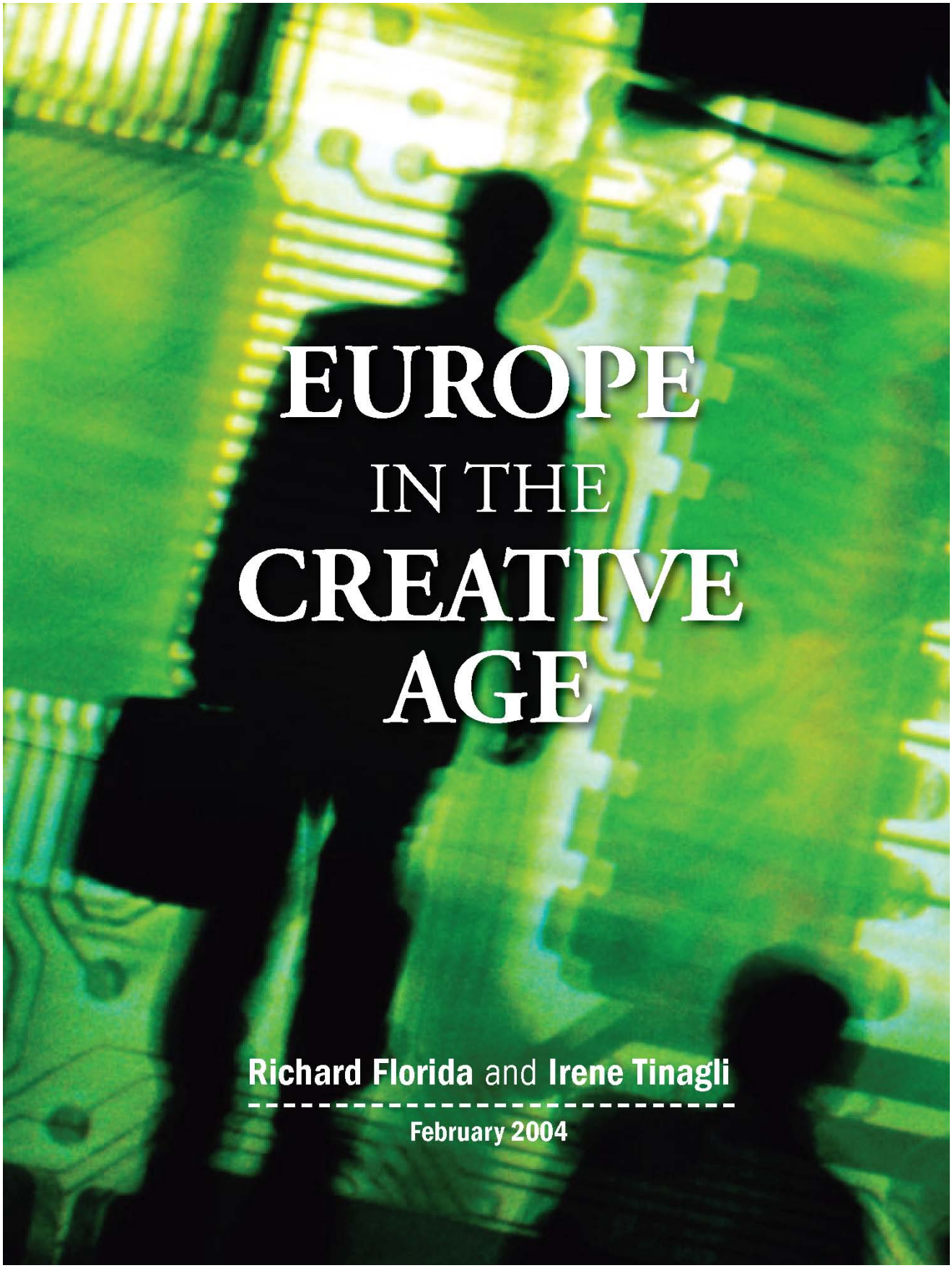

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February 2004

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THE PRESENT DOCUMENT IS AN EXTRACT FROM THE REPORT: "EUROPE IN THE CREATIVE AGE"

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This report extends these concepts originally developed and tested for the United States in The Rise of the Creative Class to the European context. It explores trends in creativity and economic growth in 14 European countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, Spain, Sweden and the United Kingdom. It provides new data on the extent of the Creative Class in these countries, provides measures for each of the 3Ts, and introduces a new composite measure of overall competitiveness performance—the Euro-Creativity Index. And it compares the performance of these European nations to that of the United States.

