

Futures of Borders

A Forward Study of European Border Checks

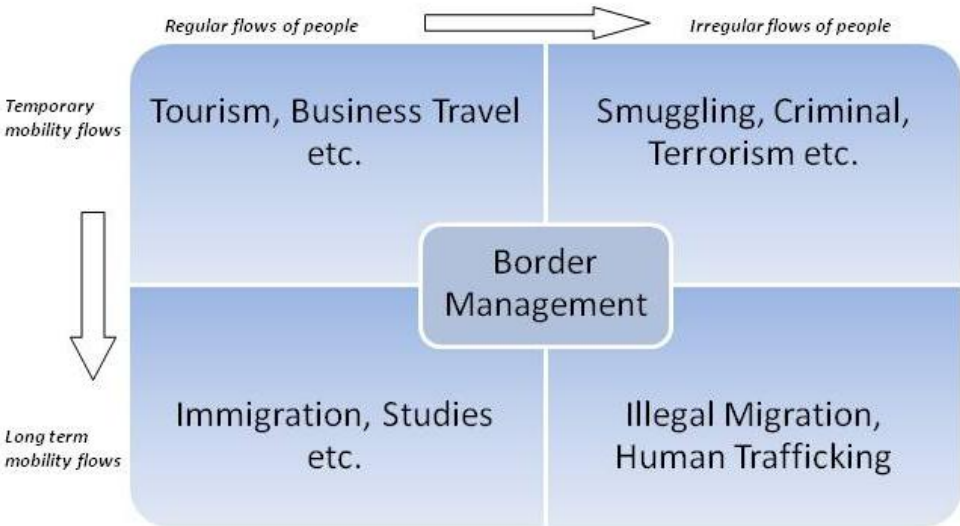
December 2011

Executive Summary

This 'Forward Study of European Border Checks' was commissioned by the Frontex Research and Development Unit. It focuses on the futures and foresight tools relevant to European border control.¹

The study rests on the assumption that knowing the **numbers** of people and their **purpose** in crossing borders is essential to planning future border controls. However, the knowledge relating to flows of people across borders is touched on by various disciplines and is very complex. To help simplify the relevant concepts and domains of knowledge cross-border flows were portrayed in an idealised model, which acts as a framework for aligning types of flow into four quadrants along two dimensions: *time* (temporary to long-term) and *type* (regular flows of people to irregular).

Aligning idea

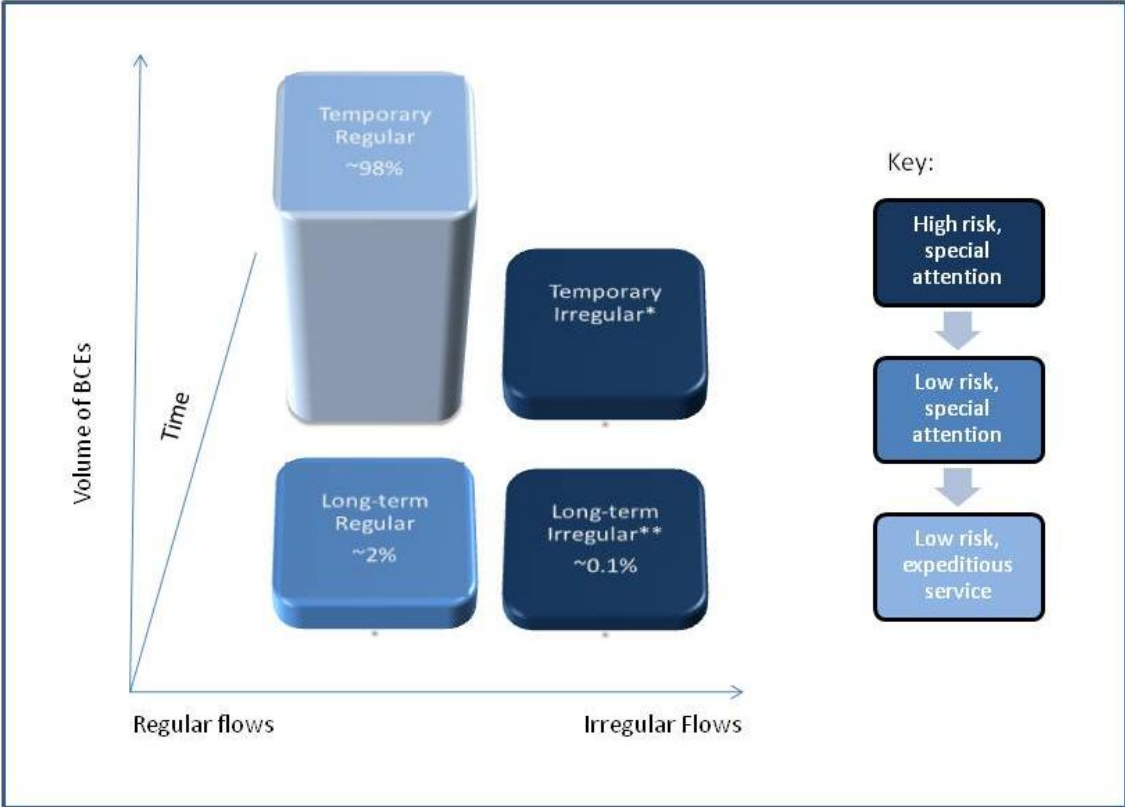


Overview

The study is divided into two parts: the first, Work Package 1 (WP1), identifies and assesses areas of expertise relevant to border control, in which nearer-term estimates of passenger flows are already being made. The second part, Work Package 2 (WP2), develops longer-term futures scenarios on the basis of identified areas of knowledge, in order to highlight trends that may impact on EU border security.

¹ The study was conducted by Liron Systems Ltd., with input from the University of Southampton, UK (migration), and the Ben Gurion University, Israel (tourism). The research was funded by Frontex, within Lot 2 of Tender/64/2010. The authors are grateful to Frontex for their comments and feedback that helped improve the earlier drafts. The authors are also grateful for input, peer review and comments by academics and border guard practitioners. The study elements relating to temporary mobility (tourism, business travel) were conducted under the guidance, support and review of Prof. Yaniv Poria of Ben Gurion University. We also thank Prof. Michael Leitner of California State University who contributed support and review for these areas. The findings, interpretations and conclusions expressed in this study are those of its authors alone and should not be attributed in any manner to the institutions with which they are otherwise affiliated. All errors and omissions are exclusively ours. **Dr. Gil Ad Ariely, Richard Warnes, Dr. Jakub Bijak and Ruth Landesman.**

WP1 determined that the division of the current total flow of some 400 million crossings of the external EU borders annually is roughly as shown by the following aggregates.



Given the complexity and numbers of factors with potentially large impacts on flows of people across the EU external borders, WP1 demonstrates that even the large regular flows composed mainly of EU citizens cannot be predicted with any great accuracy with current tools and data. Illegal or irregular flows are even more difficult to estimate let alone predict, given the current state of knowledge and practices in collecting statistics.

Short term forecasts

<p>Temporary Regular (business travel, tourism etc.)</p> <p>Based on aggregating current estimates from several sources, predicted flows are expected to increase by between 2-4% per year in the near to medium-term.</p>	<p>Temporary Irregular (cross border crime)</p> <p>Flows cannot be estimated or predicted with any accuracy.</p>
<p>Long-term Regular (asylum, regular immigration and emigration)</p> <p>Stable or gradually diminishing in the near- to medium-term with the net inflow eventually settling under 1 million persons per year.</p>	<p>Long-term Irregular (irregular migration)</p> <p>The difficulties in estimating real numbers of current flows make prediction of future flows nearly impossible. That said, current trends (particularly in North Africa) suggest that long-term irregular mobility is likely to increase in the short- to medium-term.</p>

While some numerical estimates based on current trends can be made in regard to regular flows, intervening factors and 'wild cards' (seemingly improbable events with large impacts) can quickly change such estimates and render them meaningless. This was clearly demonstrated during the course of work on the study itself, when first the volcanic eruption in Iceland and then the 'Arab Spring' uprisings had major effects on the numbers of regular and irregular crossings of the external borders of the EU. Predictions of trends, therefore, should always be read with caution and taken as rough indications of future developments *only if all other factors remain equal*. This lack of accuracy has clear implications for planning border controls in the future: planning cannot be based on specific predictions of trends or 'likely' developments. With current knowledge, the future will always be unpredictable. Planners therefore need to aim at resilience; being able to respond to any imaginable threat and basing future resource allocation on an analysis of risk that is understood as a product of threat, vulnerability and impact.

The conclusions of WP 1 indicate clearly that, longer-term, planning for border control cannot rely on predictions of future developments. Thus, guided by the aligning idea, a 'Survey of the Borders Universe' was conducted, aimed at identifying trends and drivers of greatest relevance for future border management in the EU (for example, technological developments, tourism and business travel, the global economy, etc.) in order to identify which areas have the greatest relevance in determining future flows across EU external borders.

The existing research in various domains was reviewed, including emerging trends and their interrelationships with the processes under study. The latter were then prioritised into three tiers: (1) overall volume of flows or numbers of border crossing events (BCEs), (2) flows by types, and (3) flows by subtypes.²

In WP2, four futures scenario types were developed on the basis of these trends and drivers (probable, alternative, plausible-preferred and wild-card).

Probable futures:

The definition of probable futures is a direct or probable continuation of existing trends. They act as a more predictable narrative of a future that is founded on identified 'megatrends' which are already emerging in the present.

Alternative futures:

Alternative futures are sometimes also defined as 'possible futures', as they are feasible within the framework of existing data, trends and emerging patterns, although they may not be the most common extrapolated outcome. While not fully predictive, alternative futures help identify critical uncertainties that have substantive (yet unquantifiable) probability.

Plausible-preferred futures:

Plausible-preferred futures are a fusion of desires, hopes and aspirations for a better world. While such scenarios may sometimes seem utopian and at times unrealistic, they act as an invaluable policy tool, marking a vision of goals to aspire and plan for while underlining the difficulty of reaching them. However, it must be emphasised that a plausible-preferred future may also well be the probable one (or, conversely, may overlap with an unexpected 'wild-card' - although in this case a positive one).

² A detailed taxonomy emerging from the methodology used is attached to the full study.

Wild-Cards

In defining 'Wild-Card' scenarios, the main characteristic is the unpredictability of events that have a low probability but potentially enormous impact. It is important to be aware of possible 'Wild-Card' scenarios as early as possible in order to prepare strategically for the unlikely, yet potentially acute, repercussions which would otherwise be ignored due to their very small probability.

The four types of scenario listed above were developed in detail in terms of the most relevant trends and drivers identified before via the 'Survey of the Borders Universe', which included:

- Economics
- Geopolitics and external relations
- Ideology and religion
- Demography and ethnicity
- Social networks and trends
- Service quality, privacy and ethics
- Environmental concerns
- Technology and socio-technical factors
- EU Policy and national policy frameworks

For the purposes of illustration, short stories were also provided which aim to describe one possible incident or event that might take place in the reality described by a particular scenario.

General conclusions

- **Quantitative vs. qualitative estimates.** Even near term quantitative estimates of future flows cannot be considered precise. They can only be considered reliable predictions of future flows in as far as all other trends remain stable (which is unlikely, especially in the longer horizon). One needs only to think of the effect of Icelandic volcanoes or fuel prices on air travel to see that trend estimates can quickly and unpredictably change the validity of such estimates.
- **The value of scenarios.** In the longer term, quantitative estimates or extrapolations from current trends are even less likely to be accurate depictions of reality. The use of scenarios becomes apposite. Scenarios make no prediction about how things will develop, but show the extent of how things might turn out and thus are useful for planning strategies – forcing the explicit statement and revision of assumptions.
- **Futures thinking and planning.** Attempting to make future estimates, both near- and long-term is a useful exercise, in that it inculcates futures thinking among decision makers and planners. However, to be useful it must be a continuous process, not a one-off exercise. Current events change future expectations all the time. During the early stages of this study – in late 2010 – several scenarios were considered including the 'Wild Card' that major civil unrest and conflict in the Middle East would result in a significant influx of migrants from these countries. As the 'Arab Spring' developed it became apparent that this 'Wild Card' was actually becoming reality and instead became the point of departure for the probable scenario of 2012.
- **Data.** Currently, there is no dedicated data gathering mechanism covering all types of flows other than for long-term migration, particularly across the EU external border and even then the data may differ with respect to definitions used. Statistics on flows in other quadrants need to be collated from datasets gathered for other purposes and at various levels of precision.

- **'Known unknowns'**. The study makes clear the paucity of information available on illegal or irregular flows. However, there are things that can and should be done in order to improve our knowledge in these areas such as testing the vulnerability of border controls and assessing the size of real irregular flows (and not simply detected flows).
- **Education**. The study strongly recommends the education of border guards with strategic-level responsibilities in futures thinking. A European-level approach is essential in order to account for differences in definitions, methodologies, protocols and responses etc.
- **Technology**. The proliferation of technological systems in border management is driven by increasing flows of passengers and enhanced security requirements, often in reaction to changes in the *modus operandi* of criminals or terrorists. Critically, the scenarios demonstrate that an over-reliance on technology may itself be dangerous in the face of increasingly sophisticated and organised international criminal organisations. Furthermore, security investments may become potentially uneconomic if travelling is thereby reduced or indeed collapses
- **Link to Risk Analysis**. Risk analysis and foresighting are closely related. Risk analysis cannot be done on the basis of the current reality alone. Some futures thinking must be utilised to inform risk predictions and resource allocation. The two processes should go hand in hand.

Finally, we suggest that policy makers and border guard practitioners alike take an active approach towards the future. What may transform one future scenario into another are often relatively small acts performed by people at intervention points as early as possible. This is true for everything from strategic, long term policy decisions to tactical behaviour at border crossings. In the words of Peter Drucker, the late management guru:

"The best way to predict the future – is to create it"

Liron Systems Ltd.

Frontex Tender/64/2010 Study for RDU. Lot 2

December 2011

(V 24)

EU/Frontex

Futures of Borders

A FORWARD STUDY OF EUROPEAN BORDER CHECKS

Acknowledgements

This study was conducted by Liron Systems Ltd., with input from the University of Southampton, UK (migration), and University of Ben Gurion, Israel (tourism). The research was funded by Frontex, within Lot 2 of Tender/64/2010.

The authors are grateful to Frontex for comments and feedback that helped improve the earlier drafts. The authors are also grateful for the input, peer review and comments by academics and border guard practitioners.

The study elements relating to temporary mobility (tourism, business travel) were conducted under the guidance, support and review of Prof. Yaniv Poria of Ben Gurion University. We also thank Prof. Michael Leitner of California State University who contributed support and review for these areas. We are grateful for their contributions.

The findings, interpretations and conclusions expressed in this study are those of its authors alone and should not be attributed in any manner to the institutions with which they are otherwise affiliated. All errors and omissions are exclusively ours.

Dr. Gil Ad Ariely, Richard Warnes, Dr. Jakub Bijak and Ruth Landesman.

www.liron.net

Table of Contents

1.	Introduction	3
1.1.	Aligning Idea	4
1.2.	Methodology	6
WORK PACKAGE 1		9
NEAR-TERM ESTIMATES		9
2.	Temporary Regular Mobility	11
2.1	Recent Trends and Patterns	11
2.2	Forecasts.....	14
2.3	Conclusion	22
3.	Long-term Legal Migration	24
3.1	Background.....	24
3.2	Recent Migration Trends and Patterns	26
3.3	Migration Forecasts.....	27
3.4	Conclusion	29
4.	Temporary Irregular Mobility	30
4.1	Background.....	30
4.2	Overview of Numbers and Factors behind Temporary Irregular Mobility.....	33
4.3	Conclusion	41
5.	Long-Term Irregular Mobility	44
5.1	Overview of Numbers and Factors behind Long-Term Irregular Mobility	44
5.2	EU Border Security in Relation to Long-Term Irregular Mobility	50
5.3	Conclusion	50
6.	Overall Summary of WP1 - Estimates of the Futures	55
WORK PACKAGE 2 SCENARIOS		56
7.	Scenarios in Futures Studies	57
7.1	Introduction.....	57
7.2	Global Scenarios - Foresight Futures.....	58
7.3	Methodology of Transforming Trends and Drivers into Scenarios	61
7.4	Technological and Societal Trends Impacting Scenarios.....	62
8.	Scenarios	65
8.1	‘More of the Same’ (Probable).....	65
8.2	‘Back to the Future: A Perfect Storm’ (Alternative)	70
8.3	‘Borders Eurotopia’ (Plausible- Preferred)	75
8.4	‘Here be Dragons’ (Wildcard)	81
9.	Scenarios Overview	88
9.1	Scenarios and the ‘Aligning Idea’ (Compact Table).....	88
10.	Overall Summary of WP2	91
11.	Conclusions and Recommendations	93
Bibliographies		96
Bibliography – Introduction.....		96
Bibliography – Temporary Mobility.....		96
Bibliography – Long-term Legal Migration		99
Bibliography – Temporary Irregular Mobility.....		101
Bibliography – Long-term Irregular Mobility.....		104
Bibliography – Futures Foresight.....		105
Bibliography – Appendices		112

1. Introduction

The recent turmoil in global events has again highlighted the significance of futures studies for both governments and policy makers. Futures studies as a field has matured in recent decades to include an array of methodologies that give conceptual and practical tools to decision-makers in creating long term policy. Not all of these methodologies aim at foresight and certainly none can pretend to foretell exact futures without acknowledging possible effects of the unexpected ('wild-cards'). Futures studies should be thought of as tools which aid thinking about possible futures, in order to recognise trends while acknowledging the likelihood of (even radical) change. Given that events change the outlook for the future all the time it should also be understood that such studies act mainly as a dynamic point of reference for policy planners and decision makers and need to be revisited and adapted over time in light of the emergence of new data.

The present 'Forward Study of European Border Checks' is focused on the futures and foresight tools that may be relevant for European border control. It is divided into two parts. Work package 1 (WP1) identifies nearer-term areas of relevance to border control in which futures research is already being done and assesses its usefulness – particularly in regard to predicting traveller numbers and types in the coming years. The second work package (WP2) develops longer-term futures scenarios on the basis of these results, specifically for the purpose of highlighting likely or high-impact trends or events that may have significant impact on the task of border control.

Estimates on future flows do already exist within dedicated areas such as those looking from the perspectives of tourism, air and other traffic, migration, policing, business and so on. However, the fact that such forecasts come from different disciplines means that they are often based on methods specific to their subject areas, having varying levels of accuracy and use different definitions. The present study investigates which of these are relevant to border control and in what ways.

The research also builds on existing global studies, which act as 'building blocks' for the continuum surveyed here within the unique context of the EU and its external borders. Various examples of global research into longer term futures *tout court* already exist, such as the British Ministry of Defence DCDC 'Global Strategic Trends – Out to 2040'¹ or the US Joint Forces Command 'Joint Operating Environment: JOE 2010'² (see bibliography for additional global studies surveyed). These and similar studies help to identify a number of overarching global trends which will impact on border security longer term. These trends include globalisation, international complexity and rapid technological changes, shifts in availability of resources such as food, water and energy, climate change and natural disasters, disease and pandemics and lack of governance, violent instability, wars and the emergence of uncontrolled areas. The present study takes such information as background, while

¹ United Kingdom Ministry of Defence, Strategic trends Programme, *Global Strategic Trends – Out to 2040*, (Development, Concepts and Doctrine Centre DCDC February 2010)

² United States Joint Forces Command, *Joint Operating Environment: JOE 2010*, (USJFCOM February 2010).

exploring in greater detail the trends and drivers that will likely specifically influence the futures of EU border management and the work of border guards.³

Identifying emerging trends and extrapolating them into the future does not suffice on its own, but, rather, has to be complemented by other methods aimed at identifying alternative futures and future scenarios. Plausible limits of the horizon length in the case of migration forecasts, for example, should not exceed five years, maximally ten, because of the instability of the processes and their susceptibility to various unpredictable factors.⁴ Beyond that, decision-making will inevitably have to be based on the scenarios of alternative futures, which have been constructed in WP 2 of the current project, based on information from WP 1.

It should also be emphasised that while shorter-term predictions of trends are often quantitative in nature and thus give the impression of greater accuracy, as recent events have shown, such 'baseline' trends (viz. trends that are expected to continue if all other factors remain the same) are rarely perfectly accurate: foresight must always take account of the possibility (in fact probability) of unexpected events and developments which may have even radical effects on the operating environment. Having some idea of what is possible as well as probable is therefore essential hence the need for a combination of scenario planning with trend extrapolation in future studies if they are to be useful to planners and decision-makers.

1.1. Aligning Idea

The differing domains of knowledge and disciplines relating to flows of people and goods - both regular and irregular, temporary mobility to long term is complex. This study rests on the assumption that knowing the **numbers and types** of people and their purpose in crossing borders is essential to the planning of future border controls. In essence we wish to know about future cross-border flows of people and the number of Border Crossing Events (BCEs), i.e. events that involve interactions with border guards that they generate.

The relevant concepts, domains of knowledge and models are portrayed in the 'aligning idea' in Figure 1 below. This model acts as a framework, aligning the different types of flows (and the many disciplines, trends and drivers affecting them) into four quadrants. The

³ While this study focuses on border security and population movements in the EU, for additional information on other parts of the world, see for example:

An in-depth study on US borders: Chad C Haddal, "People Crossing Borders: An Analysis of U.S. Border Protection Policies" (Congressional Research Service, May 13, 2010). Available from: <http://www.fas.org/sgp/crs/homsec/R41237.pdf>

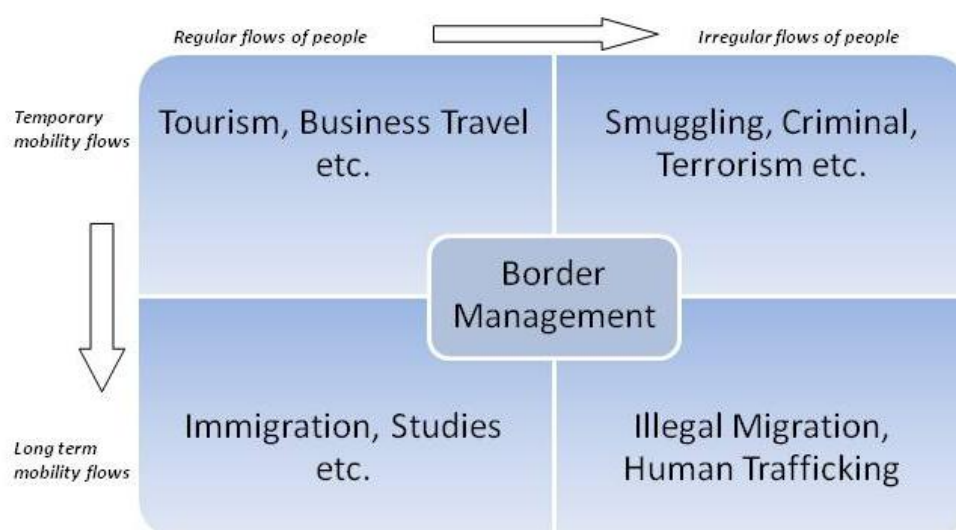
An in-depth study of Chinese borders: Carla Freeman and Drew Thompson, "China on the Edge - China's Border Provinces and Chinese Security Policy" (The Center for the National Interest and Johns Hopkins SAIS, April 2011). Available from: http://www.cftni.org/China_on_the_Edge_April_2011.pdf

⁴ J Bijak and A Wiśniowski, "Bayesian forecasting of immigration to selected European countries by using expert knowledge", *Journal of the Royal Statistical Society, Series A*, 173 (4) (2010): 775-96.

phenomena are aligned along two dimensions: *time* (from temporary to long term mobility) and *type* (from regular flows of people - to illegal ones).

Most flows of people are regular flows, either generating temporary mobility, shorter or longer term, or more permanent mobility, such as immigration or extended study. The vast majority of crossings of EU borders are also made by EU citizens rather than Third-Country Nationals (TCNs). Despite the lower numbers involved, however, other types of flow – especially illegal or irregular – require proportionally much greater focus on the part of border guards. Preventing illegal flows involving mobility that is temporary (for instance smuggling or activities related to crime or to terrorism movements) or more long-term (in the form of illegal migration) - is generally thought of as one main task, if not *the* one, of border control.

Figure 1. The ‘aligning idea’ for flows of people in the EU



This ‘aligning idea’ model connects a contemporary understanding of flows (for example, without differentiating between temporary regular flows as business or tourism-related) in a single quadrant relevant to different approaches at borders. This is not only practical in regard to border guards and border management but is also pragmatic in the light of emerging research (continuing the example whereby purposes of short term travel converge).

While data sources and existing research were reviewed extensively, gaps in the data and inaccuracy arise from the nature of the subject matter. This is especially evident regarding irregular border crossings (be they long-term illegal migration, or short-term smuggling) where the nature of the phenomena is clandestine (and we are thus aware only of what we detect). This data deficiency and detailed review of the limitations of methods of estimation is discussed in-depth in the Clandestino report on methodological issues⁵. It highlights

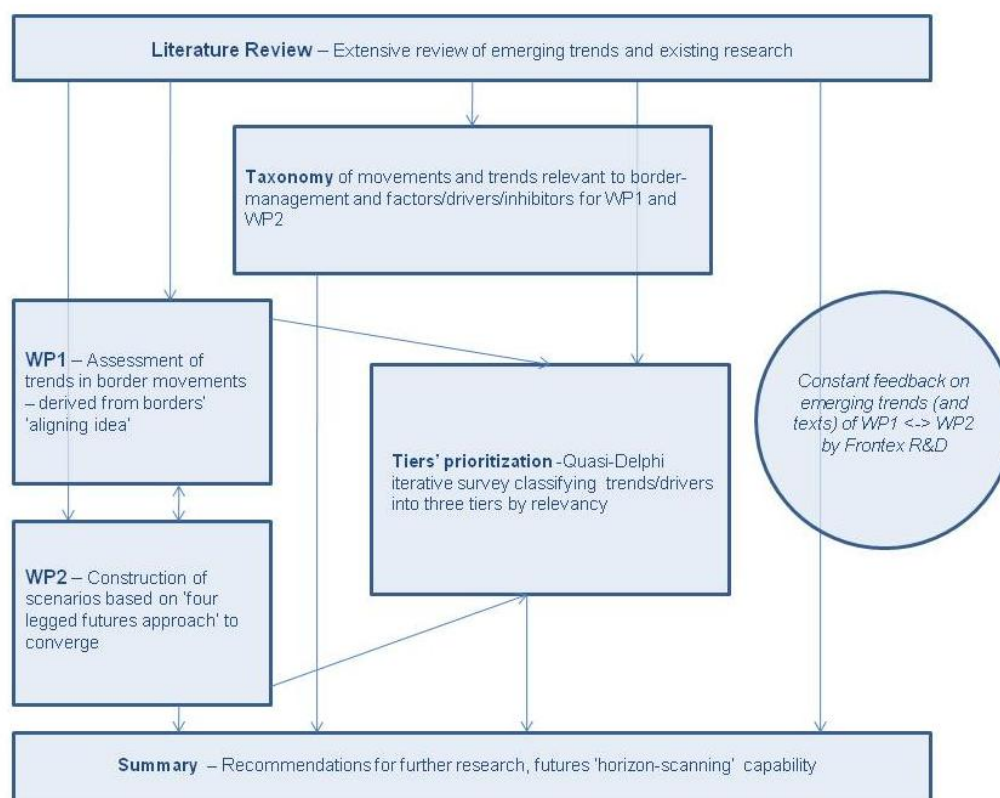
⁵ M. Jandl, D. Vogel and K. Iglicka. “Report on Methodological Issues” (Clandestino, October 2008)

problems with quantitative data (an area for future research) and points to methods for evaluating hidden populations (directly or via indirect measures, indicators and methods).

1.2. Methodology

Guided by the aligning idea (as defined above), a ‘Survey of the Borders Universe’ was carried out. This aimed to establish which trends and drivers were of greatest relevance for the future of border management in the EU. Then the existing literature and research conducted within relevant domains of knowledge were reviewed.

Figure 2. Schematic Presentation of Methodology



A more detailed discussion of the methodology and futures methods as they were used in this study (in particular as used to connect the findings from WP1), is found in WP2 Section7).

