

Assessment programme of *PM2.V* (Marshall Plan 2.Green, *Plan Marshall 2.Vert*)

Executive summary

THEMATIC ASSESSMENT 1 – COMPETITIVENESS CLUSTERS

Launched as part of the Marshall Plan, the Walloon competitiveness clusters policy is intended to reinforce the Region's competitiveness in fields in which Wallonia already has some potential. To date, Wallonia has six such competitiveness clusters: *Logistics in Wallonia* (Transport and Logistics), *Skywin* (Aeronautics and Space), *Biowin* (Biotechnology and Health), *Wagralim* (Agro-Industry), *Mecatech* (Mechanical Engineering) and *Greenwin* (Sustainable Chemistry and Materials, including Building Materials). The first five competitiveness clusters were set up in 2006, while the sixth, Greenwin, was certified in 2011, in the context of *PM2.V* (Marshall Plan 2.Green, *Plan Marshall 2.Vert*).

According to the definition laid down by the Marshall Plan, a competitiveness cluster is “*a combination of companies, training organisations and public and private research units engaged in a partnership approach intended to release synergy around joint projects of an innovative nature. This partnership is organised around a market and a technological and scientific field in which it is involved and must strive for a critical mass in order to achieve international competitiveness and visibility alike.*” In other words, the clusters policy seeks to reinforce networking among public and private players (companies, universities, polytechnics, training organisations, research centres, etc.) in order to stimulate corporate partnership projects and innovative approaches. The final objective is to reach, in growth business sectors, a critical mass and a level of excellence, allowing a new dynamic of growth at the regional level to be generated and to position Wallonia on the international stage.

After several years of operation, the Walloon Government has decided to assess the results of the competitiveness clusters policy, in the context of the assessment of *PM2.V* (Marshall Plan 2.Green, *Plan Marshall 2.Vert*). Through this assessment, the Government was intending to pursue two objectives: “*The assessment should enable, on the one hand, information to be gleaned for the government's next decisions concerning the continuation or otherwise of each cluster's certification and, on the other, the current competitiveness cluster scheme as a whole to be improved.*” On the basis of the Government's expectations, the assessment work has been structured in two parts:

- The first involving an assessments of each of the six competitiveness clusters;
- The second focusing on an assessment of the effectiveness and the efficiency of the competitiveness clusters scheme as a whole, in the light of the initial objectives set by the Walloon Government.

This report offers an assessment of the competitiveness clusters scheme as a whole. The individual assessments of the six competitiveness clusters, which have inspired this report, are confidential and have been published separately.

The adopted assessment approach is based on a triangulated analysis of the information obtained through various quantitative and qualitative methods of data collection and analysis: the creation of sectoral files for each cluster, surveys (among cluster directors, members and non-members), visits to each competitiveness cluster site, nearly fifty interviews with key players (public and private) of the Walloon ecosystem in support of

innovation and competitiveness, eighteen in-depth case studies of training or research projects, and international benchmarking of the clusters policy. In order to ensure comparability of the data and the analysis of the scheme's development over time, a referential of the current situation has also been established, making it possible to lay down a foundation of reference indicators which will be useful for future assessments.

The following lines reproduce the assessment's main conclusions and recommendations.

The competitiveness clusters scheme: the introduction of an industrial policy in Wallonia which would benefit from better integration into the regional environment

Competitiveness clusters are explicitly enshrined in the regional economic development strategy, which focuses on the **integration of players and mechanisms around a series of growth areas** for Wallonia. The clusters policy is based on new tools (collaborative R&D projects following the "2+2" rule; creation of *Sofipôle*). It has also taken advantage of certain existing mechanisms by adapting them, if necessary (*AWEX* (Walloon Export and Foreign Investment Agency - *Agence wallonne à l'Exportation et aux Investissements étrangers*) support, the investment premiums with clusters bonuses).

The clusters have been designed with a **system of multidimensional support**, which rallies the additional parts that have been identified as key factors of Wallonia's competitiveness: R&D, training, international expansion and investment/infrastructure support. The importance ascribed to the training part is a key element of the clusters policy's intervention rationale, which distinguishes it from other clustering policies in Europe where this question remains more marginal (example of the French competitiveness clusters). It enshrines the clusters policy within a long-term perspective seeking the development of a labour force capable of using and building upon the results of the R&D projects.

