

WHITE PAPER

A new industrial policy
For
Flanders

Government of Flanders



Flanders
In Action
Pact 2020

WHITE

PAPER

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For
Flanders

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PREFACE

The industry remains enormously important to Flanders. 40% of added value, 80% of all R&D expenditures and 85% of Flemish exports, those are the impressive figures which the Flemish industry can boast today. If we are going to perpetuate and consolidate this position, then we will have to transform the industry. The Government of Flanders seeks to encourage and accelerate this transformation by means of new value creation and a productivity offensive. For this reason, with the organisation of the Industry Convention in February 2010, we initiated an all encompassing project, entitled the New Industrial Policy. Today, this White Paper marks another important step in that project.

This White Paper continues to build on the analysis which was made in October 2010 in the Green Paper as well as on the insights gained since then from the extensive consultation round with all stakeholders, ranging from the industrial sectors and the social partners to the various advisory councils and the Flemish Parliament. After all, the industry transformation process needs the support of its stakeholders and should be driven by the concrete ideas and projects of those immediately concerned.

Through 50 actions, spread over 4 pillars, this White Paper leads the way. In this, the Factory of the Future takes central stage. The Factory of the Future is a concept for the organisation of the industry which focuses on cooperation, greening and new labour relations. The boundaries between production sites and suppliers, between customers, employees and researchers, between production and services should fade.

The TINA fund (Transformation, INnovation and Acceleration), representing initially € 200 million, will serve as a lever for the transformation of the industry through innovation. The basic condition for the use of these resources is that the industry proves that their projects bring the factory of the future closer. Therefore the projects should be proposed by consortia of companies, complemented with investors, knowledge-based institutions, research and/or technology partners. Cooperation and clustering are of central importance.

In view of the follow-up of the New Industrial Policy, a clear and transparent structure was set up, with the Industry Council playing a crucial role. This council will be composed of independent industry experts of international renown. They will support and advise the Interministerial Committee for Industry.

In the coming months and years a start will be made on the various actions. The Government of Flanders is looking forward to the projects, ideas and innovations which the industry is about to put forward. From now on the New Industrial Policy is becoming reality.

Kris Peeters,
Minister-President of the Government of Flanders

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1. INTRODUCTION: FROM GREEN TO WHITE PAPER

1.1. Vision, aim and framework

This White Paper on **New Industrial Policy (NIP)** formulates a coordinated vision of the future of the industry in Flanders. The main lines are the acceleration of the transformation of industry, its related services and the social structure, based on the creation of new added value and a productivity¹ and flexibility offensive.

As a response to this, the NIP offers a coherent framework around four pillars: (1) New Factory of the Future, (2) Competency and Labour market policy, (3) Industrial innovation policy, (4) Infrastructure policy.

It is our aim via this transformation policy to shape industry in Flanders in order to secure the existing industry. The industry of the future may well also have to be greener, more social, more creative and more innovative. It will have to “make” products and services in a different manner and will require a policy aimed at clusters.

The NIP also emphasizes the important role and place of industry in the future socio-economic model defined by Flanders in Action (FiA). Maintaining a strong industrial base in Flanders is indeed necessary in order to realize future prospects of welfare and well-being in line with FiA and the associated attainment targets of Pact 2020. The Government of Flanders wishes to use FiA in order to secure Flanders as a top European region economically, ecologically and socially and to continue playing a major role in the world economy of the 21st century. The importance of the industry indeed cannot be underestimated as far as creating our welfare is concerned. In 2009, Flemish industry accounted for nearly 40% of the Flemish added value, 80% of all R&D expenditure and 85% of Flemish exports.

The main lines of the NIP are, however, also based on the finding that although Flanders is one of the most productive regions in the world, we have in recent years seen a decline in our productivity growth compared with some of our most important competitors and have been increasingly disadvantaged due to our high national energy prices.

1.2. From Green to White Paper

The findings from introducing an accelerated industry transformation policy in our neighbouring countries (France and Germany), the renewed interest within the European Commission for industry, the debates in the UK and the US for a necessary transformation of industry led to the proactive efforts since 2009 to work towards a New Industrial Policy (NIP) in Flanders.

The financial-economic crisis of 2008 and 2009 played a role here as a catalyst, but is not the fundamental cause for formulating an NIP.

Therefore this White Paper also completes the policy process that started with the convention of the **Industry Convention (IC)** on 5th February 2010, with the submission of the recommendations from industry in July 2010, adoption of the Green Paper NIP on 1 October 2010 by the Government of Flanders, the organization of debates and the requesting of opinions on the new industrial policy proposed in the Green Paper in the period from November 2010 to February 2011.

The Industry Convention (IC) mobilized the four large industrial sectors via their sectoral federations: Essenscia: the chemical industry, Agoria: the technological industry, Fevia: the food industry and

Fedustria: the textile, wood and furniture industry. They were invited to reflect and work out proposals according to value chains and large projects and based on social innovation, in order to create a transformation and to restore competitiveness in the long term. These sectoral federations submitted their action plans with a wide variety of proposals to the Minister-President in July 2010. The proposals for transforming the industry via the Industry Convention were the first step in shaping the NIP from a basic approach. This process was partly coordinated and assessed by the Flanders Social and Economic Council (SERV). The trade unions' involvement in establishing the sectoral action plans differed per sector.

The main lines of the NIP were summarized in the Green Paper for a *New Industrial Policy in Flanders*, based among others on this fleshing out by the IC, which the Government of Flanders approved and proposed on 1st October 2010. One of the direct concrete decisions was setting up the *Industrial Transformation and Acceleration Fund* TINA with an initial capital of €200 million. The **TINA Fund** has been operational within the Participation Company Flanders (PMV) since 30st March 2011. This fund forms an essential part both in the **future cluster policy** and for the industrial transformation policy towards new value creation (cf. new value chains).

The aim of the Green Paper was entering into the debate with all socio-economically interested parties as to the desirability of the proposed new industrial policy. The conclusions from this debate form the basis for adjusting the Green Paper to a White Paper.

During the various debates and based on the advisory reports published on the Green Paper in the period between November 2010 and March 2011, we facilitated that *The Green Paper NIP* was accepted positively.

After several debates and hearings regarding the Green Paper, the "New Industrial Policy" resolution was submitted in the Flemish Parliament in 2011. Advice, comments and opinions from **Flanders Social and Economic Council** (SERV, RESOCS), the **Flemish Council for Science and Innovation** (VRWI), reactions and positions from various industrial sectors² and the comments from various academics, industrials but also political parties, were all mainly positively to both the attainment targets and the policy framework or have themselves developed an important approach as regards vision development.

A significant contribution was also delivered to the debate in the form of the studies by **Flanders' Chamber of Commerce and Industry**³ (VOKA) and the **Union of Independent Entrepreneurs**⁴ (UNIZO). Trade union organizations also started various debates early in 2011 on industry policy and social innovation.

We were able to establish that the debate has had a positive effect on the quality of the policy framework and the force of implementation and has increased the quality of decision-making. To sum up the above-mentioned debates, reports and opinions on the Green Paper NIP, eight important subjects for adjustment or adaptation come to the fore.

- A strategy of directed **cluster policy** is essential for successful completion of the necessary transformation. This cluster policy explicitly links rejuvenation to modernization by reinforcing and consolidating existing clusters as well as identifying and stimulating budding clusters.
- The themes **competence policy** and labour market policy as generic themes that must receive a clear place in the NIP
- Making the **complementary economic policy** more objective
- Sufficiently available and competitive prices for energy and necessary raw materials are a challenge for our industry but also an opportunity to make our economy **greener**⁵.
- The urgency of solving critical **infrastructure problems** regarding logistics, among others

- The **turnaround time** for carrying out **Government decisions** in dossiers that are relevant for industry and the economy must be drastically reduced and receive continual attention.
- Consideration for the required operational, organizational and budgetary measures necessary for a **forceful implementation** and managing the NIP
- The need to take measures in the **short term** in order to remove **bottlenecks** in our industry

The White Paper is largely positive regarding these advices.

2. SUMMARY

2.1. The need for a New Industrial Policy (NIP)

- The “**industry of the future**” is the foundation of a competitive and sustainable economy in Flanders. The Flemish economy needs a **new industrial policy** (NIP) in order to reinforce its economic structure via a transformation, as also laid down by the Industry Convention in 2010 and as already confirmed by the resolution “New Industrial Policy” submitted following the debate on the Green Paper in the Flemish Parliament in April 2011.
- The framework within which our economy and industry take place has changed profoundly in recent years. The principal causes: the development and distribution of ICT, globalization, demographic development, the rise of the emerging countries and the importance of the CO₂ problems with a direct impact on ecology, energy, water and feeding and raw materials. As a result, both the European Commission and various neighbouring countries (UK, France and the Netherlands) have taken initiatives relating to a new industrial policy.
- We find that our industry has gradually become less competitive over the past decades. This results in a loss of export competitiveness (mainly due to a loss of a market share in the BRIC countries) but also a loss of industrial employment due to a decline in productivity growth compared with some of our neighbours. An NIP can also only be sustained if the competitiveness is also considered. This requires consideration of a **number of preconditions** with respect to the problems of: (1) **labour costs**, (2) **energy costs**, (3) **speed of decision-making** within Government. These elements are not only essential but they are absolute preconditions to be able to maintain an NIP in the midterm.
- Some federal competences are crucial to the success of the regional NIP. It is important that the federal policy be adapted to and at the service of the policy of the Government of Flanders with a view to reinforcing the competitiveness of our enterprises when it comes to costs, productivity, innovation and knowledge.
- However, this NIP is only based on the policy instruments for which Flanders is currently competent.

2.2. Vision on a New Industrial Policy for Flanders

- Central to the NIP is the realization that there is a need for a new productivity offensive based on transforming innovation.
- The traditional productivity model has reached its limits. The new model focuses on the latent productivity gains in a knowledge-based economy resulting from a better use of spillovers and unused creative potential.
- This is illustrated well by the concept of the **New Factory of the Future (FF)**. This is a production and service company for “creating” solutions with a high added value based on: (1) a strong innovation and design competence, (2) customer orientation and networking, (3) energy- and material-efficient technologies and (4) a creative human potential and reinforcement of the social capital. The FF is introduced in a strong network of high-performance manufacturing, process and service companies with an up-to-date production facility that is able to dynamically anticipate market demands. Within this framework, R&D activities can be initiated, open cooperation partnerships set up and training and interest in technical aspects stimulated. Both SMEs and large enterprises are mobilized.
- The FF is based on a cluster policy around internationally competitive industries, lead plants and lead companies connecting with lead markets and top research institutions. Special consideration will also be paid to this in working out the innovation policy.

- The FF should be ambitious in order to be able to operate on international markets outside the euro zone.
- The labour market, competence and career policy runs through the NIP like a red line and works in a supporting, remediating, reinforcing and modernizing manner on the other areas.
- Central to the NIP is that it is the companies that take the initiatives for change. The TINA fund is the lever to initiate and direct this transformation.
- The creation of **reinforcing levers** between the **NIP and the innovation policy** is of great importance here. The spearheads that both capitalize on our economic assets and on our innovation potential are central here.
- With the NIP, we want to be an **attractive location** for the construction of a number of value chains of the future. In the context of the evolution towards a greener and ageing economy, Flemish industry will be a leader in a number of European industrial initiatives for these priority areas. That is why we must use our competences and resources concentrating on a number of selected **spearheads** as defined by the Flemish Council for Science and Innovation (VRWI).
- The NIP is based on **creativity, involvement and sustainability**. It is a cornerstone of the **social contract** for sustainable employment. This includes a career policy whereby special consideration goes towards competence thinking in which everyone's talent, experience and possibilities are opened up and used in order to arrive at the right person in the right place at the right moment. When drafting the NIP, it is also important to take into account the impact on the development of a modern labour market. The application of the new career and competence policy with the NIP must contribute to sustainable employment and an increased degree of activity for the over fifties and young people among others. This gives rise to the central focus on flexicurity whereby the flexibility of the labour markets, labour organizations and labour relations on one hand and job security and income security on the other hand are increased. The NIP will thus become an important lever for making work in industry attractive again and to create prospects for job security and job creation.
- The NIP fits in with the WIP and fits in with the **attainment targets of FiA/Pact 2020**. The re-shaping and transformation of the industry indeed requires wide support from all stakeholders: social partners, business managers, employees, public services...
- Work will specifically be carried out on reducing the turnaround time with respect to the administrative decision-making by reducing the completion procedures among others.
- When drafting this NIP, the Government of Flanders bases itself on its competencies but at the same time, it is essential that the Government of Flanders be given the necessary leverage to purposively, responsibly and efficiently tackle the existing bottlenecks.

2.3. Policy

The NIP is an integrated policy aimed at enabling supervision of the necessary economic and social transformations of the industry with as little delay as possible. The policy aims at achieving this through a **productivity offensive** for reinforcing competitiveness. The NIP is not limited to classic automation but will consist of a wide range of measures in the field of knowledge intensification by open innovation, efficient use of energy and materials, new product service combinations, clever infrastructures and clever specializations.

The industry of the future is based on a transformation policy with four pillars (figure 1) plus supervision and support actions in order to achieve short-term results and successes.

- A **productivity and competition policy** aimed at a new productivity offensive with the *New Factory of the Future* as the hub for this. This policy will be carried out within a specific **cluster policy** whereby focus and choices are made.

- An **industrial innovation policy** that drives the *Transformation through Innovation* by way of specific innovation strategies.
- A policy of **career and competence development and the associated variable labour organization** that is meant to support the attraction, maintenance, development and re-orienting of the necessary current and future competences and thus give a new dimension to the hubs within companies and that also contribute to increased employment
- An **infrastructure policy** that increases support for system innovations and gives a new dimension to the WIP

The NIP also builds further on the existing industrial and scientific strengths that have been built up through years of efforts. As well as the importance of specific research in the NIP, the Government of Flanders will also in the future continue to concentrate on non-specific research as a guarantee for the future.

Non-specific research after all delivers the necessary oxygen in the long term for later innovative breakthroughs although this link cannot be made a priori. The current strategic research centres have their roots in the research financing provided by The Research Foundation – Flanders (Fonds voor Wetenschappelijk Onderzoek) among others. Non-specific research will also continue to lay the foundations for future spearheads.

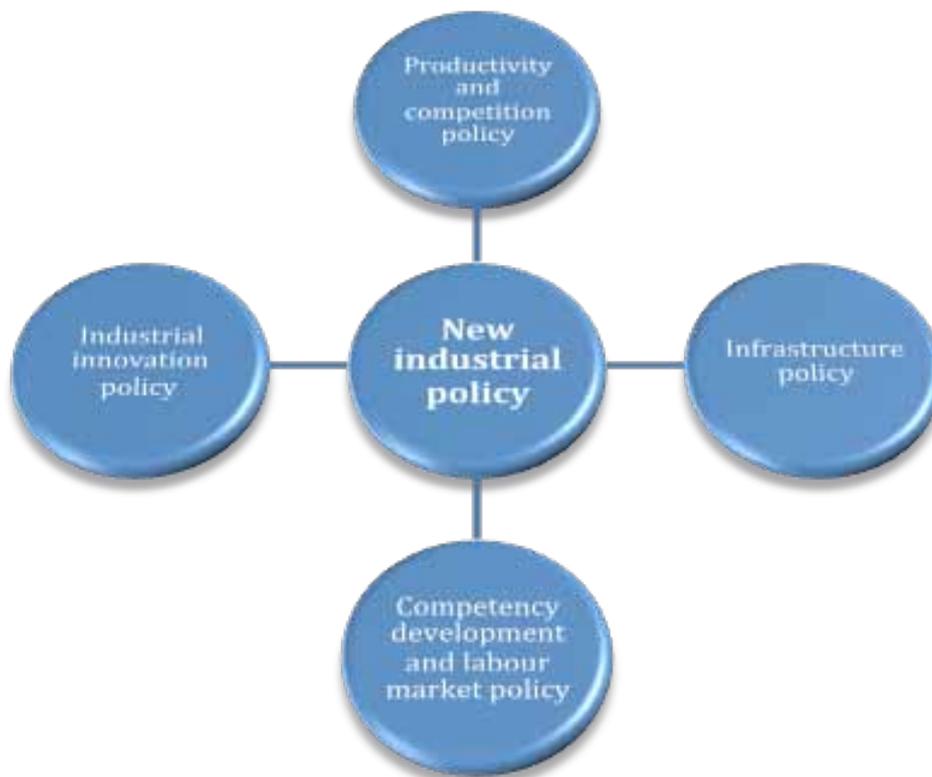


Fig. 1: New Industrial Policy NIP

2.4. Actions

In order to put this NIP into practice, actions are necessary within each of the four pillars, together with the actions for setting up the strategic governance structure and the short-term additional and supervision actions. This produces an integrated total of 50 policy actions.

2.4.1. New Factory of the Future (FF)

The New Factory of the Future (FF) consists of a number of programmes to make the industrial structure in Flanders more structurally competitive.

The nucleus of the transformation policy is the new productivity offensive with the Factory of the Future (FF) as the hub. Three elements are strategically connected here: (1) process, product and service innovation, (2) transformation pathways according to the type of industry (manufacturing industry, processing industry, knowledge-intensive and raw materials processing industry, (3) A system-specific approach on the level of value chains.

This implies that the FF is placed in a wider innovation and transformation strategy with a strategically sustainable positioning in the (global) value chains with special consideration for SMEs.

- **A 1 – New Factory of the Future for Sustainable Chemistry**

The Government of Flanders will take the necessary initiatives for introducing the first implementation of the New Factory of the Future based on the opinion of the IG Sustainable Chemistry. This choice fits in with the specific **cluster policy** that the Government of Flanders wishes to operate with respect to the NIP. The organization is based on the “light structure principle”⁶, which is necessary in order to maintain the strategic flexibility and may also serve as a model for initiatives aimed at other industrial sectors or value chains.

The Government of Flanders ensures recognition of the light coordination structure and contributes to its financing. Co-financing is provided for the R&D projects via the **Flemish Agency for Innovation by Science and Technology** (IWT), which will be allocated via a procedure to be established subject to testing within the strategic context of the IG Sustainable Chemistry.

Both the light coordination structure and the R&D projects contribute to innovation pathways that can be further implemented as TINA projects after having fulfilled the economic criteria. The integration of product and process innovation and their sustainability are central to this and are shaped in an FF.

- **A 2 – A suitable implementation strategy for the manufacturing industry**

Research is being carried out to see whether the same approach can be used for the manufacturing industry as for the raw material industry. It will be examined as to how the competence pool FMTC can contribute to a similar integrated strategy.

- **A 3 – Strategic research programme**

A strategic **research programme** in the fields of technology, design and business models that form the basis for the “**New Factory of the Future (FF)**” and with which Flanders takes part in European projects for “Key Enabling Technologies”. The further identification of opportunities and challenges and the organizing of a wider learning process regarding the FF are followed up by the **Department of Economy, Science and Innovation** (EWI) of the Flemish Administration in cooperation with the IWT. This will be based on a Policy Research Centre. This will also result among other things in the starting of demonstration projects, a “toolbox” for the FF, with instruments from various departments, training programmes, innovation (VIS) pathways, a programme for supervising spin-out pathways and an international project in which renowned production sites in Flanders take part.

