

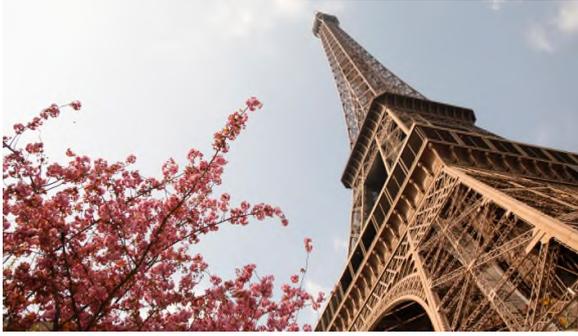


Digital Transformation Monitor

France: Industrie du Futur

January 2017





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Fact box for France's Industrie du Futur policy initiative

 Policy Lever(s)	Mainly implemented by the private sector, e.g. through IdFA, but initiated and guided by the government
 Funding Model	Mixing public funding instruments as loans and tax aid with private investments in R&D and production lines; a private leverage effect of five times is expected
 Target audience(s)	French industry and production base and in particular SMEs and mid-caps
 Impact & Focus Areas	Supporting the use of digital technologies, modernising production tools and transforming business models
 Key drivers	Involvement of industry and technology stakeholders as well as regional authorities in design and implementation
 Key barriers	Lack of an existing network for digital transformation of industry and companies and a mismatch between industry needs and qualifications
 Implementation strategy	Operational dialogue through the alliance of stakeholders combined with regional project implementation
 Results achieved	Provided loans to over 800 companies, supported 3400 companies with a diagnosis for modernising production, identified over 300 experts and involved 18 regions
 Budget	Approx. 10 billion from public sources, including IftF funding from 2017 onwards, supported by private funding
 Uniqueness factor	Composition of widely covering financial instruments and calls and role of authorities and platforms at the regional level to ensure implementation
 Value-added for policy-makers	IdFA's platform facilitates collaboration between public and private industry and technology stakeholders as well as effective implementation
 Expected Impact	New cooperation, funding and support activities will promote excellence in fundamental research, technology transfer and industrial innovation

Source: Digital Transformation Monitor

A cross-cutting programme for digital transformation

The cross-cutting “Industrie du Futur” (Industry of the Future (IdF)) programme was launched by the French government in April 2015. It aims to support companies to deploy digital technologies, to transform companies and business models as well as to modernise production practices.

IdF targets selected priority markets and comprises five pillars, respectively cutting-edge technologies, business transformation, training, international cooperation and promotion of IdF. The programme is backed by the government and make up the second phase of the French strategy “La Nouvelle France Industrielle” (New Industrial France (NFI)), which was launched by the government in September 2013. IdF has launched the platform “Alliance Industrie du Futur” (Industry of the Future Alliance (IdFA)) in order to secure coordination and dialogue and to bring together industry and digital technology stakeholders from public and private sectors.

IdF has offered a more focused and needs-oriented mechanism compared to its NFI predecessor. While it draws on government support, the involvement of industry, technology and research stakeholders as well as trade unions has been key in finding a common ground and in launching a network structure to support digital transformation.

Such a platform was missing prior to IdF, which also restricted effective coordination and management during the early stages. The measurement and use of indicators for evaluating the progress with transformation at company-level represents another challenge.

Government support for modernising business and production tools

In 2012, French policy-makers were alerted that French industry was suffering from significant under-investment.¹

Moreover, while France has strength in its innovation-based ecosystem and digital industries, French companies are facing challenges to become more connected and responsive to customers’ needs and to ensure long-term competitiveness. A modernisation of production tools and a transformation of business models is therefore required.

The French government has consequently launched different initiatives to help companies to integrate new innovative digital technologies. The government has for example invested around €47 billion in the strategic programme “Investissements d’Avenir” (Invest for the Future (IfF)) that supports innovative projects through a series of call for proposals on fundamental research, innovation, technology transfer, maturation etc.

The government has equally sought to determine industry priorities more broadly. In this context, the government launched NFI as an overarching plan and roadmap for industrial renewal. In collaboration with stakeholders, NFI selected 34 industrial plans to shape France’s future industrial policy.