This ‘Survey of the Universe’ included extensive review of trends emerging from the literature in the different domains (using Grounded Theory⁶ methods) and explored their interrelationships. The trends and drivers identified as being possibly relevant were then

⁶⁶ Grounded Theory (GT) is a methodology aimed at identifying emerging patterns, models and theory from empiric data, based on codes and categories identified in text (data). It was an integral part of the approach taken in creating the taxonomy. See: B G Glaser and A L Strauss, *The discovery of grounded theory : strategies for qualitative research*. (Hawthorne, N.Y.: Aldine de Gruyter, 1967). K Locke, *Grounded Theory* (London ; Thousand Oaks, Calif.: Sage, 2001). C Goulding, *Grounded theory : a practical guide for management, business and market researchers*. (London ; Thousand Oaks, Calif.,: SAGE, 2002).

prioritised as per the table below into 3 Tiers. The prioritisation in the tier system rated the importance and impact of each trend and/or driver on:

- a. Border guards' work (what takes their time and focus) as follows:
 - Tier 1: overall volume of flow / number of border crossing events
 - Tier 2: flow by types (broad classification)
 - Tier 3: flow by subtypes (detailed classification)
- b. The likely relative importance of the trend or driver and the direction it will take - -(a 'futures study' priority)
- c. Something that may have less impact on border guards or in terms of future trends but that could be of crucial influence elsewhere (the 'expert's priority')

Picture 1: A Visualisation of the Tiers emerging from the Taxonomy⁷

Trends	Subtype	Sub-subtype	Drivers											
			Economic	Demographic	Geographic	Social networks	Political and Military	Challenges	Service quality	Religious	Environmental	Technology		
Temporary mobility			Willingness to Pay		Volume									
Tourism														
	(tourist)													
	Relaxation, eating and drinking		2	1						3	2			
	Shopping		2	1						2	2			2
	Sports as spectator		2	3						2	1			
	Sports (active non-professional), physical exercise		2		3					1	2			
	Education, meeting (non-professional)		2		3					3	1			
	Culture and entertainment as spectator		2		2					3	2			
	Visiting friends and relatives		3		2					2	2			
	Health treatment (voluntary reasons)		1		3					1	1			
	Religion and pilgrimage (non-professional)		2		3					3	2			
	Sex		3		3					1	3			
	Sustainable		1		3					3	1			
	Excursionist		1		2					2	1			
	Business travel		1		1					2	1			
Migration Types			State of the economy	Age	Distance	Time / cost	Networks	Policy	Theory					
	Students		3	1	2	2	2	3						
	Trainees		2	1	3	2	2	3						
	Workers													
	Seasonal		2	2	2	2	2	3						
	Contract		1	2	2	2	2	3						
	Project-tied		2	2	2	2	3	3						
	Temporary		1	2	1	1	3	3						
	Civil servants / Employees of international organisations		3	3	3	3	3	3						
	Free establishment		2	3	3	3	3	3						
	Settlers													
	Employment-based		1	2	3	2	2	3						
	Family-based		2	2	3	3	1	3						
	Ancestry-based		2	3	3	3	1	3						
	Entrepreneurs and investors		1	3	3	2	3	3						
	Foreign retirees		3	1	3	1	1	3						
	Family formation or reunification		3		3	3	3	3						
	Humanitarian													
	Refugees		3	3	2	3	2	1						
	Asylum Seekers		3	3	2	2	2	1						
	Temporary protected status		3	3	2	3	2	1						
	Special Categories													
	Female		2	3	2	2	2	3						
	Skilled		1	2	2	2	3	3						
	Professional		1	2	2	2	3	3						
	Shuttle		1	3	1	1	2	3						
	Climate - Heliotropic		3	3	2	3	2	3						
	Climate - Refugee		3	3	2	3	3	2						
	Children - Unaccompanied		3	1	3	3	1	3						
Temporary Irregular Mobility														
	Smuggling													
	Drugs													
	Heroin		1	3	1	2	2	3			3	1		
	Cocaine		1	3	1	2	3	3			3	1		
	Amphetamines		1	3	2	2	3	3			3	2		
	Cannabis		2	3	2	2	3	3			3	2		
	Fuel		2	3	2	2	3	3			3	2		
	Diamond & precious stones		2	3	3	3	3	3			3	1		
	Counterfeit goods		2	3	3	3	3	3			3	1		
	SALW and Explosives													
	1. Small Arms & Light Weaponry		2	3	2	3	2	3			3	2		
	2. Explosives		2	3	2	3	2	3			3	2		
	CBRN materials and weaponry													
	1. Nuclear & Radiological		1		1	2	2	3			3	1		
	2. Chemical & Biological		1		3	2	2	3			3	1		
	<i>See Long-term Irregular Mobility</i>													
	Human Trafficking		1	1	2	2	2	3			3	3		
	Organised Networks		1	2	1	1	1	3			3	3		
	Criminality													
	Terrorism													
	Religious													
	Violent Islamism		1	2	3	2	2	3			1	3		
	Christian Extremism		2	2	3	2	2	3			1	3		
	Jewish Extremism		2	2	3	2	2	3			1	3		
	Sikh Extremism		2	2	3	2	2	3			1	3		
	New Religious Movements		2	2	3	2	2	3			1	3		
	Nationalist-Separatist													
	Provisional IRA		2	1	1	2	2	3			2	3		
	Dissident Republicans		2	1	1	2	2	3			2	3		
	ETA		2	1	1	2	2	3			2	3		
	Corsican & Bretons		2	1	1	2	2	3			2	3		
	PLQ & Palestinian		2	1	1	2	2	3			2	3		
	Nationalists		2	1	1	2	2	3			2	3		
	LTTE		2	1	1	2	2	3			2	3		
	PKK		2	1	1	2	2	3			2	3		
	Extreme Right-Wing													
	Revolutionary terrorism		1	1	3	2	1	3			2	3		
	Reactive terrorism		3	1	3	2	1	3			2	3		
	Vigilante terrorism		3	1	3	2	1	3			2	3		
	Racist terrorism		3	1	3	2	1	3			2	3		
	Milleanarian terrorism		3	1	3	2	1	3			2	3		
	Youth Counter-culture		3	1	3	2	1	3			2	3		
	Extreme Left-Wing*													
	GRAPO		2	3	3	2	2	3			3	3		
	DHKP/C		1	3	3	2	1	3			3	3		
	Revolutionary Struggle (Greece)		1	3	3	2	1	3			3	3		
	Single-issue													
	Animal Rights		1	3	3	2	1	3			3	3		2
	Ecological		1	3	3	2	1	3			3	3		
	Anarchist		1	3	3	2	1	3			3	3		
	Aviation		1	3	3	2	1	3			3	3		
	Maritime		1	3	3	2	1	3			3	3		
	Financing		1	3	3	2	1	3			3	3		
Long-term Irregular Mobility														
	Illegal Migration		2	2	2	2	2	2			?	?	?	?
	Human Trafficking		2	2	2	2	2	2			?	?	?	?
Socio-Technical Dimensions														
	Technological systems proliferation in border checks		Socio-Technical Dimensions and interactions and their effects on border-guards											
			Impact of technology loss and contingencies to technology											

⁷ To be found in Appendix II

WORK PACKAGE 1

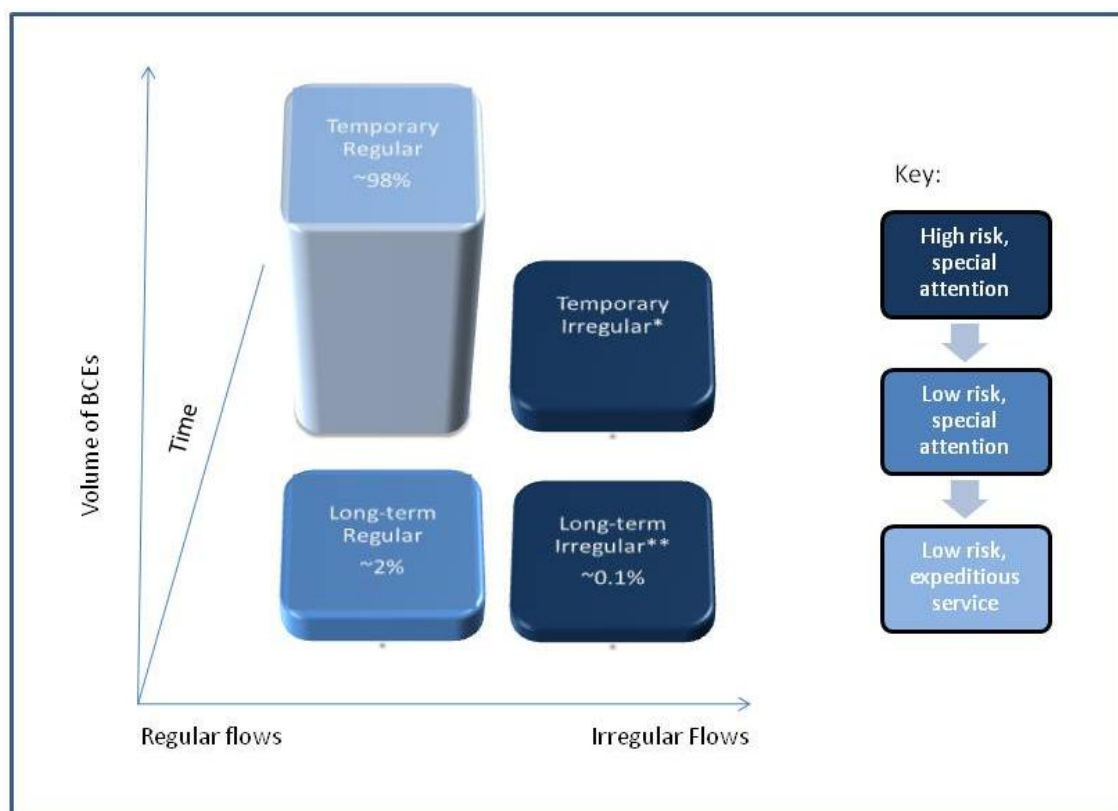
NEAR-TERM ESTIMATES

Introduction to Near Term Estimates

In this part of the report, we survey the existing literature from various disciplines on current and future flows through EU external borders for each of the quadrants defined in Figure 1. Data analysis is done for accuracy, meaningfulness and scope. Issues such as methodology, problems with predictions and definitions are also considered.

Figure 3 below visualises the estimated proportions of border flows around each quarter of the aligning quadrant, which are then discussed in four successive sections of this part of the report. While grounded empirically in the research it is not exact, yet it does illustrate that temporary, regular travel represents the vast majority of border crossing events (BCEs). However, such crossings are standard and the major issue for Border Guards is that of facilitation, whereas irregular and illegal BCEs, despite their being only a fraction of the number of border transactions, actually demand more stringent attention to ensure security. As such, the level of detail, expertise and research dedicated to each of the quadrants does not reflect the proportions in Figure 1, focusing on the highest numbers of conventional flows, but concentrates on the lower numbers of irregular BCEs requiring rigorous and specialist attention, as indicated by the colour scheme used in the diagram.

Figure 3. Overview of the type and proportion of current flows in terms of the numbers of BCEs and their bearing on border guards.



Sources: See Sections 3–6 of this work package. Percentages refer to the total of available estimates.

* See Section 4.3 for both conceptual and methodological difficulties regarding estimating temporary irregular flows.

**See Section 6.5 on the methodological difficulties in preparing statistics on long-term irregular flows.

2. Temporary Regular Mobility

While temporary mobility flows are certainly not new phenomena, in recent years they have greatly increased in volume and geographical scope thanks to low cost travel, particularly via budget airlines. This has also facilitated more spontaneous travel because of the lowering of psychological inhibitions regarding expense and the need for forward planning.^{8,9,10} Since, in the context of temporary mobility, by its very nature, planning is reliant on relatively short-term statistical forecasts, the focus of this section will therefore mainly be on statistics and studies of tourism futures prepared at the European level by such organisations as the Statistical Office of European Communities – EUROSTAT, the United Nations World Tourism Organisation (UNWTO) and the World Travel and Tourism Council (WTTC), since the data is relatively holistic and comprehensive in comparison to industry or country-specific estimates. In addition, as tourism foresight focuses mainly on passenger numbers, predictions are frequently made by related industries such as aviation companies, travel agencies and so on. However, while such commercial data provides a useful comparison, it is generally more focused towards specific interests. According to the WTTC, the global tourism sector is "one of the world's largest industries, employing approximately 258 million people and generating over 9% of world GDP".¹¹ Of this, around 60% of the global market is dominated by OECD countries, where "[...] tourism GDP accounts for up to 11% of GDP and even more in terms of employment".¹²

2.1 Recent Trends and Patterns

2.1.1 Tourism Flows

EUROSTAT

In the most recent year for which full data is available, 2008, EU residents made 1.04 billion holiday trips.¹³ Just over 50% of Europeans made at least one holiday trip in the period 2004 to 2008.¹⁴ However, this EU average hides large differences across the Member States. For example in 2008 just 7.1% of Bulgarians compared to 77.9% residents of Luxemburg and 89.7% of Cypriots made at least one such trip. Residents of Germany, France, Spain and the

⁸ UNWTO, *Tourism and Migration: Exploring the Relationship between Two Global Phenomena* (UNWTO, 2010).

⁹ C M Hall and A M Williams, eds., *Tourism and migration: new relationships between production and consumption*, (Dordrecht/London: Kluwer Academic, 2002).

¹⁰ R T Jackson, "VFR Tourism: Is It Underestimated? (original 1990 article reprinted)", *Journal of Tourism Studies*, 14:1 (May 2003): 17-24.

¹¹ WTTC, Press Release – May 2011. Available from:

http://www.wttc.org/eng/Tourism_News/Press_Releases/Press_Releases_2011/WTTC_Global_Travel_and_Tourism_Summit_powers_global_growth/

¹² OECD, *OECD Tourism Trends and Policies 2010*,

http://www.oecd.org/document/24/0,3746,en_2649_34389_44607576_1_1_1_1,00.html

¹³ Regardless of the destination or the length of stay

¹⁴ The percentage of the EU population (aged 15 or more) with at least four overnight stays

United Kingdom accounted for nearly two-thirds (64.2%)¹⁵ of the total holiday trips made by residents of Member States. During 2008, 27.5% of EU residents made only domestic trips and 16.5% only made trips abroad, while 9.8% made both. The impact of geographical location affects holidaying trends, especially in southern countries or those with coastal tourism destinations, where there is a prevalence of domestic trips. Conversely, residents of countries located centrally or northerly within Europe prefer foreign destinations.

According to a Commission Staff Working Document, there are approximately 300 million EU-27 external border crossings each year (entry at designated border crossing points). Of these, 53.3% are EU citizens (160 million), third country nationals not requiring a visa make up 20% (60 million) while those third country nationals requiring visas constitute the remaining 26.7% (80 million), according to the Eurostat data on the number of overnight stays in hotels, collective accommodation establishments, or in private tourism accommodation, but not people staying with friends and relatives.¹⁶

Summer months (July to September) are – not surprisingly – the most popular period for holidaying, with 34.9% of EU citizens making at least one holiday trip during this time.¹⁷ The winter months, first and fourth quarters, are popular times for outbound travel for those Member States with unfavourable climatic conditions. In particular, over 40% of the residents of countries such as Ireland, Luxemburg, Finland and Norway made trips with at least one overnight stay during the first and fourth quarters. For short trips the pre-season during second quarter (27%) was almost the same as during the summer period (26%).

2.1.2 Breakdown by citizenship and direction

EU citizens and Third Country Nationals

Across the EU, of the non-resident guests of collective accommodation,¹⁸ 77% were from other EU Member States, while 23% were from the rest of the world, including other European non-EU countries (such as Switzerland, Norway, Iceland, or non-EU countries of the former Soviet Union or Western Balkans). Visitors from outside the EU represent less

¹⁵ In 2008, the populations of Germany, France, Spain and the United Kingdom (in total around 253 million) accounted for 50.8% of total EU27 population (498 million). Source: Eurostat, available from : <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&language=en&pcode=tps00001&tableSelection=1&footnotes=yes&labeling=labels&plugin=1>

¹⁶ Commission of the European Communities, Brussels, 13.2.2008 Sec(2008) 154, Commission Staff Working Document - *Accompanying Document to the Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Regions Preparing the Next Steps in Border Management in the European Union Summary Of The Impact Assessment*. http://ec.europa.eu/home-affairs/doc_centre/borders/docs/sec_2008_154_en.pdf

¹⁷ This is true of a vast majority of European countries, except Estonia, where the pre-summer months April to June hold the highest tourism intensity.

¹⁸ Accommodation statistics: "Important parts of tourism demand can be measured through guest registrations in accommodation statistics, namely estimates of the number of visitors staying in accommodation establishments in a country or in a region or locality. The comparison of demand surveys with accommodation statistics gives extremely important information about the coverage and reliability of the statistics"

Eurostat, *Applying the Eurostat Methodological Guidelines in Basic Tourism and Travel Statistics, A Practical Manual (revised version)* (Eurostat, March 1996).

than ten per cent of the guest nights in collective accommodation. Countries showing above average numbers of non-EU guests were limited and the patterns displayed were often linked with geographic location or to historical ties.¹⁹

International Intra-EU and external transport

In its overview of the EU-27 air passenger transport in 2009, EUROSTAT indicated that the share of international intra-EU transport decreased from 50% to 42% since 2008.²⁰ Of the three components of air transport (national, intra-EU and extra-EU) while the intra-EU travel remained the largest component, it also suffered the most. It is noted that there is much disparity between countries, for example, Latvia showed an increase of +12.4% in international intra-EU transport over the same period.²¹

UNWTO

In 2010, global international tourism recovered well from the difficulties it had to endure due to the global economic crisis and the economic recession of 2008/9. In 2010, international tourist arrivals worldwide rose by nearly 7% to 935 million, marking an increase of 58 million following the exceptional 4% decline in 2009 and of 22 million towards 2008, before the crisis. For Europe, with a 3% increase to 471 million, the recovery was slower than in other regions. However, the tourism sector gained momentum in the second half of the year and some individual countries have shown better performance than the regional average, as far as tourist arrivals is concerned.²²

2.1.3 Means of travel

According to results of entry-exit data collected by all MS for a one-week period in 2009, air is the major form of transport used in crossing national borders, with some 50% of the total traffic, while land border crossings represent some 42% of the total and sea borders only 8%. Importantly, a large proportion of the total air traffic however is concentrated in a small number of international hub airports.

Aviation:

According to Eurostat's transport database and 'Air Transport Statistics'²³, approximately 320 million passengers made intra-EU trips while around 273 million made extra-EU journeys. Figure 4 below shows a further breakdown.

¹⁹ Eurostat, "Tourism statistics in the European Statistical System - 2008 data" (European Commission, 2010 Edition). http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-10-010/EN/KS-RA-10-010-EN.PDF

²⁰ H Cloudt, "Transport 02/11" (Eurostat, Statistics in Focus, February 2011).

http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-SF-11-002/EN/KS-SF-11-002-EN.PDF

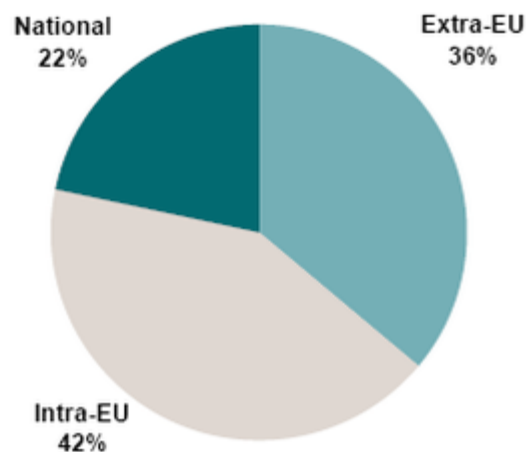
²¹ European Travel Commission, "European Tourism 2010 – Trends & Prospects" (Quarterly Report - Q3/2010). Available at: <http://www.etc-corporate.org/resources/uploads/ETC-%20Oct%202010%20Trends%20and%20Outlook-final.pdf>

²² Developing economies also led to the recovery in terms of expenses abroad, most notably China (increase by 17%), Russia (by 26%), Saudi Arabia (by 28%), and Brazil (by 52%). Countries with traditional source markets also underwent a visible recovery: Australia (9% increase), Canada (8%), Japan (7%) and France (4%). A more modest growth (of about 2%) came from the U.S., Germany and Italy.

²³ Eurostat, Air Transport Statistics, *Data from January 2011*

http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Air_transport_statistics

Figure 4. Overview of the EU-27 air passenger transport in 2009



Source: Eurostat, Air Transport Statistics²⁴

Busiest Passenger Airports

Eurostat provides data on the top airports in the EU-27 in 2009, ranked according to total passengers carried. The top five passenger airports were:

- 1: UK – London Heathrow (approx. 66 million passengers)
- 2: France – Paris Charles de Gaulle (approx. 58 million passengers)
- 3: Germany – Frankfurt am Main (approx. 51 million passengers)
- 4: Spain – Madrid Barajas (approx. 48 million passengers)
- 5: Netherlands – Amsterdam Schiphol (approx. 44 million passengers)

A breakdown is also given as to whether passengers travelled nationally or internationally to intra-EU-27 or extra-EU-27 destinations. Growth since 2008 in terms of passenger flights as well as the total number of flights is also available.²⁵

2.2 Forecasts

Future of temporary mobility

Low cost travel, as well as growth in average income and the possibility of easily crossing borders, decrease in working hours per week, social change in attitudes and openness to other nations (usually assigned to globalisation), has also meant a larger market, with its affordability extending to a wider range of incomes.²⁶ While trends in the business world may serve an increase in temporary mobility, competing (and perhaps surprising) trends may have a decreasing effect. For instance, digital communication infrastructure, pushing

²⁴ See :Table 3: Top airports in the EU-27 in terms of total passengers carried in 2009 available from: http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Air_transport_statistics

²⁵ *Idem.*

²⁶ N Dennis, *Stimulation or saturation? Perspectives on European low-cost airline market and prospects for growth*, Transportation Research Record (2007) pp. 52-59

virtual team collaborations, tele-working trends and video conferencing render some temporary mobility redundant. An increasingly important development is the rise of tourist and business travellers from emerging economies (for example, the 'BRIC' countries: Brazil, Russia, India, China,).^{27,28,29}

2.2.1 Short Term (1-4 years)

Tourists

Most forecasts for tourism are short-term and several organisations have provided various estimates in that respect. In the UNWTO Tourism Barometer (January 2011 release), several estimates are relevant to EU border control.^{30,31} Following the global economic recovery since 2010, growth in the tourism sector is expected to continue in 2011 but at a slower pace. UNWTO expects international tourist entrances to increase worldwide at a rate of 4% to 5%, slightly above the long-term average of 4%. In particular, there is potential for stronger growth in several destinations (such as France, Spain, Italy and Britain) where recovery began later and is still not complete.

The rate of tourism sector growth in Europe is estimated to remain below the global average, 2% to 4% a year, but this may be enough to enable the sector to resume expansion. In addition to the economic uncertainty in some major markets, stability in the Euro zone and policies of budget cuts have remained the main concern.³²

²⁷ European Commission, "Europe, the world's No 1 tourist destination – a new political framework for tourism in Europe" in *Communication from The Commission to The European Parliament, The Council, The European Economic and Social Committee and The Committee of the Regions* (Brussels: COM(2010) 352 final, 30.6.2010).

²⁸ M Trethewey and D Mak, "Emerging tourism markets: Ageing and developing economies", *Journal of Air Transport Management*, 12:1 (January 2006): 21-7.

²⁹ World Tourism Organization and the European Travel Commission, "The Russian Outbound Travel Market with Special Insight into the Image of Europe as a Destination"(UNWTO, 2009). With editions on India and China.

³⁰ UNWTO, *Press Release, International Tourism 2010: Multi-speed recovery* (Madrid : UNWTO, 17 January 2011).

³¹ See also, update in: UNWTO, "Tourism Barometer, Vol 9, no.1" (February 2011). Available at: http://www.unwto.org/facts/eng/pdf/barometer/UNWTO_Barom11_1_key_trends_web_en.pdf The Tourism Barometer is "a regular publication of the Tourism Trends and Marketing Strategies Programme of UNWTO aimed at monitoring the short-term evolution of tourism and providing the sector with relevant and timely information... It contains three permanent elements: an overview of short-term tourism data from destination countries and air transport, a retrospective and prospective evaluation of tourism performance by the UNWTO Panel of Tourism Experts and selected economic data relevant for tourism." (*idem*)

³² Positive opportunities can be provided by the further expansion of developing economies and more dynamic trading. Tourism, travel and other relevant source markets recovered in 2010 and are not expected to decline. However, weaknesses and risks are also highlighted in the Tourism Barometer Report. High unemployment remains the main concern - while unemployment is expected to recover gradually in 2011 this recovery is still too weak to compensate for jobs lost during the economic crisis. Interest rates in large developed countries may start to rise again after an unprecedented slump of nearly two years which may contribute to customer uncertainty. Inflation is expected to rise, especially if oil prices and commodity prices maintain their upward trend. Note: this report was written before the recent political events in Algeria, Egypt, Libya, Bahrain etc.)

The European Travel Commission³³ has prepared forecasts on inbound and outbound overnight visitor forecasts for Europe, EU15 and Eastern Europe. There is no breakdown regarding information on TCNs (those who require visas and those that do not), however they do give UNWTO current estimates as:

Total arrivals to Europe³⁴:	460.0 million
- From Europe (intra-regional):	340.0 million
- From North & South America:	27.5 million
- From Asia & the Pacific:	19.3 million
- From Africa:	3.5 million
- From the Middle East:	3.2 million
- From unspecified countries:	6.8 million ³⁵

Inbound arrivals to Europe are estimated to amount to 490 million in 2012 (year-on-year increase by 3.6%) and 504.3 million in 2013 (growth by 2.9%).³⁶ For the same period, the World Travel and Tourism Commission (WTTC) estimates growth to be also by 3.6% in 2012, while estimates for 2013 show greater discrepancy, with the WTTC predicting growth by 3.4% for 2013 (518 million 'overnight visitor arrivals,' up from 501 million in 2012) in Europe.³⁷

Air passengers

According to EUROCONTROL (the European airline industry monitor), IATA's forecasts for 2009-2014 expect international passenger demand in Europe to grow by 4.7% per year by 2014.³⁸ Meanwhile, the Airports Council International (ACI) reported that European airports saw a 4.2% increase in passenger traffic in 2010 compared with 2009.^{39,40}

In general, in developed countries, budget cuts have a directly negative impact on the rate of tourism recovery. This is especially true in Europe, where government measures to encourage savings are expected to put pressure on household budgets and to undermine public trust, with implications for reducing outward bound tourism. The latest trend of imposing new travel tax to help balance the public accounts sector constitutes another challenge. UNWTO, January 2011, Op. Cit.

³³ Members currently include the National Tourism Organisations of EU27 countries and Croatia, FYR Macedonia, Georgia, Iceland, Monaco, Montenegro, Norway, San Marino, Serbia, Switzerland, Turkey and Ukraine.

³⁴ Also includes 'Mediterranean European' countries such as Israel and Turkey. A total of 43 countries

³⁵ UNWTO (2009) as cited in ETC Factsheet, November 2010. Available from: http://www.etc-corporate.org/resources/uploads/ETC_Factsheet_20101110.pdf

³⁶ European Travel Commission, "European Tourism 2010 – Trends & Prospects" (Quarterly Report - Q3/2010). Available at: <http://www.etc-corporate.org/resources/uploads/ETC-%20Feb%202011%20Trends%20and%20Outlook-final.pdf>

³⁷ WTTC, "Economic Data Search Tool", http://www.wttc.org/eng/Tourism_Research/Economic_Data_Search_Tool/

³⁸ EUROCONTROL, "Industry Monitor - The EUROCONTROL bulletin on air transport trends, Issue no. 127" (EUROCONTROL, 23/02/11). Available at:

<http://www.eurocontrol.int/statfor/gallery/content/public/analysis/EUROCONTROL-IndustryMonitor-Issue-127.pdf>

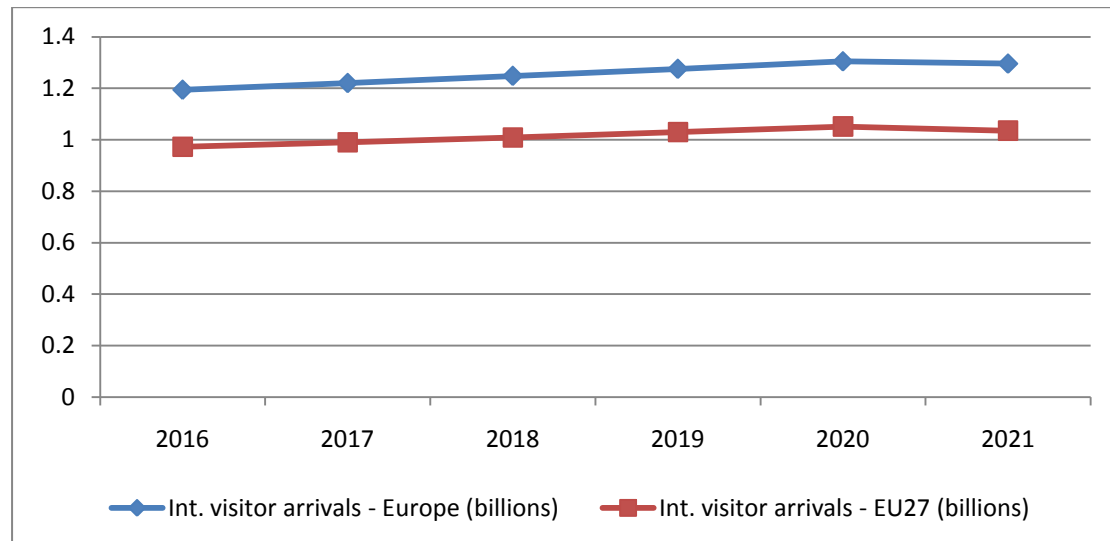
³⁹ "The short- and medium-term forecast of service units will next be updated in May 2011 with an extended horizon to 2016

The short-term forecast (2011-2012), as it has been for many years, is mainly based on time-series modelling of trends and seasonal and cyclical patterns in actual monthly service units supported by the flight forecast as appropriated.

