

A Compact Overview of the DIME (Dynamics of Institution and Markets in Europe) Network of Excellence



1. Objectives

Contemporary economic, social and geopolitical challenges are strongly influenced by two trends: the increasing globalization of the economy and the rise of the knowledge society. The combination of these two major contemporary evolutionary developments confronts Europe with major organizational challenges. The DIME (*Dynamics of Institution and Markets in Europe*) Network of Excellence (NoE), aims to analyse the dynamic features of these processes under the call for proposals of the 6th Framework Programme, Priority 7 (*Citizen and governance in a knowledge-based society*), Research Area 1.1 (*Improving the generation, distribution and use of knowledge and its impact on economic and social development*), §1.1.2 (*Knowledge dynamics and economic development in Europe and its regions*).

The origins of the DIME effort lies in the recognition that the de-stabilisation of traditional means for regulation and co-ordination have given way to the idea of multi-level governance, indicating not so much a way to describe a hierarchy in which the lower levels of co-ordination are controlled by entities at 'higher' or more central levels of aggregation, but rather a way of solving many collective problems related to the generation and use of knowledge in the European society at large, by an effective non-hierarchical co-operation among entities representing various constituencies that are able to mobilize different components of knowledge. Such co-ordination cannot be achieved solely through the design of society-wide incentives and rules. Because of the localized and tacit character of knowledge, and its embodiment in specific *communities of practice*, it is essential to take into account the spatial nature of knowledge generation and exchange activities as well as sectoral industrial structure and the configuration of organizations. Indeed, proximity (both in a spatial and organizational sense) plays an essential role in the circulation of knowledge.

Changing industrial structures, capital flows, the activities of transnational corporations, and national state policies have determined the map of regional prosperity in Europe in the past, leading to growing concentration of economic activity and people into major urban areas and a differentiation between core and peripheral regions within each national state. The rise of the knowledge economy will add new spatial dimensions. First, there will be an enhanced concentration of activities in the knowledge-rich core metropolitan city regions. Secondly, in selected urban areas outside of the core (including industrial districts in formerly 'peripheral regions'), new islands of knowledge-based activity are already emerging. Thirdly, to some extent overlaying these latter trends, new network forms of knowledge production and

dissemination are emerging, around spatial forms that are not reducible to contiguous territorial formations, but instead are woven into the fabric of globalisation. All three processes are giving rise to an emergent space economy in Europe that is both territorial and 'a-territorial' in its organisation and rewards.

Such a new territorial knowledge economy poses challenges for policymakers at the European, national and regional levels. Is it possible and feasible to achieve cohesion through efforts to boost knowledge-based competitiveness in all regions? Should Europe continue upon its commitment to endogenous regional growth policies, or does the inevitability of further concentration require a renewal of redistributive policies? Should the increasing evidence that the emphasis on clusters and local knowledge-networks tends to work most effectively in those areas that already have considerable knowledge assets, be a reason to drastically change regional policies in the new Europe? Is it possible to conceive of a package of policies that secure local advantage through stimulating a variety of connections and flows with distant actors and places?

A fair amount of research in the social sciences exists that addresses these issues, e.g., the economics of knowledge, the political analysis of multi-level governance, and the social and geographic understanding of proximity. But many pieces of the puzzle of how to better coordinate and organize knowledge generation and exchange remain detached and embedded in different scientific disciplines. The present challenge, and the impetus for the DIME network, is the opportunity to develop means of integrating the conceptual, theoretical, and measurement tools employed by *different* social science communities in order to discover better means of integrating or mobilizing existing knowledge as well as generating technological and organizational innovation. Hence DIME was established to create a research-oriented NoE, aimed to approach economic and social systems from the micro to the macro level, beginning a process of integration of a rather broad set of disciplines involving the study of spatiality.

The essential DIME goal is to address contemporary challenges facing the European Union, its member states, its companies and its citizens in managing the transition to a knowledge-based economy and society in the context of its enlargement and of the globalization of the economy. The DIME field of operation thus includes a wide range of issues at various levels of aggregation, covering, for example, *macro* processes such as the enlargement of the European Union, *meso* issues such as emerging regional inequalities, and *micro* factors behind the competitiveness of European firms in the global knowledge economy. In the proposal, the challenges for the European Union are grouped under the three headings of "Globalization, Enlargement of Europe, Emergence of Regions and the Role of the Nation State", "The Knowledge Divide and Inequality among Regions" and "Governance and Institutional Frameworks for Co-ordinating Dynamic Communities".