The Full Report is available at no cost at:

http://www.creativeclass.org/acrobat/Europe_in_the_Creative_Age_2004.pdf

OR:

http://www.demos.co.uk/catalogue/creativeeurope

Introduction

Creativity is the motor force of economic growth. Roughly a century ago, the US and European economies and societies transitioned from agricultural to industrial systems. There was a massive movement of people from rural communities to rapidly growing urban industrial centers. This set in motion a whole series of sweeping demographic, social, economic and cultural shifts. Today, the US and Europe are again going through a period of sweeping economic and social transformation — this time from an industrial to a creative economy.

The creative economy has grown considerably over the past century with the most rapid and punctuated growth occurring over the past two decades or so. A hundred years ago, at the dawn of the 20th century, fewer than 10 percent of working people worked in the creative sector of the economy. Fewer than 15 percent of the workforce did so in 1950. But over the past two decades, creativity has become the driving force of our economy and the creative sector has exploded. Today, from between 25 to more than 30 percent of workers in the advanced industrial nations work in the creative sector of the economy, engaged in science and engineering, research and development, technology-based industries, in the arts, music, culture, aesthetic and design industries, or in the knowledge-based professions of health care, finance and law. In the United States, the creative sector accounts for nearly half of all wage and salary incomes, as much as the manufacturing and service sectors combined.

Indeed, the age we are living through is one of great economic and social transformation—as big as, or perhaps bigger, than the shift that Marx chronicled from an agricultural to an industrial capitalist system. That shift substituted one set of physical inputs (land and human labor) for another (raw materials and physical labor), while the current transformation is based fundamentally on human intelligence, knowledge and creativity. This is a huge change, and it should come as no surprise that it's shaping myriad transformations in our society, culture, workplaces, communities and everyday life. These transformations have been many decades in the making, and they'll be with us for decades to come.

Creativity is a basic element of human existence. Every single human being is creative and houses creative potential: Every single human being is creative in some way. Creative geniuses play their role, but creativity is a broad social process and requires teamwork. It's stimulated by human exchange and networks; it takes place in real communities and places. We can no longer prosper and grow by tapping and rewarding the creative talents of a minority. If we are to truly prosper, everyone must be brought fully into the system by employing them to do more value-adding creative work. Doing so will raise peoples wages and strengthen our national economy, while also helping to bring our regional economies — and our lives — into better balance.

Global competition in the creative economy is a wide-open game. While many assume that the United States has an unbeatable edge, its position is more tenuous than commonly thought. The United States certainly has many assets with which to compete. Over the past century, it built the most powerful and dynamic economy in the world. It did so by fostering entirely new industrial sectors, by maintaining a free and open society, by investing in scientific and cultural creativity, and most of all by drawing energetic and intelligent people from all over to its shores.

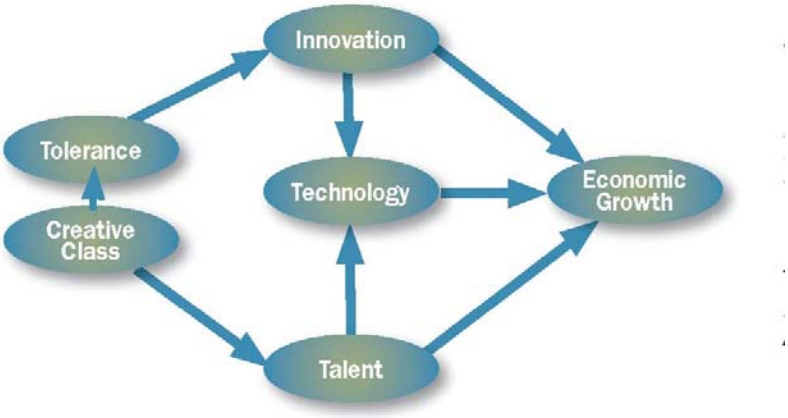
But economies are fluid — people move, leads are easily gained or lost — and creativity is an asset that has to be constantly cultivated and renewed. Even before the stock-market crash — in 1999, at the height of the boom, when it seemed that American high-tech ruled the world — the U.S. Council on Competitiveness issued a report warning that we were letting our "innovation infrastructure" decay, while "other nations are accelerating their own efforts." Since then the creativity gap has closed even further.

