Digital Transformation of Financial Regulators & Emergence of Supervisory Technologies (SupTech) – A Case Study of the FCA

Pavle Avramovic

Manager, Emerging Tech & Research, UK Financial Conduct Authority

17 October 2023

3rd IFC and Bank of Italy Workshop on "Data Science in Central Banking: Enhancing the access to and sharing of data

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CONTENTS ☰

Digital Transformation of Financial Regulators and the Emergence of Supervisory Technologies (SupTech): A Case Study of the U.K. Financial Conduct Authority

by Pavle Avramović

Published on   Apr 27, 2023

🕑 last released
1 month ago

Contents

Objectives of the Research

-

Current Landscape

-

SupTech Overview

-

Regulatory Competition

-

BLENDER as a Dynamic Capability

-

Implications for Industry, Academia & Regulators

-

Questions

Learning Objectives

By the end of this presentation, you should be able to:

- **Understand why novel SupTech technologies** are **emerging** in **regulators and central banks**

- **Learn how dynamic capability theory** can be applied to **delivering technology projects with impact**

Current Landscape

The ability of financial regulators to supervise the fast-evolving and technologically enabled world of financial services is **uncertain.**

Scars from the 2007-2008 financial crisis still remain, with future instability potentially occurring

Novel technological deployments in financial services are continuously deployed at an increasing rate

How can financial regulators meet the challenges of this growing ecosystem and prevent harmful outcomes for consumers and markets?

Could SupTech be the answer?

SupTech Explained

"Use of innovative technologies by supervisory agencies to support supervision" – *Bank for International Settlements*

Catch-all term to capture regulatory initiatives using technology, recognised by many international bodies
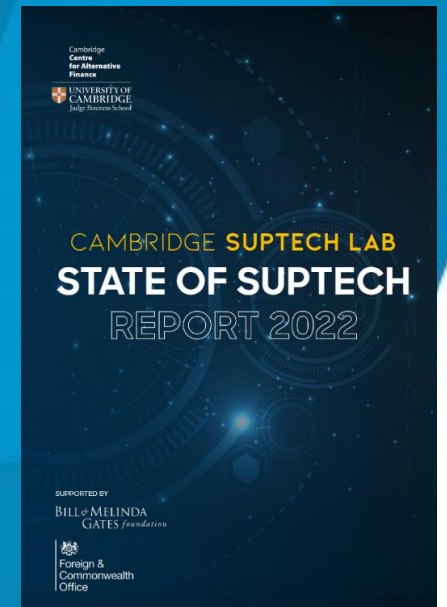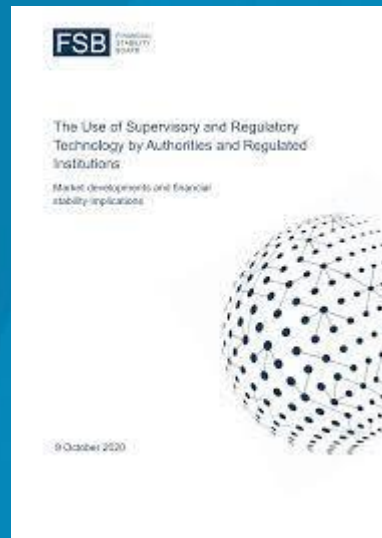
SupTech Use Cases

Figure 1. SupTech taxonomy with SupTech use cases. From Appaya et al. (2020).

