



ABSTRACT DELIVERABLE 4.1

TECHNOLOGICAL ACTIVITIES AND INNOVATION DIFFUSION IN THE EU AND INTERACTIONS WITH THE NEIGHBOURING REGIONS

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The general objective of this Work Package is to investigate on the innovative performance of countries and regions in the European Union (EU27) and in the 16 European Neighbouring Countries (ENC). We aim at understanding to what extent this performance depends on the one hand on the endogenous ability in knowledge creation and on the other hand on the absorptive capacity to adopt and imitate other regions' innovations taking advantages of various form of research and technological networks.

In particular we analyse how internal and external factors (such as human capital, social capital, institutions, public policies, spatial spillovers) affect the innovation activities and, consequently, the regional economic performances. Moreover, we focus on the process of innovations diffusion and research networking in order to assess to what extent the EU and EN countries have established valuable collaboration procedures. Throughout the analysis we will devote specific attention to the economic dynamics of those countries (and regions) which have recently entered the EU (EU12) in order to conjecture on the evolution process which may involve in the near future the neighboring countries due to the reinforcement of the integration process. In all the contributions the ultimate purpose of the research activities has been to derive useful policy recommendations at both the European and the EN countries level.

The report is organized in three main parts.

In the first part (section 2) we carry out a descriptive analysis of the technological activities with the main aim of providing a comprehensive picture of the key trends in innovative performance at both the regional level (mainly NUTS2) and the national level for the 27 EU countries and 16 ENC. This representation will serve as a useful background for all the following research lines. It is important to remark that as far as

the ENC are concerned we have preferred to perform the analysis at the national level for two reasons. The first is related to the lack of information at the regional level for most variables; secondly, the innovation activity, for most countries, is quite negligible and thus a regional breakdown would have been of limited significance. Therefore in the rest of the report we always refer to the country level for the ENC.

The second part of the report (section 3) presents six research papers and it is devoted to the analysis of the determinants of innovative activities at the regional or national level in EU and ENC considering both the internal resources and institutions dedicated to the creation of new ideas and inventions and the positioning of each area within the global dynamics of innovations and their capacity to create efficient connections with other territories. More specifically we will try to address three issues which are particularly important in relation to ENC. (1) Analyze the main constraints which reduce the ability of knowledge to diffuse across territories and what kind of proximity among agents is likely to facilitate the knowledge interactions. (2) Evaluate how the existence of an economic and technological gap between territories can impact on their capacity to establish connections in terms of innovation diffusion and to start a catching-up process. (3) Assess the policy measure that can be implemented internally to reinforce some of the most accepted drivers of innovations and improve the creative and absorptive capacity of local actors.

The last part of the report (section 4) deals with the analysis of the research networks creation and thus the knowledge diffusion process among EU27 and EN countries. The phase of technological diffusion and adoption is clearly essential for those countries (like the ENC) which are late comers in the process of technological progress as they are far away from the technological frontier. As a matter of fact, the economic performance of lagging poor countries is strongly influenced by their capacity to absorb knowledge and technologies from rich industrialised countries. Our aim is thus to analyse knowledge flows across countries and regions in Europe and in the neighbouring countries thanks to various dataset which will allow to build a relevant descriptive analysis. The analysis relates to knowledge diffusion and research networks, taking into account that innovation diffusion is a very complex phenomenon which can be either voluntary or involuntary, and in the former case can be either market mediated or not. The nine research papers presented in section 4 are organised along four lines which cover different channels of knowledge diffusion: innovation adoption (mainly based on the EU Community Innovation Survey), knowledge flows (based on patent citations, co-inventorships and applicant-inventors links), research networks (based on EU Framework Programs) and firms alliances (Merger & Acquisitions, Joint Ventures, Strategic Alliances).