



Creativity
and Innovation
European Year 2009

CAN CREATIVITY BE MEASURED?

Brussels, 28-29 May 2009

SPEAKERS AND
PRESENTATIONS



Creativity
and Innovation
European Year 2009



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CAN CREATIVITY BE MEASURED?

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CONFERENCE
"CAN CREATIVITY BE MEASURED?"
28-29 May 2009
Brussels, MADOU auditorium

ABSTRACTS

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CAN CREATIVITY BE MEASURED?

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Thursday, 28th May: Measuring creativity at national and regional level

10.15 - 11.00 Session 1: Commission initiatives on indicators and its relationship to creativity

Towards a European Creativity Index

Philip Kern (KEA European Affairs)

The paper summarises KEA's assessment concerning the potential establishment of a European Creativity Index. The assessment was undertaken as part of the study on the contribution of culture to creativity, conducted for the European Commission in 2008/2009. It establishes rationale for including indicators related to culture-based creativity into existing socio-economic indicator schemes such as the European Innovation Scoreboard and other frameworks. Upon a brief review of existing indexes linked to innovation, creativity and cultural consumption we suggest that a focus on the cultural dimension of creativity implies taking into consideration a number of factors, many of which are usually not included in other indexes. These include, but are not limited to: education in art schools, cultural employment, cultural offering, cultural participation, technology penetration, regulatory and financial support to creation, economic contribution of creative industries. We group these indicators in 5 pillars of creativity, namely: human capital, technology, the institutional environment, the social environment, openness and diversity. The cultural dimension as well as the creative contribution of each of these pillars is discussed and the paper then suggests 32 indicators (including data sources). KEA's comprehensive study concerning the contribution of culture to creativity is likely to be published this summer.

The regional dimension of creativity and innovation

Lewis Dijkstra (European Commission, DG Regional Policy)

This presentation analyses the regional dimension of creativity and innovation in the EU. It includes a strong focus on both the human side of creativity and the interaction between people and an economic analysis of the input and the impact of innovation. This presentation will also show a brief analysis of the creative class theory applied to the EU regions, which confirms the link between the creative class and cities with talent, technology and tolerance.

Measuring innovation: experiences past, present and future

Keith Sequeira and Charlotte Arvidi (European Commission, DG Enterprise and Industry)

Since the launch of the Lisbon strategy, DG Enterprise and Industry has published an annual *European Innovation Scoreboard* (EIS) to provide a comparative benchmarking of national innovation performance across the European Union and with other major innovative countries. The EIS started as an experimental project but has developed into a common reference point for EU and national innovation debates. A significant shift over time has been the progressive inclusion of non-technological measures of innovation, such as design, marketing and organisational innovations and service sectors. Recent work has also examined the relationship between creativity, design and innovation performance as well as the *InnoBarometer* surveys on trends in companies' innovative behaviours. The challenge remains to find or develop measures that capture the changing nature of innovation and which are timely, internationally comparable and above all relevant for policy. The role of design and creativity are also important elements for the development of a new Innovation Plan for Europe, requested by the European Council in connection with the future Lisbon strategy.

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11.30 - 12.30 Session 1: Commission initiatives on indicators and its relationship to creativity

Is it possible to measure scientific creativity?

Johan Stierna (European Commission, DG Research)

The presentation will elaborate on whether it is possible to measure the scientific creativity. It is based on the assumption that the scientific process embeds an element of creativity. Which analogies can be drawn comparing creativity in science with creativity in a broader sense? What is purely qualitative and what is possible to quantify? Would one scientific product be more creative than another? What is the role of demand in scientific creativity? Is it possible to measure which input would generate optimal creative output? How could we measure the optimal framework conditions for the creative process in science? Given this new field of reflection, the presentation will give no definitive responses but only food for further development of indicators and for different interpretation of already existing data. Empirical data are largely taken from the European Commission, DG Research work on the Science, technology and Competitiveness key figures report 2008/2009 as well as ad hoc studies.

Measuring complex constructs using composite indicators: methodological issues

Andrea Saltelli (European Commission, DG Joint Research Centre, IPSC, CRELL)

This presentation will talk about methodological issues related to the creation of composite indicators and the necessity of using sensitivity and robustness analysis to assess the quality of the measurements obtained.

The joint OECD/Eurostat Entrepreneurship Indicators Programme

Manfred Schmiemann (European Commission, EUROSTAT)

The OECD-initiated programme to collect internationally harmonized indicators on entrepreneurship is complemented with work done by Eurostat since 2007. A comprehensive set of performance indicators has already been agreed and data have been made available. Work continues in getting more countries involved and in setting up a framework to measure determinants for entrepreneurship, like the regulatory framework or the area of "access to finance". A status quo report will be delivered.

12.30 - 13.00 Session 2: Measuring specific aspects of creativity

Contributions of Leisure and Culture to the creativity of a region

Cristina Ortega Nuere (Institute of Leisure Studies of Deusto University, ENCATC Working Group of Cultural Observatories and Cultural Information and Knowledge)

This paper deals with the contribution of Leisure and Culture to the creativity of a region. The study proposes four main ideas: the transformer strength of leisure; the value of people (people that innovate learn enjoying and people that enjoy learning); the role of leisure and innovation in the organizations; and the promotion of innovation and creativity by means of good practices of leisure. The research also provides an approach to measure the creativity of a region under the leisure and culture point of view. The framework of the study is the Basque Country where innovation and creativity is one of the main beds of the Basque Government developed by means of the Basque Innovation Agency *Innobasque*.

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Stimulating creativity and innovation in a region needs a long term and integrated approach.

Pascal Cools (Flanders DC)

Firstly, the public sector should facilitate in making the entrepreneurial region more creative. Companies need to be convinced of the necessity of creativity and innovation and get the necessary supporting tools. Secondly, the public sector has a role to play in making the creative region more entrepreneurial. A booming and dynamic creative industry reflects to the image of a region. This in its turn will attract creative people to the region. Therefore the public sector should provide the creative sector with the necessary advice, training, financial support and infrastructure. On the crossroads, where the entrepreneurs meet the “creatives”, interesting cross fertilisation initiatives should be supported. Last but not least, creative companies and entrepreneurial creatives can only thrive in a region with a creative DNA. There can be no creative companies without creative people. Policy should set up efforts towards education as well as the general public to create the right attitude and build the necessary skills. In this presentation we'll briefly show how Flanders DC's concrete activities focus on all of these aspects as well as the barometer developed by the Flanders DC Knowledge Centre to (try) to measure the level of creativity of a region.

14.00 - 15.15 Session 2: Measuring specific aspects of creativity

Tolerance, Heterogeneity, Creativity and Economic Growth

Thomas Tiemann (Elon University)

Theoretically, tolerance is important to creativity in two ways. First, creativity is often the result of transferring ideas from one industry to another, from one culture to another, or from one place to another. Individuals who come in contact with a greater diversity of ideas will have more ideas to discover and more industries, cultures and places to which to transfer them. Second, more tolerant societies are populated by individuals more open to new combinations of ideas and therefore often more creative. Indices of diversity and tolerance are developed and are shown to be related to GDP across a range of countries.

