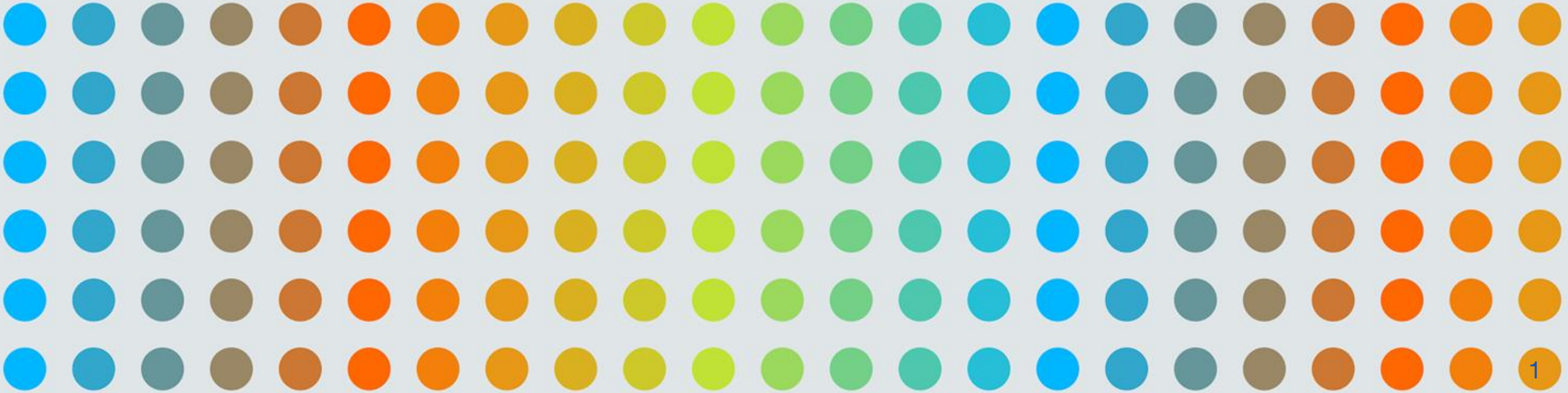
Helping the public sector to develop data skills

Tom Pieroni, Learning Manager

iTalks Series 2023: Data Literacy for the Public Sector, June 2023



We need people who can work with data, drive the tools, write code and manipulate the data. But we also need people to be able to critique the use of data, understand its constraints and its impact on society. We need this blend of skills to get the best out of data.

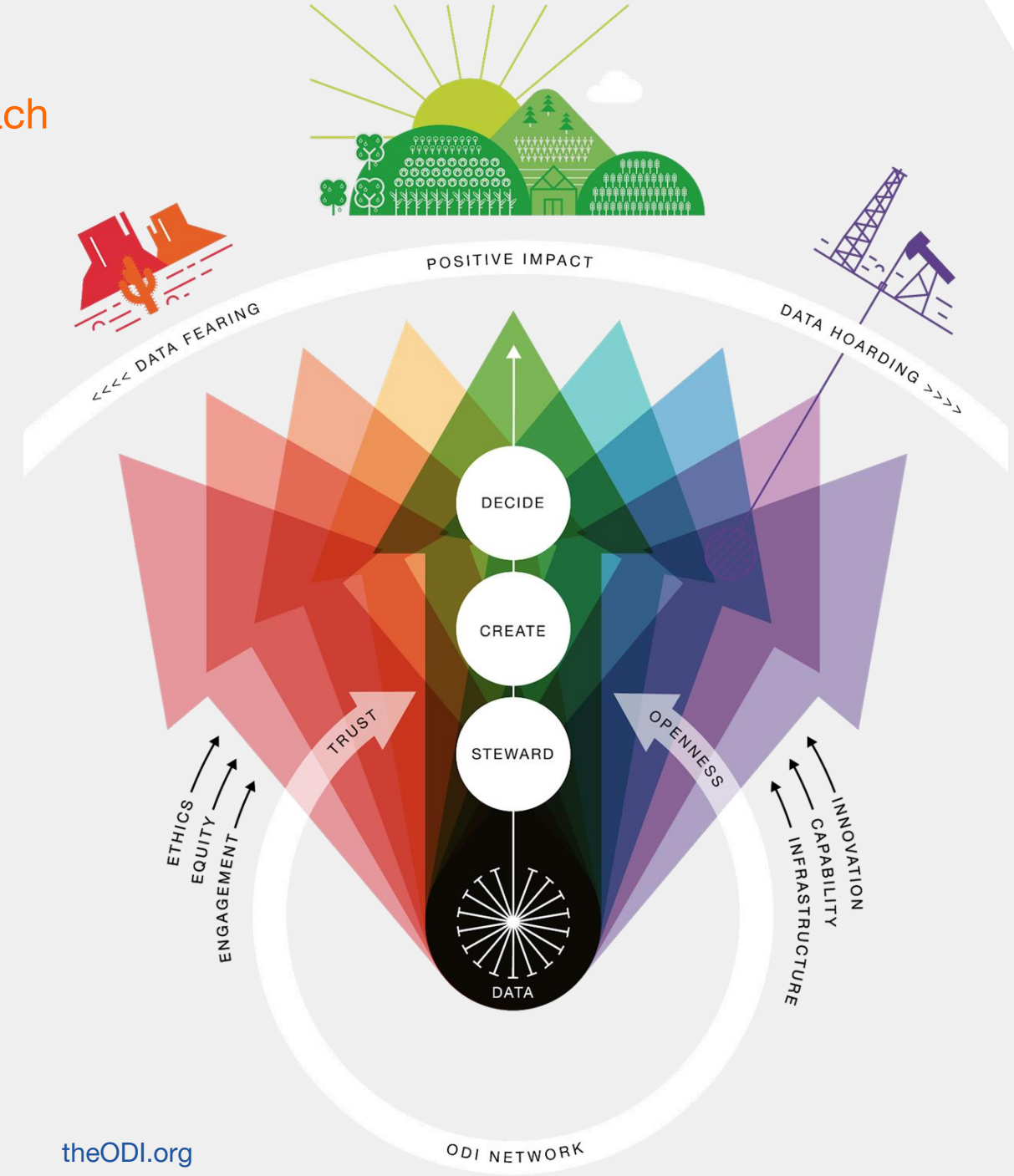
Dr Jeni Tennison,
Former ODI Vice President

