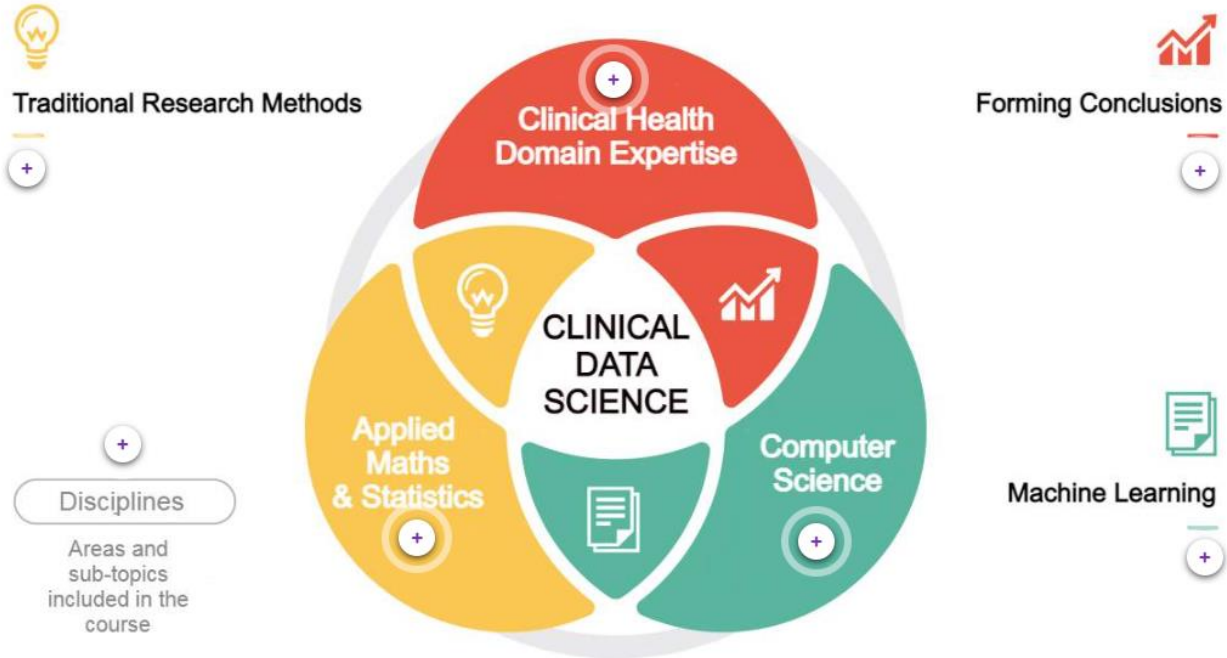
LIHNN AGM Liverpool 6th of June 2023

Dr. Alan Davies

Senior Lecturer Health Data Sciences,
Programme Director Clinical Data Science PGCert
University of Manchester
alan.davies-2@manchester.ac.uk



The Clinical Data Science Programme

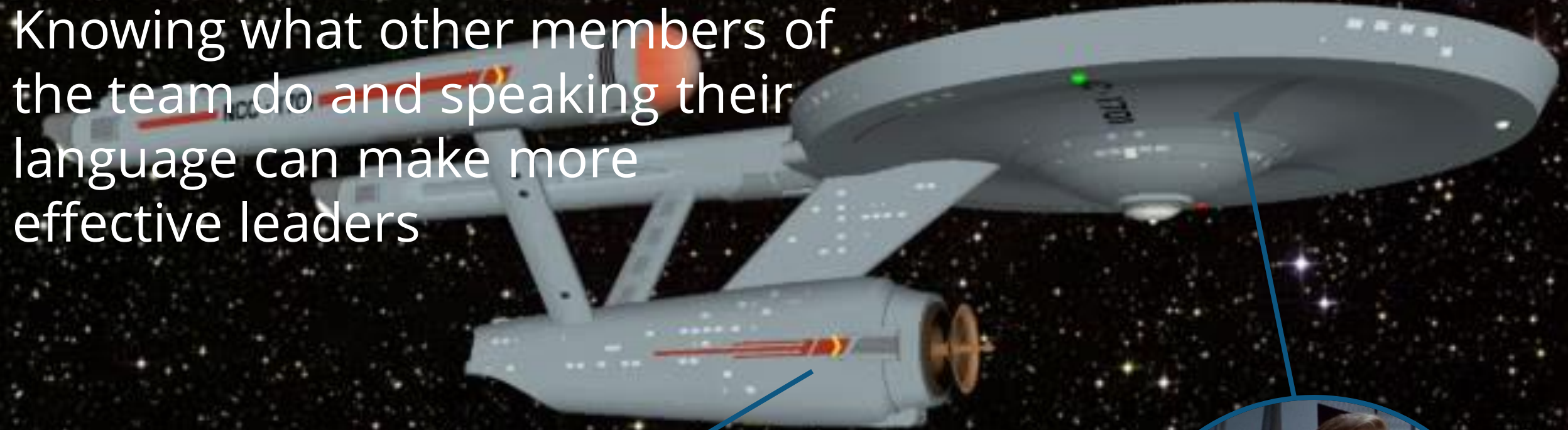


- The aim of the Clinical Data Science Programme (CDSP) is **to empower healthcare professionals** from across the health and social care workforce to apply data science in practice and translate data into patient benefit.
- Our aim is to give to healthcare professionals the data science training to enhance their ability to **work better together** for the benefit of patients and **improve lives**.



Team science analogy

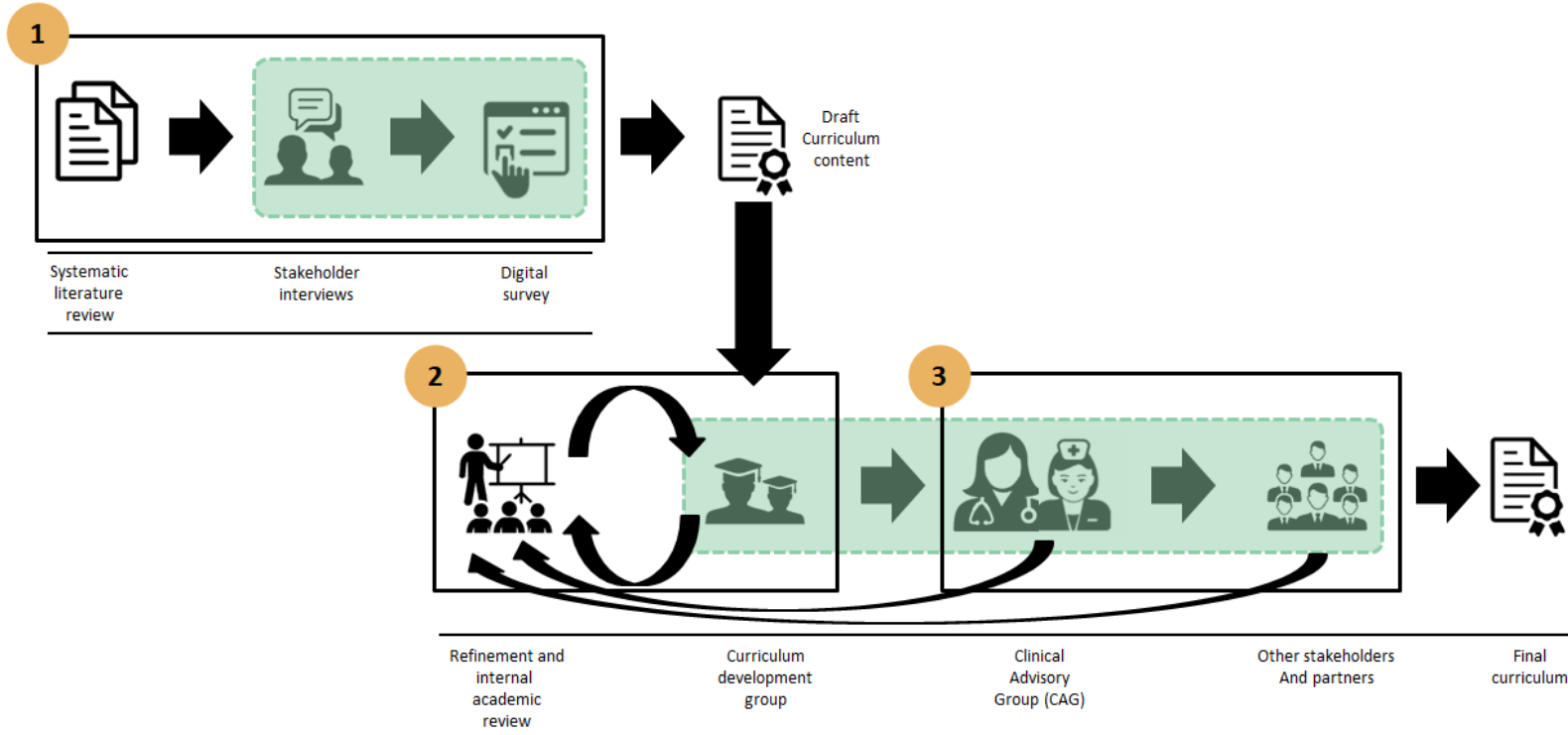
Knowing what other members of the team do and speaking their language can make more effective leaders



The captain might not be an engineer but still needs to know how fast the ship goes and what fuels it to be an effective captain.



Co-designed



Green areas represent the application of co-design
(Davies *et al.* 2022)*

Applying Co-Design Principles for the Development of Health Education and Workforce Development

Alan DAVIES^{a,1}, Frances HOOLEY^a, Iliada ELEFTHERIOU^a,
Hatim ABDULHUSSEIN^b and Angela C DAVIES^a
^aSchool of Health Sciences, University of Manchester
^bHealth Education England
ORCID ID: <https://orcid.org/0000-0001-5737-5629>

Abstract. The digital transformation of the UK's healthcare system necessitates the development of digital capabilities across the workforce. This ranges from basic digital literacy through to advanced skills with data and analytic methods. We present two projects that apply co-design to work with end-users and other stakeholders to produce a digital healthcare technologies capability framework aimed at the wider NHS workforce and a post graduate Clinical Data Science course aimed at bridging the gap between clinicians and the data-centric professions (e.g. analysts, data scientists, informaticians) to aid in digital transformation projects.

