Create your AI & Data Strategy

AI for Business Masterclass Series

Dr. Kakia Chatsiou

Lecturer in Computing

Digital Futures Institute/ School of EAST

University of Suffolk

k.chatsiou@uos.ac.uk ▲ t: @kakiac

University of Suffolk

I'm Dr. Kakia Chatsiou...

- Lecturer in Computing

- Teaching: Intro to Programming, Software Design and Programming, Cloud Computing for Data Science and AI

- Research: Machine Learning, Natural Language Processing, Digital Transformation

- Suffolk AI Research Group Lead

- My email address is k.chatsiou@uos.ac.uk

University of Suffolk

Welcome – introductions

AI 4 Business Masterclass series

- 06-Apr-2022

AI for Business Masterclass 2:
From Data to Insights

- 27-Apr-2022

AI for Business Masterclass 3:
Migrating to the cloud for Smarter Business:
How cloud computing can benefit your
business

University
of Suffolk

CPD classes on Data Science, AI and Cloud Computing topics are planned for Summer 2022.

If interested please get in touch!

University of Suffolk
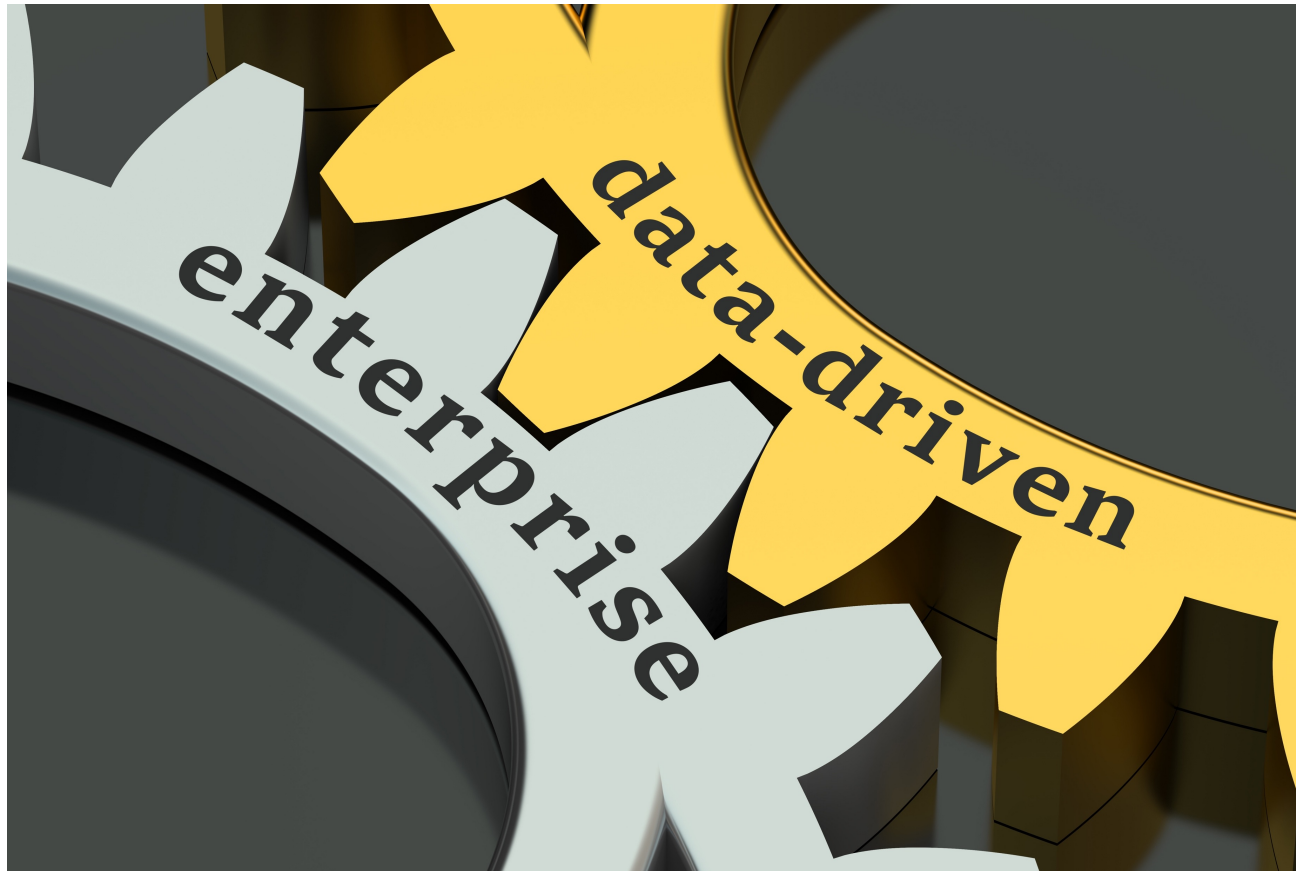
Outline

- Data? What do you mean by 'data'?

- What data do you have to achieve your business goals? What data are you missing? (data audit)