Our theory of change: balance in the approach

Positive Impact:
Farmland

Data Fearing:
Wasteland

Data Hoarding:
Oil field

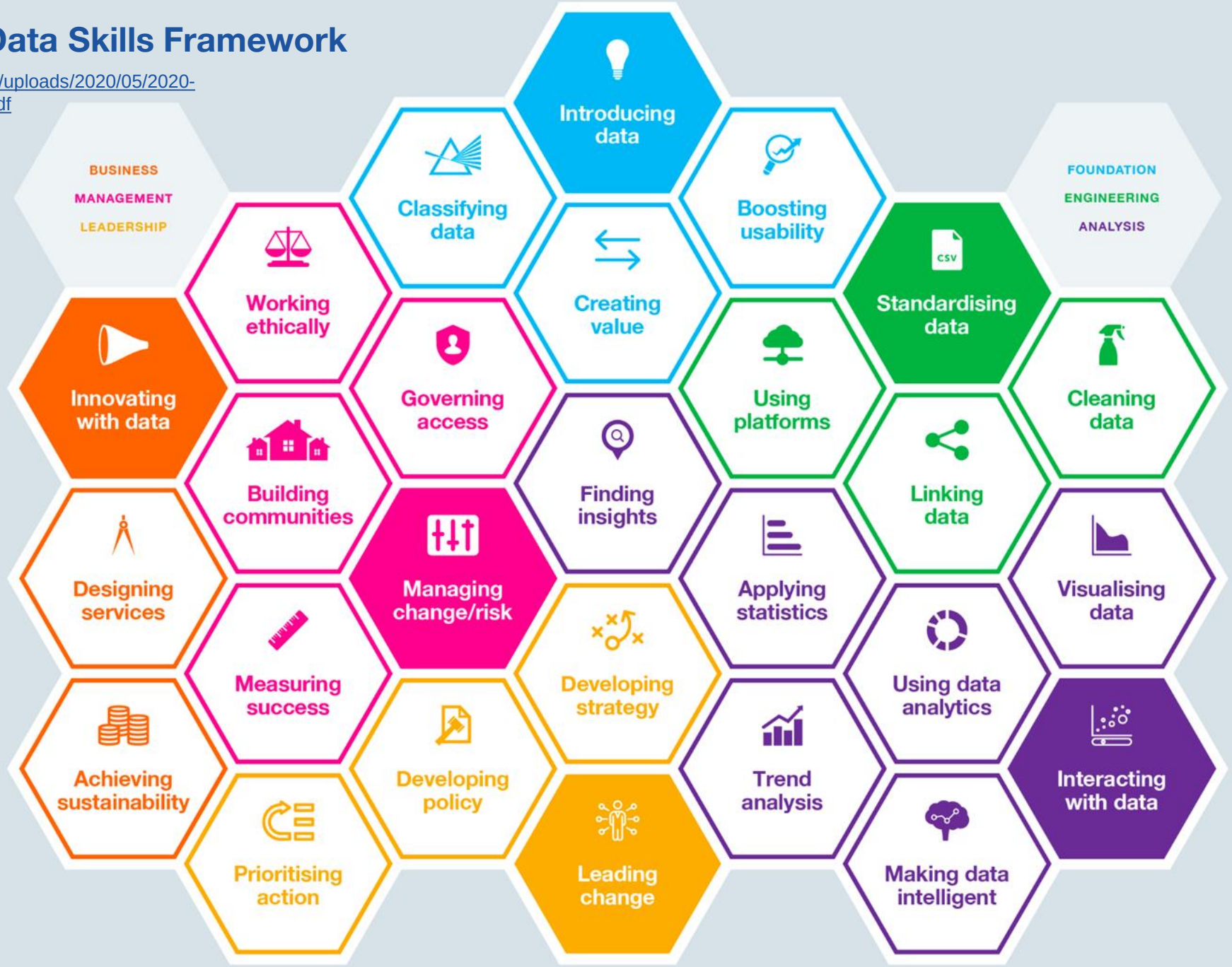


Individuals are underprepared for the growing use of data in their roles

Accenture, 2020

ODI Framing: Data Skills Framework

https://theodi.org/wp-content/uploads/2020/05/2020-05-Data-Skills-Framework.pdf

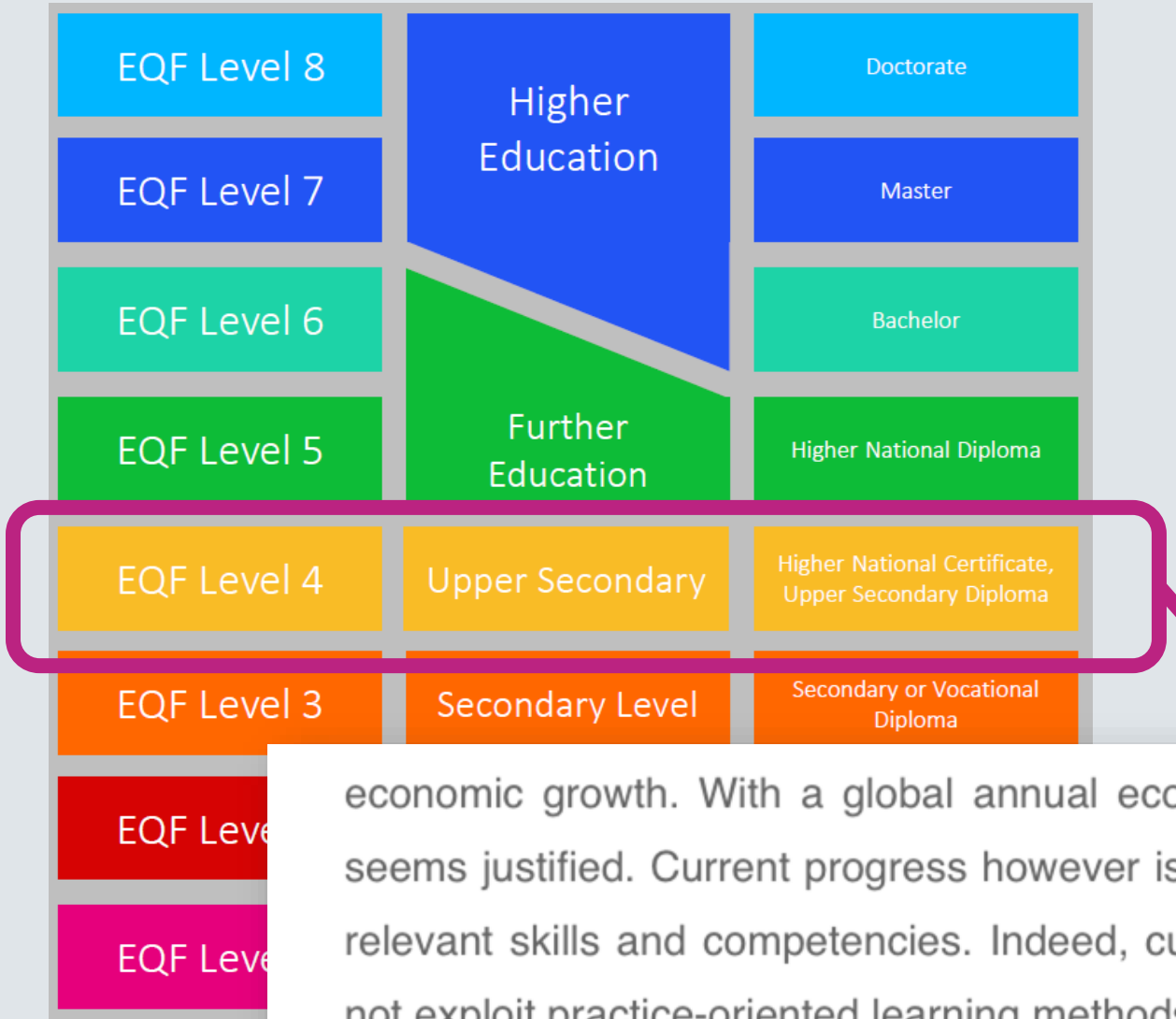


Managers are consistently more optimistic about their teams' skills than the team members themselves

Data analysis, interpretation and domain application are most critical skills. Programming was second from bottom!