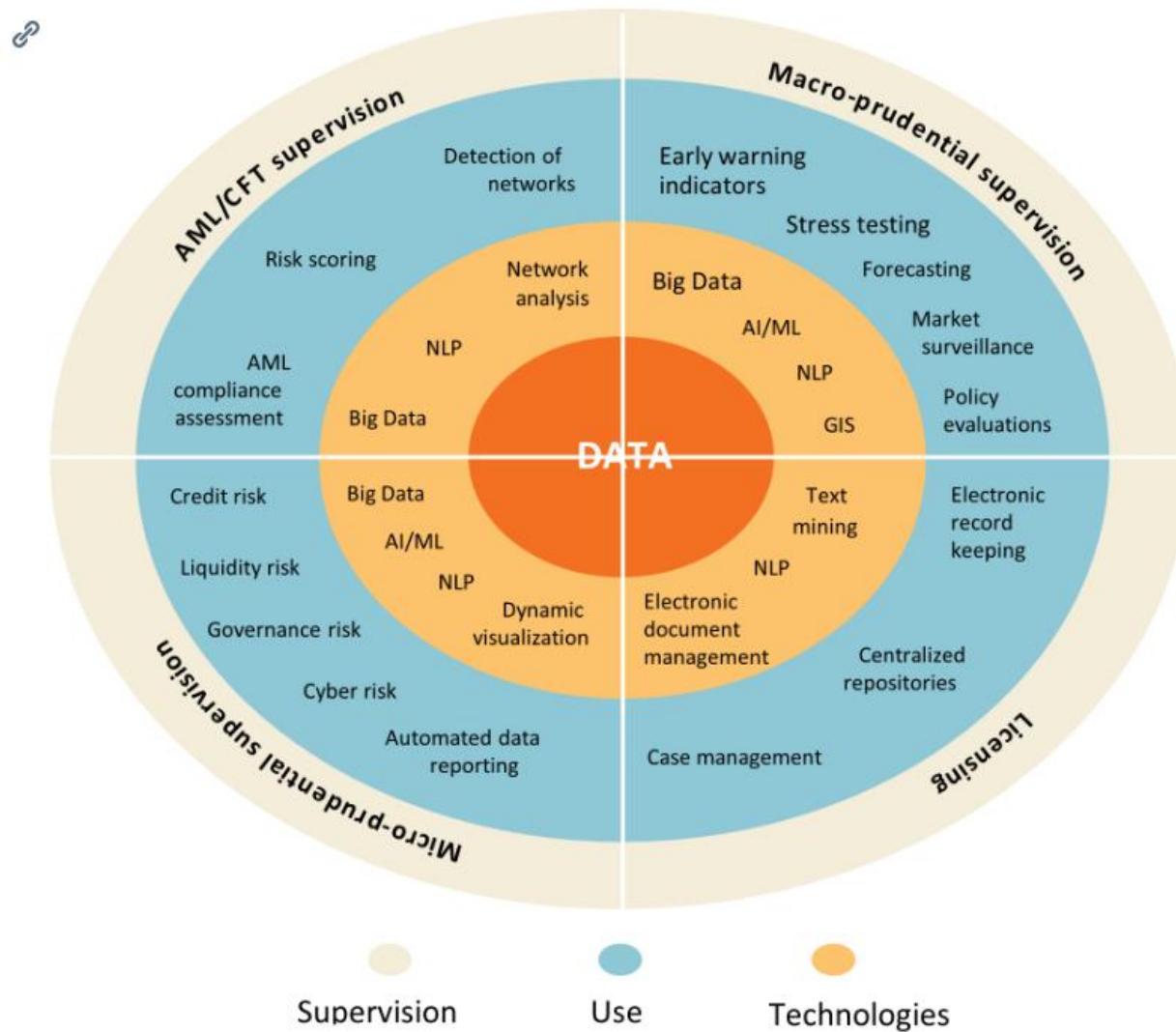