Keywords. co-design, co-creation, collaboration, capability framework, workforce development, digital transformation

1. Introduction

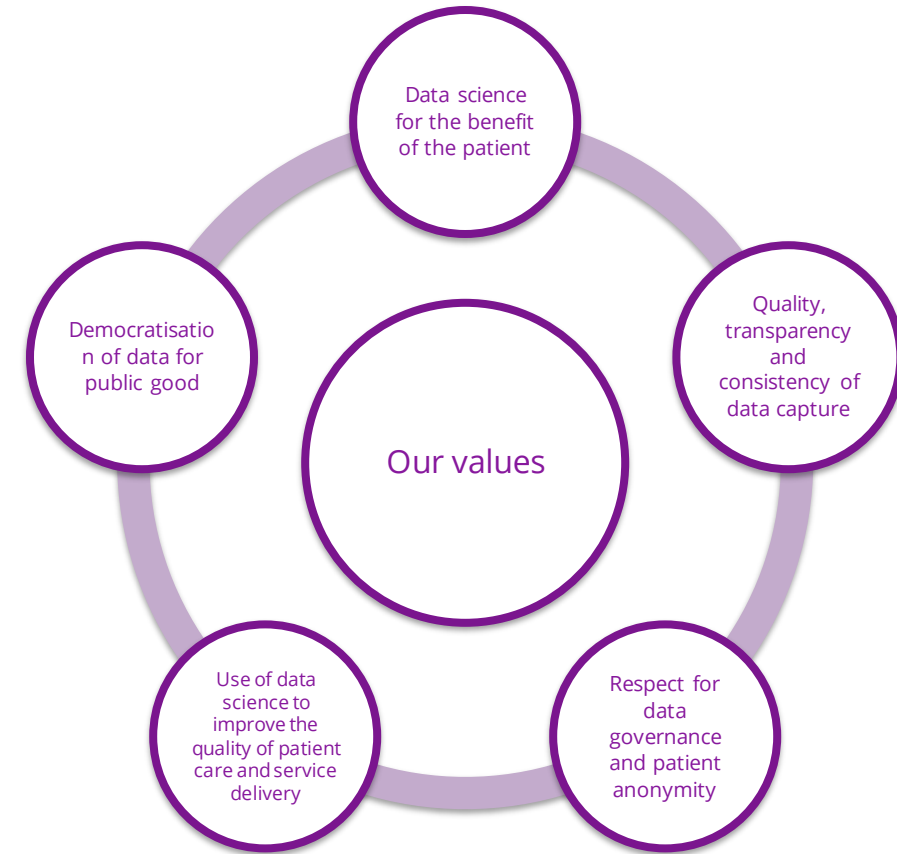
Co-design refers to the meaningful engagement of end-users and other stakeholders in the design of a product or service. The method can be applied to all stages of the design process and is especially applied to the generation of initial ideas and concepts [1]. Co-design has increased in popularity across many different domains [2] and has been applied to a wide range of applications and domains such as education, research and product/service creation. Examples include; creating student-centered innovations [3], generating artifacts with digital technology in higher education [4] as well as for digital interventions such as mHealth apps [5]. The University of Manchester working with Health Education England (HEE) has recently been involved in several projects aimed at workforce development for the UK's National Health Service (NHS). The projects relate to the requirement for preparing the workforce for the digital transformation of the health service that has been highlighted in several high profile reviews, such as the Topol review [6] and the Goldacre review [7] that focus on recommendations to ensure the NHS's place as a world leader in the use of digital technology for patient benefit and the use of health data for research and analysis respectively. The projects discussed in this paper include the development of a new postgraduate certificate (PGCert) in Clinical Data Science that aims to assist healthcare practitioners to understand more about data and how it's used, in order to bridge the gap between the clinical and data centric professions to work on digital transformation projects effectively. The second project concerns the development of a capability framework for digital healthcare technologies.

¹ Corresponding Author: Alan Davies, alan.davies-2@manchester.ac.uk



Values and principles

- Real-world clinical case studies will be used throughout the programme
- Teaching design and assessment will centre on interdisciplinary team science
- The programme will be co-created with patient representatives and healthcare professionals
- Assessments will be designed to relate directly to clinical practice, service improvement and innovation
- Teaching will aim to develop sustained communities of practice that will help to drive change through the inclusion of networking events
- Equip healthcare practitioners with the tools to make use of the data available to them in order to improve service delivery
- The programme will be as flexible as possible to account for the learning needs and accessibility of busy healthcare practitioners
- The programme will promote data literacy and increase confidence in applying data science techniques



The Clinical Data Science Program

The Health Information Workforce

Current and Future Developments



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Core Competency Framework for Clinical Informaticians

[Click here to view the protocol and report for the Core Competency Framework, setting out the workings and detailed findings.](#)

- Domain 1: Health and Wellbeing in Practice
 - 1.1 Clinical Concepts and Language
 - 1.2 Clinical Governance
 - 1.3 Models of Care Delivery
 - 1.4 Health Administration and Services
 - 1.5 Informatics Strategies
 - 1.6 Informatics in Health
 - 1.7 Scientific and Research Skills

- Domain 2: Information Technologies and Systems
 - 2.1 Information Systems and Technologies Concepts
 - 2.2 Working and Communicating with Project Stakeholders
 - 2.3 Selecting and Procuring Information Systems
 - 2.4 Interoperability and Integration
 - 2.5 System Architecture
 - 2.6 Data Security and Cyber Security
 - 2.7 Maintaining and Support for Healthcare Information Systems
 - 2.8 Evaluation of Information Systems

Open access Original research
BMJ Health & Care Informatics
Development of a core competency framework for clinical informatics
 Alan Davies,¹ Julia Mueller,² Alan Hassey,³ Georgina Moulton^{1,4}

To cite: Davies A, Mueller J, Hassey A, et al. Development of a core competency framework for clinical informatics.

ABSTRACT
Objectives Until this point there was no national core competency framework for clinical informatics in the UK. We report on the final two iterations of work carried out in

The American Medical Association (AMA) defines clinical informatics as 'the application of informatics and information technology to deliver health services'.² The UK Faculty of Clinical Informatics (FCI) defines a clinical informatician as: 'A clinical informatician uses their knowledge and experience of informatics concepts, methods and tools to patient and population care that is patient centred, ethical, safe, effective, efficient, and equitable'.³ (statement 3, FCI)

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 Contents lists available at ScienceDirect
International Journal of Medical Informatics
 journal homepage: www.elsevier.com/locate/ijmedinf

Review article
Core competencies for clinical informaticians: A systematic review
 Alan Davies^{a,*}, Julia Mueller^b, Georgina Moulton^{a,c}

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ARTICLE INFO
Keywords: Core competencies, Skills, Requirements, Informatics, Healthcare data science, Health, Bioinformatics, Pharmacy, Clinical

ABSTRACT
Background: Building on initial work carried out by the Faculty of Clinical Informatics (FCI) in the UK, the creation of a national competency framework for Clinical Informatics is required for the definition of clinical informaticians' professional attributes and skills. We aimed to systematically review the academic literature relating to competencies, skills and existing course curricula in the clinical and health related informatics domains.
Methods: Two independent reviewers searched Web of Science, EMBASE, ERIC, PubMed and CINAHL. Publications were included if they reported details of relevant competencies, skills and existing course curricula. We report findings using the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) statement.
Results: A total of 82 publications were included. The most frequently used method was surveys (30%) followed by narrative descriptions (28%). Most of the publications describe curriculum design (23%) followed by competency definition (18%) and skills, qualifications & training (18%). Core skills surrounding data, information systems and information management appear to be cross-cutting across the various informatics disciplines with Bioinformatics and Pharmacy Informatics expressing the most unique competency requirements.
Conclusion: We identified eight key domains that cut across the different sub-disciplines of health informatics, including data, information management, human factors, project management, research skills/knowledge, leadership and management, systems development and evaluation, and health/healthcare. Some informatics disciplines such as Nursing Informatics appear to be further ahead at achieving widespread competency standardisation. Attempts at standardisation for competencies should be tempered with flexibility to allow for local variation and requirements.

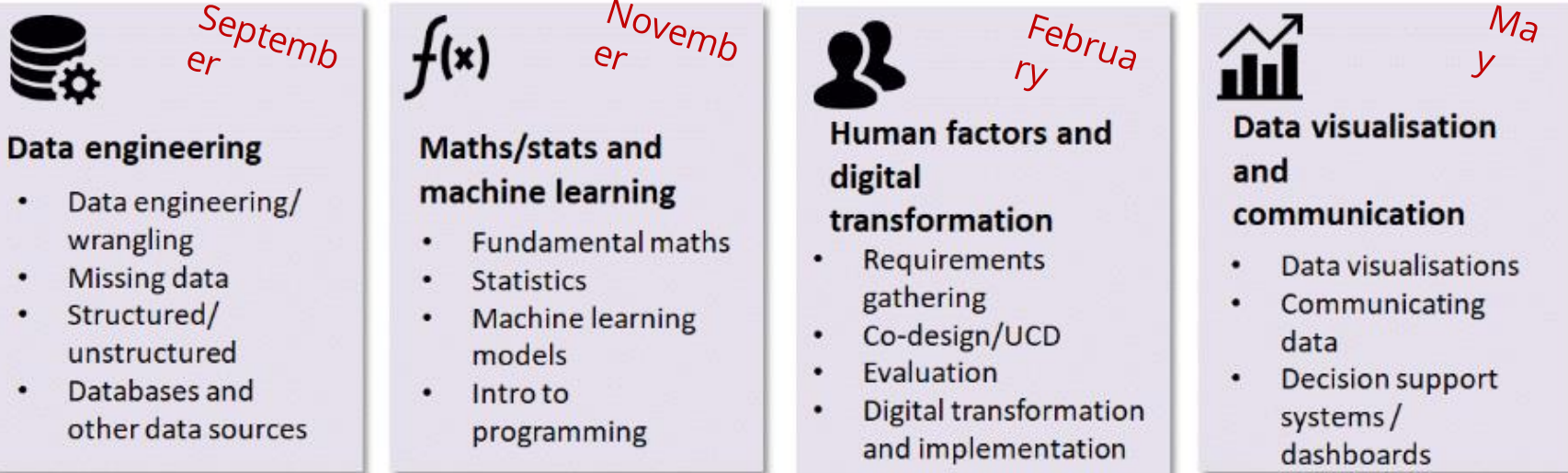
1. Introduction
 Health informatics is a multidisciplinary field that combines computer and information sciences with a health focus [1]. The number of informaticians (those practising informatics) is growing, with an estimated 25–50 thousand informaticians in the UK's National Health Service (NHS) alone [2].
 The purpose of this systematic review is to collate and synthesise the literature relating to the key competencies/skills and educational

development of the competency framework. A systematic literature review of competencies and a job listing analysis approach was applied to framework development. A mixed-methods design was carried out involving interviews with participants involved in the development of the framework. The framework was updated based on findings and was subsequently distributed to a wider audience via an online digital survey for wider validation. The final version of the framework is presented. As yet there are no UK-based competency frameworks aiming to encompass multiple informatics disciplines. Existing frameworks tend to focus on specific domains such as nursing or bioinformatics. The UK FCI was created to provide support for clinical informaticians, including with clinical roles in the health and care domains applying informatics in practice. It is the intention of the FCI to promote and accredit competencies for informaticians. This includes accreditation of the UK's National Health Service (NHS) Academy programme which aims to digital leaders for the digital transformation of the NHS. The present study forms a programme commissioned by the FCI to create a national competency framework for clinical informaticians in the UK.
 Competency describes the behavioural characteristics, skills, attitudes and knowledge application used to successfully achieve something. Competence therefore is the attainment of a single competency or multiple competencies. A core competency framework describes the essential set of competencies required to achieve competence in a specific area. There currently exist competency frameworks aimed at clinical informatics disciplines, such as ELIXIR (the European life-sciences structure for biological Information Technology Informatics Group (Technology Informatics Group Education Reform) frameworks for informaticians and nurses. This paper reports on the methods used to generate and