- What is your vision for how you will collect, store, manage, share and use data? (data strategy)
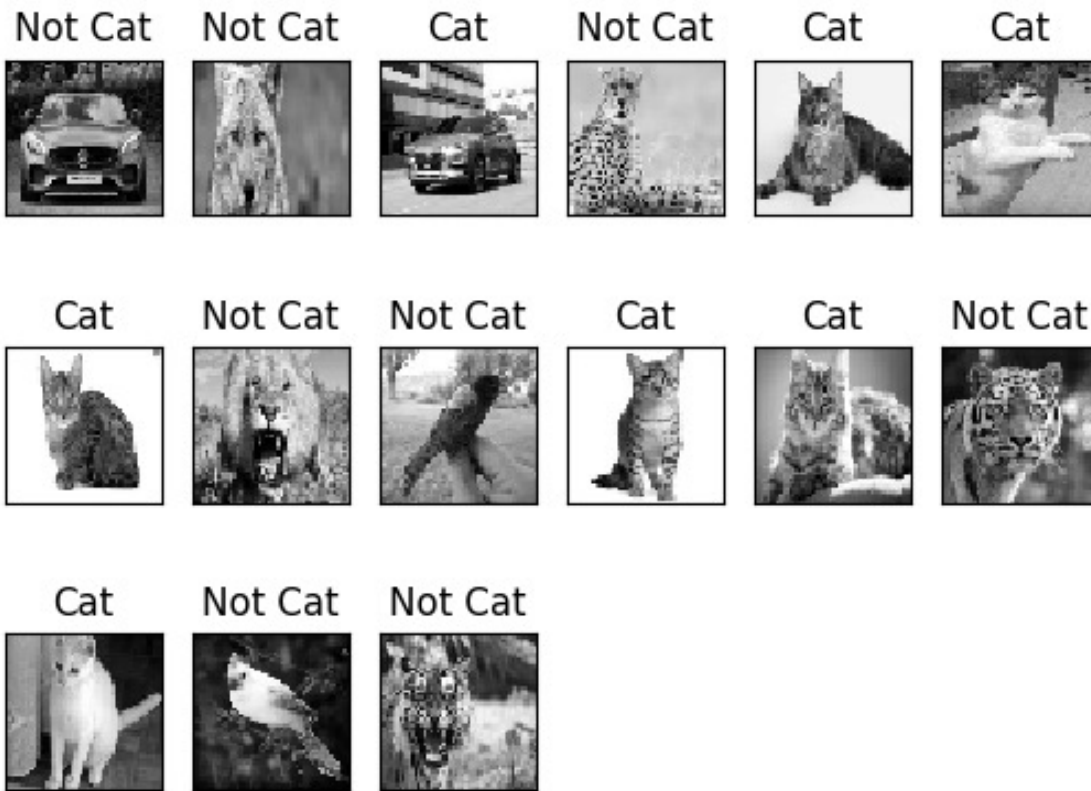
- Tools

University of Suffolk

Data, Data, Data

University
of Suffolk

What do you understand by data?

Numbers can be data

Parameter	Target	Candidate A	ABS(Δ)	Candidate B	ABS(Δ)
A	0.80	0.88	0.08	0.80	0.00
B	0.80	0.72	0.08	0.80	0.00
C	0.80	0.84	0.04	0.80	0.00
D	0.80	0.85	0.05	0.00	0.80
E	0.80	0.88	0.08	0.80	0.00
F	0.80	0.93	0.13	0.80	0.00
G	0.80	0.65	0.15	0.80	0.00
H	0.80	0.90	0.10	0.80	0.00
I	0.80	0.95	0.15	0.80	0.00
Deviation			0.86		0.80

Images can be data

Data can be real-time and dynamic

Words can be data

How can data help you succeed?

How can data help you succeed?

- Data analysis can help your organisation enhance stakeholder engagement

- A.I. and machine learning can complement human interventions to reduce risk and manage demand

- Internal data can allow you to make savings and improve efficiencies

- Data can provide greater market and demographic insight

University of Suffolk

How can data help you succeed?

- Open data can be used allow organisations to be true innovators and improve the service user experience

- Data can demonstrate impact in order to secure future funding

- Data can measure project success and outcomes

- Data analysis can predict future demand and identify where services are needed most

University of Suffolk

Data can help businesses solve challenges
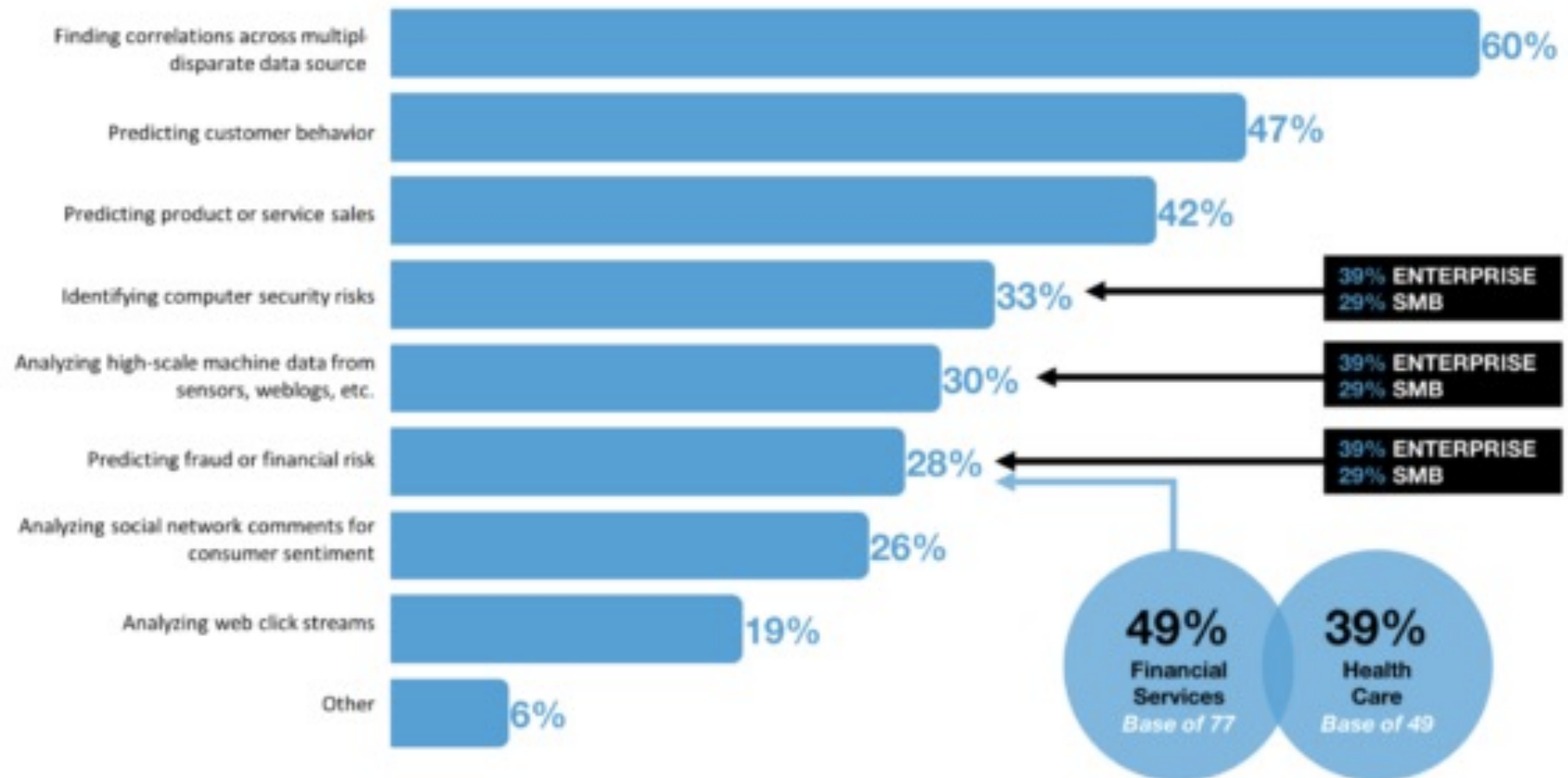
Q: What challenges is your organization aiming to solve with its data-driven initiatives?