- **A 4 – Incentive programme for SMEs**

An incentive programme for SMEs via the IWT innovation centres ensures pro-active supervision of projects and guidance towards the suitable (combination of) instruments. It initially ensures the facilities for the FF. Coordination between the Enterprise Agency and FIT is sought here.

A guidance programme for distributing good practices for “Factories of the Future” for SMEs aimed at certain clusters of activities ensures further support.

- **A 5 – Stimulating international networking**

Stimulating and facilitating **international networking and networks** with specific consideration for SMEs should enable the most renowned production sites in Flanders to learn, improve and be stimulated further to stay at the top. This takes place, among others, by participating in development, demonstration, benchmarking, production in spearhead domains and ensures international marketing and recruiting.

- **A 6 – Economic support of lead plants**

Location factors such as market demand, production and transport costs exert considerable influence. One must however also have an eye for the business-economic decision-making context and the role of the decision centres in this. A lot of industrial activity in Flanders takes place within production departments belonging to international groups. The level of embedding of this activity is therefore also influenced by the decision-making with the international group and by the internal relative importance of the Flemish establishment. An inspiring concept for an industrial embedding policy that is based on the offered competitive advantage of the regional innovation system in a context of international establishments is that of the *lead plant*.

According to Kasra Ferdows who introduced the concept, a *lead plant* “draws strength from the presence of knowledge and skills, uses this knowledge to develop products and/or processes and transfers its innovations to the group’s other factories”.⁷ The lead plant thus forms an important link in the business’s knowledge network, has a greater strategic value and will therefore have a more stable and secure future. The embedding of lead plants is therefore based on the intertwinement with the innovation system.

The concept is based on two dimensions that determine the strength of the position of a factory in an international business, i.e., [a] the decisive advantage of the factory’s location and [b] the level to which the factory contributes to the business strategy.

The location advantage may be based on (i) access to lower cost factors (as wage costs), (ii) access to knowledge and skills and (iii) access to the market. The strategic importance of a factor may be low as with a pure production unit or rather high as with a production unit that is also a “*centre of excellence*” in the business.

Multinational businesses operate the factories with a low strategic importance as flexible building blocks in their production network. The result is that there has been much development (closures and new locations) in this category. Such factories require little commitment regarding resources and are therefore easily added to or removed from the network.

There is said to be a *lead plant* if the strategic importance of a factory is great and based on skill and know-how. Their regional embedding is significant given the intertwinement in the regional innovation system. Knowledge and skills are therefore stable location advantages. This is less the case with “*access to markets*” as a location factor. Access to lower wages appears to be quite a volatile location advantage. *Lead plants* have therefore turned out to be a better guarantee for the factory’s future.

A study of lead plants in Flanders shows a significant interaction between innovation and production in the field of product development (pilot plant, test factory) or in the field of process development (developing and continuously improving processes whereby continual efforts are made to increase efficiency in the use of labour, materials, energy and capacity). The illustration above confirms this and therefore also the regional innovation system’s embedding potential.

In order to reinforce the *lead plants*’ portfolio, the lead plants will be examined to establish how they can be supported in their development via the Flemish Agency for Innovation by Science and Technology (IWT) programme of clustered feasibility studies. It will also be examined as to how this can be functionally extended to *lead companies*, these being Flemish businesses that show the same characteristics as lead companies but that are not part of a multinational.

2.4.2. Industrial innovation policy – transformation through innovation

- **A 7 – Sustainable chemistry**

The recommendations of IG Sustainable Chemistry are carried out according to the basic structure as stated under A1.

- **A 8 – Automotive**

The recommendations of the IG Automotive and the findings of the testing ground “electric vehicles” are included in the extension of the competency pool Flanders’ Drive. It will also be examined here as to whether wider strategic coordination with other approaches for the manufacturing industry is appropriate and then with particular regard to the Factory of the Future part.

- **A 9 – Identification of opportunities and challenges and further development and opinion from specific approaches via the IG**

The Department of Economy, Science and Innovation (EWI) follows up the further identification of opportunities and challenges in cooperation with the IWT. There are also the round tables for which coordination between innovation policy, transformation policy and complementary economic policy takes place best on a strategic level. It is therefore also appropriate that the further processing of integrated innovation strategies is advised by an IG consisting of innovation leaders and experts. The following initiatives are envisaged regarding the building sector, the food and agribusiness.

- **A 10 – Link with other innovation hubs**

Possible synergy with other innovation hubs (see concept paper Innovation Centre Flanders) is determined and used.

It is therefore appropriate to have coordination between action lines of the NIP and circular economy, sustainable material management and Cleantech within eco-innovation but also regarding the export possibilities for the Flemish environmental sectors.

The master plan **Green Economy** envisaged in the coalition agreement will be integrated and fast-tracked into the NIP by undertaking a series of concrete projects and investments that build a bridge between industry and economic policy and sustainable material management and energy management. For this, an IG Eco-innovation was contracted in order to advise on an integrated approach for this.

The innovation hubs Green Energy and Green Mobility and Logistics are mainly of importance for sustainability of industry but at the same time they of course offer themselves directly industrial opportunities. The ambitious attainment targets regarding the implementation of renewable energy can thus also offer new industrial opportunities (as well as the ecological and social added value that are delivered). Flanders can use the demand for renewable energy as a basis for stimulating the development from its own industrial sector in renewable energy that can also take its place internationally at the top.

The findings of the testing ground “electric vehicles” will also be considered.

Medical technology and e-health are of course possibilities under the innovation hub Care. And the innovation hub Social Innovation has at least a double relevance for the NIP.

First, there is the interaction with the FF and the new business organization whereby Flanders’ Synergy can play a leading role (see A18).

The transforming economy goes hand-in-hand with the changing society. Challenges such as ageing and early departure, shortage of technical/technological professions on the labour market and the need to deal with new entrants lead to the thinking/rethinking of adjustments to the working organization and otherwise using of talents and competencies. Elements such as workplace learning and workplace innovation are certainly factors whereby Flanders’ Synergy among others can play a role in the latter.

Finally, wider social innovation is playing an increasingly crucial role for the (business) economic success of innovation. It is often not only a pioneer of new economic activities (e.g., recycling shops, open source-based services and applications, microcredit, car sharing...) but just as often supporting for the acceptance and implementation of technological innovation (such as e-health). This insight into the power and importance of social innovation for a knowledge intensive and innovative economy is also at the base of the EU initiative for social innovation and is emphasized in the final report from the IG "Social Innovation"⁸: Advisory letter 156 from the Flemish Council for Science and Innovation (VRWI) however indicates the strong interaction between technological/ economic innovation and social innovation and the opportunity for transposing good practices of social innovation to other economic sectors. It is therefore also pressing for the strong involvement of business.

- **A 11 – Link with Strategic Research Centres (SRCs)**

The Strategic Research Centres (IMEC, VIB, IBBT and VITO) have a special accountability in the transformation process of our industry due to their active contribution to their specific domains. They will therefore also be heavily involved in the strategic industrial research policy. The Minister for Scientific Policy and Innovation ensures that their involvement is laid down in their respective management agreements.

- **A 12 – Collection of information as the basis for the long-term vision**

There is a strategic analysis capacity necessary for supporting the innovation groups and the round tables in identifying opportunities and strategic challenges. This is completed by a Policy Research Centre.

- **A 13 – Norms, standards and regulations as leverage**

EWI (Departement for Economy, Science and Innovation) is contracted to research how norms, standards and rules can be better applied in order to promote innovation and the desired transformation. It is also being examined whether an approach such as the Japanese *Top Runner Model*⁹ of phased intertwinement of norms based on the best performing applies in Flanders.

The applying of norms, standards and rules according to innovation is becoming a systematic point of interest for the IGs and the innovation strategy and the menu of support measures to be worked out and advised by them.

- **A 14 – Innovative tendering**

The instrument for innovative tendering will be pro-actively used as part of innovative and transformation strategies. For this, among others, the knowledge centre Innovative Procurement is being further extended and the administrations' attainment targets are formulated in order to reserve a certain percentage of their tenders for this attainment target.

- **A 15 – Economic support of lead plants**

A study of lead plants in Flanders¹⁰ shows a significant interaction between innovation and production in the field of product development (pilot plant, test factory) or in the field of process development (developing and continuously improving processes whereby continual efforts are made to increase efficiency in the use of labour, materials, energy and capacity). This is clearly shown in the illustration above (see A6) which consequently the regional innovation system's embedding potential.

In order to reinforce the lead plants' portfolio, the lead plants will be examined to establish how they can be supported in their development via the IWV programme of clustered feasibility studies. It will also be examined how this can be functionally extended to lead companies, these being Flemish businesses that show the same characteristics as lead companies but form no part of a multinational.

- **A 16 – Eliminating obstacles in financing innovation**

Better coordination of and identifying the available financing and economic policy instruments of the Flemish Government (EOI), among others via optimal cooperation between the Partici-

pation Company Flanders (PMV), the Flemish Agency for Innovation by Science and Technology (IWT) and the innovation centres and coordination with the Enterprise Agency (Agentschap Ondernemen) is ensured.

- **A 17 – Support**

The Minister for Scientific Policy and Innovation is preparing a new innovation pact in which special attention is paid to coordination according to the NIP in line with determining the coalition agreement: “This is a positive coalition of government, knowledge and scientific institutions, higher education and industry for use in innovation, modernizing and specialization. Together with the focus on spearhead domains, we are thus achieving a scientific policy with social added value and aimed at sustainable job creation and the greener economy”.

2.4.3. Competence development and work organization

- **A 18 – from job security to work or career security**

The labour market poses us great challenges among others due to the ever faster transformation of industries and production processes, the increasing number of shortage occupations and the ageing of the working population. Then there is the changing job structure and faster changing of the required competencies that satisfy the needs of businesses.

The attainment target of more people in work, in more workable jobs and on average, in longer careers is translated within the NIP by a new career vision. The attainment target is also working on more competitive businesses.

Against this background, it is important, due to the noted declining job security, that more emphasis be placed on the move from **job security to career security**. All players involved in the labour market must in this case make an effort.

This move is of crucial importance if we wish to achieve the following, among others:

- Creating a competitive and sustainable economy
- A higher employment rate
- Reinforcing people’s sustainable employability
- Better harmonization between supply and demand

Transformation from industries and production processes also goes hand-in-hand with social innovation processes: the development of the knowledge-based economy indeed also requires at the workplace other (work) organization models and a large number of innovations are also socially or work related.

These developments also lead to new social innovation processes relating to organization modernization (for example, involvement, knowledge sharing, autonomy, etc.), modernization in corporate culture, regarding quality of work, etc... and respond to concrete problems whereby businesses in the working organization are confronted such as the necessary reconversion of employees, making this attractive in order to recruit new employees, keeping people in work longer due to adjustments to the work organization and getting rid of absenteeism ...

Within the framework of the NIP, we wish to work out an offer for supervising social innovation in transforming sectors. As well as the employers’ and employees’ organizations, we carry out, among others, a specific role for **Flanders’ Synergy** and for *Captains of Industry* as motors of social innovations. The latter can also act as mentors for innovation processes in other businesses.

- **A 19** – Consideration for long-term modernization processes from the school career to study choices for technical professions
- **A 20** – A mobilizing project for industrial talent from the policy regarding science communication to young persons

- **A 21** – Excellence Centres – sustainable coalitions for developing industrial talents among others
- **A 22** – Providing the extension of a flexible training offer from the Flemish Service for Employment and Vocational Training (VDAB) and Syntra in competence partnerships with sectors and private training providers that also enable future-specific investments in competency infrastructure
- **A 23** – Image campaign: Annual organization of week/day of industry with open door days for apprentices, jobseekers. Initiatives that bring together technology, science, marketing and design and that produce a positive image from our industry can have an attractive effect.
- **A 24** – Providing technical and industrial training: The reforming of secondary education offers priorities for industrial training. This is an opportunity to reinforce the technical and technological components within the framework of supplying the training.

Higher vocational training in industry in order to complete missing training between secondary and higher education is also an important theme that the industrial sectors and training should examine further.

Extending workplace learning in secondary education also offers prospects for both the students and for schools and teachers.

- **A 25** – From a governance structure approach and also proposed by the Industry Convention (Staten Generaal van de Industrie), a **Working Group Industrial Talent** should be set up whereby the industrial partners, VDAB, Syntra, the educational partners, employers and employees will examine what actions can be started in the short-to-long term whether or not within a regular policy.
- **A 26** – Building up competencies for the future in cooperation with businesses by among other things, increasing the importance of “on the job training” as this has a direct and important effect on the productivity via mainly positive learning effects¹¹. This is in connection with efforts to increase workability.

2.4.4.. Supporting infrastructure policy

- **A 27 – Critical infrastructure and networks for system innovation**

The ICI instructs the administration to prepare a vision and an **integrated multi-annual planning**¹² of current and planned infrastructure investments envisaging:

- Critical supporting infrastructure for the transformation and market development for system innovation such as intelligent networks for energy, mobility and logistics and communication.
- Setting up a framework and a system for large infrastructure investments that support the desired system innovations and that are financed among others, by the people’s loan stated in the coalition agreement.

- **A 28 – R&D and innovation infrastructure**

Research infrastructure largely contributes to the innovative capacity of a company and its economy. This is in line with the ambition of the Government of Flanders to ensure that the necessary research infrastructure is provided as an internationally deciding factor. This fits into a wider policy regarding the research and innovation infrastructure using several instruments.

- Investments in research infrastructure in Flemish public knowledge institutions (Herculesfinanciering)
- Contribution to the spatial material infrastructure (e.g., science parks and indicators) via Flanders Enterprise
- Creating an advanced innovation infrastructure (for example, in “application labs” where businesses can try new technology) by promoting cooperation and synergy

There is an increasing number of grey zones between the motivation (rationale) for private investments (private return) and public investments (societal return) in vital infrastructures for the knowledge-based society with the purpose of the semi-public character of knowledge (spillovers in use). A more flexible approach is therefore necessary in order to avoid under-investment in common infrastructures with sufficient scale. This is especially true for pilot installations to test new breakthroughs.

We therefore wish to research how we can appropriately reinforce the research and innovation infrastructure by promoting cooperation, using synergy and possibly through investments.

- It must be initially examined how available infrastructure can be made more accessible in an open innovation platform. Synergy gain increases the efficiency and helps businesses and knowledge institutions to handle their overcapacity more efficiently.
- • Developing an appropriate research and innovation infrastructure can form part of a TINA project if this is an integrated element of the business plan and is essential for rolling out the innovation pathway. It would also be interesting for Flanders if the proposed projects for the respective investment were also to include important complementary assets for the respective investment created in Flanders, which will ensure that the envisaged innovations will endure. This means that the proposed project not only creates the necessary mutual influence (spillovers) but also that the project strengthens the coordination between the technology, knowledge and assets present in Flanders, which then will result in other complementary assets. These complementary assets embed the innovations because they explicitly link the developed and used knowledge to a differentiated, unique infrastructure basis.

- **A 29 – Innovative tendering**

The knowledge centre is being further extended and will assist all governments in the effective application of the government procurements for sustainable innovation of their services in cooperation with innovative businesses and clusters. The administrations will be set attainment targets in order to reserve a certain percentage of their tenders for research and innovation.

2.4.5. Strategic governance structure (fig. 2)

- **A 30 – Interministerial Committee for Industry (ICI)**

The highest authority responsible for a coherent industrial policy is the **Interministerial Committee for Industry (ICI)**, which will be set up within the Government of Flanders. The ICI acts as a monitor of the integrated industrial policy on the level of the Government of Flanders. The ICI is responsible for ensuring the coherence of the New Industrial Policy. This accountability translates into the setting of the short and long-term attainment targets, deciding the budgets and structures, adjusting the plans and initiating debates and research regarding new challenges supported by impact analyses from new trends in industry. The ICI is comprised of the Ministers of Economy, Innovation and Labour. Other ministers will also play an important role in this.



Fig. 2: Strategic Governance Structure

- **A 31 – Setting up an Industrial Council (IC)**

In order to support the ICI and in order to supervise both the strategic and operational decisions in their implementation, the ICI will be **advised** by a limited number of **independent industrial experts with an international profile and/or recognition** (bringing together industrials, academic experts and professionals) in an Industrial Council (IC).

The Industrial Council (IC) has three important responsibilities:

- **Orientation:** The IC has an important role in setting up and ensuring a specific cluster policy. This cluster policy should ensure that the necessary focus and selection take place in order to achieve the attainment targets of the industrial policy. In this view the Industrial Council will install a process by which transformation projects can be requested using objective selection criteria within Flemish industry. Following an evaluation, these transformation projects can also be forwarded to the respective authorities such as Flemish Agency for Innovation by Science and Technology (IWT), Participation Company Flanders PMV & TINA Fund, the Enterprise Agency, WSE, VDAB... This process should enable gradual selection and orientation of transformation projects. Within the selection process, the TINA Fund will play a very important role as capital fund for industrial transformation. Formulating proposals regarding this process also concerning selection criteria such as organizing an "SPC" Single Point of Contact, is one of the IC's first tasks.

- **Coherence:** The IC must help to ensure and supervise an effective, well-thought out and coherent implementation of the envisaged industry transformation process as stated in the White Paper NIP. The IC will for this receive regular insight into the status of the decisions taken. The IC will for this task also base itself on the opinions of the Innovation Groups within the frameworks of the innovation hubs.
- **Evaluation:** The ICI wishes to assure itself that Flanders as an open economy keeps an international eye on developments and new challenges from industry in order to be able to detect important trends or changes in order to be able to adjust the current NIP. The IC will therefore regularly evaluate the effectiveness and efficiency of the total NIP both regarding processes, policy instruments and decisions taken and structures built up and check these internationally. The IC will submit to the ICI a report based on its perception proposing recommendations and adjustments.

- **A 32 – Operational support headed by EWI**

Operational support and reporting of the programmes, the projects and the various management structures will take place by the Flemish administration via the **Department of Economy, Science and Innovation** (EWI) to the ICI. An interdepartmental structure headed by the department EWI will take care of this by the operational coordination and support both to the Industrial Council (IC) and the Interministerial Committee for Industry (ICI) but also the coordination of the four pillars of the NIP.

- **A 33 – Follow-up by the Industry Convention**

A new round table model will be developed as an important transformation instrument. These will be initiated and managed by the ICI on an ad hoc basis.

A start will be made in 2011 on the round tables for the four sectors that have already developed action plans for transformation within the framework of the Industry Convention precisely in order to develop these further and to put them into practice.

The aim of a round table is setting up and systematically implementing a **strategic agenda** for transformation and future-oriented value creation with the help of the knowledge infrastructure among others. The **EWI Department** of the Flemish administration is responsible for carrying out the innovative sector policy and organizing round tables. The Department will provide the necessary staff and resources within the Enterprise and Innovation Division for efficient supervision of the round tables.

A round table is also being organized in 2011 for the **Creative Industry** with special consideration for **industrial product design** competencies. **Flanders Inshape** among others will be playing an important role in this.

A new pathway will be starting in the autumn with new sectors (such as the construction sector and the air travel industry).