The key element of global competition is no longer the trade of goods and services or flows of capital, but the competition for people. This report starts from the premise that the economic leaders of the future will not likely be emerging giants like India or China that are becoming global centers for cost effective manufacturing and the delivery of basic business processes. Rather, they will be the nations and regions within nations that can best mobilize the creative capacities of their people and attract creative talent from around the world.

This report reflects and builds upon the theory of economic growth advanced in *The Rise of the Creative Class*. It argues that economic growth and development turns upon 3Ts—technology, talent and tolerance. Traditional models say that economic growth comes from companies orjobs or technology. This report argues that these models are good starting points but they are incomplete. Technology is important. It is a central element of the 3Ts. But other factors come into play as well. Talent is the second T. Human capital theorists have long argued that educated people are the key driver of economic development. Following *The Rise of the Creative Class*, we use measures of creative occupations as well as measures of human capital based on educational attainment, such as the percentage of the workforce with a bachelor's degree or above.

Tolerance is the third T. It critically affects the ability of nations and regions to mobilize their own creative capacities and compete for creative talent. Clearly, the more tolerant or open a nation or region is, the more talent it is able to mobilize and attract. This is a critical dimension of economic competitiveness today—unfortunately, it's one that is nearly absent from conventional economic models. For most of human history, wealth came from a place's stock or endowment of resources -for example, fertile soil, natural resources or raw materials. But that metaphor fails us today. Both technology and the talented and creative people that create it are highly mobile economic resources. The key dimension of economic competitiveness no longer lies in large endowments of raw materials or natural resources or even labor cost advantages. Rather, it turns on the ability to attract, cultivate and mobilize creative assets. This report focuses on the underlying conditions which form the "ecosystem characteristics" of the creative economy that enable certain places to attract and mobilize more of these creative assets than others. Tolerance – openness to new people and ideas, what one can think of as "low barriers to entry for people" --is a critical element of this environment.

Figure 1: Tolerance, Creativity & Economic Growth



Executive Summary

Creativity has become a driving force of economic growth. The ability to compete and prosper in the global economy goes beyond trade in goods and services and flows of capital and investment. Instead, it increasingly turns on the ability of nations to attract, retain and develop creative people. This report extends the concepts and indicators introduced in *The Rise of the Creative Class* to the European context. It develops new indicators for the Creative Class and competitiveness that are based on the 3Ts of economic development—Technology, Talent and Tolerance — for 14 European, Scandinavian and Nordic countries and compares them to the United States. While these measures differ in significant respects from the indicators in *The Rise of the Creative Class*, the findings are just as illuminating and compelling.

- The Creative Class makes up more than 25 percent of the work force in seven of 14 European nations, and comprises nearly 30 percent of the workforce in three —the Netherlands, Belgium and Finland. Creative Class workers outnumber blue-collar workers in these three countries, and also in three others: the United Kingdom, Ireland, and Denmark.

- The Creative Class is growing at a fairly rapid pace in a majority of the European nations. Ireland outpaces all nations in Creative Class growth, with a 7 percent annual growth rate since 1995.

- Not all nations, however, appear to have made the shift to a creative economy and a creative occupations structure. Italy and Portugal, for example, have less than 15 percent of the workforce in the Creative Class.