University of Suffolk

Your Data Strategy

University
of Suffolk

What is a data strategy?

- A data strategy is a vision for how an organisation will collect, store, manage, share and use data.

"Aligns and prioritises data and analytics activities with key organisational priorities, goals and objectives." (Micheline Casey, CDO LLC)

"A coherent strategy for organising, governing, analysing, and deploying an organisation's information assets that can be applied across industries and levels of data maturity." (DalleMule and Davenport, Harvard Business Review)

"Concepts of standards, collaboration and reuse applied to data to support improved accuracy, access, sharing and reuse." (SAS)

"Intentional action & prioritisation plan" (Braden J. Hosch, Stony Brook University)

University of Suffolk

What is a data strategy?

- What employees need so that they are empowered to use the data
- Processes that ensure data is accessible and of high quality
- Technology that will enable the storage, sharing and analysis of data

Data strategy =

Data + People + Process + Technology

University of Suffolk

Why is a data strategy important?

Improves data management across organisation

Helps use resources efficiently

Helps unlock power of data for decision making

Helps organisations think of data as an 'asset'

It can complement other strategies

University of Suffolk

The Data Strategy in the context of other strategies

A data strategy is linked to and derived from the **corporate business** (and digitalization) strategy

A data strategy has also mutual dependencies to the **IT** strategy

An enterprise-wide data strategy, will provide the frame for functional, divisional and regional data strategies

University of Suffolk

The Data Strategy in the context of other strategies

https://www.cdq.ch/data-strategy#canvas
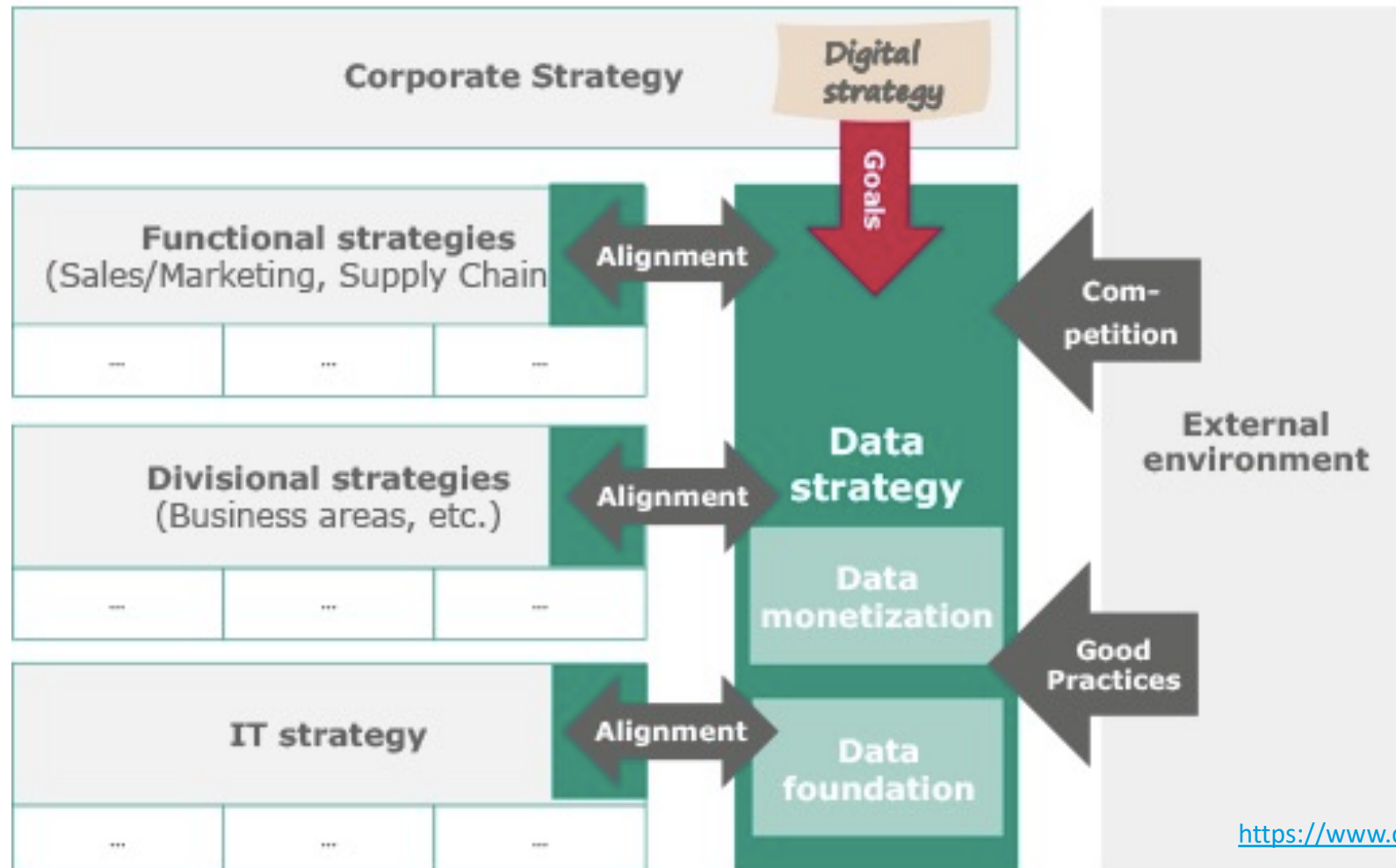
Becoming more analytically mature