NHS
AI and Digital Healthcare Technologies
 Capability framework

The Clinical Data Science Programme

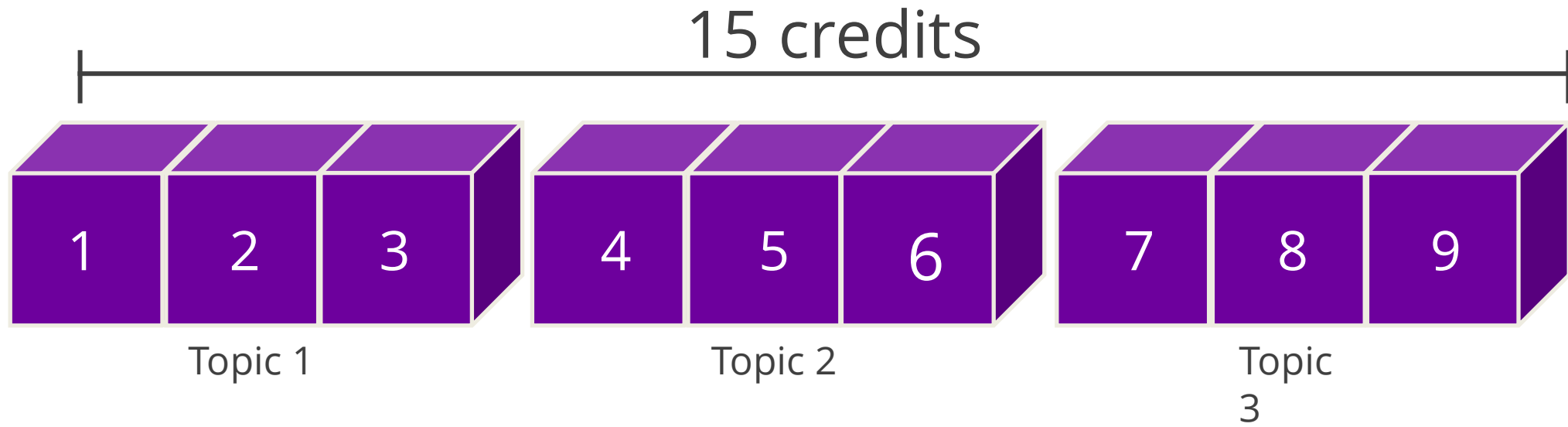
PGCert (60 credits) Clinical Data Science Programme



Blended course: Online self-directed, online synchronous, face-to-face



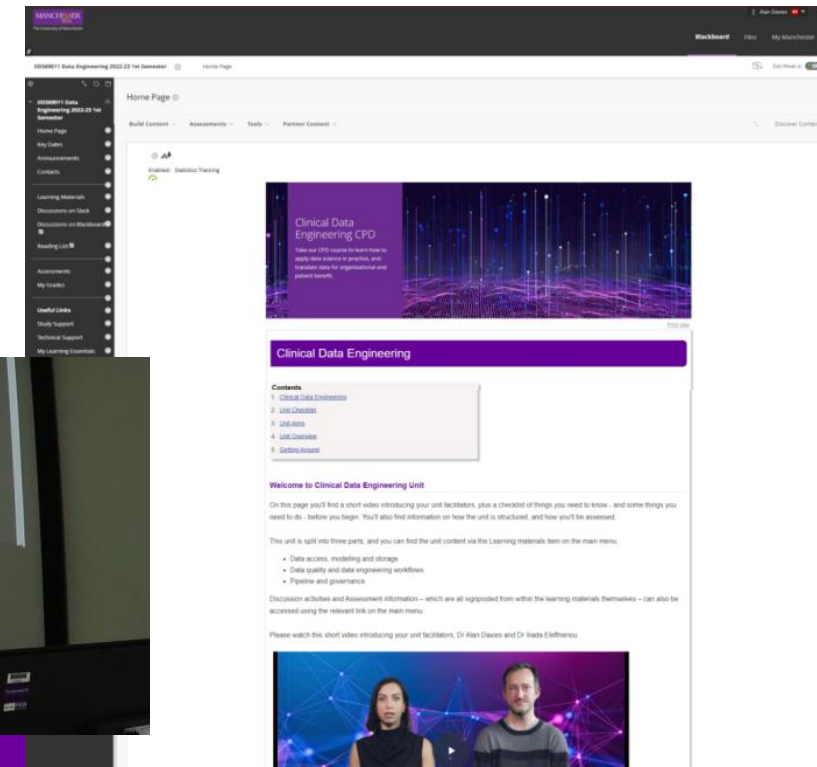
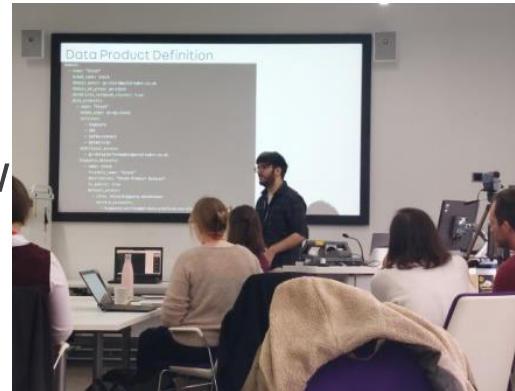
Unit structure



Clinical Data Engineering

Topics:

1. Data access, modelling and storage
 1. Intro to data engineering and the role of data engineer
 2. Data modelling
 3. Databases (SQL/NoSQL)
2. Data quality and engineering workflow
 1. Data quality dimensions
 2. Workflows
 3. Architecture
3. Pipelines and governance
 1. Hackathon & networking event
 2. Data governance and ethics
 3. Assessment



Clinical Data Engineering

Getting to know a data engineer

Imaging imagingdatadivision@gmail.com

The intended learning outcome of this lesson is to *understand the role of a data engineer in the healthcare domain, typical day-to-day responsibilities and where it sits within bigger teams.*



Brief bio of Richard Williams

I am the lead data engineer on the Greater Manchester Care Record (GMCR) – a shared care record combining data from primary (GP) and secondary care (hospitals). The GMCR was set up for patient care, but can also be used for research once the patient identifiers, such as name and address, have been removed.

After an undergraduate degree in Mathematics, I joined a call centre company as a software developer. Five years later I moved to the University of Manchester to work alongside statisticians, clinicians and epidemiologists developing software to improve patient care. Along the

The screenshot shows a Jupyter Notebook with the following content:

- Getting with missing data:** Text explaining that missing data is a common issue and how to handle it using pandas' `isnull()` and `dropna()` methods.
- Random noise:** Text explaining that random noise is a common issue and how to handle it using pandas' `drop_duplicates()` method.
- Data deletion:** Text explaining that data deletion is a common issue and how to handle it using pandas' `dropna()` method.
- Flowchart:** A flowchart showing the data engineering process: Source Data -> Data Ingestion -> Data Processing -> Data Storage.
- Code snippets:** Several code blocks demonstrating data manipulation techniques.
- Table:** A table with columns: patient_id, patient_name, gender, age, and various clinical indicators (e.g., hypertension, diabetes, asthma).



Jupyter notebooks

To retrieve data from a table you can write a query. Some can be fairly straightforward, others will involve joining data from multiple tables on different values and can become very complex. A simple example can be seen below where we return the `ID`, `name` and `Heart rate` for patients who have a heart rate of more than 70 beats per minute.

```
In [12]: 1 %%sql
          2 SELECT ID, name, "Heart rate" FROM med_data WHERE "Heart rate" > 70;

* sqlite://
Done.
```

```
Out[12]:
```

ID	Name	Heart rate
1	Alan Smith	78
2	Maureen Gdiver	82
3	Adam Blythe	72



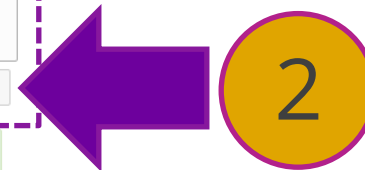
Task 6:

Have a go at writing a query to return the same fields but for heart rates less than 70 bpm.

Show Solution

```
In [ ]: 1 %%sql # type in your code below
```

Note: For fields with spaces in the field name we use quotation marks e.g. "Blood pressure". This is not necessary with fields that have no spaces, e.g. name.



Let's do what was suggested earlier and create the table again, this time using separate columns for the systolic and diastolic blood pressures which are stored as numerical values.

```
In [15]: 1 %%sql
          2 DROP TABLE IF EXISTS med_data;
          3 CREATE TABLE med_data (
          4     ID INTEGER NOT NULL PRIMARY KEY,
          5     Name VARCHAR(255),
          6     Age INTEGER,
          7     Sex CHAR
```



Jupyter notebooks

To retrieve data from a table you can write a query. Some can be fairly straightforward, others will involve joining data from multiple tables on different values and can become very complex. A simple example can be seen below where we return the `ID`, `name` and `Heart rate` for patients who have a heart rate of more than 70 beats per minute.

```
In [12]: 1 %%sql
         2 SELECT ID, name, "Heart rate" FROM med_data WHERE "Heart rate" > 70;

* sqlite://
Done.
```

Out[12]:

ID	Name	Heart rate
1	Alan Smith	78
2	Maureen Gdiver	82
3	Adam Blythe	72



Task 6:

Have a go at writing a query to return the same fields but for heart rates less than 70 bpm.

Hide Solution

```
In [14]: 1 %%sql
         2 SELECT ID, name, "Heart rate" FROM med_data WHERE "Heart rate" < 70;

* sqlite://
Done.
```

Out[14]:

ID	Name	Heart rate
4	Darren Sanders	67
5	Sally-Ann Joyce	65

```
In [ ]: 1 %%sql # type in your code below
```

Note: For fields with spaces in the field name we use quotation marks e.g. "Blood pressure". This is not necessary with fields that have no spaces, e.g. name.



Jupyter notebooks



Jupyter Intro to Data Engineering 5 (Data quality and cleaning) Last Checkpoint: 26/10/2022 (autosaved)

We saw previously how we can change the structure of the data and the data types used to represent the data.

```
In [6]: 1 breast_data.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 985 entries, 0 to 984
Data columns (total 10 columns):
#   Column              Non-Null Count  Dtype
---  -
0   Patient_ID          985 non-null    int64
1   Arm                  985 non-null    object
2   HR                   985 non-null    int64
3   HER2                 985 non-null    int64
4   MP                   985 non-null    int64
5   pCR                  985 non-null    int64
6   Age_at_Screening    982 non-null    float64
7   Race                 982 non-null    object
8   menopausal_status   947 non-null    object
9   ethnicity            984 non-null    object
dtypes: float64(1), int64(5), object(4)
memory usage: 77.1+ KB
```

We only touched on handling `categorical` data previously. Here we can inform pandas that we want specific columns to represent different categories of data by specifying this explicitly. The example below shows how we can redefine the `ethnicity` column as `categorical` data.

```
In [7]: 1 breast_data['ethnicity'] = pd.Categorical(breast_data['ethnicity'])
```

Categorical data defines a set of labels that can be added to data forming categories or groups. This could be something like a list of sports or political parties. These labels are often called `levels`. We can view the different levels of the category as shown below where we see there are two levels `Hispanic or Latino` and `Not Hispanic or Latino`.

```
In [8]: 1 breast_data['ethnicity'].cat.categories
Out[8]: Index(['Hispanic or Latino', 'Not Hispanic or Latino'], dtype='object')
```

Task 1:

- Which of the other columns do you think should be represented with categories?
- Change those columns to categories.

