

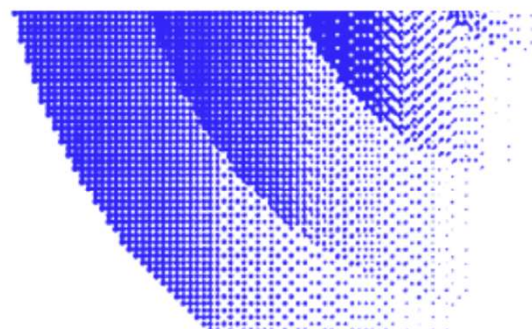
ANTICIPATE

IDENTIFY

DELIVER

FOR A FRANCE
READY TO FIGHT
EMERGENT
INFECTIOUS DISEASE
IN A BORDERLESS
WORLD

BCF2i FRENCH INFECTIOUS DISEASE BIOCLUSTER



A NEW MODEL FOR A NEW WORLD

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INCREASE RISK OF EPIDEMICS & PANDEMICS

- Increase in the emergence of infectious diseases, mostly zoonoses
- Increase in the emergence of resistance to antimicrobial agents (AMR)

IDENTIFY

COVID-19: VULNERABILITY OF OUR HEALTH SYSTEM

- Need to actively anticipate the profiles of future emerging infectious diseases and response for their control

CREATION OF A FRENCH BIOCLUSTER FOR INNOVATION IN INFECTIOUS DISEASES (BCF2i)

DELIVER

PROVIDE NEW SERVICES & PRODUCTS TO THE MARKET

- Catalyst of collaborations and innovations
- Ecosystem with an integrated incubator
- Independent, pragmatic and agile structure