2.2.2 Medium Term (5-10 years)

WTTC provides yearly forecasts until 2021 for Europe or EU27 in terms of 'international visitor arrivals' and 'overnight visitor arrivals'. The former relate to the number of arrivals of foreign visitors (including same-day and overnight visitors/tourists) to the country, while the latter relate to tourist or visitors to the country who stay overnight. Both forecasts are summarised in Figures 5 and 6 below, in relation to Europe as a whole as well as to the European Union (EU27).

Figure 5. International visitors arriving in Europe and EU27, WTTC forecasts



Source: Based on WTTC data

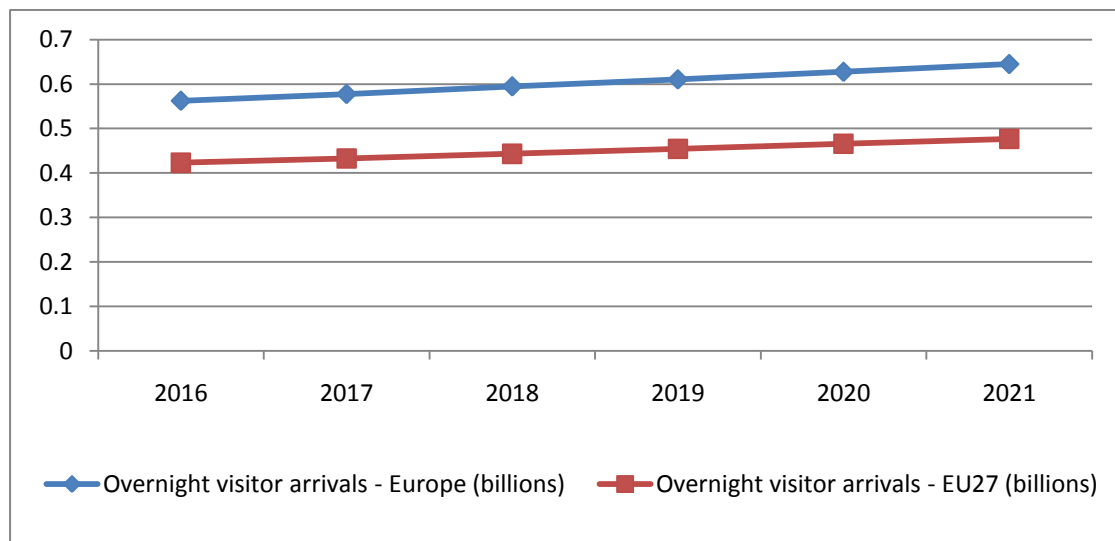
According to Figure 5, we can see an average year on year growth in Europe of 2.2% envisaged until 2020, followed by a slight decline predicted for 2021. In the same period, the overall growth for EU27 countries is expected to average 2.0%.

Slightly stronger growth is forecasted when looking only at overnight visitor arrivals (not including day trips), depicted in Figure 6 below.

The medium-term forecast (2013-2015) uses the flight forecast as well as trends in the evolution of average distances and maximum take-off weight (MTOW) of the flights across each State". Source: EUROCONTROL, 23/02/11. Op. Cit.

⁴⁰ See also, EUROCONTROL, "Medium-Term Forecast - Flight Movements" (February 2011). Available at: <http://www.eurocontrol.int/statfor/gallery/content/public/forecasts/Doc418-MT-Flights-Feb11-v1.0.pdf>

Figure 6. Overnight visitors arriving in Europe and EU27, WTTTC forecasts



Source: Based on WTTTC data

Air passengers:

According to EUROCONTROL, in 2010, “growth was driven mainly by low-cost carriers, which saw an increase of 6.9% compared to 2009. Though their growth slowed markedly at the end of the year... their market share climbed 1.3 points compared to 2009, to 22.1% of all flights. Growth was also due to strong increase of 5.5% in business aviation” (Figure 7).⁴¹

Figure 7. “Downturn, and recovery, by market segment”



Source: Eurocontrol, www.eurocontrol.int/STATFOR

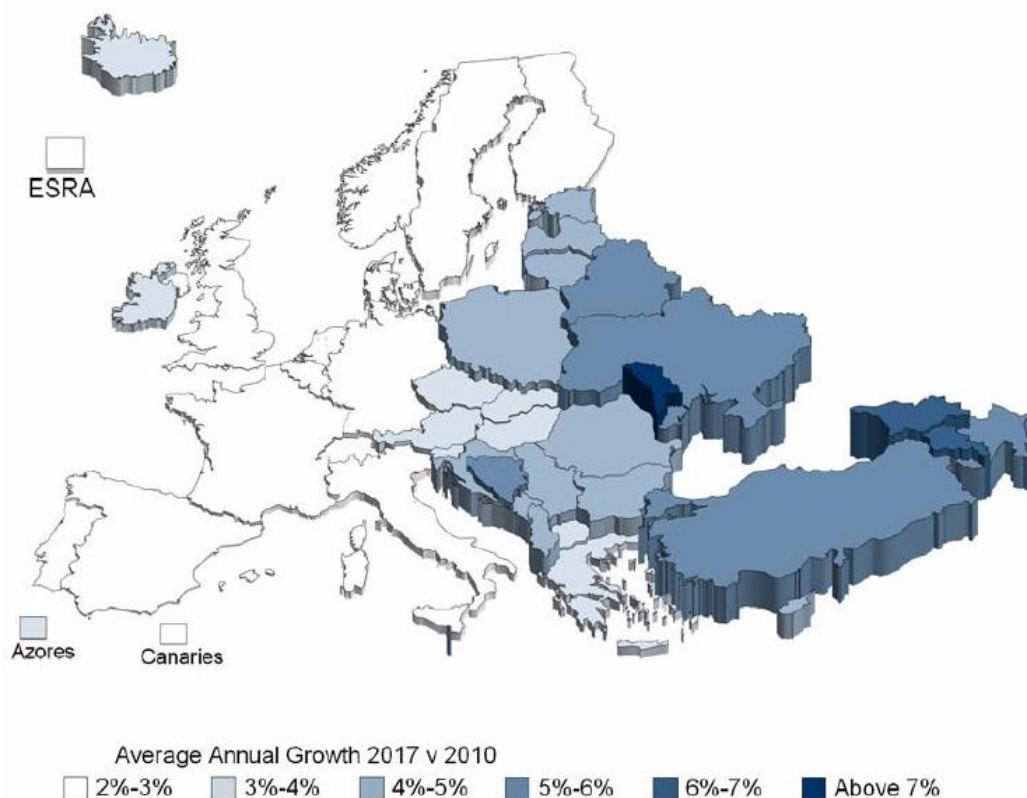
⁴¹ EUROCONTROL, "Medium-Term Forecast - Flight Movements" (February 2011)

Low Cost Carriers

According to Eurocontrol's medium term forecast 2011: "The evidence is that low-cost carrier market share growth is partly new, generated traffic (for example attracted by the price) and partly replacement or re-badging of existing traffic".⁴²

Figure 7 shows a screenshot from Eurocontrol's forecast output, indicating expected steady growth of traffic for 2013-17 (around 2.5%) with differences in growth seen among states. The strongest growth is seen in Eastern European States (in terms of percentage) while the main increases in absolute number of flights will be seen in Western European states such as the UK and France.

Figure 8. Air traffic growth. "Average annual growth 2010-2017 for each State"



Source: Eurocontrol⁴³

2.2.3 Long Term (20-30 years)⁴⁴

UNWTO long-term forecast 'Tourism 2020 Vision'⁴⁵ begins from the base year 1995 with forecasts for 2010⁴⁶ and 2020, with predictions provided for the numbers of international

⁴² EUROCONTROL, February 2011, p.43

⁴³ EUROCONTROL, "Medium-Term Forecast - Flight Movements" (February 2011), p.ii. Available at: <http://www.eurocontrol.int/statfor/gallery/content/public/forecasts/Doc418-MT-Flights-Feb11-v1.0.pdf>

⁴⁴ Long-term according to base-line year of 1995.

⁴⁵ UNWTO, "Tourism 2020 Vision - excerpt" <http://www.unwto.org/facts/eng/vision.htm>

⁴⁶ Note: Compare the "UNWTO Tourism 2020 Vision" forecast for 2010 at 527 million 'tourist arrivals' with latest figures for 2010 in "UNWTO Tourism Barometer" with 'inbound tourism' at 473 million.

arrivals, market share (%) and average annual growth rate (%) of the tourist sector. It suggests that by 2020 Europe's tourism will exhibit growth of 3.1% annually on average, one percentage point below the world annual growth rate of 4.1%. However, Europe will retain the highest market share despite a decline from almost 60% in 1995 to almost 46% in 2020 with a forecast 717 million arrivals.

Long-term trends, according to the UNWTO Tourism Barometer, show that:

“In spite of occasional shocks, international tourist arrivals have shown virtually uninterrupted growth – from 25 million in 1950, to 277 million in 1980, to 438 million in 1990, to 681 million in 2000, and the current 880 million.”

As such, the report predicts that “by 2020 international arrivals are expected to reach 1.6 billion”⁴⁷.

With respect to aviation, long-term regional⁴⁸ passenger traffic forecasts of ICAO prepared for Europe in the horizon of 2010-2030, predict an annual increase by 4.3% for international travel and by 1.7% for domestic travel.⁴⁹ The screenshots in Figure 9 below present graphical summaries of ICAO and UNWTO forecasts, available from their websites.

⁴⁷ UNWTO, "Tourism Highlights, 2010 Edition" <http://www.unwto.org/facts/menu.html>

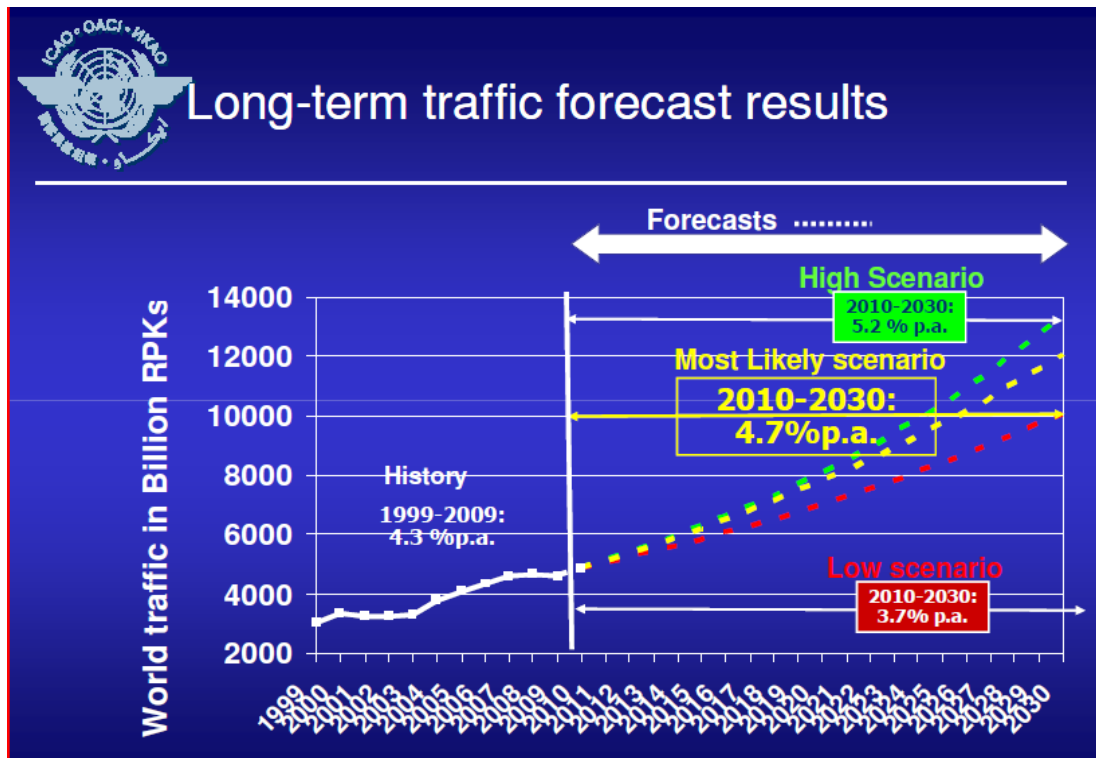
⁴⁸ Traffic of airlines domiciled in each region expressed in RPKs growth and market shares. Revenue Passenger Kilometres (RPK) is a measure of the volume of passengers carried by an airline. According to a definition from Money Terms glossary, “A revenue passenger-kilometre is flown when a revenue passenger is carried one kilometre. A passenger for whose transportation an air carrier receives commercial remuneration, is called a revenue passenger. This excludes passengers travelling under fares available only to airline employees and babies and children who do not have a seat of their own. The RPK of an airline is the sum of the products obtained by multiplying the number of revenue passengers carried on each flight stage by the stage distance - it is the total number of kilometres travelled by all passengers. RPK is a measure of sales volume of passenger traffic.”

Source: <http://moneyterms.co.uk/rpk-revenue-passenger-kilometres/>

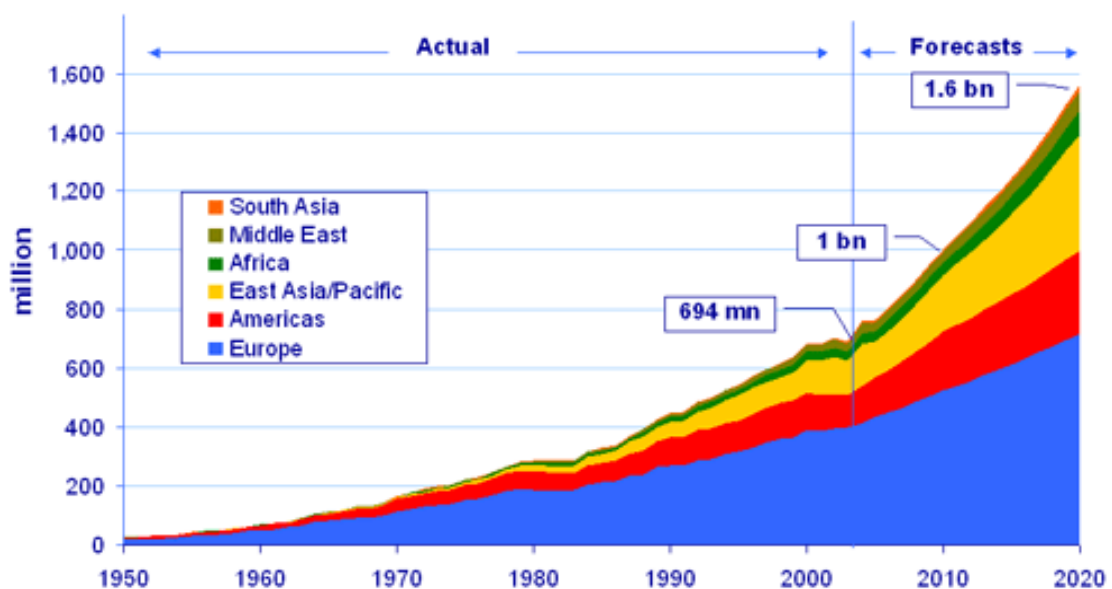
⁴⁹ ICAO - Chief Economic Analysis and Policy Section, "37th Session of the ICAO Assembly", in *Aviation Data*, ed. N Teyssier (Montreal: ICAO, 29th September 2010). Available at: http://www2.icao.int/en/Assembly37newsroom-public/Presentation%20Slides/ICAO%20Aviation%20Data%20Presentation_NT_29_Sep2010.pdf

Figure 9. Long-term forecasts of tourist traffic: ICAO and UNWTO

a) ICAO long-term forecast⁵⁰



b) UNWTO forecast graphic⁵¹



Source: ICAO and UNWTO websites (see footnotes)

⁵⁰ *Ibid.*

⁵¹ UNWTO, "Facts and Figures", Available from: <http://www.unwto.org/facts/eng/vision.htm>

2.3 Conclusion

In recent years the number of short term legal border-crossers (STLBs) has exhibited an increase of between approximately 2–5%⁵² in the EU overall. Of the total numbers, 77% were EU nationals, 23% Third Country Nationals (TCNs), including 20% TCNs who required visas.

Existing forecasts in the tourism, business travel and transport sectors indicate that in the next five years the increase in STLBs will continue at much the same rate. Factors such as increased GDP and disposable income, liberalisation of air transport⁵³ and proliferation of low-cost carriers would also point to a further increase rather than a decrease and EU citizens are likely to constitute an increasing share of overall tourism flows concerning the EU.

Given the number of factors of importance and other problems, such as shocks to the transport system (for example, the 2010 volcanic cloud, the 2008–09 economic crisis, as well as rising oil prices, the latter for example due to recent events in North Africa and the Middle East source countries), very little confidence can be placed in even these general trends beyond a five-year horizon. Moreover, political instability and changes, unforeseen natural disasters and so on may have immediate effects on temporary mobility. Therefore, in Work Package 2, various alternatives and scenarios will be analysed.

Where possible, the study has sought to distinguish whether passenger flows are either 'intra-EU' (travelling between MS or domestically) or 'extra-EU' (involving the crossing of external borders) since border controls deal with the latter. However, there were various limitations on measuring this as there is no explicit survey of such data at the European level, while only the UK has so far carried out a very detailed passenger survey.⁵⁴ It would certainly be valuable to typify the current flow of passengers across the external borders. A one week data collection exercise by the European Council Presidency FRONTIERS Working Group to survey of traffic at the external borders in late 2009 (excluding the UK and Ireland) gives a snapshot on the number of entries and exits of three different categories of travellers (EU citizens/persons enjoying the Community right of free movement, third country nationals not subject to a visa requirement and third country nationals subject to a visa requirement) at the different types of external borders (land, sea and air).⁵⁵ "The total number of entries and exits registered for the Schengen States during the one week exercise was 12 651 788". Of which, 72% (9,089,304 passengers) were EU citizens or persons

⁵² Short term (1-5 years): between 2-4% growth

Medium (5-10): Around 2% year-on-year growth for WTTC and 3.1% with UNWTO

Long term (11-30): Technically no data available for next 20-30 years (i.e. 2031-41).

⁵³ F Dobruszkes, "Does liberalisation of air transport imply increasing competition? Lessons from the European case", *Transport Policy*, 16:1 (January 2009): 29-39.

⁵⁴ Also, not all MS are party to Schengen. For example, a Chinese tourist with a visa for Schengen Europe would need a separate one to cross the British border. Also, internal borders have recently been re-initiated (such as in France and Denmark) as a result of external global crises.

⁵⁵ Council of the European Union, "Results of the data collection exercise", 13267/1/09 REV, Brussels, 1 October 2009, <http://register.consilium.europa.eu/pdf/en/09/st13/st13267-re01.en09.pdf>
Plus a revision: <http://register.consilium.europa.eu/pdf/en/09/st13/st13267-re01co01.en09.pdf>

enjoying the Community right of free movement, 17% (2,127,674 passengers) were third country nationals not subject to a visa requirement and the remaining 11% (1,434,810 passengers) were third country nationals subject to a visa requirement. Air (52%) and land (39%) borders saw the majority of movement. According to the Frontex ARA, 2011: "Flows at the land borders also include passengers commuting under local border agreements. This explains why the land border between Poland and Ukraine is one of the busiest border sections within the EU, together with the air borders of the UK and Germany".⁵⁶

According to the TENConnect project, 75% of all intra-European air passengers originate in UK, Spain, Germany, France and Italy and they predict that this will not change markedly in the future. Furthermore, "almost 60% of all intercontinental passengers use the 4 main airports, Heathrow (UK), Frankfurt (DE), Charles de Gaulle (FR) and Schiphol (NL). This is expected to continue in the future, however with a diminishing share for the 4 intercontinental main airports".⁵⁷

Temporary regular mobility is expected to remain the largest component of all BCEs in both the short and long term. While definitions of tourism and other forms of short-term mobility may vary between the countries, the pattern is generally the same: of steady growth and by far the greatest proportion of persons and most standard attention required of border guards' attention.

- **Current levels:**

*Approx. 400 million BCEs annually
(aggregate of estimates)*

- **Proportion of total flow:**

Approx. 98%

- **Estimated future trends:**

Short term: 2-4% growth

Medium term: 2-3% growth

Long term: unknown

⁵⁶ Frontex, "Annual Risk Analysis 2011" (Warsaw, April 2011). p.12

⁵⁷ M S Petersen et al., "Report on Scenario, Traffic Forecast and Analysis of Traffic on the TEN-T, taking into Consideration the External Dimension of the Union - Final Report" (unpublished thesis, Funded by DG TREN, Copenhagen, Denmark, 2009). p.65

3. Long-term Legal Migration

This section presents a brief summary of European Union (EU) statistics and forecasts concerning long-term legal migration flows. After a brief background and an outline of main sources of data and migration forecasts –official, as well as independent – selected issues relating to definitions, coverage and accuracy of migration data in Europe are highlighted. Subsequently, recent migration-related trends concerning the EU are discussed. In particular, this section assesses statistics on: international migration, population stocks of nationals and foreign citizens, acquisitions of citizenship, data on asylum applicants and refugees in the EU-27, against the background of recent developments in the area of asylum and international protection in Europe. Finally, mention is made of practical conclusions concerning the usefulness of various existing sources of data and studies of migration futures prepared at the European level. Note that this overview does not discuss those numerous migration forecasts and other futures studies prepared for particular EU countries, which remain beyond the scope of the current study due to their specificity.

3.1 Background

Post-Cold War and global trends of the last two decades have created a rise in migration across Europe (and the world) at a time when the European Union opened its Member States' borders via the Schengen agreement. Of the 200-220 million migrants around the world (3% of total global population), Europe hosts the largest absolute number amongst all the continents.⁵⁸ In fact, futures research perceives mass permanent movement as an emerging trend. Recent research on nationality and citizenship in Europe shows that many countries that were traditionally countries of emigration (to US, Canada, Australia etc.) have recently become countries of immigration. The EU Member States' responses to these (and related) phenomena have been varied, as stated by Bauböck et al. (2005: 15):

“Some states have reacted to problems with immigrant integration by promoting naturalisation and by granting second and third generations of immigrant descent a right to their nationality, while others have made access to nationality more difficult for immigrants and their descendants. Some states have seen an interest in maintaining ties with their emigrants by allowing them to naturalise abroad without losing their nationality of origin, while others have refused to do so. The nationality policy of each individual state determines who becomes a Union citizen with corresponding rights in all Member States”.⁵⁹

Moreover, large and distinct receiving communities of migrants from various parts of the globe now exist in a number of EU countries leading to the creation of migrant networks,

⁵⁸ United Nations Department of Economic and Social Affairs, "International Migration Report" (Population Division, 2006). Available at: http://www.un.org/esa/population/publications/2006_MigrationRep/exec_sum.pdf

⁵⁹ Rainer Bauböck et al., "Introduction," in *Acquisition and Loss of Nationality. Policies And Trends In 15 European States.*, ed. Rainer Bauböck et al. (Amsterdam: Amsterdam University Press, 2005).

which facilitate the immigration (both legal and illegal) of greater numbers of people from specific countries and regions.

At larger time scales, the issue of uncertainty is vital since migration is considered to be the most volatile component of population change.⁶⁰ Given its magnitude and unavoidability, uncertainty has to be taken into account in forecasting to the fullest possible degree. The economic crisis of 2008-2009 put uncertainty back into the spotlight in economics and finance and the situation with respect to migration is no different. Due to the multidimensional nature of population mobility, future uncertainty and weak predictability are its inherent features and their impact should not be underestimated.

The situation is rendered even more complex by problems and limitations with data on migration in Europe – these are not harmonised between the EU countries and quite often not available at all.⁶¹ There are also known problems with the coverage of emigration statistics; in particular, migrants are more likely to register their entering a country than their leaving it. Moreover, countries do not adhere to the same definitions of migrants, for example with respect to the duration of stay or coverage with respect to subpopulations included in the statistics. Even though the implementation of the recent Regulation 862/2007 of the European Parliament and the Council on *Community Statistics on Migration and International Protection* is expected to result in increased availability and comparability of migration statistics, they are currently still far from being harmonised.⁶²

Moreover, the available data series are also too short to allow an application of more complex or structured forecasting models. The latter could, in principle, include drivers of migration, but due to the scarcity of data, the resulting uncertainty of forecasts is likely to be too high for the results to be useful in practice.⁶³ On the other hand, there are examples of migration forecasts which failed to acknowledge the predictive uncertainty in full and as a result, missed real-life developments substantially. As such, a pre-EU enlargement forecast of migration from the new EU member states to the United Kingdom⁶⁴ under-predicted the true flow of post-accession migrants by over an order of magnitude. Such pitfalls clearly call for a different methodological approach on the futures analysis, especially in the longer horizons. This is the rationale behind utilising the scenario methodology in WP2.

⁶⁰ NRC (National Research Council), *Beyond Six Billion. Forecasting the World's Population* (Washington DC: National Academies Press, 2000).

⁶¹ See M Poulain, N Perrin and A Singleton, eds., *THESIM: Towards Harmonised European Statistics on International Migration*. (Louvain-la-Neuve: Presses Universitaires de Louvain, 2006).

⁶² Previously statistics on migration flows, population stocks and the acquisition of citizenship were sent to Eurostat on a voluntary basis, as part of a joint migration data collection organised by Eurostat in cooperation with a series of international organisations, for example the United Nations Statistical Division (UNSD), the United Nations Economic Commission for Europe (UNECE) and the International Labour Organization (ILO). The recent changes in methodology, definitions and data sources used to produce migration and citizenship statistics, resulting from conforming to Regulation 862/2007, may result, for some Member States, in a lack of comparability over time for their respective series.

⁶³ J Bijak, "Forecasting International Migration in Europe: A Bayesian View", *Springer Series in Demographic Methods and Population Analysis*, 24, Springer, Dordrecht, Chapter 3 (2010).

⁶⁴ C Dustmann et al., *The impact of EU enlargement on migration flows. Home Office Report 25/03*. (London: Home Office, 2003).

3.2 Recent Migration Trends and Patterns

Migration flows

According to Eurostat, in 2008 more people immigrated to (3.8 million) than emigrated from the 27 countries of the European Union (2.3 million). On average, immigration to EU Member States has decreased by 6% since 2007 while emigration over the same period increased by 13%. The statistics also include about 1.9 million persons who migrated internationally between the EU member states while immigrants from outside the EU represent just over a half of the total (1.9 million persons). In turn, the harmonised estimates obtained in the MIMOSA project⁶⁵, concerning total migration flows for 2007 for EU27 countries show immigration at 4.1 million versus total emigration at 3.3 million persons, of whom about 1.8 million persons migrated between the EU member states, 2.3 million came from outside the EU, and 1.4 million emigrated from Europe.

Breakdown by type of citizenship

Non-nationals represented 84% of immigrants to EU countries and more than a half (56%) of the total number were non-EU residents. Nationals or returning citizens born abroad jointly accounted for 16% (600,000 people) of all immigrants to the EU Member States. The gender distribution of immigrants showed a nearly even split with male migrants accounting for 51% of migrants to the EU. Immigrants were also typically much younger than the population of their destination country. According to MIMOSA estimates, the gross immigration comprised of 18.6% of nationals of particular countries (764,000 persons), 28.2% of other EU nationals (1.2 million) and 53.2% of non-EU nationals (2.2 million). Amongst emigrants, 42.1% (1.4 million people) were nationals, 24.7% (829,000) were other EU-nationals and 33.2% (1.1 million) were non-EU nationals.