- **A 34 – Sector consultation via the SERV**

The sector consultation via **Flanders Social and Economic Council** (SERV) retains its institutional function of harmonization between social partners regarding these transformation agendas. This approach by the innovative sector policy will form part of consultation within the Flemish Economic and Social Consultative Committee (VESOC). The sector committees have an important agenda here for anticipating the transformations in their sector and for facilitating social innovations to enable the realization of the common attainment targets.

- **A 35 – Specific opinion via the VRWI**

Given the central place of innovation in the NIP, parallel involvement by the **Flemish Council for Science and Innovation** (VRWI) is ensured among others by setting up IGs for developing and advising on specific innovation strategies.

2.4.6. Supervising and supporting actions

- **A 36 – Implementing proposals from the Commissions Berx and Sauwens**

Further implementation of the proposals from the **Commissions Berx and Sauwens** in order to reduce the turnaround time for *investment projects*, among others, the implementation of a project approach thus gaining lots of time is important for building large infrastructures.

- **A 37 – Space for entrepreneurship with attention for sustainability**

Providing *space for entrepreneurship* via a permanent evaluation of supply and demand in order to find businesses and potential investors the space to carry out their plans will take place under coordination of the Enterprise Agency.

This ensures optimal space for use and sustainability (e.g., sustainable business terrains set up as eco systems with their own chain loop). Such an approach can reinforce clusters.

- **A 38 – Supporting energy-efficient investments**

Evaluating the effectiveness of the ecological incentive and research into support mechanisms for techniques with a high CO2 reduction and energy saving potential.

Initiatives are taken for supporting investments in energy efficiency in Flemish businesses. One might think here of a system of green guarantees for bank financing of energy-saving measures.

- **A 39 – Stricter Energy Performance of Buildings (EPB) norms**

Implementing stricter EPB norms among other things for offices and industrial buildings with a view to achieving *near energy neutrality* in 2020. For the existing offices, there are already Energy Service Companies (ESCO's). Also the Flemish Energy company will focus on these ESCO's as there is still a lot of energy to be saved here.

- **A 40 – Policy of managing the total production cost**

The competitive position is partly determined by the differentiation and innovation capacity of the businesses and the total production cost. As the differentiation capacity declines and one has to compete in more homogeneous markets, the costs will have a greater impact on the competitive position. But also with successful differentiation, efficiently managing the total production costs and keeping these manageable remain important.

These total costs can consist of various elements such as energy costs, wage costs, material costs and transport costs and are always in proportion to the productivity and the added value. These costs and these proportions can vary greatly depending on the activity and therefore according to the link in the value chain. These differences are an important force for fragmenting the value chain and delocalizing certain activities to, for example, low-wage countries and/or countries with lower energy prices. This involves, in a future-oriented industry policy also taking explicit account of the expected dynamic of these cost factors. Illustration: a big change in the transport costs may lead to other proportions in the total production costs between various regions and so are the causes of an interregional production reshuffle. Increasing transport costs for larger material products can be an incitement to move the production closer to the market. Higher transport costs due to congestion can stimulate clustering of OEMs and suppliers. However, new transport possibilities such as delivering IT solutions via the Internet can also involve important shifts in the product location as seen from the success of the IT cities in China. The impact goes even further and affects the demand for competencies.

The NIP also has an eye for clever management and making manageable of the total costs as well as the main purpose of reinforcing the industrial structure by making its competitiveness less dependent on the cost elements but mainly to base it on the innovative capacity. This includes the following elements:

- Managing the various cost elements both by improving efficiency and managing the unit cost
- Optimizing the mutual proportion of the various cost elements in the total cost

- Embedded in and coordinated with general consideration for social and ecological sustainability
- Responding strategically to future shifts and trends
- **A 41 – Making industrial energy costs competitive**
 Making industrial energy costs competitive by, among other things, efficient green energy policy, stimulating energy efficiency and an efficient mix of energy sources and contributing as much as possible within its own powers to investments in capacity and better market dynamics
- **A 42 – Coordination with federal policy regarding competitiveness**
 Some federal competencies are crucial to the success of the regional NIP. It is important that the federal policy be adapted to and at the service of the policy of the Government of Flanders with a view to reinforcing the competitiveness of our enterprises when it comes to costs, productivity, innovation and knowledge. Competitiveness must be increased, for instance by tackling the labour cost handicap. A reduction of labour costs, e.g., for shift work and an extension of the exemption from withholding tax on professional income are essential as is a tax system that encourages growth or extra tax incentives. This will be brought to the attention of the Federal Government and where relevant and necessary, it can be included in consultation with the other regions.
- **A 43 – Coordination with a policy regarding transport and material costs**
 Location decisions are partly effected by the projection of transport costs. These will be taken into consideration with the transformation strategies.
 Material costs are becoming more and more of a strategic factor (see EU strategy). Flanders will base its policy on this with special consideration for sustainable material management, chain loop approach (cradle-2-cradle) and reducing dependence.
- **A 44 – Environmental permit with periodical evaluation**
 It will shortly be examined as to how the environmental permit expiry period can be replaced by a system with periodic evaluation.
- **A 45 – Industrial spin-outs**
 Reinforcing the industrial structure through industrial spin-outs
- **A 46 – Computerizing processes**
 Speeding up the computerization of processes by increasing productivity in the service sectors, including social and public services
- **A 47 – Export and internationalization policy more focussed on growth countries**
 Flanders Investment and Trade (FIT) agency instruments therefore place, except for export-related and industrial activities even more emphasis on other forms of internationalization (import and strategic cooperation alliances) and service sectors (creative services, business services, logistics services ...). FIT facilitates international partnerships (among others, by partner search) and delivers extra efforts for entering new growth markets.
 Within the framework of innovation and internationalization, supporting actions from the FIT are coordinated to the IWT support instruments.
- **A 48 – Specific targeting of foreign investment**
 Successful innovation normally takes place in “networked” environments. We can speak of a “community” in which all sorts of implicit or explicit (institutional) mechanisms channel and enable spillovers (transfer of knowledge, training and valorizing employees, innovation infrastructure ...) and therefore also ensure better risk management.
 Success often depends on one cluster or several motivators. In a constantly more globalized economy with international value chains, this implies that these motivators are international play-

ers. It is therefore important – certainly in the context of specific innovation strategies but also as leverage for the NIP – that we pro-actively point out the strengths of Flanders to relevant international innovation players and try to convince them to participate in the Flemish innovation system.

We therefore wish within the Flemish policy to attract foreign companies with a great deal of added value for our region and the social challenges we face. We also wish to valorize the knowledge built up within our Flemish universities and knowledge institutions in pathways with international businesses and thus ensure there is always good feedback to our region (in terms of employment, added value, growth and innovation dynamics ...).

The foreign representatives of FIT are the appointed persons best able to “spot” the trends and opportunities abroad. The technology attachés of FIT must also be the ambassadors for making known the international investment and research pathways from Flanders and for supporting the search for economic and technological international partners. This takes place according to the existing agreements in cooperation with the Enterprise Agency.

- **A 49 – Supporting policy-relevant research**

Further research from the driving forces of the industrial welfare creation in Flanders within the framework of Policy Research Centre. A special research contract will be put out to tender for this. This research consists of three phases: (1) mapping out the added value per industry/economic sector (2) determining the clusters with the most growth (3) detecting the mechanisms that are the basis for this growth by way of specific case studies.

- **A50 – Aiming strategic training and investment support (SIOS) at transformation**

The continuous knowledge development and innovative force largely depend on the knowledge and skills of the human capital available to businesses. Supporting and reinforcing these human capital are therefore of more and more strategic importance. It is therefore justified for the Government to subsidize the training costs given their general economic development impact. All of this of course applies as far as the stimulating effect of the training support as described in the Communication “Criteria for assessing the compatibility of State support to be announced individually for the purpose of training”¹³ is respected.

Strategic training support can only be given if the programme anticipates a period of change and the business complies with the three pillars of the sustainability concept. Additional research will examine whether the instrument of the strategic training support thus sufficiently anticipates the main lines of the new industrial policy. It will also be examined how and to what extent the instrument can be opened for cooperation and networking associations and for smaller programmes that are generally based on smaller innovative enterprises subject to budgetary adjustability. The Minister for Economy will draw up an adjustment proposal based on this.

Strategic investment support can currently be given if the investment undergoes a *change* for the business that translates into a whole raft of decisions of which the consequences are difficult to reverse and that strive for long-term improvement and have an influence on the entire organization. This is expressed in the fact that the business should be a deep-going transformation process. The business must also comply more than on an average level with the policy priorities of the Government of Flanders. These are translated in the *triple bottom line* or the sustainability concept in its three aspects: economical, ecological and social. Whether this means that the instrument of the strategic investment support sufficiently anticipates the main lines of the new industrial policy will be the object of more precise research. The Minister for Economy will draw up an adjustment proposal based on this.

2.5. Short-term planning (2011-2012)

2011

- May: Round Table for the Creative Industry. Special consideration will be paid here to product design competencies. A new project will be starting in the autumn with **new** sectors (such as the construction sector and the air travel industry).
- July: Setting up of the Interministerial Committee for Industry.
- From July: **TINA** (Transformation and Innovation Acceleration) **Fund** with €200 million can handle cases and play an important role as a financial lever for the NIP and the transformation.
- From July: Round table for the four sectors: Chemistry and Life Sciences, the Technological Industry, the Feeding and agribusiness and the Textile, Wood and Furniture Industry that have all developed action plans for transformation within the framework of the Industry Convention precisely with the aim of developing and putting these into practice (test pathway).
- September: Operational implementation of the strategic policy structure.
- From September: Launching the first major project **New Factory of the Future** around sustainable chemistry.
- A start will be made in 2011 on the additional research into levers, motors and clusters of industrial welfare creation in Flanders.

2012

- Setting up long-term plans around the infrastructure policy and starting on the development of large projects with important infrastructure components.
- First assessment of the policy framework and the 50 policy actions proposed in this White Paper. This will take place every year and be updated based on structured consultation with the other policy domains within the framework of the New Industrial Policy and consultation with the social partners via VESOC and contribution of the strategic advice councils and the Industrial Council. This will be reported in the policy letters from three ministers forming the ICI.

3. REASONS AND OBJECTIVES

3.1. Introduction

The worldwide economic crisis has sped up the transformation of the economy, especially in the industrial sectors. It has also become clear that control of public debt will, in the light of the ageing population, more than ever become a point of attention. A crucial question for the policy is therefore how we must react to these challenges so that the creation of prosperity based on a dynamic economic and industrial structure can generate the necessary employment, growth and resources to satisfy tomorrow's needs.

We are convinced (cf. appendix) that a strong, future-oriented economy in Flanders needs a strong industrial basis. We therefore choose an industry of the future, which implies a transformation of our economy. A contemporary New Industrial Policy (NIP) is necessary for this.

The Industry Convention have laid the foundations for this NIP, which is aimed at the structural reinforcement of our competitive position via transformation and innovation, a value chain approach, internationally outstanding clusters and a concentration of resources in order to achieve breakthroughs. Four professional associations (the food industry, the textile and wood sector, the furniture industry, the technological sector and the chemical industry) were invited to develop short-term strategic action plans for transformation. The Industry Convention intention was to speed up the transformation. The plans were presented at the beginning of July. This has generated a new dynamic within and between the sectors. Now, we must connect these action plans of the sectors to a policy for the industry of the future at the level of the economy as a whole.

The objective of this White Paper is to propose a guiding policy framework with respect to the NIP. This NIP is aimed at providing the right framework and stimuli for the transformation of our industry within the context of a partnership between the Government, the social partners and businesses. This White Paper is therefore an interim reflection of the intensive consultations with the different stakeholders, which started with the Industry Convention on 5th February 2010 and serves to continue opening up the debate on how the policy can contribute to the realization of this transformation. Hence, the **central question** in this debate is how best to organize the NIP in order to achieve an **intelligent transformation of the industrial structure** (*re-industrialization*) of our economy fast.

The current crisis has made the weaknesses, limitations and dangers of the economic model apparent in at least three aspects: (1) economic growth cannot be maintained just like that, (2) the free market does not lead to the most efficient and desirable results, (3) existing regulations and government interventions are not enough to avoid a crisis of the system.

The crisis that has been lingering since 2008 has reopened the debate on what the role of government intervention in market dynamics should be. After decades of promoting the *free market economy* (Tatcherism and Reaganomics) with a limited role for the Government, institutions such as the European Commission¹⁴ and the World Bank¹⁵ are taking the initiative in a nuanced plea for not necessarily more but a smarter industrial policy.

For instance, the European Commission (EC) states that the industrial policy is focused on creating an optimal environment to provide the "industry" (broadly defined) with maximum opportunities to develop itself and grow in a globalizing and fast-changing environment. Growth in this context is mainly achieved by increasing one's competitiveness, i.e., by creating a high added value.

Based on recent research and the innovation score board of the European Commission, the challenges for the Belgian industrial policy are summarized as follows:

“Apart from the short-term concerns related to the economic crisis, such as getting easier access to bank financing, the main challenge facing industry is the Belgium’s business environment which is characterized by high administrative burden and heavy legal and regulatory framework. Moreover, the innovation system which has a low share of new science and technology graduates and a low share of high-tech exports in total exports, needs structural improvements, for example improved networking between clusters – general support measures for private research, in particular for SMEs.”

The World Bank distinguishes between a **“soft” industrial policy** and a **“hard” industrial policy** where “hard” industrial policy refers to direct government intervention via subsidies to companies and sectors. A “soft” industrial policy on the other hand is aimed at eliminating coordination problems between businesses and sectors¹⁶.

Both academics and international institutions recognize the past mistakes and dangers of an industrial policy that is failing in various countries but they also recognize the success stories¹⁷.

Hence, a **structural transformation** is essential for economic growth and the growth of companies and sectors that replace or renew the traditional ones. This requires a “mix” of market dynamics and State aid.

Too much government intervention kills creative entrepreneurship but too little intervention can lead to a lack of innovation and change.

An NIP is about stimulating innovation, competition and investment in know-how; it is about facilitating the transformation and restructuring of shrinking sectors/enterprises via the development of new value chains where a new or higher added value is created.

What does an NIP not stand for? Ad hoc interventions and “choosing” winners or “saving” losers, more regulation or more State aid. It does stand for smarter and better regulation, such as State aid in the context of a more general long-term attainment target (e.g., a green economy or sustainable mobility).

In other words: with a **new industrial policy**, the Government does not want to put itself in the enterprises’ position. It is not about choosing or selecting certain projects a priori. It is about encouraging businesses’ competitiveness to the maximum, via four lines of action:

- A **productivity and competition policy** aimed at a new productivity offensive with the new Factory of the Future as the hub for this
- An **industrial innovation policy** that drives the Transformation through Innovation by way of objective innovation strategies
- A **policy of competence development and labour organization** that should also support the attraction and maintenance of the necessary competencies but should also shape the necessary social innovation by a new sector policy that the NIP will concretize by way of round tables.
- An infrastructure policy that increases support for system innovations and gives a new dimension to the WIP

These four lines of action are the basis for the common role of the Government and industry in the NIP.

3.2. Targets and reason for a Green Paper and a White Paper

Flemish industry is going through a structural crisis. The drop in employment is the symptom of the thinning of the industrial structure to a point where the survival of entire sectors is at stake. Our sources of economic value creation are drying up and they are not being replaced with sufficient new future-oriented and competitive value-creating activities.

The industrialization of Flanders reached a peak in the 1960s and 1970s as a result of the internationalization of the economy and especially the development of the European internal market. It survived relatively well during the first waves of globalization thanks to a productivity offensive which made our industry one of the world's top players when it comes to labour productivity. The distribution of the productivity gains was the basis of the post-war social contract.

This advantage has however been seriously challenged over the last decade. The growth model of capital intensification (automation) in sectors that were mainly oriented towards the mass production of semi-manufactures has been exhausted. Flemish industry is a victim of its success because too little was invested in innovation aimed at new growth markets (where products and services are concerned and geographically).

The current wave of globalization with the rise of the new growing countries is even more disruptive and coincides with a transition of the industrial growth model itself to a more sustainable growth model under pressure from the global social challenges. Flanders needs a **new productivity offensive** to safeguard its social system and play a role in the new economic order.

- This productivity offensive will be based on new technological and business models for the knowledge-based economy, repositioning within future-oriented value chains and capitalizing on the latent productivity gains in a knowledge-based economy resulting from a better use of spillovers and unused creative potential. This should then lead to a **new (implicit) social contract for sustainable growth and employment**, such as the one that came into being in the post-war years. It is important when drafting the NIP to take into account the impact on the development of a modern labour market. The NIP must for example be able to contribute to sustainable employment and a higher employment rate for over 50s and young people. This requires adapted career management. The NIP will thus become an important lever for making work in industry attractive again and to create prospects for job security and job creation.
- The NIP is the lever for an (innovative) industry of the future and an “industrialization” of the service economy (by integrating ICT), making it possible for the Flemish economy, with a number of specialized clusters, to be a competitive component within the European and global value chains. The key to this is a transformation policy aimed **at supporting these strong clusters with a customized policy** for innovation and productivity. Flanders can once more play a leading role by developing strong synergy within and between these clusters based on open innovation and shared infrastructure. The industry of the future is an infrastructure for new product-service combinations. Flanders can use its rich tradition in engineering and logistics services for this – sectors in which recent reports still include us among the world's top regions.

With the Green Paper and then with the White Paper, we wanted and want a **debate** on the NIP with all those concerned along three main lines:

- What is our **vision** of the “industry of the future” in Flanders? To answer this question, we must start from a correct analysis of the current situation of industry in Flanders, taking into account economic trends and development within the international context.
- What **policy options** are there to achieve the transformation to such an industry of the future? Here, we must also look at the available policy instruments.
- What **actions** must we take to really speed up the economic transformation?
- What process must we develop in order to effectively implement the transformation?

4. POLICY CONTEXT

On the one hand, the development of an NIP in Flanders is based on trends in the international policy environment and the international debate on the place of industry in this and on the other hand, on a correct analysis of the problem of the competitiveness and power of innovation of industry in Flanders. On this basis, we can draft an outline of a vision of industry of the future in Flanders. This will be the foundation for the policy framework, policy options and actions.

4.1. The international context

Most countries are searching for an NIP able to handle the challenge of sustainably restoring the competitiveness and the growth dynamic that were affected by the economic crisis. The connection of the industrial policy to the major social challenges in a global transformation agenda is characteristic.

In June 2009, the OECD adopted a *green growth strategy* for smooth transition to a new growth model driven by innovation and greening. The financial and economic crisis has prompted the European Commission to draft a new European policy as a successor of the Lisbon strategy. This took shape within the framework of the Europe 2020 growth strategy and revolves around three priorities: clever, sustainable and inclusive growth¹⁸.

Smart growth means an economy based on knowledge and innovation. **Sustainable growth** stands for a greener, competitive economy in which resources are used more efficiently. **Inclusive growth** refers to an economy with high employment and social and territorial cohesion. In order to achieve this, five measurable EU goals for 2020 have been defined. These are transposed into national goals in the areas of employment, research and innovation, climate change and energy, education and poverty reduction. The concrete goals are as follows:

- 75% of the population aged between 20 and 64 must have a job.
- 3% of the EU's GDP must be invested in R&D.
- The 20/20/20 climate and energy attainment targets must be achieved (including a larger reduction by 30% if the conditions are fulfilled).
- The percentage of early school leavers must be lower than 10% and at least 40% of the younger generation must hold a diploma of higher education.
- The number of people at risk of poverty must be reduced by 20 million.