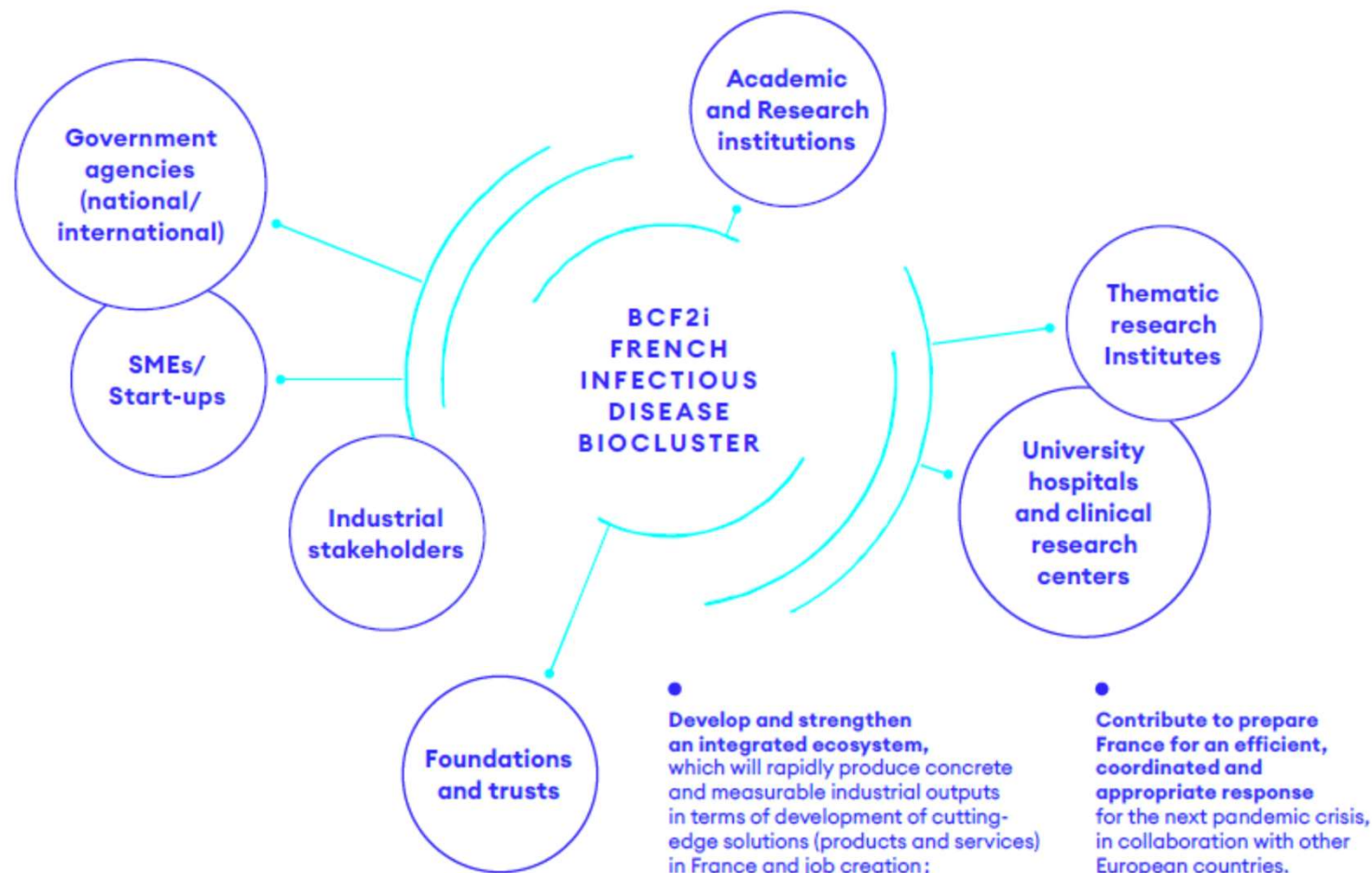
One Health

• Fully integrated in the national acceleration strategies for emerging infectious diseases and biomanufacturing initiative

• Comprehensive public and private partnership

• Breaking down historical silos

AN INNOVATION ECOSYSTEM IN CAPACITY TO GATHER, BUILD AND DEVELOP UNIQUE SOLUTIONS



Activate a powerful community from innovation to manufacturing

•
Cornerstone of an ambitious strategy against emerging infectious diseases

•
Strong connection to the main european health networks and key international organisations

CREATE A SCIENTIFIC AND INDUSTRIAL ACTIONABLE FRAMEWORK



Support for
Epidemiological
surveillance and
monitoring tools

Pathogen X
and AMR
monitoring

Development
of diagnostic
strategies
and tests

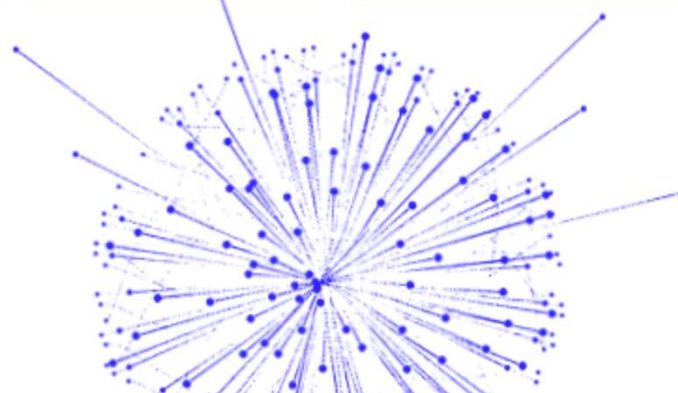
Development
of new
vaccines

Development
of treatments

ANTICIPATE

IDENTIFY

DELIVER



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BCF2i



Implement a dual
innovation process

- Competitive intelligence & continuous mapping
- Support crisis simulations existing processes
- Enhance and densify french biological entrepreneurial community

NEW AVENUES AND FAST ACCESS TO THE MARKET

STUDIES OF VIRUS-HOST-VECTOR INTERACTIONS

- The International Research Center for Infectious diseases (CIRI)
- Inserm and Jean Mérieux P4 Laboratory
- Major research platforms (Labex Ecofect, InfectioTron...)
- Universities and centers of excellence (Lyon I, INP, Mines Saint-Etienne, Polytech, ENS Lyon)

- Institut Pasteur
- Université Paris Cité
- Veterinary approach and comparative medicine (INRAE, VetAGroSup, HUB_VPH)

- ANSM
- ANSES
- ANRS – MIE
- WHO

EPIDEMIOLOGICAL SURVEILLANCE

- 3 National Reference Laboratories for zoonoses
- 7 National Reference Centers for Communicable Diseases
- Aurobac
- MIAI Grenoble Alpes Institute