- 584 telephone and online surveys completed by
science team managers.
- A comprehensive desk survey of 456 data scienc
- In depth interviews with to 19 high level managers and learning professionals on how they approach data science skills development in their organisations.

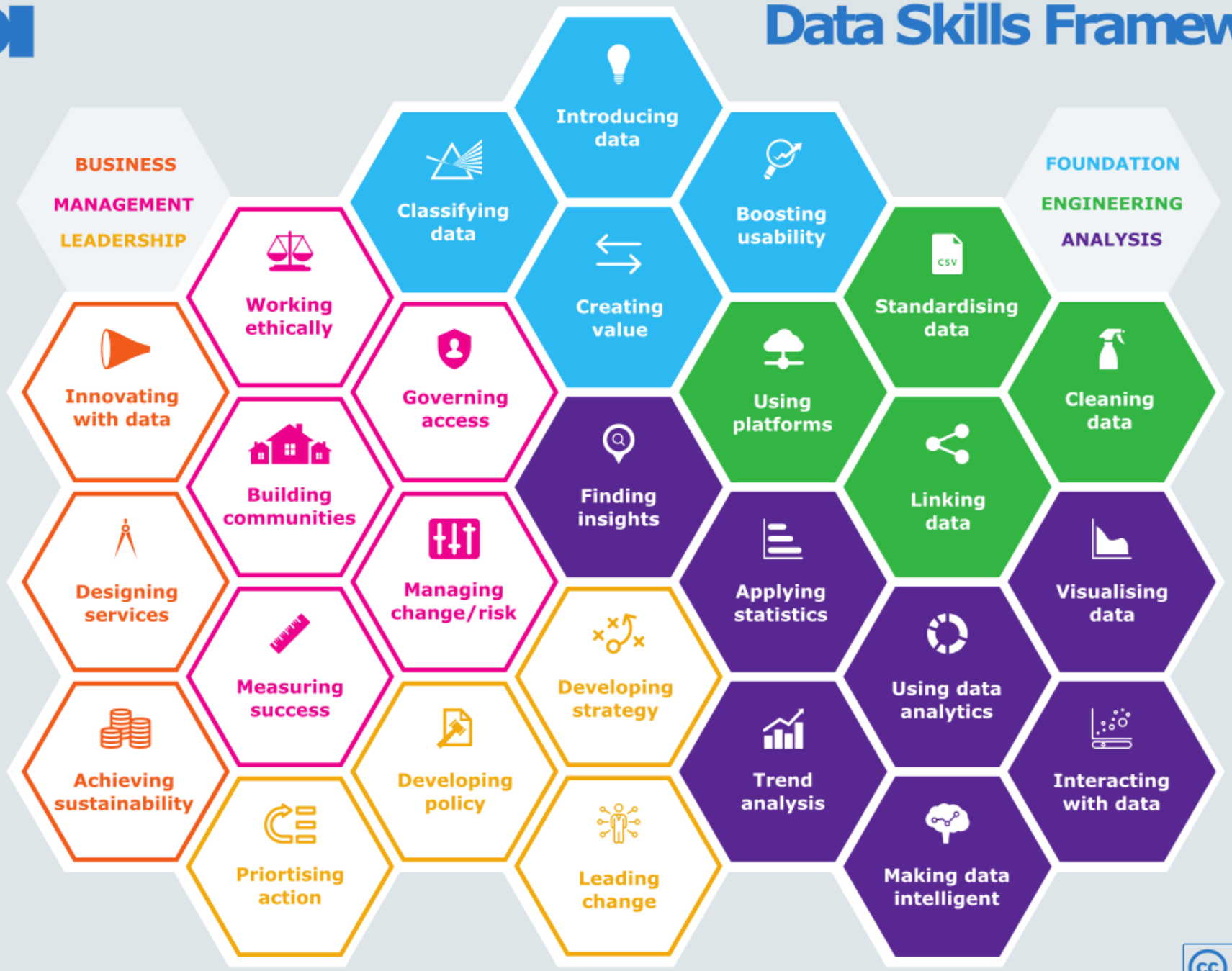
Data Skills Framework: European Qualifications Framework (EQF) Alignment



economic growth. With a global annual economic potential value estimated to $3 trillion, this boost seems justified. Current progress however is not satisfactory. We believe a main reason is the lack of relevant skills and competencies. Indeed, current education and training activities are scarce and do not exploit practice-oriented learning methods such as Problem Based Learning (PBL).