In this context, the European Commission also proposes a number of catalysts to facilitate this transformation. In times of globalization, an NIP is an important cornerstone for this as is the construction of an **innovation union**¹⁹ that improves the cross compliances for and access to financing for research and innovation, thus transforming the innovative ideas into products and services that generate growth and jobs.

To this end, new policy instruments, such as **Innovation Partnerships** and **Smart Specialization** are proposed and the importance of an integrated policy on both the supply and the demand side is emphasized. Innovation is focused more on social challenges and entering into so-called Innovation Partnerships relating to large-scale social needs connected to: the ageing of the population, the provision of clean water, raw materials, urban management, a low carbon economy, leadership in environmental sectors, etc... It is important here to identify social needs with clear economic effects. This way, social needs become economic levers. What is also important is that social needs, precisely because of their generic nature give rise to and facilitate a broad platform of industrial and service activities.

In this context, the principle of a horizontal, integrated approach of the industrial policy (from regulation to public procurement) is adopted to support the transformations of industry, concretely the transition to: **higher energy and material efficiency in industry** and **a faster restructuring** of sectors that are having difficulties to future-oriented activities, growth of SMEs and internationalization.

The EC has only limited competencies in industrial policy, so it is primarily a coordinated effort of the Member States themselves that is expected²⁰. It is however also a good idea that the NIP also tests its international dimension to the processes of modernized industrial policy such as this currently outlined on the level of the European Commission among others within the framework of the *EU2020-Flagship-Initiative Industrial Policy*. New initiatives regarding an NIP are also seen to arise in various other European countries but also in the United States. This NIP is a search for a structural approach of the conditions for the existence of the secondary sector in a global knowledge-based economy. In this search, care is taken to draw a clear line between this new approach and a discredited Old Industrial Policy (OIP) with a protectionist and dirigiste nature. This is already resulting in new policy approaches, also in our neighbouring countries, which should be taken into account by Flemish policymakers.

In France, an industrial policy is being developed along value chains. As a result of the *Etats-Généraux de l'Industrie*, on 8th July 2010, in implementation of a 23-point action programme, a Conference Nationale de l'Industrie was created as a permanent consultation body on the NIP led by the Prime Minister.

One of the most important measures is the creation of *Comités Stratégiques Filières* for 11 strategic and growth markets in which all those involved in the reinforcement of the competitiveness of that value chain from raw material to end product work together on a strategic road map (i.e., shared vision, common innovation, proactive competency and employment policy and reinforcement of sustainable cooperation relationships within the chain).

A point of attention is the fragility of the SME structure due to a lack of strategic investment in the midterm. These road maps are elaborated at the regional level, with a specific project, *Structuration des filières industrielles stratégiques françaises*, at the regional level. To this end, a € 69 million call was launched in September for projects relating to: (1) common industrial entities, such as pilot plants or testing facilities (2) common services such as logistics and marketing platforms (3) strategic guidance for SMEs aimed at raising awareness and providing advice relating to strategy development within value chains and (4) the creation of specific financing funds per chain. In total, € 1 billion has been reserved for these value chains.

In Germany, the *Spitzencluster Wettbewerb* is a flagship initiative of the High-Tech Strategy, under the motto *Deutschlands-Spitzencluster: Mehr Innovation, Mehr Wachstum, Mehr Beschäftigung* to make the link between research and industry. The aim is to let existing excellent cluster platforms, which connect long-term academic research to regional innovation potential, grow into world-class, internationally competitive clusters. In three stages, an international jury selects five clusters each time that have the best strategy for future markets or lead markets each time with a support budget of € 200 million for five years (*Stärkenstärken*).

In the Netherlands, the Innovation Platform²¹ was set up as early as 2007. This Innovation Platform closed its second term in July 2010 with *Concurrentieagenda* aimed at positioning the Netherlands in the top five knowledge-based economies for instance by focusing more on the key areas and large projects. This policy was recently fleshed out concretely with the so-called *Verhagen memorandum* in which the choice was made for a focus policy around nine sectors²².

4.2. The national context

The federal industrial policy is, in essence, a supportive policy and is oriented towards enhancing the competitiveness of industry. The globalization of the economy and technology but also of the major social challenges creates a new context of challenges and opportunities. The competitiveness of our economy is the basis for growth, employment and prosperity.

The competitiveness of an economy is a complex aspect that is influenced by a lot of factors. For this reason, there are several ways to measure competitiveness, ranging from a (simple) relationship between the evolution of productivity and labour costs in a country or region to a more complex composite indicator, such as the one defined each year by the World Economic Forum (WEF).

For instance, the WEF's GCI *Global Competitiveness Index*²³ takes into account both quantitative and qualitative factors that reflect the evolution of technology (innovation), public service provision and the macro-economic environment, among other things. According to the GCI index, Belgium more or less maintains an absolute hold on its position in the 2010-2011 ratings (19th -20st place) but we do lose in relative terms with respect to our direct neighbours who are improving.

And if only quantitative data are used, Belgium does not do so well on international competitiveness either compared to other countries. In fact, the evolution of our external competitiveness also depends on the evolution of our main trade partners' productivity and labour costs²⁴. A good measure for this aspect of competitiveness is the comparison between countries of the relationship between labour costs and productivity, also called the **unit labour costs**. This is the underlying motivation of the macro-economic wage standard that is determined by the competition legislation. The Belgian macro-economic wage policy is based on the law of 25th July 1996 for the promotion of employment and preventive protection of competitiveness. This law imposes a rule with respect to the maximum increase of nominal labour costs per hour worked that can be granted in the biennial sectoral wage negotiations.

Belgian unit labour costs have become worse compared to the German economy. According to the recent annual report of the National Bank, the accumulated difference in unit labour costs for the period 1996-2008 amounts to approximately 20.42%, (see figure 3). Compared to France, this was only 1% and compared to the Netherlands there was even a 6% gain. In comparison with Germany, it seems that on one hand, the wage restraint since the Harz reform at the beginning of the years 2000 and, on the other, stronger productivity increases are important factors to explain the divergence between Belgium and Germany.

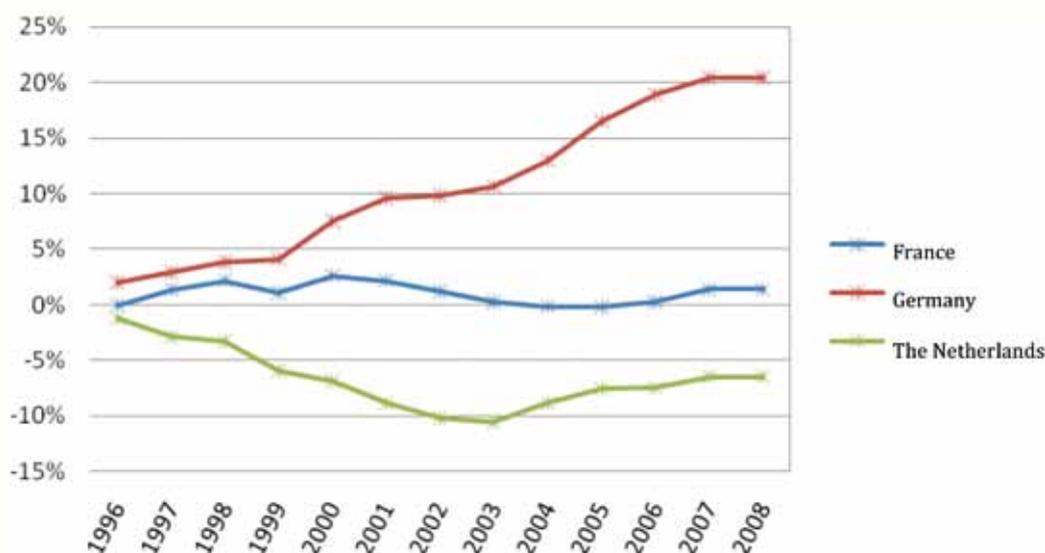


Fig. 3: Evolution of Belgian unit labour costs compared with the neighbouring countries in percentage difference

Source: NBB & OECD

Despite the relative worsening of unit labour costs, it seems that the Belgian industry has nevertheless achieved a strong growth in productivity over the past 10 years. Figure 4 shows the evolution of labour productivity, labour costs and unit labour costs for the Belgian industry and the economy as a whole. From this figure, it is clear that unit labour costs in industry have dropped by approximately 10% since 1998. This is due to a faster increase of productivity in comparison to the increase in labour costs per hour. However, this favourable evolution was not sufficient to protect Belgium's international competitiveness, especially with respect to Germany. Recent figures however indicate a decline in German productivity in 2010, which should to some extent increase our competitiveness. The financial and economic crisis could be an opportunity to reinforce the competitiveness of industry again. It is generally accepted that the "exit" from the crisis and the (Keynesian) short-term stimulation policy must go hand-in-hand with a long-term transformation towards a new growth dynamic in order to maintain the social system (which was built on the distribution of productivity gains). The transformation of the motor vehicle industry – one of the core sectors of the industrial system – to a mobility industry (new product-service combinations) is exemplary of that global transformation and reflects the challenge for the NIP.

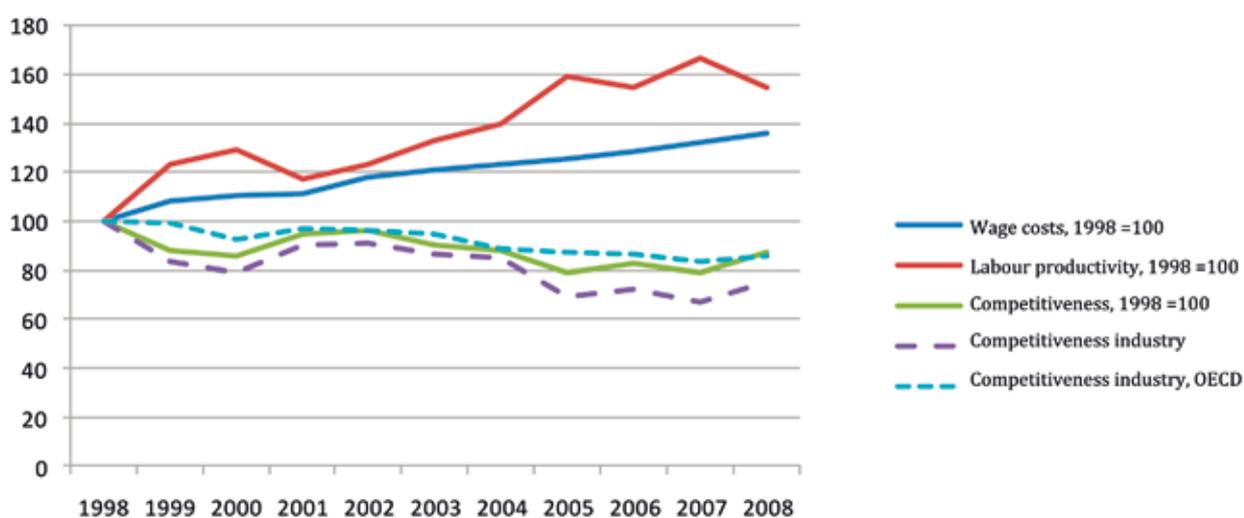


Fig. 4: Evolution of Belgian industry's competitive position 1998- 2008²⁵
Source: NBB

We have also found that the figures relating to investment in R&D and **innovation in the Belgian and Flemish industries have stagnated or dropped in recent years**. For instance, Flemish businesses' R&D spending today amounts to approx. 1.4% of the Flemish gross domestic product (GDP), whereas in 2001 this was still 1.83%. Whereas in 2000, 69% of Flemish industry stated that it was actively involved in innovation, this percentage has dropped to 56% in 2009. Even so, it is clear that the **future of industry** lies in the combination of **market renewal and technical innovation**. For instance, the European Commission concluded in a 2009 report that investment is necessary in a number of important technology platforms, which will support the industrial transformation in the European industry, such as:

- Materials
- Nano-technology
- Micro- and nano-electronics
- Industrial biotechnology
- Photonics
- Advanced process technologies

Flemish research centres, such as VIB and IMEC are active in those areas. However, industry threat-

ens to develop insufficient absorption capacity to be able to turn that research into a competitive advantage.

Both observations – less industry investment in innovation and the evolution of unit labour costs despite the control of labour costs – indicate the limits of our traditional productivity model and the need for a new productivity offensive based on transforming innovation.

4.3. Debate on the future of industry: The New Factory of the Future

The new policy developments go hand-in-hand with a debate on the position of industry in the knowledge-based economy. With the economic crisis in the traditional industrial countries and the fast rise of the growing countries, a review is going on, especially in Anglo-Saxon countries of the dependence of the economy on the financial sector and of the decline of the national industry and, connected to it, employment as a result of the systematic offshoring of the processing industry. The high-tech industry is taking the initiative transforming our industry (re-industrialization) arguing that the processing industry is an essential component of the innovation ecosystem. In fact, research, product development and production are all interconnected via interactive feedback. However, the outsourcing of industrial activities to growing countries motivated by short-term cost advantages is destroying one of the essential components of this innovation ecosystem, namely the capacity to upscale and learn by doing in engineering and design²⁶.

The developed economies continue to evolve towards service economies as a result of a growing productivity gap between industry and services but the future of the knowledge-based economy in these countries is not guaranteed without a diversified and high-performing industrial base.

The industry of the future remains the central link for sustainable development via the development and application of enabling technologies (bio-nano-ICT convergence). This new industrial revolution according to Jeremy Rifkin²⁷ and others includes the promise of a new technological basis for this human-nature relationship.

The political socio-economic challenge in the coming decades is to combine lasting economic growth with ecological sustainability in order to guarantee and increase the well-being of a growing and ageing population. This means increasing the productivity of people, raw materials and natural resources in a sustainable way. Knowledge and innovation are essential in this. One option to use knowledge and innovation more productively is via innovation clusters.

Industrial clusters are characterized by high knowledge productivity. Close cooperation between industry and science allows for the development of radical innovations that move the technological boundaries. The first wave of that new industry came with the ICT revolution. This was at the basis of the information society, with the Internet as its information highway. The diffusion of the ICT revolution in the traditional service economy will raise productivity there as well, because the digitalization and computerization of all processes increases the information intensity of services. The future of industry will be determined by a number of trends that will thoroughly redesign the existing industry²⁸.

- A new phase of international labour division in global value chains as a result of the rising costs of energy, raw materials, transport and talent. Local **clusters** can embed their specialized competencies and applications within international networks. There, there are opportunities for all regions and especially for those able to occupy strong positions in new value chains for new growth markets. Economic growth and labour division cannot be disconnected from the global social needs. These social challenges are the basis for a new social contract for sustainable growth, which creates new long-term perspectives.
- Sustainable growth will also transform the “consumption” of natural resources into their “use”. To achieve this, **new infrastructures** are required for renewable sources and chain closure and

new business and property models to exploit it.

- The knowledge intensification of the growth will fundamentally change both the dynamics and the organization of the economy via new remuneration systems and coordination mechanisms. **Open innovation** and governance via network structures are more efficient for the use of external knowledge and for the co-creation and use of knowledge in highly complex and uncertain environments.
- **Creativity** is the basis for our future welfare. It enables us to differentiate and integrate. It must therefore occupy a central position in the industry of the future. The protection of the social capital in society with attention to **social innovation**, among other things can play an important role in this.

In other words, the industry of the future is not just a *factory* of the future but a *community* with new institutional mechanisms to manage risks and exploit spillovers by setting up common infrastructures, pools of complementary knowledge, permanent training and valorization of knowledge workers.

It is Flanders's ambition to be an attractive location in the heart of Europe to live, work and invest. In the urban structure of the knowledge-based economy, there is room for strong, internationally competitive clusters with an important production activity, in accordance with our geographical (logistical) position, our historical strengths in science and industry and, especially, the breakthrough strategy of Flanders in Action.

The industry is an inseparable part of the economic structure of a knowledge-based economy. The industry of the future in Flanders will increasingly be an infrastructure for the flexible production of new tailor-made designs, specialized components and first series before mass production is moved to other locations. To this end, new production concepts will be used, such as digital manufacturing and design for recycling (C2C) as well as new business models for realizing product-service combinations in the value chain. These high-performing **Factories of the Future** will increasingly function as a "service" at the disposal of knowledge-driven product developers (often SMEs without production facilities) or logistics providers (*3PL – Third Party Logistics*). No sustainable innovation ecosystem is possible without this industrial infrastructure.

Flanders can further develop its strengths from a strong vision on the future place and role of industry in the economy and form the meaning of industrialization in innovation processes, for example, by linking or embedding the manufacturing industry more closely with the function of Flanders as a logistics hub. The availability of a diversified infrastructure of pilot plants and pre-production facilities and sophisticated production environments for specialized value chains (e.g., pharmacy) is a basic condition for our **attractiveness as a business location** for new knowledge-driven enterprises that also create jobs in other parts of the value chain.

The future of industry is also the future of a sector's employees, of companies and of future employees. Employee competency development, a modern educational policy and investing in a good relationship between training and enterprise are all part of a policy for the future of industry in Flanders.

5. INDUSTRIAL POLICY IN FLANDERS (POLICY INSTRUMENTS)

5.1. Objectives

The Government of Flanders wants to develop an NIP (New Industrial Policy). The objective is to accelerate the structural change and co-direct this so that Flanders will take a leading and prominent position during the coming industrial transformation. This calls for a **productivity offensive** to reinforce competitiveness.

After all, industry is evolving into a service infrastructure for new product-service combinations. That turns this into an indispensable element of the knowledge-based economy in Flanders and for obtaining strong positions with specialized innovative clusters in international value chains. Developing an NIP is also necessary to bridge the current innovation gap by making accelerating the transformation a guiding principle.

The largest latent productivity gains in a knowledge-based economy are created by better using spillovers and unused creative potential. That is why this productivity agenda first of all focuses on systematically using synergies in cluster platforms and on the diffusion of ICT (informatization and connections through intelligent networks).

In order to facilitate this industrial transformation, a system-focused industrial policy is needed, which means that the policy covers all (interdependent) factors on the supply and demand side to allow for system innovation (e.g. smart grids). It is an industrial policy “beyond” the traditional flanking policy because it not only offers opportunities for transformation (e.g., through setting rules, innovation policy) but also opportunities to actively use and bundle those opportunities. The sector policy evolves into a policy for value chains and clusters where companies are approached as elements of ecosystems.

The industrial policy in times of transformation must also provide opportunities for a strong basis among all actors concerned (cf. the FiA process). It must allow for strategic use of the limited means without lapsing into the mistakes of a dirigiste and mercantilist industrial policy. That is why it is framed in the **new social contract**.

5.2. System innovations

It is important in an NIP to create **room for experiments** where new niches can be established as seeds for a new growth model. The traditional innovation strategy for new products and processes must therefore be expanded to system innovation. The “test garden” concept must be made more general but **innovative public tenders** can also help develop new market potential. All policy areas must therefore observe the Government’s role as an *early adopter*, *prime mover* and co-creator of new market segments (where Flanders acts within the broader European context). The Government therefore needs to play an active role as a partner in the transformation policy shaping the future.