Nevertheless, **further effort is required for organising the competitiveness clusters better and for inserting them into their regional environment better**, in order to improve their overall consistency and effectiveness. The relations of the competitiveness clusters with the components of the regional research and innovation ecosystem are concentrated around *AWEX* and around certain research and training organisations, such as universities, polytechnics, approved research centres and skills centres. These results are not surprising, given their collective involvement in the clusters policy. They underline however the lesser intensity of the links established by and with the other Walloon innovation players, who, although not directly involved in the clusters scheme, fulfil certain missions which also fall within the clusters' sphere of influence. This raises the question of the breakdown between what a cluster should do, and what it should get done by relying on ecosystem players. In addition, there also seems to be a lack of cohesion between the government's hubs policy and its sectoral policies (for example: agriculture, environment, health), whereas the clusters could be more widely used when launching government's initiatives (for example, in the context of innovative public contracts, following the example of other European countries). More generally, the clusters scheme is suffering from a lack of clarity/legibility of the general system of aid to Walloon companies and research organisations in order to support them in their economic development of innovative processes, insofar as that impacts the competitiveness clusters' visibility and positioning compared to other schemes (such as business clusters).

In such a context, the assessment stresses that **competitiveness clusters have a key role to play in the context of the Regional Strategies for Smart Specialisation**, which will guide the European financings during the next programming period. These financings focus on the reinforcement of activities aiming to market the research results and to support the ability of innovation of the SMEs, which are at the heart of the clusters activities and which can seize an opportunity here of reinforcing their integration at the regional or inter-regional level.

Policy-steering based on interaction and exchange but characterized by a certain complexity and lacking strategic vision and an efficient monitoring system

The overall competitiveness clusters scheme was constituted *ex nihilo* in 2006, with the setting up of dedicated structures, clusters' operating units, and draw-down of the Walloon system of support for research, training, innovation and international expansion. **Overall, the processes have worked well at the level of the implementation of the clusters policy.** Interaction and dialogue have gradually developed between the various parties involved (the six Walloon clusters, the functional administrations, the Government and the international Jury) and the calls for projects procedures have gradually been formalised, under the impetus of the experience gained by the clusters and the recommendations of their international Jury. The Inter-clusters Committee enables periodic dialogue between the clusters, the administrations and the Government at the level of the clusters scheme, while the Support and Guidance Committees ensure a more operational dialogue with the Administration at the level of each cluster. **It is nevertheless regrettable that these bodies are not involved in any truly strategic steering**, in the sense that they make no direct decisions on orientating the clusters policy. They rather play the role of a discussion and exchange body. The disappearance of the Clusters High Committee has moreover reduced the possibilities of dialogue between the clusters and the trade unions.

One of the main obstacles identified in the policy steering is at the level of the monitoring. An intensive monitoring system composed of a series of indicators has been developed in order to track the clusters policy's achievements, results and, to a certain extent, impact. However, in practice, especially because of the complex nature of the policy's implementation, parcelled out between various administrations and players, neither the feedback nor the centralization of the information has been optimal. Although developments are already in hand, three key problems continue to impact the monitoring and the assessment of the clusters projects and the policy as a whole:

- The parcelling out of the monitoring of the activity and impact indicators between the administrative unit, FOREM (employment public service, *Service public wallon de l'emploi et de la formation*) (training), AWEX (international), and the competitiveness clusters themselves;
- The feedback from the project carriers to the clusters, on the one hand, as well as the information flow from the functional administrations and the clusters to the administrative unit, on the other, are neither fluid nor systematic. In other words, the two units that are responsible for the monitoring (the administrative unit centrally and the operating units of each cluster) do not systematically receive all of the information that would enable them to carry out that monitoring efficiently;
- The absence of an incentive mechanism for the information from the indicators by the project carriers and for their centralization at cluster level (especially at the end of the projects' lifecycles, which impacts the monitoring of the impact indicators).

These difficulties impact the information from the indicators and the reliability of the feedback data, particularly with regard to creating or keeping jobs. **The length of the certification and contractual procedures, as well as the scheme's administrative workloads, remain two of the main brakes on participation and on the proper progress of the clusters projects.** The procedure between the submission of the letter of intent (December year N) and the contractual aspects (at the latest at the beginning of May of year N+2) and the starting of the project can last for almost a year and half. There is a form of contradiction between the willingness to finance collaborative R&D projects that are sufficiently close to the market for medium-term results to be obtained, and the delays for getting those projects underway. The timing is not always right for the SMEs' lives or constraints. This is one of the reasons why investment aid (in companies) and infrastructural aid have almost never been activated in the competitiveness cluster context and why direct financing by AWEX has been preferred for export projects in the calls for projects context.

A series of procedures has been implemented in order to reduce the administrative workloads, often following difficulties observed by the clusters' Jury, but in practice the certification and contracting periods appear hard to compress. The adopted measures relate mainly to a simplification of the administrative procedures. Although this assessment does not allow sufficient distance for judging their impact, it arises from the overall analysis that certain difficulties such as the negotiations relating to the intellectual property have already been sorted out due to the support given by the clusters and to anticipating various problems. With effect from 2014, the introduction of tri-annual calls for projects will probably enable the number of projects submitted per call to be reduced, and their processing periods as well.