Data Skills Framework

2020-03



Created by Wenjie from Noun Project

Practitioner

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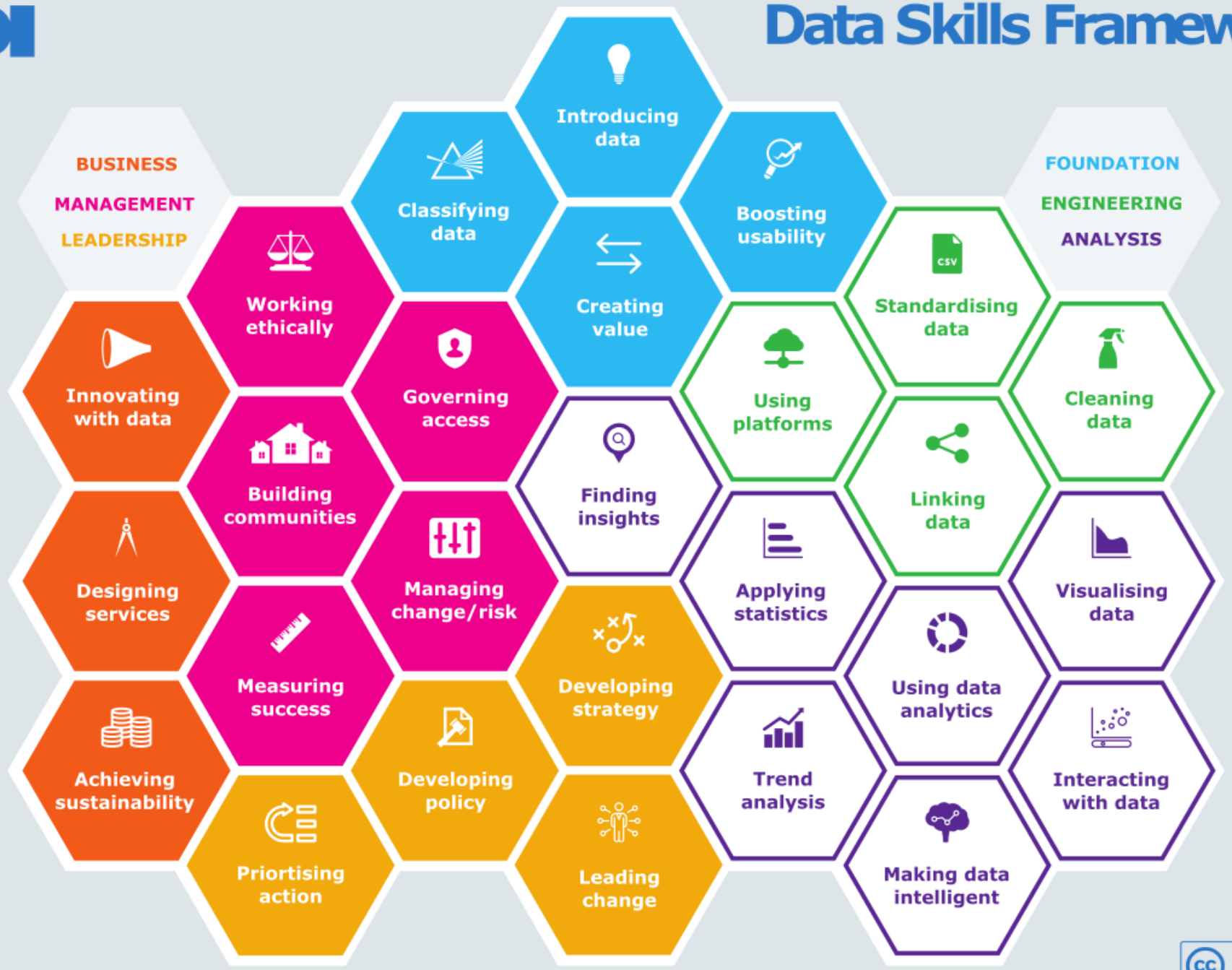
Data Skills Framework

2020-03

Created by Yogi Aprelliyanto from Noun Project

Strategist



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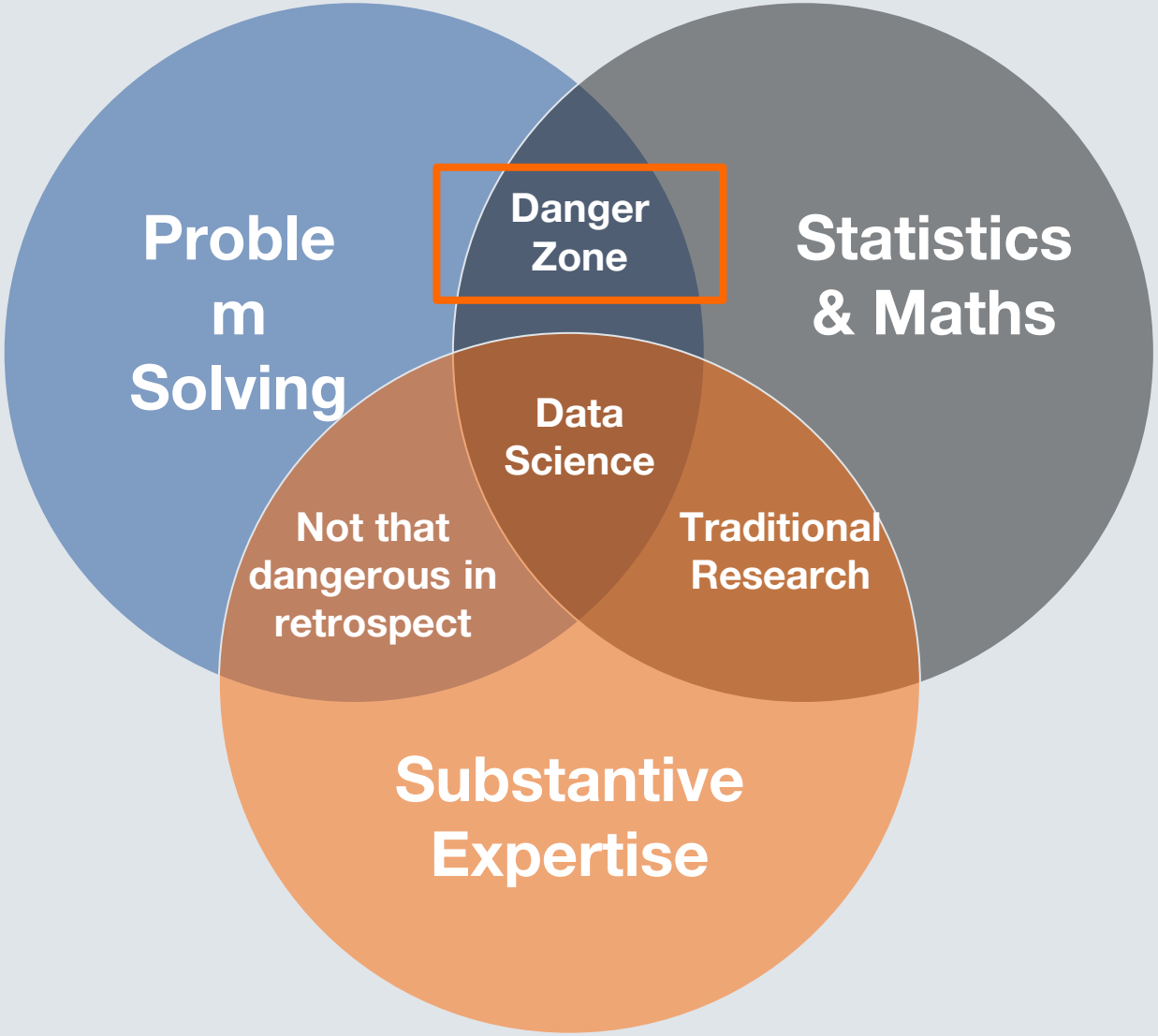
Forget data scientists, hire a data translator instead?

Forbes, 2018

The Data Scientist: doesn't exist without expertise



But, there are new technologies*, there are new applications… what skills and literacies do we need to maximise the value of data.

*Let's be honest, we mean chatGPT and Generative AI

Focuses on generating new content (text, images, sounds, etc), or data by learning patterns from existing datasets

Generative AI - a definition

How did we get here?

