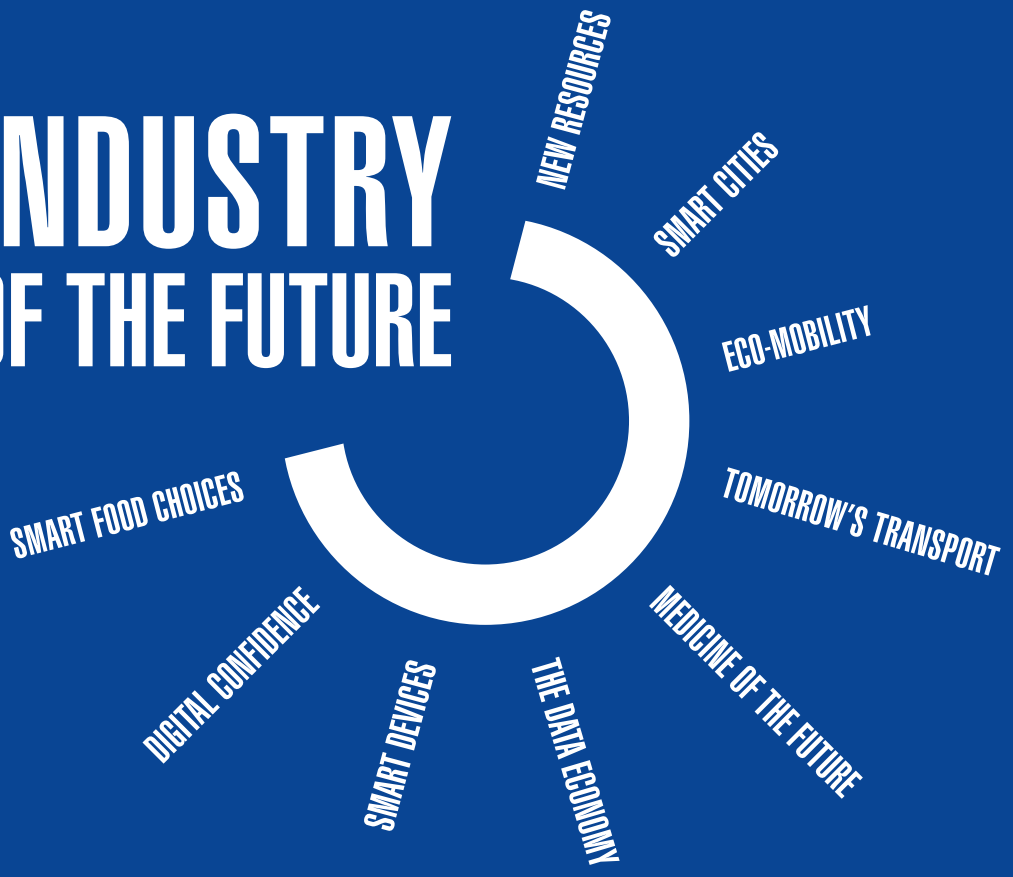
INDUSTRY OF THE FUTURE



Rallying the «New Face of Industry in France»

Press pack
18 May 2015

Liberté · Égalité · Fraternité
RÉPUBLIQUE FRANÇAISE
Le Gouvernement

EDITORIAL

Towards the industrial renewal of France: accelerate deployment of the Industry of the Future and the nine industrial solutions in France and internationally

The 34 priorities of the New Face of Industry in France programme launched in 2013 identified a road map for the industrial renewal of our country. But to accelerate this industrial renaissance, it is vital to clarify their thrust, make them more attuned to the expectations of consumers and give them a more international focus. The second phase of the programme that I am launching today is intended to achieve these goals. Acting alongside the project leaders, we have decided to introduce new momentum and a new organisational structure.

New momentum, first of all, by organising nationwide efforts around the Industry of the Future. Concretely, this will mean investing more and better by encouraging companies to modernise their production base and use digital technologies to transform their business model. The challenge is to forge a more connected, more competitive industry, more responsive to customers' needs and more respectful of its environment and workforce. With the exceptional measures announced at the beginning of April to boost investment, the public authorities have committed massive resources in support of this goal. Now, industrial companies must come to grips with the over-riding priority, the Industry of the Future: this is the mission of the Alliance they have decided to create. The National Council for Industry (CNI) and employee trade unions will be fully associated with its action: upskilling the industrial workforce and training our young people will be a crucial and essential driver of France's new ambitions.

The second phase of the New Face of Industry in France also introduces a new organisational structure revolving around development of new concrete solutions in France. With the opportunities offered by digital technologies, having the best product or service is no longer enough to win market share – you also need to propose solutions that bring products and services together and provide practical and coherent responses to the big challenges of the future. How, for instance, can we offer safer, more ecological and affordable transport solutions? How can we help our country achieve leadership in the Internet of Things and the whole panoply of services associated with them? How can we integrate medical and digital innovation to provide better healthcare at lower cost?

To meet these needs, we will consolidate the list of priority initiatives. The idea is to capitalise on the momentum and the advances made in the first phase. The project leaders and their teams have achieved remarkable things; we are counting on them to continue with the same enthusiasm, but in a new configuration – a configuration that will more directly address the needs and the markets, raise international visibility of our strengths and enable more effective management of the overall programme.

New momentum and a new organisational structure: we are counting on all our industrial partners to translate this second phase of the New Face of Industry in France programme into concrete actions. They must be bold, innovate, take risks and give free rein to their ambitions, in other words: invest. Our country needs them. In return, they can rely on the unwavering support of the public authorities.

CONTENTS

INDUSTRY OF THE FUTURE

Modernise our production base

**Support use of digital technologies
to transform our companies' business models**

INDUSTRY OF THE FUTURE THE MATRIX OF OUR INDUSTRIAL STRATEGY

The Industry of the Future project launched by the President of the Republic on 14 April will play a central role in steering the second phase of the New Face of Industry in France programme. It aims to encourage all companies to modernise their production base and use digital technologies to transform their business models.

Industry of the Future is based on a **broader ambition** capitalising on the gains achieved in the «Factory of the Future» plan. Over and above modernisation of the production base, the idea is to help companies transform their business models, organisational methods and design and marketing approaches in a world where digital tools are breaking down barriers between industry and services.

At the heart of this transformation are the men and women who contribute every day to this great industrial adventure. With the involvement of the social partners and the National Council for Industry (CNI), human capital and the issue of training are a core component of this project, which has become the matrix of France's industrial renewal.