Creative Class and Regional Growth — Empirical Evidence from Seven European Countries

Ron Boschma (Utrecht University)

We analyze the regional distribution and the economic effect of the “Creative Class” based on a unique data set covering more than 500 regions in seven European countries. The Creative Class is unevenly geographically distributed across Europe; our analyses show that a regional climate of tolerance and openness has a strong and positive effect on a region's share of these people. Regional job opportunities also have a quite large effect on the size of a region's population of the Creative Class. We find some evidence for a positive relationship between Creative Class occupation, employment growth, and entrepreneurship at the regional level in a number of European countries. Based on our analysis, however, it is not clear whether human capital, measured by creative occupation, outperforms indicators based on formal education, or if formal education has the stronger effect.

Innovation Index in the UK

Mark Franklin (UK Office for National Statistics)

Economists and policy makers agree that ideas and innovation contribute to productivity and economic growth, but the transmission mechanisms are less clear. The motivation for this presentation is the question posed by Jorgensen (2007) - How would an economy produce more output without innovation? Jorgensen's answer is to use the same ideas, but duplicate existing capital

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and labour inputs. Following this logic, innovation is represented by the production of more output over and above that which would occur simply by duplicating existing capital and labour inputs. Where does this extra output come from? In this presentation we assume that output is a function of labour, physical capital and knowledge/intangible capital. Thus the extra output comes from knowledge capital or ideas, and the process of converting knowledge capital or ideas to increased output is the innovation process. We seek to measure all stages of the innovation process, both "upstream" (R&D, design) and "downstream" (marketing, organisational change). This needs totally new data - the prize being a much fuller understanding of innovation and modern knowledge-based economics. Conventional measures of GDP and productivity treat most knowledge capital accumulation as intermediate consumption. We therefore use a growth accounting framework to compute revised national accounts based on capitalising the principal components of knowledge capital. These revised accounts provide both a direct measure of innovation, and a systematic basis for analysis of productivity and growth in the knowledge economy.

15.15 - 16.30 - Session 3: The measurement of creativity at the aggregate level - two examples

Creativity at Work in the European Union

Edward Lorenz (CNRS, France)

While creativity has attracted the attention of researchers in such disciplines as behavioural psychology, management and education studies, relatively little attention has been given to comparison of creativity across national systems. Drawing on the results of the 4th European Working Condition Survey carried out in 2005, this paper starts by developing a measure of creativity at work for the 27 member nations of the European Union and shows how the importance of creativity varies according to sector and occupational category for the European Union as a whole. A simple model is presented explaining the likelihood of an employee being engaged in creative work activity in terms of features of work organisation, human resource management policy, and such personal characteristics as educational background and years of working experience. National differences in the importance of creativity are then examined and the links between creativity at work and national innovative performance are explored, using aggregate indicators derived from the 5th Community Innovation Survey. The paper concludes by considering the policy implications of the results and argues that European policy efforts to improve innovation performance as part of the revised Lisbon strategy need to take a closer look at the effects of work organization and employee learning dynamics on innovation.

Design and Construction of the Hong Kong Creativity Index

John Bacon-Shone (University of Hong Kong)

This paper looks at the process of constructing the Hong Kong cultural index. The process has three main elements: the conceptual framework, data availability and statistical methodology. It was predicated on the requirements that: a) the overall framework should follow the agreed conceptual framework as far as possible, b) the required data must either already be available or easily collected, possibly after interpolation to cover missing data, c) the subindex structure should be validated using principal component analysis, to ensure that each sub-index is reliable. We discuss our practical difficulties in implementing this process and the lessons we learned that may be useful for other jurisdictions that wish to implement a similar process. We also discuss what progress has been made since creation of the index and what progress has not!

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Friday, 28th May: Measuring creativity at individual level

9:15 - 10.30 - Session 1: Creativity research and its measurement – An overview

A Systems Perspective on Creativity and its Implications for Measurement

Mihaly Csikszentmihalyi (School of Behavioral and Organizational Sciences, the Claremont Graduate University)

As long as we assume that creativity is primarily an individual trait, measurement will be primarily focused on personal dimensions, such as divergent thinking or a “creative personality”. But if we realize that creativity is a systemic — as opposed to individual — process, we are led to broaden our perspective to include systemic properties such as availability and accessibility of information, encouragement of novelty by institutions such as schools and corporations, and so forth. Professor Csikszentmihalyi will present his “Systems Model” of creativity, which includes personal qualities (especially in regards to motivation and enjoyment), but also characteristics of a creative society and a creative culture. Wherever possible, suggestions for measurements based on the model will be explored.

Overview of creativity research and its measurement

Mark Runco (University of Georgia, Athens, Georgia, USA)

This presentation touches on a wide range of perspectives on creativity and explores the implications of each for the definition and measurement of creativity. Two structures are used insure comprehensive coverage. The first is essentially disciplinary. Thus biological, clinical, cognitive, developmental, educational, historical, organizational, personological, psychometric, and social research is very briefly summarized, or at least key examples of each noted. The second organizational structure is an updated version of the classic “4P” framework. The traditional version included the creative person, product, place, and process. A very recent revision of this is hierarchical, though actually quite simple, with only two tiers. On the most general levels is a division between creative performance vs. creative potential. The two of these then includes all other approaches, including the traditional 4Ps and much of what is found in the aforementioned disciplinary list. A discussion of measurement implications suggests that the current trend in creativity research over-emphasizes manifest performance and products, the result being high objectivity but the relegation of several important aspects of creativity. This presentation ends with comments on what is missed when products and objectivity are overemphasized. It suggests a modified science (and measurement approach) for creative studies in which potential is not relegated. Potential is probably the most difficult aspect of creativity to measure, but also the most important aspect of creativity to target, study, and enhance.



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11.00- 12.30 - Session 2: Approaches to the measurement of creativity at the individual level

Creativity and its assessment: an individual differences perspective

Todd Lubart (Université Paris Descartes)

Creative achievement involves the strategic deployment of psychological resources (such as specific cognitive abilities) as well as energy, time, physical and financial resources. Individual differences in these resources lead to individual differences in creative performance. The consequences of a match/ mismatch between an individual's resources for creativity, and the requirements of a task or domain in terms of creativity will be examined in terms of implications for measuring creative potential, assessing creative performance, and designing individualized training procedures to maximize creative work.

Personality and creativity

Rosa Aurora Chavez-Eakle (Washington DC Creativity Consultant and Psychotherapist)

The aims of this presentation are to review the multiple relations between creativity and personality and the measurement instruments that can be useful to identify and evaluate them. Specific personality characteristics and traits and their interaction with different stages of the creative process will be described as well. In addition, scientific data result of research projects conducted at the National Institute of Psychiatry Ramon de la Fuente in Mexico City will be presented. These projects evaluated personality traits and behaviors present in productive and successful highly creative individuals. These personality traits and behaviors were associated to differential brain activation and molecular genetic variations in neurotransmitters systems. Finally, developmental events critical in personality formation and creativity maturation will be illustrated.