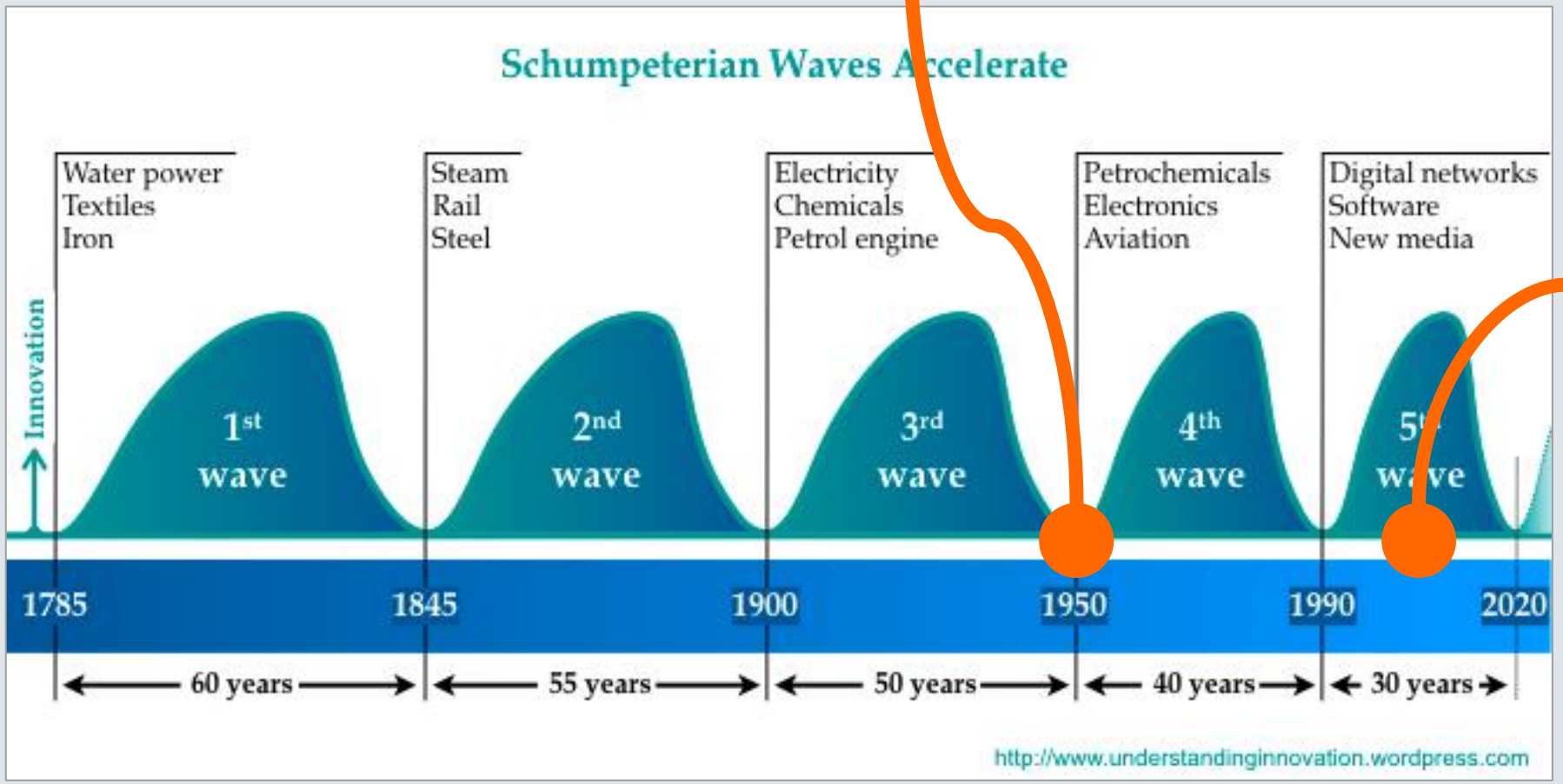
A

GPT

5 waves, building to the 6th

Work in AI actually started about here

But wasn't considered 'successful' until here

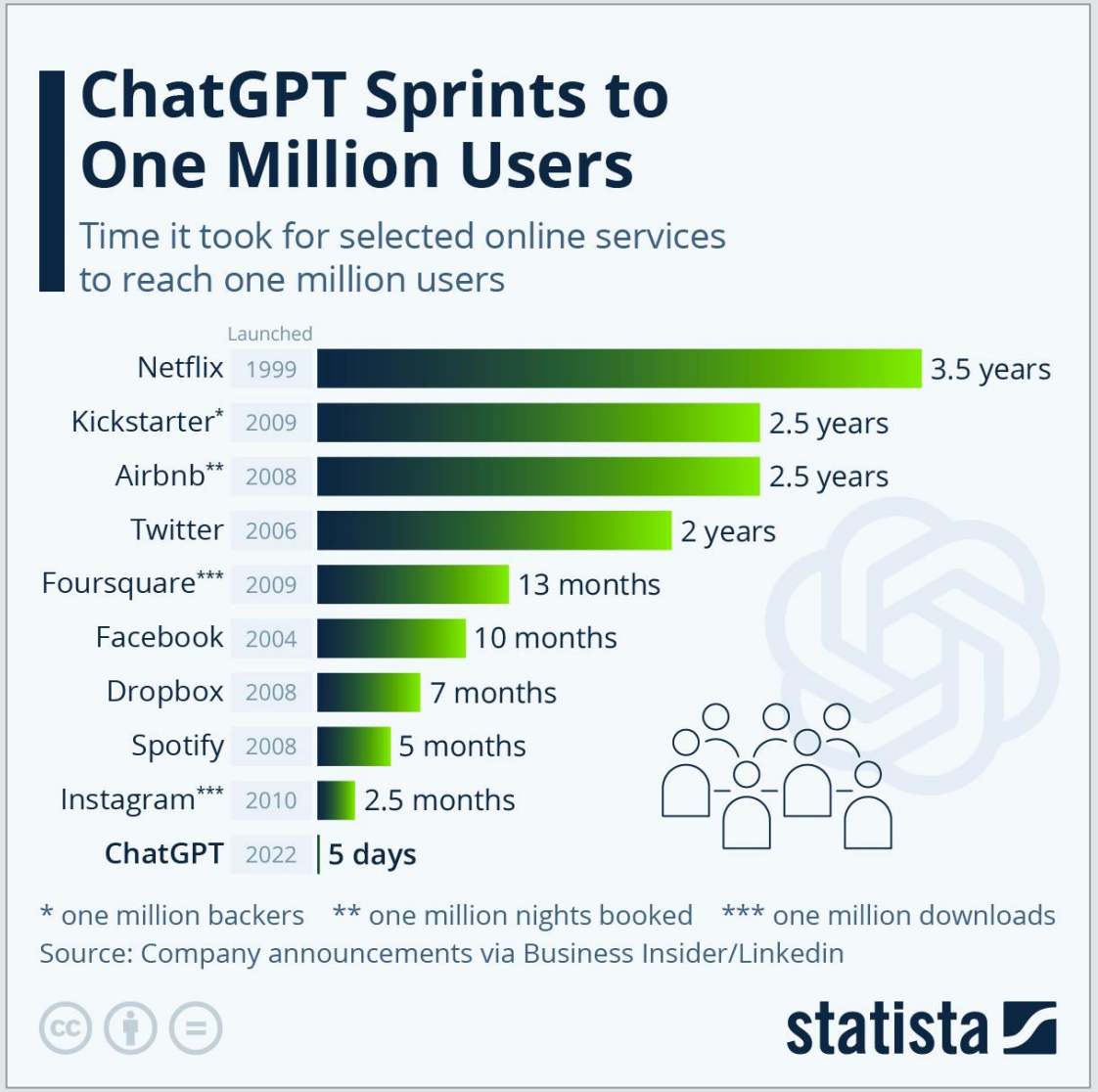


https://understandinginnovation.blog/2016/09/13/cities-companies-and-innovation-accelerate