Non-national population stocks and citizenship acquisitions

The data on population stocks are not of direct relevance to Frontex, although they may be useful for analysing the indirect drivers of migration, in particular the migrant networks. According to Eurostat, on the 1st January 2009, there were 31.8 million non-nationals living in Member States, amounting to 6.4% of the population, compared to 6.2% the year before. More than a third of these non-nationals were citizens of other Member States. Of around 700,000 people acquiring the citizenship of a Member State in 2008, over 90% had previously been citizens of non-member countries. According to MIMOSA estimates on stocks for 2002–2008, out of a total of 487 million residents of EU countries, on average 94.8% (461 million) were nationals, other EU-foreigners accounted for 1.8% (8.6 million), while 3.4% (16.7 million) were non-EU foreigners.

Flows of refugees and asylum seekers⁶⁶

With regard to data on refugees and asylum seekers, it has to be borne in mind that various UNHCR statistics may differ, depending on the exact category in question (number of applications versus number of applicants; and stocks versus flows of persons of concern).

⁶⁵ Migration Modelling for Statistical Analysis, <http://mimosa.gedap.be>

⁶⁶ For all refugee statistics cited in this section, see: UNHCR, "STATISTICAL YEARBOOK 2009 - Trends in displacement, protection and solutions" (October 2010). <http://www.unhcr.org/4ce530889.html><http://www.unhcr.org/4ce530889.html>

Also the processing of asylum applications varies greatly among Member States in relation to the citizenship of those applying and also the Member States' own migration and asylum policies.

In general, the number of people seeking asylum in the EU has recently decreased: from a peak of 443,300 in 2001 to an estimated 249,000 asylum seekers in 2009. According to the *UNHCR Yearbook 2009*, the latter number corresponds to 313,000 applications, some of which were lodged at further stages of the application process. Overall, every fourth asylum seeker was a minor and just over half of the asylum seekers were aged between 18 and 34 years. In 2009, about 25% of EU-27 asylum decisions were positive; granting refugee status in around 38,400 cases and complementary protection status in further 39,000.^{67,68} In total, by the end of 2009, the EU hosted about 2.2 million persons of concern to the UNHCR (6% of the 36.5 million people of concern to the UNHCR worldwide), 1.4 million of whom were refugees (16% of the global total of 8.8 million). The highest refugee populations were hosted by Germany (594 thousand), the UK (269 thousand) and France (196 thousand).⁶⁹

3.3 Migration Forecasts

Official forecasts / projections of migration

For the EU, the main source of official population projections is Eurostat. The most recent (2008) edition of the official population projections (EUROPOP) for the EU prepared for the 2008–2060 horizon is based on assumptions on net migration for all 27 EU member states. At a global level, projections covering Europe are also prepared by the United Nations Population Division in New York (with the horizon of 2050), as well as by the US Bureau of Census. Noteworthy, is that all the official forecasts do not predict migration as such – rather, they set assumptions, usually on *net migration* (inflows minus outflows), which are then used as inputs for predictions of the size and structure of whole populations. These assumptions usually come in the form of scenarios (argument-based ‘educated guesses’), which are subsequently translated into numbers. The assumptions are prepared by official statisticians, either alone, or in collaboration with experts, such as civil servants and members of the academic community. Additionally, Eurostat prepares scenarios and their quantification in consultation with the national statistical offices of all EU member states.⁷⁰ Figure 10 illustrates the net migration assumptions made by the UN and Eurostat for the period 2010–2050 for their population projections. Note that both trends are similar and seem to converge towards the end of the forecast horizon, while the difference in the starting values (for 2005–2010) is likely due to more up-to-date data of Eurostat. As

⁶⁷ UNHCR Statistical Online Population Database (October 2011).

<http://apps.who.int/globalatlas/default.asp>

⁶⁸ See: UNHCR, "STATISTICAL YEARBOOK 2009 - Trends in displacement, protection and solutions" (October 2010). <http://www.unhcr.org/4ce530889.html>.

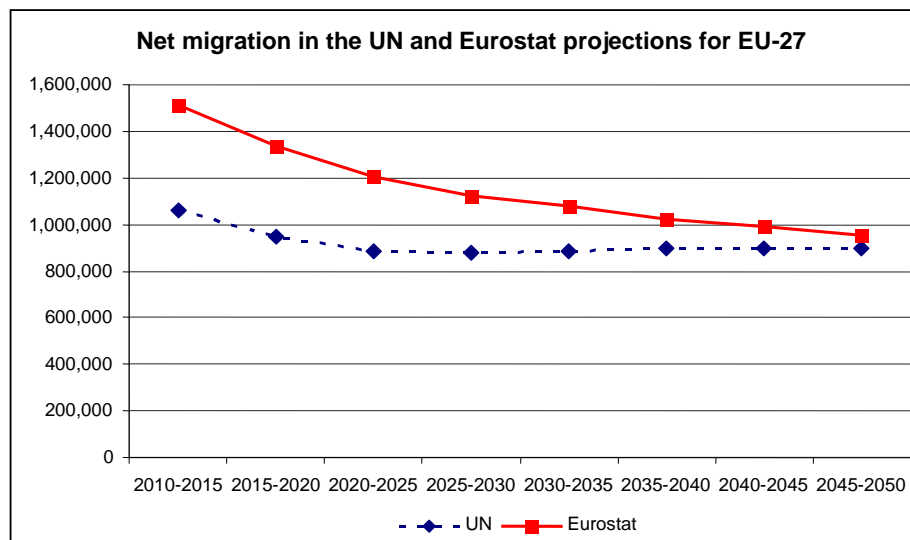
⁶⁹ Data from the UNHCR Statistical Online Population Database.

⁷⁰ Discussions underpinning the official population projections for Europe are held in the bi- or tri-annual meetings of the Eurostat Working Group on Population Projections and the Joint Eurostat – UNECE (UN Economic Commission for Europe) Work Sessions on Demographic Projections, the last one held on 28–30 April 2010 in Lisbon. Proceedings: http://epp.eurostat.ec.europa.eu/cache/ITY_OFPUB/KS-RA-10-009/EN/KS-RA-10-009-EN.PDF.

mentioned before, differences between various forecasts are inevitable, given high uncertainty surrounding the future migration levels and patterns.

For forecasts prepared in terms of net migration, by definition the overall net migration equals the balance of flows from outside the EU, since within the European Union net migration is zero - migrants originate from and end in EU countries, which does not change the overall balance from the point of view of the EU27.

Figure 10. Net migration assumptions in the population projections of the Eurostat and UN



Source: Eurostat Population Projections (EUROPOP 2008), UN Population Prospects (2008 Revision)

Independent forecasts / projections

Along with official forecasters, independent research groups have also prepared predictions involving a migration component. One example is the forecast of the Central European Forum for Migration and Population Research in Warsaw, prepared for the period 2002–2052. This forecast differentiated between intra-European flows, expressed in terms of origin-destination migration rates and net migration from outside the EU. While this approach also fails to make a distinction between immigration and emigration for flows outside the EU, it is possible to differentiate outside-European migration from intra-EU migration. A detailed methodology for migration assumptions is available online.⁷¹

Finally, the International Institute for Applied Systems Analysis (IIASA) based in Laxenburg, Austria, prepared a set of World Population Projections, with the underlying migration components, by major world regions.^{72,73} However, the IIASA projections are based on

⁷¹ J Bijak, M Kupiszewski and A Kicinger, *International Migration Scenarios for 27 European Countries, 2002-2052. CEFMR Working Paper 4/2004* (Warsaw: Central European Forum for Migration Research, 2004). Available at: http://www.cefmr.pan.pl/docs/cefmr_wp_2004-04.pdf

⁷² For the 2007 IIASA projections, see: IIASA, <http://www.iiasa.ac.at/Research/POP/proj07/index.html?sb=6>

⁷³ Detailed assumptions are described in: W Lutz, W C Sanderson and S Scherbov, eds., *The End of World Population Growth in the 21st Century: New Challenges for Human Capital Formation and Sustainable Development* (London: Earthscan, 2004).

geographic rather than political classification of regions and so are prepared for broadly-defined Eastern and Western Europe rather than for the European Union as such.

As in the case of tourism forecasts, predictions of migrations are constructed using a variety of methods, ranging from expert judgement, to statistical and econometric models.⁷⁴

3.4 Conclusion

Data

Given the discrepancies in definitions and data coverage among the EU-27 member states, it is currently difficult to answer even a simple question: how many migrants come and stay in the European Union? Hopefully, data harmonisation efforts pursued by Eurostat within the framework of Regulation 862/2007 will yield concrete results in a few years. Before that takes place, the most reliable numbers seem to be the ones based on harmonised estimates, such as the ones prepared within the MIMOSA project (see Section 3.2).

Forecasts

From the examples presented in Section 3.2, it is clear that various forecasting methods can yield different results, even if they agree on definitions and spatial scope. This is because all models used for forecasting inevitably bear errors – there is no such a thing as a ‘good model’ – and model error can be one of the most important sources of uncertainty in forecasts.⁷⁵ Hence, forecast users need either to choose one from the whole range of available forecasting models or somehow combine different predictions. The literature suggests that combining – for example by averaging – can yield more accurate predictions than can relying on any single forecast.⁷⁶

- **Current levels (annual flows):**

Immigration: approx. 4 million

Emigration: approx. 2.8 million

Net migration: 1.2 million

*Asylum: approx. 250,000 applicants
(aggregate of estimates)*

- **Proportion of total flow:**

Approx. 2%

- **Estimated future trends:**

Net Migration:

Short and medium term: Gradual decline

Long term: stable at around 900,000

⁷⁴ For a detailed overview, see e.g. J Bijak (2010), Op. Cit.

⁷⁵ D Orrell, *The Future of Everything: The Science of Prediction* (New York: Thunder's Mouth Press, 2007). Other sources of error include base values of forecasts, model parameters, errors in the explanatory variables (and their relations with migration), and expert judgement.

⁷⁶ See, for example, D A Ahlburg, "Simple versus complex models: Evaluation, accuracy and combining", *Mathematical Population Studies*, 5(3) (1995): 281–290.

4. Temporary Irregular Mobility

4.1 Background

While this and the following section respectively examine irregular forms of temporary and longer term mobility and their impact on border security, such forms are often driven by longer term strategic global drivers. Certainly in the analysis of strategic future threats within such documents as the UK Mod DCDC and the US JOE, much attention is paid to these drivers, which will clearly impact on wider EU migration patterns and aspects of border security. As is highlighted later, some of these future global threats to stability are already clearly emerging.⁷⁷

These drivers, which impact upon irregular mobility into the EU, include an increasing trend towards globalisation, which has acted as something of a 'double edged sword'. While on the one hand this has led to great opportunities, it has also necessitated greater levels of international cooperation to counter levels of increased instability. This instability, and the failure to adapt to it, have already started leading to state failures and regime change in various locations, resulting in increased flows of migrants, some of whom have sought to enter the EU. This can be most clearly seen with the events associated with the 'Arab Spring' resulting in an influx of refugees and migrants from North Africa into Southern Europe.

At the same time as political factors, geographic drivers such as climate change can additionally lead to instability, particularly when associated with the reduction or removal of access to scarce resources of water, food and energy sources. Again this can result in significant population movement as demonstrated by the ongoing famine in the Horn of Africa. These drivers associated with scarce resources can also be aggravated by demographic changes such as significant population growth.

Finally, as the following sector details, extremist or criminal non-state actors, such as the *al Qaeda* network and various organised crime networks can pose significant threats to stability, exploiting weaknesses in border security for their own ideological or financial benefit. Since this study reviews existing research, literature relating to such drivers is reviewed (for example, in the Europol's EU Organised Crime Threat Assessment OCTA2011). As elaborated in the methodology, drivers affecting border management were prioritised in the tiers-table in accordance with the taxonomy created. However, the interrelationships of these drivers and the interplay of effects on trends identified deserve full and dedicated research (as is proposed at the conclusions of this study).

⁷⁷ For more details see United Kingdom Ministry of Defence. "Strategic Trends Programme, Global Strategic Trends – Out to 2040." Development, Concepts and Doctrine Centre DCDC, February 2010 and United States Joint Forces Command. "Joint Operating Environment: JOE 2010." USJFCOM, February 2010.

This section provides an overview of the main estimates of irregular and illegal flows across EU borders whose aim and/or methodology is concerned with temporary flows – specifically, related to smuggling, organised crime and terrorism. These three causes all fall under the fields of crime and security and, as such, are of particular concern to those involved in the management of border security. Each impacts on border security in different ways. Smugglers will seek to cross air, sea and land borders, overtly or covertly, while transiting with illegal migrants or undeclared goods, items and material from which they hope to generate financial gain. While this financial aspect may also fall under the remit of customs and excise organisations, because of the scale and nature of smuggling and its impact on border security, it also has relevance to border security organisations. Historically, such smuggled goods have included illegal drugs (such as heroin, cocaine, amphetamines and cannabis), fuel and livestock, counterfeit goods (such as cigarettes and alcohol), weaponry and explosives, CBRN material⁷⁸ and illegal/irregular migrants. In the case of people smugglers and human traffickers, the smugglers gain illegal access across borders with illegal/irregular migrants, both for financial gain and in some cases to exploit them (trafficking). While because of its longer term impact this last form of illegal migration and human smuggling is examined in the following section, some forms of illegal migration can be considered temporary. See for example, circular migration of Albanian labour to Greece which is often temporary based on a seasonal or a project-by-project basis. See Section 5.1.1. for further details.

Organised criminals, because of their transnational nature, operate across borders in pursuit of various criminal activities with the aim of generating income as part of an illegal global economy. To some extent, they behave in a similar manner to multi-national corporations, developing local franchises and establishing business deals with local suppliers, the difference being that these networks are involved in various criminal activities.⁷⁹ Effectively operating without frontiers, their criminal economy mirrors the legitimate economic networks of nation states. Examples of their criminal activities which require the illegal gaining of access across borders and directly impact on border security include their involvement in drug trafficking, weapons smuggling and the human trafficking of young females for the sex trade. On some occasions, this organised criminal activity forms a nexus with terrorism, which one academic estimates as generating around 1.5 Trillion US Dollars, or around 5% of World Gross Domestic Product (GDP) annually.⁸⁰

Terrorists, unlike the previous two categories, are principally motivated by ideology, whether political, nationalist or religious. Nevertheless, such groups are regularly involved in criminality as a means of generating funding and commit criminal offences in pursuit of their objectives. While some nationalist-separatist terrorist groups are more localised by the very nature of their campaigns, international terrorist groups, particularly the *al-Qaeda* network and its affiliate groups, are more globalised. Consequently, in the course of their activities, terrorist groups impact on border security in a number of ways:

⁷⁸ Chemical, Biological, Radiological and Nuclear (CBRN)

⁷⁹ See M. Glenn (2008) *McMafia: Crime without Frontiers* London: Bodley Head.

⁸⁰ L. Napoleoni (2004) *Terror Inc. Tracing the Money behind Global Terrorism*. London: Penguin.

- Firstly, some terrorist groups have historically utilised one country as a safe-haven for training, planning and fund-raising, while launching attacks over the border in a neighbouring country, resulting in significant border security concerns.
- Secondly, in the course of their fundraising, planning and operations such terrorist groups have smuggled drugs, weaponry and their own personnel over borders to fulfil their objectives.
- Thirdly and finally, in a number of previous historical cases, terrorists have actually launched direct attacks against border facilities and those border security personnel manning them, through vehicle borne IEDs⁸¹ (VBIEDs – ‘car bombs’), direct fire from firearms and indirect fire from mortars and rockets.

Unfortunately, due to the clandestine nature of such causes of temporary irregular mobility and sometimes the political sensitivities associated with them, detailed and accurate statistics and data are difficult to obtain. Consequently, official statistics are often inaccurate and patchy, with discrepancies between the data of various international organisations and Member States. Nevertheless, where such data is available, it is mentioned.

A further obstacle to accurate assessment is the level of overlap between the actors and drivers in these fields. Examples include the involvement of organised criminals in illegal human trafficking and the smuggling of drugs, the transnational threat of terrorism and terrorists potential targeting of aviation and the crime - terrorism nexus, where either terrorists use criminal means to raise funds for their cause, such as smuggling and drug supplying, or where organised criminals adopt the use of terrorist tactics as a means of defending their criminal networks.

⁸¹ Improvised Explosive Devices (IEDs).

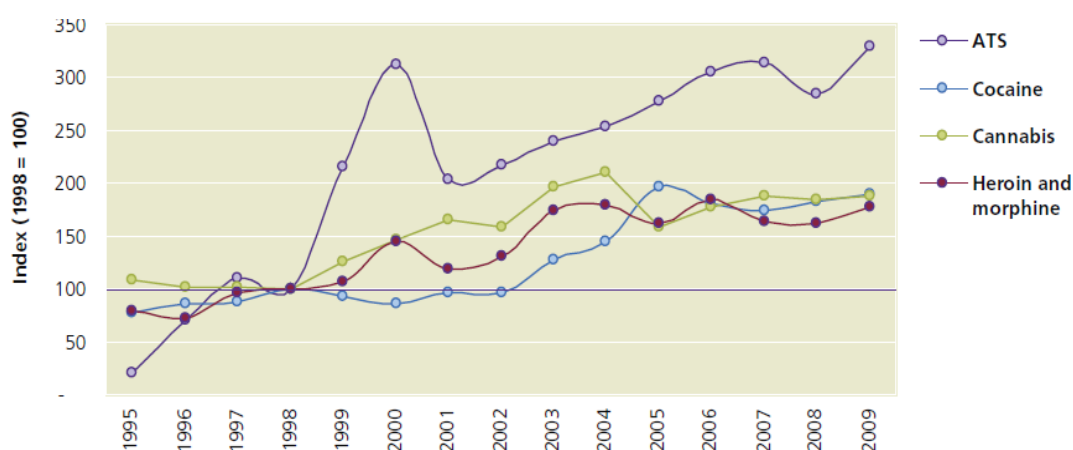
4.2 Overview of Numbers and Factors behind Temporary Irregular Mobility

4.2.1 Smuggling

Drug Smuggling

Drug smuggling or trafficking is a criminal offence as listed in Article 3(1) of the United Nations Convention of 20 December 1988 against Illicit Traffic in Narcotic Drugs and Psychotropic Substances and in the provisions amending or replacing that Convention.⁸² This is a high profit illegal industry with a substantial market in Europe and as the following figure shows, the amounts of the main types of drugs being seized globally considerably increased over the last decade (see Figure 11).

Figure 11. Trends in Seizures of Main Drug Categories (Index: 1998 =100) 1995 - 2009



Source: UNODC⁸³

Large scale drug smuggling, of the type impacting on border security, is often associated with trans-national organised crime groups and in some cases forms part of a nexus for terrorist fundraising.⁸⁴ Groups such as the *Taliban*, the *Fuerzas Armadas Revolucionarias* (FARC) in Columbia, Lebanese *Hezbollah* and the Kurdish *Partiya Karkeren Kurdistan* (PKK) have all been associated with the cultivation, processing and transiting of drugs.⁸⁵ While much current heroin production originates from Afghanistan,^{86,87} being processed and

⁸² EUROPOL Convention, "Indent added by the Council Act of 27 November 2003", *Official Journal*, 002 (2004): 3.

"unlawful drug trafficking" means the criminal offences listed in Article 3(1) of the United Nations Convention of 20 December 1988 against Illicit Traffic in Narcotic Drugs and Psychotropic Substances and in the provisions amending or replacing that Convention".

⁸³ UNODC, *World Drug Report 2011*. (Vienna 2011) p.22

⁸⁴ F. Cilluffo, "The Threat Posed from the Convergence of Organised Crime, Drug Trafficking and Terrorism - Evidence presented to the US House Sub-Committee on Crime" (Washington DC, 13th December 2000).

⁸⁵ Federal Research Division, *A Global Overview of Narcotics-Funded Terrorist and Other Extremist Groups* (Washington DC: Library of Congress, May 2002).

⁸⁶ P.A. Chouvy, "Narco-Terrorism in Afghanistan", *Terrorism Monitor*, 2:6 (2004).

⁸⁷ V. Felbab-Brown, "Afghanistan: When Counternarcotics Undermines Counterterrorism", *The Washington Quarterly*, Autumn 2005.

transited through the Middle East and Balkans into Europe, one of the most prominent geographical regions for cocaine production includes Columbia and other South American countries.⁸⁸ A large proportion of the cannabis entering Europe is grown in Morocco, from where it is trafficked across the Mediterranean into Spain and Southern Europe, while the trade in amphetamines often begins in Europe, being smuggled to the Middle East via Balkan and Turkish routes.⁸⁹ The scale of drug trafficking in the EU is highlighted in Table 1:

Table 1. Drug Trafficking Seizures by Member State and Year

Country								Index (base year 2005 = 100)		
	2002	2003	2004	2005	2006	2007	2008	2006	2007	2008
Belgium	9 673	9 751	10 580	11 391	11 812	12 606	12 612	104	111	111
Bulgaria	1 648	2 006	2 412	2 720	2 824	2 844	2 857	104	105	105
Czech Republic	4 114	3 497	2 803	2 706	2 668	2 639	2 812	99	98	104
Denmark	2 675	2 667	3 158	2 738	2 917	3 258	3 237	107	119	118
Germany	76 038	73 375	75 347	72 002	64 865	64 093	55 905	90	89	78
Estonia	632	604	494	686	981	1 449	1 558	:	:	:
Ireland	2 632	2 430	2 273	2 751	3 160	3 824	4 028	115	:	:
Greece	10 001	10 556	7 761	8 393	8 152	7 959	9 852	97	95	117
Spain	12 133	11 742	11 947	11 988	12 711	14 098	14 574	106	118	122
France	5 165	6 094	6 296	6 108	5 792	5 797	6 128	95	95	100
Italy	37 965	37 288	30 053	32 059	32 306	34 439	34 082	101	107	106
Cyprus	433	475	514	611	653	876	780	107	143	128
Latvia	629	997	1 148	1 049	997	1 434	2 512	:	:	:
Lithuania	213	509	711	999	704	765	793	70	77	79
Luxembourg	1 321	1 133	1 342	1 326	1 201	1 448	1 343	91	109	101
Hungary	4 790	3 387	6 678	7 626	6 740	4 676	5 464	88	61	72
Malta	:	:	78	113	123	149	180	109	132	159
Netherlands	12 752	15 633	15 662	15 305	16 361	15 657	:	107	102	:
Austria	2 320	2 506	2 443	2 337	2 377	2 473	1 980	102	106	85
Poland	2 371	2 577	3 296	3 608	3 220	3 926	3 317	89	109	92
Portugal	4 053	3 739	3 654	3 535	3 610	3 281	3 730	102	93	106
Romania	1 074	1 131	1 775	2 441	3 079	2 796	3 621	126	115	148
Slovenia	1 162	775	997	1 026	1 590	1 429	1 434	155	139	140
Slovakia	674	734	711	843	411	488	524	49	58	62
Finland	6 617	5 974	5 269	5 177	4 837	5 115	5 659	93	99	109
Sweden	5 259	5 129	4 905	4 670	6 449	7 026	7 797	138	150	167
UK: England & Wales	22 435	24 628	24 190	25 276	26 550	28 330	29 841	105	112	118
UK: Scotland	10 327	9 044	9 333	9 613	10 890	9 827	10 315	113	102	107
UK: Northern Ireland	291	405	375	349	473	529	607	136	152	174
<i>EU Candidate countries</i>										
Croatia	8 717	7 992	7 529	8 186	8 346	7 952	7 882	102	97	96
the former Yugoslav Republic of Macedonia	273	397	357	390	315	451	415	81	116	106
Turkey	5 148	5 036	6 720	7 550	10 508	13 649	15 366	:	:	:
<i>EU Potential Candidate countries</i>										
Albania	:	:	:	:	:	:	274	:	:	:
Montenegro	305	299	355	294	438	549	460	149	187	156
Serbia	1 077	2 492	4 116	5 256	5 505	5 414	6 049	105	103	115
<i>EFTA/EEA countries</i>										
Iceland	121	149	165	95	92	104	104	97	109	109
Liechtenstein	447	364	459	435	285	225	210	66	52	48
Norway	19 294	16 152	16 814	17 118	19 156	19 086	17 547	112	111	103
Switzerland	7 877	7 806	7 803	7 076	6 296	6 297	7 317	89	89	103

: Data not available.

| Break in the series.

Source: EUROSTAT⁹⁰

⁸⁸ D. Streatfield, *Cocaine: An Unauthorized Biography* (Picador, 2003).

⁸⁹ See UNODC 'World Drug Report 2010' Op. Cit.

⁹⁰ EUROSTAT *Crime Trends in Detail* (November 2010). Available from:

http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Crime_trends_in_detail

However, while the smuggling of such illegal substances as heroin and cocaine into the EU is a major factor in short term irregular mobility, West and Central Europe, notably Poland, the Netherlands and Germany continue to remain major centres for the manufacture and use of ATS. This is predominantly amphetamines and ecstasy, although recent evidence suggests a growth in the production and use of methamphetamine within the EU. Of more direct impact on irregular mobility and border security, demand for amphetamines in the Middle East has led to its 'export' from Europe's North West Crime Hub along the Balkan routes. This trade appears to increasingly involve Turkish and Bulgarian crime networks where the amphetamines are exchanged for heroin, which can then be 'imported' into the European Union.⁹¹

Fuel and Livestock Smuggling

Fuel and livestock smuggling often exploits price or tax differentials between countries. A good example of such smuggling within the EU is between *Eire* and the border with Northern Ireland. The economic differentials on each side of the border have been capitalised on by organised criminal and terrorist groups in the region for fundraising, in particular the Provisional Irish Republican Army (PIRA) and Dissident Republicans.^{92,93} This smuggling is often facilitated by social networks such as close local communities and families on both sides of the border. Standardisation of fuel prices and taxation across the EU has produced a trend shift for organised crime groups from smuggling across internal EU borders to smuggling to and from the EU or moving their trade outside of the EU where economic differentials still exist to be exploited. Consequently, the priority has shifted to policing external EU borders.

Counterfeit Goods Smuggling

The production and supply of counterfeit goods, such as alcohol, designer clothing and particularly cigarettes (or 'Cheap Whites') in Europe, is closely associated with various organised crime groups in the former Yugoslavia and Eastern Europe. This was highlighted in the Serbian 'Cigarette Wars' between rival gangs in the late 1990s.⁹⁴ There are also links between counterfeit goods and the crime-terror nexus, involving such groups as *Euzkadi Ta Askatasuna* (ETA) and the Real Irish Republican Army (RIRA).

Small Arms, Light Weaponry (SALW) and Explosives Smuggling

SALW and explosives, though not smuggled in large quantities in Europe, can have significant impact, with former Yugoslav weapons being smuggled into Europe by two routes: across the Adriatic into Italy or through Slovenia and Austria into Germany.⁹⁵ The two main users of SALW in the EU are terrorist organisations, especially nationalist-separatist groups and

⁹¹ For more details see EUROPOL *Organised Crime Threat Assessment OCTA 2011* (The Hague, 2011) and UNODC *World Drug Report 2011*. (Vienna 2011).

⁹² M. Frampton, *Legion of the Rearguard: Dissident Irish Republicanism* (Dublin: Irish Academic Press, 2010).

⁹³ P. Williams, *The Untouchables: Ireland's Criminal Assets Bureau and its War on Organised Crime* (Dublin: Merlin Publishing, 2006).

⁹⁴ See in M. Glenny, *McMafia: Crime without Frontiers* (London: The Bodley Head, 2008).

⁹⁵ D. Sagramoso, "The Proliferation of Illegal Small Arms and Light Weapons in and Around the European Union: Instability, Organised Crime and Terrorist Groups" (Kings College, University of London, Centre for Defence Studies, July 2001).

criminal groups involved in profitable illegal activities, such as drug-trafficking, prostitution, smuggling of illegal immigrants and extortion.⁹⁶ The latter highlights the nexus between smuggling, crime and terrorism and the overlap between all three short term irregular flows.