- (Gartner Analytic Ascendancy Model)

Creating your Data Strategy in 7 steps

1 → **2** → **3** → **4** → **5** → **6** → **7**

Define your core organization/ **business aims**

Conduct a **data audit.** Identify **available data** and **data gaps.**

Identify the **technology** needs and organize your data

Analyse your data (to get insights)

Consider **people** and **processes**

Develop and establish good **data governance** practice

Create an **implementation timeline** ('a roadmap') – what will change, why, by when, by whom?

University of Suffolk
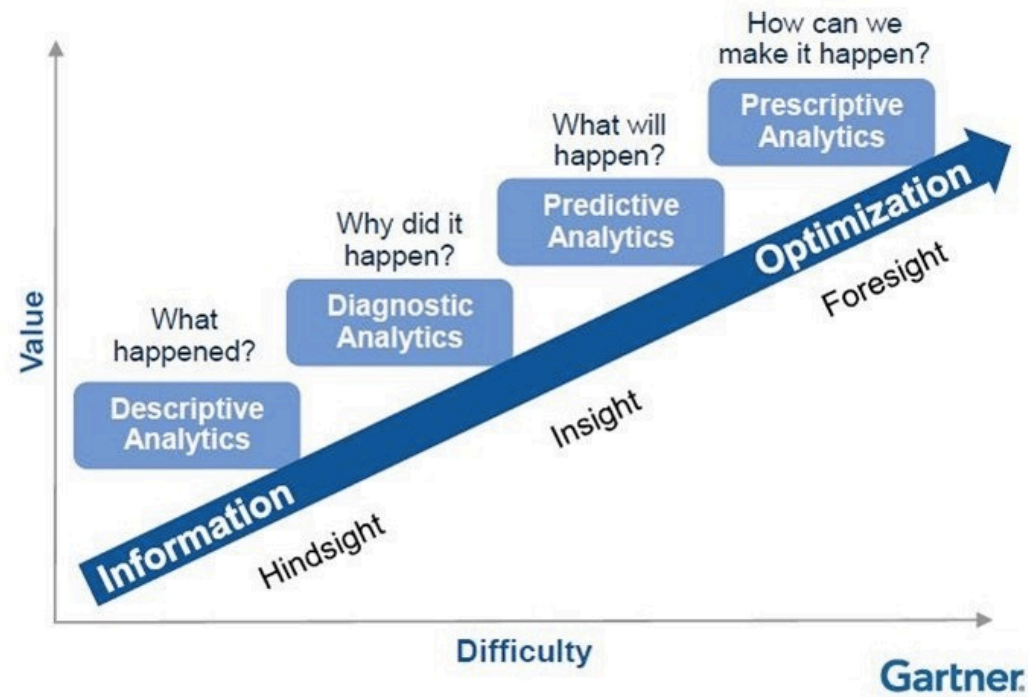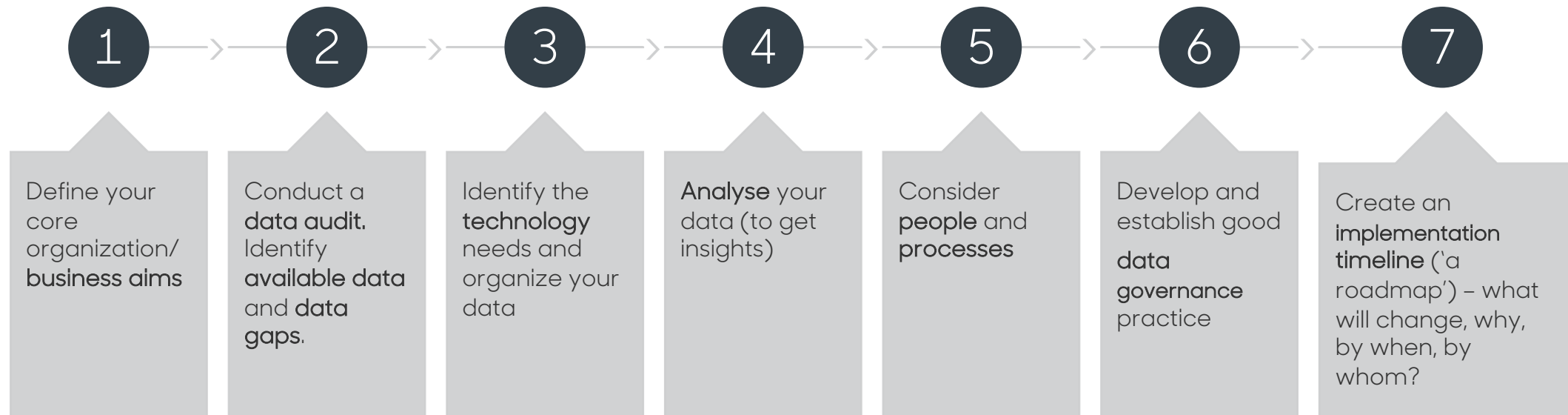
1. Define your core organization/business aims

What is your business trying to accomplish?