- While the United States remains the world leader in technology and in its ability to attract top talent, a cluster of Northern European nations—Finland, Sweden, Denmark, the Netherlands, and Belgium—appear to have distinctive assets with which to compete. These countries have considerable technological capabilities, have invested and continue to invest in developing creative talent and also appear to have the values and attitudes that are associated with the ability to attract creative talent from the outside. A number of these countries, notably Sweden and the Netherlands, have liberalized their immigration policies and have attracted concentrations of foreign-born people. These nations and others still suffer from an inability to assimilate immigrants as quickly and seamlessly as the United States and to create the environment for their rapid upward mobility as has occurred with various groups in the U.S. and Canada. The fact the English is spoken widely across the population in these countries provides an additional asset in the global competition for creative people and they will continue to benefit from the freer flows of people across EU members states.

- Within Europe, the epicenter of competitiveness is shifting from the traditional powers, especially France, Germany and the United Kingdom, to a cluster of Scandinavian, Nordic and northern European counties.

- Sweden is the top performer on the Euro-Creativity Index, outperforming not only all of the other European countries, but the United States as well.

- Finland is also well-positioned to compete in the Creative Age with a high level of overall creative competitiveness and rapid growth in its creative capabilities.

- The Netherlands, Denmark and Belgium also appear to have considerable assets with which to compete.

- Ireland stands out as an up-and-coming nation, with significant growth in its Creative Class and its underlying creative capabilities since 1995.

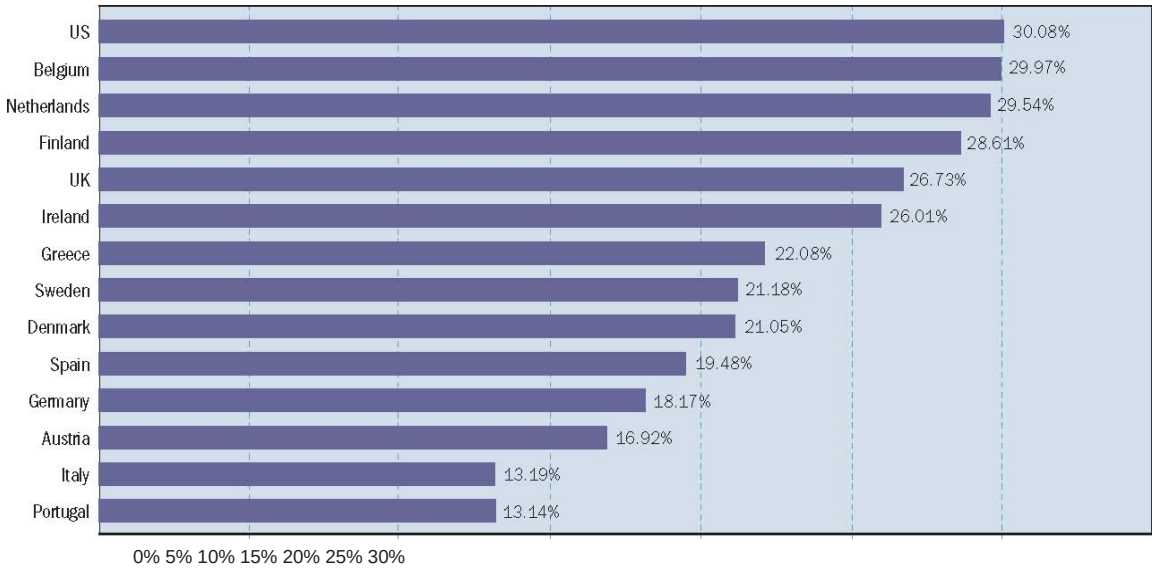
- The ability to attract people is a sensitive and dynamic process. New centers of the global creative economy can emerge quickly; established players can lose position. The world today stands at an intriguing inflection point. For years the United States possessed an unchallenged competitive advantage in its ability to attract the best and brightest from Europe, Scandinavia and around the world. For the first time, that advantage seems to be imperiled. Part of the reason clearly lies in the fact that a number of countries in Europe and elsewhere (notably Canada and Australia) have liberalized their immigration policies and increased their efforts to attract and retain talent. But it also lies in the fact that the climate for creative talent in the United States has chilled somewhat both as a result of direct policies which restrict scientific information and make it harder for people to get into and out of the country and also because of a widening perception of the U.S. as unilaterally aggressive and less friendly toward foreign-born people.