2. Human Resources mobilized by the DIME NoE

48 research units in 17 countries (11 from EU members; 1 associate member and 5 from the new member countries) joined efforts to design the proposal. This represents over 350 potential researchers concerned with the field of DIME, and includes many of the best-

recognized industrial economists and economic geographers in Europe. A selection process based on scientific excellence has limited the number of researchers directly involved in the first set of activities proposed to 113. DIME includes some of the well-established groups in the field (Merit in Maastricht, LEM in Pisa, SPRU in Brighton, DRUID in Denmark, LSE in London, University of Durham, BETA in Strasbourg, CESPRI in Milan, etc...), but these represent only a relatively small proportion of the total competences involved in the venture of DIME.

The extent to which the participants of the DIME NoE have been interacting in the past, as well as the prospect for further integration within DIME, can be assessed from a recent survey undertaken at *the Eindhoven Centre for Innovation Studies*. The results of this show the DIME participating institutions as a densely interconnected network as far as *weak links* are concerned (i.e., relations based on a common understanding of the relevant phenomena, as well as inspirational relationships), but a more sparsely connected network in terms of actual working relationships (*strong links*). The difference in density points to the potential for further intensification of *weak links* between people by means of joint work in the DIME network. As far as the full set of DIME institutions and individuals is concerned, it is obvious that there is the need for an integration process. In addition to this, DIME does not intend to be a closed club of already outstanding individuals but rather to gather a sample of critical mass of those excellent researchers along with other ones, generally younger, and who, through their efforts and the support of the NoE could achieve excellence over the next five years.

In terms of the disciplinary coverage, the DIME NoE is mainly rooted in a wide range of subdisciplines within economics, with geography and management sciences as other main disciplinary inputs. Law, sociology, political science, and history are other disciplines represented in the DIME NoE. In terms of gender balance, 28% of DIME researchers listed in the proposal are female, and 4 of the working packages in the proposal are coordinated by female researchers. Specific measures are proposed in order to assure as much as possible a significant evolution in the direction of a more favourable gender balance during the implementation of DIME. In terms of the age structure, more than two thirds of the potential researchers of DIME are less than 45 year olds and 31% less than 35.

3. Activities

One of the main activities of DIME is composed by integrative research projects, but the long-term impact of the NoE will arise more broadly from the development of a common 'cognitive infrastructure', with all the characteristics of a quasi-public good. The constituted infrastructure is aimed to become a pole of attraction and binding for European communities dealing in some way with the dynamics of knowledge, institutions and markets. The principle guiding the activities of DIME is a focus on activities related to the development of common assets both upstream (development of new theoretical and conceptual tools), and downstream (training and dissemination activities).

In addition to Research projects on specific topics — run by sub-networks open to members of the NoE and other researchers — DIME intends to develop three types of activities:

developing specific training programmes, designing and implementing an information structure, and activating dissemination and interactive processes.

Research Action Line 1: Dynamics of Individual and Organisational Knowledge in a Regional Context

The processes of knowledge exchange and generation involve specific individuals and organisations. Modern processes of knowledge generation and exchange involve accessing knowledge known to others, recombining relevant parts of this knowledge to form new and useful constructs, and identifying new opportunities for generating or applying knowledge. These and other knowledge-related processes operate in the context of social networks with varying degrees of cohesiveness, openness, and efficiency. Many of these social networks are localised within specific regions where individuals can collectively achieve common cognitive understandings. At the same time, social networks that are engaged in the generation and exchange of knowledge become also more geographically extended with linkages across countries and continents.

Understanding the opportunities and limits of such networks in membership, extent, and effectiveness by processes of modelling and experimentation is one objective of this axis of the DIME research programme. A second axis is the closer examination of 'relational proximity' defining 'communities of practice' for features that distinguish these networks from other social networks involved in knowledge generation and exchange. Communities of practice have traditionally been very localised in regions and a weakening of the forces that underlay their locations (e.g. from the growing use of Information Society technologies) would have major implications for the exchange of knowledge at a regional level. A third axis of our investigation involves the selection of the university as the progenitor of social networks involving knowledge. In this role, specific attention is to be devoted to the formation of university spin-off organisations and their contribution to the regional economy as well as the means of governance being established to make universities more responsive to regional and sectoral needs. Fourth and finally, the role of knowledge exchanged involving formal contracts and agreements and the specific role of the intellectual property system in fostering some activities and constraining others is examined along a fourth axis of this research programme.