The Dialectical Evolution of Divergent Thinking Tests

Mark Runco (University of Georgia, Athens, Georgia, USA)

An examination of the research on divergent thinking (DT) suggests three phases and a fairly dialectical evolution. The first phase, or "thesis," peaked with (thought actually slightly predated) Guilford's seminal work on the Structure of the Intellect. His views of DT (or divergent production, as he called it) and his success with measurement seemed to satisfy many of the societal and cultural needs of the 1950s, 1960s, and 1970s. The antithesis era was apparent, even in the late 1960s and more clearly after that, with many people finding fault with Guilford's measurement approach (which relied quite heavily on factorial validity) and with the best-known tests, including the Torrance Tests of Creative Thinking. Yet many criticisms were ill-founded. Many criticized the idea that DT is creative thinking and that DT tests are measures of creative thinking. As that simplistic view was rejected and the more realistic perspective became more common knowledge, research became more accurate and useful. The realistic view can be summarized something as follows: DT is one aspect of many expressions of creativity. DT tests are estimates of the potential for creative thought. The key words are estimates and potential. DT tests are, after all, tests, and as such not perfectly valid. They are samples which do not guarantee actual creative achievement but do provide useful information. Various methodological suggestions for measuring DT and thereby obtaining such useful estimates of potential are reviewed in this presentation.

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The Tried, the True, and the Transpiring in Creativity Assessment

Patrick Kyllonen (Educational Testing Service (ETS) Princeton)

Extensive interviews with university faculty members and workforce employers have shown that creativity is considered among the most important 21st century skills, particularly for higher education graduates, and particularly as it relates to innovation. Psychometric (factor-analytic) studies using various fluency tasks have identified several creativity factors including ideational, associational, expressional, and word fluency, originality, naming facility, sensitivity to problems, and figural flexibility. Criticisms of this line of research are that (a) these tasks are decontextualized and fail to reflect the domain-specific aspects of creativity, and (b) there is limited validity evidence establishing these tasks as measuring creativity per se. ETS developed two creativity measures designed to address these issues, with some success: Formulating Hypotheses, and Measuring Constructs, scored for both number of and originality of responses. It might be argued that there are two broad creativity factors, corresponding to the humanities and to the sciences, with the former focused on creative expression, and the latter on creative problem solving, and it is the latter that is of most interest to those concerned with creativity in the workplace. I will propose that a key cognitive process underlying creative problem solving is the use of analogical thinking, for example, in appreciating interdisciplinary analogies. We demonstrated this in a recent study of transfer learning in physics. Analogical thinking and transfer learning processes may be exploited both for assessment and development of creative skill.

14:00 - 15.15 - Session 4: Creativity and key competences

Fostering and Measuring Creativity – Individuals, Organisations and Products

David Cropley (University of South Australia)

There is no doubt that creativity, and innovation, can be measured. It is not necessary to go into the detail of the range of tests and instruments that have been developed over many years. What is far more significant is the fact that these measures have been developed across a range of disciplines – from psychology to business – and must be integrated in order to realise their potential to foster change. It is highly significant that this discussion takes place against a backdrop of global economic turmoil. Now, more than ever, individuals and organisations must be able to harness creativity and innovation in order to rebuild the strength of our economies. This presentation will outline ways that creativity – of individuals, of products and of organisations – can be measured, and how these measures must interact in order to fully realise the potential of creativity and innovation to drive sustainable economic growth. The role of education in driving the development and application of measures of creativity will be discussed.

Creative Learning Assessment (CLA): a framework for developing children's creativity

Sue Ellis (Centre for Literacy in Primary Education, UK)

When the research team at CLPE embarked on the development of an assessment focussing on creative learning, we were aware of the contentious nature of the task and the size of the challenge. Creativity itself is a slippery concept to pin down. Attempts to assess it are seen by some as undesirable, impossible and counterproductive. It is difficult to assess any complex learning. In creative learning this is compounded: if creativity involves originality and the use of the individual imagination, how can these qualities be judged against a set of predetermined criteria? Creative learning challenges conventional thinking about assessment. Working with teachers from a group of schools in inner city London, we found that it is both possible and valuable to assess creative work and creative learning in order to promote it.

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Teaching creativity and innovation: a strategy for the future

Petra Perez (University of the Valencia, Institute of Creativity and Innovation in Education)

The Institute of Creativity and Educational Innovations (INCIE) has developed an applicational Educational Model for Creative Development (PECEI) in order to promote creativity and innovation, which has proven its efficiency to do so among schoolchildren. It is a strategic model that relates to the individual (development of a creative and enterprising spirit), to the process (of innovation), to the product and to context. This model has been developed based on the indicators or basic traits that the most relevant authors in the field have traditionally considered as those that define innovation and a creative person. We now want to provide the model with a solid empirical basis in order to expand it, which will allow empirical validation and, if necessary, the re-elaboration of the model in order to use it with the general population. We have therefore proceeded to analyze the bibliographical corpus of all the authors who in recent years have published papers on Indicators of Creativity. Based on this information, we have defined a series of basic factors, which have served as a basis for the definition of the “construct” Creativity as a reference for producing a measuring instrument (questionnaire) within the traditional theoretical structure of the elaboration of norm-referenced tests. As a previous step to the definitive development of the questionnaire it was pilot tested online with 100 individuals in order to assess its adequacy, the comprehension of the questions and the coherence of the answers, and to obtain an initial evaluation regarding the reliability of the instrument (internal consistency) and initial evidence of the construct validity. Once the quality report on the pilot test was evaluated, we proceeded to draw up the definitive questionnaire so that the online field work can now begin with the use of a tool such as a survey of a group of creative professionals (art, publicity, business, architecture, etc.) and the general population. Subsequently, and from a perspective of (quantitative/qualitative) methodological complementarity, we will try to achieve the completion of the definitive design of the instrument —its validation— based on ethnographic strategies that will allow us to identify key biographical elements of the construct Creativity, as it is revealed in people identified as creative, in order to ensure the pertinence of the measuring instrument from the research evidence and be able to lay the foundations of educational models for creative development with a general and/or sectorized application.

ICT as a driver for creative learning and innovative teaching: An analysis of practices

Yves Punie (European Commission, IPTS-JRC)

ICT, and especially social computing applications, provide new opportunities for education and training, as they enhance learning and teaching, and facilitate collaboration, innovation and creativity for individuals and organizations. The benefits of deploying social computing and ICT for learning depend however on the learning approaches used, emphasizing the role and the skills of the teacher or instructor and the need for supportive settings for both learners and teachers. The objective of this presentation is the provide results from research (desk research, case studies, interviews, expert workshop) on ICT as a driver for creative learning and innovative teaching, both for formal and informal learning, pointing to real evidence on the role and impact of ICT for learning, innovation and creativity.

All the presentations will be available at the web of the conference: <http://crell.jrc.it/creativitydebate/>

A publication collecting all the contributions from the conference will be made available in September 2009.

Be part of the debate! Register and post your comments at

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Call for papers!

A special issue of the Creativity Research Journal (CRJ) (Routledge: Taylor & Francis Group) with some contributions from the conference is being planned by the beginning of 2010. You are welcome to submit a paper following CRJ scope and standards to ernesto.villalba@jrc.it.

The deadline for submission of papers is September 1st 2009.