IdF was subsequently launched in 2015 to play a steering role in the second phase of NFI. IdF is backed by the government and the IdFA platform for coordination. IdF seeks to capitalise on the gains achieved in NFI and simultaneously NFI’s 34 plans has been reshaped into nine industrial priority markets.

Objectives for industry renewal

IdF consists of several objectives. It aims to modernise the French production base and production tools and support the use and integration of digital technologies to transform companies and business models. This in turn is expected to create new sources of growth and jobs. The IdFA platform’s objectives are to make France a leader in the world’s industrial renewal.

More specifically, it aims to build on the gains made under NFI and put IdF into practice, by focusing on helping companies to transform their business models, organisation, production and design and marketing methods.

Policy levers for France’s Industrie du futur



Source: Digital Transformation Monitor

Put into effect by a bottom-up approach

The ministry provides overall public funding support through for example subsidies and loans to industry and research projects. However, the main funding sources are private ones through investments in R&D and production. IdF and the alliance is based on a holistic approach that addresses technology and infrastructure as well as skills.

The initial design phase relied more on steering by the government, however with involvement and in consultations with industry, science and social partners, in order to determine future priorities and actions for digital transformation. The subsequent practical implementation of IdF is however largely undertaken by partners through IdFA and at the regional level, which also gives IdF a grounding in a bottom-up approach.

A mix of public financial instruments

The funding model behind IdF combines private and public funding. Approx. €10 billion has been made available in total from public sources for IdF, which includes some additional funding from 2017 onwards through the third IdF programme. The development of technological offerings is supported by €550 million on calls for projects and €100 million for IdF.

Further €150 million will be offered for this purpose after 2017. In order to support business transformation, €2.2 billion is available in the form of loans for SMEs and mid-tier firms to invest in production. This will be complemented by further €2 billion after 2017.

Meanwhile, €5 billion is available through tax aid for investments for the 2014-2020 period. Lastly, €100 million will be provided for staff training after 2017. Because of the regional authorities' competences on economic development, some regions provide additional local funding to companies that invest in digital transformation. Overall, the funding is mainly managed by Bpifrance.

Public financing tools are conditioned on private financing

The government relies on private investments to realise IdF's objectives, making it the key funding source behind the programme. All IdF's public financing tools are conditioned on private financing, and are deployed to encourage private investments in production lines, R&D etc.

The €100 and €550 million budgets in favour of technological offerings co-finance private projects for a share less than 50%. This means that private financing is at least the same amount. This also applies to the tax aid that offers private investment incentives.

The public funding spent on tax aid is expected to induce a private investment amount seven times as high. In terms of the leverage effect, NFI, the predecessor to IdF, achieved overall a private financing leverage effect of around five. This means that for every €100 million spent in public funding, €500 million would be invested through private financing.

Since public funding covers a relatively smaller part of the project costs for larger companies compared to SMEs, the multiplier effect was typically bigger for the former. No assessment is available yet of the private leverage ratio of public funds under IdF.

However, it is expected to achieve the same multiplier effect as in NFI. Turning to the operation of IdFA, whose overall budget is rather limited, the majority of financing comes from private stakeholders through membership fees and contributions.

Implementation by five pillars

IdF's is structured around five pillars: technological offerings, business transformation, training, international cooperation and IdF promotion. The first pillar focusses on developing cutting-edge technology. This activity supports companies with research funding, subsidies and loans and by developing a network of platforms for pooling and testing new technologies.

Emphasis is on creating a network of regional platforms that helps companies to test technologies. Secondly, IdF offers financial and personalised support for companies to invest in production and to engage in projects. It also seeks to identify 550 experts to help SMEs identify transformation projects. Its ambition is to support at least 2000 companies by 2016.

The third pillar concentrates on upskilling the workforce. This is pursued by creating joint future visions with unions and developing training programmes and curricula.

The fourth pillar targets international cooperation on standards and alliances. A bilateral approach is taken, in particular with Germany (Industrie 4.0) through cooperation on standardization and technology projects.

There is also an emphasis on boosting French interest at the European-level and in H2020. The last pillar promotes IdF through the launch of flagship projects, the organisation of a major industry trade fair and the "Creative France Industry" brand.

"We must put industry at the heart of our economy, and people at the heart of the industry."