Strategic positioning of the competitiveness clusters and mobilising their value chain players: relevant strategies but further legibility, concentration and formalisation efforts are still required

At the level of their strategy and their thematic scope, the clusters are still entirely relevant and overall effectively meeting the Walloon and sectoral challenges. Nevertheless some business clusters are positioned in fields relating to those of the competitiveness clusters, which raises the question of the relevance in future of maintaining a competitiveness cluster and business clusters in related fields.

The clusters strategy has not always been properly explained to all of the members of the cluster, nor sufficiently appropriated, by SMEs in particular. That is partly related to the strategy-building process, which has long remained the preserve of the clusters' boards of directors. Moreover, the **clusters strategies are not systematically structured around clear objectives** (definition of the ambitions that the cluster would like to achieve) **nor around a portfolio of business actions**, enabling better understanding of the way in which the cluster intends to position itself, in the short-, medium- and long-term, in identified fields of strategic actions. At their launch, the clusters failed to define their strategy-updating process: the updates, in relation to the candidates' file established in 2006, were carried out in 2011, even 2012 for certain clusters. Even though certain sectors, such as aeronautics or biotechnologies, are long-cycle industries, in which technological interruptions are infrequent, **it is important to anticipate sectoral developments better and to incorporate them into a regular strategy-updating process.** More transversally, it would also be appropriate to connect the regional development strategies, and in particular the Walloon Strategies for Smart Specialisation currently under development, with the clusters' medium-and long-term strategic roadmaps, in a spirit of mutual reinforcement.

It is also interesting to note that the competitiveness clusters have triggered a **positive dynamic of inter-cluster collaboration**. This enables synergies to be brought into play in terms of technological bricks (contribution of reciprocal knowledge) or of output markets for the innovations generated by the clusters (diversification of potential application markets). Thus, the possible complementarities between mechanical engineering (Mecatech) and medical mechanisms (Biowin), or between aeronautics (Skywin) and mechanical engineering (Mecatech) are obvious. However such inter-cluster collaboration is still relatively recent and few in number, and it usually takes the form of ad-hoc project-based collaboration (via for example the co-certification of collaborative R&D projects). The installation of innovation platforms should be an opportunity for deepening that collaboration insofar as it relates to structuring projects that call for inter-cluster collaboration.

The thematic scope of the competitiveness clusters in the end has enabled them to achieve an average of 168 members per cluster in 2012. The number of members has been continuously increasing since the clusters were created. The competitiveness clusters' governance structures are usually appropriate and representative of the various parties involved, with **good representation of the various players as a general rule and good involvement of the big groups adapted to the sectors' particularities.** On average, the clusters have 21 research and training organisations, 24 big companies and 76 SMEs. The members of the clusters represent

particularly active companies in terms of R&D investment in Wallonia, and in particular SMEs with a technological orientation.

The good level of involvement of SMEs as members of the clusters is not directly reflected in their participation as partners of collaborative R&D projects. The main partners of those projects are research organisations (55%), followed by SMEs (29%), and big companies (15%). Analysis of the rotation rate of the clusters' projects shows that over the years, the number of new players involved in R&D projects certified by the clusters is strongly tending to fall off, showing a weak renewal of project participants. The majority of the projects is carried by SMEs (46%), followed by big companies (28%), and training organisations (23%).

Lack of information and time is an important barrier to greater SME participation. Our analysis shows that, in order to participate, small companies must see some real added-value and a fast and real return on their commitment. The clusters must promote their image better, in order to be seen, not as tools at the service of the big groups or research units, but as mechanisms underlying the competitiveness of the sources of production and open to companies of every kind. They should appear as operating tools enabling SMEs to increase their competitiveness and to access new markets.

An unequal draw-down of aid offered by the scheme - the prevalence of the R&D and training projects, which questions the relevance of the scheme's aid to the clusters as conceived in 2006

The clusters' scheme has allowed the **certification of 241 projects** under the first eight calls for projects. **The financing of the projects rests mainly on public finance** with a total of 450Meuros committed in the context of finished or current research projects (117 R&D projects out of 185 finished or current research projects), of which 322Meuros (72%) are committed by public sources.

The various existing parts of the schema have been called upon unequally with a **pronounced prevalence for R&D projects, which account for 63% of the finished or current projects and 83% of the total financing decisions.** They are followed by training projects, which account for 27% of the finished or current projects and 13% of the total funding decisions. We note weak draw-down of the investment part (12 finished or current projects) and of the infrastructure part (3 innovation platform projects filed between 2011 and 2012). It should generally be noted that 81% of the finished projects did not draw down on all of the envisaged public commitments.