THE INDUSTRY OF THE FUTURE PROJECT IS BUILT ON FIVE PILLARS

DEVELOP CUTTING-EDGE TECHNOLOGIES

HELP COMPANIES ADAPT TO THE NEW PARADIGM

EMPLOYEE TRAINING

STRENGTHEN INTERNATIONAL COOPERATION AROUND STANDARDS

PROMOTE THE FRENCH INDUSTRY OF THE FUTURE

Develop cutting-edge technologies

The Industry of the Future project will support companies developing major projects in markets where France could achieve European or even global leadership in the next three to five years:

- **Additive Manufacturing:**

  Our strengths: high-level research in materials and digital processes, fast-growing 3D printer producers such as Prodways and BeAM and major clients ready to make the transition e.g. in the aerospace sector

- **The Virtual Plant and the Internet of Things:**

  Our strengths: a strong position in digital design and production process software with champions such as Dassault Systèmes and ESI Group

- **Augmented Reality:**

  Our strengths: the presence of several technology champions such as Artefacto, Diotasoft, Laser Technologies and Optinvent, backed by big industrial players keen to acquire these solutions

We will also be developing a network of regional platforms to enable companies to pool and test new technologies and train their workforce to use these new tools.

Financing
Within the «Invest for the Future» programme, €305m in subsidies and repayable loans under the PIAVE (promising industrial projects) initiative and €425m from the SPI (industrial project companies) fund could partly finance this ambition.

SEPTEMBER 2015
Launch of a first call for proposals for Industry of the Future technologies

JANUARY 2016
Creation of an Industry of the Future technology platform enabling industrial companies to test and validate cutting-edge automation and digital production technologies

Help companies adapt to the new paradigm

Personalised support

Regional platforms will offer audits to industrial SMEs and mid-tier firms, with the support of the Alliance for the Industry of the Future. Based on a shared database, awareness-raising campaigns will reach 15,000 companies and 2,000 of them will be supported over the next two years. Some 200 to 300 experts will be trained to certify innovative projects at the national level.

Financial support

The Prime Minister has announced two exceptional measures to support companies keen to modernise their production base:

- **€2.5bn in tax incentives** for companies investing in their production base over the next 12 months
- **€2.1bn in loans** earmarked by Bpifrance for SMEs and mid-tier firms over the next two years: these additional development loans will supplement the €1.2bn already made available to companies investing in Industry of the Future projects (digitization, robotics, energy efficiency, etc.)

JULY 2015

Publication of the brochure presenting the public support mechanisms, produced in regional versions

FOURTH QUARTER OF 2015

Publication of a national Industry of the Future database aimed at all industrial SMEs, policy-makers and international investors

END 2015

More than 500 industrial SMEs and mid-tier firms will have benefitted from personalised audits

END 2016

More than 2,000 industrial SMEs and mid-tier firms will have benefitted from personalised audits

Employee training

Upskilling the industrial workforce and training the next generations in these new jobs are the first condition to ensure success of this project. They will support the growing use of digital and automation technologies in industrial plants, crucial for their competitiveness in many sectors and therefore, ultimately, for creation of jobs in France.

For this reason, the employee trade unions active in the National Council for Industry (CNI) will be fully associated with the programme, and more particularly with the training aspect, through two dimensions:

- **A forward-looking dimension** with the launch of interdisciplinary research programmes and chairs focusing on the Industry of the Future and the role of human beings in this new paradigm
- **An operating dimension** with formulation and implementation of initial and ongoing training responding to the challenges of the Industry of the Future

BEFORE THE END OF 2015

Launch of a first chair on the Industry of the Future

Promoting the Industry of the Future

To harness the energies of all industry players and highlight French know-how, several promotional actions will be engaged:

- **Launch of at least 15 emblematic projects** on a national or even European scale, by the end of 2016
- **Creation with the support of Business France** of a joint Industry of the Future banner to bring together all the industrial firms contributing to this ambition
- **Organisation of a major internationally visible event** around the Industry of the Future in Paris, led by the Alliance for the Industry of the Future, along the lines of the Hanover Fair

JULY 2015

Launch of a «pilot projects» group bringing together industrial players in the process of launching or having already launched an innovative Industry of the Future project, to share best practices and develop a unified communication approach

DECEMBER 2015

Official launch of the common identity of France's Industry of the Future project

SUMMER 2016

Organisation of a major European event around the Industry of the Future in Paris

Reinforcement of European and international cooperation

The Industry of the Future project will work to establish strategic European and international partnerships, in particular with Germany.

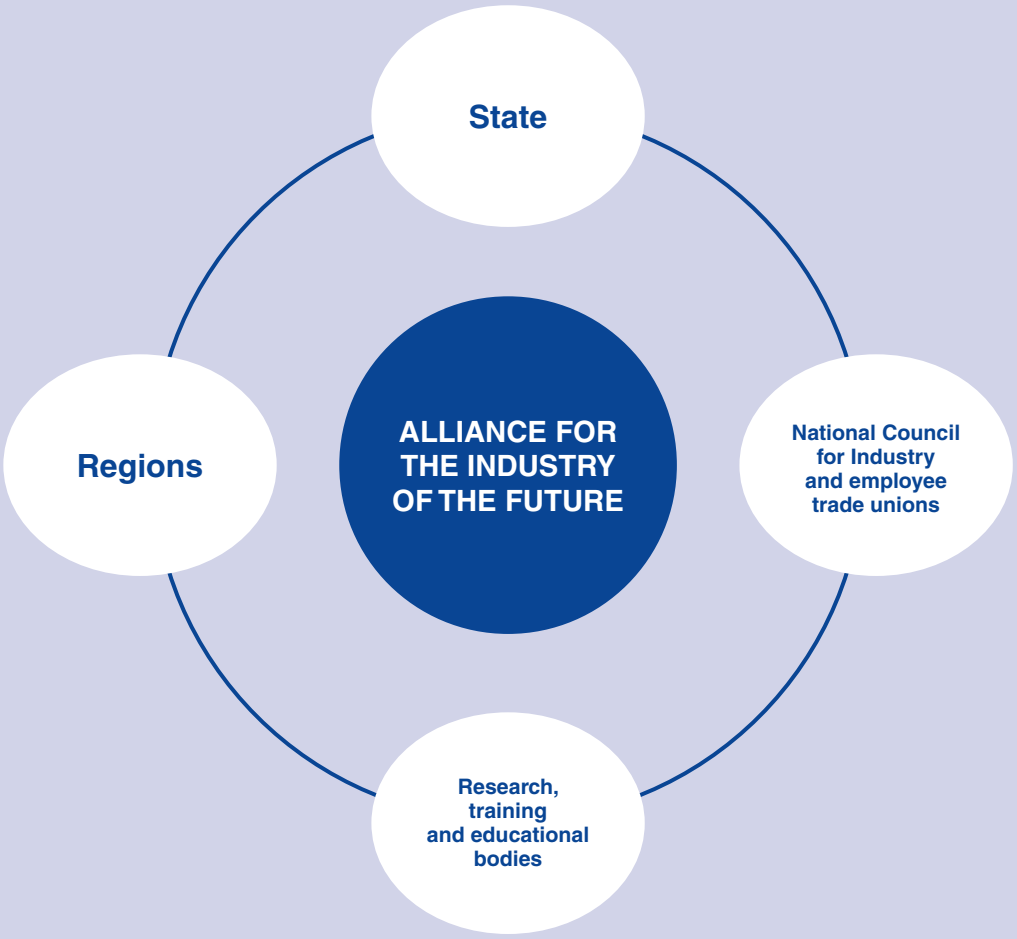
Cooperation on European and international norms and standards
On the European level, the Alliance for the Industry of the Future will:

- **Represent French interests** in European initiatives in the field of smart manufacturing and digitization of industry
- **Support French companies** responding to European «Horizon 2020» calls for projects
- **Strengthen France's influence** in the field of European standards, which will facilitate its deployment of the cutting-edge technologies developed

Technological cooperation with Germany
The scope and governance of the Industry of the Future project are designed to ensure a natural interface with the German «Industry 4.0» platform. This cooperation will take the form of joint pilot and technology development projects that will be presented in the framework of the European investment plan.

AUTUMN 2015
Launch of a partnership with the German «Industry 4.0» platform

FEBRUARY 2016
Publication of France's standardization strategy for the Industry of the Future



Alliance for the Industry of the Future

Co-chaired by two industry leaders
FRÉDÉRIC SANCHEZ,
President, Fives Executive Board
BERNARD CHARLES,
CEO, Dassault Systèmes

FÉDÉRATION DES INDUSTRIES MÉCANIQUES

AFDEL Les éditeurs de logiciels et solutions internet

Gimélec

INSTITUT Mines-Télécom

ARTS ET MÉTIERS ParisTech

Syntec NUMERIQUE

SYMOP MEMBRE DE LA FIM

UI Union des Industries et Métiers de la Métallurgie

cea

cetim

ALLIANCE FOR THE INDUSTRY OF THE FUTURE

Stronger governance to spearhead the Industry of the Future project

A partnership between industrial and digital stakeholders to oversee the project phases:

- **A non-profit association** co-chaired by Frédéric Sanchez, Chairman of Fives Executive Board, and Bernard Charles, the CEO of Dassault Systèmes, organised around a nucleus of industrial and digital players representing more than 33,000 companies and 1.1 million jobs: FIM, Syntec Numérique, AFDEL, Symop, Gimélec and UIMM
- **The participation of key players** in research (CEA and CETIM) and initial and continuing training (Arts et Métiers Paristech and Institut Mines-Télécom)
- **A partnership welcoming all trade unions**, federations and professional organisations keen to participate in this collective initiative to promote the Industry of the Future

An Industry of the Future steering committee chaired by the Minister of the Economy, Industry and the Digital Sector meeting every two months, bringing together:

- **Representatives of the Alliance for the Industry of the Future**
- **The National Council for Industry (CNI) and the five trade unions representing employees**
- **The public authorities**, with the Association of French regions (ARF) and State departments and agencies (DGE, CGI, Bpifrance, Business France, DGEFP)
- **A number of qualified individuals**, heads of French mid-tier firms and foreign companies operating in France

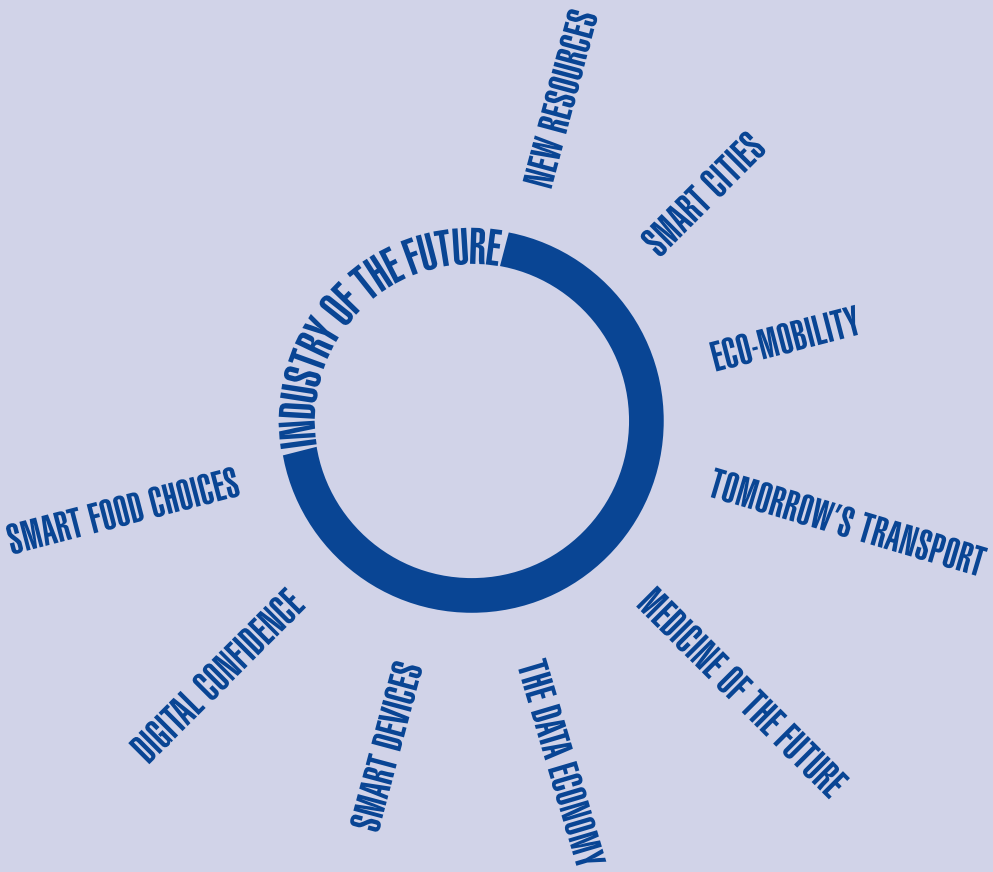
NINE FRENCH INDUSTRIAL SOLUTIONS

More directly address the needs and the markets

Acquire a stronger international dimension

More effectively manage the overall programme

Develop industrial solutions for nine priority markets



Supported by Strategic Sector Committees

New resources → Eco-industries, Chemicals-Materials, Extractive industries and primary processing
Smart cities → Eco-industries
Eco-mobility → Automobile industry
Tomorrow's transport → Aerospace, Rail and Naval
Smart food choices → Agribusiness
The data economy → Digital
Smart devices → Digital and Consumer goods
Digital confidence → Digital
Medicine of the Future → Health

A NEW ORGANISATIONAL STRUCTURE

Forge solutions to take positions
in the promising markets of the future

Considerable work has been done since launch of the New Face of Industry in France plans. Thanks to the mobilisation of their industrial leaders and the 250 companies involved, more than 330 projects have received €1.5bn in funding from the State, for a total investment of €3.7bn.

