
PRIORITIES FOR ADDRESSING OPPORTUNITIES AND GAPS OF INDUSTRIAL BIOTECHNOLOGY FOR AN EFFICIENT USE OF FUNDING RESOURCES (PROGRESS)

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Role of Member States and Cooperation between them

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Rationale for distinguishing between different groups of countries within the EU

Heterogeneity of countries with regard to

- Research and innovation capability in IB
- Policy framework conditions
- Development level of the IB sector
- Endowment with biomass resources

Implications

- Need to take into account the specific situation of countries with regard to these framework conditions to identify their potentials and needs in IB
- Create value from diversity by combining complementary expertise and gaining synergies, contributing to the regional cohesion of the EU

Identification of country groups with regard to their positioning in IB

Group 1: Countries with advanced IB sector

- Countries with a broad focus: Germany, Belgium, Netherlands and France
- Countries with a special focus: Finland, Sweden (wood based IB) and Denmark (microorganism biotechnology, enzymes)

Main Characteristics

- **Policy framework conditions:** strong commitment of governments to foster bio-based industry, strong IB policy focus
- **Research and innovation capability in IB:** high research and innovation intensity, high level of patenting and research activities in IB, investments in state-of-the-art research infrastructure, strong academic base in IB
- **IB sector:** well established and highly competitive IB sector
- **Biomass resources:** high potential of agricultural biomass (Germany, France) and forest biomass (Sweden, Finland, Germany)

Identification of country groups with regard to their positioning in IB

Group 2: Countries with strong innovative capacities in selected IB fields

- Ireland, Austria, United Kingdom, Spain, Italy

Main Characteristics

- **Policy framework conditions:** no overall national IB policy, but potential of IB recognized at government level in recent years, led to some initiatives
- **Research and innovation capability in IB:** research focused on several selected priorities in IB
- **IB sector:** important industrial players in IB, which are mostly active in selected IB fields
- **Biomass resources:** less potential in endowment with agricultural and forest biomass.

Identification of country groups with regard to their positioning in IB

Group 3: Countries with modest innovative capacities in IB

- Portugal, Slovenia, Czech Republic, Slovakia, Poland, Estonia, Greece, Hungary, Lithuania

Main Characteristics

- **Policy framework conditions:** little or no targeted policy to foster IB. Increasing acknowledgement of the relevance of IB in recent years
- **Research and innovation capability in IB:** Academia and research centers are active in selected topics of IB; moderate patenting activities; lack of interaction between academia and industry
- **IB sector:** few research intensive companies, which specialize in few products, often in cooperation with foreign partners; some countries too small to host large scale competitive industries
- **Biomass resources:** high availability of agricultural or forest biomass

Identification of country groups with regard to their positioning in IB

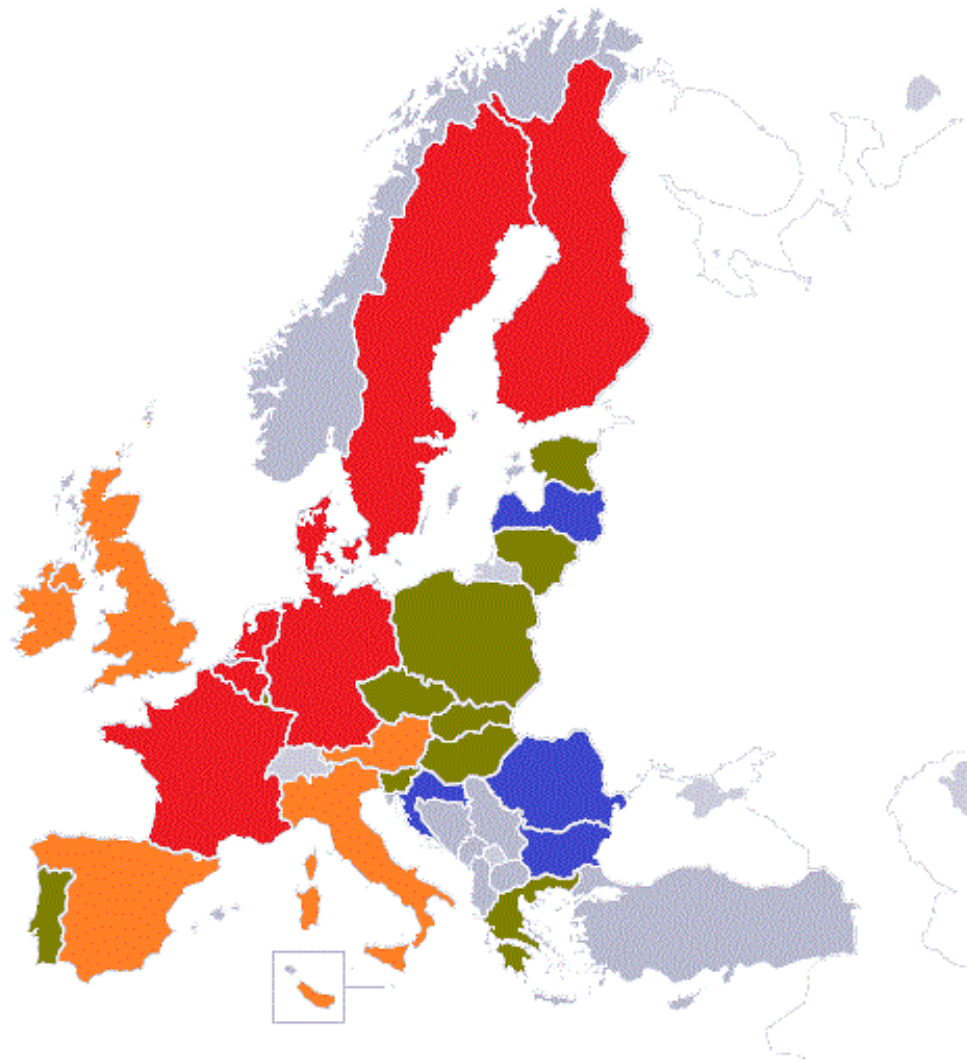
Group 4: Countries with hardly any innovative capacities in IB