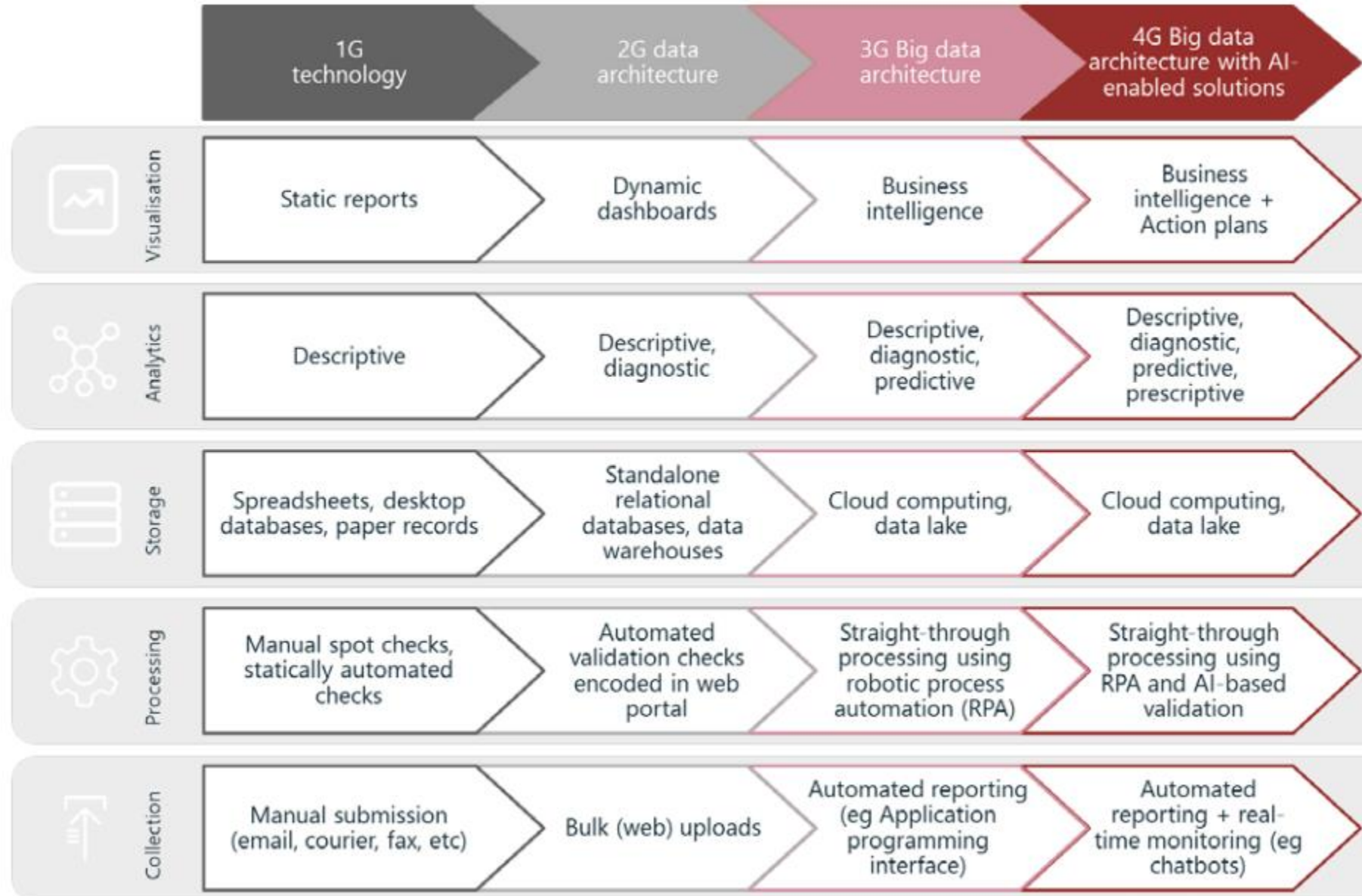# SupTech Generations