The Creative Class in Europe

Some suggest that the Creative Class is a peculiarly American development—that other advanced societies have much larger concentrations of working class and lower-end service class occupations. We used data from the International Labour Organization (ILO) to build comparable measures of the Creative Class for 13 EU nations1. The Euro-Creative Class Index is based on ILO occupational classifications that cover scientists, engineers, artists, musicians, architects, managers, professionals and others whose jobs deal with creative or conceptual tasks as a share of total employment. We feel it's comparable to the original Creative Class measures used in *The Rise of the Creative Class*. Figure 1 shows the percentage of the workforce employed in creative occupations, while Figure 2 charts the change in employment in these occupations since 1995. So how extensive is the Creative Class across the European nations? The short answer is *very extensive*.

Figure 2: The Euro-Creative Class Index

Creative Occupations as a percent of Total Employment (2000)



Creative occupations as percent of total employment

Source: ILO, LABORSTA Labour Statistics Database, http://laborsta.ilo.org for European countries, US Bureau of Labor Statistics for the United States. Note: All the data referring to European countries are classified according the ISCO-88 standard. Last available year for Ireland, United Kingdom, US: 1999, Belgium: 1998; all other countries refer to year 2000.

The Euro-Talent Index

We combined the Creative Class Index with two other talent measures to build an overall Euro-Talent Index. In addition to the Creative Class Index, the Euro-Talent Index includes two sub measures: the Human Capital Index which is based on the percentage of population age 25-64 with a bachelor degree or above (degrees of at least four years); and the Scientific Talent Index, which is based on the number of research scientists and engineers per thousand workers.

Table 1 shows how the European nations perform on the overall Euro-Talent Index. Figure 4 shows their scores on the Human Capital and Scientific Talent measures.

Table 1: The Euro-Talent Index

Euro-Talent Index		Creative Class	Human Capital*	Scientific Talent
Rank	Score			
1. United States	15.00	15.00	15.00	11.41
2. Finland	13.22	14.27	7.22	15.00
3. Netherlands	12.86	14.73	13.65	7.13
4. Belgium	10.95	14.95	6.65	8.63
5. United Kingdom	10.81	13.33	8.68	7.82
6. Sweden	10.72	10.56	7.11	11.92
7. Ireland	9.48	12.97	5.98	7.23
8. Germany	9.25	9.06	7.89	8.57
9. Spain	8.31	9.72	7.89	5.32
10. Denmark	8.21	10.50	3.05	9.12
11. France	7.93	n.a.	5.92	8.67
12. Greece	7.61	11.01	6.37	3.63
13. Austria	6.81	8.44	3.50	6.86
14. Italy	5.86	6.58	4.91	4.70
15. Portugal	5.37	6.55	3.67	4.62

Note: The numbers in column 2 represent the overall Talent score of each country on a scale from 0 to 15 points. The numbers in columns 3-5 represent the score on the single indicators. Sources: Creative Class Index: ILO, Laborsta, 2002; Human Capital: OECD, Education at a Glance, 2001 (data refer to 1998); Scientific Talent: Towards a European Research Area. Key Figures 2001. Special Edition Indicators for benchmarking of national research policies, European Communities, 2001, Figure 1.1.1, data refer to 2000 for Portugal, 1999 for Belgium, Greece, Ireland, Italy, Finland, Sweden, 1997 for the US, 1998 for all other countries).

The Euro-Technology Index

Theorists of economic growth from Karl Marx and Joseph Schumpeter to Robert Solow and Paul Romer have noted the role of technology as the motor force of economic growth. If anything, technology is even more important today. Nations with strong innovation capacity and strong high-tech industrial sectors enjoy a considerable advantage in generating new commercial products, new wealth and new jobs while sustaining their growth.