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Benedict Arora

NESTA, United Kingdom



Benedict joined NESTA in September 2008 and is responsible for developing NESTA's Future Innovators programme, which explores ways to realise young people's potential to innovate in business, public services and in the community. Benedict has a background in innovation in the children's services and education sectors. Before joining NESTA, he worked for the Department for Children, Schools and Families, where he set up a programme to support the development of Children's Trusts and to commission effective services for children and young people. His previous projects and strategy work include developing a digital media strategy for the Department for Education and Skills; taking Teachers' TV from proof of concept to launch; setting up the TeacherNet website; and working on the Children in Care Green Paper. He has also worked at the European Parliament.

John Bacon Shone

University of Hong Kong, Hong Kong



John Bacon-Shone is Associate Dean of Social Sciences, Director of the Social Sciences Research Centre and Professor at The University of Hong Kong. Previously, he served two terms as elected Dean of Social Sciences and was a member of the Statistics Department in The University of Hong Kong. John was educated at the University of Birmingham (PhD), University College London (MSc) and the University of Durham (BSc). He was headhunted to be a full-time Member of the Central Policy Unit of the Hong Kong SAR Government from 1998 to 2001. His current research interests encompass a wide range of topics including index construction, compositional data, gambling, immigration and population policy, privacy policy and telephone survey methodology.

Ron Boschma

Urban and Regional Research Center Utrecht (URU), Utrecht University, the Netherlands



Ron Boschma is full Professor in Regional Economics at the Department of Economic Geography at the University of Utrecht. He is also Director of the research institute Urban and Regional Research Center Utrecht (URU) at Utrecht University, and affiliate of the London School of Economics (LSE), Spatial Economics Research Centre. He has widely published in international journals covering topics like Evolutionary Economic Geography, spatial evolution of industries, regional systems of innovation and regional development. He has done research assignments for organizations like the Dutch Ministry of Economic Affairs, the Dutch Ministry of Education, Culture and Science, the European Commission DG Research, the European Science Foundation, the OECD and the Scientific Council for National Government (WRR). He is Deputy Chief Editor of Regional Studies and member of the Editorial Board of Economic Geography.

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Rosa Aurora Chavez-Eakle

Washington DC Creativity Consultant and Psychotherapist, USA



Dr. Rosa Aurora Chávez-Eakle is a medical doctor, psychiatrist, creativity researcher and psychoanalytic candidate. She got her degrees from the National Autonomous University of Mexico UNAM. Her research and publications involve: (a) creativity, personality and psychopathology, (b) functional brain images during creative performance, (c) phenomenology and the creative process, (d) molecular genetic variations associated with creativity, and (e) creativity and psychotherapy. Dr. Chavez-Eakle was coordinator and founder of the Unit for the Study and Development of Creativity at the

National Institute of Psychiatry “Ramon de la Fuente” in México City. She was Visiting Scholar at the Torrance Center for Creative Studies at the University of Georgia where she worked with E. Paul Torrance being his last student. She did a postdoctoral fellowship at the Department of Psychiatry and Behavioral Sciences at Emory University. Since 2006 Dr. Chavez-Eakle teaches Creativity at the Johns Hopkins University and is currently a psychoanalytic candidate at the Washington Center for Psychoanalysis. She has presented her research at international forums including: the American Psychiatric Association, the Human Genome Organization, the University of Liege, Belgium; the Institute of Neuroesthetics and the University of California at Berkeley, the Torrance Lecture at the University of Georgia, the National Institute of Psychiatry “Ramon de la Fuente” in México, and the University of Maine. Dr. Chavez-Eakle is a Creativity Consultant and Psychotherapist in Washington DC. She is also a published poet and prose writer.

Helene Clark

DG Education and Culture, European Commission



Ms Clark graduated in Political Sciences and Public Law at the University of Bordeaux (France) and in European Economics at the College of Europe, Bruges (Belgium). After several years of EU affairs consultancy in Brussels, she entered the European Commission as an official in 1988. She has been in DG “Employment, Social Affairs and Equal Opportunities” from 1994 to 2008, where she has been especially involved in the employment policy field. In particular she has been Head of Unit in charge of EURES (mobility of workers) and European Employment Services from 1997 to 2000, of the European

Employment Strategy from end 2000 to end 2003, and of the implementation of the European Social Fund in Austria, Germany and Slovenia from 2004 to 2008. In 2004, she spent six months as a lecturer about EU policies - in particular in the field of employment - at the University of Washington, Seattle, USA. Since 1st November 2008, Ms Clark has been in charge of the Directorate for “Lifelong learning: policies and programme” in the Directorate-General for Education and Culture.

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Pascal Cools

Flanders DC, Belgium



Pascal Cools studied law and then international relations at the University of Leuven (KU Leuven). In 1997, he started to work at the IT and management consultancy, Accenture, known then as Andersen Consulting. As a project manager, Pascal was involved in different large-scale change and optimisation projects for clients from both the private and public sectors. After 8 years at Accenture, Pascal took the leap in 2005 and joined the then recently founded Flanders DC. He has been the General Manager since April 2007.

David Cropley

Defence and Systems Institute (DASI) and University of South Australia, Australia



Associate Professor Cropley began his working life as an officer the United Kingdom's Royal Navy, after graduating from Britannia Royal Naval College in 1986. He served in the West Indies, UK and Middle East on frigates and destroyers. During this time he also completed a Bachelor of Science (Hons) degree in applied physics and electronics at the University of Salford. After returning to his native Australia in 1990, Associate Professor Cropley joined the South Australian Institute of Technology (SAIT) as a junior staff member in the School of Electronic Engineering. Following an amalgamation with various colleges of advanced education, SAIT became the University of South Australia in 1991. Associate Professor Cropley completed a PhD in measurement systems engineering at the same institution in 1997, and a Graduate Certificate in Higher Education from the Queensland University of Technology in 2002. From 2003 until 2007 he was Director of the Systems Engineering and Evaluation Centre (SEEC) at the University, leading a team of engineers specialising in research and education in the field of complex defence systems. In 2007, SEEC was transformed into the larger Defence and Systems Institute (DASI), where Associate Professor Cropley is now Deputy Director and Associate Professor of Engineering Innovation. He has taught a wide range of undergraduate subjects, including digital electronics, measurement systems, analogue electronics and sensor systems. A particular focus has been the development and delivery of a first year course in engineering innovation. At the postgraduate level he has taught systems engineering, research methods and systems integration courses with a focus on the creation of large, complex defence systems. His research interests lie in systems engineering, creativity in engineering processes and the nexus of creative problem-solving and engineering.

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Mihaly Csikszentmihalyi

Quality of Life Research Centre and Claremont Graduate University, USA



One of the world's leading authorities on the psychology of creativity, Mihaly Csikszentmihalyi is Distinguished Professor of Psychology in the School of Behavioral and Organizational Sciences at Claremont Graduate University and Co-Director of the Quality of Life Research Center. He is Emeritus Professor of Human Development at the University of Chicago, where he chaired the Department of Psychology. He developed the concept of "flow" as a metaphorical description of the mental state associated with feelings of optimal engagement and fulfillment. The Hungarian-born social scientist completed his undergraduate studies at the University of Chicago, where he earned his Ph.D. in Psychology. Csikszentmihalyi is a fellow of the American Academy of Arts and Sciences, The American Academy of Political and Social Science, the American Psychological Society, the National Academy of Education, and the National Academy of Leisure Studies, and a foreign member of the Hungarian Academy of Sciences. He serves on the editorial boards of numerous professional journals, has been a consultant to business, government organizations, educational associations, and cultural institutions, and has given invited lectures throughout the world. In addition to his most famous book *Flow: The Psychology of Optimal Experience* (1990), he is the author of 13 other books translated into 22 languages, and over 200 research articles.