A very weak draw-down at the level of investment projects has been recorded. The reason in reality is above all due to a mechanism which does not provide much incentive for financing investments in companies by way of the competitiveness cluster "procedure": the length of the certification process, and the weak improvement of the financing rate offer little incentive compared to the traditional investment premiums (excluding cluster allowances) of the *DGO6* (the Directorate General operational for Economy, Employment and Research (*DGO6*) of the Walloon Public Service). To a certain extent, the reason is also due to the **still insufficient attention of the clusters' marketing teams about the way to promote the results of the projects, i.e. in particular the guidance of the project carriers**, beyond the theoretical end of the projects, in order to ensure the commercial start of the innovations resulting from the projects.

Similarly, **the infrastructure projects have been mobilised only very recently in the context of innovation platforms, launched on the clusters' initiative.** On the one hand, that is due to the poor legibility of the actions of *Sofipôle* at the start of the clusters policy because of its newcomer position on the aid landscape. On the other, *Sofipôle* was created in order to build upon the results of the research financed by the clusters. However the research projects lead to investments in new infrastructures only after a period of time which can be more or less long after the closure of the projects. According to this reasoning, the interest for the

infrastructures projects should however have been developed along with the calls for projects, which was not the case. There is therefore an **unexploited potential for projects which could be financed by Sofipôle but have not emerged, owing to the fact that the research results are not always built upon in every possible sense.**

Operating units playing an ever-increasing role of facilitator and federator but barely involved for building upon the results of the clusters' projects.

The clusters' operating units have a **high level of public financing at their disposal (83% of the whole of the contributions - financial and in kind) which has increased since 2006.** The clusters were indeed not designed at their launch as commercial service providers for their members and they have no calling to manage any revenue-generating infrastructures. **The clusters are still not very keen to show their added-value to their corporate and research organisation members, which would enable them to generate more of their own revenue, via financial contributions in particular** (and not only contributions in kind): networking, intelligence, offsetting up of projects. Today's high level of public finance raises questions with regard to the Community supervision of State aid for research, development and innovation. The clusters are conscious of this challenge but are still having trouble in engaging structured deliberation on the subject in order to increase the level of private financing.

The breakdown of the time spent by the operating units on cluster management is relatively consistent with the direct objectives of the clusters policy. It reflects the clusters' concentration on three subjects: **support for the emergence and setting up of collaborative projects** (of research in particular), **international dimension** (in a dual perspective of the visibility of Walloon skills and the export of products, services and know-how from Walloon companies) and **activities.**

The slightest involvement of the clusters in the project unfolding phase however impairs the policy's effectiveness. It impacts the implementation of the projects as well as the exploitation, the use, the dissemination and the distribution of the results, whether for training or research projects. It is not a question of a lack of the clusters' involvement, since the analyses that have been conducted have shown that certain clusters are or are becoming very active, but rather of a **lack of clear definition of the clusters' role and, to a certain extent, of the legitimacy of their involvement.** In the current state of affairs, there is strong dissociation of the roles between the administration (in charge of the financial management of the project and the subsidy payments), the cluster (in charge of the monitoring of the projects) and the Government (which has signed the agreement, except for those in a training project context).

Overall, the **clusters are recognised not only for their ability to constitute a network of value chain players, but also in order to support the projects by helping with their fine-tuning and by federating the players around common challenges.** The clusters' **facilitator and federator role** is one of the scheme's key action levers. Cluster projects have enabled Walloon players to know each other better and to trigger partnership and confidence rationales, leading to new research or marketing relations. In particular, in the sectors with lower technological intensity, the clusters have shown their ability to take companies along with them on projects on which they can be differentiated. At the level of the training projects, the clusters have shown their ability to take a central role in the discussions on sectoral training needs and have enabled, for some, to chart the necessary training courses, even if further efforts are still needed in this sense

The clusters' activity is however only partly coherent with the final objectives expected by the clusters policy: corporate growth and jobs creation. The fact that the clusters spend little time on activities building up the research results, on technology transfer or on project monitoring impacts their ability to achieve those objectives. More widely, the **activities in favour of the growth of the cluster's companies are not**

positioned at the heart of the clusters' activities, except in the case of the international actions financed by AWEX. If the clusters have indeed initiated a dynamic of collaborative R&D projects, the ability to transform them into marketable innovations (products or services), the guidance for setting up innovative companies, or more simply the networking of public and private financing players (capital investment funds), are still relatively secondary activities.

Notable cluster project results and impacts but still measured in the light of the committed amounts

The competitiveness clusters have had a series of positive effects. The projects however have not yet produced their full effect, especially due to the delay in their implementation and to the small number of projects now finished and which have been able to move to an industrialisation phase¹.