The Euro-Technology Index is based on three separate measures: an R&D Index based on research and development expenditures as a percent of Gross Domestic Product, an Innovation Index based on the number of patent applications per million population, and a High-Tech Innovation Index based on the number of high technology patents in fields such as biotechnology, information technology, pharmaceuticals and aerospace per million population. The latter two are based on data from the United States Patent and Trade Office (USPTO).

Table 2: The Euro-Technology Index

Technology Index		Innovation	High Tech Innovation	R&D
Rank	Score			
1. US	15.00	15.00	15.00	10.62
2. Sweden	10.92	9.33	5.25	15.00
3. Finland	9.57	6.14	6.39	13.38
4. Germany	6.97	6.33	2.56	9.97
5. Denmark	5.89	4.48	3.08	8.39
6. Netherlands	5.83	4.43	3.49	7.86
7. Belgium	5.35	4.19	2.28	8.03
8. France	5.34	3.29	2.37	8.80
9. United Kingdom	5.01	3.43	2.56	7.58
10. Austria	4.39	3.67	1.00	7.22
11. Ireland	3.09	2.05	0.68	5.64
12. Italy	2.40	1.52	0.75	4.22
13. Spain	1.55	0.38	0.18	3.65
14. Portugal	1.19	0.05	0.02	3.16
15. Greece	0.83	0.10	0.09	2.07

Note: The numbers in column 2 represent the overall Talent score of each country on a scale from 0 to 15 points. The numbers in columns 3-5 represent the score on the single indicators.
Sources: Innovation Index and R&D Index: USPTO data- as reported by: Eu Commission, DG Research, Towards a European Research Area. Key Figures 2001. Special Edition, Eu Communities, 2001, figures 3.1.3 and 2.1.1; High Tech Innovation Index: USPTO data as reported by: Eu Commission, Commission Staff Working Paper, 2001 Innovation Scoreboard, Brussels, 14.09.2001 SEC(2001)1414

The Euro-Tolerance Index

Tolerance is the third T. It is critical for the ability of a region or nation to attract and mobilize creative talent. *The Rise of the Creative Class* found a strong relationship between openness to gays, bohemians, and immigrants and the ability of regions to innovate, generate high-tech in dustry and secure high-value added economic growth. Annalee Saxenian, of the University of California at Berkeley, found that roughly one-third of all high-tech businesses created in Silicon Valley during the 1990s were founded by new immigrants. Ronald Inglehart, of the University of Michigan, found a powerful connection between tolerance and both economic growth and political democracy in his comprehensive World Values Survey that covers more than two dozen nations over several decades. Inglehart found that openness to gays, immigrants and women was highly correlated with economic growth. The Euro-Tolerance Index is based on larger-scale surveys of popular attitudes and is based on three measures.

Table 3: The Euro-Tolerance Index

Euro-Tolerance Index		Attitudes	Values	Self-Expression
Rank	Score			
1. Sweden	15.00	14.81	15.00	15.00
2. Denmark	12.09	12.47	10.41	13.24
3. Netherlands	11.42	12.66	7.59	13.85
4. Finland	9.49	13.83	7.50	7.03
5. Germany	9.45	10.32	10.59	7.30
6. Austria	7.76	11.10	2.06	10.00
7. United Kingdom*	7.70	11.30	2.44	9.26
8. France	7.38	10.91	4.59	6.55
9. Belgium	7.35	9.35	4.50	8.11
10. Italy	7.17	13.44	1.69	6.28
11. Spain	6.57	15.00	0.84	3.78
12. Greece	5.58	5.65	6.84	4.19
13. Ireland	4.22	12.66	-8.63	8.58
14. USA	3.07	n.a.	-4.97	11.08
15. Portugal	1.99	11.10	-8.34	3.18

Note: The numbers in column 2 represent the overall Talent score of each country on a scale from 0 to 15 points. The numbers in columns 3-5 represent the score on the single indicators. Sources: Eu Monitoring Centre on Racism and Xenophobia, EUMC Information and Communication, Media Release 194-3-E-05/01; Vienna, 2001; Thalhammer et Al., (2001), Attitudes towards minority groups in the European Union SORA, Vienna; Ronald Inglehart, World Values Survey (http://wvs.isr.umich.edu).