Jordi Curell

DG Education and Culture, European Commission



Jordi Curell has been, since March, the acting director responsible for Lifelong Learning: horizontal Lisbon policy issues and international affairs in the European Commission, DG Education and Culture. This includes supporting, developing and implementing lifelong learning policy, with particular regard to the key role of education and training in the Lisbon strategy, its external dimension and the role of the agencies and the Jean Monnet Programme. It also includes supporting the establishment and long-term development of the European Institute for Innovation and Technology (EIT) activities as a world-class innovation institution. Since 1986, Jordi Curell, has worked in different positions in the European Commission, including in DG Employment, where he was responsible for coordinating the preparation and implementation of the European Social Agenda.

Lewis Dijkstra

DG Regional Policy, European Commission

Lewis Dijkstra has been working at DG Regional Policy for eight years, where he is responsible for the main reports such as the Cohesion report and the Progress Report. He is currently working on the 6th progress report which focuses on creativity and Innovation. This Commission Communication will be published at the end of June. He holds a PhD in Urban and Regional Planning from Rutgers University in the US and a Masters in Urban and Regional Planning from the London School of Economics.

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Sue Ellis

Centre for Literacy in Primary Education, United Kingdom



Sue Ellis is Director of the Centre for Literacy in Primary Education (CLPE www.clpe.co.uk), a nationally renowned centre of excellence in the fields of literacy, literature, assessment and creative learning in the primary school. Sue has led CLPE research projects on creativity and learning: Animating Literacy (Animating Literacy: Inspiring Children's Learning through Teacher and Artist Partnerships, CLPE 2005); Assessing Creative Learning and Communication (CLPE 2006-07); and Creative Learning Assessment (CLPE 2008). She is co-author of publications on teacher assessment including: The Primary Language Record Handbook; Patterns of Learning; The Guide to the Primary Learning Record. Currently, she is involved in the research project Reframing Literacy: mapping progression in film literacy with the British Film Institute (BFI) and the United Kingdom Literacy Association (UKLA), and a 3 year ESRC project, Developing Media Literacy: Towards a Model of Learning Progression, with David Buckingham of the London Institute of Education.

Mark Franklin

Office for National Statistics, United Kingdom

Mark is Head of the New Economy/Structural Change branch of the UK Office for National Statistics (ONS). Prior to his work at the ONS he has worked as an economist in the public sector (Ministry of Defence, HM Treasury), in the private sector (CSFB, British Energy) and in consultancy (Oxford Economics). He has applied his economic skills to "real world" projects including asset development and acquisition in the UK and overseas, to complex contract negotiations and a high-profile legal dispute between British Energy and its contract counterparties. He also has extensive experience of regulatory economics as applied to the UK energy markets. At ONS Mark has managed a multi-country, EUR600k research project, funded by Eurostat, on the economic impact of ICT, covering a range of activities from data analysis, drafting and editing of the project report, to project administration, financial management and reporting. Current work interests include innovation, intangibles and analysis of enterprise-level data. Mark holds an MSc (with distinction) in Economics from the University of London, and a 2:1 degree in Economics & Politics from the University of Durham. He is currently working towards an MBA with the Open University. While working for CSFB and Oxford Economics, Mark wrote, co-wrote and edited extensive economic commentary and analysis. He is a co-author of the Eurostat ICT Impacts project report.

Marilyn Fryer

Creativity Centre Ltd., United Kingdom



Dr Marilyn Fryer, Director of the Creativity Centre Ltd, is a chartered psychologist, experienced academic and qualified teacher specialising in research and consultancy in creativity and innovation. She is also co-founder of the Creativity Centre Educational Trust, a registered charity. Her interest in creative education began in the 1980s when she undertook an investigation into the views of over one thousand UK teachers about creativity, learning and teaching. Formerly Reader in Psychology at Leeds Metropolitan University, Marilyn has over twenty years experience of creativity research, teaching and training. At Leeds, she introduced accredited awards in applied creativity across a wide range of undergraduate and post-graduate courses. These were

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successfully accessed by several thousand students over a fifteen year period. As well as undertaking research and consultancy for national and international organisations, government bodies and universities, Marilyn is concerned with the assessment of creativity in individuals and organisations. She has a special interest in the creative contributions of culturally diverse groups to organisational success. Marilyn has a long track record of international research. Her work has been presented in the USA, Asia, Eastern and Western Europe. For example, she spoke about creative education in the UK at the Opening of the Nobel Prize Centennial Exhibition in Kuala Lumpur and at the Torrance Lecture Series in Georgia, USA. In 2009 she will be presenting keynotes in Mexico and Japan. Marilyn has acted as a consultant to the Qualifications and Curriculum Authority (QCA) on programmes designed to develop creativity, and on guidelines for teachers on creativity across the curriculum. She also undertook consultancy on creativity for the UK's National Advisory Committee on Creative and Cultural Education (NACCCE) which produced the report: *All Our Futures: Creativity, Culture and Education*.

Jarkko Hautamaki

University of Helsinki, Finland



Professor Jarkko Hautamäki (b. 1948) has made his dissertation in psychology (Measuring Piagetian thinking in Finnish basic school), and is currently a professor in special education at University of Helsinki, Finland. He has been a member of Finnish Evaluation Council and a board member of Finnish National Board of Education, and is currently chairing Centre for Educational Assessment, CEA. He chaired the Finnish PISA 2006 group. He is also the president of Finnish Psychological Society, and he is a personal member and CEA is an institutional member of European Council for High Ability. He has worked with EU to develop measuring instruments for learning to learn.

Hugo Hollanders

Maastricht University - MERIT, the Netherlands



Hugo Hollanders is a Senior Research Fellow at UNU-MERIT, a joint research institute of Maastricht University and United Nations University, with over 15 years of experience in innovation studies and innovation statistics. He has been involved in various projects for the European Commission, including a.o. 2000-2007 Trend Chart on Innovation Policies and the 2008-2010 INNO Metrics project, both focusing on benchmarking innovation performance (EC, DG Enterprise), the 2000-2002 NewKInd project on developing new indicators for the knowledge-based economy (EC, Eurostat), the 2002-2004 ESPON project 2.1.2 on the territorial impact of EU R&D policy, and the 2005-2008 Sectoral Innovation Watch (EC, DG Enterprise, FP6). Within Trend Chart and its successor INNO Metrics, he has been involved in the annual European Innovation Scoreboard (EIS) for over 8 years and he has (co-)authored more than 20 EIS reports, including reports on measuring regional, sectoral and services innovation, innovation efficiency and measuring creativity and design. He has presented the results from the EIS at various workshops and conferences across Europe. He has published in the Review of Income and Wealth, Labour and Labour Economics and has recently contributed two chapters on innovation measurement to the book on "Innovation Policy in Europe." He is a member of the Netherlands Observatory of Science and Technology (NOWT). NOWT focuses on the collection and analysis of data about the Dutch research system in a broad sense.