Building on the work already done by project leaders and the lessons learned from the strategic review of plans initiated by the Minister for the Economy, Industry and Digital Affairs, the second phase of the New Face of Industry in France programme is pursuing three objectives:

- **More directly address the needs and the markets** – the new architecture should allow a less compartmentalised, more holistic approach to propose solutions, i.e. integrated goods and services packages refocused on a more tightly knit selection of priority markets
- **Acquire a stronger international dimension** – the Business France agency, involved in the review of plans, will be mobilised to attract new investors in France and promote the New Face of Industry in France solutions outside France
- **More effectively manage the overall programme** – this regrouping of priorities will allow tighter, more responsive and more agile management of the programme. In a fast-moving world, our capacity to fine-tune the content of our solutions in response to changing needs will be crucial

These solutions will build on the advances made by the teams working on the 34 industrial plans over the last 18 months:

- **Business and industry leaders at the controls** – the role of industrial project leaders and their teams is confirmed; they will coordinate their work within groupings enabling a more pragmatic and operational approach
- **Support from the State** – a budget of around €3.4bn is still available within the «Invest for the Future» programme (PIA 2) to support projects leading to emergence of these new solutions
- **Renewed mobilisation of local ecosystems** – regular thematic work will be organised by the Ministry of the Economy, Industry and the Digital Sector to encourage broader participation by local players, particularly SMEs

They will benefit from the backing of the National Council for Industry (CNI) and the Strategic Sector Committees, both as concerns training for the new jobs and the regulatory changes required for their development.

A promising market

37% **GROWTH PREDICTED BETWEEN 2012 AND 2020**
in the bio-based products market (source: ADEME)

3% **OF WORLD PLASTICS PRODUCTION WILL BE BIO-BASED**
looking to 2015, with annual growth of over 10% as of 2017

3.5 **MILLION TONNES OF PLASTIC WASTE**
per year in France

France's strengths

4th **FOREST IN EUROPE**
abundant biomass resources

2nd **CHEMICALS SECTOR IN EUROPE**
growth of 2.9% in 2014

2nd **EUROPEAN PRODUCER OF BIOFUELS**

118,200 **JOBS IN THE WASTE RECYCLING**
and valorisation sector
(Eco-industries sector contract, 2013)

NEW RESOURCES

New bio-based and recycled materials
for all industries

A challenge for the future: how can we develop new ways of producing?

In the longer term, the increase in global consumption of resources is not sustainable. We need to find new - more efficient and more ecological – ways of producing. To develop a sustainable economy, we must identify better ways of using our resources involving, inter alia, recycling of products and materials, together with more efficient production methods.

Solutions for producing with new resources

The idea here is to foster the emergence of new solutions for new production methods based on more efficient processes, new materials, new energy sources and the circular economy.

- **Transform the production methods of chemical-sector companies** to make them cleaner, more resource- and energy-efficient and provide other sectors with solutions contributing to sustainable development
- **Develop use of plant-based resources**, to replace fossil energies by developing green chemistry and production of new-generation biofuels: the idea here is to capitalise on France's strengths in the farming and forestry sectors
- **Set up industrial installations capable of collecting, sorting and recycling the new materials**, in particular plastic, electronic and construction industry waste and carbon fibre waste

Project leaders

ANTOINE FRÉROT,
Chairman & CEO, Veolia

PASCAL BARTHÉLÉMY,
Executive Vice-President, IFPEN

Goals

- Double use of plant-based raw materials in the chemicals industry in France looking to 2020
- Creation of 5,000 direct jobs in the green chemistry and biofuel sectors looking to 2020
- Reduce volumes of stored waste (-30% looking to 2020 and -50% by 2025), with a non-hazardous waste recycling target of 55% in 2020 and 60% in 2025
- Creation of 20,000 jobs in France looking to 2020 by developing new waste sorting and recovery capacities (plastics, construction waste, carbon fibre, circuit boards, etc.)

Timetable of 2015 deliverables

SUMMER 2015

Financing of four or five emblematic projects in the field of green chemistry and bio-based resources

Presentation of possible changes in regulations to support development of the biofuels market

Adoption of the bill on energy transition for green growth

SEPTEMBER 2015

Publication of an order amending the index of classified installations and a decree defining maximum emission thresholds for solid recovered fuel (SFR) combustion installations

WINTER 2015

Proposal of a mechanism to support development of bio-based products by including these products in public procurement specifications

Support for some 10 industrial projects in the field of recycling and green materials

A promising market

67% **OF WORLD POPULATION LIVING IN CITIES IN 2050**
versus 52% today
6 billion city-dwellers in 2050

€1,500bn **POTENTIAL WORLD MARKET**
looking to 2020

€100bn **EXPORT POTENTIAL**
for French companies looking to 2020

France's strengths

10 **CAC 40 COMPANIES WORLD LEADERS IN THEIR SECTOR**
(GDF-SUEZ, Schneider Electric, EDF, Vinci, Unibail-Rodamco, Saint-Gobain, Lafarge, Legrand, Bouygues, Veolia Environnement)

5 **WORLD-CLASS INSTITUTES**
whose innovative projects contribute to smart city objectives: INEF4 (construction techniques), Efficacity (energy synergies for cities), PS2E (urban & industrial energy synergies), Supergrid (solutions for the grids of tomorrow), FCBA (wood and furniture)

NUMEROUS INNOVATIVE AND FAST-GROWING SMES
and cutting-edge research institutes

SMART CITIES

Resource-efficient cities,
from producer to consumer

A challenge for the future: how can we develop more resource-efficient cities?

Every day across the world, an area equivalent to the city of Paris (i.e. around 105 km²) is urbanised. This irresistible momentum confronts cities with new environmental challenges: combating global warming and urban sprawl, reducing energy consumption and managing waste are all crucial to development of smart cities keen to reduce their ecological footprint.