Adapted from: Professor Mairead Pratschke, Chair in Digital Education at UoM, https://www.youtube.com/watch?v=eiqWhvKD1F4

How fast is this wave?

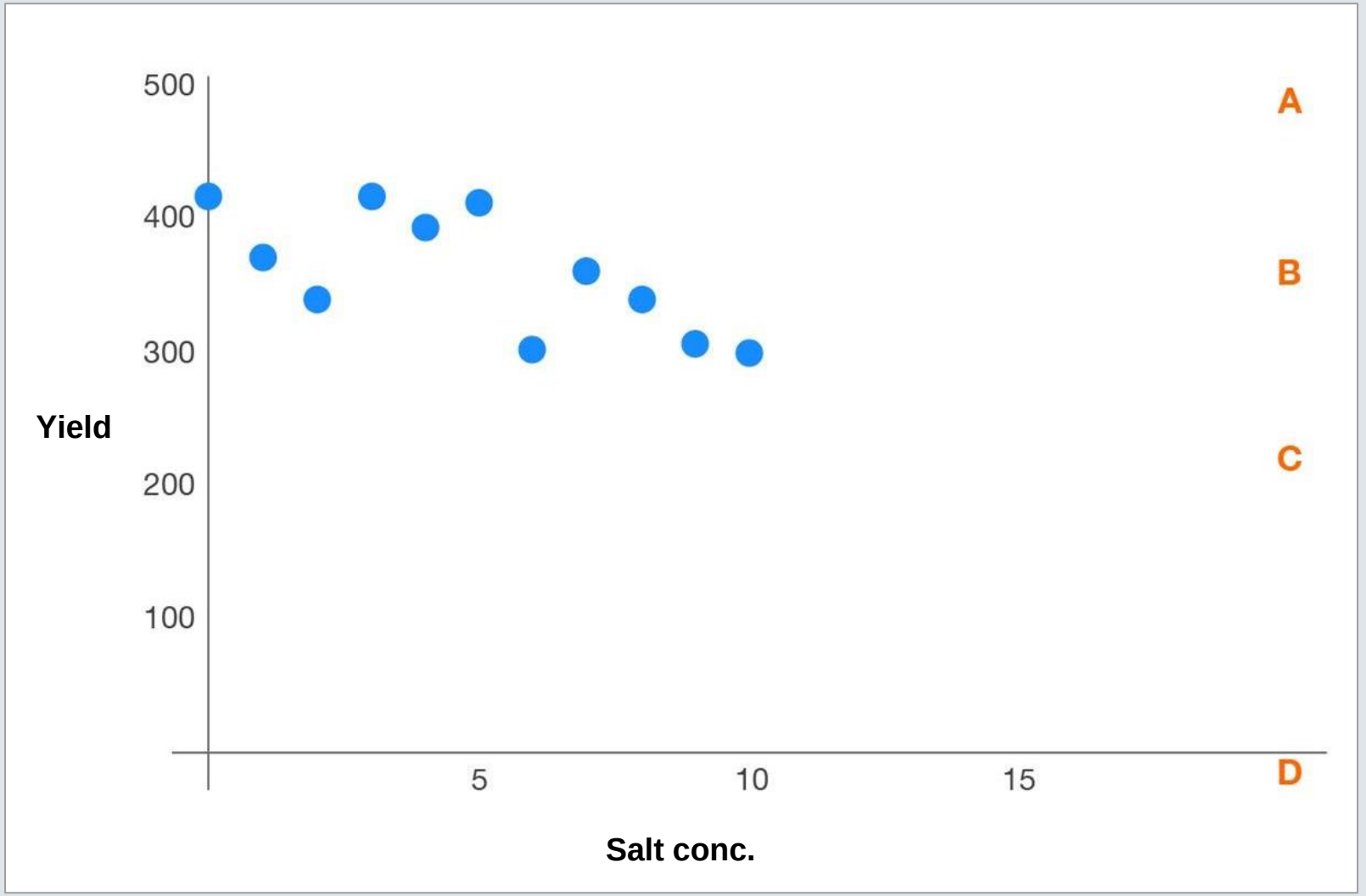
https://www.statista.com/chart/29174/time-to-one-million-users/



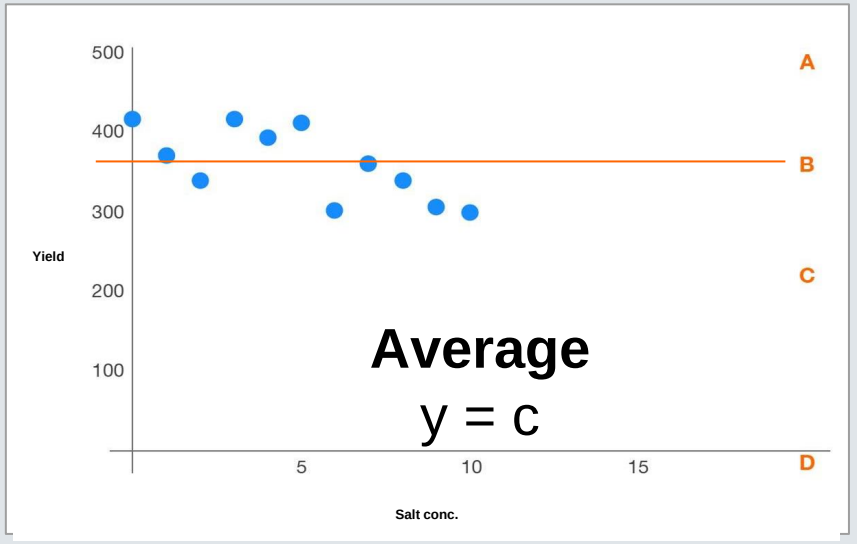
Generative AI democratises access, *not representation*