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Philippe Kern

KEA -European Affairs, Belgium



Philippe Kern is the founder and managing director of KEA European Affairs (www.keanet.eu). KEA is a Brussels-based strategic consultancy specializing in providing advice, support and research in relation to creative industries, cultural, entertainment, media and sport sectors. KEA's research includes reports and studies, feasibility studies, issue-papers, comparative analysis of public policies and legislation in Europe, evaluation of public policies and drafting of policy recommendations, corporate and market analysis. He has 20 years' experience in the world of creative industries. He is a specialist in copyright, anti-trust and trade law.

Philippe Kern has led a range of research and strategy programs at European level on creative issues, notably for the European Commission and the European Parliament. KEA carried out the first ever European wide report describing the economic and social importance of culture in Europe for the European Commission in 2006. This has been followed by a second report aiming to demonstrate the impact of culture on creativity which will be published in May 2009. Kern was former Director of Public and Legal Affairs of PolyGram, Policy advisor to the CEO of Polygram and EMI. He was head of the IFPI Brussels office. He is the founder and secretary general of the European Film Companies Alliance as well as the founder of the Independent Music Companies Association (IMPALA). He is co-found of "Untitled-sans titre," an initiative for art to influence policy-thinking. He was executive producer of the film "Stories on Human Rights" developed in 2008 to celebrate the 60th Anniversary of the Declaration of Human Rights. Kern graduated in law from the universities of Strasbourg and Paris as well as the College of Europe in Bruges.

Patrick Kyllonen

Educational Testing Service (ETS), USA



Patrick Kyllonen is the Research Center Director for the New Constructs Center at Educational Testing Service (ETS) in Princeton, N.J. Dr. Kyllonen received his B.A. from St. John's University and his Ph.D. from Stanford University (1984). Dr. Kyllonen's research has focused on the measurement of human abilities and on learning, cognition, and skill acquisition. More recently, he and New Constructs Center colleagues have been investigating affective (e.g., personality, metacognitive) as well as cognitive mediators of educational success and job performance, along with associated new assessments (e.g., communication skills, situational judgment) and delivery modes (e.g., multimedia, internet). Before joining ETS in 1999, Dr. Kyllonen was the technical director of the Air Force Research Laboratory's Manpower & Personnel Division (Human Resources Directorate, Armstrong Laboratory). Among his various duties, he served as the Manpower & Personnel Joint Technology Coordinating Group (TAPSTEM) Leader, responsible for coordinating behavioral science research (including leadership research) in the military service labs during the 1990s. He also was the recipient of The Technical Cooperation Program (TTCP) Achievement Award for the design, development, and evaluation of the Trait-Self Description (TSD) Personality Inventory. Since joining ETS he has served on the Armed Services Vocational Aptitude Battery review panel. Dr. Kyllonen is author (with S. Irvine) of *Generating Items for Cognitive Tests: Theory and Practice*, published in 2001 by Lawrence Erlbaum Associates, *Learning and Individual Differences: Process, Trait, and Content Determinants* (with P. L. Ackerman & R.D. Roberts), published in 1999 by the American Psychological Association, *Extending Intelligence: Enhancement and New Constructs* (with R. Roberts and L. Stankov), published in 2008 by Lawrence Erlbaum Associates, and the forthcoming *The Science of Item Generation*:

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Psychology, Psychometrics, & Practices (with S. Irvine). He is a Fellow of the American Psychological Association, and the American Educational Research Association, and has served on the editorial board of *Intelligence: A Multidisciplinary Journal*, and *Human Factors: The Journal of the Human Factors and Ergonomics Society*.

Stephan Lechner

Institute for the Protection and Security of the Citizen (IPSC), DG Joint Research Centre, European Commission



Since 2007 Stephan Lechner is the Director of the Institute for the Protection and Security of the Citizen at the European Commission's Joint Research Centre. Before joining the European Commission, he worked from 1989 to 1993 at Siemens as project manager. In 1993 he joined E-plus, a start-up German Mobile Network Operator as IT Security Manager. In 1997 he became head of Corporate Security for O2 Germany, another Mobile Operator. From 2002 to 2007 Stephan Lechner worked at Siemens, where he profiled the Siemens Security research activities, including the successful start of Homeland Security and the company's internationalization by establishing a new research team in Beijing, China. Stephan Lechner was member of the European Security Research Advisory Board (ESRAB) and member of the Permanent Stakeholder Group of the European Network and Information Security Agency (ENISA). He was also chairman of the Secure IST Advisory Board for the respective Coordination Action. He used to work in European Standardization at ETSI (the European Telecommunications Standards Institute) and at ECMA (an industry association dedicated to the standardization of Information and Communication Technology and Consumer Electronics). He is also an active CISSP (Certified Information Systems Security Professional).

Edward Lorenz

University of Nice - CNRS, France



He received his BS from MIT, MA from UC Berkeley and PhD from the University of Cambridge. He is currently Professor of Economics at the University of Nice-Sophia Antipolis and Assigned Professor at the University of Aalborg. His research interests include organisational behaviour and strategy, the development of empirical indicators of organisational innovation, and the comparative analysis of national innovation systems.

Todd Lubart

University of Paris V, France



Todd Lubart is Professor of Psychology at the Université Paris Descartes, and Member of the Institut Universitaire de France. He received his PhD from Yale University and was an invited professor at the Paris School of Management (ESCP). His research focuses on creativity, its identification and development in children and adults, the role of emotions, the creative process and intercultural issues. Todd Lubart is author or co-author of numerous scientific reports on creativity, including the books *Defying the crowd: Cultivating creativity in a culture of conformity* (NY: Free Press, 1995), *Psychologie de la créativité* (The psychology of creativity, Paris: Colin, 2003), and *Enfants exceptionnels* (Exceptionnel Children, Bréal, 2006).

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Hans Martens

European Policy Centre, Belgium



Hans Martens is Chief Executive of *The European Policy Centre*, a Brussels-based think tank set up to promote European integration. Born in Denmark, Hans Martens studied Political Science at Aarhus University, specialising in EU affairs and in public administration, and went on to become Associate Professor in international political and economic relations. In 1979 he joined the Danish Savings Bank Association as Editor-in-Chief and Head of Information. From 1982-1985 he was Head of the International Department of a Danish trade union, the Salaried Employees Federation, where he took charge of the organisation's international relations, including with the OECD and the ILO. In 1985 Hans Martens joined the Copenhagen Handelsbank

initially in charge of the Economic Department and later as Head of the International Private Banking Department. There he was responsible for economic analysis and forecasting and for developing the bank's investment and capital market products. In 1989 he set up Martens International Consulting, specialising in international consultancy and customised training (including in EU affairs) for a number of major companies. He joined the European Policy Centre, a leading Brussels think tank, as Chief Executive in 2002. Alongside his business career, Hans Martens has been visiting Professor at the Universities of Aarhus and Copenhagen and he is a regular lecturer at the Executive MBA Programme at Virginia Commonwealth University and a number of European business schools. He is leading the EPC's work on European Competitiveness issues, including on innovation and reform of the public administration and on eBusiness and eGovernment. He has extensive experience of curriculum design and planning and lectures regularly on the international circuit. He speaks five languages: Danish, English, French, German and Spanish. He is the author of a number of books and articles on Public Administration, European integration, monetary affairs, and business strategies for the European market, including, for the European Commission.