What does success look like?

Align IT and Business strategy objectives to Data strategy.

Identify a champion to sponsor change

University of Suffolk

2. Conduct a data audit

- Identify available data and data gaps
  - what data do you have that will help you measure your performance and predict future trends? What are you missing?
  - is it of good quality and coverage? is it of the right level of detail for the analysis?
  - is updated with the right frequency to answer the question effectively?
  - where is it housed? who owns them?
  - how is it gathered?

University of Suffolk

3. Identify technology needs & organize your data

Package data so it can be reused and shared;

Move and combine data residing in disparate systems

provide a unified, consistent data view

Establish, manage and communicate information policies and mechanisms for effective data usage;

Provide rules and access guidelines for the data

University of Suffolk

4. Analyse your data (to get insights)

recommendations for how to apply analytics to extract business-critical insights

data visualization is key: data easier to understand and interpret

interaction with the data should be possible by all

processes should be automated as much as possible to allow for widespread use

everyone should be able to create reports from the data

University of Suffolk

5. Consider People and Processes

are people **skilled** to use data?

will your **organizational structure** remain the same?

should analysts be aligned to a business unit or to IT

can the new knowledge be embedded in the current operations to improve process?

encourage employees to use data in the way the organization is intending

Staff availability and whether outside help is required

consider competing projects that might prevent the right resources from participating

University of Suffolk

6. Good data governance practice

- Metadata i.e information about the data is important!
  - Develop a data dictionary
- ensure good data quality, coverage and representation:
  - Calculations used across the enterprise should be determined based on input from across the enterprise;
  - The right people should have access to the right data; and
  - Data lineage (where did the data originate and how was it transformed since that origination) is defined.

University of Suffolk

7. Place it all on a roadmap

- Create an implementation timeline – what will change, by when, by whom, and what for?

Creating your Data Strategy in 7 steps

1 Define your core organization/ **business aims**

2 Conduct a **data audit.** Identify **available data** and **data gaps**.

3 Identify the **technology** needs and organize your data

4 **Analyse** your data (to get insights)

5 Consider **people** and **processes**

6 Develop and establish good **data governance** practice

7 Create an **implementation timeline** ('a roadmap') – what will change, why, by when, by whom?

University of Suffolk
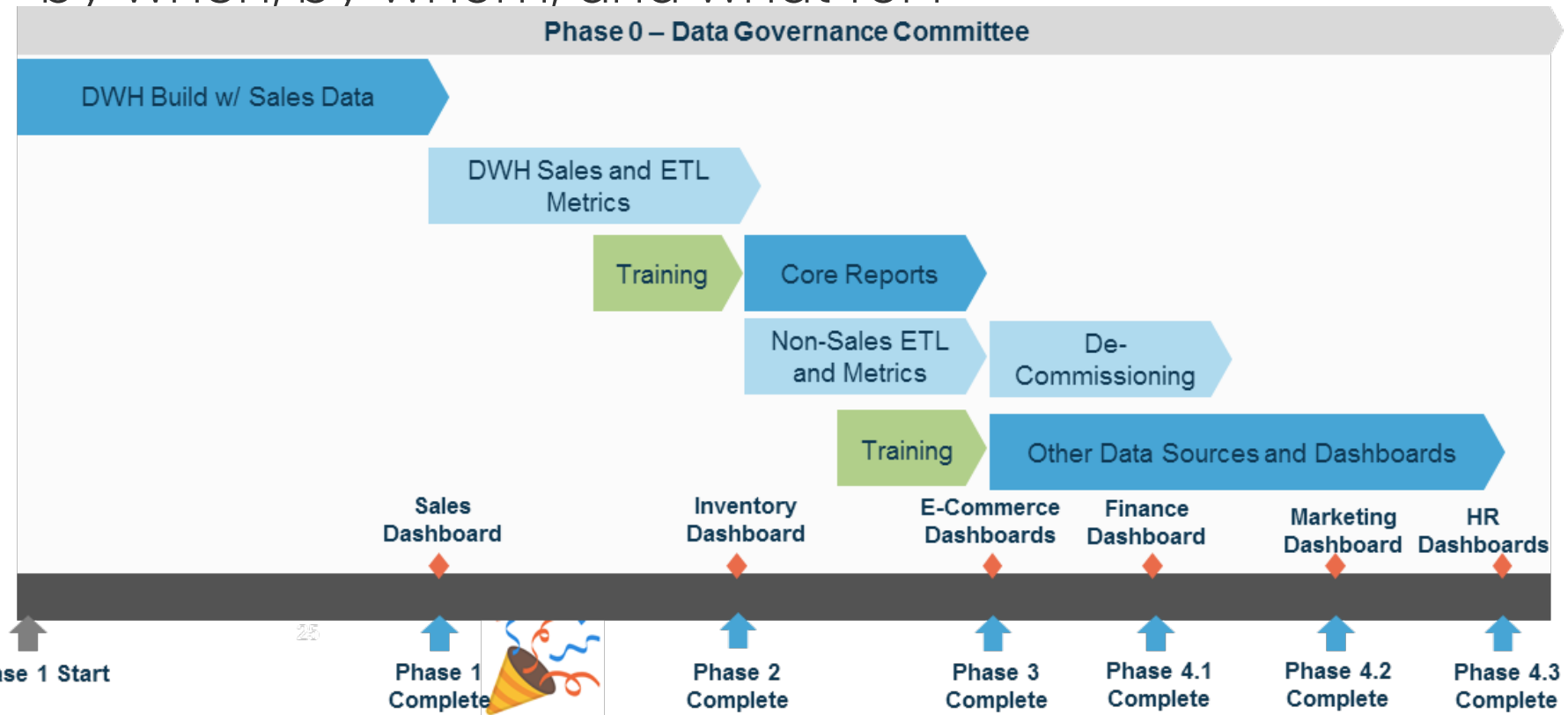
⚠️ Beware of barriers

