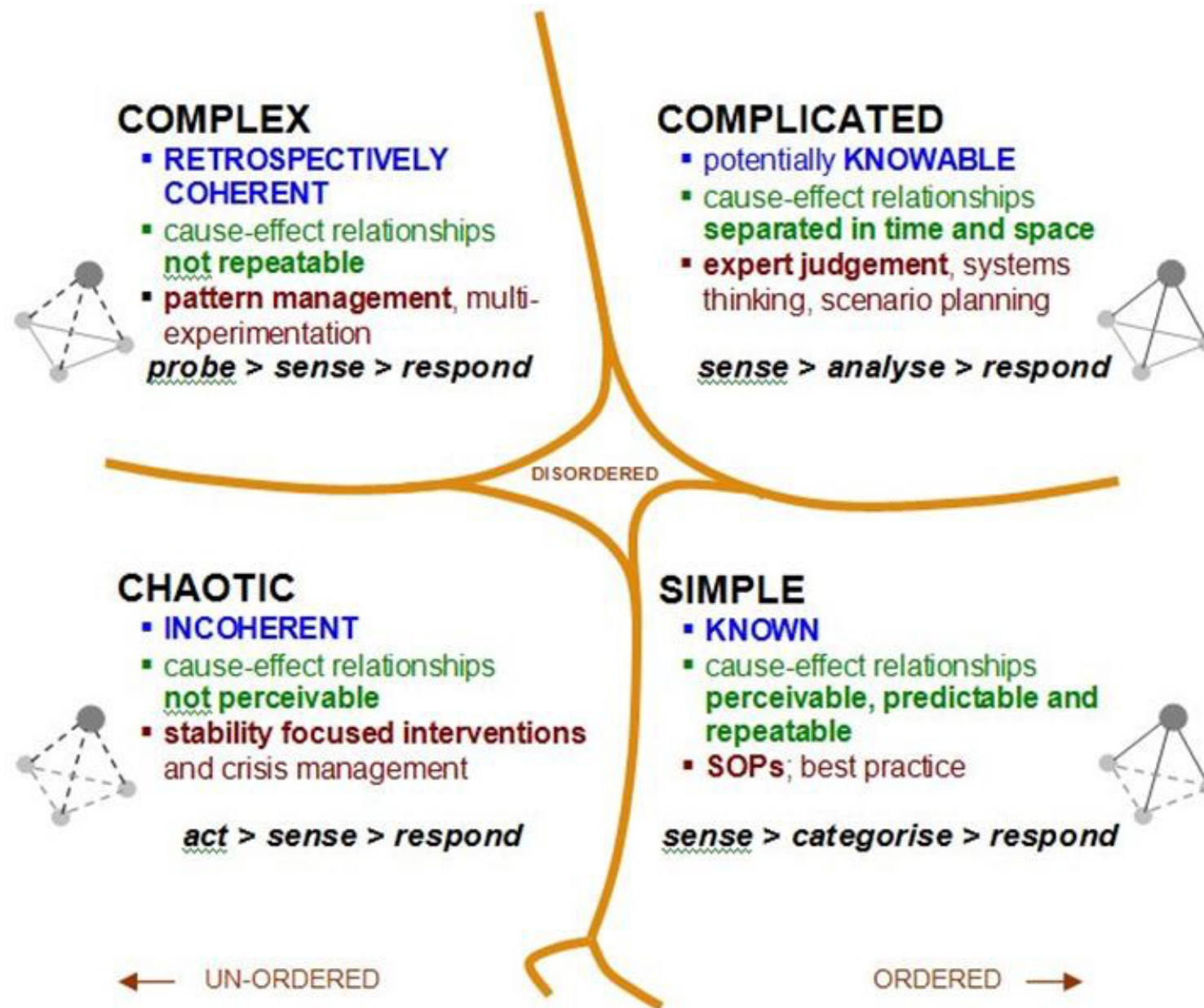


Helmholtz Incubator Workshop

Cluster of Methods: Pattern Analysis/Machine
Learning/Causal Inference

Slava Jankin
Data Science Lab
Hertie School, Berlin



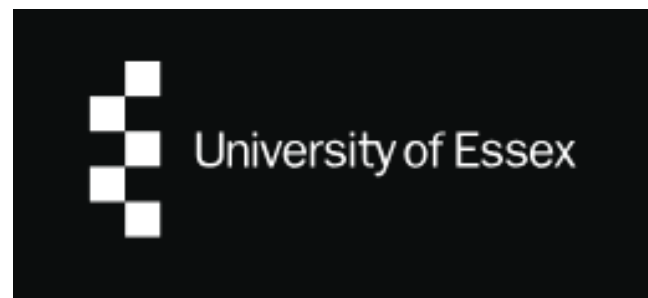
The Cynefin framework

(more on this in Umut Durak's presentation)

Essex Centre for
Data Analytics



A socially complex problem



- Can we predict whether children will be school ready on starting school?
- What factors are most likely to cause this early indicator of “best start in life”?
- 511 households at risk in the pilot area;
- Including 280 previously unknown to public services;
- 74% prediction accuracy rate.

Essex County Fire & Rescue Service

Date

01/01/2018 31/12/2018



District Name: Category:

Business Name	12/12/18 12/12/18	12/12/18 12/12/18	12/12/18 12/12/18	(Blank) Category
Business Name	12/12/18 12/12/18	12/12/18 12/12/18	12/12/18 12/12/18	(Blank) Category

Due to privacy concern, specific information on the incident has been excluded

Essex County Council Trading Standards

Date

18/04/2018 13/02/2019

District Name: Primary Use:
Type: Category:



Due to privacy concern, specific information on the incident has been excluded from the product.

Authorised people can find more information through the following ID/Reference associated to individual records

Inspection Record Type	Intervention Category
Inspection Record Type	Intervention Category

Essex Police

Date

01/02/2018 31/01/2019

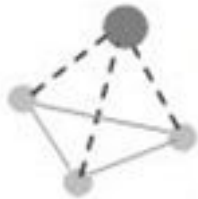


District Name:

Business Name	12/12/18 12/12/18	12/12/18 12/12/18	12/12/18 12/12/18	Crime Record Type	Burglary - Business And Category
Business Name	12/12/18 12/12/18	12/12/18 12/12/18	12/12/18 12/12/18	Crime Record Type	Criminal Damage

COMPLEX

- RETROSPECTIVELY COHERENT
 - cause-effect relationships not repeatable
 - **pattern management**, multi-experimentation
- probe > sense > respond



COMPLICATED

- potentially **KNOWABLE**
- cause-effect relationships **separated in time and space**
- **expert judgement**, systems thinking, scenario planning

sense > analyse > respond



DISORDERED

CHAOTIC

- INCOHERENT
- cause-effect relationships not perceivable
- **stability focused interventions** and crisis management

act > sense > respond



SIMPLE

- **KNOWN**
- cause-effect relationships **perceivable, predictable and repeatable**
- **SOPs**; best practice

sense > categorise > respond



← UN-ORDERED

ORDERED →