Research Action Line 2: The Creation, Accumulation and Exchange of Knowledge in Networks, Sectors and Regions

The second research action line within DIME will focus on the role networks play in the management of collective coordination problems related to knowledge creation, accumulation and exchange; it will look at entrepreneurship as an effective tool to foster the generation of new knowledge, innovation and innovation systems; it will address activities occurring at the meso level (i.e. sectors, regions and territorial clusters), moving the focus of the investigation from the micro level to a higher level of aggregation by looking at the relationship between knowledge and innovation through the analysis of networks, systems, geographical clusters and industries. The analysis will focus on the way heterogeneous capabilities are networked and co-ordinated within sectoral systems, territorial clusters and

institutional frames. The dynamic analysis of systems of innovation, industries, networks, regions and institutions will enhance our understanding of the structuring forces that organize knowledge, innovation and economic activities at the meso-level.

Four targets are addressed in this approach:

- the dynamics of networks at the local, regional or sectoral basis used to analyse how knowledge created by heterogeneous agents, individuals and firms interact and grows on a decentralized basis to result in complex systems. Here, spatiality, both geographic and social plays a central role.
- knowledge based entrepreneurship used to investigate the impact of this type of entrepreneurship on the dynamics of industries, territorial clusters and regions. This analysis opens the door to consider the existence of a geography of entrepreneurship. knowledge creation, accumulation and diffusion within sectoral systems focused on the structure and dynamics of these systems arising from the interaction among firms and other organizations such as universities, government, financial organizations and so on.
- mechanisms through which knowledge and information are distributed and aggregated are used to understand the emergence and growth of markets at the local, regional, national or global level.

This research action line will contribute to the understanding of the dynamics of creation, accumulation and exchange of knowledge that influence the behaviours of economic agents and thus explain the collective performances in terms of innovation capabilities, competitiveness, cohesion, distribution of income, growth regime, etc. It will help to better understand how firms embedded in formal and informal institutional frames at the local, territorial, sectoral or national level may innovate both by developing new strategic options and by modifying existing strategies. From a policy-making perspective, it will identify key dimensions for public policies, and the ways they can be implemented and it will provide managers at the firm level with a better understanding of the geographic and institutional settings of economic activities.

Research Action Line 3: Dynamics of Knowledge Accumulation, Regional Cohesion and Economic Policies: a Micro-to-Macro Approach

The macroeconomic evidence that knowledge and innovation are the prime drivers of the growth in economic well-being is overwhelming. As shown by the convergence of economic and sociological approaches innovation and knowledge generation is both about capabilities and organization. Innovation is a collective phenomenon, in which the outcome depends both on the quality of the players and the way in which they interact.

The traditional view on the relationship between technology and economic growth, on the other hand, has been dominated by an economic theory dealing mainly with *capabilities*, which is expressed in the economist's main line of reasoning through the idea that knowledge can be enhanced by investment in R&D and related activities. Although such aspects as the relation between basic and applied R&D are taken into account, economic theory of the *organisation* of the knowledge creation process is underdeveloped. The challenge will consist in taking these issues, dealt with in detail at the level of actors, regions

and sectors in the previous RALs, to a higher level of aggregation. It will try to answer the fundamental question of how interactions at the micro- and meso-level will feed into the macro-relationship between knowledge and the development of the European Union in the global economy.

The first fundamental issue is European competitiveness and the factors affecting the competitiveness of European regions, sectors and countries, both from a qualitative and quantitative way. In qualitative terms, the aim here is to identify the regions and sectors that play a leading role in the European economic structure, by means of case studies of sectors and technologies in European regions. From a quantitative point of view, the approach will be to establish the relationships between competitive performance and the factors underlying it using econometric methods. The purpose is first to lay the foundation for the analysis of the processes of regional cohesion and European policymaking.

The second issue is more explicitly related to the regional cohesion, recognizing that European diversity is especially large at the regional level. The traditional policy instrument aimed at increasing regional cohesion, i.e. the Structural Funds have now come under pressure both by 'internal' dynamics related to the issue of their effectiveness, and by 'external' factors such as the enlargement of EU. RAL3 will address these issues, providing an outlook on the future of regional cohesion in the EU and an assessment of policies aiming at increasing this cohesion.