Jupyter Intro to Data Engineering 5 (Data quality and cleaning) (autosaved)

We saw previously how we can change the structure of the data and the data types used to represent the data.

```
In [10]: 1 str(breast_data)

'data.frame':   985 obs. of  10 variables:
 $ Patient_ID   : int  756412 111881 451816 243836 402265 611662 139137 685753 627981 108939 ...
 $ Arm          : Factor w/ 13 levels "Paclitaxel","Paclitaxel + ABT 888 + Carboplatin",...: 2 9 2 9 12 9 2 3 1 9 ...
 $ HR          : int   1 1 1 1 1 0 1 1 0 1 ...
 $ HER2        : int   0 1 0 0 1 1 0 0 0 1 ...
 $ MP          : int   0 1 0 1 0 0 0 0 0 0 ...
 $ pCR         : int   0 1 0 1 0 0 0 0 1 1 ...
 $ Age_at_Screening: int  46 37 43 31 56 55 54 46 64 34 ...
 $ Race        : Factor w/ 11 levels "American Indian or Alaska Native",...: 11 11 11 11 11 6 11 11 11 11 ...
 $ menopausal_status: Factor w/ 8 levels "", "Above categories not applicable AND Age < 50",...: 7 8 7 7 6 6 6 7 6 7 ...
 $ ethnicity    : Factor w/ 2 levels "Hispanic or Latino",...: 2 2 2 2 2 2 2 2 2 ...
```

We only touched on handling `categorical` data previously. Here we can inform R that we want specific columns to represent different categories of data by specifying this explicitly. The example below shows how we can redefine the `ethnicity` column as `categorical` data.

```
In [11]: 1 breast_data$ethnicity <- as.factor(breast_data$ethnicity)
```

Categorical data defines a set of labels that can be added to data forming categories or groups. This could be something like a list of sports or political parties. These labels are often called `levels`. We can view the different levels of the category as shown below where we see there are two levels `Hispanic or Latino` and `Not Hispanic or Latino`.

```
In [12]: 1 levels(breast_data$ethnicity)

'Hispanic or Latino' 'Not Hispanic or Latino'
```

Task 1:

- Which of the other columns do you think should be represented with categories?
- Change those columns to categories.



Clinical Data Engineering

Assessment

Data Management Plan

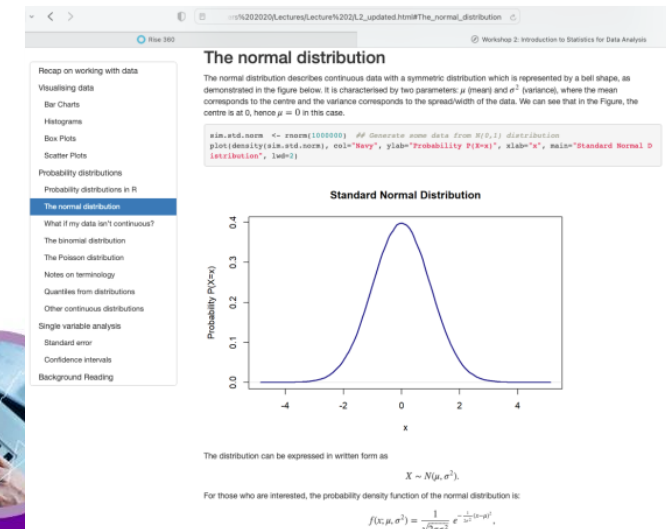
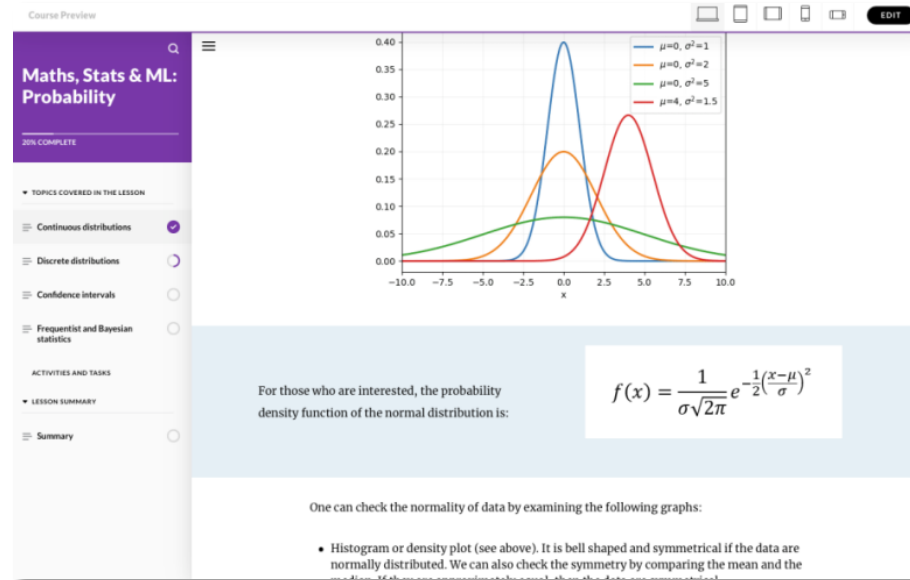
Describes the **data** you will collect during your research/project and **how it will be managed**, both during and after the project. Creating a DMP at the start of your project will help you organise your data, keeping it safe and ensuring access to those who need it. 100%, individual-based assessment, ~1000 words max
Based on real-world scenario/data
Useful and applicable skills



Math's, stats and ML

Topics:

1. Fundamentals
 1. Intro to statistics
 2. Probability
 3. Hypothesis testing
2. Modelling and prediction
 1. Statistical modelling
 2. Model evaluation
 3. Machine Learning
3. Applications and advanced methods
 1. Longitudinal, image and text analysis
 2. Applications
 3. Assessment



Math's, stats and ML

Assessment

Business case

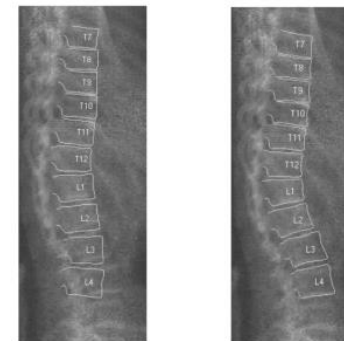
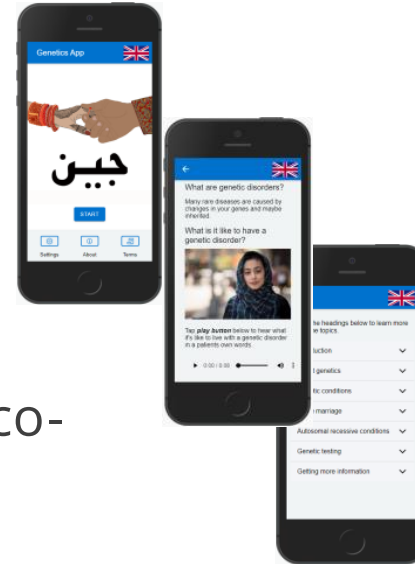
write a business case to senior management to convince them to fund a project to investigate whether statistical modelling, ML or both (your choice) can produce improvements in a given area.



Human Factors & Digital Transformation

Topics:

1. The digital transformation landscape
2. Designing digital transformation projects
3. Translation into practice
 - human factors, such as user centred and co-design
 - capturing and presenting system requirements
 - mapping existing workflows
 - managing change related to the implementation of DT projects in healthcare



Human Factors & Digital Transformation

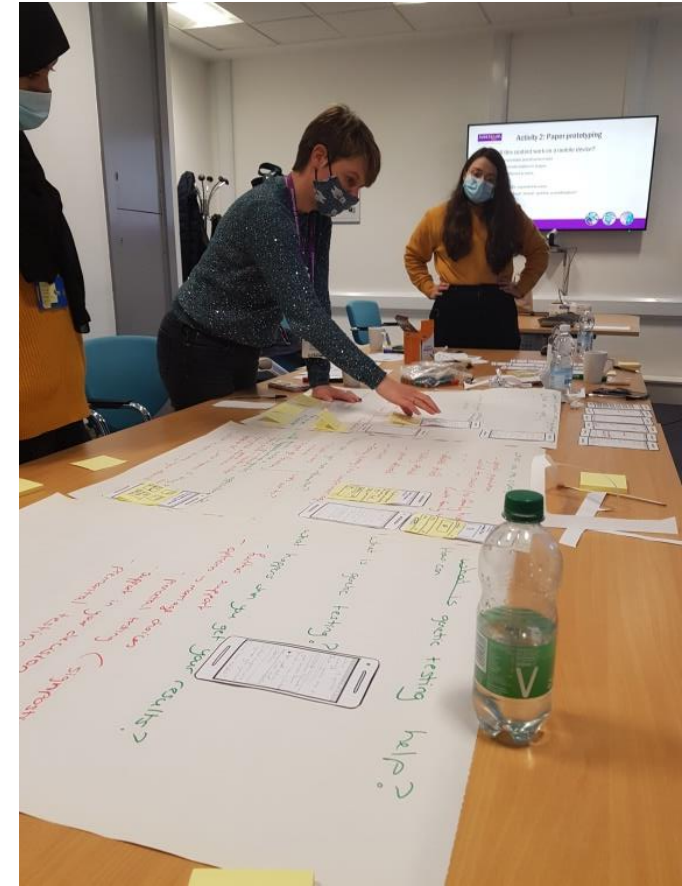
Assessment

Grant proposal

Learners will choose a digital transformation project, and develop funding proposal to support it:

Formative: complete a simplified NIHR i4i PDA/AI in Health and Care Stage-1 application form

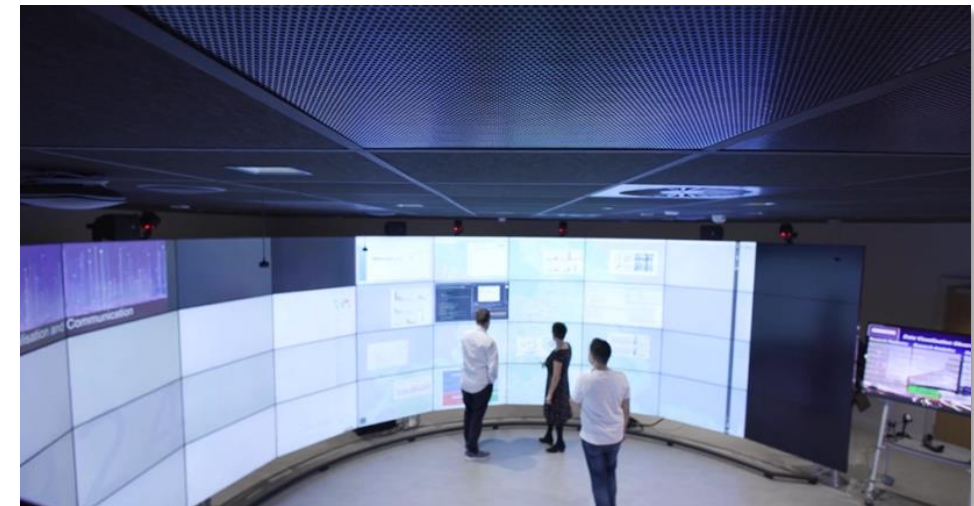
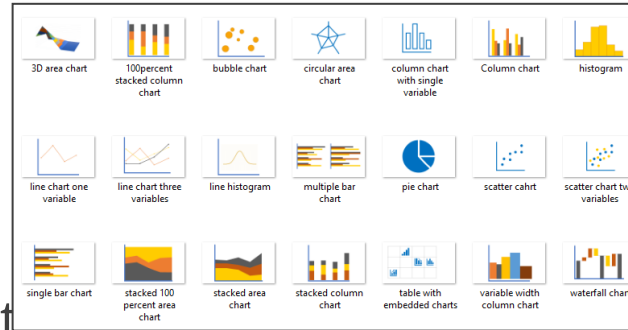
Summative: record a 10-minute presentation of the project, following format used in the Stage-2 NIHR panel meeting