Solutions to develop products and services that will make our cities more sustainable

- **Develop more intelligent management of water and energy networks.** This could entail solutions aimed at better use of networks thanks to digital tools (smart grids) or improved treatment of resources from primary supply to recycling
- **Improve the energy performance of buildings and end-consumer practices**, through dissemination of innovative industrial techniques and new digital tools. This approach will also reinforce France's leadership in home automation
- **Increase the productivity, quality and sustainability of the construction sector**, notably by promoting use of bio-based materials

Project leaders

JEAN-LOUIS CHAUSSADE,
CEO, Suez Environnement Company

CHRISTOPHE CHEVILLION,
CEO, Environnement SA

DOMINIQUE MAILLARD,
Chairman of RTE

FRANCK MATHIS,
Chairman/CEO, Mathis SA

JACQUES PESTRE,
Senior Vice-President,
Saint-Gobain Distribution Bâtiment France (Point P)

MARCEL TORRENTS,
Chairman of the Executive Board,
Felta Doré

DOMINIQUE WEBER,
Chairman/CEO, Weber Industries

Goals

- 110,000 local, non-offshorable jobs looking to 2020: +75,000 jobs in energy renovation of buildings, +16,000 jobs in water management, +9,000 jobs in wooden construction and +10,000 jobs in smart grids
- High-value-added jobs to meet export ambitions in line with the target of €100bn in revenue looking to 2020

Timetable of 2015 deliverables

MAY 2015

Signature of the charter with the construction materials and equipment traders and wholesalers network to promote technological solutions for optimising energy performance in buildings and support upskilling of professionals

Launch of preliminary studies for the wooden building design architectural competition, with government support to finance the necessary studies, with the aim of proposing innovative, industry-ready building solutions

Launch of a call for expression of interest on the themes of wastewater treatment plants for smart cities, smart management of grids and resources and desalination processes utilising new modes of energy production

Signature of the convention between the State and the insurance compensation fund aimed at mobilising the €30m action programme budget for construction quality and energy transition

JUNE 2015

Launch of the Confluens project on interoperability of equipment guaranteeing comfort, safety and energy efficiency in smart homes

SUMMER 2015

Adoption of the bill on energy transition for green growth

BEFORE END 2015

Designation by the government of the site for large-scale deployment of smart grids by RTE and ERDF and launch of the project following the call for candidates launched on 13 April 2015

Creation of a network of experimental public-private platforms focusing on smart grids

A promising market

INCREASINGLY STRINGENT REGULATIONS EVERYWHERE IN THE WORLD
to reduce pollution and greenhouse gas emissions

€30bn ESTIMATED WORLD MARKET
for energy storage in 2030

France's strengths

WORLD-CLASS INDUSTRIAL PLAYERS
(Renault-Nissan, PSA, Valeo, Faurecia, Plastic Omnium, Michelin, Schneider Electric, Bolloré)

FOUR VERY ACTIVE PUBLIC RESEARCH INSTITUTES
(CEA), CNRS, IPFEN, IFSTTAR)
and a cohort of dynamic SMEs

350,000 EMPLOYEES
working for car manufacturers and parts suppliers

ECO-MOBILITY

Cheaper, greener, safer mobility
offering the widest possible range of options

A challenge for the future: how can we develop new mobility solutions offering a greener, cheaper and more enjoyable commuter experience?

City-dwellers want to be able to move around quickly, safely and cheaply while having the smallest possible impact on the environment. The shape of urban mobility is set to change gradually: our vehicles must become more economical, more connected and more autonomous to meet these user expectations.

Solutions to develop eco-mobility

- **Greener mobility**: although the most recent vehicles comply with increasingly stringent standards, the older models in use pose genuine problems in terms of air quality. The solution will come not only from electric vehicles, which require rapid deployment of a national charging network and ever-more effective energy storage solutions, but also from production of more fuel-efficient mass-market combustion-powered vehicles
- **More affordable mobility**: car owners spend an average of €1,350 per year on fuel, while only 45% of the French population have access to urban public transport. It costs only €2 to charge an electric vehicle. With rollout in 2020 of the mass-market car consuming less than 2 litres per 100 km, households' fuel budgets are set to halve
- **More enjoyable and safer mobility**: Paris region drivers spend 78 minutes a day in their car and 90% of accidents are due to human error. With the integration of automated management functions coordinated with changes in the regulations, this time could be more usefully allocated, with the added benefit of improved safety

Project leaders

FLORENCE LAMBERT,
Director, CEA Liten

GILLES LE BORGNE,
R&D Director, PSA

GASPAR GASCON-ABELLAN,
R&D Director, Renault

CARLOS GHOSN,
Chairman/CEO, Renault

FRANCIS VUIBERT,
State Prefect

Goals

- 20,000 additional charging points in the public domain by end 2016
- 30% reduction in CO2 emissions for new vehicles produced in France by 2021
- Creation of two industrial sites in France for the battery and hydrogen sector looking to 2017
- Creation of 8,000 to 25,000 jobs in France in the energy storage sector looking to 2030

Timetable of 2015 deliverables

JUNE 2015

Presentation of the Government's policy statement on development of the hydrogen energy sector following the interministerial mission to examine this theme

SUMMER 2015

Installation of the first of 16,000 charge points in the nationwide project led by the Bolloré group

First trials of the driverless car on the open road

OCTOBER 2015

World congress on intelligent transport (ITS Bordeaux), with, notably a demonstration of the latest international developments in driverless cars

AUTUMN 2015

Launch of one or two flagship projects to develop the technologies required to produce a mass-market car consuming less than 2 litres per 100 km

BEFORE END 2015

Launch of an industrial project on EV charging solutions to be delivered in 2030 (wireless inductive charging technology, in particular)

Launch of construction of a plant to supply active components for high-performance batteries

A promising market

3 - 5% **MEDIUM-TERM GROWTH WORLDWIDE**
in the transport industries

EVERYWHERE IN THE WORLD, PUBLIC POLICIES
to boost the environmental performance of transport

France's strengths

A strong aerospace industry

€40bn **IN REVENUE**
350,000 EMPLOYEES
€20bn trade surplus

A dynamic aircraft sector

61 **DRONE MANUFACTURERS**
and 1,300 declared operators
10 flight-certified airships

World's 3rd-largest rail industry

€6.6bn **IN REVENUE**
21,000 DIRECT JOBS
and 84,000 indirect jobs in subcontracting

TOMORROW'S TRANSPORT

Greener, more competitive transport of people and goods

A challenge for the future: how can we devise greener, more competitive solutions for transport of people and goods?