An important lever for the transformation policy is the development of **new infrastructures** for the knowledge-based economy and sustainable growth in which those niches can grow. Economic growth is already strongly influenced by the status of the economic infrastructure (from utilities to business parks but especially transportation and communication services). There is a role to play here for the Government because of the indivisibility and network effects in important economic infrastructure. Lacking investments in public infrastructure are partially responsible for the decline in growth over the last few decades. However, investments in the appropriate infrastructures are especially important during times of transformation, for accelerating and orienting those transformations. Seen from the perspective of the knowledge-based society, the difference between **hard and**

soft infrastructure is increasingly important. The soft infrastructure supports the networks through which knowledge streams flow in all kinds of forms (codified or tacit) and through which spillovers of knowledge can be better used. The Internet is a good example of the combination of hard infrastructure (broadband) and soft infrastructure (*communities*).

There is an increasing number of grey zones between the rationale for private investments (private return) and public investments (societal return) in vital infrastructures for the knowledge-based society with the purpose of the semi-public character of knowledge (spillovers in use). A more flexible approach is therefore necessary in order to avoid under-investment in **common infrastructures** with sufficient scale for transformations. This is especially true for pilot installations to test new breakthroughs²⁹.

High-quality common infrastructures for testing and upscaling innovations are the basis of strong clusters. They generate collective gains in productivity and interfaces for new innovation opportunities (open innovation). There are already company models for this such as *Third Party Facilities* in companies with excess capacity but there is underinvestment in new infrastructure because of coordination problems regarding risk management and costs and gains. The NIP will be able to provide solutions for this and with that reinforce Flanders' industrial structure (*industrial commons*) and to graft new clusters on this.

5.3. New Industrial Policy

The NIP is an integrated policy aimed at enabling the necessary economic and social transformations of industry with as little delay as possible. The policy aims at achieving this through a **productivity offensive** for reinforcing competitiveness.

The industry of the future is based on a transformation policy supported by four pillars (figure 5): supplemented by supervisory and supporting actions in order to achieve short-term results and successes and with the necessary strategic governance structure for implementation.

- **New Factory of the Future**
- **An Industrial innovation policy** to support the transformation among other things by way of investment via the TINA fund and a specific cluster policy
- An **infrastructure policy** for a modern and competitive industry and economy
- **Competency and (part-time) labour market policy** to support the attraction and retention of as well as shape the necessary competencies

This policy based on four pillars ensures that on the one hand, the **generic** conditions are created to want and to be able to engage in enterprise by taking measures in the field of education, entrepreneurship, internationalization, regulations, R&D, energy and the environment, labour market and tax system. On the other hand, by creating the **specific** infrastructure to support the future-oriented creation of value through *lead-plants*, *lead-markets*, *lead-companies* and common infrastructure and new value chains that come together in the building of **Factories of the Future**.

An NIP also requires a consistent and adequate policy mix in order to realize mutually reinforcing conditions for transformation. This calls for sufficient coordination between various areas of authority (including for follow-up of strategic agendas for transformation in the round tables of the renewed sector policy). That is why this policy – recommended as well by the Industry Convention – is implemented and guided by the Minister of Labour, the Minister of Innovation and the Minister of Economy, who coordinates these (see **Strategic governance structure**).

A special challenge is linking these agendas for new markets to the development of new infrastructures (often through Public Private Partnerships – PPP) for the large societal function systems such

as energy, mobility and health care.

In the NIP, the **cluster policy** is therefore the proper level to design the strategic convergence between private and public actors around regional strengths. This economic policy works on the structure of the economy through platforms in which lead plants, *spin-outs* and cooperation in the value chain are structural elements.

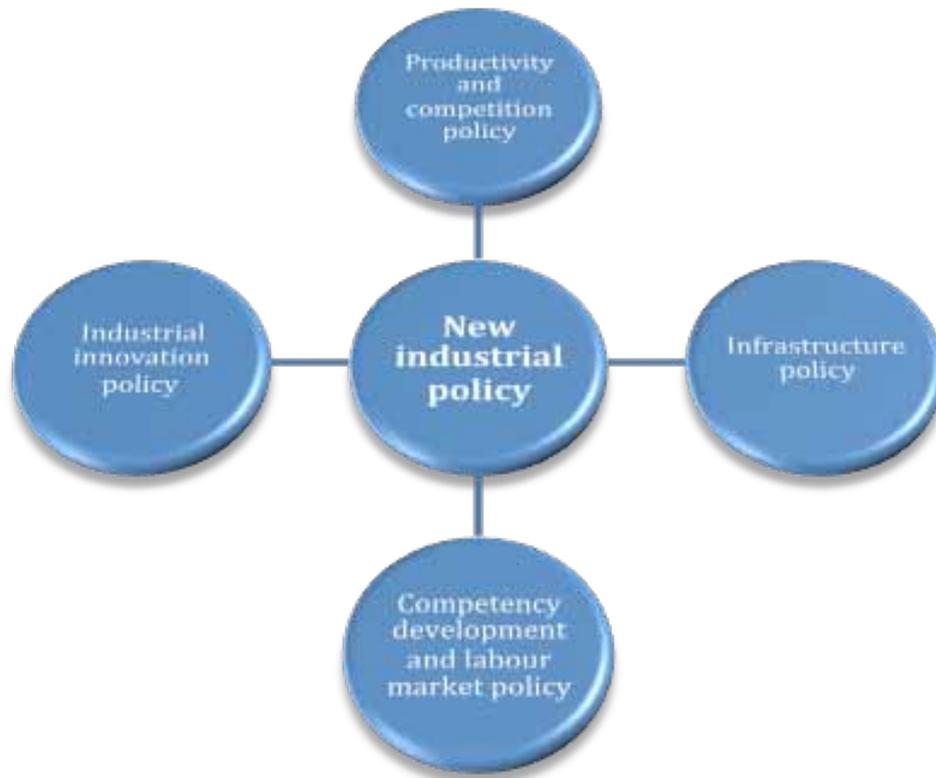


Fig. 5: New Industrial Policy NIP

5.4. Instruments for transformation

What policy instruments are then needed for such an industrial transformation policy?

First of all, there is a need to **accelerate transformation routes**. An instrument is needed that offers “good practices” (that meet transformation criteria) to accelerate business plans by consortia (from vision development, market studies to road mapping and IPR models). To accelerate strategy development at that level, specific route counselling is often needed that can be provided through consultants and trade organizations. Similarly, strategic intelligence is needed so as to teach the economic players to detect more quickly the new specializations/niches in which they can differentiate their competencies. This starts with systematically exploring the patent databanks.

Secondly, a specific framework is needed to manage the infrastructure for transformation, innovation and acceleration: test facilities and test equipment, living lab, open production cells for experiments, facilities for industrial upscaling and specialized production equipment for upgrading third companies, specific infrastructure for clusters (pipelines) and chain closing. This must help prevent coordination failures and underinvestments in these common pool resources³⁰.

Thirdly, specific attention must be paid to a **productivity offensive** in services through valorization of competencies for “industrialization” (engineering, process intensification) in the service sector and the Government sector, especially through ICT. The emphasis here is on integral industrialization whereby the traditional limits (product versus service, factory versus supply chain, development versus engineering, product versus process) are left with an eye on an integrated vision for innovative industrialization. For example, a product is de facto a service, a service is de facto a product. For example, process innovations (often ICT-driven) that not only have a production angle but the integral chain (manufacture, delivery, distribution) as the project angle.

Fourthly, an adequate segmentation must be implemented in support of companies (compare the SME policy or the gazelle policy) as part of their role in strengthening and innovating in the value chain. The “lead plants” must be identified and valorized. The renovation of the economic structure through industrial spin-offs must also be encouraged because in many companies, the focus on the core activities often stops the valorization of other strong innovation ideas.

6. INDUSTRIAL INNOVATION POLICY – TRANSFORMATION THROUGH INNOVATION

The Government of Flanders wants to support Flemish industry directly in an accelerated transformation process where the Flemish economy's DNA will be thoroughly renewed. This process of change must make Flanders stronger: economically performing and innovative, ecological and sustainable, warm, solidary and open to the international society.

The economic structure and the welfare creation must be sustainable. In a strongly globalized economy, subject to extreme competitive pressures, this implies a dynamic, open economy strongly focused on innovation. This means at the same time that the economy is ecologically and socially sustainable.

This determines the orientation and the policy priorities of the industrial innovation policy that fundamentally contributes to the desired transformation and reinforcing of industry in four ways:

6.1. Industrial innovation strategies

The traditional policy did not always have the desired impact because the innovation conduct and innovation pathway can differ significantly depending on industry or economic activity. This policy must be optimized and especially complemented by a focused innovation policy that dares to make choices, brings focus, puts emphasis and contains specific measures in line with the targeted objective.

The Flemish Council for Science and Innovation (VRWI) already made considerable progress in this sense by pointing out spearheads. These spearheads and the implied orientation of the innovation policy were then included in the coalition agreement.

In order to realize this ambition, focused innovation strategies are formulated for the spearhead clusters with a clear, coordinating attainment target, namely to reinforce the embedding of industrial activity with sustainable and diversified employment in Flanders by encouraging innovation. The test criteria for these focused innovation strategies are:

- Innovation as a lever for sustainable, diversified employment
- Economic and societal importance
- Fitting and or linking with the spearhead clusters mentioned in the coalition agreement.

6.2. Increasing innovative power

Translating innovation initiatives into economic valorization remains an important point of attention. This requires attention for various "push factors" for innovation, which ensure that an idea, an invention finds its way through innovative entrepreneurship to valorization on the market or valuable application in society.

The policy aims to develop actions concerning:

- **Increased valorization:** reinforcing and accelerating the valorization route
- **Network mediation, cluster formation and other ways of facilitating**

Innovation dynamics require the necessary networking and cooperation between the stakeholders (knowledge institutions, companies, Government). The proper organization structures, new

forms of organization and business models present themselves and must facilitate interaction with new application sectors and make these possible as a basis for innovative development of products, processes and services. Focused cluster strategies (see below) are developed for this and further optimization of the working of the innovation centres is encouraged.

- **Innovating entrepreneurship**, through among other things:

- *Attention for the wider innovation process: bringing innovation and non-technological innovation to the market*

In the innovation cycle with sufficient consideration for the market orientation of the innovation, which is why it is important that the supported innovation route is made wider and longer so as to include these crucial success factors in the support strategy.

- *An improved absorption capacity for the management of our companies*

The absorption capacity of (small) businesses regarding innovation is also of crucial importance. After all, entrepreneurs and managers must be able to record, process and use relevant innovation opportunities in order to market innovation. By structurally embedding this innovation perspective, company organizations can reinforce themselves in this area. One way of achieving that is using social innovation. The way the work is organized certainly makes a major difference and can assure that technological innovation has more chances to be successful.

- *A performance innovation set of instruments for SMEs*

It is important that the set of instruments for innovations can be quickly accessed by SMEs as much innovative entrepreneurship plays out within SMEs.

- Removing obstacles when financing innovative entrepreneurship

Financing innovation isn't always easy. The Government designed different instruments for this in order to support and to facilitate the financing process. The Government's economic instruments became a support function for innovation.

The Government of Flanders now wants to go a step further by setting up a special, directed investment instrument aimed at accelerating the innovation and valorization process (see below): the Transformation and Innovation Acceleration Fund, abbreviated: TINA fund.

Creating support for innovation with companies both with management and the employees

6.3. TINA Fund

The TINA Fund was established by the Government of Flanders at the end of December 2010 with initially € 200 million and placed within the Participation Company Flanders (PMV). The purpose of the fund is to reinforce and accelerate the marketing of innovations with strategic potential and so accelerate the transformation process of the economic structure. The fund makes capital investments in industrial projects by groups of companies.

The Government of Flanders has developed five criteria to verify whether projects have sufficient strategic potential that contributes to an accelerated process of change of the economic structure:

- Carried by a group of companies, to which are added investors, knowledge institutions, research and/or technology partners
- Focused on economic innovation with international market potential
- With impact on (the developing or innovation of) a value chain, which is why the innovation is sufficiently broad (regarding impact) or has a clear platform character
- Economic objectives validated and supported by the group in terms of focus, attainment targets, planning, budgeting and financing. The support is demonstrated by clear and sound com-

mitments of the individual members of the group and thus by participation in the risks.

- Clear transition strategy: economic valorization, further developing...

When investing through the TINA Fund, the point of departure is the spearhead clusters as included in the coalition agreement. We consider the focus to invest through TINA within these clusters as a first important specification of the above-mentioned criteria.

The innovation clusters or platforms are of course embedded in the scientific and technological strengths of Flanders. However, these scientific and technological strengths are necessary but are not sufficient as conditions to proceed to the selection of investment projects. Bearing in mind that this is about investments and therefore, with a view to economic profit, the proposed projects must have an explicit demand-driven character with a clear view of the so-called **Go-to-Market (GtM)**. In other words, this is about the opportunity to obtain an important global market share. The presence and identification of such a GtM can also be considered a **second specification of the criteria**. There can be no financing without this GtM. The GtM criterion must therefore clearly and directly map and list the economic effects of the proposed project.

In order to be able to meet the criterion of GtM, it is also essential that there is at least a large market party (*lead company*) that can and is ready to act as the project motivator. This means very concretely that the company concerned:

- Has the necessary international trade power to actually realize the GtM;
- Sees the investment project the financing of which is being proposed as an essential part of its own company strategy and therefore it is willing to also spend the necessary money and effort. This means that a calculated yield estimate must be available.
- Has the necessary technical capabilities to implement the renovation(s) concerned by itself and/or together with consortium partners (who can be either companies or knowledge institutions)
- The investment project has the potential to work as leverage by generating technological spillovers (learning spillovers).

Only if there is a motivator who meets all these requirements can a project that fits within the clusters and presents a clear GtM be selected. After all, without a motivator, the GtM will be hard to realize. Therefore, the presence of (at least) one **motivator or lead company** can be considered a **third specification**.

In addition, it would be interesting for Flanders if the proposed project also meant the investment concerned led to important **complementary assets** being created in Flanders ensuring that the envisaged innovations become long-term. This means that the proposed project not only creates the necessary cross-pollination (spillovers) but also that the project strengthens the coordination between the technology, knowledge and assets present in Flanders, which then will result in other complementary assets. These **complementary assets embed the innovations** because they explicitly link the developed and used knowledge to a differentiated, unique infrastructure basis. Linking unique knowledge to such complementary assets turns innovation into a unique competitive advantage for Flanders and is also a key element in creating **lead plants**.

6.4. Flanders as an innovation-receptive top region

It is also important that Flanders be sufficiently receptive to industrial innovation. That is why we also want to work on a practical policy focusing on the so-called "pull factors" for innovation and ensure that Flanders increasingly becomes a "lead market" for industrial innovation, quickly connects with important innovation trends and has a strong basis in its society for innovation and industry.

We also have to make sure that Flanders will continuously have the human capital to realize innovation and that state-of-the-art research and innovation infrastructure are available. Research is being conducted as to how industry's availability and access to research and innovation infrastructure can be improved by forms of facility management and ways of cooperating and support by investment.

7. POLICY ACTIONS

The NIP is an integrated policy aimed at enabling the necessary economic and social transformations of industry with as little delay as possible. The policy aims at achieving this through a **productivity offensive** for reinforcing competitiveness.

The NIP is again underway as a new policy via various policy actions. Each policy action is a collection of strategic projects and programmes on which the NIP principles are rolled out. The combination of these various strategic projects is aimed at achieving the transformation of the industry with the end goal being maintaining competitiveness or repairing and increasing this. Projects can be supported in their transformation by the **FINA Fund**.

The industry of the future is based on a transformation policy depending on four pillars (figure 6) plus guidance and support actions in order to achieve short-term results and successes and with the necessary management structure for ensuring implementation.



Fig. 6: New Industrial Policy NIP

- A **productivity and competition policy** aimed at a new productivity offensive with the new *Factory of the Future* as the hub for this
- An **industrial innovation policy** that drives the *Transformation through Innovation* by way of objective innovation strategies
- A policy of **competency development and labour organization** that should also support the attraction and maintenance of the necessary competencies but should also shape the necessary social innovation by a new sector policy that the NIP will concretize by way of round tables

- An **infrastructure policy** that increases support for system innovations and gives a new dimension to the WIP

The NIP also builds further on the existing industrial and scientific strengths that have been built up through years of efforts. As well as the importance of objective research in the NIP, the Government of Flanders will also in the future continue to concentrate on non-specific research as a guarantee for the future. The non-objective research after all delivers the necessary oxygen in the long term for later innovative breakthroughs although this link cannot be made a priori. The current strategic research centres have their roots in the research financing of the FWO among others. Also in the future, the non-specific research will continue to form the basis for the spearheads of the future.

7.1. Productivity and competition policy: New Factory of the Future (FF)

7.1.1. Justification

The traditional economic approach around competitiveness by productivity increases based on increasing capital investments in automation reaches its limits. Flemish industry must switch to a new competition model based on the increase of the “total factor productivity” among other things by open innovation, greening of the production system and clever specialization in order to develop new value chains. This requires a system innovation.

The European “*Factories of the Future Initiative*”³¹ supports the renewal of the technological basis for a transformation to the flexible, modular, reusable, intelligent, digital, virtual, affordable, easily adjustable, easy to maintain and highly reliable *New Factory of the Future*.

The concept involves a paradigm shift from simple cost focus to knowledge-based added value in order to realize a sustainable and competitive economy. The Factory of the Future must make such a contribution and thus help towards a more productive production process and a higher added value. The latter appeals to the need to reinforce our competitive force by improving our export range and scope with products and services with (knowledge-based) high added value and an improved geographic range³². This also implies that transition pathways to a factory of the future ideally combine process, product and service innovation either in an open or closed form.

We wish to transfer these various transformation pathways to the manufacturing industry, knowledge-intensive and raw materials processing industry in Flanders with special consideration for SMEs.

The NIP adds to this a system-oriented approach on the level of clusters and value chains that should make Flanders a forerunner in the transition to an innovation-driven energy and material-efficient, demand-oriented economy. The FISCH project that is striving for a transition to a sustainable chemistry is a forerunner of such a system-oriented approach with among other things a project for open innovation infrastructures.

From the proposals that were developed by sectors within the framework of the Industry Convention, a major project “New Factory of the Future” (FF) will therefore be launched in order to accelerate and internationally promote the development of a network in Flanders.

The aim of the Factory of the Future (FF) is modernizing the industrial (and if extended, the economic) structure in Flanders. The FF not only has high-tech production and processing technology but also the capacity to use this flexibly for specific value chains. Competency development and social innovation are also an essential aspect of the transition to a new production system.

FF should also form the basis for attracting new foreign investments and embedding the existing industry in Flanders. This can also mean a return to a re-industrialization of Flanders.