Ann Mettler

Executive Director, Lisbon Council



Executive Director and Co-Founder of The Lisbon Council, a think tank and policy network committed to promoting sustainable economic growth, encouraging human capital development, generating more and better jobs and working towards a prosperous future for Europe. Incorporated in Belgium as an independent, non-profit and non-partisan association, the Lisbon Council is among Europe's most thoughtful and authoritative voices on economic reform and social renewal. Ms. Mettler co-founded the organisation in 2003, at age 32. From 2000-2003, Ms. Mettler worked at the World Economic Forum, where she served as Director for Europe. Prior to this appointment, she was responsible for the World Economic Forum's activities in the United States and Canada. From 1997-2000, Ms. Mettler held positions on the Governmental Affairs Committee of the United States Senate, a strategic communications firm in Washington, DC and the Foreign Policy Division of the European Commission, Brussels. Ms. Mettler is a columnist for BusinessWeek.com, and has published articles in major media outlets, such as the Wall Street Journal Europe, Financial Times, Newsweek, FT Deutschland, Süddeutsche Zeitung and Handelsblatt. She is also a regular commentator on CNBC Europe and the BBC, and serves on the scientific committee of the OECD global project on measuring the progress of societies. A dual citizen of Germany and Sweden, Ms. Mettler has lived and worked in Greece, the United States, Switzerland and Belgium. She holds Masters degrees in political science and European law and economics, and graduated with distinction from the University of New Mexico, USA, and the Center for European Integration Studies (ZEI) in Bonn, Germany.

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Cristina Ortega Nuere

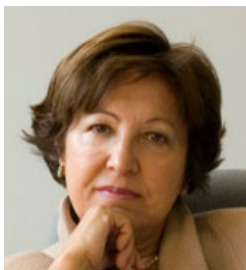
Institute of Leisure Studies, University of Deusto and ENCATC Working Group of Cultural Observatories and Cultural Information and Knowledge, Spain



Cristina Ortega Nuere is PhD in Leisure and Human Potential, Bachelor of Arts and MA in Leisure and Culture Management. She is Professor at the University of Deusto and works as Project Director of Research of innovation on leisure and culture for the Institute of Leisure of Studies. She is also Chair of the ENCATC Working Group of Cultural Observatories and Cultural Information and Knowledge. Her areas of knowledge deal with cultural information and cultural infrastructures and events. Her last book will be shortly published concerning Cultural Information on Cultural Observatories, Maps of Infrastructures and events.

Petra Perez

Institute of Creativity and Innovation in Education, University of Valencia, Spain



Petra María Pérez Alonso-Geta is Director of the Institute of Creativity and Educational Innovations and professor of Educational Theory at the Universidad de Valencia. She has been awarded with the best academic record in the School of Philosophy and Educational Sciences, the Cañada Blanch award for the best thesis in the School of Philosophy and Educational Sciences (1981-82), University of Valencia and the Committee award for the Promotion of Advanced Educational Research, Florence, 1992. Most of her publication record is devoted to the fields of Theory and Anthropology of Education. She has mainly focused

on lifestyles and values during childhood and adolescence.

Yves Punie

Institute for the Prospective Technological Studies (IPTS), DG Joint Research Centre, European Commission



Yves Punie is leading the IPTS research and policy activities on “ICT for Learning and Creativity” and is also involved in projects on ICT for Inclusion and Governance as well as on assessing the socio-economic impact of web 2.0 or social computing. Before joining the IPTS in 2001, he was interim Assistant Professor at the Free University of Brussels (VUB) and senior researcher at SMIT (Studies on Media, Information and Telecommunications). He holds a Ph.D. in Social Sciences from the VUB and (co-)authored more than 30 publications and presented more than 60 papers at different occasions.

Odile Quintin

Director General, DG Education and Culture, European Commission



Director General of DG Education and Culture in the European Commission. After joining the European Commission 1970 and working in the Directorates General for Agriculture and External Relations, Ms Quintin joined DG Employment, Social Affairs and Equal Opportunities (ex DG V) in 1982, of which she held the post of Director-General between 2000 and 2005. Ms Quintin has a postgraduate degree in Public law and Political Science and Comparative Public Law.

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Mark Runco

University of Georgia, USA



Mark Runco earned a PhD in Cognitive Psychology from the Claremont Graduate School and has taught assessment and developmental and cognitive psychology courses and studied creativity ever since. He is currently the E. Paul Torrance Professor of Creative Studies and Gifted Education at the University of Georgia, Athens. He is also Director of the Torrance Creativity Center, Editor of the Creativity Research Journal, and co-editor of the Encyclopedia of Creativity. He is a Fellow and Past President of the American Psychological Association's Division 10 (Psychology, Art, and Creativity). His textbook on creativity was released by Elsevier

in 2007

Pasi Sahlberg

Educational Training Foundation, Italy



Pasi Sahlberg is Lead Education Specialist at the European Training Foundation (ETF), Torino, Italy. He received his Ph.D. in educational sciences in 1996 from the University of Jyväskylä, Finland. He was previously teacher, teacher educator, policy-maker and director in various positions in Finland before moving to work with World Bank in Washington, DC. He has global experience in education policy analysis, training teachers and leaders, coaching schools to change and advising education policy-makers. He has published writings on educational change, school improvement and learning. His publications include "Creativity and innovation through lifelong learning" (2009), "Rethinking accountability in a knowledge society" (2009), "Education policies for raising student learning: The Finnish approach" (2007), "Should 'failing' students repeat a grade?" (2008) and "Education reform for raising economic competitiveness" (2006). He is also Adjunct Professor at the University of Helsinki and an assistant editor of the Journal of Educational Change.

Andrea Saltelli

CRELL, Institute for the Protection and Security of the Citizen (IPSC), DG Joint Research Centre, European Commission



Andrea Saltelli has worked on physical chemistry, environmental sciences and applied statistics. His main disciplinary focus is on sensitivity analysis of model output, a discipline where statistical tools are used to interpret the output from mathematical or computational models. He presently leads the Econometric and Applied Statistics Unit of the European Commission at the Joint Research Centre in Ispra (I). The Unit, with a staff of 45, develops econometric and statistic applications, mostly in support to the Services of the European Commission, in the field of lifelong learning, internal market, knowledge economy and others.

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Roland Schenkel

Director General, DG Joint Research Center, European Commission



Dr. Roland Schenkel is Director General of the DG Joint Research Center since November 2005. He started working for European Institutions in 1979 at the Euratom Safeguards Office in Luxembourg. Member of various international programme and evaluation committees, he has about 100 publications in the area of basic actinide research, nuclear safeguards and nuclear fuel cycles. He was Awarded a Doctor honoris causa by the Russian Academy of Science in 2002.