France has traditionally enjoyed a reputation for excellence in the field of transport and French and European champions still hold strong positions. But to retain this position in the face of growing competition from emerging industrial players, we need to reinvent modes of transport and propose innovative solutions combining ecological efficiency and economic competitiveness to respond to growing demand from the emerging countries.

Solutions to propose greener, more competitive products and services

- **More environmentally-friendly transport**: work on energy-efficiency challenges (a 50% reduction in consumption for the future TGV (high-speed train) and the ships of tomorrow), the growing electrification of technologies (today's eFan electric airplane is one of the building blocks for development of the hybrid airplane in 2030) and more efficient energy storage has reached varying stages of maturity in the different transport sectors. The «Eco-mobility» solution will allow better coordination of work around these challenges
- **More competitive transport**: to win market share and become part of the solution for tomorrow's transport, we must also guarantee the economic performance of the future TGV, environmentally-friendly ships and airships. The issue of cost optimisation must be integrated from design phase right through to marketing (notably as concerns the modularity of the solutions proposed), but also in production, in line with Industry of the Future objectives

Project leaders

Philippe BERTEROTTIÈRE,
Chairman/CEO, Gaz Transport & Technigaz (GTT)

JEAN BOTTI,
Technical Director, Airbus

JEAN-MARIE POIMBOEUF,
former chairman of GICAN

HENRI POUPART-LAFARGE,
CEO, Alstom Transports

ANDRÉ SOULAGE,
Senior Vice-President,
Pôle Pégase

Goals

- A 50% reduction in fossil energy consumption of ships and a halving of total environmental impact over the life cycle of vessels
- Sale of 80 electric-propulsion training aircraft a year after 2020
- Future TGV: 25% increase in capacity, 30% reduction in fares and 25% reduction in maintenance costs

Timetable of 2015 – 2016 deliverables

APRIL 2015

Choice of Pau as the production site for producing the eFan electric aircraft (Airbus subsidiary Voltair)

MAY 2015

Launch of the «ships of the future» call for projects, with a budget of €40m

Projects linked to developing use of liquefied natural gas or innovative intelligent bridge control and navigation systems are expected to emerge before the end of the year

JUNE 2015

Launch of a call for projects around innovative partnerships for a new high-speed train

Creation of a joint Alstom/ADEME venture to develop technologies for the future TGV

JULY 2015

Channel crossing by the eFan (prototype version)

SEPTEMBER 2015

Formulation of a technology road map spanning three years to develop the equipment required to guarantee the safety of mid-sized drones and the capacity to integrate them in the air space

END 2015

Phase 2 of the e-Fan industrial project: industrialisation and scale-up of the industrial site chosen

BEFORE THE START OF 2016

Choice of an innovation partner by SNCF to develop specific innovations for the future TGV in response to the operator's particular needs

FIRST HALF OF 2016

Launch of the Stratobus stratospheric airship project by Thales Alenia Space

A promising market

The medical devices and health technologies market

€300bn IN 2012 WORLDWIDE

€20bn IN 2012 IN FRANCE

4 to 5% ANNUAL GROWTH WORLDWIDE
from now to 2017

The pharmaceuticals & biotechnologies market

20% ANNUAL GROWTH
worldwide from now to 2020

France's strengths

The healthcare industries in France

€70bn IN REVENUE
200,000 JOBS

1st EUROPEAN BIOTECHNOLOGIES PRODUCER

MEDICINE OF THE FUTURE

More effective healthcare thanks
to medical and digital innovation

A challenge for the future: how can we deliver better healthcare at a lower cost?

The national health strategy developed by the Government should enable us to address the major challenges confronting the health sector: demographic aging, first of all, followed by an increase in chronic diseases that is generating new needs and, finally, the challenge of innovation to deliver quality healthcare while retaining the inclusive and universal nature of the French system.

Solutions to harness the digital revolution and bring into being the medicine of the future

France has recognised strengths in the health sector: its reputation for medical excellence, well-positioned academic research, innovative SMEs and VSCs plus major groups enjoying an international presence. Here too, we must redouble our efforts to position France as a world leader in the medicine of the future.

- **Concentrate the investment efforts of the public authorities and industrial players** to speed up development of a best-in-breed industrial offering of medical devices, innovative therapies and high-speed gene sequencing for diagnostics and therapy
- **Create specific accelerator platforms for medical technologies**, support specialised entrepreneurial funds and set up clusters to bring the different players together
- **Provide support through the Strategic Health Sector Committee to bring new medical biotechnologies and innovative medical devices to market** by simplifying access to medical markets, using public procurement as a development lever for innovative companies - thereby facilitating their access to public financing - and adopting the necessary measures to speed up clinical trials

A new governance structure will be presented by the two ministers concerned (Marisol Touraine and Emmanuel Macron), in collaboration with the different players, at the plenary meeting of the Strategic Health Sector Committee on 26 May.

Project heads in office since September 2013

ANDRÉ-MICHEL BALLESTER,
Chairman/CEO, Sorin Group

ANDRÉ CHOULIKA,
CEO, Cellectis

MIREILLE FAUGÈRES,
former CEO, AP-HP

SACHA LOISEAU,
Chairman/CEO,
Mauna Kea Technologies

CHRISTIAN NIBOUREL,
Chairman/CEO,
Accenture France et Benelux

Timetable of 2015 - 2016 deliverables

SECOND HALF OF 2015

Decisions concerning the two French Tech accelerator projects dedicated to medical devices, currently undergoing in-depth examination

Finalisation of entry of the Multi Cap Croissance fund in the shareholding structure of the Sofinnova Capital VIII fund dedicated to biotechnologies and medical devices (€200m)

END 2015 – EARLY 2016

New wave of the «Worldwide Innovation Challenge», this time dedicated to personalised medicine

A promising market

20% **GROWTH PER ANNUM IN THE WORLD MARKET**
for cloud computing over the next few years

7.4% **GROWTH PER ANNUM IN THE SUPERCOMPUTING MARKET BETWEEN NOW AND 2017**

France's strengths

€9bn **IN 2020 FOR THE FRENCH BIG DATA MARKET**
a fast-growing sector backed by French excellence in mathematics, statistics and computing

INTERNATIONAL LEADERS
in every field of the data economy: cloud computing infrastructure, production of supercomputers, digital simulation value chain, etc.

VERY DYNAMIC STARTUP ECOSYSTEM
supported by French Tech

THE DATA ECONOMY

Better management and appropriation of data
in companies and public services

A challenge for the future: how can we create added value from the unprecedented volumes of data now available?