Chemical, Biological, Radiological and Nuclear (CBRN) Material Smuggling

Another major concern is the smuggling of CBRN - chemical,^{97,98} biological,^{99,100} radiological and nuclear^{101,102,103} material. Trafficking of radioactive material in Europe largely appears to be for purely financial gain, rather than political or religious motivations and has included such dangerous fissile material as Highly Enriched Uranium (HEU), which could be used in the construction of a nuclear device.¹⁰⁴ Much of this radioactive material has been obtained from the former Soviet Union and Warsaw Pact countries where production was substantial and current security measures suffer from economic and technical limitations.

4.2.2 Organised Crime

The trans-national nature of most organised crime networks poses a significant threat and problem to border security.^{105,106,107} The ability of organised crime to cause a major economic impact is of particular concern, as is their ability to operate across borders without concern for existing legal and security protocols.^{108,109} Consequently organised crime networks exist in various countries, often based around a particular national or demographic grouping and posing a global threat.^{110,111} Such organisations are involved in a wide range of

⁹⁶ J. Boutwell, ed., *Lethal Commerce: The Global Trade in Small Arms and Light Weapons* (Cambridge: American Academy of Arts and Sciences., 1995).

⁹⁷ A. Dwyer et. al. , *Jane's Chem-Bio Handbook* (Surrey: Jane's Information Group, 2002).

⁹⁸ R Harris and J Paxman, *A Higher Form of Killing: The Secret History of Chemical and Biological Warfare* (London: Arrow Books, 2002).

⁹⁹ British Medical Association, *Biotechnology Weapons and Humanity* (Amsterdam: Harwood Academic Publishers, 1999).

¹⁰⁰ T Mangold and J Goldberg, *Plague Wars: The Terrifying Reality of Biological Warfare* (London: St. Martin's Press-Macmillan, 2001).

¹⁰¹ F. Barnaby, *How to Build a Nuclear Bomb: And Other Weapons of Mass Destruction* (London: Granta, 2003).

¹⁰² G. Allison, *Nuclear Terrorism: The Risks and Consequences of the Ultimate Disaster*. (London: Constable, 2006).

¹⁰³ B.J. Jenkins, *Will Terrorists Go Nuclear?* (New York: Prometheus Books, 2008).

¹⁰⁴ "Crime connected with nuclear and radioactive substances" means the criminal offences listed in Article 7(1) of the Convention on the Physical Protection of Nuclear Material, signed at Vienna and New York on 3 March 1980, and relating to the nuclear and/or radioactive materials defined in Article 197 of the Euratom Treaty and Directive 80/836 Euratom of 15 July 1980;" EUROPOL Convention.

¹⁰⁵ UN.GIFT, "BP 027 Workshop: Transnational Organised Crime – Impact from Source to Destination", in *Global Initiative to Fight Human Trafficking* (2008).

¹⁰⁶ UNODC , "Crime and Its Impact on the Balkans: And affected countries" (United Nations Office on Drugs and Crime, 2008).

¹⁰⁷ United Nations, "Convention Against Transnational Organized Crime and the Protocols thereto". (New York, 2004).

<http://www.unodc.org/documents/treaties/UNTOC/Publications/TOC%20Convention/TOCebook-e.pdf>

¹⁰⁸ Glenny 2008 Op. Cit.

¹⁰⁹ P. Staffansson, ed., *Maffia: Den Kompletta Historien* (Stockholm: Bonnier Fakta, 2010).

¹¹⁰ A Edwards and P Gill, *Transnational Organised Crime: Perspectives on Global Security* (London: Routledge, 2003).

criminal activities associated with both temporary and longer term irregular mobility across borders, from drug smuggling to human trafficking.¹¹² To facilitate the smuggling of such products as counterfeit cigarettes and alcohol and to mitigate the level of investigations into their activities, many organised crime groups seek to corrupt border guards and officials.¹¹³ More recently, the increasingly diverse nature of organised crime has led to highly flexible trans-national criminal networks with diversified interests in numerous areas, ensuring far greater resilience during the current economic downturn. In the case of Albanian and Lithuanian organised crime networks, these pose a significant threat to the EU due to their expanding activities and criminal interests. A further increasing concern is the level of collaboration and cooperation between various organised crime networks, sharing operations and risks and taking advantage of expanding transport infrastructures and expertise in trafficking commodities, laundering money and legal and financial expertise. Modern developments in social networking and computer and internet technology have also been exploited by organised criminal groups.

The current economic downturn has resulted in an increase in the activity of organised criminal networks within the EU and a greater general acceptance of their activities amongst EU citizens in such areas as the supply of contraband or counterfeit goods and the cultivation, production and supply of drugs. At the same time, the current economic crisis has resulted in many Member States having less funding available for security and law enforcement measures, such as border security.

As regards centres for this organised criminal activity, EUROPOL identifies five main criminal 'hubs' within the EU (Figure 12):

- North West: Centred around the Netherlands and Belgium
- North East: Centred around Lithuania, Estonia, Latvia and the Kaliningrad enclave (Russian Federation)
- South East: Centred around Bulgaria, Romania and Greece
- Southern: Centred around Southern Italy
- South West: Centred around Spain and Portugal

EUROPOL highlights that these fulfil different criminal functions, "The North West hub retains its role as the principal coordination centre for drug distribution, due to its proximity to highly profitable destination markets, its well developed commercial and transport infrastructure, and its production capacity. The North East hub remains a focus for transit of illicit commodities to and from the Former Soviet Union and a base for violent poly-criminal groups with international reach. The leading role of the South West hub in cocaine and cannabis resin transit and distribution persists despite eastward shifts in some trafficking routes, and it currently serves also as a transit zone for victims of trafficking for sexual

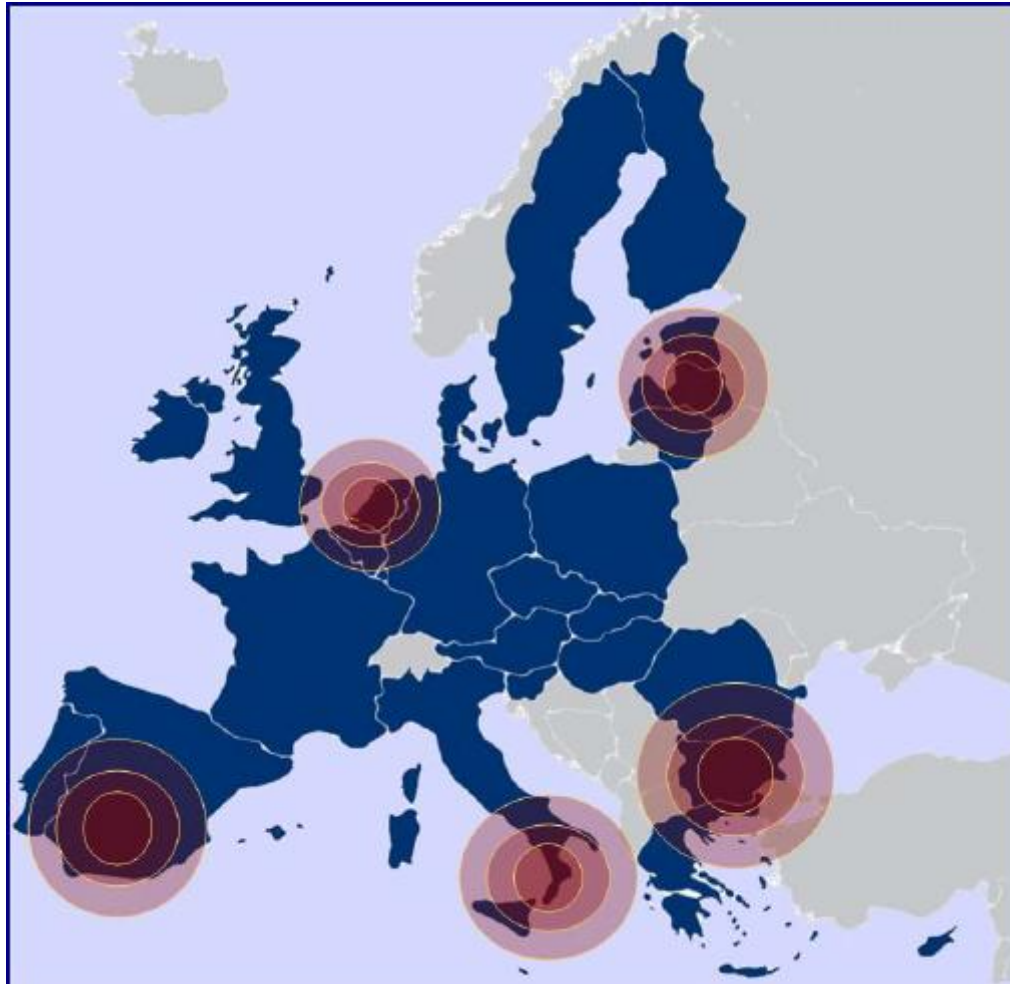
¹¹¹ J. Robinson, *The Merger: The Conglomeration of International Organised Crime* (New York: Overlook Press, 2000).

¹¹² F Shanty and M Patit Paban, *Organized Crime: From Trafficking to Terrorism* (Santa Barbara CA: ABC – CLIO, 2008).

¹¹³ Center for the Study of Democracy, *Organised Crime and Corruption: National Characteristics and Policies of the EU Member-States*, Policy Brief No 26, (November 2010).

exploitation.¹¹⁴ The Southern hub continues to be prominent in criminal entrepreneurship, as a centre for counterfeit currency and commodities, a transit zone for victims of trafficking in human beings and illegal immigrants, and a base for some of the best resourced criminal groups in Europe”.¹¹⁵

Figure 12. EU Criminal ‘Hubs’



Source: EUROPOL¹¹⁶

According to EUROPOL’s Organised Crime Threat Assessment (OCTA) 2011 “Criminal hubs are concentrations of criminal logistics which receive illicit flows from numerous sources and whose influence extends throughout the EU. Such concentrations facilitate not only the trafficking of illicit commodities but also the forging of new criminal markets, providing new opportunities for criminal groups. The hubs have been identified based on their proximity to major destination markets, commercial and transport infrastructure, prevalence of criminal groups and opportunities for criminal migration.”¹¹⁷

In terms of external organised crime affecting the EU, perhaps the main concern is the recent expansion of the activities around the South East criminal hub. This has seen

¹¹⁴ ‘Trafficking in Human Beings’

¹¹⁵ EUROPOL *Organised Crime Threat Assessment OCTA 2011* (The Hague, 2011) p. 6.

¹¹⁶ *Ibid.* p.38

¹¹⁷ *Ibid.*

increased trafficking of humans and goods via the Black Sea and Balkan routes, including the recent upsurge in irregular migration from Turkey into Greece and the establishment of criminal transport hubs in Hungary. These routes into the EU are being exploited by criminal networks comprising Albanian, Turkish and former Soviet groups. It is believed that such criminal groups will seek to exploit the membership of Bulgaria and Romania and prospective visa exemptions for countries in the Western Balkans, Ukraine and Moldova, as a means of access for their criminal activities into the EU.¹¹⁸

Again, from the scope defined for this study to review existing research emerges clearly the need for further research based on 'systems thinking', into the complex possible effects of drivers on future trends (and on other drivers). As the enhanced methodological approach taken included the prioritisation of the drivers affecting border management into a tier-table (based on the taxonomy created) it points towards possible prioritisation of future research of these factors and drivers. The interrelationships of drivers and the interplay of effects on trends deserve full and dedicated research, proposed at the conclusions of this study). It also acts as foundation for the second part of the study (WP2 – Scenarios).

Of particular concern is the development of a crime-terrorism nexus, which can exist in two main forms. Either where terrorists such as the *al Qaeda* network, Dissident Irish Republican groups, the Basque separatist *Euzkadi Ta Askatasuna* (ETA) and the various Corsican nationalist splinter groups associated with the *Front de Liberation Nationale Corse* (FLNC)¹¹⁹ utilise criminal methods to raise funds, or where organised criminal groups, such as the Italian Mafia¹²⁰ and the Columbian Cali Cartel,¹²¹ use terrorist techniques to protect their criminal empires.¹²² Moreover, organised criminals and terrorists can collaborate symbiotically for their mutual benefit. Despite occasional media and official references to the common criminality of terrorists, organised crime and terrorism relationships remain under-investigated.¹²³

4.2.3 Terrorism

General issues

Previously, the difficulty of maintaining border security and the geographically porous nature of certain borders played a significant role in long term terrorist activity.¹²⁴

Nationalist-separatist terrorist groups, such as the Provisional Irish Republican Army (PIRA),¹²⁵ the Basque separatist ETA¹²⁶ and the Kurdish nationalist group the *Partiya*

¹¹⁸ For more details see EUROPOL OCTA 2011 Op. Cit. p.6.

¹¹⁹ E Farrugia and P Serf, *Corse: La Terrorisme* (Paris: Diffusion International Edition, 2004).

¹²⁰ A. Jamieson, "The Use of Terrorism by Organised Crime: an Italian case study," in *Root Causes of Terrorism: Myths, reality and ways forward*, ed. T Bjorgo (London: Routledge, 2005).

¹²¹ M. Bowden, *Killing Pablo: The Hunt for the Richest, most Powerful Criminal in History* (London : Atlantic Books, 2001).

¹²² T. Makarenko, *The Crime-Terror Nexus* (London: Hurst & Co., 2007).

¹²³ T. Makarenko, "The Crime-Terror Continuum: Tracing the Interplay between Transnational Organised Crime and Terrorism", *Global Crime*, 6:1 (February 2004).

¹²⁴ B. Hoffman, *Inside Terrorism: Revised and Expanded Edition* (New York: Columbia University Press, 2006).

¹²⁵ R. English, *Armed Struggle: A History of the IRA* (London: Macmillan, 2003).

Karkeren Kurdistan (PKK),¹²⁷ though geographically localised by their very nature and support base, have exploited cross border access. This has often been facilitated by supporting elements in communities on both sides of the border. International terrorism, particularly in the form of a globalised Islamist network, poses a different kind of threat due to its trans-national nature.¹²⁸ Often planning for attacks will be conducted in one country, involve terrorists from various countries and be conducted against yet another country.¹²⁹ Indeed, the very nature of the current Islamist threat has seen the blurring of not only traditional geographical borders, but also between home and overseas, domestic and foreign and between the battlefield and the high street¹³⁰. The continuing levels of terrorist activity are shown in Table 2:

Table 2. Failed, Foiled and Completed Attacks in 2010, per Member State and per Affiliation

Member State	Islamist	Separatist	Left-wing	Right-wing	Single-issue	Not specified	Total 2010
Austria	0	1	1	0	0	0	2
Czech Republic	0	0	1	0	0	0	1
Denmark	2	0	0	0	0	0	2
France	0	84	0	0	0	0	84
Greece	0	0	20	0	1	0	21
Italy	0	1	7	0	0	0	8
Spain	0	74	16	0	0	0	90
Sweden	1	0	0	0	0	0	1
United Kingdom	-	-	-	-	-	40	40
Total	3	160	45	0	1	40	249

Source: EUROPOL¹³¹

Financing such terrorist attacks and their associated activities may involve a variety of illegal activities, including fraud, counterfeit products, drugs smuggling, kidnapping, trafficking of human beings and extortion. These activities entail short term irregular mobility flows that impact on border security. Additionally, legitimate sources are often used as fronts for such terrorist fundraising, such as charitable organisations, non-governmental organisations (NGOs) and media outlets.

¹²⁶ Y Alexander, M Swetnam and H Levine, *ETA: Profile of a Terrorist Group* (New York: Transnational Publishers, 2001).

¹²⁷ A. Mango, *Turkey and the War on Terror: For Forty Years We Fought Alone* (London: Routledge, 2005).

¹²⁸ R. Gunaratna, *Inside Al Qaeda: Global Network of Terror. Second edition* (London: Hurst, 2003).

¹²⁹ M. Nance, *The Terrorist Recognition Handbook* (Guilford, Connecticut : The Lyons Press, 2003).

¹³⁰ See, for example, the recent attacks in Norway and early analysis of them comparing the threats of extreme right wing to other terrorist trends: D Rich, "Recognising the threat of far right terrorism" ICT Commentaries, July 24 2011. Available from:

<http://www.ict.org.il/NewsCommentaries/Commentaries/tabid/69/Articlsid/959/Default.aspx>

¹³¹ EUROPOL, *TE-SAT 2011: EU Terrorism Situation and Trend Report* (The Hague, 2011). p.36

Aviation

A particular subset of terrorism with particular concern for border security is aviation terrorism, posing a threat to passenger aircraft, cargo and airport terminal security.^{132,133} Such terrorism therefore has a significant economic and political impact, not only when successful, but in terms of the expenditure necessary on flight and airport security measures such as 'sky marshals', controversial enhanced screening and reinforced cockpit doors.^{134,135} While many historical hijackings and aviation incidents involved Palestinian and Left Wing terrorist groups, most of the recent aviation terrorist attacks have been related to Islamist extremism.¹³⁶ There was no EU-wide aviation security policy until 2002, when Regulation No. 2320/2002 established common rules for civil aviation security. In 2008, the regulation was repealed and replaced with the substantially revised Regulation No 300/2008. According to ICAO Annex 17, each EU Member must have a national civil aviation security program under a single agency.¹³⁷

4.3 Conclusion

Given both the temporary impact of these causes of irregular mobility and their covert nature, monitoring the impact on border security of smuggling, organised criminality and terrorism, is extremely difficult. Not only is their impact temporary but tends to be very fluid and changeable:

- Smuggling: Any extrapolation for the flow of smuggling across borders would have to rely on available figures for the number of individuals stopped and the quantity of particular smuggled items or material seized at particular borders. However, designing an effective 'multiplier' for effective estimation of this 'flow' would prove difficult for two reasons. Firstly the different levels of smuggling across different parts of the EU external borders are likely to vary significantly and secondly, because of the wide variety of different types of goods, items or material smuggled across EU borders.

¹³² A. Thomas, *Aviation Insecurity: The New Challenges of Air Travel*. (Amherst NY: Prometheus Books, 2003).

¹³³ J. Szyliowicz, "Aviation Security: Promise or Reality?", *Studies in Conflict & Terrorism*, 27:47-63 (2004).

¹³⁴ J. Hainmuller and J M Lemnitzer, "Why Do Europeans Fly Safer? The Politics of Airport Security in Europe and the U.S.", *Terrorism and Political Violence*, 15 Issue 4 (Winter 2003): 1-36.

¹³⁵ M.G. Stewart and J Mueller, "Assessing the Risks, Costs, and Benefits of United States Aviation Security Measures" (Research Report No. 267.04.08, University of Newcastle (Australia), 2008).

¹³⁶ D. Gero, *Flights of Terror: Aerial Hijack and Sabotage since 1930* (Yeovil: Patrick Stephens Limited, 1997).

¹³⁷ "Member states may adopt more stringent measures (on the basis of risk assessment), but the objective of No 300/2008 is to provide a "common interpretation of Annex 17" within Europe. The fourth section of Article 4 of EC No. 300/2008 permits member states to "adopt alternative security measures that provide an adequate level of protection on the basis of a local risk assessment." This allows member states to "derogate from the common basic standards" implying that less-stringent protection might be provided if justified by lower levels of risk or certain locations, aircraft sizes, or infrequency of operation". Cited in: R.W. Poole, "Toward Risk- Based Aviation Security Policy" (Discussion Paper 2008-23, OECD/ITF, November 2008).

- Organised Crime: Again estimating the level of temporary irregular mobility across borders by organised criminals poses various conceptual and methodological difficulties. Many criminals will travel legally across borders on legitimate travel documents and even the businesses or organisations they are involved in may appear 'legitimate' having been established with 'laundered' money derived from crime. Even where organised criminals or their activities are intercepted or identified at borders or through other investigation, extrapolating any accurate assessments would prove extremely difficult.
- Terrorism: While the annual statistics collated by EUROPOL are based on Member States inputs and provide an extremely useful tool, they are based on successful terrorist attacks, known foiled attacks and arrests. Consequently, while a number of these can be identified as having impacted on border security, because of its covert nature there will be many other terrorist related activities which will not have come to the attention of authorities in the EU. In addition, the introduction of effective counter-terrorist measures, including additional border and airport security, may well deter or disrupt a terrorist act without the authorities becoming aware of it. So again, the hidden nature of terrorism makes any accurate extrapolation extremely difficult.

These conceptual and methodological difficulties in turn negatively affect any futures studies or planning relating to these drivers behind temporary irregular mobility. Perhaps one of the most accurate means of evaluating the impact of these drivers is to examine data from multiple sources, such as those detailed in this section, to collate such data, compare and contrast it and then make evaluations based upon the resultant analysis. While this may not be able to provide accurate estimates in these areas, such evaluations may at least identify specific areas of concern or developing trends.

In conclusion, the covert nature, temporary impact and overlap between its various aspects make meaningful calculation of any temporary irregular flows almost impossible. Additionally, in many instances the discovery and interception of individuals involved in smuggling, organised crime and terrorism is reliant on pro-active intelligence gathering. Accordingly, readers are referred to the most recent statistics contained in the earlier individual sections.

Though for the reasons stated an accurate estimation of temporary irregular mobility in the short to medium terms is impossible, the increasing political instability on the external borders of the EU, the continuing economic downturn in Europe and the likely reductions in available funding for border security may well lead to its expansion.

- ***Current levels:***

No existing comprehensive surveys or estimates on numbers of BCEs of this type, due to:

- 1. Covert Nature*
- 2. Temporary Impact*
- 3. Variety and overlap of different types of temporary irregular mobility*

- ***Proportion of total flow:***

Unknown

- ***Estimated future trends:***

Likely significant rise in near and mid-term future due to three factors

- 1. Increasing political instability on the external borders of EU (Africa, M.E.)*
- 2. Continuing economic downturn in Europe*
- 3. Likely reductions in available funding for border security*

5. Long-Term Irregular Mobility

This section examines longer-term irregular mobility in the forms of both illegal migration and human trafficking. Again there is an element of overlap with some of the drivers/facilitators behind shorter term irregular mobility in the form of organised crimes' involvement in people smuggling and human trafficking. Key drivers behind such irregular mobility include family reunification, economic poverty, natural disasters, political uncertainty and wars and conflicts. Although a number of international organisations, including those detailed below, monitor the level of illegal immigration and human trafficking in the European Union, due to its clandestine nature and political sensitivity, accurate assessments are extremely difficult, as is defining exactly who the perpetrators and victims are.

This situation and its estimation is further complicated by whether a measurement considers the stocks of those irregular migrants already illegally residing in the EU Member States, or the flows of illegal migrants attempting to enter the EU and the method utilised to enter a country, either through illegal border crossing or by illegally overstaying a visa or failed asylum application. Thus, although asylum involves a legal process, it has some relevance to the stock number of illegal overstayers. According to the report released in March 2009 by the United Nations High Commissioner for Refugees (UNHCR), the top ten nationalities claiming political asylum in the EU during 2007/08 were Iraqi, Russian, Somali, Serbian, Pakistani, Afghan, Nigerian, Eritrean, Iranian and Bangladeshi, while the latest FRONTEX Annual Risk Analysis identifies the top nationalities involved in illegal border crossings as being from Albania, Afghanistan, Algeria, Somalia, Palestine, Pakistan, Iraq, Morocco and Bangladesh.¹³⁸

Consequently, as one recent report states: "It is difficult and cost-intensive to make estimates of hidden populations. Social scientists are often reluctant to come forward with estimates, because they cannot achieve a degree of reliability which they are used to from other fields of study".¹³⁹ This level of unreliability makes assessments of irregular mobility a particularly difficult area within the wider field of population estimates and in many cases the only way to confirm whether an individual is an illegal migrant or not is through policing or other investigations.

5.1 Overview of Numbers and Factors behind Long-Term Irregular Mobility

5.1.1 Illegal Migration

For the reasons previously highlighted, accurate figures and numbers regarding both stocks and flows of illegal migration are almost impossible to quantify. Nevertheless some of the most detailed estimates of illegal stocks have been generated by the Clandestino Research

¹³⁸ Cited in: Frontex, "Annual Risk Analysis 2011" (Warsaw, April 2011). p.16. FRAN data.

¹³⁹ M. Jandl, D. Vogel and K. Iglicka "Report on Methodological Issues" (Clandestino October 2008) p.4

Project previously detailed. Even here, the research detailed in 2008 gave ‘guesstimated’ figures of illegal residents by country at both a minimum and a maximum estimates, presented in Table 3 below.

Table 3. Clandestino Project Estimates of Illegal Migrant Stocks in 2008

COUNTRY	MINIMUM	MAXIMUM
Greece	172,000	209,000
Italy	279,000	461,000
France	178,000	400,000
Spain	280,000	354,000
Netherlands	62,000	131,000
United Kingdom	417,000	863,000
Germany	196,000	457,000
Austria	18,000	54,000
Poland	50,000	300,000
Hungary	10,000	50,000
Slovakia	15,000	20,000
Czech Republic	17,000	100,000

Source: Clandestino. Based on HWWI compilation of estimates from different data sources

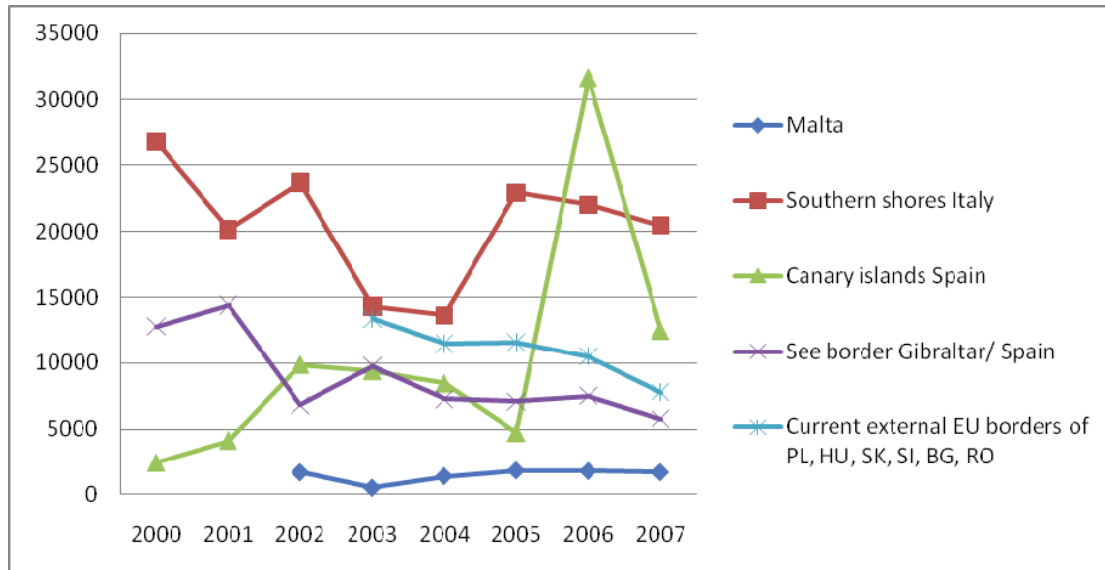
Clearly for Border Security personnel, illegal migration flows rather than stocks are more directly significant.¹⁴⁰ Frontex regularly makes available to MS reports detailing *modi operandi* and route data on flows. These include the Turkish–Greek land border by the Evros River and sea crossings to the Greek Islands or mainland, the Albanian–Greek route by land and Albanian–Italian route by sea and the Turkish-Balkan European route north and westwards. From Africa there are routes into Southern Europe by land from Morocco into the Spanish North African enclaves of Ceuta and Melilla, or by sea crossing from North Africa to Malta, Spain and Italy, including the Italian islands of Lampedusa, Sicily and Sardinia and the Spanish Canary Islands. Finally, there are the East European routes from Russia, Ukraine, Moldova and Belorussia into Eastern Central Europe and westwards.

In terms of numbers of illegal migrants involved in these migration flows, some estimation can be made based on the numbers apprehended at selected European borders. Previously such estimations have been extrapolated on the basis that for every illegal border crosser into the EU apprehended, a further two will have crossed without being detained.¹⁴¹ However, while this gives a rough estimation, for reasons detailed in the following conclusion, this can lead to significant variations and inaccuracies.

¹⁴⁰ This is likely due to the fact that in the last 20 yrs a number of MS have regularised a total of some 4.5 m irregular stayers.

¹⁴¹ See F Heckmann et al., "Transatlantic Workshop on Human Smuggling: Conference Report" (Georgetown University, Autumn 2000). A similar estimation has been used by ICMPD Yearbook reports since 1996. Detailed in M. Jandl, D. Vogel & K. Iglicka 'Report on Methodological Issues' (October 2008, Clandestino).