Manfred Schmiemann

Structural Business Statistics, Eurostat, European Commission



After completing a PhD in genetics at the University of Münster in Germany (1986), Manfred became an expert in university technology transfer while doing industry-sponsored research in genetic engineering on a postdoctoral position at the University of Calgary, Canada. Upon returning to Europe in 1990, he became the founding Director of the University of Paderborn's office of technology transfer. In 1991, the Land Northrhine-Westfalia seconded him as a National Expert to the European Commission's department for International Scientific Cooperation in Brussels. Subsequently, he acquired in-depth knowledge of the

European Union's innovation policy (since its inception in 1996) through his tenured position with the European Commission in Luxembourg. This work, and a Master's in European Law from the "European Institute of Public Administration" (1998) has made him very familiar with issues of intellectual property rights, in particular patents, in a legal and policy framework. He has published extensively on those topics, and also on university technology transfer and on enterprise policy. In 2006, he declined an offer to become the Director of the European Patent Academy at the European Patent Office in Munich. He is now co-ordinating OECD-initiated work on entrepreneurship indicators on behalf of the European Commission. Manfred was one of seven "European Union Fellows" seconded by the European Union's institutions to prestigious American universities during the academic year 2004-2005. In this capacity, he has been a visiting professor at the Lyndon B. Johnson School of Public Affairs at the University of Texas at Austin. His recent teaching is broadly around the topics of entrepreneurship, innovation management, and intellectual property rights.

Keith Sequeira

DG Enterprise and Industry, European Commission



Keith currently works in the Innovation Policy Development Unit of DG Enterprise and Industry and the European Commission where he is responsible for activities to benchmark national innovation performance, including the European Innovation Scoreboard. He has a first degree in Physics from the University of Cambridge and a D.Phil in innovation studies from the Science Policy Research Unit at Sussex University. Before joining the European Commission he worked for a number of years in the UK Department of Trade and Industry in the areas of biotechnology SMEs, performance monitoring and international trade as well as secondments to the private sector and to DG Research in the European Commission.

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Johan Stierna

DG Research, European Commission

Dr Johan Stierna is a senior European Commission officer, with responsibility for coordinating the annual Science, Technology and Competitiveness key figures report. In the European Commission, he has previously worked with analysis and monitoring systems in different areas, such as Science and technology foresight, monitoring progress towards the Millennium Development Goals and analysing patterns in Erasmus student mobility. Johan Stierna holds a PhD title from the university in Lund, Sweden, in the field of sociology.

Vladimir Sucha

DG Education and Culture, European Commission



Vladimir Sucha is Director for Culture, Communication and Multilingualism at the Directorate General for Education and Culture of the European Commission. He is responsible for 5 units covering different tasks of the DG. Before, he was Director of the Slovak Research and Development Agency (2005-2006). National body in the Slovak Republic for funding research, promoting international cooperation, research culture, and scientific advise. He worked as well as Principal advisor for European Affairs to the Minister of Education of the Slovak Republic (2004-2005). He has been working at the Slovak Representation to the EU in

Brussels for 4 years as research, education and culture counselor (2000-2004). At the same time he has a long-term academic and research background – full professor of the Comenius University in Bratislava and visiting professor/scientist at different institutions in many countries. He is/was member of many scientific, advisory and governing bodies at the national, European and international levels.

François Taddei

Paris-Descartes University's Medical School, France



François Taddei wrote a report on creativity and education for OECD entitled: "Training creative and collaborative knowledge-builders: a major challenge for 21st century education". Over the last five years, as an educator, he has created the CRI (Center for Research and Interdisciplinary) in Paris, which offers a Master's degree (Interdisciplinary Approaches to Life sciences, AIV), a doctoral school (Frontiers of Life, FdV), supported by the Liliane Bettencourt PhD program, and holds chairs funded by Orange and Axa. CRI's main role is to promote new pedagogies to help creative students take initiatives and develop their research projects, with the help

of mentors, research institutions, private companies, and foundations, such as the Bettencourt Foundation, which has supported many student-created activities. These activities range from the first French synthetic biology team (which won the Foundational Research Award at its first participation in the MIT-sponsored iGEM competition) to the "Paris-Montagne" science festival and the "Science Académie," an outreach program that allows high schools students from disfavored neighborhoods to discover the creativity of science while spending their vacations in research labs. As a scientist he heads the Evolutionary Systems Biology team at a unit of the French National Institute of Health & Medical Research (INSERM) in Paris-Descartes University's Medical School. After a generalist scientific education, with majors in physics and biology at the École Polytechnique," he became a tenured higher

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civil servant at the French Ministry of Agriculture, before earning a PhD in genetics, studying the evolution of the rate of evolution with Miroslav Radman. After postdoctoral training with John Maynard-Smith, for the last 10 years, his research team has been studying innovation and degeneracy in biological systems. This work has produced many publications in generalist scientific journals, and has been recognized by several awards, (the European Young Investigator award, the Human Frontier Science Program award, the INSERM Award for Fundamental Research, and the Liliane Bettencourt Life Science Award).

Thomas Tiemann *Elon University, USA*



Thomas Tiemann is Professor of Economics at Elon University in the United States. His interest in the growth rates of cities led him to explore the writings of Jane Jacobs and Richard Florida, and research the causes of differences in creativity across cities. He has also written on street-level life in European and North American cities.

Irene Tinagli *Consultant*

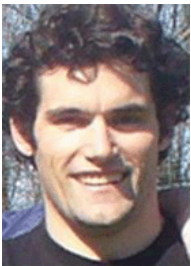


Irene Tinagli is a researcher at Carnegie Mellon University in Pittsburgh, Pennsylvania. Her work focuses on policies for innovation, creativity and regional development. She has worked as a consultant for the Department of Social and Economic Affairs of the United Nations and for development agencies and regional governments in various European countries. She has authored and co-authored international publications, among which “Europe in the Creative Age” (with R. Florida) published by Demos, and “Understanding Knowledge Societies” (with J. Szeremeta) published by the United Nations

Publications. She holds a Master of Science in Innovation Management and Policies and a PhD in Public Policy and Management from Carnegie Mellon University.

Ernesto Villalba

Center for Research on Lifelong Learning (CRELL), IPSC, DG Joint Research Centre, European Commission



Ernesto Villalba is a scientific officer at the Center for Research on Lifelong Learning (CRELL) based on benchmarks and indicators at the Joint Research Center of the European Commission located in Ispra, Italy. He is in charge of the project exploring the measurement of creativity and innovation in education. He is part of the European Commission scientific committee for the thematic report using TALIS (OECD) data on teachers’ professional development and has served in several international conferences and meetings as a speaker. He graduated in Psychology at the Madrid Autonomous University and holds a Ph.D. on International Comparative Education from Stockholm University.

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Stephan Vincent-Lancrin

OECD/ CERI



Stéphan Vincent-Lancrin is a Senior Analyst at the OECD Centre for Educational Research and Innovation (Directorate for Education). He has been working for about 8 years at the OECD on various topics, including the internationalisation and future of higher education, e-learning, knowledge management, learning cities and regions. He has co-authored and coordinated the recent OECD/CERI publications on Higher Education to 2030, Cross-border tertiary education: a way towards capacity development, Internationalisation and trade in higher education, and E-learning in tertiary education. He currently co-leads the Human Capital working group of the OECD Innovation Strategy and leads the educational contribution to it. Before joining the OECD, Stéphan has worked for 7 years as lecturer and researcher in economics at the University of Paris-Nanterre and the London School of Economics. He is a Marie Curie Fellow and a 2007 Fulbright New Century Scholar. He holds a PhD in economics and master's degrees in business administration and in philosophy.

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