	1G technology	2G data architecture	3G Big data architecture	4G Big data architecture with AI-enabled solutions
Visualisation	Static reports	Dynamic dashboards	Business intelligence	Business intelligence + Action plans
Analytics	Descriptive	Descriptive, diagnostic	Descriptive, diagnostic, predictive	Descriptive, diagnostic, predictive, prescriptive
Storage	Spreadsheets, desktop databases, paper records	Standalone relational databases, data warehouses	Cloud computing, data lake	Cloud computing, data lake
Processing	Manual spot checks, statically automated checks	Automated validation checks encoded in web portal	Straight-through processing using robotic process automation (RPA)	Straight-through processing using RPA and AI-based validation
Collection	Manual submission (email, courier, fax, etc)	Bulk (web) uploads	Automated reporting (eg Application programming interface)	Automated reporting + real-time monitoring (eg chatbots)

Di Castri et al. (2019)

Research Focus

Why does this matter?

Academic and industry research on regulatory use of technology is **limited**

There is a **lack of case studies** for regulators to learn from on how to **approach the development** of SupTech tools

Research Question
How does SupTech emerge and develop within financial regulatory agencies?

Research Approach

- 16 qualitive, semi-structured interviews with senior colleagues at the FCA and other international regulators (Australia, Canada, Switzerland, USA)

- Thematic analysis approach (Attride-Stirling, 2001); creation of thematic networks, seeing where the data is 'overflowing' the literature and identifying novel factors that could impact the environment

- Creation of a new framework to address the research question with a twofold focus
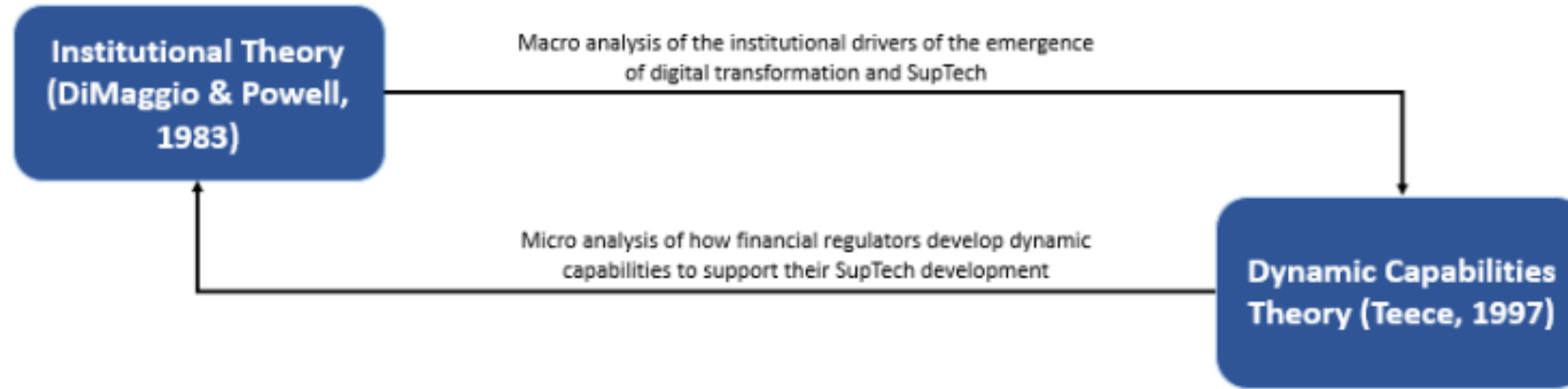
Research Approach

Figure 4. Research theoretical framework.

Key Findings

Key Findings

1. Emergence of SupTech

2. Development of SupTech

Institutional Drivers – SupTech Emergence

DiMaggio and Powell provide an overview of different types of Isomorphic Pressures (those that drive organisations into action):

Types of Pressures	Description	Regulatory SupTech Examples/Equivalents
Coercive Pressures	Result from both formal and informal pressures applied on organizations by other organizations upon which they are dependent and by societal cultural expectations	Regulatory obligations and duty of operating effectively and efficiently (FSB, 2020)
Normative Pressures	Result from the need for professionalization and a group wanting to define the conditions and methods of their work	Not applicable to the SupTech field due to novelty. Potential future certifications and courses could be created, as well as standards
Mimetic Pressures	Result from uncertainty and encourage organizations to imitate each other in order to manage the ambiguity of the environment	Common supervisory needs of automating supervisory procedures and analysing data sets result in 'greater similarity' of SupTech tools being developed (FinCoNet, 2020)

Introducing Regulatory Competition

An area not identified in literature, is the idea of "regulatory competition" in SupTech development.