Figure 13. Apprehensions at Selected European Borders



Source: Clandestino. ICMPD compilation of border police data.¹⁴²

Much of this cross-border illegal migration is facilitated by organised criminal groups which produce false paperwork, or procure and doctor originals for individuals to cross official border crossings. They employ deception, identify routes or methods to cross borders illegally through clandestine means and provide transportation or accommodation to facilitate the transit of individuals or groups across borders.¹⁴³ Some of the most recent statistics detailing these illegal border crossings are provided by FRONTEX using data provided by the FRONTEX Risk Analysis Network (FRAN), presented in Table 4:

¹⁴² Clandestino, "Size and Development of Irregular Migration to the EU - Counting the Uncountable: Data and Trends across Europe", Comparative Policy Brief (October 2009). Figure 3 p.6. Available from: http://irregular-migration.hwwi.de/typo3_upload/groups/31/4.Background_Information/4.2.Policy_Briefs_EN/ComparativePolicyBrief_SizeOfIrregularMigration_Clandestino_Nov09_2.pdf

¹⁴³ EUROPOL, *Facilitated Illegal Immigration into the European Union* (The Hague : EUROPOL, September 2009).

Table 4. Illegal Border-Crossing by Routes and Nationalities

Detections of illegal border-crossing between BCPs by routes and main nationalities at the external borders

	2009	Share in total		2010	Share in total	% change on a year ago
Routes						
Eastern Mediterranean Route (BGR,CYP,GRC)	39 975	38.2%		55 688	53.5%	39%
<i>Eastern Mediterranean - sea</i>	28 848			6 175		-79%
Afghanistan	11 758	41%	Palestine	1 500	24%	
Palestine	6 353	22%	Afghanistan	1 373	22%	
Somalia	5 675	20%	Albania	665	11%	
<i>Eastern Mediterranean - land</i>	11 127			49 513		345%
Iraq	2 674	24%	Afghanistan	21 389	43%	
Palestine	2 565	23%	Algeria	6 335	13%	
Myanmar	1 286	12%	Somalia	3 807	8.0%	
Circular Route from Albania to Greece	40 250	38%		35 297	34%	-12%
Albania	38 017	94%	Albania	32 451	92%	
Afghanistan	908	2.3%	Afghanistan	854	2.4%	
Western Mediterranean Route	6 642	6.3%		5 003	4.8%	-25%
<i>Western Mediterranean - sea</i>	5 003			3 436		-31%
Algeria	3 190	64%	Algeria	1 242	36%	
Morocco	254	5.1%	Morocco	300	8.7%	
<i>Western Mediterranean - land</i>	1 639			1 567		-4.4%
Morocco	672	41%	Not specified	1 108	71%	
Not specified	503	31%	Algeria	459	29%	
Algeria	464	28%				
Central Mediterranean Route	11 043	11%		4 448	4.3%	-60%
Somalia	3 143	28%	Afghanistan	1 701	38%	
Nigeria	1 655	15%	Tunisia	652	15%	
Tunisia	1 624	15%	Egypt	567	13%	
Eritrea	1 084	10%	Algeria	295	6.6%	
Western Balkan Route	3 089	3.0%		2 371	2.3%	-23%
Serbia	1 683	54%	Serbia	687	29%	
Afghanistan	700	23%	Afghanistan	469	20%	
Bosnia and Herzegovina	188	6.0%	Palestine	254	11%	
Eastern borders Route	1 335	1.3%		1 043	1.0%	-22%
Moldova	396	13%	Moldova	393	38%	
Georgia	173	13%	Georgia	144	14%	
Afghanistan	163	12%	Afghanistan	132	13%	
Russia	121	9.0%	Ukraine	107	10%	
Western African Route	2 244	2.1%		196	0.2%	-91%
Mali	555	25%	Morocco	179	91%	
Guinea	304	14%	Sierra Leone	8	4.0%	
Côte d'Ivoire	275	12%	Mauritania	2	1.0%	
Others	21			3		-86%
Ukraine	16	76%	Russia	2	67%	
Total EU	104 599			104 049		-0.5%

Source: FRAN data received as of 25 February 2011

Note: BCP denotes 'Border Crossing Points'

Source: FRONTEX¹⁴⁴

Currently, the single largest group of individuals detected for illegal border crossing into the EU from the Western Balkans are Albanians. Most of this illegal migration, which is predominantly into neighbouring Greece, is driven by economic factors and is circular in nature. This sees unskilled or semi-skilled migrants from Albania entering Greece irregularly in order to find work, often as low paid unskilled labour in unofficial and informal sectors of the Greek economy, often based on a seasonal or project by project basis. Previously, Albanians detected attempting such illegal border crossing were returned to Albania, where they would often immediately attempt to illegally cross the border again, many with existing work and contracts in Greece. This situation was not assisted by the demand for such cheap labour in Greece and the fact that Greek businesses illegally employing such Albanian labour

¹⁴⁴ FRONTEX, *Annual Risk Analysis*, 2011

were rarely prosecuted. However, in 2010, the number of Albanians apprehended on this route declined compared to 2009, probably as a result in a decrease in demand due to Greece's economic downturn. This trend is likely to increase following the liberalisation of visa requirements for Albanians, introduced in December 2010, providing them with legal travel channels. In combination with the continuing economic situation in Greece, this is likely to result in a continuing decline in irregular Albanian circular migration to Greece.¹⁴⁵

5.1.2 Human Trafficking¹⁴⁶

Over the last twenty years a dramatic rise in the level of human trafficking has been detected, particularly where organised criminal groups have clandestinely facilitated and assisted the illegal trafficking of individuals and groups across borders for purely financial incentives.¹⁴⁷ Such activities have reached a point where in certain cases they pose a threat to both the domestic security and sovereignty of the destination country involved. These activities have also preyed upon the desperation of many of those being trafficked, in particular exploiting the vulnerability of young people being trafficked for the sex trade and the trafficking of children.¹⁴⁸ Aspects of the level and types of illegal/irregular migration in the EU, including human trafficking, are shown in Table 5:

¹⁴⁵ For more details see FRONTEX, *Western Balkans Risk Analysis*, Warsaw (2011).

¹⁴⁶ For a recent and thorough literature review on human trafficking and labour exploitation see: S. Dowling, K. Moreton and L. Wright, "Trafficking for the purposes of labour exploitation: a literature review" (Home Office Online Report, 2007).

¹⁴⁷ M. Jandl, "The Estimation of Illegal Migration in Europe", *International Centre for Migration Policy Development (ICMPD), Studi Emigrazione/Migration Studies*, XLI, no. 153 (March 2004): 141-55.

¹⁴⁸ J. Salt, "Trafficking and Human Smuggling: A European Perspective", *International Migration*, 38, Issue 3, Special Issue 1 (2000): 31-56.

Table 5. Summary of FRAN Indicators (as reported by Member States)

FRAN Indicator	2008	2009	2010	% change on a year ago
Illegal entries between BCPs	159 082	104 589	104 049	-0.5%
Clandestine entries at BCPs*	:	298	242	-18%
Facilitators	9 881	9 171	8 629	-5.9%
Illegal stay	441 230	412 125	348 666	-15%
Refusals of entry	121 294	113 029	108 500	-4.0%
Applications for asylum	223 180	219 814	203 880	-7.2%
False travel-document users	:	7 872	9 439	20%
Returns (for 10 Member States**)	:	65 828	74 110	12%
Other Indicators				
Issued visas (source: Council)	13 493 948	12 486 676	:	n.a.
Passenger flow (Commission estimate***)	713 000 000	660 000 000	:	n.a.

* Data for air borders and for the United Kingdom's internal sea borders with Belgium, France and the Netherlands have been excluded

** Belgium, the Czech Republic, Latvia, Lithuania, the Netherlands, Poland, Romania, Slovenia, Switzerland and the United Kingdom

***Estimates from EBF Indicators which do not include the United Kingdom and Ireland

Source: FRAN data received as of 25 February 2011

Note: BCP denotes 'Border Crossing Points'

Source: FRONTEX¹⁴⁹

A 2009 Frontex report highlights the adaptation and evolution of smuggling methods against the tightening of border controls, for example, by use of increasingly sophisticated forged documents or through hiding irregular migrants in vehicles. The report noted a shift from the crossing of green borders to clandestine passage through official border crossing points. This trend is especially relevant to land borders between Bulgaria, Greece, Former Yugoslav Republic of Macedonia and Turkey. According to ICMPD, smugglers utilise legal means of entry followed by illegal methods for remaining. For example, they deceptively obtain visas using authentic passports along with faked invitations for study, business and tourism. Other significant strategies involve marriages of convenience, fake university registration, applying for refugee status and/or adoptions by convenience.¹⁵⁰

An earlier ICMPD report states that "on balance it still seems likely that a real shift towards illegal border crossings at official border crossing points and away from green borders is taking place. As mentioned before, at the moment even sophisticated systems of border checks do not allow the control of all passing vehicles. With growing cross-border traffic and the simplification of control procedures for EU citizens, the potential for misusing vehicles

¹⁴⁹ Frontex, "Annual Risk Analysis 2011" (Warsaw, 2011)

¹⁵⁰ Frontex, "Western Balkans Annual Risk Analysis 2010" (Warsaw, May/June 2010).

(e.g. with EU Member State number plates) and false or falsified documents for illegal migration is significant.”¹⁵¹

5.2 EU Border Security in Relation to Long-Term Irregular Mobility

Within the ‘Protocol to Prevent, Suppress and Punish Trafficking in Persons’, Article 11 of the Protocol discusses the strengthening of border measures to prevent and detect trafficking. This is through legislative or other appropriate measures preventing commercial carriers from being used in the commission of such offences, by obligating them to ascertain that all passengers are in possession of necessary travel documentation required for entry into the receiving State. It also provides sanctions in the case of violation, recommending that states should consider measures such as denial of entry and revocation of visas for those persons implicated in the commission of such offences.¹⁵²

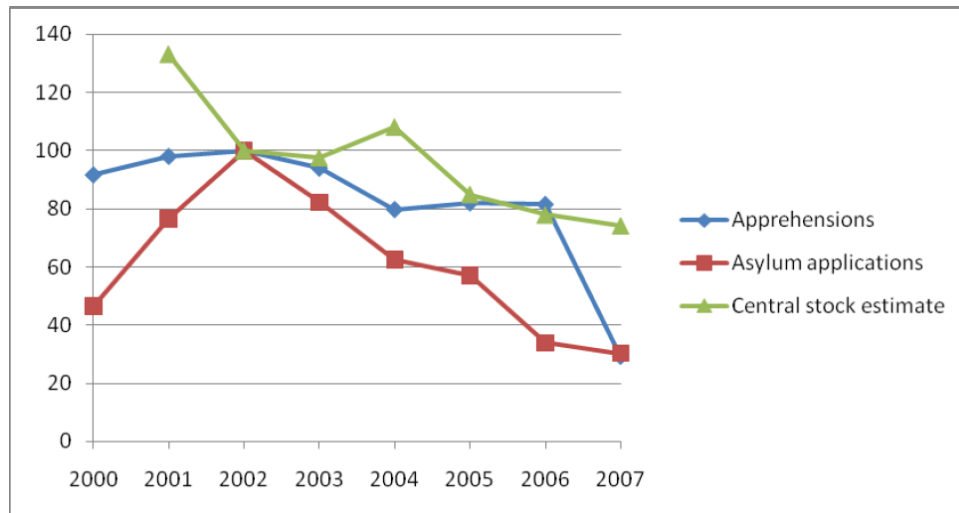
5.3 Conclusion

Despite a number of international organisations attempting to monitor illegal migration and its facilitation through people smuggling and human trafficking, due to its clandestine nature, making accurate assessments is extremely difficult, if not impossible. Consequently, true estimates cannot be made and are often based on extrapolations generated from a ‘multiplier’ which is applied to the number of those detained attempting to cross the border illegally. This lack of accuracy also impacts on any futures planning. Therefore any extrapolated data, such as the indicators of irregular migration flows below, can only be shown in the most generalised terms.

¹⁵¹ Futo, P & Jandl M (eds.), 2006 Year Book on Illegal Migration, Human Smuggling and Trafficking in Central and Eastern Europe, International Centre for Migration Policy Development, (Vienna, 2007)

¹⁵² M Ventrella, *The Control of People Smuggling and Trafficking in the EU: Experiences from the UK and Italy. Law and Migration* (Ashgate Publishing Ltd., 2010).

Figure 14. Standardized Indicators of Irregular Migration Flows



Source: Hamburg Institute of International Economics (HWWI)¹⁵³

With all such estimations of illegal migration stocks and flows, there are significant methodological factors, some of which are raised by Jandl, Vogel and Iglicka (2008) which must be considered due to their negative impact on any accurate extrapolation. These conceptual problems associated with attempting to extrapolate the level of illegal migration flows and stocks from available data include:

- Firstly, most of the statistical data on illegal border flows and apprehensions obtained by border security organisations is not placed in the public domain, limiting analysis. Even multilateral EU databases, such as CIREFI only release limited (and often dated) information
- Secondly, much of the data held by such border security agencies is based on cases, rather than individuals. Thus if the same individual is apprehended illegally crossing a border on more than one occasion, the illegal border crossing will be recorded, even though it is in fact the same individual, so this can lead to an overestimation of numbers
- Thirdly, as just mentioned, a ‘multiplier’ is often used as a means of extrapolating estimations of illegal border flows into the EU. However, using such a generalised ‘rule

¹⁵³ Graph represents trends on national level (for Austria). From: Dita Vogel et al., “Irregular migration flows: composition and trends for Austria (2000-2007)”, HWWI (January 2010). See data source of this graph used in the HWWI study:

Apprehended aliens illegally present:

European Commission, “Third annual report on the development of a common policy on illegal immigration, smuggling and trafficking of human beings, external borders, and the return of illegal residents, European Commission Staff Working Document”, SEC (2009) 320 final, Brussels, (9.3.2009).

GÉDAP, “Migration and Asylum in Europe 2003”, Report produced by the Gestion Démographique pour les Administrations Publiques (GÉDAP) and the Berlin Institute for Comparative Social Research (BIVS) on behalf of the European Commission, (2004)

First asylum applications: Eurostat

Stock estimates: M Jandl, “A multiplier estimate of the illegally resident third-country national population in Austria based on crime suspect data”, Hamburg Institute of International Economics (HWWI), Database on Irregular Migration, Working paper No. 2/2009, (2009).

of thumb' ignores the significant variance between illegal flows at different EU borders. For example, during the autumn of 2010 there was a significant expansion in the number of migrants crossing the Greek/Turkish land border, to an extent where in November 2010 FRONTEX deployed its Rapid Border Intervention Team (RABIT). Other particularly busy EU external borders which have seen a lot of recent activity are the Polish border with Ukraine and those of member states in the Balkans. Currently, the impact of the 'Arab Spring' in such North African countries as Egypt, Tunisia and Libya, has led to a wave of additional immigration across the Mediterranean into Southern Europe, particularly to the Italian island of Lampedusa. Other EU borders will see far less illegal migration. Clearly, applying the same generalised estimation across various EU borders is liable to lead to a large margin of error.

- Fourthly, using the number of border apprehensions as a means of estimating illegal migration flows may fail to take into consideration the impact of such external factors as increased border security, which will clearly affect both the volume of attempts to cross the border and the number of apprehensions
- Fifthly, illegal migration flows across borders change rapidly and thus any extrapolations based on apprehensions may quickly become outdated. This can be seen in some of the data in the figures shown in this chapter, which appear to show a decline in illegal migration, but were constructed prior to the surge of migration into Europe following the political unrest of the Arab Spring. Consequently any such extrapolations must be constantly updated and reviewed.

In addition, while many extrapolations are based around apprehensions of illegal migrants on borders, consideration must be given to the fact that the stock of illegal migrants within a Member State is also significantly boosted by migrants who come into a Member State on a visa, or apply for asylum and then 'overstay' when their visa expires or their asylum application is rejected. With regard to the stock of illegal migrants in a Member State, any accurate estimation is further weakened by the lack of effective control/measurement of individuals leaving the country, which means that most Member States are unable to provide accurate or reliable figures on those 'stocks' of illegal migrants currently inside their countries.

As a result of these factors, there are numerous methodological and conceptual problems associated with attempts to extrapolate illegal migration flows from existing limited and variable data. While it is possible to extrapolate estimated figures and identify trends it is extremely difficult to develop accurate measurements of numbers and flows. Possibly one of the most accurate means of assessing current illegal immigration and human trafficking is to review multiple sources of the type detailed earlier in the section, particularly from internationally recognised organisations in order to extrapolate workable figures. Due to the clandestine and changing nature of irregular flows based on global events, this section deals more with the current state of affairs. For a discussion on independent variables and other push/pull factors such as the economy, aviation costs and price differentials see Sections 2 and 3 for an expanded discussion.

This study covers existing research and highlights the need for further full scale research, using a similar approach and the ‘methodological toolkit’ to be practised in futures studies. Factors identified in the study may not have obvious ‘common sense’ effects and can go various ways. For example, while one might deduce that enhanced security measures in airports since 9/11 promotes air travel and security in general, recent research shows a consequential increase in the number of car accidents and casualties.¹⁵⁴ Thus, clearly factors can interrelate in such complex ways as to prohibit predicting their effects, especially in long term irregular mobility. The study aims to exemplify the possible interplay of effects of such factors throughout the second part (WP2) using a scenario approach, for ‘educational purposes’ to illustrate some various possibilities for readers. However, it cannot and does not aim to cover factors such as long term predictors with all their possibilities played out, which requires much deeper, domain specific research (proposed at the conclusion).

What emerges from the study is a need for ‘aligning ideas’ for factors and drivers so that they could be understood as predictors in various directions. Since irregular mobility is based on demand and supply – the aligning idea of ‘supply chain management’ emerges as useful for researching factors as possible predictors – as either

- **Current levels:**

Approx. 314,000 illegal entries per year (rough estimate based on the annual number of apprehensions, multiplied by a judgemental factor of three - one person caught per two undetected).

- **Proportion of total flow:**

Approx. 0.1%

- **Estimated future trends:**

Given recent political instability on the boundaries of Europe (Middle East & North Africa) and the upsurge of migration numbers from those regions into Europe, long term irregular mobility is likely to increase in the short to medium term.

¹⁵⁴ “In the meantime, some travelers have reacted to the new security measures by choosing to drive instead of fly, but they may be placing themselves at greater risk. Researchers have estimated that the 9/11 attacks generated nearly 2,200 additional road traffic deaths in the United States through mid-2003 from a relative increase in driving and a reduction in flying resulting from fear of additional terrorist attacks and associated reductions in the convenience of flying. If today’s security measures are generating similar, or even smaller, substitutions and the driving risk has grown as hypothesized, the air security measures could be contributing to more deaths *annually* on U.S. roads than have been experienced *cumulatively* since 9/11 from terrorism against air transportation targets around the world. “

K Jack Riley, "Beyond the Shadow of 9/11 - Air Passenger Security at a Reasonable Cost" (unpublished thesis, RAND, 2011). Available from:

<http://www.rand.org/publications/randreview/issues/2011/summer/shadow4.html>

‘pull’ or ‘push’ factors.¹⁵⁵ Similarly, such an aligning idea seems to emerge from research reviewed on irregular mobility (e.g. from Clandestino – see Appendix III Part 4). Due to the clandestine and changing nature of irregular flows following global events, this section deals more with current states of affairs. For a discussion on independent variables and other push/pull factors such as the economy, aviation costs and price differentials see Sections 2 and 3 for an expanded discussion.

¹⁵⁵ A good example of push and pull factors is illustrated by the Albanian circular migration to Greece is driven by the pull factor of seasonal economic demand for cheap labour in Greece and the level of poverty and unemployment in Albania providing the push factor.

6. Overall Summary of WP1 - Estimates of the Futures

We have thus far focused on estimates of current and future movements across borders, the trends and drivers that influence such crossings and on the future work of EU border guards. For example, economic factors such as growth in average income and in low cost travel have meant leisure tourism has increased steadily. However, other forms of temporary regular flows such as business travel may actually decrease as competing trends in IT and virtual communication expand so lessening the need to travel. Both tourists and business travellers increasingly come from emerging economies. Trends of irregular forms of BCEs such as smuggling, organised criminality and terrorism are extremely difficult to detect and measure. Given current political instability on the boundaries of Europe (in the Middle East and North Africa) the economic downturn in Europe and likely reductions in the amount of expenditure available for border security, temporary irregular mobility is likely to expand significantly in the short to medium term. While net legal migration in the EU is set for a gradual decline, unpredictable shocks and the upsurge of migration numbers from those regions into Europe mean that long term irregular mobility is likely to increase - in the short to medium terms. Key drivers of both legal and illegal migration and human trafficking include family reunification, economic poverty, natural disasters, political uncertainty and wars and conflicts.

The complexity of the issues at hand - the interrelationships of societal, political and economic as well as security phenomena - requires a 'Survey of the Universe' of border management and an attempt to organise relevant existing research, literature, data and estimates in alignment with their respective effects of border futures. This study is to align the trends and drivers and the literature of data and estimates along the fundamental idea of border management - analysing border flows in terms of time dimension and in aim and level of regularity.

A clear gap in grounded, sufficient estimates of futures of border crossings in the EU emerges from the study – especially in the quadrants of irregular flows (such as smuggling and human trafficking). Deploying further research methodologies to complement extrapolations of quantitative figures into estimates seems apposite. As is evident, the further along the future time span/horizon that we aspire to look, the more problematic using quantitative figures or estimates based on empirical historical data, becomes.

In summary, the future cannot be completely predicted. The further into the future we wish to look, the more unlikely it becomes for our predictions to be accurate. In planning terms this means that organisations cannot and should not base planning decisions on specific forecasts, no matter how short term (and therefore probably more accurate) they are, and must aim instead at resilience and preparation for every eventuality. It is for this reason that futures methodologies in the longer term focus on highlighting possibilities that show the type of event that could happen - thus giving general, but concrete, guidance on the range of events and associated impacts that should be planned for.

WORK PACKAGE 2

SCENARIOS

7. Scenarios in Futures Studies

7.1 Introduction

Scenarios are an important tool in futures studies (as well as in other related disciplines such as policy planning, management, risk analysis or crisis management). They are used to raise awareness among planners that (sometimes significant) changes from the status quo are possible or even probable and they present (in a more easily-digestible form than is the case with quantitative methods) a range of futures which may need to be taken into account .

Scenarios are often presented on the basis of two factors: their likelihood and the impact that their occurrence would have. While we attempt to project which futures are more likely than others to aid in the normal planning processes, we also recognise that it may be cost-effective and prudent to prepare also for occurrences which have a very low probability but which, were they to happen, would have huge effect. This allows, for example, emergency measures to be put in place to ensure that they never do or that their effects are mitigated. This kind of use of scenarios is particularly evident in the security and critical-infrastructure arenas.

Scenarios may be created via an array of methods and tools which differ in aim, outcome, structure and usability. For example, the energy firm Shell uses scenarios for creating a common picture and a vision of strategic possibilities in future for management, acting as a base for long term policy thinking.¹⁵⁶ Defence establishment organisations use scenarios to foresight extreme situations and even ‘wild cards’ of highly improbable but high impact events, to better prepare for them – or to try and prevent their occurrence.

Indeed, when this study was launched in late 2010, the scenarios drafted for this part of the study as improbable ‘wild-cards’ included civil unrest and mass migration from north-Africa and the re-establishment of internal EU borders in response. During the first half of 2011, while conducting the study, these turned from wild-cards to probable events and then swiftly became a reality. This underlines the need for a methodological continuum in future studies - using scenarios to visualise the trends, drivers and possibilities of alternative – even unlikely - futures – as well as quantitative extrapolations from present trends.

This section introduces some of the possibilities for, and usages of, scenarios in general and gives basic methodological background to core types of scenarios as used in this work package. It then focuses on scenario methodologies relevant to this research and to borders

¹⁵⁶ For elaboration on scenario use in business see: G Ringland, *Scenarios in Business*. (Chichester, West Sussex: John Wiley & Sons, 2002). For further elaboration on scenario use in policy thinking and strategic planning see, for example:

H Kahn, *On escalation: metaphors and scenarios*, (New York: Praeger, 1965).

Or:

H Kahn and A J Wiener, *THE YEAR 2000: A Framework for Speculation on the Next Thirty-Three years*, (Washington DC: Hudson Institute, 1967).

in Europe and introduces four scenarios developed for that aim. A compact table summarises the elements and drivers affecting human mobility and border checks according to the scenarios and a short descriptive summary of each scenario is presented.

The added value of Work Package 2 is: (a) in the longer term which scenarios cover and (b) in their different goal, which is not to foresight a specific future, but rather create a long-term futures thinking, enabling discourse based on common narratives and a framework for reference.

7.2 Global Scenarios - Foresight Futures

In this work package, four scenarios have been developed to make it possible to investigate the ways in which numerous key drivers may affect European borders over the next 50 years. The future may not look like any scenario described below, indeed this is unlikely and it may contain certain elements of all four – or none of them. The underlying idea here is not to predict the future exactly, but rather to better understand how events and changing trends and combinations of these, could change the future. In this way we can imagine what scenarios may await us and therefore be better prepared for them. The scenarios have been named to create a common language for the readers and for policy-makers while referencing them. The titles try to capture the main feature of a potential future in order to help remember them and these are expanded upon in Section 8.¹⁵⁷

Various global futures scenarios exist, which research possible developments in-depth. They relate to very many elements including, but not limited to, security and geopolitics, proliferation of technology, climate change and environmental issues. These include either research done by national security establishments (US Army¹⁵⁸, British Ministry of Defence¹⁵⁹, NATO¹⁶⁰, or the US National Intelligence Council¹⁶¹) or research that is EU-funded and relates to directions directly relevant to border guards (such as Eurocontrol's long-term

¹⁵⁷ Andrew Curry et al., "Intelligent Infrastructure Futures, The Scenarios – Towards 2055, commissioned by the Foresight Programme of the Office of Science and Technology" (Department of Trade and Industry (UK), January 2006). Available from: http://www.podepro.prd.uth.gr/programme/materiel/Sector/INTELLIGENT%20INFRASTRUCTUE%20FUTURES_2055.pdf

¹⁵⁸ USJFCOM, February 2010. Op. Cit.

¹⁵⁹ United Kingdom Ministry of Defence. Strategic trends Programme, "Global Strategic Trends – Future Character of Conflict" (Development, Concepts and Doctrine Centre DCDC, February 2010). And;

United Kingdom Ministry of Defence, "Strategic Trends Programme, Global Strategic Trends – Out to 2040" (Development, Concepts and Doctrine Centre DCDC, February 2010)

And;

Foresight, "Dimensions of Uncertainty", Government Office for Science, Department for Business Innovation and Skills (BIS),UK, (2010). Available from: <http://www.bis.gov.uk/assets/bispartners/foresight/docs/horizon-scanning-centre/dimensions-of-uncertainty-final.pdf>

¹⁶⁰ C S Gray, "Defence Planning, Surprise, and Prediction", *Paper presented at the NATO 'Multiple Futures' Conference*, 2009. Available from: <http://www.act.nato.int/mfp-documents>

¹⁶¹ NIC, "Global Trends 2025: A Transformed World" (November 2008). Available from: http://www.dni.gov/nic/PDF_2025/2025_Global_Trends_Final_Report.pdf

Foresight scenarios research)¹⁶². All of these were thoroughly reviewed and used directly as secondary data: existing global scenarios, which affect the scenarios developed and /or border guards' work, but are not specifically about them (e.g. climate research), are referenced and quoted as a baseline where relevant to the focus of this study.

One of the approaches to creating an 'aligning idea' within the field of futures studies is to arrange the various methodologies into four major groupings, by the *type* of futures. The four generic types of scenario to be used are: probable, alternative, plausible-preferred and wild card. The types of scenario differ in approach and in implementation, for example plausible-preferred future scenarios (that may seem utopian or at times unrealistic) act as invaluable policy tool marking a vision of goals to aspire to for planners, while wild-card scenarios outline some worst cases to inspire caution and help in emergency planning. The four types are defined and explained in more detail below.

Probable futures:

The definition of Probable Futures is a direct or probable continuation of existing trends. They act as more a predictable narrative of a future that is founded on identified 'megatrends' that are already emerging as evident in the present.

The methodological bases for probable futures are drawn from several sources. Existing current trends, such as population or economic growth, are extrapolated. The trends can be derived using quantitative/statistical methodologies and specific futures methods such as partial data extrapolation. Forecasts are then made about what is most likely to happen (although not necessarily so). The methodological approach can be derived from either a positivist framework, or a 'social constructionist' one, where the trends identified are societal in nature.