7.1.2. Success factors

- Fitting into the European strategy and the guiding strategic lines with among others, consideration for: sustainable manufacturing, ICT-enabled intelligent manufacturing, high-performance manufacturing and exploiting new materials through manufacturing
- Clear focus on economic return with as the guiding principle, the criteria of the European Factories of the Future strategy: visible economic return from (at least) the fourth year
- Extra consideration for the symbiosis between high added value production (product innovation), production process innovation and sustainability.
- Flexible specialization requires a focus on value chains in specific application domains. The identification of the “lead clusters” in Flanders reinforces the effectiveness of the FF project.
- A coordinated complementary policy for supporting the transformation and competitiveness
- Fitting into existing instruments and structures. No separate structures can be set up for the manufacturing, processing, raw materials, construction or knowledge intensive industries without prior additional research. The approach via “major projects” is however very well suited to transsectoral transformation pathways. The New Factory of the Future (FF) is actually a horizontal project (supply side). Flexible specialization requires a focus on value chains in specific application domains (demand side). The identification of the “lead clusters” in Flanders reinforces the effectiveness of the FF project.
- FF need for a strong governance structure in order to attract private and public investments. An Industrial Council engineer (cf. 7.5) should develop common strategies. It is the task of the Industrial Council (IC) to supervise and advise in selecting lead clusters.
- FF is a new approach that should be developed further. It is characterized by policy integration. It has a high level of political visibility and inter-domain impact. It is therefore essential for efficient working that the executive Flemish administrations, in particular EWI, have sufficient competencies and resources.

7.1.3. Actions

The New Factory of the Future (FF) consists of a number of programmes to make the industrial structure in Flanders more structurally competitive. The nucleus of the transformation policy is the new productivity offensive with the Factory of the Future (FF) as the hub. Three elements are strategically connected: (1) process, product and service innovation, (2) transformation pathways according to the type of industry (manufacturing industry, processing industry, knowledge-intensive and raw materials processing industry, (3) a system-specific approach on the level of value chains.

This implies that the FF is placed in a wider innovation and transformation strategy with a strategically sustainable positioning in the (global) value chains with special consideration for SMEs.

- **A 1 – New Factory of the Future for Sustainable Chemistry**

The Government of Flanders will take the necessary initiatives for introducing the first implementation of the New Factory of the Future based on the opinion of the IG Sustainable Chemistry. This choice fits in with the specific **cluster policy** that the Government of Flanders wishes to operate with respect to the NIP. The organization is based on the “light structure principle”³³, which is necessary in order to maintain the strategic flexibility and may also serve as a model for initiatives aimed at other industrial sectors or value chains.

The Government of Flanders ensures recognition of the light coordination structure and contributes to its financing. Co-financing is provided for the R&D projects via the Flemish Agency for Innovation by Science and Technology (IWT), which will be allocated via a procedure to be established subject to testing within the strategic context of the IG Sustainable Chemistry.

Both the light coordination structure and the R&D projects contribute to innovation that can be implemented further after the economic criteria have been fulfilled, as TINA projects. The integration of product and process innovation and their sustainability are central to this and are shaped in an FF.

- **A 2 – A suitable implementation strategy for the manufacturing industry**

Research is being carried out to see whether the same approach can be used for the manufacturing industry as for the raw material industry. It will be examined as to how the competency pool FMTC can contribute to a similar integrated strategy.

- **A 3 – Strategic research programme**

A strategic research programme in the fields of technology, design and business models that form the basis for the “**New Factory of the Future (FF)**” and with which Flanders takes part in European projects for “*Key Enabling Technologies*”.

The further identification of opportunities and challenges and the organizing of a wider learning process regarding the FF are followed up by EWI in cooperation with the IWT. This will be based on a Policy Research Centre.

This will also result among other things in the starting of demonstration projects, a “toolbox” for the FF, with instruments from various departments, training programmes, VIS projects, a programme for supervising spin-out projects and an international project in which renowned production sites in Flanders take part.

- **A 4 – Incentive programme for SMEs**

An incentive programme for SMEs via the IWT innovation centres ensures pro-active supervision of projects and guidance towards the suitable (combination of) instruments. It initially ensures the facilitation of the FF. Coordination between the Enterprise Agency and FIT is sought here.

A guidance programme for distributing good practices for “Factories for the Future” for SMEs aimed at certain clusters of activities ensures further support.

- **A 5 – Stimulating international networking**

Stimulating and facilitating **international networking and networks** with specific consideration for SMEs should enable the most renowned production sites in Flanders to learn, improve and be stimulated further to stay at the top. This takes place, among other things, by participating in development, demonstration, benchmarking, production in spearhead domains and ensures international marketing and recruiting.

- **A 6 – Economic support of lead plants**

Location factors such as market demand, production and transport costs exert considerable influence. One must however also have an eye for the business-economic decision-making context and the role of the decision centres in this. A lot of industrial activity in Flanders takes place within production departments belonging to international groups. The level of embedding of this activity is therefore also influenced by the decision-making with the international group and by the internal relative importance of the Flemish establishment. An inspiring concept for an industrial embedding policy that is based on the offered competitive advantage of the regional innovation system in a context of international establishments is that of the *lead plant*.

According to Kasra Ferdows who introduced the concept, a lead plant “draws strength from the presence of knowledge and skills, uses this knowledge to develop products and/or processes and transfers its innovations to the group’s other factories”.³⁴ The lead plant thus forms an important link in the business’s knowledge network, has a greater strategic value and will therefore have a more stable and secure future. The embedding of *lead plants* is therefore based on the intertwinement with the innovation system.

The concept is based on two dimensions that determine the strength of the position of a factory in an international business, i.e., [a] the decisive advantage of the factory’s location and [b] the level to

which the factory contributes to the business strategy.

The location advantage may be based on (i) access to lower cost factors (as wage costs), (ii) access to knowledge and skills and (iii) access to the market. The strategic importance of a factor may be low as with a pure production unit or rather high as with a production unit that is also a “centre of excellence” in the business.

Multinational businesses operate the factories with a low strategic importance as flexible building blocks in their production network. The result is that there has been much development (closures and new locations) in this category. Such factories require little commitment regarding resources and are therefore easily added to or removed from the network.

There is said to be a lead plant if the strategic importance of a factory is great and based on skill and know-how. Their regional embedding is significant given the intertwinement in the regional innovation system. Knowledge and skills are therefore stable location advantages. This is less the case with “access to markets” as a location factor. Access to lower wages appears to be quite a volatile location advantage. Lead plants have therefore turned out to be a better guarantee for the factory’s future.

A study of lead plants in Flanders shows a significant interaction between innovation and production in the field of product development (pilot plant, test factory) or in the field of process development (developing and continuously improving processes whereby continual efforts are made to increase efficiency in the use of labour, materials, energy and capacity). The illustration above confirms this and therefore also the regional innovation system’s embedding potential.

In order to reinforce the *lead plants’* portfolio, the lead plants will be examined to establish how they can be supported in their development via the IWT programme of clustered feasibility studies. It will also be examined how this can be functionally extended to *lead companies*, these being Flemish businesses that show the same characteristics as lead companies but form no part of a multinational.

7.2. Industrial innovation policy – transformation through innovation

7.2.1. Justification

The necessary industrial transformation is essentially borne by innovation. Central to this industrial innovation and transformation policy are the specific innovation strategies that are further supported by a coordinated set of horizontal policy lines.

The economic structure and the welfare creation must be sustainable. In a strongly globalized economy, subject to extreme competitive pressures, this implies a dynamic, open economy strongly focused on innovation. This means at the same time that the economy is ecologically and socially sustainable.

This determines the orientation of the policy priorities of the industrial innovation policy that is further developed in specific industrial innovation strategies in order to thus contribute in a fundamental way to the desired transformation and reinforcing of industry.

The innovation conduct and pathway can differ significantly depending on industry or economic activity. Specific innovation strategies are therefore necessary in order to reinforce the impact of the innovation policy.

In order to realize this ambition, specific innovation strategies are formulated and advised by innovation groups via the Flemish Council for Science and Innovation (VRWI) with the following coordinat-

ing attainment target: reinforcing the embedding of industrial activity with sustainable and diversified employment in Flanders by stimulating innovation.

The test criteria for these focused innovation strategies are: (1) innovation as a lever for sustainable, diversified employment 2) economic and societal importance (3) fitting in the new industrial policy. There is growing consensus on the importance and the impact of the national and regional innovation systems as expressed in the following “stylized facts”:

- A region’s capacity for innovation is the consequence of the merging of specific economic, social, political, institutional and cultural factors and of the environment in which these operate and interact
- The number of enterprises and organizations (such as educational, trainers and research institutions) is much less important than the customs and practices of these players in relation to learning, cooperating and investing. The latter factors determine the nature and extent of the interactions and their tendency to innovation.
- The most important elements of knowledge are embedded with the players and embedded in the routines of the businesses and in relations between businesses and organizations. The consequence of this is that this knowledge is “localized” and cannot therefore be easily transferred from one place/context to another as knowledge is more than information and also contains implicit elements.
- Innovation as a context-specific process implies that importing foreign technology is no substitute for building up local innovation capacity
- The national or regional framework is therefore relevant as the development pathways also help to shape the specifics of the innovation system.

This means that an existing pattern of an innovation system can be a source of inertia but if this is of a progressive nature, it can also be a structural competitive advantage for a region. The further entanglement of economic activities then becomes a starting point for embedding these activities. Innovation clusters are an expression of this.

The above means that the structural reinforcement of the innovation system contributes to the competitive force of a region and the embedding of economic activities. Both are central attainment targets of the NIP.

Another consequence of this is that focus is required and that therefore strategic choices must be made. This focus and choices are realized in the specific innovation strategies.

The regional innovation system and these specific innovation strategies can contribute considerably to the embedding of economic activities provided that both a regional innovation cluster delivers added value for the participating businesses and the realizing of this added value means strong interaction between innovation and production. The regional innovation system will thus become a location advantage in the world knowledge-based economy and a cornerstone of the regional competitive advantage

7.2.2. Conditions for success

- **Focus and strategy** – the starting point of the Flemish Council for Science and Innovation (VRWI) spearhead clusters and their synergy with the industrial strengths and opportunities. The global harmonization is monitored at the level of the innovation hubs (see concept paper Innovation Centre Flanders). The strategic development takes place among other things via the IG.
- **Support** – the industrial innovation policy and the transformation from the economic structure requires effort from various stakeholders. The coalition agreement provides for concluding a new innovation pact in order to accelerate the transformation. “This is a positive coalition of government, knowledge and scientific institutions, higher education and industry for use in innovation,

modernizing and specialization”

- **Resources** – the Government of Flanders reconfirms its engagement towards the coalition agreement to make more resources available for R&D and strives for a Government share in the financing of R&D of 1% of gross regional product.
- Leverage effect – the use of public resources for innovation should contribute to more innovation efforts with respect to industry. This will be reinforced by making the innovation subsidies subject to more specific conditions.
- Solid basis – constant innovation and innovation as a driving force for competitiveness relies on a solid basis for fundamental research, highly qualified researchers and an open and excellence-based research culture. The equilibrium between specific and non-specific research is therefore of strategic importance if we wish to safeguard the long-term competitiveness of our economy.

7.2.3. Actions

Specific innovation strategies

In order to realize the necessary industrial innovation, the innovation policy should be further optimized and mainly implemented with specific innovation strategies that dare to make choices, provide focus and place emphasis with specific policy measures depending on the envisaged objective. In order to realize this ambition, the Minister for Science and Innovation has already created a framework and taken the initiative for setting up the correct forums for shaping the policy of specific innovation strategies. The Minister has requested the Flemish Council for Science and Innovation (VRWI) to set up innovation groups whereby a limited number of innovation leaders and experts design and advise on specific innovation strategies.

The innovation groups are invited to formulate a strategic innovation agenda for the mid-to-long-term. This contains clear strategic and operational attainment targets, measurement indicators and a roadmap for addressing these social and economic challenges.

The innovation groups will contribute to the reinforcement and stimulation of:

- The innovation culture in the societal and/or economic area in question
- Leadership in guiding innovation in order to thoroughly renew the DNA of the Flemish economy with a view to sustainable growth and employment
- The capacity of a sector for formulating innovation priorities and developing and implementing suitable innovation strategies
- The cooperation between the various innovation players in the field and between the business community and knowledge-based institutions
- Specific policy advice that contributes to a stronger innovation policy and international positioning of Flanders as an innovation region

The Minister for Innovation is forwarding the request for setting up a specific innovation group (IG) to the Chairman of the VRWI who will then set up the innovation group with a limited number of innovation leaders and experts chosen from the business community, knowledge centres, professional and trade union organizations and/or Government.

This approach has already produced striking results with an opinion on the transition to sustainable chemistry³⁵ and on a specific innovation policy for the automotive industry.³⁶ Both opinions are included below as the basis for specific innovation strategies. The framework of the IGs will continue to be used for supporting the renewed innovation policy depending on an effective transformation.

Within the framework of the Industry Convention, four professional associations (the food industry, the textile and wood sector, the technological sector and the chemical industry) were invited to develop strategic action plans for transformation. Also these elements will be included below in the definition of the specific innovation strategies and the so-called road maps.

- **A 7 – Sustainable chemistry**

The recommendations of the IG Sustainable Chemistry are carried out according to the basic structure as stated under A1.

- **A 8 – Automotive**

The recommendations of the IG Automotive and the findings of the testing ground “electric vehicles” are included in the extension of the competency pool Flanders Drive. It will also be examined here as to whether wider strategic coordination with other approaches for the manufacturing industry is appropriate and then with particular regard to the Factory of the Future part.

- **A 9 – Identification of opportunities and challenges and further development and opinions from specific approaches via the IG**

EWI follows up the further identification of opportunities and challenges in cooperation with the IWT. There are also the round tables for which coordination between innovation policy, transformation policy and complementary economic policy takes place best on a strategic level. It is therefore also appropriate that the further processing of integrated innovation strategies is advised by an IG consisting of innovation leaders and experts. The following initiatives are envisaged regarding the building sector, the food and agribusiness.

- **A 10 – Link with other innovation hubs**

Possible synergy with other innovation hubs (see concept paper Innovation Centre Flanders) is determined and used.

It is therefore appropriate to have coordination between action lines of the NIP and circular economy, sustainable material management and Cleantech within eco-innovation but also regarding the export possibilities for the Flemish environmental sectors.

The master plan **Green Economy** envisaged in the coalition agreement will be integrated and fast-tracked into the NIP by undertaking a series of concrete projects and investments that build a bridge between industry and economic policy and sustainable material management and energy management. For this, an IG Eco-innovation was contracted in order to advise on an integrated approach for this.

The innovation hubs Green Energy and Green Mobility and Logistics are mainly of importance for sustainability of industry but themselves also of course directly offer industrial opportunities. The ambitious attainment targets regarding the implementation of renewable energy can thus also offer new industrial opportunities (as well as the ecological and social added value that are delivered).

Flanders can use the demand for renewable energy as a basis for stimulating the development from its own industrial sector in renewable energy that can also take its place internationally at the top.

The findings of the testing ground “electric vehicles” will also be considered.

Medical technology and e-health are of course possibilities under the innovation hub Care. And the innovation hub Social Innovation has at least a double relevance for the NIP.

First, there is the interaction with the FF and the new business organization whereby Flanders’ Synergy can play a leading role (see A18).

The transforming economy goes hand-in-hand with the changing society. Challenges such as ageing and early departure, shortage of technical/technological professions on the labour market and the need to deal with new entrants lead to the thinking/rethinking of adjustments to the work-

ing organization and otherwise using of talents and competencies. Elements such as workplace learning and workplace innovation are certainly factors whereby Flanders' Synergy among others can play a role in the latter.

Finally, wider social innovation is playing an increasingly crucial role for the (business) economic success of innovation. It is often not only a pioneer of new economic activities (e.g., recycling shops, open source-based services and applications, microcredit, car sharing...) but just as often supporting for the acceptance and implementation of technological innovation (such as e-health). This insight into the power and importance of social innovation for a knowledge intensive and innovative economy is also at the base of the EU initiative for social innovation and is emphasized in the final report from the IG "Social Innovation"³⁷: Advisory letter 156 from the Flemish Council for Science and Innovation (VRWI) however indicates the strong interaction between technological/economic innovation and social innovation and the opportunity for transposing good practices of social innovation to other economic sectors. It is therefore also pressing for the strong involvement of business.

- **A 11 – Link with Strategic Research Centres (SOCs)**

The Strategic Research Centres (IMEC, VIB, IBBT and VITO) have a special accountability in the transformation process of our industry due to their active contribution to their specific domains. They will therefore also be heavily involved in the strategic industrial research policy. The Minister for Scientific Policy and Innovation ensures that their involvement is laid down in their respective management agreements.

- **A 12 – Collection of information as the basis for the long-term vision**

There is a strategic analysis capacity necessary for supporting the innovation groups and the round tables in identifying opportunities and strategic challenges. This is completed by a Policy Research Centre.

- **A 13 – Norms, standards and regulations as leverage**

EWI is contracted to research how norms, standards and rules can be better applied in order to promote innovation and the desired transformation. It is also being examined whether an approach such as the Japanese *Top Runner Mode*³⁸ of phased intertwinement of norms based on the best performing applies in Flanders.

The applying of norms, standards and rules according to innovation is becoming a systematic point of interest for the IGs and the innovation strategy and menu of support measures to be worked out and advised by them.

- **A 14 – Innovative tendering**

The instrument for innovative tendering will be pro-actively used as part of innovative and transformation strategies. For this, among others, the knowledge centre Innovative Procurement is being further extended and the administrations' attainment targets are formulated in order to reserve a certain percentage of their tenders for this attainment target.

- **A 15 – Economic support of lead plants**

A study of lead plants in Flanders³⁹ shows a significant interaction between innovation and production in the field of product development (pilot plant, test factory) or in the field of process development (developing and continuously improving processes whereby continual efforts are made to increase efficiency in the use of work, materials, energy and capacity). The illustration above (see A6) confirms this and therefore also the regional innovation system's embedding potential.

In order to reinforce the lead plants' portfolio, the lead plants will be examined to establish how they can be supported in their development via the IWT programme of clustered feasibility studies. It will also be examined how this can be functionally extended to lead companies, these being Flemish businesses that show the same characteristics as lead companies but form no part of a multinational.

- **A 16 – Taking away obstacles in financing innovation**

Better coordination of and identifying the available financing and economic policy instruments of the Flemish Government (EOI), among others via optimal cooperation between the Participation Company Flanders (PMV), the Flemish Agency for Innovation by Science and Technology (IWT) and the innovation centres and coordination with the Enterprise Agency (Agentschap Ondernemen) is ensured.

- **A 17 – Support**

The Minister for Scientific Policy and Innovation is preparing a new innovation pact whereby special attention is paid to coordination according to the NIP in line with determining the coalition agreement:

“This is a positive coalition of government, knowledge and scientific institutions, higher education and industry for use in innovation, modernizing and specialization. Together with the focus on spearhead domains, we are thus achieving a scientific policy with social added value and aimed at sustainable job creation and the greener economy”.

7.3. Competency development and work organization

7.3.1. Justification

The evolution towards a bottleneck economy with permanent shortage of engineers, IT specialists, technicians will be reinforced by a mass exit from the labour market in the coming years. Several sectors are thus characterized by an aging workforce (e.g., basic chemistry, transport and the logistics sector).

There is also an imbalance between the available openings and the labour potential. There are thus, in the filling of among others, technical professions and qualitative problems that indicate a lack of experience and practical knowledge with candidates. Within the framework of a wide productivity offensive, the human potential must be better used. Stimulating creativity and involvement is essential for this.