The projects conducted in the competitiveness cluster context have usually allowed **the ties between academics and major industrialists to be strengthened** by capitalizing on skills. They have also allowed a **networking of academics with the regional SMEs**, enabling them to generate marketing activities, and to undertake outsourced research for big companies. This has generated **regional ecosystems on thematic areas that are visible at regional and international levels**. The co-operation initiated with the research partners is usually maintained at the end of the project.

The impact of the companies' participation appears to be fairly strong. The latter goes from the unexpected creation of a spin-off, to the creation of joint-ventures for building upon the research results or to corporate growth. At the economic level, the impact is primarily at the level of the **evolution of the activity and the turnover** (in particular via new marketing agreements), the **generation of greater added-value** and, in certain cases, the **hiring of new staff**. **The reinforcement of the research capacities and the accrued skills** of certain partners have also given them greater **credibility**, enabling them to position themselves better in the markets (especially via demonstrators) and to hone the interest of new partners, mainly for new research projects, but also for new trade relations. **Certain behavioural effects** are also to be raised, especially via the **structuring of the industrial research activity within the SMEs, the improvement of their R&D project management and their greater openness to collaborative work**.

As far as research units are concerned, the projects have been primarily translated into a **reinforcement of scientific knowledge and recognition/better visibility** by (co-) publications, or by doctorate theses. In most cases, the partners have acquired **expertise they can use in other research projects**. The industrial projects have enabled them to widen their activities towards **more application-oriented research, to carry out validation tests with real constraints, and to acquire new state-of-the-art equipment (especially for carrying out tests)**. The projects have also enabled them to **finance staff over long periods and to train students on industrial problems**.

This reinforcement of scientific and technological skills in the clusters' fields has resulted in the **filing of patents, the signing of new co-operative agreements or publications, the acquisition of scientific equipment or a reduction of R&D staff turnover**. In all, the 117 investment and research projects in progress or finished have given rise to **104 international industrial collaboration contracts, 202 filed patents, 57 granted patents, 13 sold licences and an unknown number of publications**. In terms of the innovations produced by the collaborative research projects, the survey conducted among the directors shows that nearly **212 product innovations have resulted from the supported projects, as well as 81 process innovations**

¹ The competitiveness clusters' impact at the level of the creation of economic activity and jobs should be measured with a degree of circumspection. Only a minority of the research projects are in fact finished (40 out of 117), and their impact cannot immediately emerge. Furthermore, research is by nature a risky process, where a lack of result does not have to be seen as a failure. Finally, the limits of the monitoring system do not allow systematic observation of the socio-economic impact. In several clusters, the projects, once closed, are no longer monitored.

and 2 organisational/marketing innovations. The achievements in terms of R&D have been facilitated by the gradual professionalisation of the practices of project emergence and mounting on the part of the clusters. A reinforcement of the **support of the clusters, and of their network, for the promotion phase of the results of the research projects, is however awaited.**

At the level of the training projects, the **significant number of trainees (35,000) hides some difficulties of targeting the clusters' target audiences** (the companies' members of staff). That seems to be due to the fact that the duration of the envisaged training does not always correspond to the staff's needs or availabilities, especially those of the SMEs. The operating units were overall less proactive in formulating training projects. This has resulted in a **strategic deficit at the time of the first calls, with reactive and opportunist projects developed in order to meet specific market needs, without thorough analysis of the existing training or any demonstration of the added-value of the existing training for the cluster and the companies.** More strategic and more coherent projects have however emerged since then (BioPhare, carried by the Biowin cluster) even if they are still limited in number.

In view of these difficulties, the impact resulting from the training projects is more embryonic but it does exist. They touch on the **reinforcement of the industrial and technological expertise of the companies whose employees have benefited from the training and from the development of mainly "soft skills"**. This assessment also makes it possible to underline the **federator role that certain clusters have played in the identification and structuring of training needs in sectors that are by nature little federated.** The reinforcement of the relations with the SMEs and the large regional groups has also contributed to improving the training supply from the universities, by incorporating the industrialists' needs more deeply into the training curriculum. The training projects have allowed:

- **The development of new teaching tools** (remote learning tools, for example) by the training dispensers, which can then be re-used;
- **The development of new synergies and collaborative approaches between the training dispensers;**
- In the context of structuring projects, such as the BioPhare project: **the dissemination of a new way of thinking of skills development in Wallonia** (integration of the supply within a comprehensive, structured and systematic framework).

Lastly, another effect is the **perpetuation of certain training courses**, either by the integration of the programmes into existing curricula or by the creation of new curricula (for example, the creation of a new Baccalaureate within a high school).

