

1. Introduction

The development of the Walloon economy requires an innovation policy in the strategic field of biotechnologies, and this policy should be underpinned by a solid foundation of fundamental research. WELBIO was founded in 2009 to respond to these requirements.

Multiple recent events have prompted a reflection on WELBIO's mission, future and position within the Walloon biotech landscape: a new expanded Governing Board, the results of five years of activity, the launch of several "Bridge Fund" projects, preparations for the 2017 call for projects as well as the reorganisation of the Fund for Strategic Fundamental Research (FRFS) with the emphasis on transversal and global management, bringing together the strategic focuses and expanding WELBIO's scope in the direction of sustainable development themes.

The Strategic Plan 2020 proposed below sets out WELBIO's vision for the next four years. This plan aims to build a more effective WELBIO on the strong foundations in place today. Its implementation is the responsibility of WELBIO asbl, working closely with FRFS-WELBIO.

2. Results

Three calls for projects have been launched since WELBIO was founded. 15 projects initiated in 2011 concluded in 2015. 22 projects are underway, of which eight were initiated in 2013 and 14 started in October 2015. The first few years of scientific activity have produced encouraging results:

1. *The scientific excellence* of the projects selected is evidenced by the scientific output: 240 publications in peer-reviewed journals, including 85 articles in the most prestigious journals (impact factor > 10).
2. *17 inventions* have been announced in the framework of 11 WELBIO projects. Three patent applications have been filed and are still being reviewed. One BioWin project and one WALInnov project have been filed on the basis of the results of WELBIO projects. Finally, a licence has been granted to a company for an invention derived from a WELBIO project.
3. Three *Bridge Fund* projects are underway to consolidate inventions with a view to leveraging their value.
4. *Jobs*. Since the first projects started on 1 February 2011, a total of 133 people (89 scientists and 44 technicians) have been paid out of WELBIO funding (38.9 FTEs over the entire period). 42 people (38.2 FTEs) are currently under contract thanks to WELBIO funding.

3. Mission

WELBIO's mission is to support fundamental research through carefully selected projects from universities in the Wallonia-Brussels Federation, with a view to transforming their discoveries into industrial applications in all fields of biotechnology.

4. Vision

Increase WELBIO's capacity to offer a stable and stimulating framework for the best junior and advanced investigators, and to maximise the impact of their research activities for the socioeconomic development of Wallonia.

5. Strategic analysis

Strengths	Weaknesses
<ul style="list-style-type: none">• Quality of WELBIO investigators• Inter-university nature• Significant funding for beneficiary investigators: amounts, flexibility, length, renewability• Bridge Fund mechanism• Mixed Governing Board made up of well-known personalities from the fields of academia, industry and politics• Logistical support from the National Fund for Scientific Research (F.R.S.-FNRS)	<ul style="list-style-type: none">• WELBIO funding insufficient• Lack of control over the portfolio of projects• No general WELBIO research strategy• No "renewed grant" mechanism, especially for beneficiaries of "starting grants"• Lack of diversity (background, gender) among WELBIO investigators• Complex "two-headed" FRFS structure• Limited own technology transfer capabilities• Lack of visibility
Opportunities	Threats
<ul style="list-style-type: none">• Dynamic Walloon biotech environment• Several high-potential inventions• Political interest• WELBIO-BioWin cooperation• Willingness to cooperate between WELBIO investigators• European funding	<ul style="list-style-type: none">• Shortage of top investigators• Better working conditions outside of Wallonia• No structural coordination with actors downstream of WELBIO• Single source of funding dependent on "political" decisions• Weight of the university institutions

6. Strategic plan

Strategic Focus 1: Build up WELBIO's research portfolio

Context:

WELBIO projects are fundamental life science research projects. The main aim of this "curiosity-driven" research, typically associated with technology readiness levels (TRL) 1 and 2, is to discover and advance fundamental knowledge, the essential foundation for any innovation. By its very nature this research is high risk, because its results are unpredictable. However, by carefully selecting particularly innovative projects of the highest scientific quality, a fraction of the projects may produce exceptional results which can truly form the basis for technological progress and "high-payoff" transformations.

Problem:

Insufficient funding currently and the cumbersome nature of the processes are compromising WELBIO's ability to build a sufficiently broad portfolio and optimise this portfolio in order to maximise innovation prospects. The type of projects expected is not sufficiently clear. Several projects submitted during the 2015 FRFS-WELBIO call as a continuation of projects leading to some of the most solid avenues for technology transfer were not ranked sufficiently high and are therefore no longer in receipt of funding (excluding Bridge Fund) to continue them. Investigators are unclear about whether they should prioritise publications or technology transfer in order to increase their chances of obtaining further funding.

Solutions:

- Increase and diversify WELBIO's financial resources
- Develop a WELBIO research strategy
- Establish a system for managing WELBIO's portfolio of projects enabling the best fundamental research to be supported in the long term at the same time as maximising innovation prospects.