Alternative futures:

Alternative Futures are sometimes also defined as 'possible futures', as they are feasible within the framework of existing data, trends and emerging patterns and they may not be the most common extrapolated outcome. While not fully predictive, Alternative Futures help to identify critical uncertainties that have substantive (yet unquantifiable) probability.

Methodological bases include derivations of statistically based methods such as 'scenario discovery'¹⁶³ to specific futures studies methodologies such as the 'Futures Wheel' and other creative methodologies to construct possible futures. Such methodologies may build on expert knowledge (obtained via processes such as Delphi¹⁶⁴), or even be based on the

¹⁶² EUROCONTROL, *Long-Term Forecast: IFR Flight Movements 2010-2030*. Released Issue, Edition Number: v 1.0, (December 2010).

¹⁶³ As defined by RAND, "Scenario discovery uses statistical/data-mining algorithms to find policy-relevant clusters of cases in large, multi-dimensional databases of simulation model results. Conveniently interpreted as scenarios, these clusters help illuminate and quantify the tradeoffs among alternative strategies under deep uncertainty". From: RAND, "Futures Methodologies" available at:

http://www.rand.org/international_programs/pardee/pubs/futures_method/scenario_discovery.html

¹⁶⁴ A systematic, multi-round use of expert opinions through surveys.

‘wisdom of crowds’¹⁶⁵ (as recently experimented on by DARPA (Defense Advanced Research Projects Agency) in the USA).

Plausible - Preferred futures:

Plausible-Preferred Futures are a fusion of desires, hopes and aspirations for a better world. While Plausible-Preferred Futures may sometimes seem utopian and at times unrealistic, they act as an invaluable policy tool, marking a vision of goals to aspire and plan for and underlining the difficulty of reaching them. However, it must be emphasised that a Plausible-Preferred Future may well be also the probable one (or, conversely, may overlap with being a ‘wild-card’ if unexpected, although a positive one).

We must remember that even the definition of what constitutes a ‘probable-preferred’ future is a social construction, is subjective and is relevant only within a specific context of the group to which that scenario of the future is ‘preferred’.

For example, virtual tourism or e-working trends and technology for effective virtual presence in video conferencing may reduce border crossings and need for short term travel within a business environment. While this may be perceived as a ‘preferred’ future for border guards, it may well be perceived in quite an opposite manner by the hotel industry; indeed, almost a worst-case scenario. Thus definitions of preferred futures are closely connected to strategic goals and context.

The methodological bases of such futures are ‘socially constructed’ through the identification of Preferable Futures and the interrelationships of variables in alternate futures which may have a positive impact. They may also be drawn from methods in the specific domain of the scenario, as used by policy planners and decision makers in that field.

Wild Cards

In defining ‘Wild Card’ scenarios, the main characteristic is the unpredictability of events that have a low probability but potentially enormous impact. It is important to be aware of possible wild card scenarios as early as possible in order to prepare strategically for the unlikely yet acute repercussions which would otherwise be ignored due to their very lack of probability.

The methodological bases for Wild Card scenarios include a myriad of creative methodologies aimed at identifying extreme scenarios, risks, trends or patterns falling outside the realm of ‘conventional wisdom’ and the other approaches to futures described.

¹⁶⁵ The concept is based on a social constructionist foundation and derived from the premise that a group of independent thinking people are better able to make certain decisions and predictions than lone individuals and even experts. The notion of the knowledge of many is also an integral thesis, as Surowiecki explains that: “under the right circumstances, groups are remarkably intelligent, and are often smarter than the smartest people in them. Groups do not need to be dominated by exceptionally intelligent people in order to be smart”.

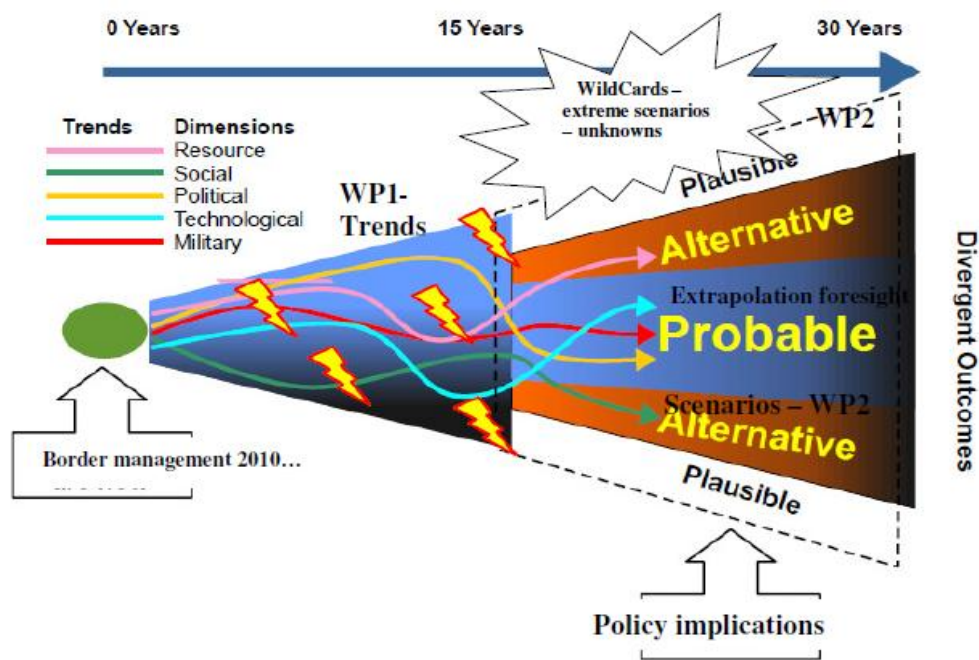
From James Surowiecki. *The Wisdom of Crowds: Why the Many Are Smarter Than the Few and How Collective Wisdom Shapes Business, Economies, Societies and Nations*, (New York: Doubleday, 2004), p.xiii

See also, the commercial use of crowd sourcing tools, such as Amazon Mechanical Turk - www.mturk.com

Wild Card scenarios are a challenging attempt at identifying ‘the unknown unknowns’ in futures. Perhaps more than other types of scenarios, wild-cards draw from insights of complexity and chaos theory in dealing with what is called ‘wicked problems’.¹⁶⁶ Using the metaphor popularised by Naseem Taleb ‘wild-card’ scenarios are an attempt to identify the ‘black swan’ in advance.¹⁶⁷

A visualisation of this approach of grouping models of the different futures methodologies and scenarios is provided in the diagram below (Figure 15):

Figure 15. Different Futures Methodologies (and types of scenarios)



(Adapted from ©DCDC Global Strategic Trends 2007-2036 3rd ed.)

Source: Ministry of Defence (2006) *Global Strategic Trends 2007-2036*. DCDC/MoD, Swindon

7.3 Methodology of Transforming Trends and Drivers into Scenarios

The taxonomy previously described in the first part of this study (Section 1.2), was not only utilised to inform the various forecasting methods used for the fields of migration, security, tourism and so on for WP1, but along with the trends and issues emerging from that part,

¹⁶⁶ Australian Government, “Tackling Wicked Problems - A Public Policy Perspective”, (Commonwealth of Australia 2007).

¹⁶⁷ N Taleb, *The black swan : the impact of the highly improbable (1st ed.)* (New York: Random House, 2007).

N Taleb, *Foiled by randomness : the hidden role of chance in the markets and in life* (New York: Texere, 2001).

formed a basis for the scenarios developed in this second part (WP2). The emerging themes from WP1 will be used in a dynamic iterative manner to inform WP2.¹⁶⁸

Scenarios are used not only to stimulate new knowledge on futures and allow the emergence of patterns from a social discourse: scenarios are also seminal in visualising for an audience the impacts of the complex myriad of unfamiliar elements— such as technologies or trends that are not yet in daily evidence. Recent research shows that storytelling methods are an excellent vehicle for describing such scenarios and interweaving the complexity of trends and drivers in a clear, ‘digestible’ manner.¹⁶⁹ Thus, alongside the analytic scenarios detailed in this part of the study, ‘story boxes’ are also provided to aid comprehension.

7.4 Technological and Societal Trends Impacting Scenarios

Border management and the work of Border Guards (BGs) are deeply affected by changes in society driven by the proliferation of Information Technology, media and communications. The scenarios illustrate some of the possibilities of such seminal impact on border management, border guards’ future work and their work environment. While a more detailed account may be found in Appendix V, (and in fact, deserves full research in future) key developments at the strategic level and their impact must be mentioned, to allow the understanding of the context for futures’ scenarios.

The societal trends enabled by information technology, social media and mobile communications are already evident today. From the ‘Arab Spring’ to ‘smart mobs’ in the streets of London, New York or Tel-Aviv (demonstrating for social equality) – chaos theory takes shape in the rapid self-organising movements of people. These may not be predicted in full and can be both positive (e.g. swift change in tourism movements due to economic or other pull/push factors driven by social media, ‘swarming’ places or avoiding them by public overnight social-construction) or negative. Organised crime and terrorism has benefited from Information Technology asymmetrically, enabling the individual and smaller networked organisations to access elements of power previously monopolised by nation-states. From access to knowledge information to secure communications, cyberspace has created a new ‘playground’ for protagonists – and for the governments confronting them. BGs today and in the future need be fully aware (and ready) for the implications of these technological trends. The more technological BGs become – the more dependent on technology they become (for

¹⁶⁸ The developed scenarios will allow Frontex and EU policy makers to consider their current policies and processes and plan for future uncertainties; consequently allowing for greater flexibility and robustness in planning under different circumstances. Much of this stream of work is based around the futures methodologies emerging from the work in the 60s and 70s in RAND¹⁶⁸ (by Herman Khan and others) and complementing earlier positivistic methods for estimates, specifically as a social constructionist approach based around the convergence of knowledge (such as the Delphi process and crowd sourcing).

¹⁶⁹ See, for example: J S Brown et al., *Storytelling in Organizations: How Narrative and Storytelling are Transforming 21st Century Management* (Boston, MA: Butterworth Heinemann, 2004).

example, how would BGs operate once all GPS¹⁷⁰ and GIS¹⁷¹ based applications are jammed?). Thus, the scenarios demonstrate how vulnerable such dependency can become – for example when attacked by cyber criminals or via cyber terrorism.

The proliferation of technological systems in border management is a trend nurtured by demand – security requirements and challenges within the ‘learning competition’ against innovative terrorist or criminal adversaries adapting their methods and *modus operandi* across borders and economic and organisational pressures for efficiency alongside effectiveness. These are supported by a supply trend: by the industries conducting R&D into new technology that is promoted for profit, enhancing security and resulting in proliferation of technological systems in airports, border checkpoints and so on.

Most of the technological trends referenced are not just ‘on the horizon’ but are already extensively implemented - drastically changing the ‘business of BGs’. The emerging seminal technological trends are briefly mentioned in Appendix V. Trends such as embedded and unobtrusive wireless communications (e.g. RFID, Wireless internet, TETRA radio systems) allow seamless real time information and communications both for BGs and for passengers, complemented by cloud computing and smart phones. Technology eliminates paper documents, in conjunction with Near Field Communication (NFC), with computing capabilities that converge with RFID and biometric systems to leverage Automated Border Crossings (ABC). Such ABCs amalgamate various biometric identification and contraband/explosives scanning technologies. The proliferation of Biometrics is becoming critical for identification in border checks (e.g. eye, facial recognition, fingerprint scanning etc., which may possibly be complemented in future by automated check in security and even lie-detection capabilities).

The high level of technological development creates future dependency, thus risking potentially disastrous consequences as a result of breach (such as cyber-crime/terrorism) and/or failure. It is important to highlight the risks as well as opportunities and the crucial impact of such, which can be found in the abovementioned appendix.

To understand the scenarios, it is important to see how passenger experience at high volume borders, especially airports, is greatly shaped by such technological development, in particular through the introduction of automation of Border Guard tasks. Similarly, changes to society in Europe effected and shaped by technology influences the essence of tourism, leisure, business travel and travel on whole, as does the volume of passengers. For example, the constant improvement and availability of video conferencing and virtual presence (including 3D virtual environments) and mobile computing as a part of daily life affect the need for, and motivation, to travel. This is elaborated on later in Appendix V. Other impacts such as swarming by mobs in relation to border crossings (enabled by social networks and instant messaging using mobile devices) are also illustrated in the scenarios.

A review of contemporary and emerging technologies on the horizon of implementation in the coming few years is done through a survey of existing work (which may be found in

¹⁷⁰ GPS = Global Positioning System

¹⁷¹ GIS = Geographic Information System

Appendix V. However, technological research and development correlate with dynamic and rapid changes in society. They require (and justify) dedicated research efforts, beyond the scope of this study.

8. Scenarios

8.1 'More of the Same' (Probable)

This scenario describes a probable future. It assumes a continuation of the existing trends in the economy, EU policy and so on. Various estimates of future flows are taken to be correct and the present state of affairs may be extrapolated into the future. The economy will continue to see fair growth and globally no major political turmoil, while some localised low-intensity conflicts in various parts of the world continue. There will be a slow shift from religious and ideological positions towards a more secular stance. Migrant networks will continue to act as a 'pull' factor to others of their ethnic or demographic kind, both legally and illegally. Europe will continue to see an ageing population. Due to a growing economy, middle class Chinese and Indians will travel more to Europe. The effects of climate change will occur only beyond the horizon of this research. EU policies and national frameworks remain consistent and continue as currently.

Economic

This scenario assumes fair economic growth in Europe (GDP per capita increasing by around 2% per annum), while the EU as a whole retains its position as a top global economy, on a par with the United States.¹⁷² These developments are coupled with a gradual convergence of the economic situation in the developing world towards developed world standards. In the short run, this will lead to increased migration pressure, since the aspirations of many citizens of developing countries will increase faster than the possibilities of their fulfilment, (the 'revolution of rising expectations').¹⁷³ The economies of Brazil, India, China and Russia also continue to grow steadily.

The lure of an improved economic quality of life within the EU will thus continue to act as a driver for economic migrants in search of a better life. Consequently, as a part of this process, both in the short and the longer term, the EU member states will continue to see similar or increasing levels of illegal migration into the EU through the traditional illegal transit routes from North Africa, Turkey and the Balkans. In the longer term, as the economic condition of the developing countries improves, the increasing parity may reduce the driving attraction for such legal migration into the EU. The demand to facilitate illegal migration for unskilled and borderline illegal sectors (for example to provide female workers for the sex industry) continues to drive human trafficking as do the financial benefits for those involved in such trafficking.

¹⁷² See e.g. International Monetary Fund, "World Economic Outlook Database" (April 2011 edition), available from <http://www.imf.org/external/pubs/ft/weo/2011/01/weodata/index.aspx>. In 2010, the EU has led the global economic league table with the overall GDP of 16,282bn US\$, followed by the United States (14,658bn) and China (5,878bn).

¹⁷³ See e.g. A Zenthöfer, "The Revolution of Rising Expectations" (Mimeo, 2011). <http://www.csaе.ox.ac.uk/conferences/2011-EDiA/papers/683-Zenthoefер.pdf>. Besides, those who migrate are usually not the poorest, but those who can afford the journey and relocation costs.

Even though now the economic situation in many of the EU member states is changing, with the current economic crisis, this does not impact significantly on the level of smuggling across EU borders, which remains consistent in the shorter term and possibly onwards into the longer term. Organised crime will thus continue at its same level, due to the economic benefits such organisations accrue from drug production and trafficking, petty crime, smuggling, the production of contraband goods, human trafficking and prostitution.

Geopolitical and External

Global and European politics are assumed in this scenario to unfold without major turmoil, despite the presence of localised low-intensity conflicts in various parts of the world, which continue to force many people to seek asylum, inter alia in the EU (in line with current proportions of asylum flows). With respect to global politics and its impact on development, this scenario assumes an essentially 'business as usual' situation.

Although expressing strong political will to minimise the level of illegal immigration into the EU member states, most countries realise that they are only intercepting around one in three illegal migrants and that many unskilled and poorly paid jobs essential to the economy are filled by such illegal immigrants. Despite legal, policing and border guards' efforts to minimise and reduce the level of human trafficking, the financial rewards for those criminals and organised criminal groups involved are such, that these efforts only scratch the surface.

The current political drive to stop smuggling across EU borders remains consistent but, despite the will amongst member states to limit smuggling, resources and manpower remain limited. It is acknowledged that only a small level of smuggled goods are intercepted at the EU's borders and that once inside the EU, the Schengen Agreement makes it easier for smugglers to operate between member states. Similarly, efforts to counter crime networks will continue, but are only partially successful. This will is not just because of lack of manpower and resources, but also to the trans-national and inter-jurisdictional nature of such criminal organisations.

Following 9/11 and Member States' various levels of involvement in countering terrorism, several European countries continue to suffer attacks and uncover conspiracies aimed at targeting civilians in their countries in mass casualty strikes. As a result, their police and intelligence organisations and Defence Forces are continuously working to identify, monitor and counter such cells and the wider networks they are involved in, which leads to greater coordination between different security agencies nationally and internationally. There is growing concern over the difficulty of identifying 'lone wolves', individuals motivated by various ideological or religious extremism, who plan, prepare and launch their own attacks on society, similar to Anders Breivik in Norway.

Ideological and Religious

In this scenario, a religious and ideological shift towards more secular positions is assumed to be likely but slow. Historically and currently, terrorist organisations have claimed motivation and justification for their actions from a variety of ideologies and faiths. While there are many academic discussions regarding such ideological drivers of terrorism, a useful typology might consist of five main categories: Religious (Islamist, Christian and Jewish extremism, as well as various cults), Nationalist-Separatist, Extreme right, Extreme left and Single Issue. Clearly there have been many overlaps between these such as nationalist-separatist groups with a Marxist-Leninist ideology, Islamist groups driven by a nationalist imperative, a nexus between Christian extremism and the far right and single issue groups, such as anti-abortion, with a religious driver. Organised crime networks continue working alongside or with terrorists groups for their own benefit in a crime-terrorism nexus, or where terrorist groups are using organised criminal activity as a means of criminally raising funds for their terrorist activities. This can be seen amongst some Dissident Irish Republican groups, the Basque group ETA and the various splinter groups associated with the Corsican FLNC.

While ideological or religious beliefs are not a main driver, individual illegal migrants continue entering the EU as a result of harassment or persecution for holding such beliefs. In such a case they would have greater grounds for applying for extended leave to remain or full asylum in the member state.

Demographic and Ethnic

Population ageing in the developed world continues at its current pace, increasing the demand for labour in health and care sectors. Meanwhile, in the developing world, there is a continuing reduction of average birth rates. In the longer perspective, this means progressively smaller cohorts of young, mobile persons without many job prospects. In the short run, however, these groups will remain relatively numerous, due to the inertia of demographic processes. Migration pressure will also be enhanced by the increased number of people on the planet overall, especially in the horizon of the first half of the 21st century. The dominant countries of origin for European migration are likely to shift from her nearest neighbours (e.g. North Africa), where fertility has already fallen significantly, to more distant countries (Sub-Saharan Africa), where fertility has been stalling and is only expected to undergo transition to lower levels in the future.

In terms of tourist visitors, it is likely that there will be no drastic change in the numbers (an increase of 3% per year tourist traffic), but in the light of current trends there will be a more diverse source of tourist nationalities (more visitors from countries such as China, Brazil, India, Russia), which may require increased language skills in the border guard community. An ageing population will mean more older tourists who will require extra care and attention and greater emphasis on facilitation.

Within Europe and nearby areas or possible Accession States, as well as the threat posed by Islamist extremists, there are a number of nationalist-separatist terrorist organisations based around certain ethnic communities. These include the dissident Irish Republican groups CIRA, RIRA and ONH, the Basque separatist group ETA, the Kurdish PKK and the various splinter groups associated with the Corsican FLNC. The smuggling of livestock, fuel

and contraband cigarettes as a means of fundraising by some Irish Republican groups and the trafficking of drugs by the Kurdish PKK will continue. Many organised crime groups are composed of individuals from a particular demographic/ethnic group with examples including the Sicilian Cosa Nostra, the Japanese Yakuza and the Albanian and Russian Mafias.

Social Networks and Trends

Both legal and illegal, migrant networks will continue to work as attractants of successive migrants especially in the short term, due to their well-known role in perpetuating long-term population flows.¹⁷⁴ In many instances, those illegal migrants cooperating as groups to cross a border will be from the same national, ethnic and religious group. In the longer term, however, their effects will slowly begin to 'saturate', among other factors due to the better integration of migrants into their host societies.

Smuggling is often organised by criminal networks, in particular where elements from the same community live on both sides of a border and can coordinate such an activity. Indeed, by their very nature, organised crime organisations comprise networks of individuals often from the same ethnic and religious backgrounds. However, unlike the terrorist organisations previously detailed, the primary imperative of such organised criminal groups is financial and personal gain.

Travel for visiting friends and relatives (VFR) will continue to grow. In addition, health tourism will continue to be a growing social trend. Countries like Qatar and Bahrain will have established huge health centres designed to provide health services cheaply and fast, relative to the professional health service found in Europe, partly owing to employing highly-skilled medical staff from the Indian subcontinent. Inward trips to relatively inexpensive EU destinations providing high standard health care will also increase.

Service quality, Privacy and Ethics

Increase in the number of more wealthy tourists arriving from outside Europe and for whom there are alternative destinations may result in pressure for border guards to speak more languages and to provide courteous and friendly, as well as professional, service through a better understanding of the cultural codes of various target audiences. There is likely to be an increasing emphasis on facilitation with the aid of increased use of biometric and other technology.

Environmental

Under this scenario, the timeframe considered (2010 – 2040) is too short for any significant long-term effects of climate change to take their toll and to heavily influence the flows of people across the EU boundaries. This relates to both long-term ('environmental refugees'), as well as short-term mobility ('heliotropic' tourism). With respect to environmental factors, possible high-impact events are also discussed the 'Wildcard' scenarios in Section 4 of this part of Work Package 2.

¹⁷⁴ D S Massey et al., "Theories of International Migration: A Review and Appraisal", *Population and Development Review*, 19 (1993): 431–466.

EU Policy and National Framework

EU policies on border security and those of its various member states remain consistent. The wider EU will continue to try to counter organised crime groups, particularly through EU-level bodies such as Frontex and Europol, as will individual member states and their own border security organisations. Often such work will be in close collaboration with other members of the Union and other friendly countries. However, the complexity of such criminal organisations, their trans-national nature and the fact that many are based outside the EU's borders will continue to reduce the effectiveness of such measures in both the short and the longer terms.

Hence, wider EU policy and that of its member states continue as currently, seeking to target human trafficking networks and organised crime groups. This also includes providing border security measures to reduce the level of illegal immigration including via more effective return policy. EU countries continue to work together at their current level to counter the threat posed by terrorism and while much is achieved through cooperation, the threat of terrorism remains constant and there are continuing problems due to lack of resources and coordination in both the short and the longer terms.

In terms of long-term legal population flows, given the circumstances, the European Union will maintain a policy of managed migration, trying to balance the freedom of movement policy with security requirements via the introduction of a Global Approach to Migration¹⁷⁵. The inflows of Third Country Nationals will be selective and mainly concentrated in those sectors of the European economy with an excess demand for labour both highly-skilled and low-skilled. The intra-European flows will remain free and any disruption to the free movement of persons, such as the re-establishment of internal EU borders within the Schengen area, will be very short-lived. Over the years, the EU will develop increasingly robust and effective policy tools in the areas of admissions, returns, asylum and migrant integration which are binding on all Schengen states.

As a result, this scenario expects that there will be a slightly increased migration pressure on Europe in the short term (the next 10 years, i.e. by 2020), which will begin to reduce in the longer term (20–30 years, by 2030–2040), due to the demographic processes and economic improvement in the countries of origin and increasingly successful policies. For the EU border protection, this scenario means an increased effort in the short term, which will gradually reduce in successive decades.

¹⁷⁵ <http://www.statewatch.org/news/2006/dec/eu-com-735-2006-migration.pdf>

8.2 'Back to the Future: A Perfect Storm' (Alternative)

The scenarios here assume the worst development of current trends. The economy sees continuing decline, with a concomitant growth of an illegal 'Black Economy'. Violent conflicts escalate and civil unrest worldwide leads to isolationism and breakdown in relations among member states, the result of which are twofold:

1. A large inflow of illegal migrants and breakdown of goodwill between Member States. This will see the EU borders re-established within the Schengen zone and an enhancement of a 'disparate islands' model of border management.
2. Within EU countries, a huge pressure on the demographic makeup will effectively see not only strict national borders reinforced but also the isolation of communities within states based on their ideology, religion, or ethnicity. Unemployment will become more common among migrants and their children, increasing tensions further.

Due to globalisation, countries will become culturally more generic, lowering the impetus for tourism. Restrictions on aviation, due to exorbitant fuel prices and pollution, means that those that do need to travel temporarily will travel by boat. Population ageing in the developed world will continue, while fertility levels in the developing world, especially Sub-Saharan Africa, will remain high. This scenario also sees the first signs of forthcoming climate change problems, with some 'environmental refugees' arriving to the EU.

Economic

Despite hopes of an upturn in the economies of the EU member states, a continuing economic decline limits the amount of funding and resources available to provide effective border security. At the same time, despite the declining economy, the standard of living within most countries of the EU remains far higher than those in the developing world. This scenario is therefore an antithesis of the previous one. With respect to the global economy, it assumes continuing stagnation in the developed and developing countries alike, which, coupled with the lack of perspectives for young mobile people, will further increase the migration pressure on Europe. The pressure will then remain steady or rise, due to a combination of economic and demographic factors.

As the economic crisis continues in many of the EU member states, the 'Black Economy' grows in inverse proportion to the decline of the traditional economies as a means of generating illegal finances and income. In certain states, such illegal economies provide a substantial and rapidly growing part of the 'national' income, even outstripping legal forms of trade. Concomitant to this, smuggling across the EU's borders increases significantly in the shorter term due to the reintroduction of national rules and continues to increase rapidly in the longer term. Similarly such criminal activities, including cross border smuggling of fuel, livestock and contraband cigarettes is an important means of raising funds for the terrorist activities of nationalist separatist groups.

Particularly amongst the most-affected member states, such as Greece, Portugal and Ireland, increasing economic problems impact on their ability to fund effective border security with the resultant increase of both short term and longer term irregular mobility

into the EU. As such, EU borders are re-established meaning temporary travel will become more difficult, requiring visas and longer border crossing procedures.

Geopolitical and External

Most EU members are more focused on their own political and economic difficulties and in maintaining a basic level of services for their populations. As Governments struggle to maintain essential services for their citizens, increasing demands are placed on shrinking budgets. As a result, services are prioritised and corners are cut. This badly impacts on the level of expenditure on the border security agencies and the manpower, technical and physical equipment needed to maintain effective security. Despite the increase in smuggling as part of the overall increase in the level of organised criminal activity, the EU and its member states are powerless to halt the increase of such organised crime. Criminal groups bribe or blackmail politicians, or get their own people elected, to ensure they have access to political power. This provides them both high level influence and an additional level of protection. Corruption increases in border guard services at individual and organise crime level. In the cases of Greece, Bulgaria, Romania, Slovakia and Poland, the level of illegal immigration and human smuggling into the EU rises significantly as the services provided by those brought in illegally are no less in demand in a weakening economy.

Although the main focus of most of the member states in Europe is on the threat posed by the *al-Qaeda* network and its affiliate groups, such as al-Qaeda in the Islamic Maghreb (AQIM) and the Moroccan Islamic Combatant Group (GICM), there is still a threat to certain member states posed by nationalist-separatist terrorism. In the UK, despite the 1998 Good Friday Agreement and ceasefire with the mainstream Provisional IRA (PIRA), dissident Republican groups remain active. In the shorter term, the recent spike in the number of attacks by dissident groups, including the deliberate targeting of police officers, continues and increases.. At the same time, the Basque separatist group ETA uses its current unilateral ceasefire as an opportunity to rebuild its structure and membership, before launching a renewed campaign of violence. This becomes more severe in the shorter term and, in the longer term, Spain is faced with the same level of violence it countered from ETA during the 1980s.

In terms of long-term migration, the pressure will become additionally enhanced by political events worldwide, especially violent conflicts and civil unrest, additionally fuelled by the difficult global economic situation. The European Union and the United States, after a series of unsuccessful military and political interventions will return to the idea of 'splendid isolationism' and reduce involvement in the developing world, including foreign aid. On the other hand, an increasing number of asylum seekers, fleeing conflict and persecution in their home countries, will be looking for refuge in Europe.

A breakdown in goodwill among member states and political unrest will mean border guards will need to focus more on security and little attention will be given to the negative impact on the tourist industry that a more 'unfriendly' approach engenders.