There are several factors why this type of competition might arise

Market Attractiveness
Well-functioning markets could drive investment and increase international competitiveness

Regulatory Reputation
Important way for regulators to build trust with consumers and industry

Mimetic Pressures
In order to manage the ambiguity of the environment, regulators could imitate each other
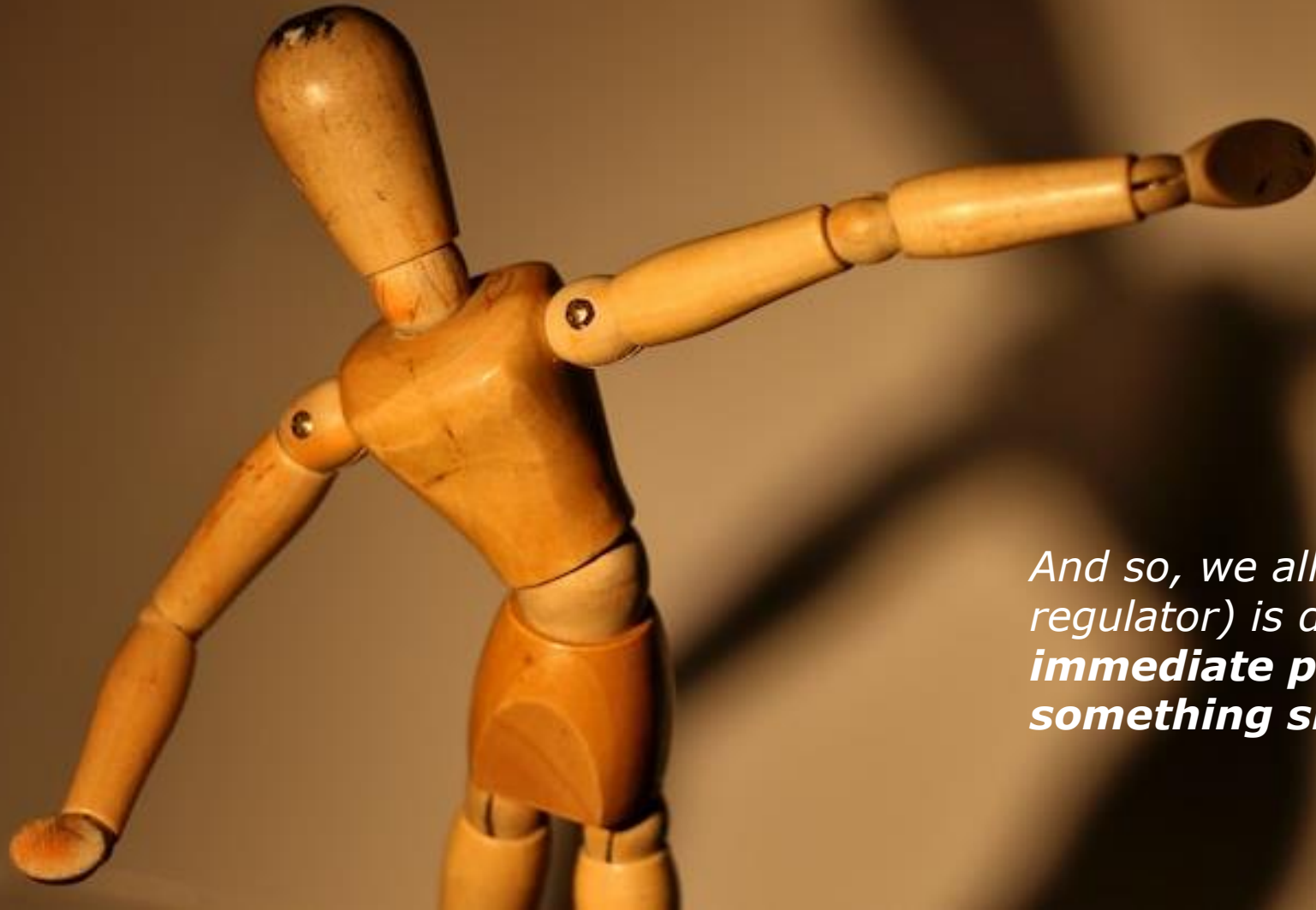
Hostile Competition?

