CORE PRINCIPLES FOR DESIGNING A SUPTECH ROADMAP

"Strengthening banking regulation and supervision in the Americas"

ASBA
ASSOCIATION OF SUPERVISORS OF BANKS OF THE AMERICAS

Traveler, there is no path; the path is made by walking
Antonio Machado

BACKGROUND

Technological developments, such as the increasingly relevant artificial intelligence (AI), have enormous transformative potential. The banking sector is not immune to this evolution and strives to adapt by incorporating technological innovations that enable greater efficiency. How can a supervisory authority effectively fulfill its mandate in a constantly changing and increasingly complex financial environment?

Technological innovation applied to supervision—Suptech—can help us address this challenge.

The exponential growth of technology has created new opportunities for supervisory authorities to become more proactive and efficient in their roles.

In recent years, the term Suptech has become widely used to refer to the adoption of innovative technologies (primarily artificial intelligence) by supervisors in the exercise of their functions (Prenio et al., 2019). The recent advances in artificial intelligence make this path even more compelling.

One of the most important aspects in developing truly useful tools for supervisors is the creation of Suptech strategies or roadmaps (Prenio, 2024). This document reviews best practices in this regard.

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CORE PRINCIPLES FOR DESIGNING A SUPTECH ROADMAP

The following principles are intended to serve as a reference for banking supervisory authorities to develop their own Suptech roadmaps.

An effective Suptech roadmap should observe the following principles:

1. **GOVERNANCE.** The supervisory authority should design and implement a governance structure to identify needs, prioritize and allocate resources, and assess progress. Additionally, this governance should articulate collaboration with other stakeholders within the institution. Key elements of this governance include a high-level sponsor, a committee for strategic decision-making, and Suptech function leaders who report regularly to the aforementioned bodies.

2. **LIFECYCLE.** The supervisory authority should integrate supervisors and data throughout all phases of the Suptech tools' lifecycle, from ideation to deployment. The stages involved in the development of Suptech tools include needs identification, prioritization in resource-constrained environments, development and production, and outcome evaluation within a continuous learning process.

3. **MULTIDISCIPLINARY TEAMS.** The supervisory authority should establish multidisciplinary Suptech teams, given the need for a wide range of expertise to successfully develop tools and maximize the value of data. Such teams may include experts in accounting, finance, risk, advanced statistics, or data science.

4. **SUPERVISORY NETWORK.** The supervisory authority should foster a culture of innovation by creating a network of supervisors interested in Suptech. In line with the previous point, this network should include staff from different areas within supervision, providing a multidisciplinary perspective (supervisors, data scientists, model experts, etc.).

5. **TOOLS.** For the creation of new tools, the supervisory authority should adopt a holistic approach that considers systemic risks, supervisors' needs, and the emergence of innovative technologies that facilitate supervisory processes. Furthermore, for the successful deployment of these tools, the authority should monitor their use, ensure proper accessibility, and integrate them into supervisory processes.

6. **TRAINING.** The supervisory authority should ensure that supervisors, including new hires, receive training in data science and artificial intelligence. This training should not only facilitate the creation and use of Suptech tools, but also support supervisory activities over financial institutions that are increasingly leveraging such techniques. The training program should consider different levels of proficiency, record and catalog training elements according to these levels, and define objectives and learning assessment metrics.

7. **INTERNATIONAL COLLABORATION.** The supervisory authority should promote collaboration with other authorities and participate in international supervisory forums that encourage the development of Suptech tools. Such interaction allows for sharing experiences with other supervisors working on similar topics, identifying best practices, learning from others' mistakes and challenges, and understanding key findings.

PRECONDITIONS FOR THE IMPLEMENTATION OF THE CORE PRINCIPLES

The prerequisites that banking supervisory authorities must observe to successfully implement the aforementioned principles are outlined below:

1. Senior Management Involvement, Commitment, and Sponsorship

The senior management of the banking supervisory authority must actively support technological innovation and clearly endorse the use of innovative technology by supervisory authorities to improve the quality, effectiveness, and efficiency of their work.

Ideally, this motivation should be reflected in high-level strategic plans. The integration of new technologies into supervisory activities should be considered a priority. This reinforces the allocation of necessary human and technological resources to the project.

The commitment, involvement, and sponsorship by the management and senior leadership of the supervisory authority are fundamental for the creation of a Suptech roadmap. Management must visibly support and value the use of new technologies. Senior leadership and heads of different areas must recognize that the use of new technologies enhances the efficiency of supervisory work.

Furthermore, this involvement must be cross-functional, as it requires collaboration among various stakeholders in banking supervision and other areas within the institution.