- Bulgaria, Latvia, Croatia, Romania, Cyprus, Malta

Main Characteristics

- **Policy framework conditions:** no policy dedicated to the promotion of IB. Poor awareness of governments of the relevance of IB
- **Research and innovation capability in IB:** hardly any research activities, no innovation or patenting activities. In some countries a few research organizations participate in EU-funded projects in IB
- **IB sector:** few IB related production activities of private companies
- **Biomass resources:** high availability of agricultural or forest biomass (Romania, Bulgaria and Latvia)

Country groups with regard to their positioning in IB



- Countries with advanced IB sector
- Countries with strong innovative capacities in selected IB fields
- Countries with modest innovative capacities in selected IB fields
- Countries with hardly any innovative capacities in IB

Conclusions: strategic priorities for groups of member states (selection)

	Countries with advanced IB sector (group 1)	Countries with strong innovative capacities in selected IB fields (group 2)	Countries with modest/hardly innovative capacities in selected IB fields (group 3+4)
Policy framework	continuously update IB policy framework	develop comprehensive IB policy framework	put strategic focus on IB, identify national priorities and focal points
R&D&I capability in IB	maintain leading position, e.g. by <ul style="list-style-type: none"> • cutting-edge technologies • exploiting emerging topics • closer cooperation of biomass production and conversion 	maintain strong position in selected fields, e.g. by <ul style="list-style-type: none"> • cutting-edge technologies • explore broadening of capacities into novel fields 	expand capabilities around national focal points/in priority fields <ul style="list-style-type: none"> • use regional development funds to establish a competitive R&D infrastructure
IB sector	<ul style="list-style-type: none"> • transfer of R&D results to commercialisation, • diffusion of IB in other sectors 	<ul style="list-style-type: none"> • transfer of R&D results to commercialisation, • cooperation with partners of complementary expertise 	<ul style="list-style-type: none"> • expand activities around national champions • support the cross-country integration into networks and value chains
Biomass resources	Role dependent on specific country resources		option to position the country as feedstock supplier in cross-country value chains

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Collaboration across EU member states

- Rationale for intensified collaboration between actors from different EU member states to
 - build up critical mass
 - combine complementary competencies and resources,
 - achieve a higher quality of R&D&I
 - contribute to more balanced regional development within the EU

Collaboration across EU member states

- Recommended actions
 - Support the establishment of cross-country value chains, e.g. between feedstock providers and IB firms
 - Monitoring system that allows a consistent uniform assessment of the available biomass and type of feedstock across the EU
 - Support of collaborative projects/activities
 - Support the integration of actors from countries with moderate IB innovation activities into existing networks
 - European wide mapping of relevant IB competencies as information base for complementary competencies and for higher visibility of actors
 - Support for various actors to gain higher visibility for the purposes of future cooperation opportunities
 - Incentives for collaboration in R&D projects
 - Support of cross-border clusters