In order to ultimately achieve new "Made in Wallonia" technologies, a critical mass of simultaneous projects is essential. WELBIO must be able to consolidate promising projects and reject projects delivering results that cannot be commercialised. WELBIO projects are of a long-term nature. The selection process cannot favour projects based on well-known methods and approaches and, without rejecting them, cannot favour short-term projects. WELBIO must encourage those projects most likely to lead to radical discoveries: projects involving new theories, methods or tools often conducted by new investigators. Building a pool of promising junior investigators, ensuring their diversity by attracting international investigators in particular, is essential to ensure long-term innovation capacity in the Walloon Region. WELBIO's portfolio should be managed based on a research strategy aiming to promote excellence in fundamental research at the same time as ensuring that Wallonia can benefit from its outcomes.

High-risk fundamental research must be able to rely on public funding as a solid and lasting foundation. Additional sources of funding will have to be sought, particularly from private

partners and from the European Union, and developed by means of licence agreements entered into relating to the intellectual property generated by the projects funded.

	Actions	Measures of success
2017	Introduce a specific consolidation mechanism for projects leading to solid avenues for commercialisation ("continuation grants")	Continuation grant instrument introduced during the 2017 call for projects
	Strengthen the management of the WELBIO project portfolio, particularly by setting up a Portfolio Review Board made up of international scientific experts and business development experts	Portfolio Review Board in place Output from the portfolio in science (publications, collaborations), technology transfer (downstream projects, licences granted) and intellectual property (inventions, patents)
	Strengthen cooperation between the FNRS and WELBIO asbl	Proposals for avenues for cooperation New FNRS-WELBIO cooperation agreement
2018	Obtain authorisation to receive deductible gifts	Authorisation obtained At least one gift obtained
	Reflect on priority research fields or scientific approaches to be encouraged (such as interdisciplinarity or convergence)	Research strategy defined
2019	Attract the best junior investigators by building up the starting grant category	Rate of success in the starting grant category Ex-post evaluation of their quality
	Build up the approach long term by having four-year projects from the outset (rather than 2x2 years) that can be renewed for a second four-year period	Establishment of a new mid-term review mechanism
	Obtain European funding supporting investigators' mobility (CoFund)	Funding obtained
2020	Obtain increased and stabilised public funding	Subsidy increased to at least EUR 12m
	Define a framework enabling sponsoring	Framework in place At least one sponsor obtained
	Explore and obtain alternative sources of funding, where appropriate defining the return on investment terms	At least one alternative source of funding obtained
	Host international junior Principal Investigators	Agreement with the universities regarding a "starting package" First international call launched

Strategic Focus 2: Develop WELBIO's role as an actor for industrial innovation

Context:

WELBIO should be a source of industrial innovation and is the actor furthest upstream in an innovation chain consisting of multiple partners, not just businesses but also other bodies from Wallonia (competitive clusters, business incubators). Furthermore, innovation in Wallonia is embedded in a defining European context.

The need to create links between actors is underlined in the recent Report on the Walloon Economy: "strengthening the ties [of the pharmaceutical sector] downstream and upstream within the regional ecosystem, which appear relatively weak, is likely to have a ripple effect on the regional economy. "

The intellectual property from WELBIO projects is owned exclusively by the university institutions. Activities related to the commercialisation of the projects take place in the framework of a knowledge transfer committee ("comité de valorisation") made up of WELBIO, the Principal Investigator and the relevant university interface. WELBIO therefore depends on constructive interactions with the universities' Technology Transfer Offices.

Problem:

WELBIO is in a unique and indeed ambiguous position in demanding the best fundamental research and defending the investigator's freedom at the same time as emphasising the need for industrial commercialisation. This position will be clarified in the framework of the first strategic focus. As far as WELBIO is concerned, scientific excellence is of the utmost importance, but must be extended by technology transfer efforts. WELBIO must be capable of supporting its investigators better and encouraging cooperation with both academic and industrial partners to ensure that no discovery is left "at the back of a drawer" without its full potential being exploited, particularly through applied research or spin-off development projects. Furthermore, WELBIO is the only funding instrument requiring a return on investment. This aspect can sometimes be an obstacle.

Solutions:

- Develop synergies with all partners to improve the management of WELBIO's portfolio and maximise opportunities to commercialize the results of the projects industrially
- Develop WELBIO's own technology transfer capabilities
- Review the cooperation agreement with the universities.