Emmanuel Macron, former Minister of the Economy, Industry and Digital Affairs.

Target audience – emphasising SMEs and mid-cap companies

IdF applies a broad scope in terms of targeted beneficiaries. Target groups are primarily local players, such as SMEs and mid-tier companies, but also technology providers, academia and public bodies.² The public-private IdFA platform has a key role in implementation. It is formed by the industrial federations and research and education partners, and works closely with the government and regions. Examples on IdFA participants are the Fives Group, Dassault Systèmes and the Institut Mines-Telecom.

Concepts and focus areas - nine thematic areas for industry renewal

IdF offers a comprehensive thematic scope that addresses several concepts and focus areas. The initiative has a background in 4th industrial revolution thinking. This entails a focus on new and emerging technologies, such as additive manufacturing, IoT, new materials, high-performance computing, smart objects and artificial intelligence. It equally entails an attempt to promote a convergence of industry and services, thereby providing coverage of the full process from design, production and logistics to after-sale services.

In particular, NFI concentrates on nine theme-based industry areas, respectively 1) transport, 2) smart objectives and IoT, 3) new resources, 4) medicine, 5) digital trust and security, 6) sustainable cities, 7) data economy, 8) smart food production and 9) eco-mobility. Each of the nine areas are based on a defined roadmap, with objectives and a timetable

Pushed forward by key stakeholders

IdF’s design and implementation process has been supported by a number of enablers. First, there has been a significant involvement of key business, technology and research stakeholders in IdF’s core activities and the IdFA platform, which works as a stakeholder-driven network for the operation of IdF.

It is considered key that industries and technology stakeholders managed to find and agree on a structure for the alliance. Second, the actual deployment of technology and advanced manufacturing practices has been reinforced through a regional focus. IdF has managed to bring on board regions to play a central role in steering activities, in platforms and in the IdFA platform.

The regional actors help ensure a more even implementation among regions. Third, the political support behind IdF also constitutes a key enabler for implementation. IdF represents a high level policy priority and it is envisaged to be the matrix for France’s industrial policy³. The support has for example been reflected by an engagement at ministerial-level during the whole design and implementation process.

A re-design based on industry needs

IdF makes up the second phase of NFI. The original NFI initiative was designed on the basis of a National Council for Industry study with contributions from the consultancy McKinsey. This study provided substance to the government’s selection of 34 industrial plans. Businesses, social partners and associations also provided input, for example through the strategic committees.

Overall, NFI was a result of a strategic reflection by the government and a thorough analysis and scanning of global growth markets and digital and industry developments. The second phase of NFI was launched with IdF in 2015. IdF represents an organisational overhaul that takes lessons learned and a strategic review of NFI’s 34 plans into account.

The re-design draws on input from working meetings with project leaders from industry, research, regions and the public sector. These meetings helped to assess progress with the roadmaps and to produce a schedule for both actions and dialogue. From a design perspective, the initial 34 plans were considered excessive.

SWOT Matrix for Industrie du Futur	
<p>Strength</p> <ul style="list-style-type: none"> Political support provides IdF and platform with impetus Regional actors and platforms help deploy IdF at local-level 	<p>Weaknesses</p> <ul style="list-style-type: none"> Suitability of measurement and indicators at company-level
<p>Opportunities</p> <ul style="list-style-type: none"> Transferability and scalability of the broadly covering public funding tool-set offering several sources for SMEs 	<p>Threats</p> <ul style="list-style-type: none"> Uneven deployment at the regional-level Gap between industry needs and qualifications

Source: Digital Transformation Monitor

IdF was therefore re-shaped to simply target nine industrial priority markets and to provide a tighter and more agile management. The IdF design also involves the setting up of the public-private IdFA platform to help put IdF into practice.

IdFA platform ensures coordination

The open and non-for-profit IdFA ⁴ platform provides an industry-driven implementation and coordinating mechanism at the national-level. The alliance platform can be considered as a resource centre where actors of the programme meet and coordinate. It is chaired by Philippe Darmayan, chairman of GFI, and co-chaired by Frédéric Sanchez, chairman of Fives, and Bernard Charlès, chairman of Dassault Systèmes.