I think inevitably that there is competition, this is a quirk of regulators, but it is definitely not hostile competition (Interviewee 12)

Competitive Advantage

I think some countries are much further ahead than others, some will put more emphasis on it, **they may see it as a competitive advantage**. *(Interviewee 10)*

Regulatory Imitation

*And so, we all work together, but if one (a regulator) is doing something cool, then there **is immediate pressure on all the others to do something similar.** (interviewee 4)*
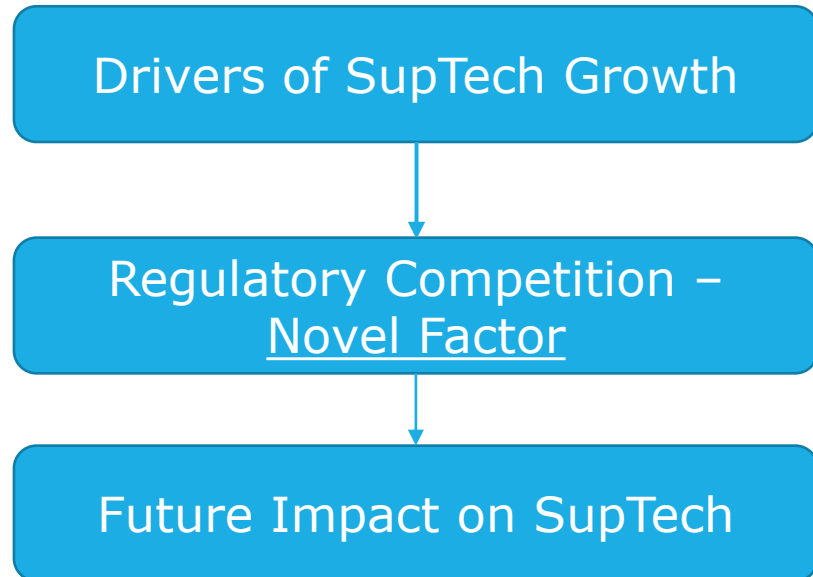
Future Impact on SupTech