The results in terms of international expansion are important - 1,211 activities of international expansion carried out since 2006² - with a true integration of the clusters into world networks and partnerships. This is shown by the growth of the participations in European programmes, including in the context of the framework research and innovation programme. The collaboration and the insertion of the clusters into global area networks have enabled Wallonia to acquire **better visibility at an international level, which is more structured in a series of fields. The 113 files managed by six sectoral experts whom AWEX had engaged in the context of the clusters policy have thus enabled foreign investment to be attracted in a total amount of 660Meuros.** Moreover, we have observed, over the course of the last fifteen years, an increase in the development potential of Walloon exports in high-tech fields and in the competitiveness clusters' business areas. Although it is difficult to measure the exact contribution of the clusters scheme to these developments, that does seem to indicate some rather positive impact. These

² Data from AWEX.

results have been made possible by direct, extensive interaction between the clusters and *AWEX* as well as by the direct integration of the international dimension in the clusters' activities, with dedicated budgets. The volume of the actions relating to international expansion which have been organised in the context of the competitiveness cluster policy, as well as the significant portion of *AWEX* financings in the financing of the activities of the clusters' operating units, do however make one wonder about the existence of a windfall effect in respect of these financings, when they are put into perspective with the financings dedicated to the research part, for example. It has also been underlined in the context of this assessment that the international actions implemented at the level of the clusters could, in certain cases, be more prioritized and articulated in order to guarantee the exploitation of the synergies between them.

The achievements and results are very modest for the infrastructure and investment parts, because of their weak draw-down of the aid. This is explained by the not very incentivising nature of that aid and by the lesser relevance at the launch of this policy compared to the other parts, insofar as the investments and the infrastructures are often mobilised several years after the emergence of the research results.

As far as the environmental aspects are concerned, the creation of the Greenwin cluster in 2010 and the launch of calls for projects directly organized around the sustainable development theme, illustrate that the latter are at the heart of the government's priorities. However, the survey results show that the latter had usually been taken into account at the time of the project design or implementation stage in only 40% of the cases that we have covered. Moreover, **only 25% of the responding members stated that their project was having / had had a positive impact on the environment.** The environmental aspect is therefore an aspect which remains isolated from the other objectives of the clusters policy with little impact being monitored, and difficult to trace.

At the level of the socio-economic impact, it should be noted that **many projects have not led to any economic development for the moment.** Some notable impact can however be underlined. Out of **19 companies created**, according to the available information, 13 are still up and running after three years of activity and only one has not survived. **The directors of the competitiveness clusters have declared the keeping or the creation of 5,423 jobs following the clusters' R&D projects** (only 117 projects in progress and finished). This represents an average of 46 jobs per project in progress or finished, and 904 jobs created or kept per cluster. Although 78% of the projects for which the data is available³ have created less than 50% of the jobs initially envisaged in the projects' candidate files, many projects have finished recently and the potential impact is still to come. It is therefore difficult at this stage to reach firm conclusions on the impact that affects variegated processes and takes time to emerge.

The sustainability of the contribution of the competitiveness cluster policy will strongly depend on three factors: the solutions that will be brought when building upon the projects' results; the deliberations which must take place on the financing of the clusters' operating units in the context of the Community supervision; the cluster schemes' ability to reinforce the co-ordination between the parties involved in the policy and the regional ecosystem.

On the basis of the foregoing conclusions, six recommendations are made for the continuation of the competitiveness cluster policy.

Recommendation 1. Continue and expand the clusters policy

- **Make the clusters the official framework of the industrial and innovation policy in Wallonia.**

³ Data is available for 37 projects out of 40.

- **Confirm the clusters' federator and facilitator role within the regional socio-economic fabric by communicating to a greater extent** on their results, their actions, and their services not only in respect of the public members but also of the cluster's non-member companies, both at the level of their research activities and the identification of future training needs for the key sectors in Wallonia.
- **Build upon the existing results** in terms of internationalization of the Walloon clusters and to increase their integration into international partnerships and networks, by supporting participation in European projects, for example, in the context of the European Horizon 2020 Programme or that of the European Structural Fund.
- **Ensure the renewal of the clusters' governance structures** in order to diversify the players' participation and to stimulate SME participation by envisaging an appropriate time-frame, reconciling stability and the rotation of the elected members.