The founding members of IdFA cover more than 33.000 companies and over one million jobs. IdFA relies on dedicated open working groups for each of the five IdF pillars. In addition, each of the nine industrial priority markets are led and coordinated by one or more project leaders that typically come from business and industry. They work on the basis of a defined roadmap with objectives and schedules that have been developed for each of the nine priority markets.

IdFA is further composed by a steering committee that aims to ensure involvement of all stakeholders. The Directorate General for Enterprise coordinates government action and provides the secretariat for the steering committee, which operates under the presidency of the State Secretary for Industry. IdF relies on implementation at the regional level. Regional authorities ensure regional steering and roll-out e.g. through platforms and by supporting SMEs on the ground.

A lack of a common structure for roll-out

A key barrier encountered during the initial phase of NFI was the lack of a common structure and network for collaboration on digital transformation, which complicated dialogue and coordination. This situation induced the launch of the more targeted IdF and the alliance, with an eye to ensure effective implementation.

Second, there is currently a gap between industry needs and skills qualifications. While a common ground and understanding exists regarding the potential of digital transformation and advanced manufacturing practices, there is some uncertainty about future work roles and how work and shop-floor processes should be re-organised.

IdF has therefore made skill-sets and training a core component and strengthened the links between social partners and the alliance.

Third, problems have also been identified for evaluations under IdF. Beneficiaries are expected to deliver input on indicators on a monthly basis. However, beneficiaries and stakeholders have found it difficult due to the complexity and wideness of digital transformation, which has complicated assessment of progress and uptake.

Targeted and achieved results for IdF

In terms of the broader NFI strategy, the government expected that it could help French industry adapt to key emerging challenges, to create 480.000 new jobs in 10 years, and to generate €45.5 billion in value added – nearly 40 % of which will come from exports. Turning to IdF, while it is early days yet, some results are outlined below. Outcomes are measured through monthly consultations organised by IdFA. The regions work as an intermediary organisation between the beneficiaries and the government and help to assess progress.

Targeted and/or achieved results for Industrie du Futur	
Supported SMEs and mid-caps	<ul style="list-style-type: none"> Supported almost 3400 companies with diagnosis for modernising production tools⁵ (5300 should be reached by next year) More than 800 companies have received loans
Regional involvement	<ul style="list-style-type: none"> A sample of 10 field labs have been set up and another 14 are expected by the end of 2016
Showcase projects	<ul style="list-style-type: none"> Around 50 lectors and 15 schools are teaching on topics related to SI at this stage
Network of experts	<ul style="list-style-type: none"> 300 experts have been identified and referenced

Source: Digital Transformation Monitor

Scaling up of IdF at the national level

IdF offers significant depth and scale at the national level. Compared to NFI, it provides a more focused approach, it scopes in on nine selected priority markets and it has been scaled up at the organisational level through IdFA. Similar to Germany, IdF aims to address the challenges of digital transformation and to implement a network and structure for collaboration.

IdF is anchored in the needs and interests of key industry and technology stakeholders, in order to make it effective for France. Certain features, which also may offer a transferability potential, differentiates the French model from other national strategies.

This includes IdF's emphasis on skills upgrading and qualifications as well as its focus on the regional level. Regional authorities have a key role through IdFA. The use of regional platforms and regional call for proposals help to ensure actual deployment. IdF's core activities equally emphasises SMEs and mid-caps through tailored personalised and financial support mechanisms for these target groups.