CREATION AND SUPPORT OF NEW COMPANIES, ACCELERATION OF PROJECTS

- Lyonbiopole

BCF2I FRENCH INFECTIOUS DISEASE BIOCLUSTER

DEVELOPMENT OF DIAGNOSTIC METHODS

- CEA Leti
- RHU IdBioRIV research program
- bioMérieux

- Université Paris Cité
- BioAster
- Institut Pasteur

DEVELOPMENT OF PREVENTIVE AND THERAPEUTIC APPROACHES

- Pharmaceutical manufacturers
- Research programs

EUROPEAN AND INTERNATIONAL STAKEHOLDERS

- HERA
- WHO
- GIHSN
- Mérieux foundation network
- Institut Pasteur network
- Bill and Melinda Gates Foundation
- Wellcome Trust
- Jean Mérieux P4 network

- IABS, international consensus on practice in vaccinology and biotherapeutics
- Large network of SMEs (Fab'entech, Osivax, Fareva, Nexbiome, Seqens, Nosopharm, Novasep, ABL, erytech, Cynbiose...)
- Clinical investigation centers (CHUs, APHP, HCL)
- Finovi
- Industrial partners: BD, Evotec, Sanofi, Boehringer Ingelheim
- Vaccinology Clinical Investigation Centre



Fast track

• **Regulatory**

• **Global approach**

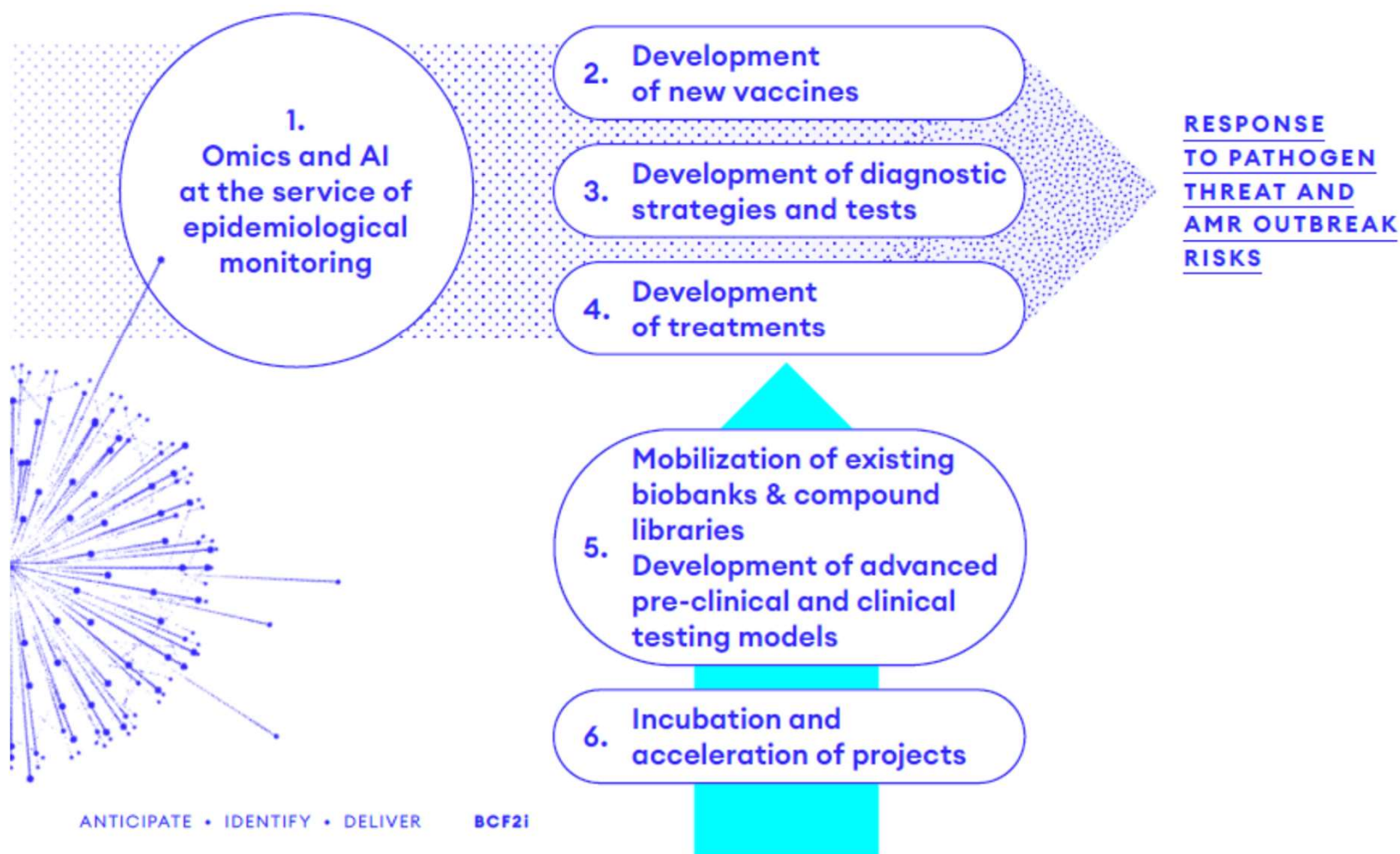
• **Partnerships**

• **International network**

• **Result oriented**

• **North/South perspective**

SIX INTEGRATED PLATFORMS TO DELIVER BREAKTHROUGH INNOVATION



Six decentralized platforms to support breakthrough innovation

• Pragmatic approach based as much as possible on existing capabilities

• Development of innovative and top-notch solutions

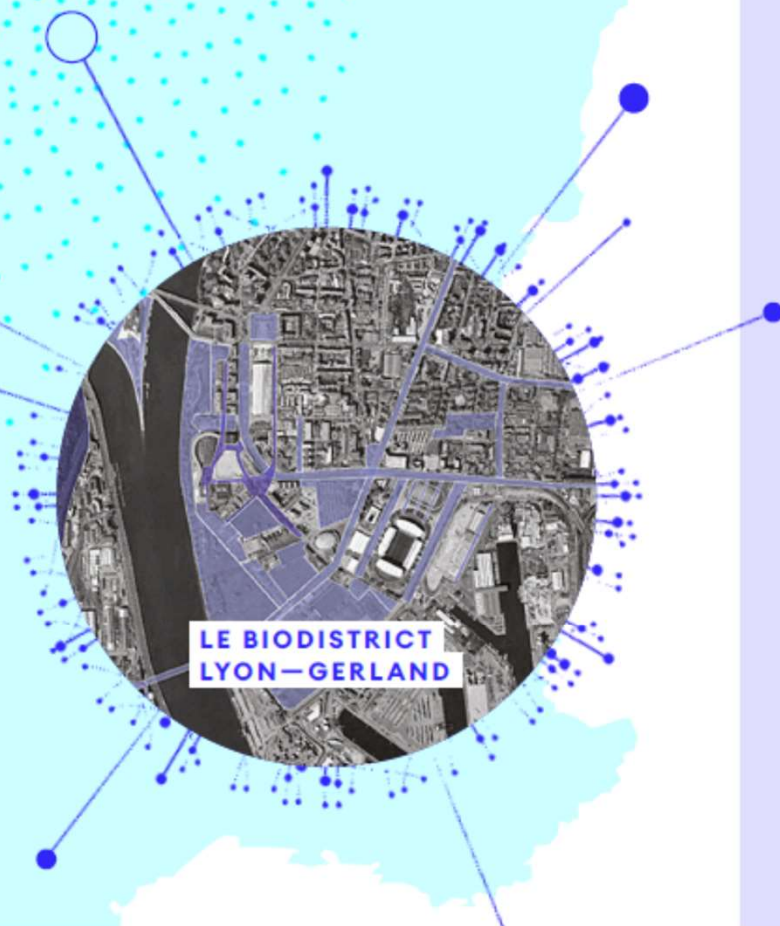
• Innovative “enablers” to accelerate and improve the development of solutions

6 technology platforms to catalyze innovative projects, bring products and services to market and become “attractiveness markers” in the region