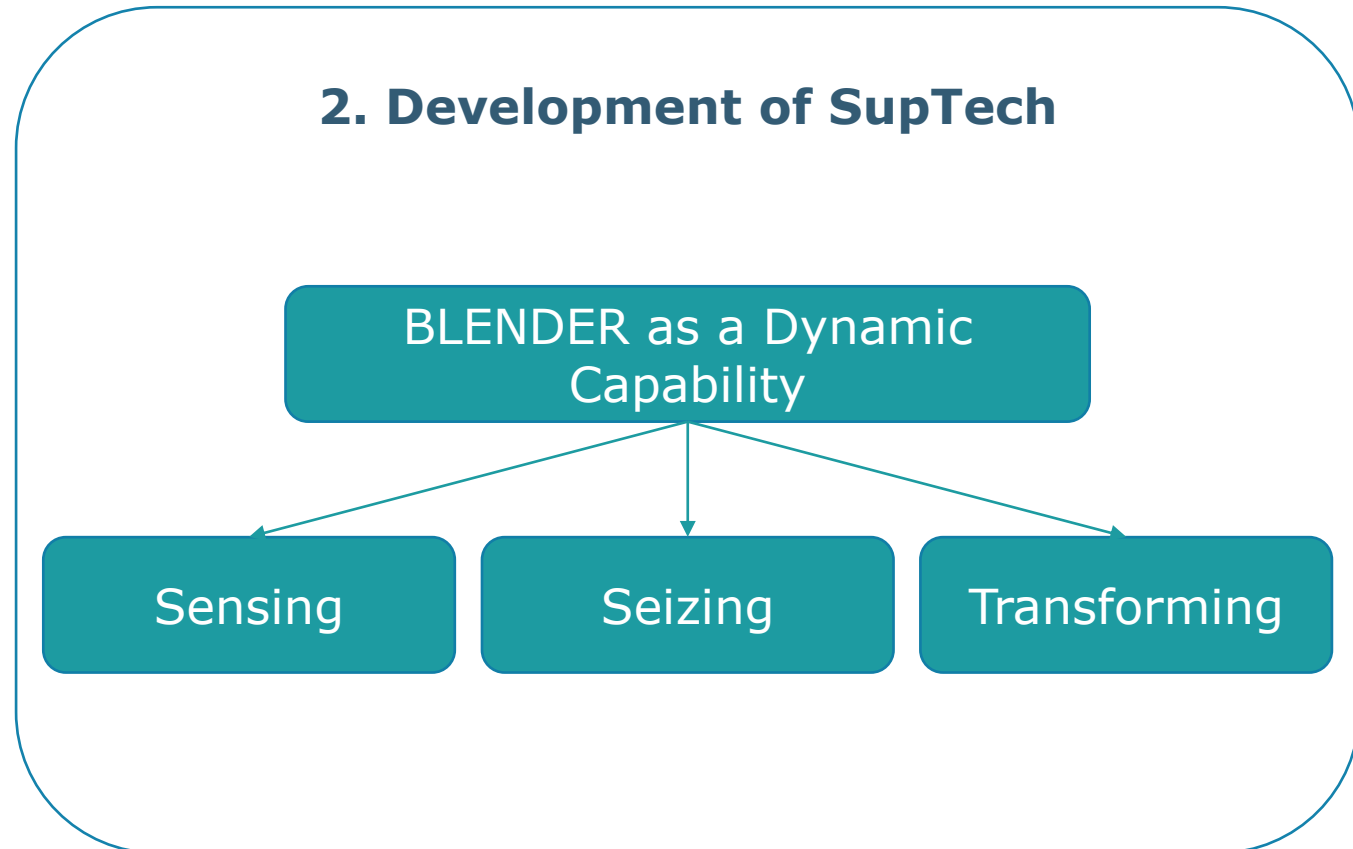*Could the recognition of competition drive more collaboration?*

Or will the opaque nature of SupTech result in more competitive behaviour and less joint work?

Key Findings

1. Emergence of SupTech

Drivers of SupTech Growth

Regulatory Competition – <u>Novel Factor</u>

Future Impact on SupTech

2. Development of SupTech

BLENDER as a Dynamic Capability

Sensing

Seizing

Transforming

BLENDER Project

| Project Overview	Phase: Complete	FCA Objective: Market integrity
What is it?	BLENDER is a technology tool that assists supervisors to identify market abuse.	

BLENDER is a technology tool that assists supervisors to identify market abuse.

BLENDER acts as 'middleware' and brings together data from different data sources (trading venues), 'blends' the data, and feeds it into a market surveillance tool to support supervisors to see transactions from multiple sources and identify patterns and diverse types of market abuse.

The BLENDER tool is an integral part of the market monitoring process of the FCA, without which it would not be able to have a holistic view of the market and see market manipulation occurring

Dynamic Capability Theory (Teece, 1997)