	Actions	Measures of success
2017	Strengthen the interaction with BioWin and the other relevant competitive clusters to improve the management of the portfolio of projects	BioWin/WELBIO cooperation agreement in place Contact made with Wagralim,

	and identify and correct any gaps in the funding chain	GreenWin and MecaTech
	Make contacts with relevant business incubators	Relations established with the various incubators
	Review the cooperation agreement with the universities, particularly from the point of view of the rules governing return on investment	Agreement updated
2018	Recruit a Business Development Manager	Business Development Manager in position
	Strengthen interactions with the industrial sector	Networking activities
	Develop the capability to strategically monitor European innovation priorities	WELBIO activities in the framework of the IMI
2019	Cooperate with the university-business interfaces as well as with the LiEU network to maximise technology transfer activities	Increase in invention announcements, patent applications, patents granted + licence agreements
	Facilitate the establishment of projects downstream from WELBIO	Increase in the number of projects subject to other sources and funding granted
2020	Build up the Bridge Fund instrument and clarify its objectives	Bridge Fund budget increased Success of the Bridge Fund projects

Strategic Focus 3: Transform WELBIO into a real institute

Context:

WELBIO can take pride in having some of the best research teams in the field of biotechnologies. Since it was established, WELBIO has operated by means of successive calls for projects. This means that WELBIO is logically seen more as a source of project funding than an actual research institute. The best decentralised research institutes (e.g. the Vlaams Instituut voor Biotechnologie and the Howard Hughes Medical Institute) agree on the importance of supporting investigators rather than projects. In fact, a framework of this kind provides the investigator with an ideal environment with the essential freedom to take risks, reorient their research if required and produce the best science.

Problem:

The current funding does not provide our best investigators with the framework they need to compete internationally. Moreover, project-based funding that has to be renewed every four years (and even every two years if you consider the mid-term review) is too uncertain and does not sufficiently enable investigators to take risks. Increased funding and the establishment of a continuation grant instrument (see Strategic Focus 1) can offer better long-term prospects but will not, however, offer the stable and solid framework providing our best investigators with optimal and competitive working conditions and reducing the risks of them leaving the Wallonia-Brussels Federation.

Solutions:

- Establish WELBIO as a life sciences research institute that provides a stable and stimulating framework for its best investigators
- Encourage exchanges and knowledge sharing between the teams and enable their complementarities to be better utilised.

	Actions	Measures of success
2017	Reflect on transforming WELBIO into an institute supporting investigators rather than projects	Workshops organised Transformation project defined
	Encourage and facilitate communication and willing cooperation between WELBIO teams, for example through a web space	Intra-WELBIO cooperation established, particularly through WALInnov or BioWin projects
	Organise an annual event (conference) bringing together WELBIO teams	Events organised Positive evaluations
2018	Enable PhD grants to be granted in the framework of WELBIO projects	Framework defined for PhD grants
	Define an action plan to promote diversity within WELBIO	Inventory drawn up Action plan defined
2019	Develop a specific training offering for WELBIO teams	Training put in place
2020	Selection of a first group of WELBIO investigators funded outside of a specific project	Funding of investigators in place

Strategic Focus 4: Accountability (Responsible Research)

Context:

WELBIO is funded through public funds. Good public management practices are required to ensure the effectiveness and constant improvement of WELBIO as well as the transparency of its activities and results. Alignment should also be sought with the policies implemented by the European Union ('Science with and for Society': "The aim is to build effective cooperation between science and society, to recruit new talent for science and to pair scientific excellence with social awareness and responsibility").

Problem:

WELBIO's mission and impact are little known, particularly among the general public. It has been set up carefully and its funding has been allocated according to published rules, but there is still no formal quality assurance system to ensure WELBIO's continuous improvement.

Solutions:

- Introduce a quality assurance system
- Increase communication to the general public.

The quality assurance system will be introduced based on appropriate frameworks such as the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) or the Common Assessment Framework (CAF). Regular external audits will form an essential element of this. This system will be developed alongside the F.R.S.-FNRS measures already in application.

	Actions	Measures of success
2017	Communicate about WELBIO's strategy and its research strategy	Participation in calls for projects Evaluation of the calls
	Establish performance indicators	Indicators defined and scorecard in place Automated data processing
	Increase communication to the general public, particularly by updating the website and increasing the presence on social networks	Website updated Activity on social networks
2018	Define an action plan towards a greater diversity within WELBIO	Picture of the status quo Action plan defined
	Conduct a French-speaking "science café" pilot experiment	Evaluation of the experiment
2019	Conduct a communication to school groups pilot experiment	Evaluation of the experiment
2020	Develop a quality assurance system	Quality assurance system introduced First audit carried out

WELBIO Strategic Plan 2020

Summary table of the main elements

	2017	2018	2019	2020
1	First continuation grants		Starting grants consolidated	
	Portfolio Review Board set up		First four-year projects initiated	
		Priority research domains		
			EU funding obtained	First international call Increased Walloon subsidy Additional funding sources
2	WELBIO - BioWin partnership			
	Contacts with incubators			
	Agreement with universities			
		Business Developer recruited	Tech transfer consolidated	
		Networking with industry		
		EU strategy		
			Downstream projects	Bridge Fund consolidated
3	Prepare for move to PI funding			
	Intra-WELBIO collaborations			
	Annual conference			
		PhD grants framework		
			WELBIO training scheme	
				First PI funding
4	Strategy communication			
	KPI definition			
	Communication to general public	Science café pilot	School group pilot	
		Action plan on diversity		QA system