Recommendation 2. Consolidate the future development of the competitiveness clusters at the legal and financial levels

- **Create a legal framework instituting the competitiveness clusters' missions (decree).**
- **Institute a regular (5-year) review of the clusters' multiannual roadmaps**
 - Articulated around an Action Plan and including international and training strategies;
 - Integrating the definition of strategic business areas connecting the technologies to the markets concerned and in line with the Regional Strategies for Smart Specialisation;
 - Conjugating an action plan distinguishing between the actions carried out on their own by the clusters (to do), and the actions carried out by other players in consultation with the cluster (to get done);
 - Programming the actions over time according to each strategic field of activity;
 - In order to reach a wider audience, the clusters would gain by leaving more room for incremental, non-technological, organisational or service-oriented innovations.
- **Spread the financing of the clusters' operating units over several years (five years)** and attach their own progressive and realistic financing objectives
- **Assess the cluster scheme and each of the clusters at the end of each financing cycle (5-year)**, on the basis of the information coming from the completed monitoring system, the involvement of the various parties involved and on the basis of the referential constituted by previous assessments (2009 and this one).
- **Progressively increase the clusters' self-funding** and coach them in the diversification of their own funding sources
 - Set a 50% self-funding objective for the competitiveness cluster, and to ask them to structure a 3- to 4-year financing plan for it, drawing inspiration, for example, from the progressiveness initiated for the clusters with a view to rebalancing the breakdown of the funding;
 - Rely, for achieving this objective, on an assortment of possible financing sources with mixed contribution (their level can be slightly increased in certain clusters), contribution increased for the members participating in certified projects (e.g.: premium offer), sponsorship, priced services (for example in the field of watch, or consultancy on international projects, training, and communication), and exploitation of the contributions in kind.

Recommendation 3. Set up strategic steering of the clusters policy based on a reinforced monitoring system

- **Organise "interministeriality" and connect the clusters policy to the other policies of the Walloon Government.**

- Develop the **innovative public contracts** approach in Wallonia, relying on the skills developed in the clusters, following the example of many European regions, and in line with the European policies or practices: This would enable the clusters to develop specific service packages in order to meet the sectoral challenges at the Walloon level, to test and demonstrate Walloon innovations and know-how, while securing sales outlets (for example, invite the clusters to develop projects for improving the energy efficiency of buildings in collaboration with the competent public authorities and then select the best projects for large-scale implementation)
- **Encourage inter-cluster co-operation more strongly, beyond innovation platforms**, by capitalizing on good event practices (such as ideas stock exchanges), and by structuring themes of shared interest.
- **Connect the clusters to the implementation of Wallonia's Strategies for Smart Specialisation (S3)**, which will guide the European funding during the next programming period, funding which will focus on the reinforcement of the activities seeking to commercialise the research results and to support the SMEs' innovation capabilities. The competitiveness clusters indeed have a key role to play: platforms of inter-sectoral co-operation, themed strategies in line with societal challenges, co-investment, cross-border connectivity for better co-operation along the value chains, and so on.
- **Strengthen the monitoring of the clusters policy's impact**, in view of the current limits of the clusters policy's monitoring system, it would be advisable to:
 - Set up a dedicated information system, secured for the entry and follow-up of the data and indicators (under consideration within the *DGO6*), for example by dematerializing the *Euroges* Management platform and making it available, allowing the centralization and the regular updating of the data directly by the clusters and the administrations and by offering the clusters a vision of their positioning between themselves in real time;
 - Ensure the circulation of the monitoring information between the clusters, the administrations and the clusters' administrative unit, by ensuring the sharing of key dematerialized and secure documents on the platform shared between the clusters (draft agreements, annual monitoring reports, mid-course assessments and the final report);
 - Set up an indicator system allowing the progressiveness of the clusters' results to be monitored, with a rationalisation of the existing indicator system and the addition of relevant indicators, allowing enhanced measurement of the interim results and the longer-term impact (see Assessment Referential in Section 10);
 - Insert indicators allowing the sustainable development objectives to be monitored;
 - Make the project funding tranches conditional to the projects carriers providing the information from the indicators and to their entry seizure into the database by the clusters (at least mid-course) in order to reinforce the indicators' information rate and to allow better strategic control in real time.
- **Ensure better monitoring by the clusters of projects once they have started:**
 - The evoked monitoring system should be based on a system of progressive indicators with regularly reviewed indicators of achievements and results, with at least an annual review of the projects and their indicators by the clusters' operating unit, and the impact indicators indicated at key interludes (see Assessment Referential in Section 10). The employment-related indicators should in particular distinguish the jobs relating to the implementation of the project from those generated post-project either directly or indirectly, as well as the type of job (researcher/technician/administrator, long-term/short-term, etc.).
 - The annual review of the clusters' projects should be based on the annual monitoring report sent by the project carriers to the administrations in charge of project funding, with the clusters receiving their copy (that would be facilitated if they are co-signatories of the agreements, see above) and should be sure of the quality and the reliability of the indicated data, helping the project carriers if need be.

- As far as possible, the indicators should be monitored at the end of the projects' lifecycle, in order to ensure that the longer-term impact is captured. That could be implemented via annual questionnaires sent to the project carriers by the clusters, explaining the importance of the monitoring both for the steering and for information on the scheme.
- Moreover, the clusters could initiate monitoring of the development of the company members' activity since their adhesion (growth, investment, employment) in order to be able to measure their dynamism compared to non-members, and possibly to generate increased interest in adhesion.