The Euro-Creativity Index

We developed a new composite measure, the Euro-Creativity Index, or ECI, to provide a fuller assessment of national competitiveness in the Creative Age. The ECI is a composite based on the Euro-Talent, Technology and Tolerance Indexes discussed above. The ECI compares well to other leading competitiveness indicators, but we believe it is a considerable improvement over them. The conventional measures emphasize technology and in some cases include some indicators of talent. None include any measures of tolerance that is a clear source of competitive advantage. The ECI measures beyond them all by factoring all three Ts into account. Table 4 ranks the European nations on the ECI.

Table 4: The Euro-Creativity Index

		TALENT INDEX			TECHNOLOGY INDEX			TOLERANCE INDEX		
Euro-Creativity Index		Creative Class Index	Human Capital Index	Scientific Talent Index	Innov. Index	High Tech Innov. Index	R&D Index	Attitudes Index	Values Index	Self-Express Index
Rank	Score									
1. Sweden	0.81	8	7	2	2	3	1	2	1	1
2. USA	0.73	1	1	3	1	1	3	n.a.	13	4
3. Finland	0.72	4	6	1	4	2	2	3	5	10
4. Netherlands	0.67	3	2	10	6	4	8	5	4	2
5. Denmark	0.58	9	15	4	5	5	6	7	3	3
6. Germany	0.57	11	4	7	3	6	4	12	2	9
7. Belgium	0.53	2	8	6	7	9	7	13	8	8
8. UK*	0.52	5	3	8	9	6	9	8	9	6
9. France	0.46	n.a.	11	5	10	8	5	11	7	11
10. Austria	0.42	12	14	11	8	10	10	9	10	5
11. Ireland	0.37	6	10	9	11	12	11	5	15	7
11. Spain	0.37	10	4	12	13	13	13	1	12	14
13. Italy	0.34	13	12	13	12	11	12	4	11	12
14. Greece	0.31	7	9	15	14	14	15	14	6	13
15. Portugal	0.19	14	13	14	15	15	14	9	14	15

Note: The numbers in column 3-11 indicate the relative position of the specific country with respect to the dimension reported in the column header (i.e. number 1 on the Human Capital column indicates that the country ranks first on human capital dimension). In bold, tied results.
** The scores on the Values Index and Self Expression Index refer to Britain (excluding Northern Ireland), for all other indexes scores refer to United Kingdom (Britain and Northern Ireland)*

Conclusion

This report has extended and adapted the concepts and indicators introduced in *The Rise of the Creative Class* to the European context. It developed new indicators for the Creative Class and the 3Ts of economic development —Technology, Talent and Tolerance -for 14 European and Scandinavian countries and compared them to the United States. It also introduced a new overall measure of comparative creative performance, the Euro-Creativity Index, along with two additional measures designed to capture the short-run trends in creative capacity, the Euro-Creative Trend Index and the Euro-Cre-ativity Matrix. These measures differ in several important aspects from the indexes originally used in *The Rise of the Creative Class*. The European data is limited at this point to the national level. The Euro-Technology Index only covers innovation capacity and lacks a measure of high-tech industry concentration. The Euro-Tol-erance Index is based on attitudes and values, as opposed to the revealed locational concentrations of groups such as gays, immigrants and minorities. That said, we feel the results are compelling, useful and interesting.

The Creative Class makes up more than 25 percent of the work force in seven of 14 European nations, and comprises nearly 30 percent of the workforce in three—the Netherlands, Belgium and Finland. Creative Class workers outnumber blue-collar workers in six of the European countries analyzed. The Creative Class is growing at a fairly rapid pace in a majority of the European nations. Ireland outpaces all nations in Creative Class growth, with a 7 percent annual growth rate since 1995. Not all nations, however, appear to have made the shift to a creative economy and a creative occupational structure. Italy and Portugal, for example, have less than 15 percent of the workforce in the Creative Class.