The development of digital technologies and exponential growth in tablets, smartphones, computers and the Internet of Things generate huge quantities of data. This data constitutes a source of value for citizens and as-yet under-exploited potential growth for companies. It also represents an opportunity for France, which boasts solid industrial players and is heir to a long tradition of mathematical excellence.

Solutions for better management and appropriation of data in companies and public services

- **Support** mastery of the basic technologies, particularly for supercomputing, to preserve French industry's position in the top five computing powers worldwide
- **Develop** an innovative offering led by SMEs and startups, notably in the field of big data, by offering them access to data sets in the framework of «big data challenges»
- **Support** sector-based initiatives for appropriation of supercomputing, the cloud and big data by public and private players
- **Create** an environment conducive to development of a data economy ecosystem, notably through creation or strengthening of appropriate training programmes or creation of a stored data security label
- **Adapt** the regulatory framework to improve access to and exploitation of data in compliance with the laws governing individual freedoms, by setting up an industrial processes certification procedure by the French Data Protection Agency (CNIL)

Project leaders

FRANÇOIS BOURDONCLE,
Chairman, FBCie

THIERRY BRETON,
Chairman/CEO, Atos

PAUL HERMELIN,
Chairman/CEOCEO,
Cap Gemini

OCTAVE KLABA,
Chairman/CEO, OVH

GÉRARD ROUCAIROL,
Teratec

Goals

- Master the critical technologies to exploit the next generations of «exascale» supercomputers (a billion billion calculations per second) looking to 2020
- Inform more than 600 software publishers about Saas (software as a service) between now and end 2017 through the SaaS Academy and enable 20% of them to make the transition
- Create or secure almost 137,000 jobs through Big Data looking to 2020

Timetable of 2015 – 2016 deliverables

SECOND QUARTER OF 2015

Launch of an initiative to promote industrial use of simulation aimed at SMEs and mid-tier firms, led by GENCI and Teratec

Launch of a guide to best practices for using the cloud aimed at local authorities

Definition, with the CNIL, of «compliance packs» for insurance and connected vehicles, thereby facilitating use of big data in this sector in compliance with the legal framework

SECOND HALF OF 2015

Introduction of sector initiatives, such as the Digital Plant Valley campus (Vallée du numérique végétal) in Orleans, aimed at promoting the spread of simulation in economic sectors where it is currently almost non-existent

AUTUMN 2015

Launch of new big data challenges to develop innovative applications in numerous fields (e.g. tourism or Earth observation from space)

BEFORE END 2015

Creation of an observatory of cloud computing and big data practices

Launch of an initiative to support use of the cloud by SMEs

Operational launch of the «Secure Cloud» label and Europe-wide promotion of the label

EARLY 2016

Creation of a cloud computing solutions platform aimed at local authorities, on the same model as digital marketplaces

2016

Capacity of Atos/Bull to build a world-class supercomputer with a constant energy envelope

A promising market

4 FOLD INCREASE IN THE NUMBER OF CONNECTED OBJECTS LOOKING TO 2020

80bn CONNECTED OBJECTS IN 2020

France's strengths

20% OF RETAILERS EQUIPPED WITH CONTACTLESS PAYMENT TERMINALS
at the start of 2015 versus less than 5% at the start of 2013

2nd EUROPEAN PRODUCER OF TECHNICAL TEXTILES

A POOL OF STARTUPS WITH INTERNATIONALLY RECOGNISED EXPERTISE
(Medissimo, Myfox, Netatmo, Parrot, Sen.se, Sigfox and Withings)

SMART DEVICES

The Internet of Things to enhance everyday life

A challenge for the future: how can we ensure that these new objects genuinely enhance our daily lives?

Robots and Smart devices will revolutionise our lives. Already present in our everyday environment, they are transforming the way we communicate, move around, eat or listen to music, for instance. For this reason, they represent a major challenge not only for ourselves and our fellow citizens, but also for French companies and the public authorities.

Solutions to structure production of robots and Smart devices and support their adoption by the different players

These solutions will draw on the convergence of numerous technologies such as robotics, virtual reality and the Internet of Things. Adoption will also depend on the capacity of the major players to deploy them across a broad range of sectors, such as health, transport, payment and culture. Lastly, the aim is to ensure continuous improvement in the quality and efficiency of these services and facilitate the broadest possible access to them.

- **Support the innovative ecosystem**, particularly startups, through challenges, calls for projects, mobilisation of thematic investment funds and the promotional capacities of French Tech
- **Speed up innovation cycles**, through resource-pooling hubs to facilitate design and production of innovative objects, on the model of the first «Internet of Things City» that will be inaugurated in Angers in June
- **Showcase French expertise** through international events, with, notably, organisation of an event in Paris in autumn 2015 capitalising on France's strong positions, as at CES 2015 in Las Vegas (66 startups present, including five innovation prize-winners) and promotion of French expertise with presentations by major groups
- **Encourage deployment of innovative services** by major players and local authorities: contactless payment, transport and other everyday services

Project leaders

BRUNO BONNELL,
Chairman, Robolution Capital

ERIC CARREEL,
Chairman/CEO, Withings

YVES DUBIEF,
Chairman, French Textiles Industry Federation (UIT)

VINCENT MARCATTÉ,
Chairman, Images et Réseaux, Innovation Director, Orange Labs

OLIVIER PIOU,
Chairman/CEO, Gemalto

Goals

- Replace 55% of cash payments by card payments and encourage 8 million people to adopt payment by smartphone, looking to 2020
- Launch of a nationwide contactless interoperable ticketing system in half of France's cities with populations of over 200,000 by 2020
- Reshore production of 20% of the connected objects manufactured by French companies

Timeline of 2015 – 2016 deliverables

APRIL 2015

Launch on 13 April by the DGE of a call for near market-ready and pioneering projects for implementation of new objects and intelligent services

MAY 2015

Launch of a digital innovation challenge, in the framework of the «Invest for the Future» programme, aimed at producing innovative projects using digital technologies to propose a new disruptive-technology product or service for specific applications (health, sport, tourism, personal services, social cohesion, etc.)