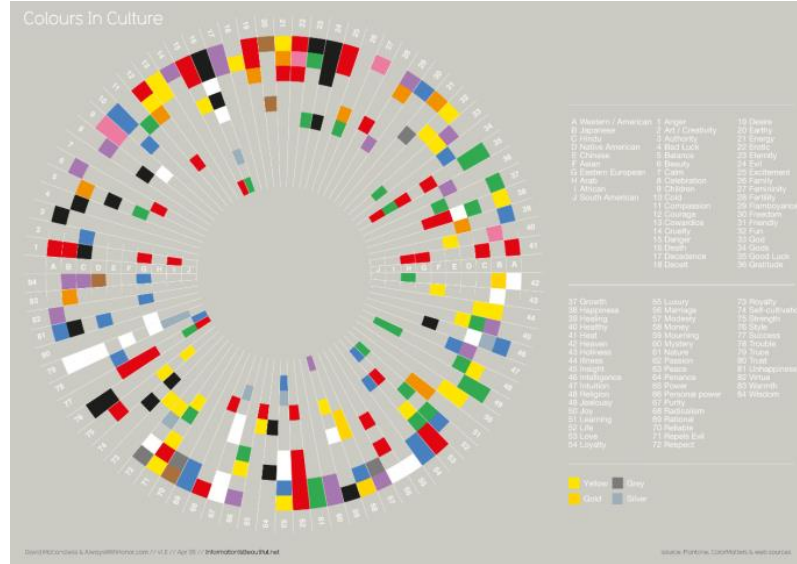
Data Visualisation & Communication

Topics:

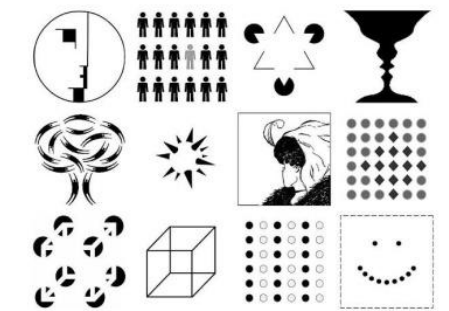
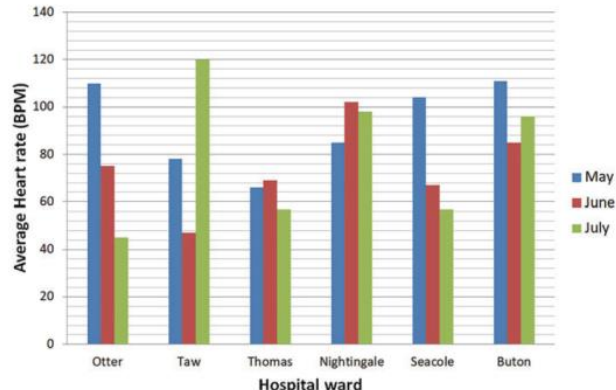
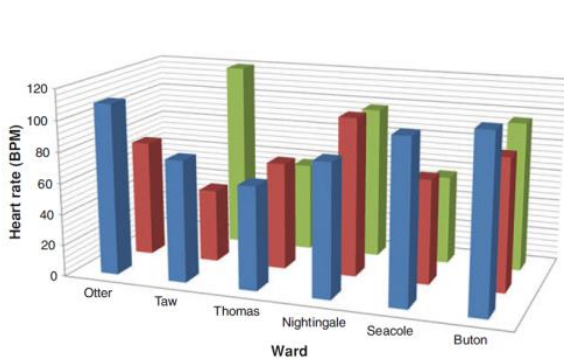
1. Know your data
 1. Intro to data visualisations
 2. History of data visualisations
 3. Matching your data with visualisations
2. Theories of data visualisation
 1. Intro to visualisation and design theories
 2. Working with dynamic visualisations
 3. Creating bespoke visualisations
3. Telling your story
 1. Evaluating theory and practice
 2. Communicating a narrative with data
 3. Assessment



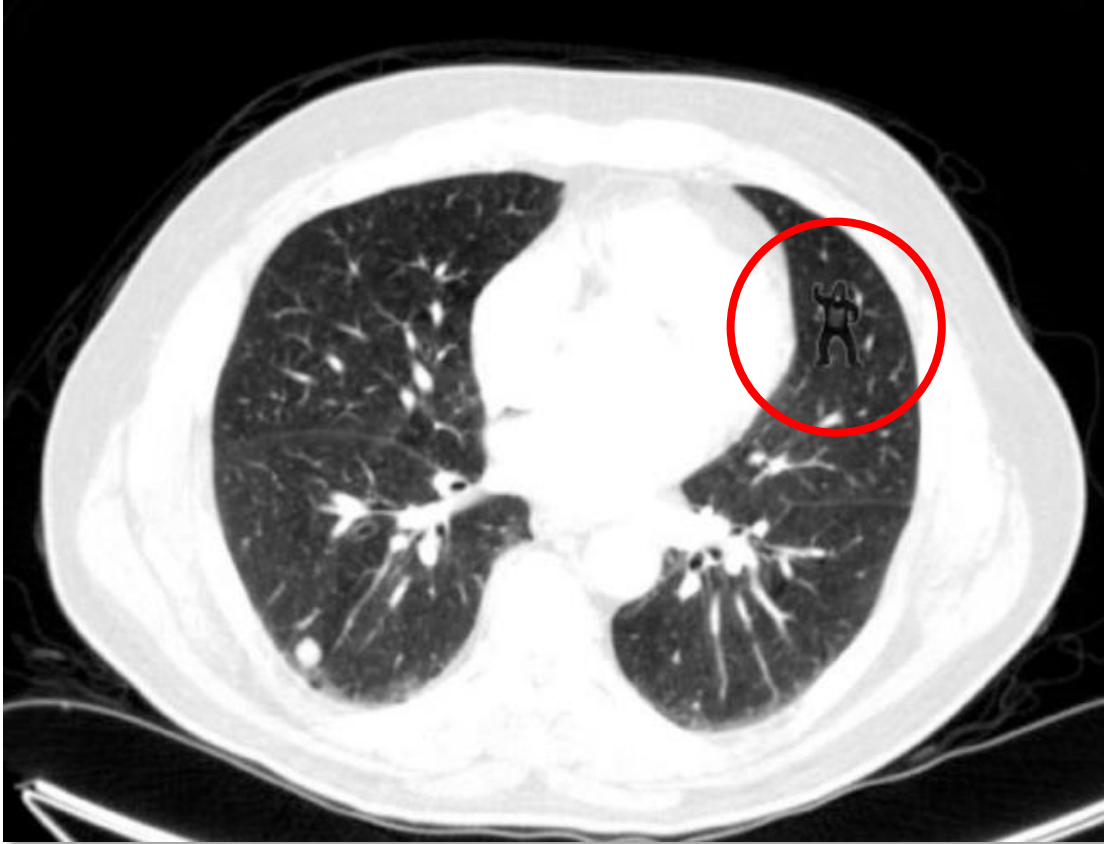
Data Visualisation & Communication



<p>Aesthetic-Usability Effect</p> <p>Users often perceive aesthetically pleasing design as design that's more usable.</p>	<p>Doherty Threshold</p> <p>Productivity soars when a computer and its users interact at a pace (<400ms) that ensures that neither has to wait on the other.</p>	<p>Fitts's Law</p> <p>The time to acquire a target is a function of the distance to and size of the target.</p>
<p>Goal-Gradient Effect</p> <p>The tendency to approach a goal increases with proximity to the goal.</p>	<p>Hick's Law</p> <p>The time it takes to make a decision increases with the number and complexity of choices.</p>	<p>Jakob's Law</p> <p>Users spend most of their time on other sites. This means that users prefer your site to work the same way as all the other sites they</p>

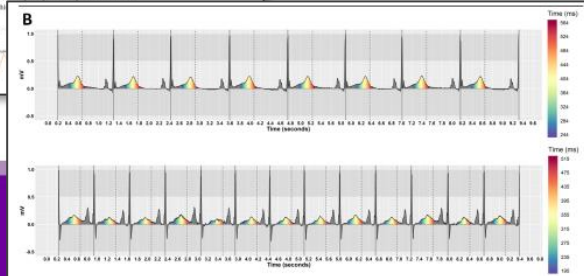
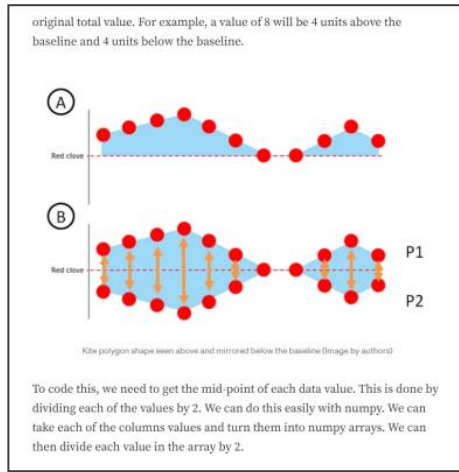
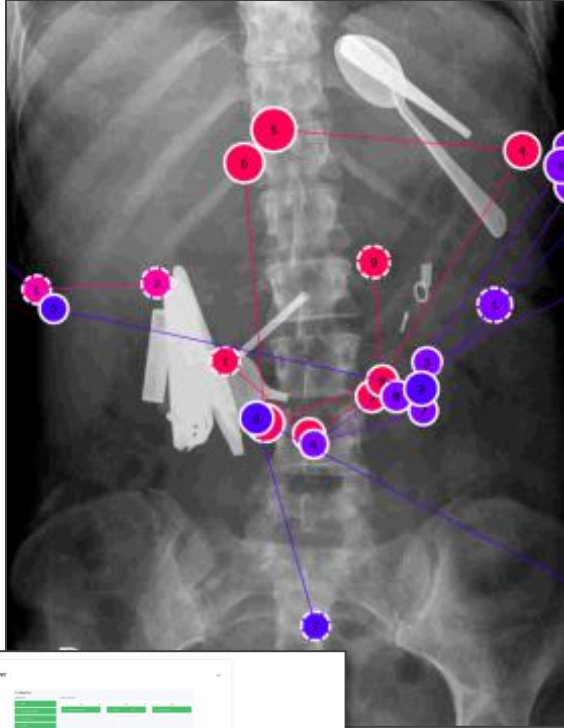
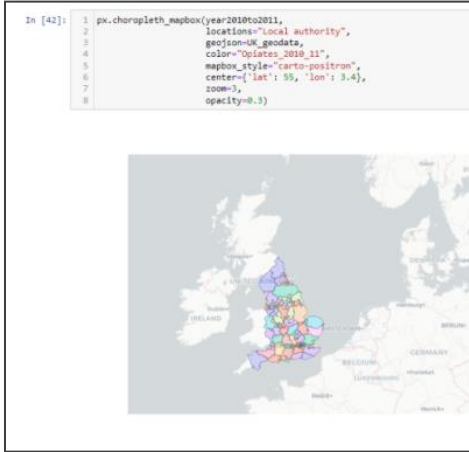