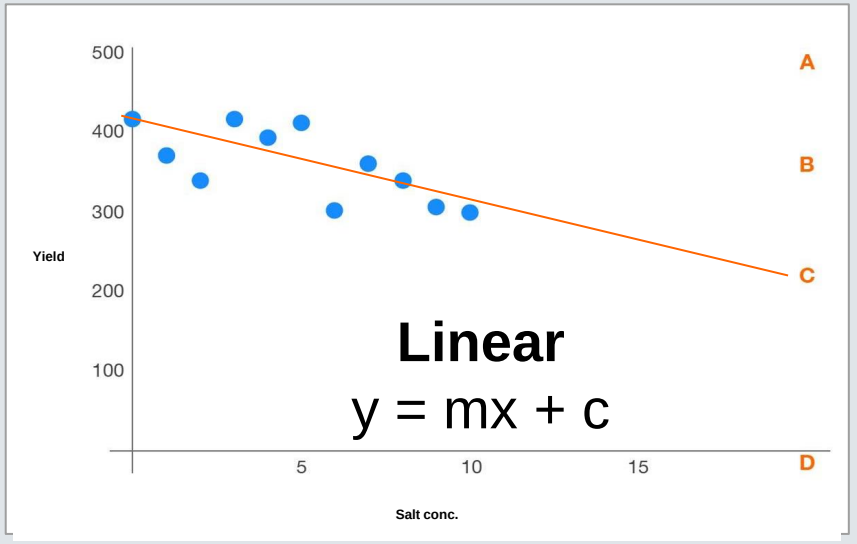
We do not need new skills.
We need to develop existing skills.

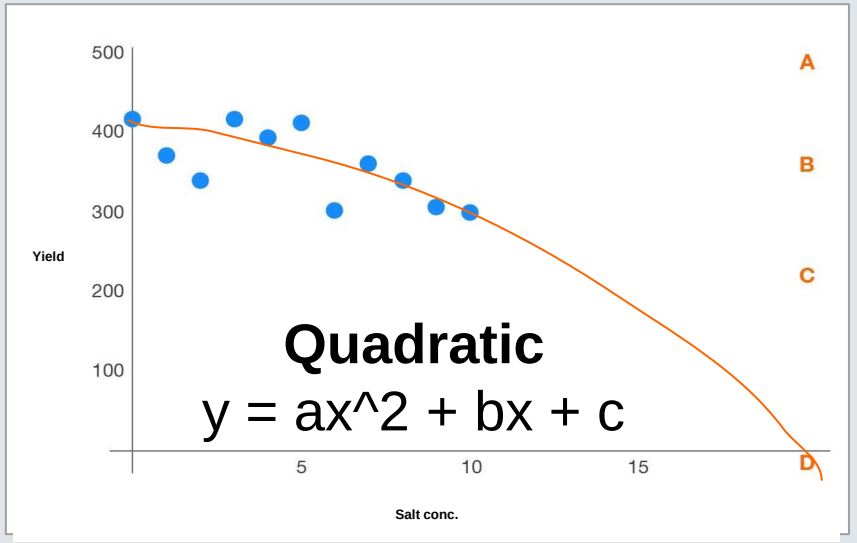
But what existing skills should we be developing?

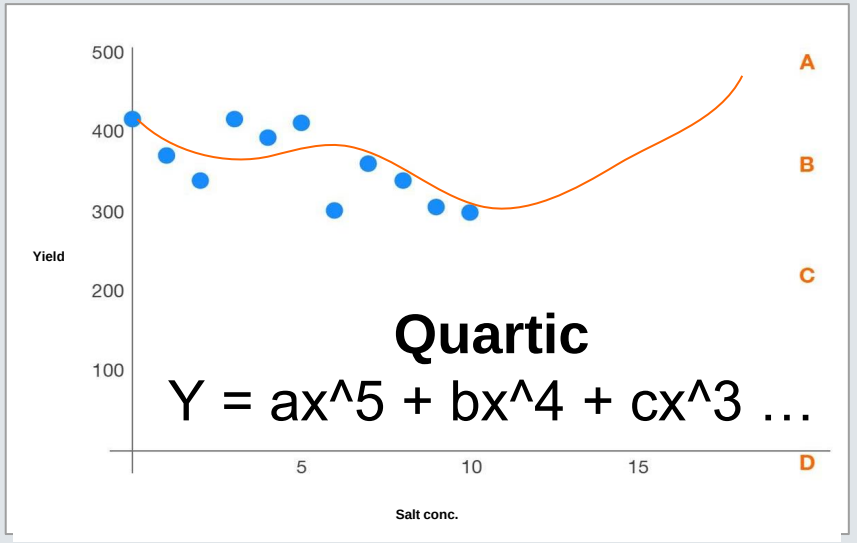


Mathematically correct, but contextually incorrect









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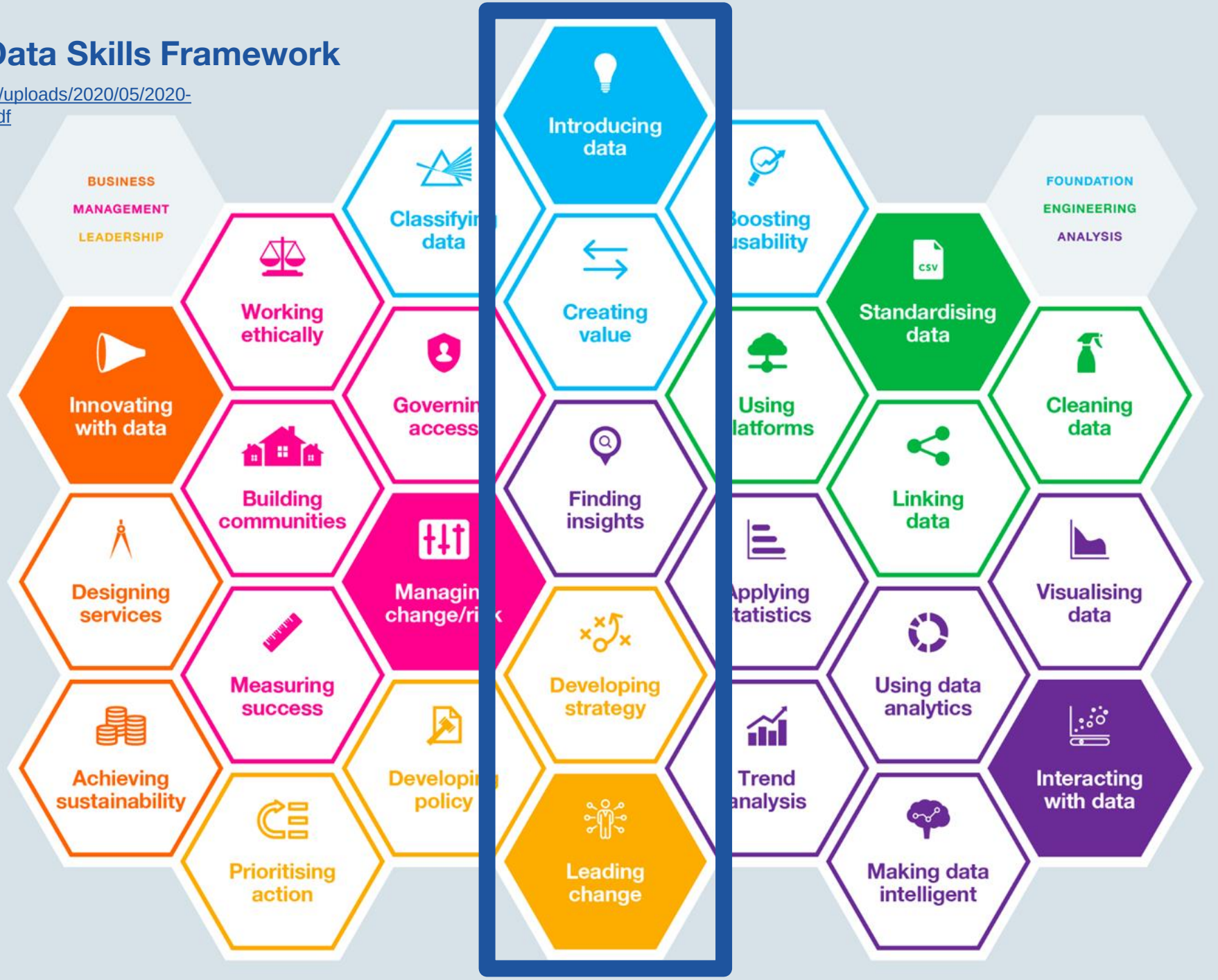