The industry, together with the social profit sector is one of the most affected sectors of these bottleneck professions. The transformation of industry offers a chance and a need to arrive at a renewal in the field of the education-training relationship and the labour market.

7.3.2. Success factors

What is essential here is active involvement of social organizations, especially employer and employee organizations, operational coordination and knowledge platform and a necessary visible socio-economic societal debate on new forms of labour organization, better workability and the necessary support in a sectoral and business context.

7.3.3. Actions

- **A 18 – from job security to work or career security**

The labour market poses us great challenges among other things due to the ever faster transformation of industries and production processes, the increasing number of shortage occupations and the ageing of the working population. Then there is the changing job structure and faster changing of the required competencies that satisfy the needs of businesses.

The attainment target of more people in work, in more workable jobs and on average, in longer careers is translated within the NIP by a new career vision. The attainment target is also working on more competitive businesses.

Against this background, it is important, due to the noted declining job security, that more emphasis be placed on the move from **job security to career security**. All players involved in the labour market must in this case make an effort.

This move is crucial if we wish to achieve the following, among others:

- Creating a competitive and sustainable economy
- A higher employment rate
- Reinforcing people's sustainable employability
- Better harmonization between supply and demand

Transformation from industries and production processes also goes hand-in-hand with social innovation processes: the development of the knowledge-based economy indeed also requires at the workplace other (work) organization models and a large number of innovations are also socially or work related.

These developments also lead to new social innovation processes relating to organization modernization (for example, involvement, knowledge sharing, autonomy, etc.), modernization in corporate culture, regarding quality of work, etc... and respond to concrete problems whereby businesses in the working organization are confronted such as the necessary reconversion of employees, making this attractive in order to recruit new employees, keeping people in work longer due to adjustments to the work organization and getting rid of absenteeism ...

Within the framework of the NIP, we wish to work out an offer for supporting social innovation in transforming sectors. As well as the employers' and employees' organizations, we carry out, among other things, a specific role for **Flanders' Synergy** and for Captains of Industry as motors of social innovations. The latter can also act as mentors for innovation processes in other businesses.

- **A 19** – Consideration for long-term modernization processes from the school career to study choices for technical professions
- **A 20** – A mobilizing project for industrial talent from the policy regarding science communication to young persons
- **A 21** – Excellence Centres – sustainable coalitions for developing industrial talents
- **A 22** – Providing the extension of a flexible training offer from the Flemish Service for Employment and Vocational Training (VDAB) and Syntra in competency partnerships with sectors and private training providers that also enable future-specific investments in competency infrastructure.
- **A 23** – Image campaign: annual organization of week/day of industry with open door days for apprentices, jobseekers. Initiatives that bring together technology, science, marketing and design and that produce a positive image from our industry can have an attractive effect.
- **A 24** – Providing technical and industrial training: The reforming of secondary education offers priorities for industrial training. This is an opportunity to reinforce the technical and technological components within the framework of supplying the training.

Higher vocational training in industry in order to complete missing training between secondary and higher education is also an important theme that the industrial sectors and training should examine further.

Extending workplace learning in secondary education also offers prospects for both the students and for schools and teachers.

- **A 25** – From a governance structure approach and also proposed within the Industry Convention, a **Working Group Industrial Talent** should be set up whereby the industrial partners, VDAB, Syn-

tra, the educational partners, employers and employees will examine what actions can be started in the short-to-long term whether or not within a regular policy.

- **A 26** – Building up future oriented and relevant competencies in cooperation with businesses, through e.g. increasing the importance of “on the job training”, as this has a direct and important impact on the productivity via mainly positive learning effects. This is in connection with efforts to increase workability.

7.4. Supporting infrastructure policy

7.4.1. Justification

The transformation to an innovative and sustainable industry depends on the transformation of the infrastructures to intelligent and sustainable infrastructures.

The NIP stimulates the development of both soft and hard infrastructures as part of the productivity offensive. Within the framework of the WIP, the Government of Flanders committed itself to use its investment budgets for the transformation of the economy in the context of large projects with a major infrastructure component⁴¹.

As well as the excellent location in a logistics network, Flanders has a large part of its welfare to thank to the extensive transport infrastructure, which has undeniably also contributed to this. Our current position is however no achievement but is under continuous pressure in an open globalized world. Thus the importance of optimal use and further development of a logistics infrastructure and the making and keeping accessible of our hubs. Possible growth of transport can only be dealt with and in this way continue to guarantee the economic ease of access provided there is a suitable transport infrastructure, linked to such a management organization of the same infrastructure.

The challenges for modernizing the infrastructure are however great and not just limited to the multi-modal transport infrastructure but should also include high speed broadband, clever electricity networks attractive industrial sites, high-performance research and innovation infrastructures as essential principles of a competitive region.

Business parks, science parks and incubators are also common infrastructures of which the potential for cluster forming by common services, common energy and material flows and infrastructure can be used in a more robust manner.

There is a need for an **integrated infrastructure policy** that makes optimal use of the budgetary room, significantly improves the efficiency of Government services and creates opportunities for suppliers of high-performance equipment.

The methodology of “large projects” with a major infrastructural component has significant lever effects on the users and supports system innovations.

Due to the *knowledge spillovers* of open innovation and open manufacturing, proposals that integrate this into their business case will receive special attention within the TINA Fund.

7.4.2. Success factors

- The **capacity for explorations of the future** that form the basis for a long-term vision of infrastructure planning is essential in case of high capital investments.
- In order to be able to take decisions, an evaluation framework is also required that will enable an

integrated costs-benefit analysis between priority claims on budgets.

- Expertise in finance models (including the European instruments)
- A special expertise that fits in with the innovation policy is innovative tendering (competency development among outsourcers).
- Special consideration necessary for the synergy between infrastructure policy and transformation policy. This is a task for the Interministerial Committee for Industry (ICI).

7.4.3. Actions

- **A 27 – Critical infrastructure and networks for system innovation**

The ICI instructs the administration to prepare a vision and an **integrated multi-annual planning**⁴² of current and planned infrastructure investments with a view to:

- Critical supporting infrastructure for the transformation and market development for system innovation such as intelligent networks for energy, mobility and logistics and communication.
- Setting up a framework and a system for large infrastructure investments that support the desired system innovations and are financed among other things via the national loan stated in the coalition agreement.

- **A 28 – R&D and innovation infrastructure**

Research infrastructure largely contributes to the innovative capacity of a company and its economy. This is in line with the ambition of the Government of Flanders to ensure that the necessary research infrastructure is provided as an internationally deciding factor. This fits into a wider policy regarding the research and innovation infrastructure using several instruments.

- Investments in research infrastructure in Flemish public knowledge institutions (Herculesfinanciering)
- Contribution to the spatial material infrastructure (e.g., science parks and indicators) via Flanders Enterprise.
- Creating an advanced innovation infrastructure (for example, in “application labs” where businesses can try new technology) by the promoting of cooperation and synergy

There is an increasing number of grey zones between the rationale for private investments (private return) and public investments (societal return) in vital infrastructures for the knowledge-based society with the purpose of the semi-public character of knowledge (spillovers in use). A more flexible approach is therefore necessary in order to avoid under-investment in common infrastructures with sufficient scale. This is especially true for pilot installations to test new breakthroughs.

We therefore wish to research how we can appropriately reinforce the research and innovation infrastructure by promoting cooperation, using synergy and possibly through investments.

- It must be initially examined how available infrastructure can be made more accessible in an open innovation platform. Synergy gain increases the efficiency and helps businesses and knowledge institutions to handle their overcapacity more efficiently.
- Developing an appropriate research and innovation infrastructure can form part of a TINA project if this is an integrated element of the business plan and is essential for rolling out the innovation stage. It would also be interesting for Flanders if the proposed projects for the respective investment were also to include important complementary assets for the respective investment created in Flanders, which will ensure that the envisaged innovations will become long-term. This means that the proposed project not only creates the necessary cross-pollination (spillovers) but also that the project strengthens the coordination between the technology,

knowledge and assets present in Flanders, which then will result in other complementary assets. These complementary assets embed the innovations because they explicitly link the developed and used knowledge to a differentiated, unique infrastructure basis.

- **A 29 – Innovative tendering**

An extension is being carried out on the knowledge centre that assists all governments in effective application of the government procurements for sustainable innovation of their services in cooperation with innovative businesses and clusters. The administrations will receive attainment targets in order to reserve a certain percentage of their tenders for research and innovation.

7.5. Strategic Governance structure

7.5.1. Justification

For economic transformation aimed at future-oriented value chains and clusters, good **policy coordination** is necessary between all policy domains concerned as well as administrations for implementing the transformation agendas and policy actions (summarized in this chapter 7). This also means that the various sectoral consultation structures must be coordinated to one another. This will take place by setting up an Interministerial Committee for Industry (ICI) supported by an **Industrial Council** (IR) (figure 7).

As well as the **complementary industrial policy**, which supports the general cross compliances as regards competitiveness and modernization, a **specific policy is required on the level of sectors and clusters**. The transformation pressure is different in various sectors (e.g., regarding globalization, energy dependence and autonomy of decisions), which is why a transformation agenda tailored to the specific industrial environment and strategic ambitions is necessary.

7.5.2. Conditions for success

- A **transformation agenda**. The transformation must remain on the agenda at all times. Both strategic as well as short-term problems and actions must be considered.
- **Management capacity**. Powerful and dynamic management is needed for a transformation process from the client, from the Government and the sectors.
- **Independence**. The contribution from an expert group should ensure that the strategic choices and focus are sufficiently independent and are kept coherent as regards time.
- **A platform**. In order to realize a successful transition, we will have to carry out work on a process of involvement and support on socio-economic levels: businesses, employees, education and research institutes...
- **Transparency** in processes and decisions according to the codes of **good governance** (*public governance code*)



Fig. 7: Strategic Governance Structure

7.5.3. Actions

- **A 30 – Interministerial Committee for Industry (ICI)**

The highest authority responsible for a coherent industrial policy is the **Interministerial Committee for Industry (ICI)**, which will be set up within the Government of Flanders. The ICI acts as a monitor of the integrated industrial policy on the level of the Government of Flanders. The ICI is responsible for ensuring the coherence of the New Industrial Policy. This accountability translates into the setting of the short and long-term attainment targets, deciding the budgets and structures, adjusting the plans and initiating debates and research regarding new challenges supported by impact analyses from new trends in industry. The ICI is comprised of the Ministers of Economy, Innovation and Labour. Other ministers will also play an important role in this on an ad hoc basis.

- **A 31 – Industry experts with international recognition**

In order to support the ICI and in order to supervise both the strategic and operational decisions in their implementation, the ICI will be advised by a limited number of **independent industrial experts with an international profile and/or recognition** (bringing together industrials, academic experts and professionals) in an Industrial Council (IC).

The Industrial Council (IC) has three important responsibilities:

- *Orientation:* The IC has an important role in setting up and ensuring a specific cluster policy. This cluster policy should ensure that the necessary focus and selection take place in order to achieve the attainment targets of the industrial policy as far as possible. The Industrial Council will for this work out a process whereby via transformation projects can be requested via objective selection criteria within Flemish industry but can also be forwarded to the respective authorities such as Flemish Agency for Innovation by Science and Technology (IWT), Participation Company Flanders (PMV) & TINA Fund, the Enterprise Agency, WSE, VDAB,.... following evaluation. This process should enable gradual selection and orientation of transformation projects. Within the selection process, the TINA Fund will play a very important role as capital fund for industrial transformation. Formulating proposals regarding this process also concerning selection criteria such as organizing an “SPC” Single Point of Contact, is one of the IC’s first tasks.

- *Coherence:* The IC must help to ensure and supervise an effective, well-thought out and coherent implementation of the envisaged industry transformation process as stated in the White Paper NIP. The IC will for this receive regular insight into the status of the decisions taken. The IC will for this task also base itself on the advice of the Innovation Groups within the frameworks of the innovation hubs.
- *Evaluation:* The ICI wishes to assure itself that Flanders as an open economy keeps an international eye on developments and new challenges from industry in order to be able to detect important trends or changes in order to be able to adjust the current NIP. The IC will therefore regularly evaluate the effectiveness and efficiency of the total NIP both regarding processes, policy instruments and decisions taken and structures built up and check these internationally. The IC will submit to the ICI a report based on its perception proposing recommendations and adjustments.

- **A 32 – Operational support headed by EWI**

Operational support and reporting of the programmes, the projects and the various management structures will take place by the Flemish administration via EWI to the ICI. This will be ensured by an interdepartmental structure headed by the department EWI by operational coordination and support both to the Industrial Council (IC) and to the Interministerial Committee for Industry (ICI) but also to the coordination of the four pillars of the NIP.

- **A 33 – Follow-up by the Industry Convention**

A new round table model will be developed as an important transformation instrument. These will be initiated and managed by the ICI on an ad hoc basis.

A start will be made in 2011 on the round tables for the four sectors that have already developed action plans for transformation within the framework of the Industry Convention precisely in order to develop these further and to put them into practice.

The aim of a round table is setting up and systematically implementing a strategic agenda for transformation and future-oriented value creation with the help of the knowledge infrastructure among others. The **EWI Department** of the Flemish administration is responsible for carrying out the innovative sector policy and organizing round tables. The Department will provide the necessary staff and resources within the Enterprise and Innovation Division for efficient supervision of the round tables.

A round table is also being organized in 2011 for the **Creative Industry** with special consideration for **industrial product design** competencies. **Flanders Inshape** among others will be playing an important role in this.

A new project will be starting in the autumn with new sectors (such as the construction sector, the air travel industry, the food sector and the agribusiness).

- **A 34 – Sector consultation via the SERV**

The **sector consultation via the Flanders Social and Economic Council** (SERV) retains its institutional function of harmonization between social partners regarding these transformation agendas. This approach by the innovative sector policy will form part of consultation within the Flemish Economic and Social Consultative Committee (VESOC). The sector committees have an important agenda here for anticipating the transformations in their sector and for facilitating social innovations to enable the realization of the common attainment targets.

- **A 35 – Specific opinion via the VRWI**

Given the central place of innovation in the NIP, parallel involvement by the Flemish Council for Science and Innovation (VRWI) is ensured among other things by setting up IGs for developing and advising on specific innovation strategies.

7.6. Supervising and supporting actions

- **A 36 – Implementing proposals from the Commissions Berx and Sauwens**

Further implementation of the proposals from the **Commissions Berx and Sauwens** in order to reduce the turnaround time for *investment projects*, among others, the implementation of a project approach thus gaining lots of time is important for building large infrastructures.

- **A 37 – Space for entrepreneurship with attention for sustainability**

Providing *space for entrepreneurship* via a permanent evaluation of supply and demand in order to find businesses and potential investors the space to carry out their plans will take place under coordination of the Enterprise Agency.

This ensures optimal space for use and sustainability (e.g., sustainable business terrains set up as eco systems with their own chain loop). Such an approach can reinforce the clusters.

- **A 38 – Supporting energy-efficient investments**

Evaluating the effectiveness of the ecological incentive and research into support mechanisms for techniques with a high CO2 reduction and energy saving potential

Initiatives are taken for supporting investments in energy efficiency in Flemish businesses. Thought here is on a system of green guarantees for bank financing of energy-saving measures.

- **A 39 – Stricter EPB norms**

Implementing stricter EPB norms among other things for offices and industrial buildings with a view to achieving *near energy neutrality* in 2020. For the existing offices, there are already Energy Service Companies (ESCO's) on which also the Flemish energy company will focus as there is still a lot of energy to be saved here.

- **A 40 – Policy of managing the total production cost**

The competitive position is partly determined by the differentiation and innovation capacity of the businesses and the total production cost. As the differentiation capacity declines and one has to compete in more homogenous markets, the costs will have a greater impact on the competitive position. But also with successful differentiation, efficiently managing the total production costs and keeping these manageable remain important.

These total costs can consist of various elements such as energy costs, wage costs, material costs and transport costs and are always in proportion to productivity and the added value. These costs and these proportions can vary greatly depending on the activity, i.e., according to the link in the value chain. These differences are an important force for fragmenting the value chain and delocalizing certain activities to, for example, low-wage countries and/or countries with lower energy prices. This involves, in a future-oriented industry policy also taking explicit account of the expected dynamic of these cost factors. Illustration: a big change in the transport costs may lead to other proportions in the total production costs between various regions and so lead to an inter-regional production reshuffle.

Increasing transport costs for larger material products can be an incitement to move the production closer to the market. Higher transport costs due to congestion can stimulate clustering of OEMs and suppliers. However, new transport possibilities such as delivering IT solutions via the Internet can also involve important shifts in the product location as seen from the success of the IT cities in China. The impact goes even further and affects the demand for competencies.

The NIP also has an eye for clever management and making manageable of the total costs as well as the main purpose of reinforcing the industrial structure by making its competitiveness less dependent on the cost elements but mainly to base it on the innovative capacity. This includes the following elements:

- Managing the various cost elements both by improving efficiency and managing the unit cost.
- Optimizing the mutual proportion of the various cost elements in the total cost

- Embedded in and coordinated with general consideration for social and ecological sustainability
- Responding strategically to future shifts and trends

- **A 41 – Making industrial energy costs competitive**

Making industrial energy costs competitive by, among other things, efficient green energy policy, stimulating energy efficiency and an efficient mix of energy sources and contributing as much as possible within its own powers to investments in capacity and better market dynamics

- **A 42 – Coordination with federal policy regarding competitiveness**

Some federal competencies are crucial to the success of the regional NIP. It is important that the federal policy be adapted to and at the service of the policy of the Government of Flanders with a view to reinforcing the competitiveness of our enterprises when it comes to costs, productivity, innovation and knowledge. Competitiveness must be increased, for instance by tackling the labour cost handicap. A reduction of labour costs, e.g., for shift work and an extension of the exemption from withholding tax on professional income are essential as is a tax system that encourages growth or extra tax incentives. This will be brought to the attention of the Federal Government and where relevant and necessary, it can be included in consultation with the other regions.

- **A 43 – Coordination with a policy regarding transport and material costs**

Location decisions are partly effected by the projection of transport costs. These will be taken into consideration with the transformation strategies.

Material costs are becoming more and more of a strategic factor (see EU strategy). Flanders will base its policy on this with special consideration for sustainable material management, chain loop approach (cradle-2-cradle) and reducing dependence.

- **A 44 – Environmental permit with periodical evaluation**

It will shortly be examined as to how the environmental permit expiry period can be replaced by a system with periodic evaluation.

- **A 45 – Industrial spin-outs**

Reinforcing the industrial structure through industrial spin-outs

- **A 46 – Computerizing processes**

Speeding up the computerization of processes by increasing productivity in the service sectors, including social and public services

- **A 47 – Export and internationalization policy more focussed on growth countries**

Flanders Investment and Trade (FIT) instruments therefore place, except for export-related and industrial activities even more emphasis on other forms of internationalization (import and strategic cooperation alliances) and service sectors (creative services, business services, logistics services ...). FIT facilitates international partnerships (among others, by partner search) and delivers extra efforts for entering new growth markets (Eastern Europe and BRIC).

Within the framework of innovation and internationalization, supporting actions from the FIT are coordinated to the support instruments from the IWT.