Data Visualisation & Communication



- People engaged in a different task may miss unexpected salient features
- 24 radiologists in a nodule detection task
- 83% did not see the gorilla that was 48 times the size of the average nodule
- But people still looked directly at it





Assessment

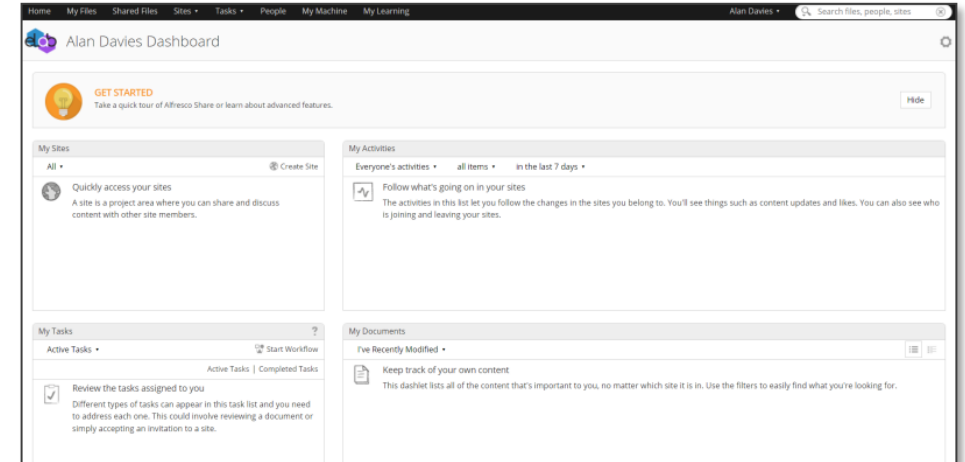
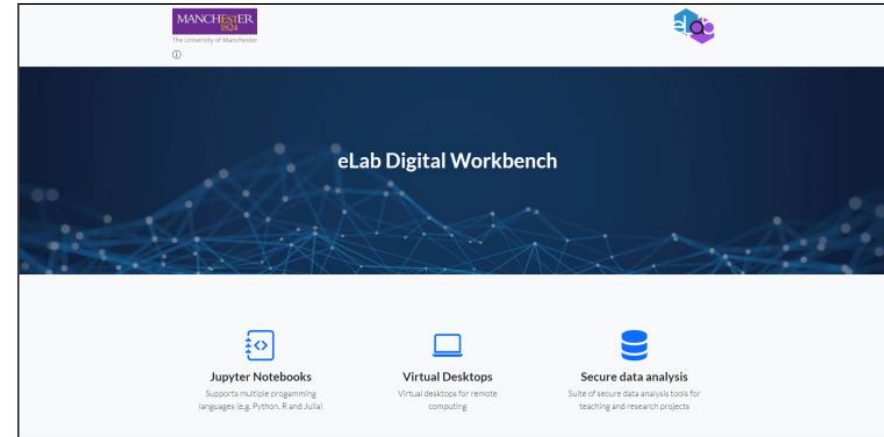
Presentation

A set of visualisations (or dashboard) aimed at patient/lay audience and technical audience around a clinical condition/area of your choosing



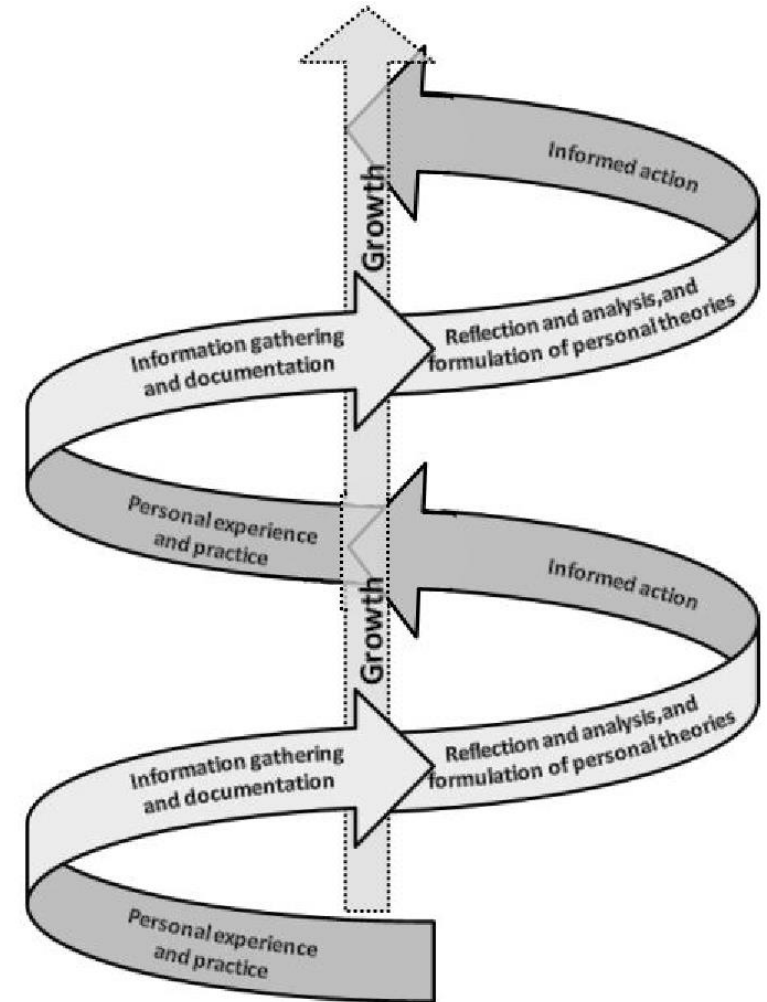
Learning platforms

The eLab



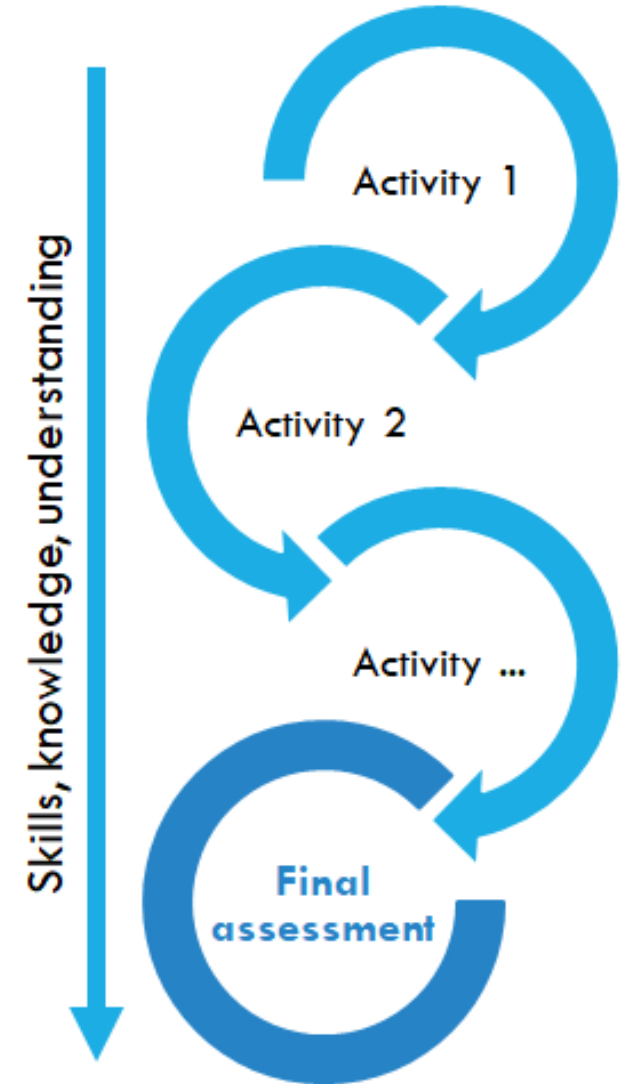
Pedagogy

- Spiral pedagogy model
- Repeated cycles of experiential learning that facilitate the development of the learners' skills and knowledge. These cycles illustrate the four phases of the repetitive model:
 - Personal experience and practice
 - Info gathering and documentation
 - Reflection and analysis
 - Informed action
- The upward spiral movement signifies an enriched learning experience. As the learners complete each cycle, the **learning experience increases in complexity and this helps to stimulate the growth of the learners.**



Pedagogy

- Agile and lightweight
- Iterative and incremental
- Opportunities for discussions and sharing of experiences, best practice
- Communities of practice
- Formative feedback



Learning types

- ABC (Laurillard framework)

Learning types activities , V- Visible learning A - can be assessed (F or S)

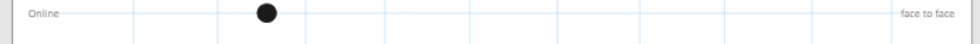
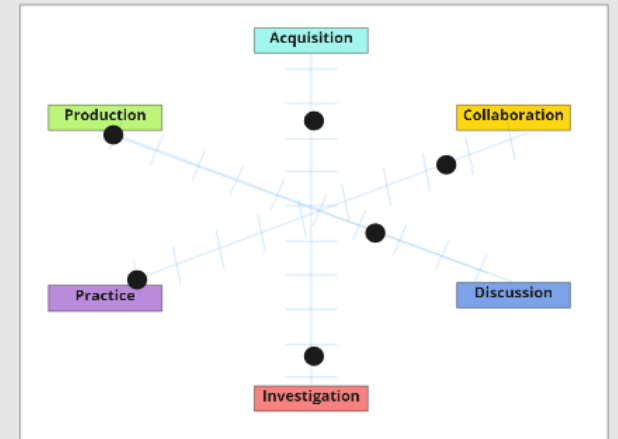
Investigation Web search (forum, wiki) V OER resources (external) Literature reviews and critiques (forum/blog/wiki/RSS) V Field/lab observations (media/blog/wiki) V Action research V Authentic research / data analysis – write a paper V Lead a group project V	Practice MCQs - formative with automatic feedback V/A Online role play (forum, virtual classroom) Reflective tasks – group or individual (forum) V/A Case studies (forum, lesson) V/A Rapid-fire exam questions (forum) V/A Advanced role play – you are the consultant etc. V	Production Interview an expert (video/forum/chat) V Literature reviews and critiques (forum/blog/wiki/RSS) V/A MCQs - formative with automatic feedback V/A Develop a shared resource library (database/glossary/wiki) V/A Shows/demonstrates learning (displays, posters, presentations) V/A Portfolios (MyPortfolio) V/A Case studies (forum, lesson) V/A Summarisation tasks (upload texts – individual or group) V/A Rapid-fire exam questions (forum) V/A Concept mapping (external) V Create video of performance (media) V/A Audio commentary of performance (media) V/A Skype or virtual classroom 'viva' V/A Make and give a presentation (external) V/A Video blog (external) V/A Write a report (external) V/A Make an analysis (external) V/A Case studies V/A Advanced role play – you are the consultant etc. V Action plan for workplace V/A Action plan for further study V/A Authentic research / data analysis – write a paper V/A Prepare professional briefing V/A Create, make a case (study) V/A Create podcast (media) V/A Work assignment (blog/report) V/A Interview professional colleagues V/A Lead a group project V/A
Acquisition Guided readings (library resources) OER resources (external) Podcast (media) V if students do it Webinars (virtual classroom) V Q&A forum (forum, where teachers answer student questions) V Video lectures (webcast), YouTube videos (external) Field/lab observations (media/blog/wiki) V MCQs - formative with automatic feedback V Portfolios (MyPortfolio) V	Collaboration Collaborative wiki - what do we know about ...? V/A Develop a shared resource library (database/glossary/wiki) V Social networking – participate (external) V Special interest groups - share on a topic (forum) V Mentor other learners V	
	Discussion Interview an expert (forum/chat) V Webinars (virtual classroom) V Model answers/examples of previous work (forum) Analyse chat text (in course or uploaded) V Job/professional reflections (blog) V/A Group discussions on the topic, problem, reading (chat/blog/wiki) V/A Social networking – participate (external) V Reflective tasks – group or individual (forum) V/A Special interest groups - share on a topic (forum) V Lead a group project V/A	



1 Tweet the description of this unit below in less than 280 characters

Tweet
 "Get involved with our Data Engineering course @ UoM find solutions to your health data science problems. Bring us the problem we'll work with you to find the solution. Demystify health data science? Increase your confidence in"

2 Put a black marker on the scale for each learning activity type on the chart below. Centre is 0 and the outer most marker on the scale is 5, so if you think there should be a lot of collaboration in this unit then choose 5



3 Place the black marker on the scale above to denote the mix of asynchronous and synchronous delivery for this unit, so for example if you think it should be mostly self-led learning then move the marker closer to "asynchronous".