2. Data

Data is a key asset and an essential prerequisite for implementing an adequate roadmap. Supervisory authorities have access to a vast amount of data that must be considered to fulfill their function. New technologies rely on this information to help supervisors derive the greatest value from the data.

Supervisory authorities primarily use structured and aggregated information periodically submitted by supervised entities. Ideally, the authority also requests granular data from entities, for example, in the area of credit risk. The greater the granularity and historical depth of the information, the better the analyses that can be performed. Additionally, there is a large volume of unstructured information submitted by entities, as well as other information obtained from internal or external sources, whether in text format or other media such as images.

Thus, supervisors receive a continuous flow of information. Suptech tools are integrated into an ongoing process of maximizing the informational value of data. In this way, new technologies assist supervisors in obtaining useful information for decision-making processes.

It is important to highlight the significance of a robust data strategy and governance. There must be a clear assignment of data ownership, definition of the data lifecycle, information storage strategy, and classification according to confidentiality criteria, for example. All of this helps prevent unjustified information silos. Moreover, data quality is a crucial step in data science in general and in Suptech in particular.

In accordance with the applicable confidentiality principles, information should be stored in an environment accessible to authorized personnel, with appropriate tools for its exploitation.

3. Vision and Strategy

The vision should emphasize the interaction between two fundamental aspects: supervisors and data. The use of innovative technologies fosters the virtuous cycle created between them. Thus, the purpose of a Suptech initiative is to help supervisors transform the vast flow of data into useful information for decision-making, thereby improving the quality, efficiency, and effectiveness of the supervisory function (Puig & Tarancón, 2023).

Once the vision is defined, the senior management of the banking supervisory authority must establish a strategy to support the achievement of objectives. The strategy should contain clear and measurable objectives that create value for supervisors. To this end, tangible elements must be defined to evaluate the degree of achievement of the strategy, for example, by breaking them down into more specific tasks, with assigned responsibilities and deadlines.

While the strategy is usually defined for the medium term (four or five years), the creation of a Suptech roadmap operationalizes the general strategy over a shorter period, for example, two years, given the rapid advancement of new technologies, in a process of continuous adaptation and improvement.

To achieve the proposed objectives and obtain the necessary consensus to successfully incorporate new technologies into the supervisory function, there must be clarity in the objectives and institutional priorities of the supervisory authorities. Furthermore, these objectives and priorities must be widely communicated to all staff members of the institution. Specifically, clear and transparent internal communication helps prevent employees' concerns about their work being automated, losing value, or disappearing.

CORE PRINCIPLES FOR DESIGNING A SUPTECH ROADMAP

This section outlines the basic principles that can serve as a reference for the design of a Suptech roadmap by banking supervisory authorities.

1. Governance

Since the pillars of the Suptech strategy are cross-cutting and therefore require collaboration among various stakeholders within the supervisory authority—including areas such as information systems—it is important to establish a governance structure to coordinate these relationships, identify needs, prioritize and allocate resources, and evaluate progress.

The specific organizational structure designed by each authority may vary depending on the case. One option is to assign internal teams to a Suptech unit within the supervision area, which could collaborate with the IT or technology department and/or external parties. Another possibility is to create a decentralized structure with several nodes coordinated by a central unit.

In any case, the following elements should form part of Suptech governance:

- **Sponsor**: A high-level executive responsible for driving and resourcing the Suptech initiative.
- **Suptech Committee**: A group of senior management leaders tasked with making strategic or significant decisions, based on proposals from the Suptech function leaders and aligned with the strategic objectives.
- **Suptech Function Leaders**: Responsible for updating the Committee on Suptech milestones. A good practice is to prepare periodic monitoring reports.

2. Lifecycle

A good practice is to integrate both data and supervisors throughout all stages of the tools' lifecycle—from ideation to implementation. Data, in terms of availability and quality, and supervisors, as end-users, must be central to tool development.

The different phases of the tools' lifecycle should include at least the following components:

- **Identification**: A clear process for identifying needs contributes to the development of tools that have an impact on supervisors and improve the performance of their function. This process should involve all stakeholders, from the senior management of the supervisory authority to the network of supervisors interested in Suptech. Needs can be identified through surveys circulated among supervisors to gather their requirements.

  There should also be a backlog inventory with proposals for development, tools under development, and those already in production.

- **Prioritization**: In a resource-constrained environment, senior management must establish prioritization criteria. These should include not only functional needs but also technical feasibility. In some cases, piloting new technologies through proof-of-concept initiatives may be worthwhile for gaining confidence and discovering new opportunities.

- **Development and Production**: As previously mentioned, collaboration models may vary depending on the authority's context. The factors for successful tool deployment will be discussed later.