- Privacy Regulations – GDPR
- Silos and siloed culture
- Lack of data integrity & data availability
- Skills gap
- Identifying the relevant technology

University of Suffolk

Conducting a data audit

University
of Suffolk

Data Auditing is an important step in a Data Strategy
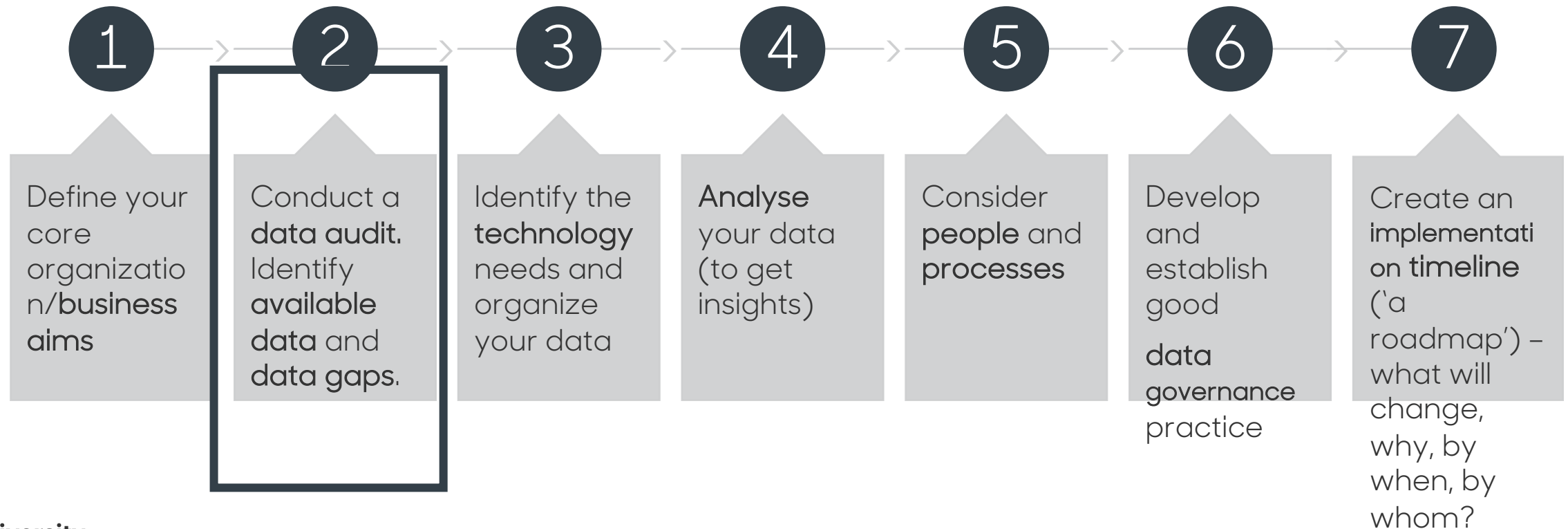
1 → **2** → **3** → **4** → **5** → **6** → **7**

Define your core organizatio n/**business** aims

Conduct a **data audit.** Identify **available data** and **data gaps**.

Identify the **technology** needs and organize your data

Analyse your data (to get insights)

Consider **people** and **processes**

Develop and establish good **data governance** practice

Create an **implementati on timeline** ('a roadmap') – what will change, why, by when, by whom?

University of Suffolk

What data do you have to achieve your business goals?

What data are you missing?

DATA AUDIT

University of Suffolk
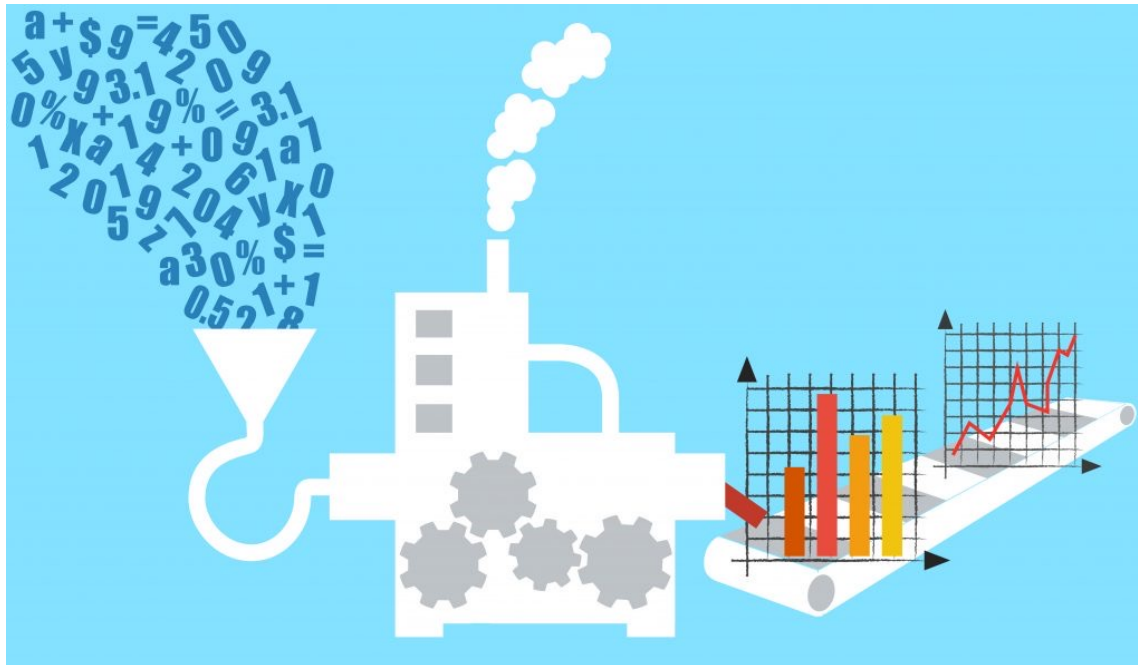
What is data auditing?