DE storyboard & learning blocks

Weeks	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9
Themes	Data acquisition, access and storage			Data quality & DE workflows			Pipelines & Governance		
Week topics	Introduction	Data modelling	Databases	Data Quality	Workflows	Architectures	Bringing it all together	Governance	Coursework
Learning materials	Acquisition	Case study	Exercises	External resources	Mix and match	Papers	Hackathon	Standards	Assessment
	Investigation	Videos	Reading	Interviews	Quiz	...	Networking	Frameworks	
Jupyter Notebooks	Data types		Databases	Data profiling	Data tranformation	Data preparation	Hands on experience	n/a	n/a
Group activities	Identify data sources	Create a diagram to characterise your data sources that you have identified in week 1, and focus on data types and constraints.	Data storage - what data model are you planning to have?	Identify data quality issues with the Crewe dataset/. Own dataset	...		Team science	Find out governance arrangements in their trust on research data - what are the processes and find out what best practice looks like.	
	Identify data types/ datasets available	Design form to capture based on case study / problems or find examples of bad practice.						Best practice - success stories	

Fees and funding opportunities

- Tuition fees* as of academic year beginning September 2023:

- **PGCert (full-time)**

UK students (per annum): £4,600

International, including EU, students (per annum): £9,600

- **PGCert (part-time)**

UK students (per annum): £2,300

International, including EU, students (per annum): £4,800

- Funding from KLS for 10 places part time for 3 years
- Funding may be available from HEE
- More info here:

- <https://assets.bmh.manchester.ac.uk/diids/cdsp/content/index.html#/>

What is Clinical Data Science?

The table below highlights the start and end dates for each of the 4 units, along with any additional breaks (e.g. Christmas/Easter).

Unit name	Start date	End date	Notes
Clinical Data Engineering (IIDS69011)	04-09-2023	30-10-2023	N/A
Two week break			
Maths, Stats and Machine Learning (IIDS69011)	20-11-2023	12-02-2024	Includes Christmas break (18-12-2023 to 14-01-2024)
Two week break			
Human Factors and Digital Transformation (IIDS69042)	04-03-2024	20-05-2024	Includes non-teaching period (18-03-2024 to 24-03-2024) and Easter break (25-03-2024 to 07-04-2024)
Two week break			
Data Visualisation and Communication (IIDS69032)	10-06-2024	05-08-2024	N/A

UNITS

If you are not sure what Clinical Data Science is, or if the course is for you, please review this short information course that presents the field of Clinical Data Science and details of the 4 core modules of the Clinical Data Science Programme (CDSP).

DESCRIPTION

- What is Clinical Data Science?
- How and why was the course developed?

COURSE CONTENT

- Clinical Data Engineering (IIDS69011)
- Data Visualisation and Communication (IIDS69032)
- Maths, Stats and Machine Learning (IIDS69011)
- Human Factors and Digital Transformation (IIDS69042)

ACCOMMODATION

- How will I travel?
- Preparation
- How much does it cost?
- Where does it hurt?
- Will I have questions?

WHY TAKE A PLACE

- I want to study for a degree

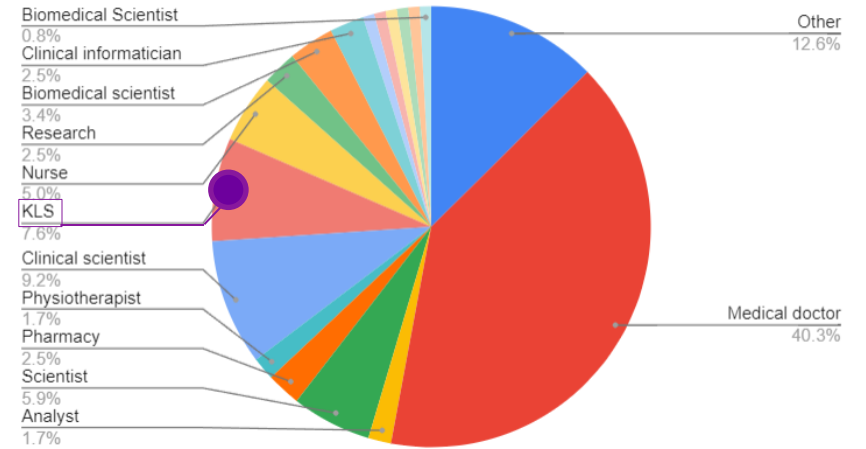
* Please check fees for years of entry as they are liable to change



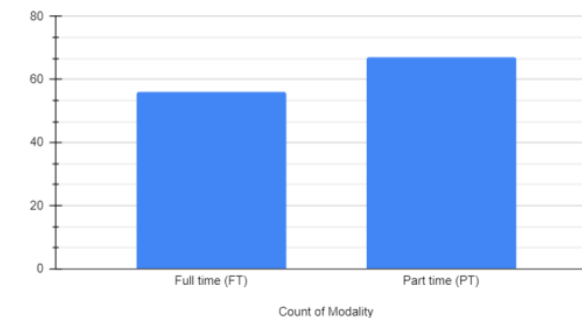
Application process

- 124 applicants to Manchester in 2023, accepted 35 + 5 CPD
- Requirements:
 - 2:1 degree or relevant work experience (in healthcare sector)
 - CV/1 professional reference
 - Personal statement (~500 words)
 - What is Data Science and why you want to study it?
 - How taking this course will impact on your personal and professional development?
- Statement scored out of 20 on:
 - Understanding of data science (5/20)
 - Value of applicant to programme (5/20)
 - Personal/professional impact (5/20)
 - Impact on setting (5/20)
- Top scoring applicants awarded place, others placed on wait list, ≤ 14 rejected

Count of Professional background



Modality





Dr Alan Davies

Senior Lecturer Health Data

Programme Director

Co-lead: Clinical Data Engineering

Co-lead: Data Visualisation & Communication



Dr Iliada Eleftheriou

Senior Lecturer Healthcare

Deputy Programme

Director

Co-lead: Clinical Data Engineering



Prof Ang Davies

Bioinformatics & Healthcare

Director of Digital Transformation

Co-lead: Human Factors & Digital Transformation



Dr Jon Parkinson

Lecturer Health Data

Co-lead: Engineering Machine Learning



Frances Hooley

Lecturer Technology Enhanced

Co-lead: Learning & Communication



Dr David Jenkins

Lecturer Health Data

Co-lead: Machine Learning & Machine Learning



Dr Punsisi Somaratne

Learning Technologist



Andreea Chirvase

Liaison: Health Education Project Manager England

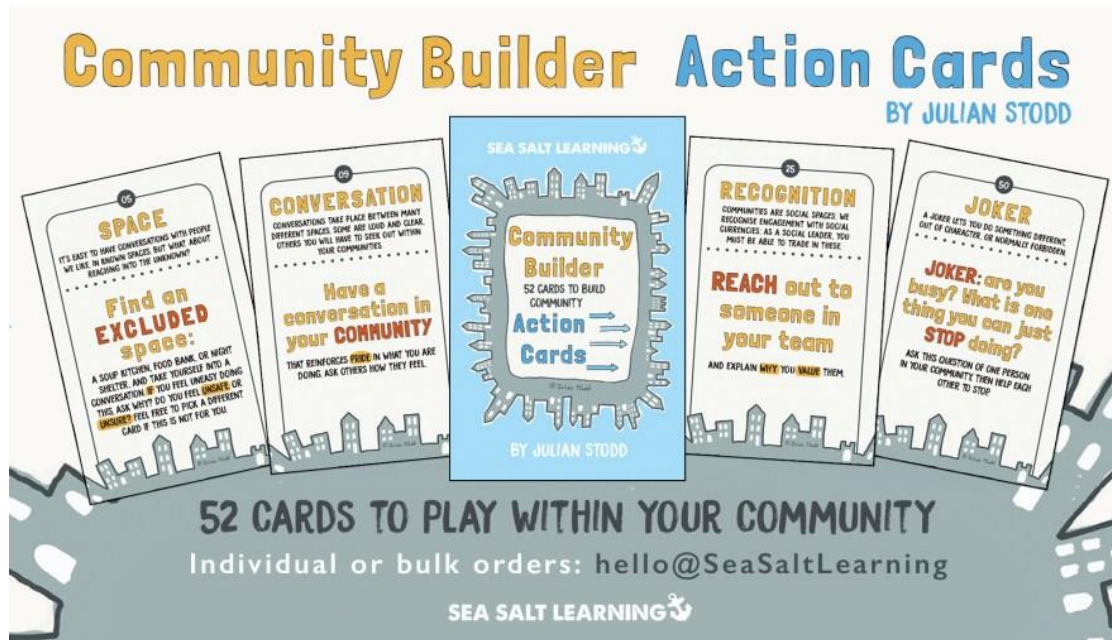
NEW COURSE

PGCERT CLINICAL DATA SCIENCE

<https://www.manchester.ac.uk/study/masters/courses/list/20306/pgcert-clinical-data-scie>