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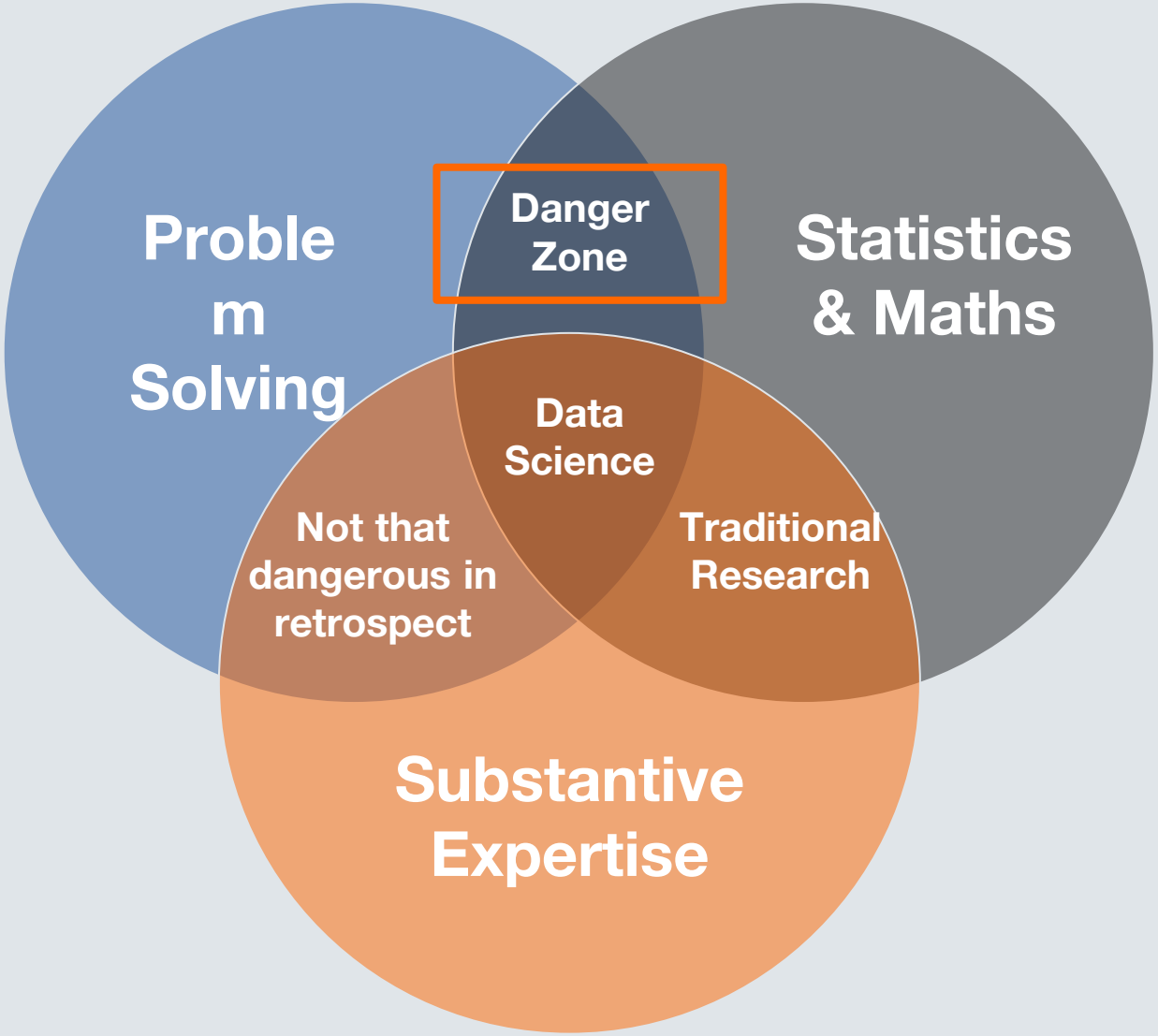
The Data Scientist: it's all about balance



Building data literacy: our ‘rules’

1. **Focus on the EQF (Level 4) aims, outcomes and teaching and learning theory**
2. **Make it problem based and real world focused**
3. **Balance practical application with strategic thought**

EQF Level 4: Learning Outcomes

Knowledge	Skills	Responsibility and autonomy
Factual and theoretical knowledge in broad contexts within a field of work or study	A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study	Exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change; supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities

https://europa.eu/europass/en/description-eight-eqf-levels

Introduction to Machine Learning

Strategic Data Skills

How to build an effective programme

1. Identify the skills you have available within your organisation
2. Review your current skills development approach: what do you cover? Where are the gaps?
3. What could you improve across the development approach?
4. What are your strategic needs?
5. Which areas should you focus on developing further?

How to build an effective programme: final thoughts

- Separate the role from the skills
- Opportunities for all levels within your structure
- Opportunities to apply learning (authentically)
- Resources and support

Accessing the Data Skills Framework

Download the toolkit and guidance.

Openly licensed (BY-SA)

https://learning.theodi.org/courses/data-skills-framework

Thank you

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ODI Learning

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For more information about how the ODI can support your data need:

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