The organisational ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments.
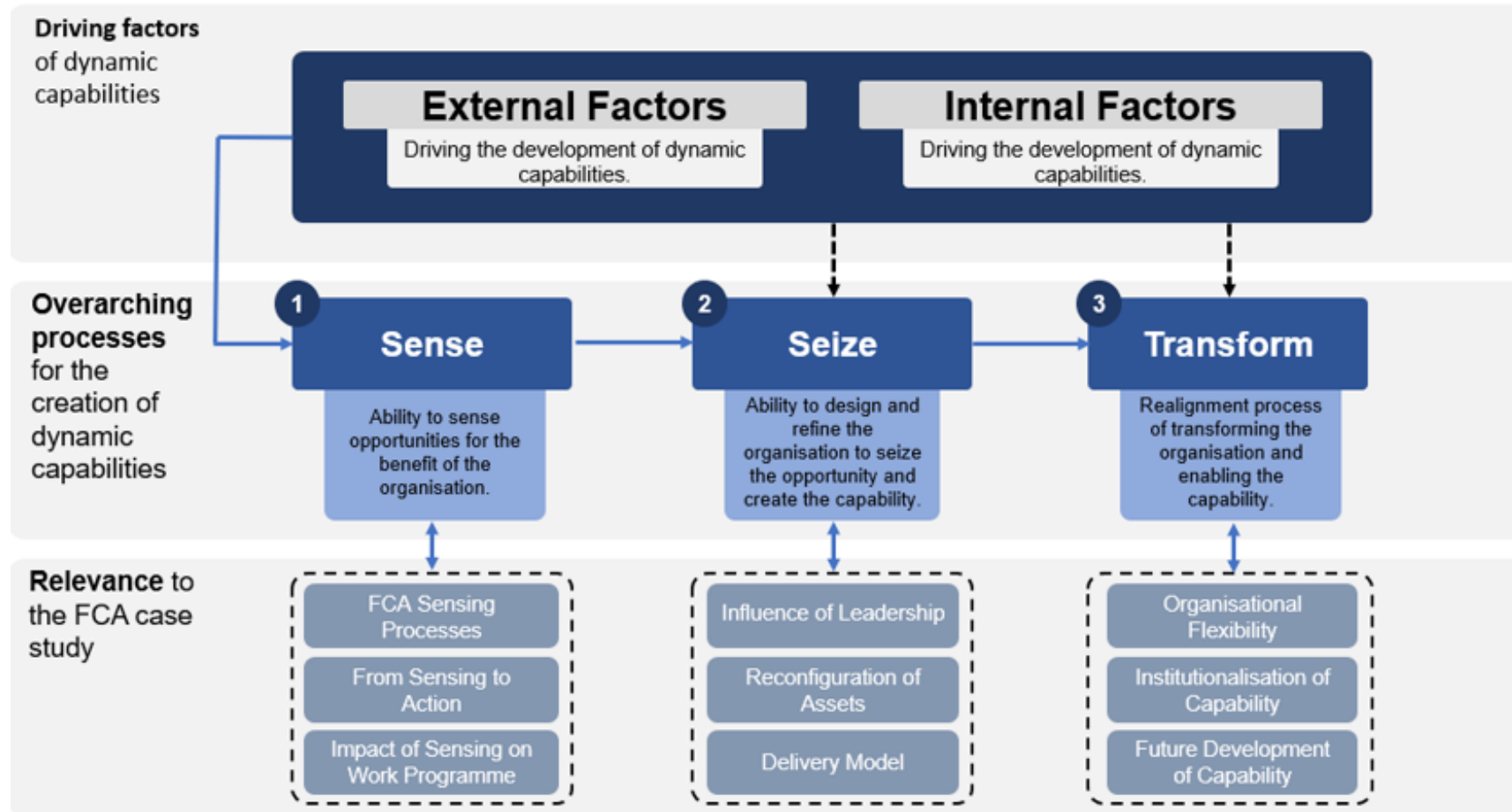
BLENDER as a Dynamic Capability

Sensing

FCA Sensing practices worked positively, identifying the risk of cross-market manipulation early with the UK having the largest market fragmentation and highest number of venues emerging

Seizing

The right investment case and senior buy-in allowed for the further development of BLENDER. Many factors recognised in literature have occurred, such as the flexibility of delivering in-house, the managerial impact of seizing resources and a driven project leader

Transforming

BLENDER is a completed tool and enabler for the FCA to collect data from multiple venues. It has become part of the ecosystem and has achieved legitimacy in the eyes of its users.

The overarching finding based on the data is that the BLENDER tool can be perceived as a dynamic capability for the FCA .

Implications

1 Recognition of **regulatory competition in SupTech development** could act as a **positive driver for change and stimulate collaboration**.

2 Criticality of **horizon scanning, visionary leadership and flexible delivery models** in the development of SupTech tools (and the usage of the dynamic capabilities framework).

3 **Further academic and industry research** can support the development **of SupTech, including future talent, opensource code and needed standards**

Any questions?