Our analysis suggests that the competitive epicenter of Europe is shifting from the traditional powers, like France, Germany, and the UK, to a cluster of Scandinavian and northern European countries. Sweden is the top performer on the Euro-Creativity Index, outperforming not only all of the other European countries but the United States as well. Finland and the Netherlands also do exceptionally well, with competitiveness levels comparable to the United States. Finland in particular appears to be well-positioned to compete in the Creative Age with a high level of overall creative competitiveness and rapid growth in its creative capabilities. The Netherlands, Denmark and Belgium also appear to have considerable assets with which to compete in the Creative Age. Ireland stands out as an up-and-coming nation, with significant growth in its Creative Class and underlying creative capabilities since 1995. A number of nations are performing far below the norm. Italy is the classic case, although Spain, Portugal, Austria and Greece also appear to be in a difficult position. Unless they're able to dramatically improve their position, these countries will find it hard to compete in the Creative Age.

Our analysis further suggests that competitiveness in the Creative Age remains an open game. It would be a mistake to conclude, as some have done, that the United States is and will remain the

unquestioned epicenter of the creative economy. In our view, the key determinant of global competitiveness no longer turns simply on trade in goods and services or flows of investment and capital, but rather in flows of people. The winners and losers in the global creative economy will be those nations that are best able to attract, retain, and develop creative talent and harness their creative assets and capabilities.

The United States remains the clear the global leader in technology development and continues to benefit from its long-standing ability to attract top scientific, artistic and entrepreneurial talent from around the world. Our findings indicate that a number of European nations, particularly Finland, Sweden, Denmark, the Netherlands and Belgium, are evolving distinctive assets with which to compete effectively in the creative age. All have considerable advanced technological capabilities and have made ongoing investments in developing their creative talent. They are actively working to attract foreign-born talent as well.. The United Kingdom seems to be rapidly increasing its efforts and ability to attract global creative talent. All these countries share values, beliefs and attitudes that are closely associated with global talent attraction and, in the cases of Sweden, the Netherlands and the United Kingdom, have instituted more open immigration polices that have resulted in significant concentrations of foreign-born populations. However, almost all of the European nations suffer from assimilation challenges necessary to facilitate rapid upward mobility of their immigrant populations, as has occurred in the United States and Canada. But the fact that English is widely employed as a second language in these countries creates an additional advantage for them in the global talent marketplace. And all of the EU members will benefit from the freer flow of people across their borders.

Global talent attraction is a dynamic, sensitive and little-documented process. Traditional economic leaders can lose their position in the nascent creative economy as vibrant, new creative centers quickly emerge. We stand at an intriguing inflection point. The United States, which has for years enjoyed an undisputed eminence in attracting the best and brightest from Europe, Asia, Africa, India and all countries of the world, seems poised to surrender its lead. Our studies indicate that the United States' advantage seems to be shifting, in part due to the liberalized immigration polices of many European countries, Canada and Australia, which allows those countries to effectively attract and retain global talent.

But it also lies in the growing perception around the world that the United States acts in a unilaterally aggressive manner and is unwelcoming of foreign-born people; that its direct polices restricting the flow of individuals and scientific information has unintentionally chilled the climate for all creative talent.

Our analysis is very much a first step and remains quite provisional. Much more needs to be done to improve our indicators of technology, talent and especially tolerance where better measures of actual concentrations of gays, immigrants and minorities are badly needed. The sample of countries also needs to be extended to include Canada, Asian nations, Australia and New Zealand and still more countries from around the world. And we desperately need more and better measures that reach below the national level and cover cities and regions around the globe. It would be extremely interesting and useful to be able to see how London, Amsterdam, Berlin, Dublin and Rome, for example, compare to New York, Chicago, Toronto, Tokyo, Singapore and Sydney on the key dimensions of creative performance. Lastly, it is important to note that countries are just beginning to develop the most rudimentary strategies to actually attract and retain talent, bolster their underlying creative capabilities and develop their people climates. Much more research is needed on the nature, extent and efficacy of these emerging efforts.