#	Title of the platform	Description of the platform
1	Omics and artificial intelligence at the service of epidemiological monitoring	<ul style="list-style-type: none"> – Acceleration platform for artificial intelligence in epidemiology and infectious diseases – Use of existing surveillance data to identify pathogens at risk (emerging and resistant) and possible vaccine strains
2	Innovative development and evaluation strategies new vaccines including personalised medicine	<ul style="list-style-type: none"> – Development of delivery systems for vaccine antigens – Development of predictive models of reactogenicity, immunogenicity, identification and exploitation of companion biomarkers
3	Innovative and rapid diagnostic methods	<ul style="list-style-type: none"> – Acceleration Platform for Emerging Pathogen X and AMR Diagnostic Tools – Innovation platform and development of diagnostic tests – Standardised, automated, high-throughput tools with targeted or non-targeted approaches and associated bioinformatics analyses
4	Targeted therapeutic response to an identified pathogen	<ul style="list-style-type: none"> – Multimodal referral platform: as soon as a new target is discovered, to direct the teams to the most suitable new molecule discovery platform(s) (gene therapy, mab, ADC, small molecules, phagotherapy)
5A	Strategy for the identification, assessment and upstream banking of "generic" therapeutic resources anticipating an emergence	<ul style="list-style-type: none"> – Pipeline of predictive models against pathogen X or antimicrobial resistance – Multi-therapeutic "Plug & Play" industrial screenings
5B	Instruments and technological tools for accelerating the innovation and evaluation of products and devices	<ul style="list-style-type: none"> – Preclinical <i>in silico</i>, <i>in vitro</i> and <i>in vivo</i> models to rapidly screen and test preventive, diagnostic and therapeutic solutions – Innovative clinical trial platform integrating <i>in silico</i> trials, artificial intelligence models (e.g. "digital twins")
6	Incubation and Acceleration Programme	<ul style="list-style-type: none"> – Creation or support of start-ups/small and mid-size companies in the development, production, clinical validation and marketing of products or services to combat infectious diseases

A FLAGSHIP BUILDING TO FOSTER CROSSFERTILISATION, HYBRIDATION AND EMERGENCE OF START-UP

Biodistrict Lyon-gerland is a unique place gathering not only headquarters of worldwide leaders and multiple biotech Sme's and start up but also universities, academic research centers, WHO agencies or bio manufacturing sites.



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LARGE SET OF RECOGNIZED
TRAINING INSTITUTIONS IN LYON
AND PARIS, SPECIFICALLY IN
INFECTIOUS DISEASES TRAININGS:

110
TRAINING
COURSES

more than
12,000
STUDENTS IN HEALTHCARE

+ de
5 000
EMPLOIS EN SANTÉ
ET BIOTECHNOLOGIES

1^{er}
INSTITUT
DE RECHERCHE
TECHNOLOGIE
SANTÉ
Bioaster, dédié
à la recherche
en infectiologie
et microbiologie