Break



Community Builder

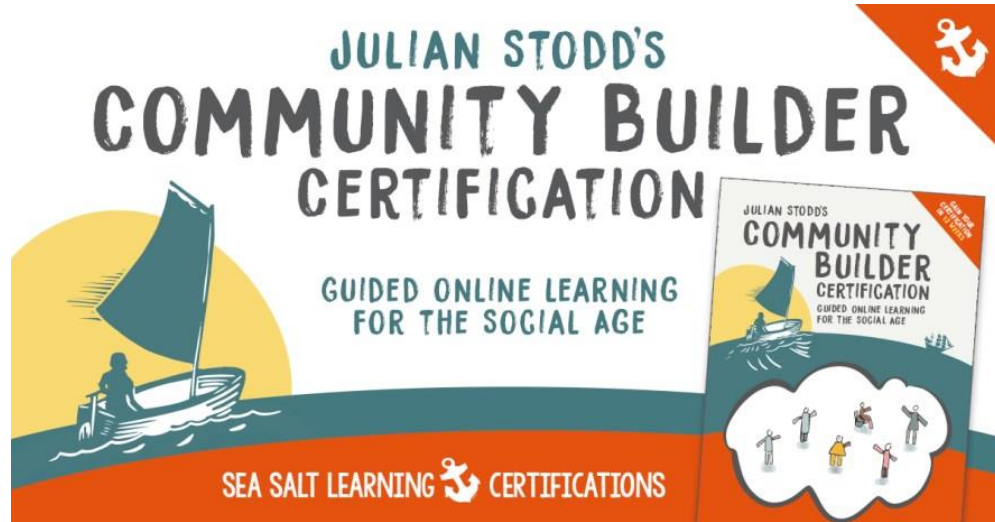
An introduction

£35

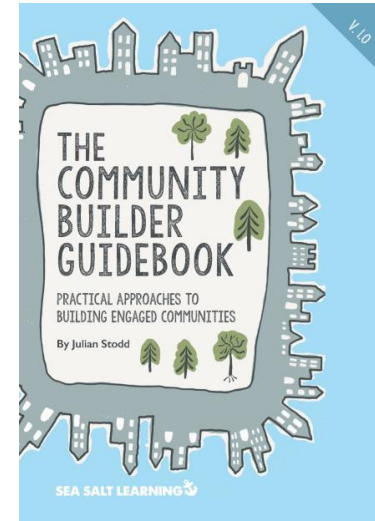
Susan Smith
06/06/23

Because you matter

Background



£1,650 per person (excl. VAT) over 12 weeks



£7.99



Free PDF of book

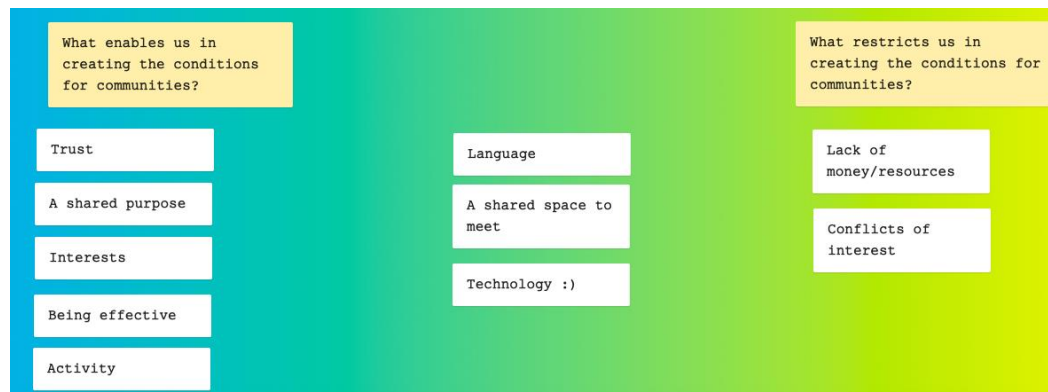
THE JOURNEY

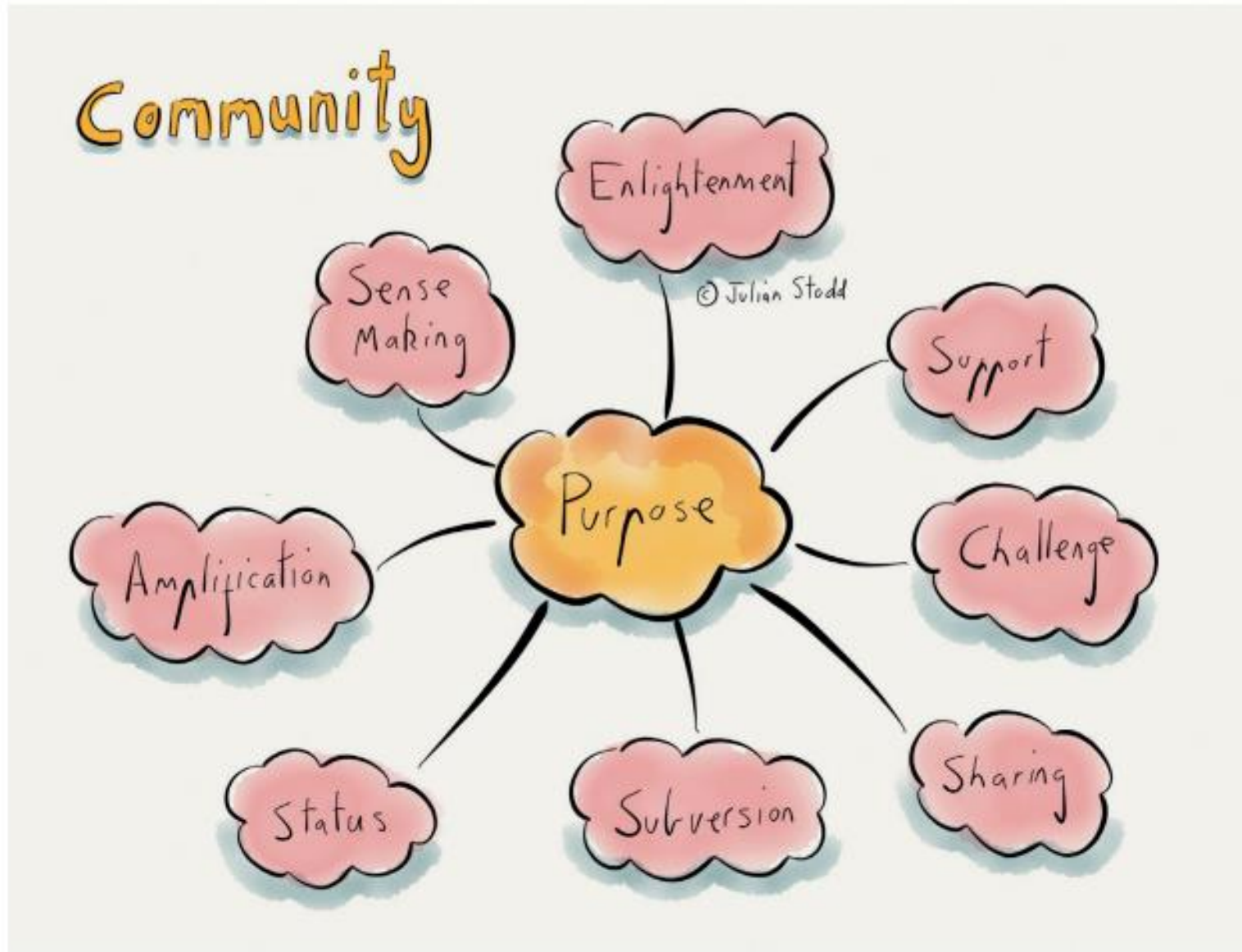




Action card themes:

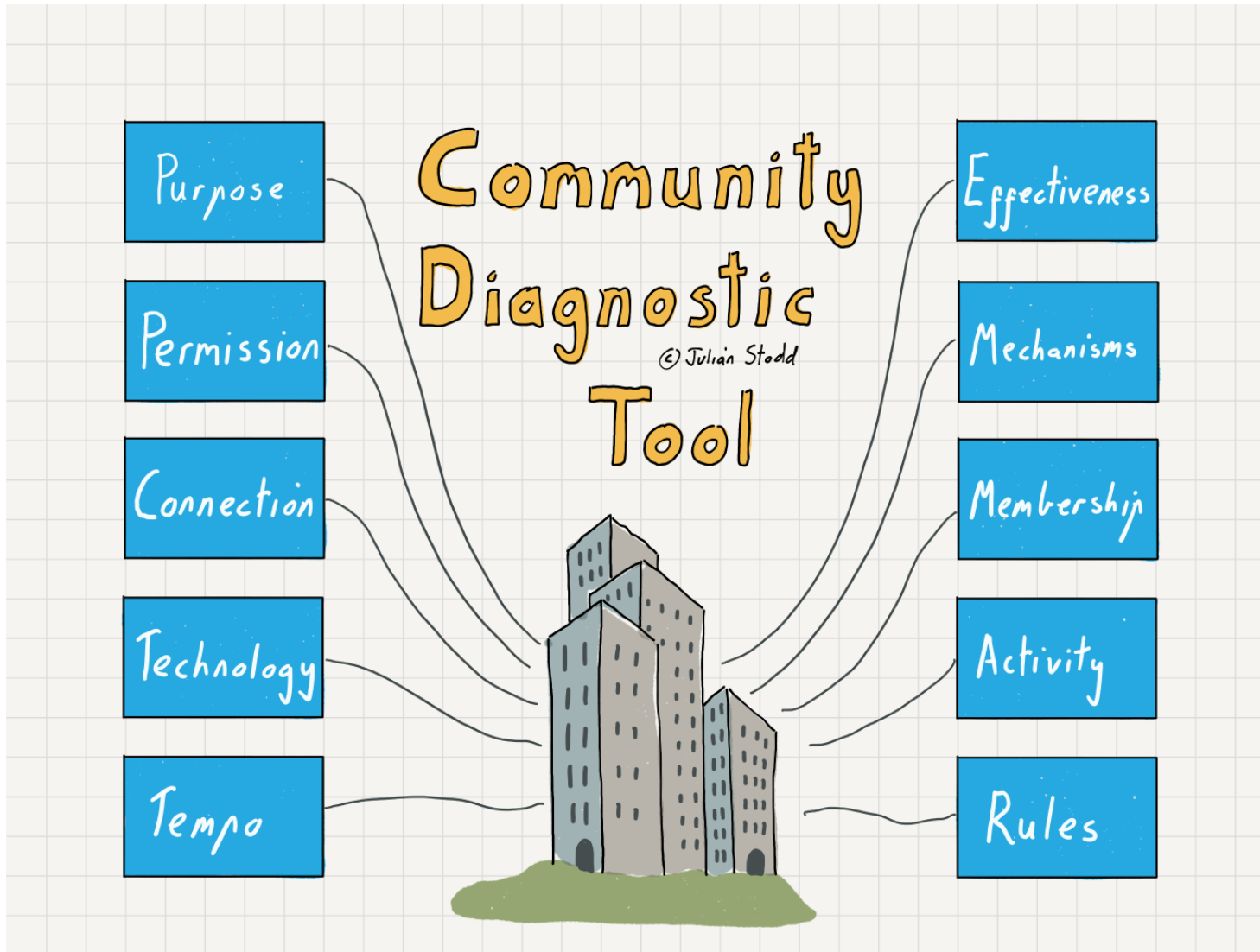
- Action
- Conversation
- Exclusion
- Feedback
- Gratitude
- Joker (permission to do something differently)
- Kindness
- Membership
- Recognition
- Share
- Space
- Voices





Challenges:

- Action / Do something different
- Conversation / Ask
- Helping / Contribution
- Look / Consider
- Recognise / Thank
- Reach out / Greet
- Reciprocate / Share



Feedback



How did today make you feel?



What were your likes and dislikes?



What were your key moments or issues from today?



What have you learned today?



How has the sessions supported and something to take away from today?



Express thoughts or shed a light on something.



Any steps you are taking forward or which direction would you like to see LIHNN travelling?



Thank you