Recommendation 4. Develop a portfolio of the clusters' activities with regard to the valorisation of the research results coming from the collaborative R&D projects

- **Better integrate any promotion-related problems upstream of the projects:** Further expand the use and the utility of the market research, through operational studies at the beginning and/or in the course of the project; ensure the co-development of the projects with the private or public customers and/or users, especially via the living labs (financed by the Framework Creative Wallonia Programme, which seeks to co-developing products with the end-users); identify and prospect any marks of interest, first prospective customers and first customers as of the mounting of the project, in order to ensure the future use of the results.
- **Integrate the export, training, investment and infrastructure aspects directly into the proposals for an R&D project (rather than separate the projects by type of aid)** so that they are already assimilated by the project carriers at the start of the research project. These project parts will consequently be certified in parallel with the research projects but will be implemented and financed only following an indication of GO/NO GO markers from the international Jury, according to the project's progress and needs.
- **Make the clusters the project carriers' pivotal contact:** the clusters should be recognized as the pivotal players within the triptych of government, administration and clusters. They should play the role of the project carriers' preferential contact in the event of problem or need. A real role should therefore be recognized for them in the project unfolding phase and the legitimacy of their intervention should be recognized, for example, by giving them the place of co-signatories of project agreements (such as is already in place for certain clusters).
- **Develop the cluster's activities in liaison with the regional development players:** networking with the Walloon incubators, the development units and the public and private finance players (business angels, investors, NOVALLIA, SOWALFIN, etc.).

Recommendation 5. Integrate the clusters' training actions into the various strategic and prospective deliberations

- **Conduct prospective and strategic assessment exercises on job and skill developments in the companies** associating training companies and players (including high schools, skill centres and universities) in such a way as to define the 5-year requirements for jobs and skills in the clusters' strategic fields of activity.
- **On the basis of these prospective exercises, get the clusters to work with the training organisations in order to adapt the training packages or to set up new ones if need be,** and acquire a better definition of the target audiences to which they are addressed (the employees of the companies as a priority, trainers and teachers, and jobseekers in order to reorientate the access-to-employment training towards profitable trades).
- **Manage the training projects and ensure their strategic aim through the monitoring of a system of relevant result and impact indicators of the training projects** (changes underway within

FOREM) (employment public service, *Service public wallon de l'emploi et de la formation*).

Recommendation 6. Ensure better consistency with the regional innovation system's components

- **Better connect the needs of the cluster's members to the services offered by the non-specialists**, and especially better connect the clusters to the network of the new *Agence pour l'entreprise et l'Innovation (AEI)* is soon going to be launched and will group together the *Agence Wallonne des Télécommunications (AWT)*, the *Agence de Stimulation Économique (ASE)* and the *Agence de Stimulation Technologique (AST)*.
- **Reorganise the system of aid for innovation and research around the clusters:**
 - **By reinforcing the vision per sector within the various support organisations:** the best example is *AWEX*, which has set up more of a matrix organisation with a sectoral expert per cluster because of its major involvement in the scheme. The clusters can then play the role of techno-sectoral interface, translating and relaying the needs of the members to the appropriate structures, consequently organized not only according to the type of service offered (intellectual property management, mounting of European projects, investment fund, etc.) but also around the clusters' sectors. If not all of the organisations can operate changes on such a scale, it would however be advisable to breathe more life into this "techno-sectoral" approach of the clusters within the aid system.
 - **By reinforcing the visibility, the legibility and the integration of the clusters policy within the mechanism of aid for companies and research organisations in order to support them in their innovation and economic development processes:** it would be a question in particular of identifying the initiatives which can be put to the service of the clusters and their value chain (such as *CWality*), the initiatives which can support the companies involved in value chains other than those of the clusters, and which do not necessarily have the same needs, and approaches allowing specific support for the SMEs in order to accompany them throughout their lifecycle (launch, survival, take-over...). It would also be a question of rethinking the other types of support, except for subsidies and loans, which can be offered to the companies transversally in order to support them in their development (taxation, regulatory environment, land acquisition, etc.).
- **Clarify the objectives of the competitiveness clusters policy with regard to the support policy for the business clusters**, by integrating into the competitiveness clusters the business clusters involved in the same thematic fields, as the competitiveness finally also play the role of animators of the economic fabric for those sectors. The objective is to maximise the existing synergies in the clusters' fields and to avoid the multiplication of mechanisms which are sources of confusion for the beneficiaries and are confused in practice, which harms the clusters' communication campaign and the aid system's legibility. This recommendation currently relates to the four business clusters operative in fields close to the Greenwin competitiveness cluster (*CEPA 2020*, *Eco-Construction*, *Tweed* and *Val +*).