Our understanding of how emergent new phenomena may affect the performance of larger economic systems, such as the European Union, is still in its infancy. DIME will investigate the issues of technology policy and (more traditional) macroeconomic policies, following a micro-to-macro or bottom-up approach to modelling these dynamics. This approach will be implemented both by integrating traditional ways of looking at macroeconomic policies and technology policies (incorporating both demand-pull and supply push approaches), and by developing more explicitly micro-founded theories.

Structural Activity Line 1: Integrating and Developing Training Activities Associated with DIME

The training activities related to DIME aim at three target groups:

- (future) policy makers, professionals, officials and administrators, in particular with specific competences on regional development;
- managers for and from industry and consultants for rapidly evolving enterprises;
- future researchers and teachers in the field.

DIME will adopt a pragmatic approach for training purposes, i.e., it will open up existing programmes to European mobility, using exchanges of students, teaching staff and administrators, pooling resources (teaching materials, experiences, curricula,...). This mere process will also develop a better awareness of the needs and a coordination of the production of trained graduate students. The development of new and more focused training programmes and the integration of existing ones will be the other outcome of the process and its implementation should run in parallel. The purpose of this structural activity

is to re-orient, develop and expand this ability to a really effective knowledge infrastructure. The activities under this heading will concentrate on four levels of actions: doctoral, master level training, long-distance/e-learning and short courses for specific target groups. A specific action will concern the training of supervisors.

Structural Activity Line 2: Developing the Information Structure of DIME

The development of a common research infrastructure should promote *de facto* integration and make it irreversible. The main infrastructure will be an intangible one, based on the development of common practices and mutual trust due to the management of common projects within DIME, and on the exchange of young and advanced researchers. But this will be reinforced by the development of common (tangible) tools to allow a collective and dynamic management of information and knowledge to which ubiquitous access will be organized thanks to information technologies. Such a platform will be primarily based on the building of a portal accessible (at various degrees) by the DIME members as well as the outside world, with the aims to manage and disseminate scientific projects (supporting cooperative work, pooling research capabilities, and the development and the sharing of information).

Within the broad objective of sharing information and knowledge, a significant aspect of the DIME project will be to favour the development of common databases. Indeed, local and national governments and the European Union need relevant figures and indicators to implement public policies aimed at strengthening the European knowledge society, increasing the international competitiveness of the EU and ensuring cohesion. Such relevant figures are also of interest for the citizens, the firms and non-profit organizations for various purposes. But many of these data are not homogenized at the European level.

The major challenges for DIME will be the development of common and new methodologies aimed at favouring the production and the use of cognitive resources. Thus, the effort to build and interconnect common data bases should not be understood as a technical problem only, it involves in-depth reflection on the development of relevant methods of measurement, indicators, types of data bases (including, for instance, qualitative measures) and specific methodologies to analyze them. The members of DIME will not be able to produce most of the needed data by themselves. This is not an essential disability, since the independence and the skill of research institutions are essential assets enabling them to stimulate cooperation of various types of data-producers and data-users. In addition to the development of methodologies and principles, DIME will launch and develop co-operation with census bureaux, development agencies, all kinds of public administrations, firms, private organizations, and research communities in statistic, quantitative methods and computer sciences.

Structural activity line 3: Dissemination to and Interaction with Stakeholders

An important dimension of the activities of a NoE, in addition to the other structural activities is the exchange of knowledge and practices within the relevant scientific

communities but also between these communities and the stakeholders. For a field such as DIME, the stakeholders are of an extraordinary diversity and one of the challenges is to work with these stakeholders and to benefit not only from their experiences but also from their diversity. The objectives of the dissemination and interactive activity line that we are proposing are exactly meant to deal with both the richness and the specificity of the different 'milieux'. These activities are governed under the supervision of a Stakeholder Advisory Committee, and are composed of:

- General and broad scope activities, from the production of a regular policy report by independent and leading scholars (not all of them belonging to DIME and including eminent non-European experts) to an annual European wide working seminar, favouring interactions among the stakeholders and between the research community and the stakeholders;
- Specific activities with two particular stakeholders: industrialists and regional authorities and developers. The main principle governing those activities is the need for intense interactions and co-production of both research agendas and results. These activities will not be designed from a top-down (or linear: from researchers to stakeholders) perspective but rather as an integrated process with the setting of co-evolving goals and processes and the exchange of experiences.