- **Evaluation**: This is a fundamental phase as well, and will be addressed in the section on successful tool deployment. Suggestions for tool improvement should be considered, and tools that prove unsuccessful should be retired. This is a continuous learning process.

3. Multidisciplinary Teams

One of the key aspects of supervision is the use of granular datasets and the need for diverse expertise (e.g., accounting, finance, advanced statistics, or data science). Therefore, multidisciplinary teams are essential to fully leverage this data "treasure," (Puig and Tarancón, 2023).

The formation of such teams has fostered innovation among many supervisors, resulting in the development of tools to address specific needs. One of the initial tasks should be to inventory the tools created within the organization, as they may serve other purposes as well.

Due to the nature of Suptech tools, their development requires collaboration across departments. While identifying needs typically falls under supervision, tool development may be carried out within the supervision area, the IT department, or a middle-ground unit. In any case, strong collaboration among all is critical. Ideally, this should be formalized through agreements. Another good practice is to share created tools with other departments and to develop joint tools (Packard and Prenio, 2023).

4. Creating a Network of Supervisors Interested in Suptech

Another best practice for fostering an innovation culture is the creation of a network of supervisors interested in Suptech (BdE, 2021). Ideally, these groups should include staff from various areas within supervision, with a multidisciplinary perspective (supervisors, data scientists, modeling experts…).

Such a network can:

- Help build the inventory of innovative tools, as discussed earlier.
- Receive supervisory needs for new tools or suggestions for improving existing ones.
- Discuss the Suptech strategy and roadmap to gather user insights.
- Serve as a forum for live demonstrations of tools and to provide feedback on developments.

Additionally, representatives from other interested departments, such as the IT department, may be invited formally or informally (Packard and Prenio, 2023).

5. Tools

A key success factor for the Suptech initiative is not only ensuring the right tools are built, but also ensuring their successful deployment (Prenio, 2024).

Development of New Tools

Research into new tools should holistically consider:

- Risks within the financial system
- Supervisory needs
- Emergence of innovative technologies that facilitate supervisory processes

Flexibility is essential to adapt to future changes in the financial system. In particular, it is considered good practice to maintain a backlog of tools proposed for future development. The governance mechanism will be responsible for prioritizing among them (Packard and Prenio, 2023).

Another good practice is agile development of pilots or proof-of-concept projects to assess their usefulness and technical feasibility.

Success Factors for Deployment

A core goal of the Suptech initiative is for tools to have a critical impact. To achieve this, successful deployment and widespread adoption within the organization are essential (Prenio, 2024). Best practices include:

- **Monitoring tool usage**: Mechanisms can be designed to evaluate usage and improve tools accordingly. When quantifying use is difficult, "success stories" can describe qualitative usage. This information should be considered within Suptech governance (Banco de España, 2024).
- **Ensuring accessibility**: Special attention should be paid to the user interface and unified access through a single portal (Packard and Prenio, 2023).
- **Integration into supervisory processes**: Every Suptech tool should document its supervisory use, target users, and data sources. This should be included in the tool's documentation as well as in related training materials (Prenio, 2024).

6. Training

Training in data science and artificial intelligence is crucial for supervisors—not only to help create and use Suptech tools, but more importantly, to enhance supervisory capabilities. As financial institutions increasingly use these techniques, understanding them is essential for effective oversight.

A specific training program in data science and Suptech tools should include:

- Definition of learning levels (e.g., basic, intermediate, advanced), with tailored content and learning paths for each.
- Clear objectives, evaluation metrics, and tracking mechanisms tailored to each supervisor profile. For instance, surveys could gauge supervisors' knowledge and interests in these topics.
- Inventory and classification (by level) of training resources, whether developed in-house or provided by consultants or e-learning platforms.

- Inventory and definition of which staff groups should complete each training path. For example, most users could take a basic digital literacy and common tools course, while intermediate and advanced programs would be more selective.
- Integration of relevant training content into onboarding courses for new supervisors, depending on their role.
- Recorded sessions and compiled materials should be made permanently available to all supervisors.

7. International Collaboration

Today, many international supervisory forums promote Suptech tool development. These forums enable supervisors to leverage others' work, identify best practices, and learn from others' mistakes.

Best practices include:

- Creating an inventory of activities through which to gather or share best practices (e.g., working groups, partnerships, academies, seminars, institutions, publications).
- Active participation in international supervisory forums (e.g., BIS Innovation Hub or ASBA).
- Identifying leading authorities in high-synergy tools, such as natural language processing or geolocation.
- Sharing tools with other authorities and publishing technical papers that describe the tools, development challenges, and key insights.

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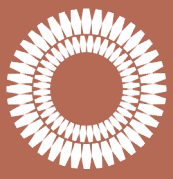

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