JUNE 2015

Inauguration of the first «Internet of Things City» in Angers

Payment means symposium providing an update on the sharp growth in sales outlets equipped with contactless payment systems (250,000 in 2015 versus less than 55,000 at the end of 2013)

SUMMER 2015

Launch of the ANR (National Research Agency) challenges for industrial robotics and collaborative robotics

Launch by the National RFID centre of two successive initiatives on use of the Internet of Things, in the energy and luxury industries

Organisation of a robotics summit

EARLY 2016

Launch of an open augmented reality (AR) platform to enable players to develop, trial and test new technologies and new practices in use of augmented reality technologies

A promising market

€353.3bn FOR THE SEMICONDUCTOR MARKET
in 2014 (+9% on 2013)

€1,488bn FOR THE ELECTRONIC SYSTEMS MARKET
in 2014 (+5% on 2013)

€140bn FOR THE EUROPEAN SECURITY MARKET IN 2013

France's strengths

9% OF WORLD COMPONENTS
produced in Europe are made in France

13,000 PURE PLAYERS IN EMBEDDED SYSTEMS IN FRANCE

40,000 JOBS IN CYBERSECURITY IN FRANCE

DIGITAL CONFIDENCE

A digital confidence ecosystem providing
better protection for companies and individuals

A challenge for the future: against the backdrop of explosive growth in digital technologies, how can we guarantee the security of French citizens?

Growth in digital technologies is a fantastic source of growth for our economy. However, it demands a high level of security both for infrastructure and digital services. Mastery of security technologies is therefore a major challenge for French citizens, for our companies and for the public authorities. Hacking of online payments, the risk of industrial espionage targeting French companies or cyber-attacks against our national interests: all these threats must be anticipated and neutralised.

Solutions to strengthen confidence in the digital space

Establishing a genuine climate of «digital confidence» requires intervention at all stages of the digital ecosystem: from production of physical components to software design and deployment of infrastructure.

- **Develop differentiating technologies** that stand out for their performance (multicore chips, 5G networks), energy efficiency, operational reliability (industrial androids) and safety
- **Support SMEs and startups** by providing them with the technical (resource-sharing hubs) and financial (investment funds) means they need to develop and by promoting innovative French expertise, particularly in the export market
- **Preserve our technological sovereignty** in strategic sectors (electronic components, electric-propulsion satellites)
- **Raise business players' awareness** of the security and reliability issues related to digital technologies, building on award of the first France Cybersecurity labels to 17 companies in January 2015

Project leaders

ÉRIC BANTÉGNIE,
Chairman/CEO,
Esterel Technologies

PHILIPPE KERYER, Director,
Strategy and Innovation,
Alcatel-Lucent

JEAN-YVES LE GALL,
Chairman, CNES

LAURENT MALIER,
R&D Director,
STMicroelectronics

GUILLAUME POUPARD,
CEO, ANSSI

Goals

- Double production capacity at the Crolles site dedicated to nanoelectronics looking to 2020
- Foster growth of the cybersecurity market and ecosystem, with the target of an annual 20% increase in purchasing in France and annual growth of 30% in export market share
- Develop 5G with a targeted 1000x increase in the capacity of mobile networks looking to 2020
- Develop «100% electric» satellites, the aim being to capture half of sales as of 2020

Timeline of 2015 - 2017 deliverables

SEPTEMBER 2015

Selection and launch of a large-scale «industrial android» project, jointly defined by the technology suppliers and industrial users

AUTUMN 2015

French-German cooperation agreement between professional associations on embedded software to provide a coordinated technological response in Europe

BEFORE END 2015

Creation of national cybersecurity test and demonstration platforms

Creation of an investment fund for cybersecurity startups

Launch of two PMR (professional mobile radio) projects in 4G (LTE) to develop a hardened high-speed mobile service for interventions involving national sovereignty (armed forces, police and civil security operations)

2016

Creation of a certification system for cybersecurity training

EARLY 2017

Launch of the Airbus 100%-electric satellite operated by Eutelsat

A promising market

+16% **GROWTH IN WORLD POPULATION**
looking to 2030

4% **GROWTH/YEAR**
in the food industry

2.5% **GROWTH/YEAR**
in the health-food market
over the next three years

France's strengths

3rd **EUROPEAN FOOD PRODUCER**

The food industry in France in 2014

585,000 **JOBS**

€170bn **IN REVENUE**

€57.9bn **IN EXPORTS**

SMART FOOD CHOICES

Safer, healthier, more sustainable food production
with greater export potential

A challenge for the future: how can we adapt our food production methods to respond to the radical changes taking place in our society?

While the food industry has proved globally resilient to the crisis, it must now address major challenges: faced with increasingly sophisticated consumer practices, growing concern with food safety and volatile raw material prices, the industry needs to improve yields and productivity.

Solutions to innovate and guarantee healthy, safe, sustainable food production with greater export potential

The food industry plan, validated by the Government in June 2014, is already a success: close to 530 projects have emerged and are currently being supported by the companies involved. We must now capitalise and build on the momentum already created.

- Propose industrial solutions that will address the five priority challenges identified: restore the competitiveness of the meat sector, develop the functional foods market, take leading positions in innovative packaging and sustainable cold-chain solutions and guarantee the quality and safety of food and beverages
- Enable the industry to seize the opportunities offered by integration of digital tools and adopt a more structured approach to increasing its share of the international market
- Make our food industry an international benchmark in promising sectors where France possesses top-level research capabilities, such as ferments and proteins

Project leader

JEAN-PHILIPPE GIRARD,
Chairman/CEO, Eurogerm,
Chairman, ANIA

Goals

- Recruit 90,000 employees in the sector looking to 2017
- Modernise 30% of industrial abattoirs looking to 2017
- Create 1,500 jobs over the next 10 years in production of concentrated proteins for human nutrition

Timeline for 2015 – 2016 deliverables

AUTUMN 2015

Launch of several abattoir modernisation projects with the support of the State

Launch of five to ten projects in the field of functional foods with the support of the State

2016

Launch of new calls for food industry projects by FranceAgrimer

THREE PLANS TO BE INCORPORATED IN OTHER FRAMEWORKS

to capitalise on the advances made and pursue the goals identified


Civil drones

Following on from the road map formulated under the leadership of Francis Duruflé (Infotron) and Bruno Even (SAGEM), the new «National council for civil drones» initiated work on the technological, regulatory and commercial aspects of this sector at the beginning of 2015. The possibility of integrating a unifying technological project in the «Smart devices» solution **will be examined before the end of the year on the basis of its technology road map**.


E-learning

The plan led by Déborah Elalouf (Tralalère) and Jean-Yves Hepp (Unowhy) had a very strong impact on development of digital technologies in the school environment. This work will be incorporated in the **digital plan for schools** announced by the President of the Republic in September 2014 and will be pursued in this framework.

Renewable energies

It is vital to concentrate efforts to develop the French renewable energy generation sector. In consultation with Jean-Claude Andréini, Plan leader and Vice-President, Strategic Eco-Industries Sector Committee, the decision was made to **pursue this work within the Eco-industries Sector Committee**. The budget awarded to this plan under the «Invest for the Future» programme has been entirely preserved.

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