...a process of assessing if the **information** you currently hold is **fit** to help you **achieve your AI & Data strategy aims**.

| understand what data you **hold** & if you **own** it | understand what data you are **missing** | think about the **quality** and **compliance** |
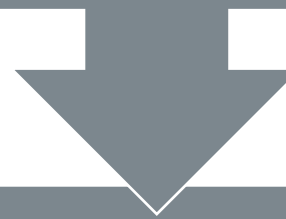
Not just about data!

Consider: People + Process + Technology

University of Suffolk

Why is it important?

better understand the information/data you hold and how to **improve** their **quality** & **reduce errors**

your first step in **maintaining** GDPR **compliance**
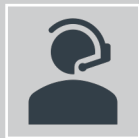
improve customer service & identify areas that require attention in your business operations

University of Suffolk

7 steps to conducting a data audit

1. What data do we hold and why?

2. How are the data collected?

3. How and where are the data stored?

4. How do we use these data?

5. Who owns or controls the data?

6. What are the processes for keeping and deleting the data?

7. Are there appropriate technology solutions & processes in place to manage data?

University of Suffolk

1. What data do we hold and why?

Identify what data you hold that will help you measure your business aims and predict future trends

Assess existing data **quality** and **coverage**

| consider level of **detail** for the analysis | update **frequency** | collection **methodology** | **storage** location |

Do you collect those and only those data you need?

| are you using all you are collecting for a **purpose**? | do you have clear **consent** for that use? | do you need to **create** data? |

University of Suffolk

2. How are data collected?

How are you collecting data (**online** and **offline**)?

e.g.: website, telephone, in person, mobile apps, third parties

What is the process of asking for **consent** and related **privacy policies**?

Are you recording changes over time in **variable definitions** and **scope**?

University of Suffolk

3. How and where are the data stored?

Do you store data on a single pc? On a shared hard drive? In the cloud?

Where is the cloud server located?

Are there any clauses in their privacy policies that you need to consider? (e.g. personal data stored on US servers?)

Is the storage on-site or off-site?

Silos or warehouse?

Are all the data stored in the same place, or do different teams/colleagues keep their data separately?

University of Suffolk

3. How and where are the data stored?

Do you make regular backups of the data?

is this a manual or an automated process?

How easy is it to delete the data and/or restore from a backup if needed?
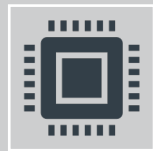
What formats do you use to store the data?

Do you need special software to open it?

Will you be able to access the data in 10 years' time or will you need to migrate the data to a newer format?

University of Suffolk

Examples

Your sales team might have customer information in their personal email account or on social media.

There could be some customer information stored in your old email program, and some stored in the new program you've just upgraded to.

There could be customers who made purchases but were never entered into your CRM.

University of Suffolk

4. How do we use the data?

	What is the purpose of collecting the data?	e.g. marketing, service improvements, product development, human resources, systems mainte...
	Do you share the data with anyone?	Who ne... Have y...nt?
	How do you transfer the data?	e.g. out...
	Do you need the data?	no: do not collect it, do not store it yes: clearly explain to user why and what you will be using it for

ASK THE PEOPLE!

University of Suffolk

5. Who owns and/or controls the data?

Are you a "controller" or a "processor" of the data?

What safeguards are in place protecting the data you have stored?

Who has access to it? (internally and externally); Do you use passwords to help protect the data?; How do you store the passwords?; Do you encrypt your data at rest?; Are you doing enough to secure the information that you collect?

If you have data that you do not own, do you have the appropriate agreements in place to keep it and use it?

University of Suffolk

6. Processes for keeping and deleting the data?

What is your justification for the **length of time you retain** the data? Things to consider:

- The value of the information, both now and in the future
- The costs and risks of continuing to store the data
- The ease of keeping it maintained and accurate

What is the process for **deleting** data?

- Do you have a process in place to honour "the right to be forgotten"?
- Whose responsibility is it to respond to data deletion requests from users?
- What records need to be checked to provide said data?

University of Suffolk

7. Technology solutions & Processes to manage data?

who is responsible for the **admin** and **maintenance** of data related policies?
- Do you have a Data Protection Officer?

do you have the right **software** and **hardware** tools to collect, manage, analyse, document, give access to and delete the data?

will you be able to implement **data quality processes**?

Has all the staff received **information security training** and is aware of how to handle personal data?

University of Suffolk

Next Steps – after the data audit

Work-in-progress – should be reviewed regularly

If needed:

- review and amend your policies and procedures, including your privacy notice, improving safeguards for security, storage and transfer of data
- deal with data subject access requests
- appoint a data protection officer, if applicable

use this as an opportunity to **make data an integral part of your business operations!**

University of Suffolk

Try it yourself!