Key role of industry and technology stakeholders and regional authorities

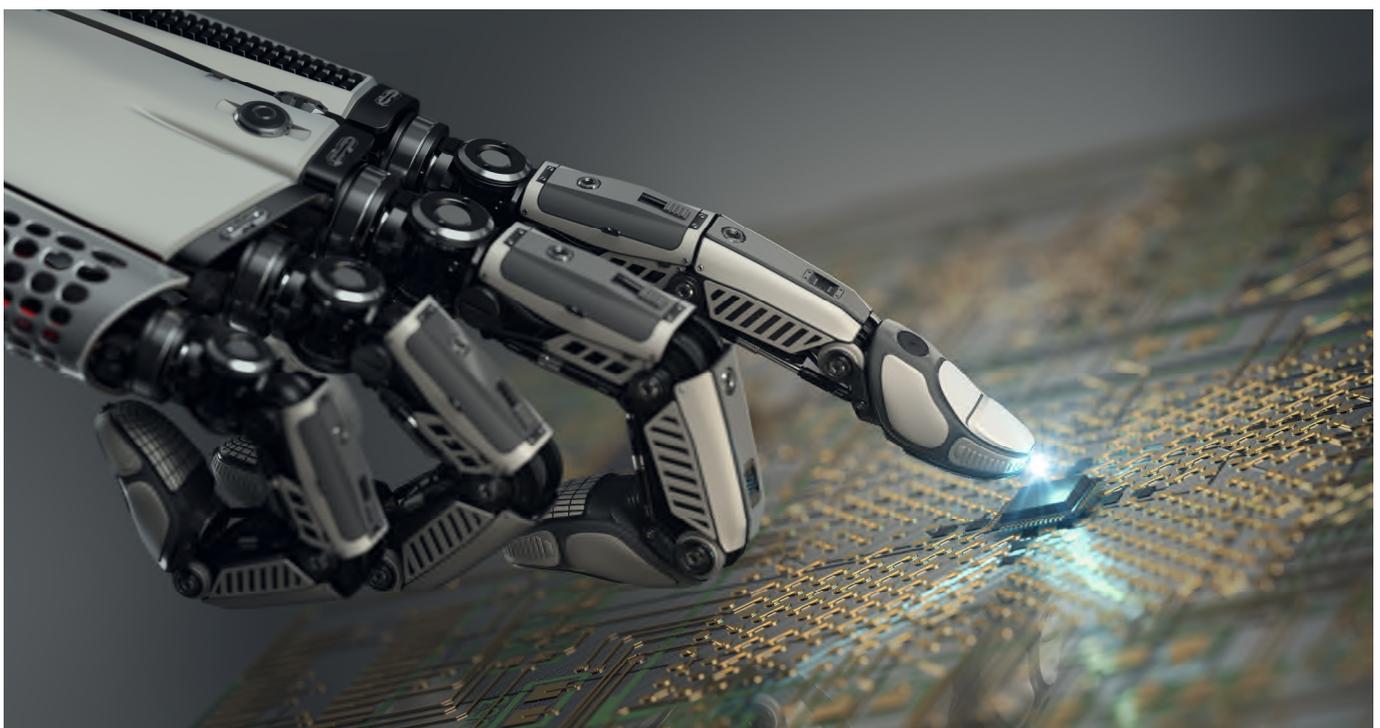
A critical factor behind IdF's roll-out concerns the solid involvement of stakeholders in design and implementation. NFI brought together stakeholders to identify and prepare the groundwork on key industrial focus areas. The re-designed IdF continues the work and also took into account consultations with stakeholders and beneficiaries as well as lessons learnt from NFI.

The use of a more focussed approach along with the launch of IdFA was key for implementation and for finding a common ground on future needs, priorities and actions.

This network structure, which was missing prior to IdF, was therefore critical for success. The involvement of and autonomy given to regional authorities and platforms have also helped to ensure outreach and uptake. Lastly, it was felt that NFI did not contain enough focus on digital solutions. Digital stakeholders are now partnered up with industrial stakeholders in IdFA to oversee project implementation. The nine priority markets equally gives significant attention to digitalisation and digital technologies.

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- ³ Pierre Bitard & Thomas Zacharewicz (2015) RIO Country Report 2015: France; EUR 27949 EN; doi:10.2791/20335
- ⁴ IdFA (2015) Alliance Industry of the Future - Rallying, Accelerating, Transforming
- ⁵ <http://www.cetim.fr/en/News/Headlines/Headlines/The-Industry-of-the-future-is-spreading-across-the-regions>



About the Digital Transformation Monitor

The Digital Transformation Monitor aims to foster the knowledge base on the state of play and evolution of digital transformation in Europe. The site provides a monitoring mechanism to examine key trends in digital transformation. It offers a unique insight into statistics and initiatives to support digital transformation, as well as reports on key industrial and technological opportunities, challenges and policy initiatives related to digital transformation.

Web page: <https://ec.europa.eu/growth/tools-databases/dem/>

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