- **A 48 – Specific targeting of foreign investment**

Successful innovation normally takes place in “networked” environments. We can speak of a “community” in which all sorts of implicit or explicit (institutional) mechanisms channel and enable spillovers (transfer of knowledge, training and valorizing employees, innovation infrastructure ...) and therefore also ensure better risk management.

Success often depends on one cluster or several motivators. In a constantly more globalized economy with international value chains, this implies that these motivators are international play-

ers. It is therefore important – certainly in the context of specific innovation strategies but also as leverage for the NIP – that we pro-actively point out the strengths of Flanders to relevant international innovation players and try to convince them to participate in the Flemish innovation system.

We therefore wish within the Flemish policy to attract foreign companies with a great deal of added value for our region and the social challenges we face. We also wish to valorize the knowledge built up within our Flemish universities and knowledge institutions in pathways with international businesses and thus ensure there is always good feedback to our region (in terms of employment, added value, growth and innovation dynamics ...).

The foreign representatives of FIT are the appointed persons best able to “spot” the trends and opportunities abroad. The technology attachés of FIT must also be the ambassadors for making known the international investment and research pathways from Flanders and for supporting the search for economic and technological international partners. This takes place according to the existing agreements in cooperation with the Enterprise Agency.

- **A 49 – Supporting policy-relevant research**

Further research from the driving forces of the industrial welfare creation in Flanders within the framework of Policy Research Centre. A special research contract will be put out to tender for this. This research consists of three phases: (1) mapping out the added value per industry/economic sector (2) determining the clusters with the most growth (3) detecting the mechanisms that are the basis for this growth by way of specific case studies

- **A50 – Aiming strategic training and investment support (SIOS) at transformation**

The continuous knowledge development and innovative force largely depend on the knowledge and skills of the human resources available to businesses. Supporting and reinforcing these human capital is therefore of more and more strategic importance. It is therefore justified for the Government to subsidize the training costs given their general economic development impact. All of this of course applies as far as the stimulating effect of the training support as described in the Communication “Criteria for assessing the compatibility of State support to be announced individually for the purpose of training”⁴³ is respected.

Strategic training support can only be given if the programme anticipates a period of change and the business complies with the three pillars of the sustainability concept. Additional research will examine whether the instrument of the strategic training support thus sufficiently anticipates the main lines of the new industrial policy. It will also be examined how and to what extent the instrument can be opened for cooperation and networking associations and for smaller programmes that are generally based on smaller innovative enterprises subject to budgetary adjustability. The Minister for Economy will draw up an adjustment proposal based on this.

Strategic investment support can currently be given if the investment undergoes a change for the business that translates into a whole raft of decisions of which the consequences are difficult to reverse and that strive for long-term improvement and have an influence on the entire organization. This is expressed in the fact that the business should be a deep-going transformation process. The business must also comply - more than average - with the policy priorities of the Government of Flanders. These are translated in the triple bottom line or the sustainability concept in its three aspects: economic, ecological and social. Whether this means that the instrument of the strategic investment support sufficiently anticipates the main lines of the new industrial policy will be the object of more precise research. The Minister for Economy will draw up an adjustment proposal based on this.

7.7 Short-term planning (2011-2012)

2011

- May: Round Table for the Creative Industry. Special consideration will be paid here to product design competencies. A new project will be starting in the autumn with **new** sectors (such as the construction sector and the air travel industry).
- July: Setting up of the Interministerial Committee for Industry.
- From July: **TINA** (Transformation and Innovation Acceleration) **Fund** with € 200 million can handle cases and play an important role as a financial lever for the NIP and the transformation.
- From July: Round Table for the four sectors: Chemistry and Life Sciences, the Technological Industry, the Feeding and Agribusiness and the Textile, Wood and Furniture Industry that have all developed action plans for transformation within the framework of the Industry Convention precisely with the aim of developing and putting these into practice (test pathway).
- September: Operational implementation of the strategic governance structure.
- From September: Launching the first major project **New Factory of the Future** around sustainable chemistry.
- A start will be made in 2011 on the additional research into levers, motors and clusters of industrial welfare creation in Flanders.

2012

- Setting up long-term plans around the infrastructure policy and starting on the development of large projects with important infrastructure components.
- First assessment of the policy framework and the 50 policy actions proposed in this White Paper. This will take place every year and be updated based on structured consultation with the other policy domains within the framework of the New Industrial Policy and consultation with the social partners via VESOC and contribution of the strategic advice councils and the Industrial Council. This will be reported in the policy letters from three ministers forming the ICI.

Summary

- **Slowing down of our productivity growth:** The unit labour cost is lower than in our neighbouring countries France and Germany. However, that difference is getting smaller because of a strong increase of the productivity in France and Germany and a slower increase of labour costs in Germany. An exception is the Netherlands. There, wages increased more but because of a stronger productivity increase. Because of this, unit labour costs showed a stronger decrease.
- **No profit from the growth in the BRIC countries.** Our export grew slower than the growth of the economies of the BRIC countries. Because of this, our industry lost more market share in the BRIC countries than other countries.
- **Industrial employment disappears more rapidly than in the EU** while industry's added value increased over the last 15 years. This could point to cutting/closing industrial activities with a lower added value.

Employment and Added Value (period 1995-2009)

- Industrial employment in Flanders decreased from index 100 in 1995 to 83.6 in 2009. We experienced a stronger shrinkage than average in Europe where it decreased to 87.6 and also more than in neighbouring countries.
- Added value has however developed positively (from 100 to 112.8). Here, we are doing better than the EU average (111.3) and Germany (104.1). The Netherlands (116.4) saw a sharper rise in added value.
- Regarding its share in employment, Flanders (15.9%) is more of an industry region than France (13.1%) and the Netherlands (11.0%). Regarding the share in the added value, industry in Flanders (22.3%) is greater than the average in the EU (19.3%) and the three neighbouring countries.
- The total number of industrial companies was up slightly (+5.8%), the number of new companies was down one tenth.
- The net profitability of own capital in industry showed a fairly strong decrease in the 2007-2008 period (from 9.6% to 6.3%).

Export Market shares (period 2002-2008)

- Flanders has a very open economy and based on the recent trade numbers (2009 + first quarter 2010), can be considered the **12th trade nation in the world** with a world market share of 2.4%.
- In other words: with a share of less than 0.1% of the world population, its trade puts Flanders on the world map as an economic player.
- A market share shows what share a country has in the imports of a trading block, e.g., the Province of Flanders has a market share of 8.74 per mille in North America (USA and Canada). This means that for each USD 1,000 in imports, 8.74 comes from the Flemish Region.
- The Flemish Region still holds relatively large market shares. But these are shrinking faster than those of our neighbouring countries on a number of important markets. This is especially true for the BRIC countries and the Asian Tigers.

- The market share of the Flemish Region in the EU-12 countries was 22.7 per mille in 2008. Their closeness might explain the higher value than in the trade blocks mentioned below. In addition to the four large EU-15 countries, the Netherlands also holds a larger market share. Between 2002 and 2008, the Flemish Region recorded slight gains as opposed to Germany and France. But the Netherlands was able to increase its share more (by almost a quarter).
- The Province of Flanders had a market share of 10.1 per mille in the BRIC countries (100 to 58.4) in 2008. The Province of Flanders' market share in the BRIC countries was down considerably from 2002 to 2008. The neighbouring countries were able to do slightly better. It is clear that diamonds are still very important in the BRIC context for our region.
- As for the N-11, we note a slight increase of the Flemish market share. France and Germany experienced a decrease of their share in these countries with improving growth. The Netherlands showed strong growth.

Foreign investments

- Flanders remains attractive for foreign investors. The main reasons are location, neutrality, logistic performance, highly-educated and multilingual workers.
- Flanders remains very attractive. The Cushman & Wakefield (2010) report positions Belgium and therefore also Flanders as the most attractive region for logistics in Europe. Wallonia also does well here.

Labour costs (period 1995-2009)

- Average labour costs (gross costs for the employer) in industry in Flanders rose from index 100 in 1995 to 140.3 in 2009 but this increase is lower than the EU average (145). In the Netherlands, the increase in costs was more pronounced than in Flanders (147.9). This is considerably less in Germany (121.8).
- However, if we take into account the productivity (GDP/employed) and look at the labour costs per unit produced in industry, the increase in Flanders is less marked, i.e., a decrease in the productivity growth. However, **the Netherlands and Germany** managed in the covered period **to lower their labour costs per unit** (figure 8).
- However, when we take into account the starting position in 1995, we must state that Flanders on the one hand became a little more expensive (from 97.2 to 99.8) but that on the other hand, the situation is better than in Germany (113.2) and France (112.9). However, the Netherlands remains a lot less expensive per unit (74.9).

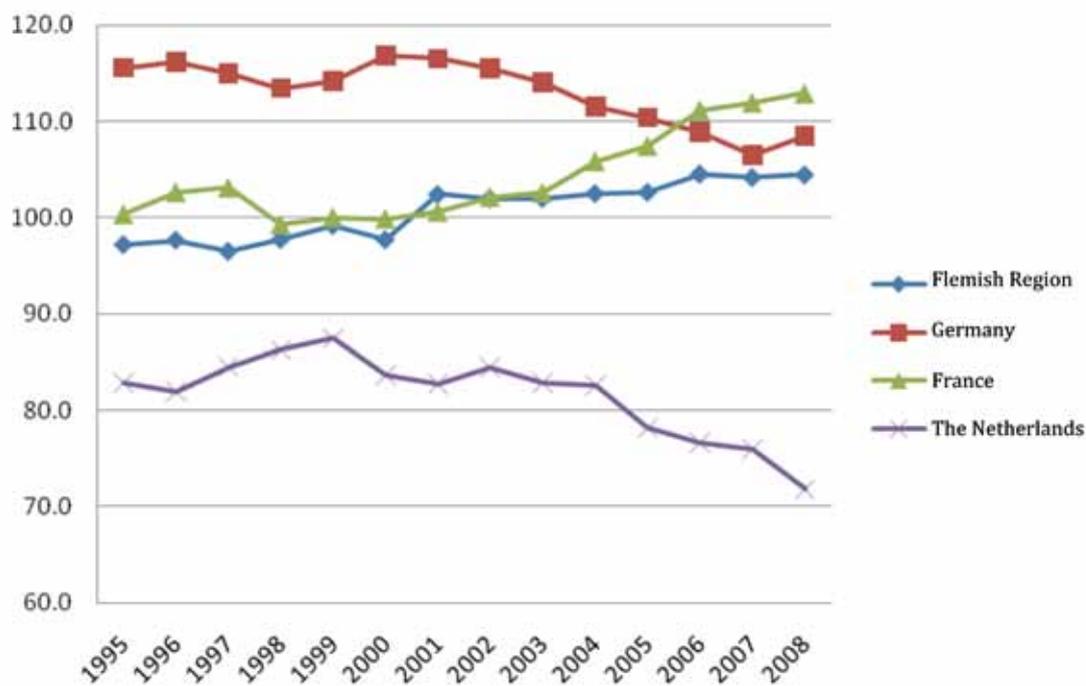


Fig. 8: Evolution of the unit labour costs per product 1995-2008 (share of labour costs in the TV)

ENDNOTES

1. Since the late 1990s, productivity has been defined more widely than simple efficiency. Research shows that productivity is the result of efficiency and innovation. Richard Lester wrote in his book *The Productivity Edge* from 1998 that growth in productivity is more than a consequence of gains in efficiency in the productivity factors of work and capital but is also thanks to fundamental technological progress (e.g., ICT and technological innovation).
2. AGORIA, ESSENSCIA, FEBEM, FEDUSTRIA, FEVIA, Confederatie Bouw
3. "View of the Industrial-Economic Structure in Flanders" – VOKA February 2011.
4. "Is there still a future for our industry?" on the importance of industrial SMEs – UNIZO September 2011.
5. Greener school grounds can lead to greener jobs. There is however no clear definition of the term "green job". According to the definition applied by the International Labour Organization, green jobs include direct employment finally reducing the impact on the environment to a sustainable level. These are jobs that contribute to reducing consumption of energy and raw materials, contribute to a low-carbon economy, protect and repair the ecosystem and biodiversity and that reduce the production of waste and contamination to a minimum. [...] A somewhat wider definition of the term "green jobs" could also include any new job in a sector with a smaller than average ecological footprint that contributes to improving general performance even if perhaps only marginal.
6. See draft memorandum on the Innovation Centre Flanders.
7. Ann Vereecke, "Lead-plants" in Flanders, Support Centre for Enterprise and International Enterprise, 2010
8. Advisory letter 156 "Final report on the Innovation Group 'Social Innovation'", 21 March 2011, VRWI
9. In this model, the performance of the best sets the reference for the standardization.
10. Ann Vereecke, "Lead-plants" in Flanders, Support Centre for Enterprise and International Enterprise, 2010.
11. Dearden, L.; Reed, H. and Van Reenen, J. (2006). "The Impact of Training on Productivity and Wages: Evidence from British Panel Data", *Oxford Bulletin of Economics and Statistics*, Vol. 68, pp. 397-421.
12. "Infrastructure UK" - www.hm-treasury.gov.uk/ppp_infrastructureuk.htm - was set up in 2010 as a government service to advise the Government with a long-term plan for infrastructure renewal. In Flanders, competencies can be brought together from the Public Procurement Unit (Administrative Affairs), Knowledge Centre PPP, Sustainable Procurement (DAR).
13. Official Journal No. C 188, 11.08.09, p. 1-5
14. http://ec.europa.eu/enterprise/policies/industrial-competitiveness/industrial-policy/index_en.htm
15. <http://info.worldbank.org/etools/BSPAN/PresentationView.asp?PID=2457&EID=1110>
16. Justin Lin and Ha-Joon Chang (2009), *Development Policy Review*, 27 (5): 483-502
17. Dani Rodrik of Harvard University, for instance, points out the failing policy in France in the 1980s to promote the electronics industry but there are also success stories, such as the public venture capital fund that was set up in Chile with an enormous stimulating impact on the Chilean salmon industry and the Chinese automobile industry, another example of a successful industrial policy.
18. European Commission, COM (2010) Europe 2020
- 19 "The aim of this is to re-focus R&D and innovation policy on the challenges facing our society, such as climate change, energy and resource efficiency, health and demographic change. Every link should be reinforced in the innovation chain, from 'blue sky' research to commercialization."

(Europe 2020, Flagship Initiative: “Innovation Union”, p. 10)

20. “To work closely with stakeholders in different sectors (business, trade unions, academics, NGOs, consumer organizations) to identify bottlenecks and develop a shared analysis on how to maintain a strong industrial and knowledge base and put the EU in a position to lead global sustainable development.”
21. Inspired by the Finnish Science & Technology Policy Council, where knowledge institutions and the business world participate in consultations on the national strategy, led by the Prime Minister
22. www.rijksoverheid.nl/documenten-en-publicaties/kamerstukken/2011/02/04/naar-de-top-de-hoofddlijnen-van-het-nieuwe-bedrijfslevenbeleid.html
23. The Global Competitiveness Report 2010-2011. Regional measures such as for Flanders and other subnational regions are not available for this - www.weforum.org/documents/GCR10/Full%20rankings.pdf
24. It is not sufficient for our country to adapt its labour costs to the development of productivity if productivity in other countries that are in the same export markets increases more and/or if labour costs increase less. In such case, the international competitiveness of our companies would deteriorate, even though it would improve at the national level.
25. For details see Abraham, F. and Konings, J. (2010). Loonkosten, Productiviteit en Werkgelegenheid in een concurrentiële internationale omgeving: Een Analyse met Belgische Bedrijfsgegevens, a study commissioned by the Federation of Enterprises in Belgium.
26. In his essay How America Can Create Jobs (Bloomsberg Business week, 01.07.10) ex Intel CEO Andy Grove talks about the place of the processing industry in the economy as “**industrial commons**” that should be protected at all costs to enable the upscaling of innovations and sustain the innovation ecosystem itself. This concept was introduced by Gary Pisano and Willy Shih. (Restoring American Competitiveness, Harvard Business Review, July-August 2009). It refers to a basis of knowledge and competencies that is shared within an industry, such as “R&D know-how, advanced process development and engineering skills and manufacturing competencies relating to a specific technology”. Once this industrial commons is lost (as a result of systematic outsourcing), it is almost impossible to retrieve.
27. *“The Third Industrial Revolution is a distributed energy revolution as well as an economic game plan. There are 4 pillars upon which the Third Industrial Revolution is based upon: (1) Renewable Energy, (2) Buildings as Positive Power Plants, (3) Hydrogen storage and (4) Smartgrids and Plug-in-vehicles.”*
28. Peter Hinssen, in his book The New Normal (2010) states that we are reaching a phase in which we have only just seen half of the evolution and that ICT is starting to be part of everyday use but still has a lot of potential for innovation and impact.
29. For example, the bio-refinery of Bio-Base Europe is building a pilot installation for the use of biomass in energy and material applications. This is no pure research infrastructure but also not a business. By integrating interested enterprises’ common infrastructures for testing and developing new products and processes into the research infrastructure, such an installation can grow into a pilot system for the bioeconomy in Flanders.
30. See Elinor Osrom, Nobel prize 2009
31. The priority areas for basic research in the European Factories of the Future Initiative are: Sustainable manufacturing; ICT-enabled intelligent manufacturing; High performance manufacturing; Exploiting new materials through manufacturing.
32. See V. Bagnat, K. Bruggaerve, L. Driese, Ch. Piette, B. Vuidar, Positie van België in de wereldhandel, NBB, June 2010.
33. See draft memorandum on the Innovation Centre Flanders.
34. Ann Vereecke, “Lead-plants” in Flanders, Support Centre for Enterprise and International Enterprise 2010.

35. A Supporting Innovation Policy for Flemish Chemistry. Final report from the Innovation Group "Chemie"; VRWI, 09.12.10
36. According to a Focussed Innovation Policy for the Flemish Automotive Industry. Final report from the Innovation Group "Automotive"; VRWI, 04.11.10
37. Advisory letter 156 "Final report on the Innovation Group 'Social Innovation'"; 21.03.11, VRWI
38. In this model, the performance of the best sets the reference for the standardization.
39. Ann Vereecke, "Lead-plants" in Flanders, Support Centre for Enterprise and International Enterprise, 2010.
40. Dearden, L.; Reed, H. and Van Reenen, J. (2006). "The Impact of Training on Productivity and Wages: Evidence from British Panel Data"; Oxford Bulletin of Economics and Statistics, Vol. 68, pp. 397-421
41. The following fields of activity have already been suggested: a clever electricity network, forward-looking construction, an appropriate health care infrastructure and innovation applications, forward-looking ecology infrastructure (water and soil and adaption sector), clever logistics/mobility infrastructure.
42. "Infrastructure UK" - www.hm-treasury.gov.uk/ppp_infrastructureuk.htm - was set up in 2010 as a government service to advise the Government with a long-term plan for infrastructure renewal. In Flanders, competencies can be brought together from the Public Procurement Unit (Administrative Affairs), Knowledge Centre PPP, Sustainable Procurement (DAR).
43. Official Journal No. C 188, 11.08.09, p. 1-5. 1-5)
44. Sources: Eurostat, Hemreg, NBB, INR, OECD, Unctad)

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