- Designing your Data strategy? Use the ODiTT Data Strategy worksheet to help you get started: https://bit.ly/ODiTT-DataStrategy

- Planning your data audit? Use this worksheet instead: https://bit.ly/ODiTT-DataAudit

University of Suffolk

Q & A session

University
of Suffolk

Business Engagement at the University of Suffolk
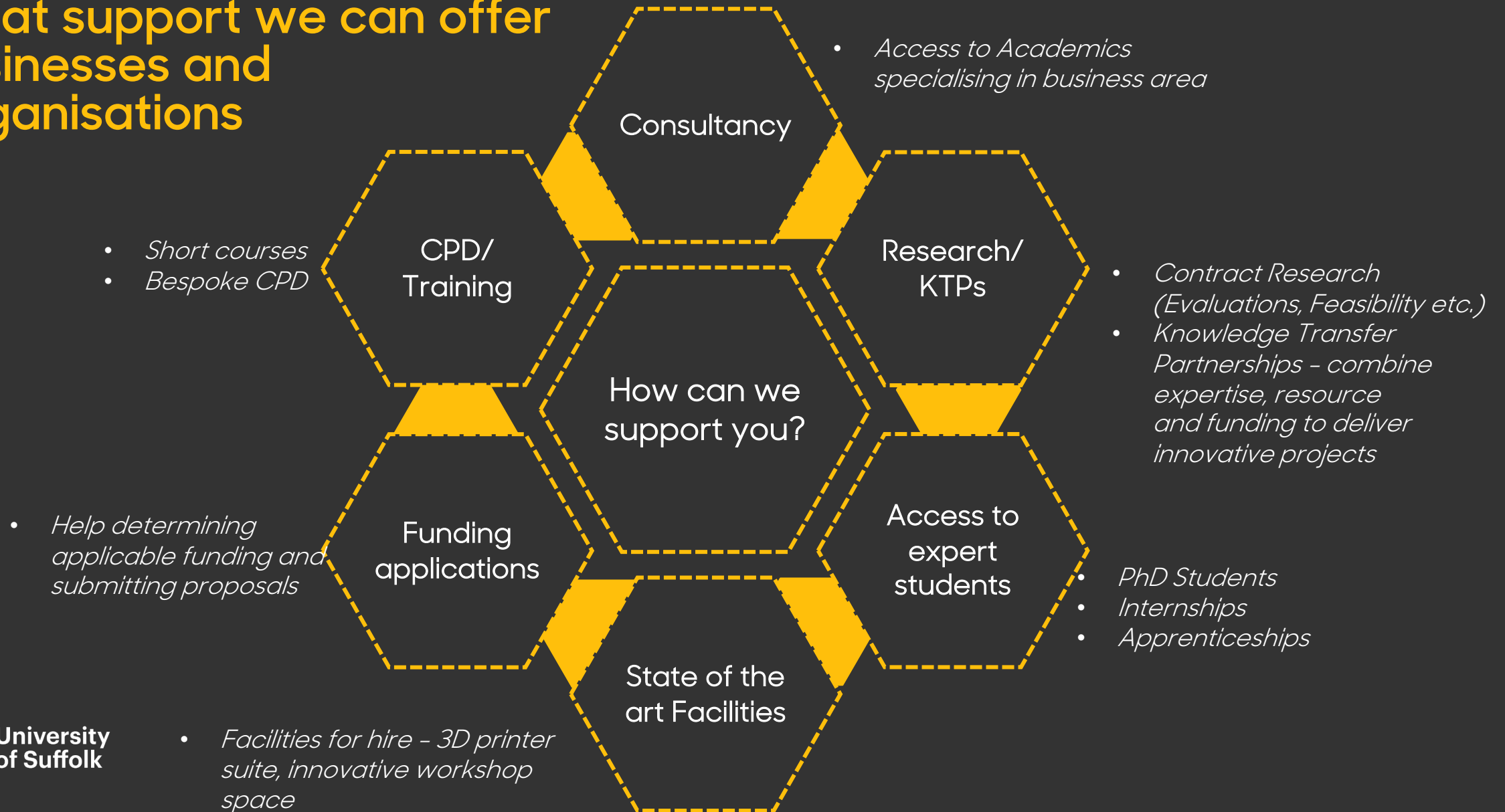
University of Suffolk

"

Our mission is to transform lives and our region, through education, training, research, business and community engagement.

"

University of Suffolk

What support we can offer Businesses and Organisations

Consultancy

- *Access to Academics specialising in business area*

CPD/ Training

- *Short courses*
- *Bespoke CPD*

Research/ KTPs

- *Contract Research (Evaluations, Feasibility etc.)*
- *Knowledge Transfer Partnerships – combine expertise, resource and funding to deliver innovative projects*

How can we support you?

Funding applications

- *Help determining applicable funding and submitting proposals*

Access to expert students

- *PhD Students*
- *Internships*
- *Apprenticeships*

State of the art Facilities

- *Facilities for hire – 3D printer suite, innovative workshop space*

University of Suffolk

Sign up to our newsletter:

Innovation Labs at University of Suffolk | University of Suffolk (uos.ac.uk)

University of Suffolk

Resources

University
of Suffolk

Additional Material & Resources

- Example of a GDPR data audit exercise:
  - https://ico.org.uk/media/2615577/parish-councils-data-audit-exercise.pdf
- SAS White paper:
  - https://www.sas.com/content/dam/SAS/en_us/doc/whitepaper1/5-essential-components-of-data-strategy-108109.pdf
- HESA data strategy:
  - https://www.hesa.ac.uk/support/tools/data-capability/signposting/strategy
- Creating an enterprise data strategy:
  - http://docs.media.bitpipe.com/io_10x/io_100166/item_417254/Creating%20an%20Enterprise%20Data%20Strategy_final.pdf
- Building a global data strategy
  - https://globaldatastrategy.files.wordpress.com/2015/08/success_stories_global_data_strategy_burbank_enterprisedataversity_2015.pdf
- What's your Data Strategy?
  - https://hbr.org/2017/05/whats-your-data-strategy

University of Suffolk

University
of Suffolk