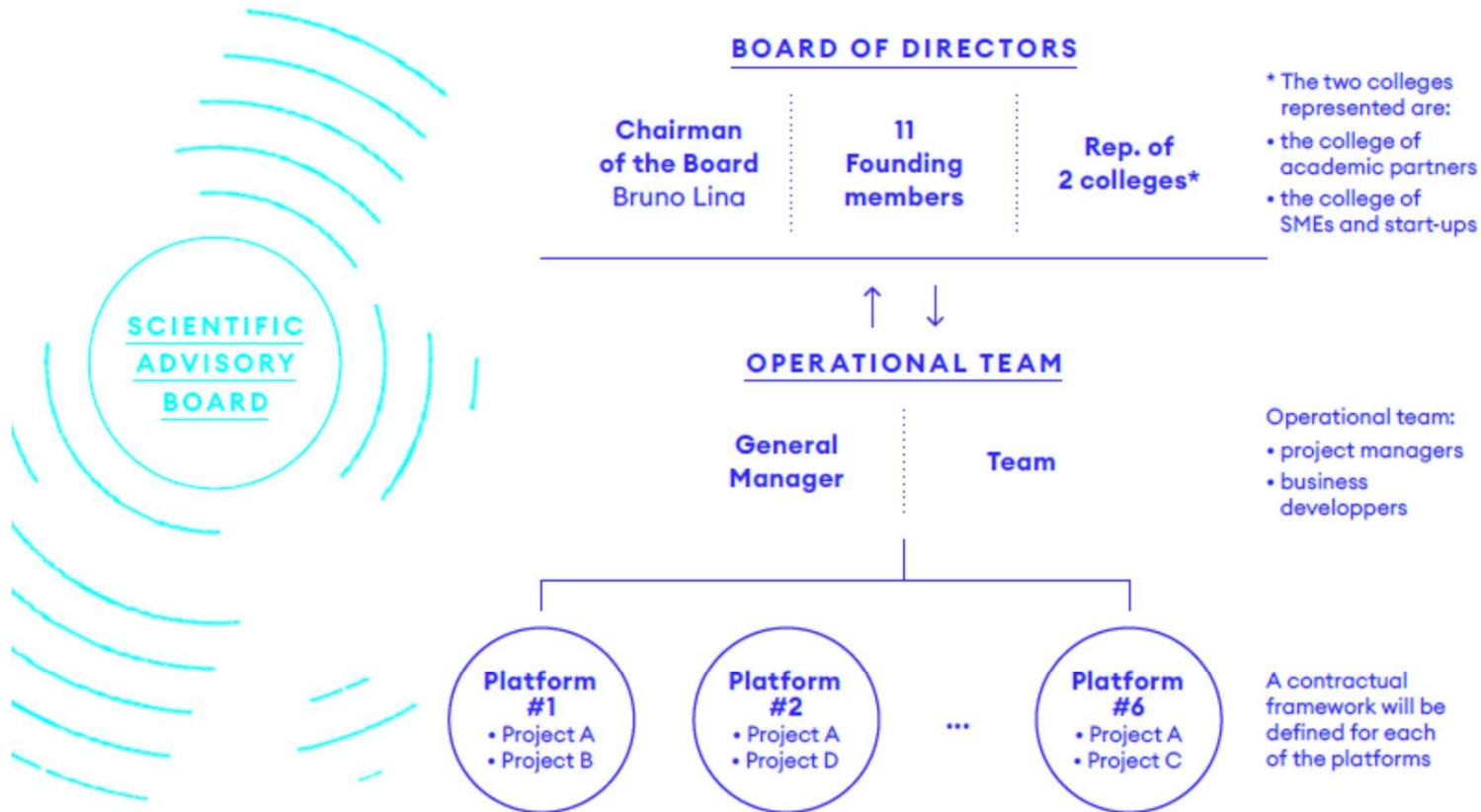
2750
CHERCHEURS

50
ACTEURS
MAJEURS
dont des
leaders
mondiaux

INTERNATIONAL
INSTITUTIONS
AND FACILITIES
CIRC (WHO),
Academy (WHO),
Laboratory P4

1^{er}
PÔLE SANTÉ
FRANÇAIS
Lyonbiopôle,
animateur de
la filière santé
en Rhône-Alpes

LIGHT, AGILE, REACTIVE AND GENDER BALANCED GOVERNANCE



↓

COMMITTEES:

- Ethical committee
- +
- Crisis management committee
-
- Managed as a non profit organisation (association loi 1901)

MAJOR PUBLIC HEALTH THREAT: MOBILIZATION OF TOP LEADERS FOR A SIGNIFICANT WORLDWIDE IMPACT

FOSTER THE EMERGENCE OF NEW PRODUCTS AND SERVICES BY DEVELOPING COOPERATION BETWEEN STAKEHOLDERS

- Stimulate trans- and multi-disciplinary cooperation with a One Health perspective
- Acceleration of market access for innovative products and services

ANTICIPATE

MAKE FRANCE A LEADER IN THE FIELD OF EMERGING INFECTIOUS DISEASES AND THE FIGHT AGAINST MULTI- RESISTANT BACTERIA

- Industrial leadership in this field with emergence of new players
- Quick access to solutions in the likely event of a new pandemic

IDENTIFY

- Elimination of barriers that hinder the innovation process

DELIVER

PRESENTATION TEAM

**FLORENCE
AGOSTINO-
ETCHETTO**

CEO
Lyonbiopôle



**CHRISTOPHE
D'ENFERT**

**Senior Executive
Vice-President Science
Institut Pasteur**



**FRANÇOIS
LACOSTE**

Doctor
bioMérieux



**ALEXANDRE
LE VERT**

**Co-founder
& CEO**
Osivax

BRUNO LINA

Professor
Hospices
Civils de Lyon
Claude Bernard
Lyon 1 University



**PHILIPPE
SANS**

**Chairman
Lyonbiopôle
Deputy Chief
Executive Officer
Institut Mérieux**



**YAZDAN
YAZDANPANAH**

President & Professor
ANRS Emerging
Infectious Diseases/
Inserm