Ideological and Religious

Insecurity and mistrust among EU citizens may lead to isolation of communities on an ideological or religious basis. Smuggling is used to raise funds or move items such as

explosives and SALW by religious and separatist-nationalist terrorist organisations. Organised crime networks work alongside or with such terrorists groups for their own benefit in a crime-terrorism nexus, while terrorist groups use organised criminal activity as a means of criminal fund raising for their terrorist activities. Asylum seekers try to enter the EU both legally and illegally, fleeing harassment or persecution for their ideological or religious beliefs in their countries of origin while asylum policy in the member states of arrival becomes more restrictive, the Dublin convention fails to function and funds are not available for effective returns to countries of origin.

Demographic and Ethnic

Population ageing in the developed world will continue, largely independently from the type of the scenario, but birth rates in the developing world, especially Sub-Saharan Africa, will continue at current levels. This situation will be exacerbated by the lack of economic development: in its absence, there will be no incentives for fertility reduction. This will mean that there will be significant numbers of young, mobile persons, many having problems finding a job locally, who will try to migrate at all costs – legally or illegally – to the EU, despite the latter's economic problems. This tendency, coupled with the economic stagnation discussed before, will contribute to prolonging the high migratory pressure on Europe.

Social Networks and Trends

Given the unfavourable economic climate in the destination countries of migrants, such as in Europe and the resulting difficult situation on labour markets, unemployment will become more common among migrants and their children (the second generation). This will lead to further spatial and social segregation of migrant groups, marginalising them from the mainstream society and increasing ethnic tensions. As a result of these processes, networks will continue to facilitate migration but will not help with integration.

Due to globalisation countries will become more generic offering little by way of cultural diversity. Many technological advances, along with increased safety concerns, mean the tourist may not wish to physically visit new places and may choose to travel 'virtually'. Social trends include virtual presence and young people in the EU perceive their virtual identity (their 'Avatars') and networks as no less important than their presence in the physical world.

Virtual tourism will become the main affordable means of visiting family and friends, such as over the Internet by means of video conferencing.

Environmental

As in the previous scenario, environmental factors are not yet impacting population flows in the time horizon under study, although some first signs of forthcoming problems start to emerge, with floods in Bangladesh and droughts in the Sahel region of Africa displacing millions of people from their homes. However, most of these migrants move over relatively short distances, with a hope of returning to their homes as soon as possible. Only a fraction ends up as 'environmental refugees' in the European Union.

Technology and Sociotechnical

As a consequence of air pollution and inflated oil prices, restriction on aircraft flights will be imposed. The resultant massive drop in short term and budget tourism will significantly reduce traffic at airports and thrown hundreds of thousands of EU citizens out of work. Tourists use airships and ferries/ships. Less aviation will mean that border guards will increasingly operate at sea ports. Restrictions on temporary travel will be enforced due to a high risk of tourists carrying diseases. Doctors' presence will be required at border crossings in order to assess travellers. DNA readers are introduced at all border crossing points both for identification of likely country of origin and to aid medical tests.

These socio-technical trends converge with those described earlier on social networks – of virtual presence. Virtual identity becomes of equal importance as physical presence (based on the use of virtual 'Avatars' transparently in virtual worlds - across social media and even business environments and via mobile phones). Technology allows virtual worlds to converge with 'holographic' video conferencing capabilities. All this allows the opportunity for an almost 'real' virtual presence with consequent implications for e-working and virtual tourism.

EU Policy and National Framework

As a response to these unfavourable developments, the European Union will first further restrict the channels of legal migration into the EU. In effect, some of the population flows will turn irregular. Faced with the impending humanitarian crisis from an ever-increasing number of asylum seekers, the EU will decide on the reinstatement of internal borders within the Schengen zone.¹⁷⁶ On the liberty – security continuum, the position of European migration and border control policy will become visibly closer to the latter end.

As a result, this scenario envisages an increased migration pressure on Europe in the short term, which will be maintained at high levels in the longer run. There will be no factors in play that would alleviate a combination of unfavourable global economic climate and demographic dynamics. For border protection, this scenario sees an increasing shift in focus towards internal borders within the EU, alongside the external ones. Border guards will be given (extra) policing powers and they will be able to instantly gain access to private data on the traveller, have the right to exercise force and legal authority, and be provided with additional technology and equipment to deal with such tasks.

Despite attempts by member states and the wider EU to counter the increasing level of smuggling, due to the economic situation, they are unable to find the necessary manpower and resources to effectively combat it. Consequently, border security measures become increasingly ineffective in the longer term. This increased level of organised criminality is not only noticeable within the various member states but can also be seen at the level of

¹⁷⁶ At the time of writing this material, there have been some signals of a possibility of at least a temporary shift in that direction, initially caused by the influx of asylum seekers trying to escape the turmoil in North Africa in early 2011. See e.g.: I Traynor, "EU considers reinstating national border controls", *The Guardian*, 1 May 2011. Available from: <http://www.guardian.co.uk/world/2011/may/01/eu-considers-reinstating-border-controls>.

increased cross-border criminality. Despite their best efforts, the various EU border security organisations are unable to impact the rising tide of cross border crime.

At an inter-state level, these two campaigns have significant impact and repercussions on both border security and the wider relationships between the various member states involved. Because many of the British and Spanish security organisations had been focused on the threat posed by Islamist extremism, in the short term they were initially unable to respond as effectively as they would have liked to other threats. This is aggravated by the fact that many of those police officers and intelligence officials, who had developed a high degree of expertise and knowledge through previously countering organised crime, have retired and are no longer in service. This leads to the significant loss of organisational memory and knowledge amongst the various security forces.

While the EU attempts to maintain its policies regarding the control of illegal immigration, due to economic constraints, the reality on the ground is that EU border guards and their organisations are also unable to manage the increasing number of economic migrants with the level of manpower and equipment available to them. As a result, the level of illegal immigration climbs significantly in the short term, growing even more rapidly in the longer term. Despite efforts by their governments, the lack of available funding means that the EU member states on the North and South Eastern edges of the EU have great difficulty providing the manpower and resources necessary to maintain their border security.

Despite the best efforts of EU border agencies, the level of illegal migration into the EU continues and grows significantly. Given the economic situation within many of the EU member states a decision is taken at the EU-level that the only way to maintain a level of scarce resources for the indigenous populations is to introduce an EU wide seclusion zone policy. Consequently border security becomes significantly reinforced and harsher legislation is introduced to punish illegal immigrants, as well as any individuals involved in human trafficking or smuggling.

8.3 'Borders Eurotopia' (Plausible- Preferred)

This scenario presents a possible yet very optimistic future. It assumes that existing trends in the economy, geopolitical landscape and so on continue so positively that significant improvement in both security and facilitation at borders becomes a reality. The rapid economic convergence of developing and developed countries (led by the BRIC - Brazil, Russia, India and China - countries) sees 10% growth of GDP per capita per annum. This in turn leads to a more multi-polar world order bringing political stability worldwide. Populations are stabilised with 2.1 children per woman on average. 'Glocalisation' and the rapid shift from religious and ideological to more secular ideological positions aids the better integration of migrants into host societies and lessons are successfully learned from various models of multiculturalism and migrant integration.

EU policy towards smuggling and other cross border criminal activity becomes significantly more effective. Funds are made available to poorer member states for technology so that technological advances and efficient knowledge sharing as well as a unified standard of efficiency for border guards and the implementation of expedited queuing services will mean secure borders and a secure Europe. Climate change will have no impact and EU admission policies will become relatively liberal and asylum policies quite generous, leading to a sharp drop in illegal migration.

Economic

This scenario assumes a rapid economic convergence of developing and developed countries, made possible by fast economic growth in the former, led by the BRIC countries (Brazil, Russia, India and China) with ten-percent growth of GDP per capita envisaged for the coming years.¹⁷⁷ As compared to the probable scenario, this translates into two main outcomes: a shortening of the period of increased migration pressure, resulting from the 'revolution of rising expectations' and an increased number of return migrations. Besides, the new emerging global economic players themselves become attractive destinations for migrants and thus a large part of global labour migration streams is diverted from Europe to these regions of the world.

A shorter EU working week and low price of flying relative to income, coupled with the growing financial strength of the developing world means that tourism will boom. The price of fuel will decrease as a consequence of global agreements and new extraction technologies and competition from alternative energy sources now widely in use will significantly lower the cost of travel. These positive changes will mean that transport is cheaper, more accessible and environmentally friendly.

The standard of living in most member states improves significantly while the economic incentive for smuggling declines, with a resultant decline in this activity. Europe becomes more stable in the short term and in the longer term there is increasing economic growth. This stability helps negate the economic factors driving organised crime. Despite the ongoing economic growth, the threat posed by terrorism is such that both at the level of the EU and

¹⁷⁷ According to the World Economic Outlook of the International Monetary Fund (op. cit.), these are the current expectations of IMF economists, who envisage that in the period 2009–2016, the GDP per capita of Brazil, India and China will roughly double, while that of Russia will nearly treble.

amongst the various member states, significant spending continues on security measures including technical aspects to improve border security and the police investigation of terrorist/organised criminal networks. Social research leads to more effective prevention programmes in EU MS facing a home-grown terrorism problem.

Geopolitical and External

The emergence of a multi-polar world order, with the United States still being a dominant global player, although counterbalanced by regional powers, including the European Union, stabilises the political situation worldwide and decreases the number of violent conflicts. Proliferation of good governance, especially in the least-developed countries, additionally facilitates the process.

Continuing media coverage concerning the exploitation of illegal migrants being trafficked, puts increasing public pressure on the EU and its member states to take action against human traffickers. The member states and the EU as a whole decide to clamp down on organised crime and smuggling and to improve their border security. Consequently, they implement a raft of international and national legislation aimed at asset recovery, the freezing or forfeiture of bank accounts and additional measures against money laundering and smuggling. In addition multi-agency and cross-national policing and security measures are improved and in particular greater cooperation and coordination is developed in the fields of criminal intelligence, trans-national investigations and border security. As a result, in the shorter term, smuggling is significantly reduced, whilst in the longer term, the continuing improvement in living standards and political will of the EU virtually eradicates cross border smuggling.

Ideological and Religious

As in the probable scenario, religious and ideological shift can result in rapid modernisation, only sooner. Since both historically and currently, many terrorist organisations have been motivated by either political ideology or religious extremism (varying from the ideological beliefs of such groups as the extreme left, GRAPO in Spain and DHKP/C in Turkey, to the extreme right and various religiously motivated groups, in particular the *al-Qaeda* network and its affiliate groups in Europe and North Africa) the impetus for smuggling used to raise funds or move items such as explosives and SALW by terrorist organisations will decrease. EU-wide decriminalisation of drugs on the basis of the successful Portuguese experiment removes the financial basis of 90% of drug smuggling.

Demographic and Ethnic

In this scenario, fertility in the developed world stabilises not far from the demographic 'Holy Grail' of 2.1 children per woman on average, which ensures a simple reproduction of populations, whereby the successive generations are of roughly the same size. In the developing world, including Sub-Saharan Africa, there is a fast reduction of fertility, to the levels below or about 3 children per family on average.¹⁷⁸ Although due to the inertia of

¹⁷⁸ According to the United Nations, "World Fertility Patterns 2009", (United Nations, 2010), total fertility rates in 2005–2010 were: 1.6 child per woman in more developed countries, 2.5 in less developed and 4.4 in least developed countries. Available from:

demographic processes, it takes some time for these changes to take effect on population age structures, the long-term pressure for emigration in developing countries becomes much smaller. Improvements in education also lead to better governance in migration source countries and economic growth, leading to a decline in push factors.

As a result, under this scenario, the migration pressure on Europe will be significantly reduced, especially in the longer term. The short term dynamics will be largely the same as in the probable scenario, mostly due to the inertia of demographic processes. Eventually, immigration to and emigration from the EU will become more balanced in terms of numbers, with net migration (immigration minus emigration) reducing from over a million currently to around zero. Note that this does not necessarily mean a reduced flow of migrants across the EU borders, but that the migration flows will increasingly become balanced.

Furthermore, given that globalisation leads to the breakdown of uniqueness of communities so that to experience different identities and cultures, people will tour places to see 'the other'. Populations and destinations develop different identities in order to combat 'glocalisation'¹⁷⁹ and increase their attraction for tourists. Families with fewer children will also have a larger disposable income for leisure-based travel.

Social Networks and trends

In Europe, integration of migrants into host societies works increasingly well, both due to citizenship regularisations and learning of best practices from various models of both assimilative and multicultural policies. As a result, the demographic and economic characteristics of migrants and especially of the second generation, converge towards the ones observed in the host societies. Networks still play a role in facilitating migration, but migrants' lives are not restricted to their ethnic communities: on the contrary, migrants are becoming increasingly engaged in various aspects of socio-economic life of their destination countries. Most people will be involved in short-length tourist experiences to visit their friends and relatives.

Service quality, Privacy and Ethics

All of the above leads to a sharp increase in incoming tourism to and from Europe (10% or so). Border guards' work will be required to change significantly. They will be required to provide a unified standard of efficiency and courtesy. The need to expedite queuing services thus shortening border crossing times and improving service can be achieved for an additional stipend and to work with increasingly advanced technology. Border guards will be required to work directly with airlines to improve the service experience at border entry points and to attend customer-service training/workshops and have regular inspections of the quality of service they provide.

<http://www.un.org/esa/population/publications/worldfertility2009/worldfertility2009.htm>.

¹⁷⁹ Glocalisation (or glocalization) is a portmanteau word of globalization and localization. By definition, the term "glocal" refers to the individual, group, division, unit, organisation, and community which is willing and able to "think globally and act locally".
en.wikipedia.org/wiki/Glocalisation

Environmental

In this scenario, climate change shows no impact on population flows and remains neutral both with respect to short-term, as well as long-term mobility.

Technology and Sociotechnical

A decision is taken at the level of the EU that one major way of reducing the terrorism threat to its member states is by the introduction of enhanced technological measures.

Consequently, appropriate EU resolutions and legislation are passed while funds are made available to assist those poorer member states with the introduction of such technology.

This includes enhanced biometric, facial recognition, fingerprint, passport, screening and detection and database systems. Specifically, this technology is introduced as ABC systems at border crossing points, 'green' land crossings, at airports, harbours and maritime ports.

Consequently border guards become much more reliant on GIS, GPS and other technological developments to make 'automated decision making' thus reducing the burden of responsibilities and decision making they have to take and cutting back on the amount of paperwork, forms and administration they face. These technological developments also directly benefit the public 'customer' transiting through borders, such as the use of robotics to transit the elderly around airports, already being trialled in Japan, and social networking to promote travel and tourism, early booking in for flights and so on.

Large scale 'demonstration' of IT projects, funded by the EU FP8 program, cover successful pilot projects which are subsequently implemented, in cooperation with industry funding, into EU borders, with little financial support required from recipient nation states. In this 'Eurotopia' scenario, this proves especially important and positive in nations still recovering from financial crises of the past (i.e. of 2011) such as Greece or Spain.

Much of the paradigm shift led by the EU and governments to be **person-centric** rather than **nation-centric** is technology led. Experiments of the recent decade since 2010 have been put into practice. For example, e-Kiosk stations in airports contain a 'lie detector' system, where an automated system with a simulated face of a BG (as an avatar) asks all passengers questions and is able to detect minute facial and other body signals that suggest the passenger is being deceptive.¹⁸⁰ A similar system demonstrated by an FP8 project has developed 'bots' doing the same over the phone at passengers' homes and is used by some low cost airlines within their 'early check-in' prior to flights.

¹⁸⁰ The 'Avatar-based Kiosk for Screening' is a project by the University of Arizona and University of Nebraska at Omaha as part of the Department of Homeland Security-funded BORDERS, a consortium of institutions. The kiosk is equipped with a variety of instruments to record the subject's physiological and behavioural reactions during screening.

BORDERS, "AVATAR Kiosk for Deception Detection" (27 July 2011). Available from: <http://www.borders.arizona.edu/cms/avatar-kiosk-deception-detection>

Lee Dye, "Avatar Knows If You Are Lying", *ABC News*, 3 March 2011. Available from: <http://abcnews.go.com/Technology/high-tech-lie-detector-avatar-helps-border-guards/story?id=13032245>

Technology is also used to involve the public in borders' security, both creating public participation (based on e-Government concepts) and building public resilience. Some external borders cameras are monitored from home by volunteers from the public.¹⁸¹

The EU and Frontex now involve 'Crowd sourcing' in operations across the EU on a regular basis through social media, as well as in soliciting input from the public towards R&D.¹⁸²

EU Policy and National Framework

In this scenario, there is no need to undertake extraordinary policy measures in the areas of migration and border protection. Unlike in the previous (alternative) scenario, in the current one the EU policies are more reflective of human liberties and rights rather than security concerns. Thanks to reduced migratory pressure, admission policies are relatively liberal and the asylum policies quite generous.

However, EU policy towards remaining smuggling and other cross border criminal activity hardens significantly and now the EU and its member states have the manpower and resources necessary to effectively implement such policies. As well as enacting greater legislation aimed at organised crime, the proceeds of crime including money laundering, the EU and its member states embark on a rationalisation and improvement of border security protocols and measures aimed at drug trafficking, smuggling, human trafficking and the various cross border crimes facilitated by organised crime organisations. In the short term such measures reduce the level of international organised crime, while in the longer term, organised crime continues to decline significantly.

The introduction of enhanced technology at border crossing points across the EU reduces the level of terrorist activity in the EU and leads to significant arrests in the short term. In the longer term, as these technologies are further developed and deployed more extensively, the level of border and transit security is such that terrorist incidents continue to decline. Legislation aimed at targeting illegal immigrants and at those facilitating their

¹⁸¹ This has already been done in the USA-Mexico border in Texas, where citizens can monitor via Web-cameras the border and report illegal movements to border guards or the DHS. HSNW, "Border Web cameras along Texas-Mexico border go online again" (21 November 2007). Available from: <http://www.homelandsecuritynewswire.com/border-web-cameras-along-texas-mexico-border-go-online-again>

¹⁸² As experimented by the USA DARPA by flying red balloons over the USA and crowd-sourcing the technique to best find them. DARPA has already facilitated crowd sourcing to solicit operational input from the public. See for example:

DARPA, "DARPA's Defense Manufacturing Efforts Support White House Vision - Adaptive Vehicle Programs Highlighted During Presidential Event " (24 June 2011). Available from: http://www.darpa.mil/NewsEvents/Releases/2011/06/24_DARPA%E2%80%99s_Defense_Manufacturing_Efforts_Support_White_House_Vision.aspx

Cindy Waxer, "Asking the Crowd How to Make Something" (19 July 2011). Available from: <http://www.technologyreview.com/business/38066/?nlid=nlidly&nld=2011-07-20>

Rebecca Boyle, "How The First Crowdsourced Military Vehicle Can Remake the Future of Defense Manufacturing", *POPSCI*, 30 June 2011. Available from: <http://www.popsci.com/cars/article/2011-06/how-first-crowdsourced-military-car-can-remake-future-defense-manufacturing>

trafficking has a significant impact in reducing the level of illegal immigration into the EU in the short term and in the longer term the level of control is such that illegal immigration almost ceases. The concomitant of these policies is that many international and national organisations within the EU become increasingly concerned at the impact on the civil liberties and human rights of both economic migrants and genuine asylum seekers.

8.4 'Here be Dragons' (Wildcard)

The wildcard scenario considers unknown or unpredictable factors, assuming a divergence from current trends. The section contains more than one possible and extreme scenario—some examples of the underlying components are offered in Box 1.

With the collapse of the Euro, the entire European economy degenerates. Political goodwill deteriorates and a number of member states pull out of the EU, so that the Union breaks apart. A global clash of civilisations sees European countries drawn into friction between 'Westernised' citizens and religious, non-liberal cultures. Population ageing continues, yet pension provision is inadequate. The mass displacement of people worldwide due to floods and drought leads to huge migration pressures. Tourism (both international and intra-regional) effectively collapses, with severe limits put in place according to a location's social capacity. EU control policy collapses at points and the resultant vacuum leaves the borders porous.

Economic

Despite initial hopes of an economic upturn, in the short term the EU member states are hit by further economic problems. As a result, despite the best efforts of the World Bank and the International Monetary Fund, the Euro collapses. As a result of economic pressure within the EU, less and less resources and manpower are allocated to EU border security and this is particularly noticeable amongst those countries on the periphery of the EU and where illegal immigration and cross border crime pressure is greatest.

As a number of the European economies stagnate, one particularly effective head of the largest organised crime group in Europe pushes for far greater cooperation amongst the various organised crime organisations, successfully threatening and persuading the other 'crime bosses' that it makes far greater economic sense and would be mutually beneficial if they coordinated their various criminal activities. As a result, not only do various organised criminal groups take on specific roles, but particular markets are allocated and shared between the various criminal organisations. The organised crime groups also share their expertise, contacts and resources. Through a mixture of threat and the increasing economic benefits of such cooperation, not only does this arrangement continue, but it develops and strengthens.

The levels of economic poverty in the developing nations around the borders of the EU continue to act as drivers of illegal immigration into the EU, along with major political and civil upheaval outside Europe.

Geopolitical and External

The economic collapse of the Euro as a currency also has severe political repercussions, leading to major arguments amongst the key member states on how best to proceed. As a result, a number of member states pull out of the EU and the Union breaks apart.

Despite their awareness of the increasing threat posed to Europe by an increasingly organised international crime consortium, European leaders are unable to match the level of cooperation needed to counter it because of domestic agendas, rules and regulations, various firewalls and the architectural silos of their policing and intelligence organisations.

Political instability in the Middle East and North Africa continues and increases with additional countries being engulfed in civil uprisings attempting to remove existing regimes. Increasing levels of violence in these countries lead to large scale displacement of internal migrants and refugees. This causes massive population displacement and a humanitarian crisis as refugees seek to avoid the resultant violence. This is rapidly seized on by major organised criminal groups as a cover to organise human trafficking into the EU on a scale previously unseen.

Implications for the tourism industry on the physical and human environment means that environmental pollution from flights and harm to the local population leads to severe criticism of and restrictions against tourism and anyone involved in it.

Ideological and Religious

These factors are not directly relevant here, except for when organised crime networks are working alongside or with terrorists groups for their own benefit in a crime-terrorism nexus, or where terrorist groups are using organised criminal activity as a means of criminally raising funds for their terrorist activities.

Illegal migrants are entering the EU increasingly as a result of harassment or persecution for their ideological or religious beliefs. In such a case they would have greater grounds for applying for extended leave to remain or full asylum in the member state. However, this leads to tensions within EU states and an emerging clash of civilisations begins between 'Westernised' Europeans and religious, non-liberal cultures. This in turn will severely limit both holiday and business travel to many destinations due to mutual distrust and fear.

Demographic and Ethnic

Wildcard developments are probably somewhat less relevant for the demographic trends, which are characterised by far larger inertia than other drivers of human mobility. Hence, for this reason, the developments are assumed to follow the same path as in the 'Alternative' scenario. As to short-term mobility, the current scenario assumes that the number and diversity of tourists will change and travel will be affordable only to the wealthy. The (especially budget end) hotel and transport industry, as a labour-intensive sector, will suffer disproportionately leading to severe restriction on employment of legal and undocumented migrant workers (housekeepers, waiters, etc.).

Box 1.

Wildcard 1: 'The Four Horsemen'. Under this scenario, the world becomes plagued with wars, civil conflicts and environmental disasters.¹⁸³ The problems emerge, among others, in countries not far from Europe, such as North Africa (civil unrest) and other regions of the

¹⁸³ The analysis of the future environmental migration is very much under-researched. An overview has recently been provided in: R Black, D Kniveton and K Schmidt-Verkerk, "Migration and climate change: towards an integrated assessment of sensitivity", *Environment and Planning A*, 43(2) (2011): 431–450. Currently, a foresight study devoted to *Global Environmental Migration* is carried 'out by the UK Government Office for Science, and its project is scheduled for completion in autumn 2011. Link: <http://www.bis.gov.uk/foresight/our-work/projects/current-projects/global-environmental-migration>.

World, linked with Europe by post-colonial ties, such as Bangladesh or Ghana (here, mainly environmental disasters, including floods or severe droughts, respectively). Given that most migrants in emergency situations either travel relatively short distances or tend to utilise family networks already present at their destinations, this leads directly to an additionally increased migration pressure, which the European Union finds it increasingly difficult to cope with. As a result, the 'Back to the Future: A Perfect Storm' scenario becomes the new norm, eventually contributing to a gradual disintegration of the EU. The pressure on EU borders becomes aggravated and is no longer mainly limited to external frontiers, but equally to internal ones, bringing the situation back to the times before the Schengen Agreement of 1985.

Wildcard 2: 'Peak Oil'. Under this scenario, the world faces another oil crisis, more severe than in the 1970s. The natural resources do not run out completely, but become increasingly expensive, both due to depletion and political turmoil in some major OPEC countries. This leads to a substantial increase in fuel prices and hence costs of road and air transportation. This reduces long-range migration or mobility, especially in the short run, before technological alternatives to oil-based fuels are eventually invented. Since migration becomes increasingly short-distance and given a good level of connectedness of Europe by rail networks, intra-European migration accounts for an ever-increasing share of all flows of people in the EU. For longer distances, technology provides a possibility to work or study remotely, without the necessity to travel or relocate abroad.¹⁸⁴ The pressure on the external EU borders is thus largely relieved.

Social Networks and Trends

Limits to the numbers of tourists (both international and intra-regional) visiting certain areas will need to be set according to any location's tourism carrying capacity.¹⁸⁵

Smuggling is often organised by criminal networks, in particular where elements from the same community live on both sides of a border and can facilitate such cross-border activity. In many instances, those criminal networks involved in human trafficking will comprise individuals from the same national, ethnic and religious groups. These are often the same as those people they are trafficking.

Service quality, Privacy and Ethics

Border guards will suffer from low pay, overwork and under training. Though absolute levels of border crossings will decrease, the emphasis on security rather than facilitation will increase. Resources will be ever less available for effective security, however, with staff losses and failure of some technologies due to lack of maintenance or being rendered obsolete due to lack of upgrading.

¹⁸⁴ See Zelinsky (1971), discussed in Section 10.2.

¹⁸⁵ The carrying capacity of a destination is determined by its ability to withstand pressures on its natural and cultural environment until such a point as tourism impacts the host community in a negative way or that the locality can no longer provide an experience that satisfies tourists. See: European Commission, "Defining, measuring and evaluating carrying capacity in European tourism destinations" B4-3040/2000/294577/MAR/D2 - *Final Report*. (Athens, December 2001)

Environmental

Flooding caused by global warming will result in the mass displacement of tens of millions of people worldwide, following the 'ugly' scenarios sketched by the International Organisation for Migration.¹⁸⁶ Additionally, people in other environmentally marginal areas, such as Sahel in Africa, are forced to escape severe droughts that are plaguing their countries with an increasing frequency. Moreover, natural resources are starting to either slowly run out, or at least becoming much more expensive to acquire. Box 1 below presents two alternative wildcard situations related to these factors.

Technology and Sociotechnical Trends – 'Cyber-Fear Scenario'

In this future the evident and very probable mega-trends of social media, proliferation of technology and mobile computing and of information in the knowledge-society, converge with criminality trends and those of mass movements. In the decade since 2010 the world has seen ground-breaking dynamic change shaped by younger and younger people from the Arab Spring of 2011, to riots in London streets mobilised by social media which all pose a challenge to nations and to governance, especially to centralised, democratic reactive capability. Great concerns by EU nation states are dealt with separately, as derived from other parts in this scenario. Many young people 'live virtually'; maintaining a virtual identity as avatars (see in 'Back to the Future' Alternative scenario) and cyber-security becomes a main concern for the EU. 'Smart mobs' are mobilised quickly over the internet and use swarming concepts and techniques which the EU, as all nation states, find difficult to identify or confront.¹⁸⁷

Such social networks as Facebook and Twitter will become increasingly used by criminal organisations involved in facilitating illegal/irregular migration and human trafficking to identify weaknesses in border security, particularly along 'Green' land borders, away from BCPs and to exploit those weaknesses. Once identified, social networking can be utilised to coordinate mass illegal border crossings and when the authorities respond to these, either unilaterally or through Frontex-coordinated joint operations, alternative weaknesses can be exploited elsewhere along the border through the same technology. Equally, mobile phones and SMS can also be used for real time coordination of criminals involved in trafficking in human beings, to immediately exploit any weakness identified in border security, or indeed to overwhelm border security capacity through swarming and 'weight of numbers'. Amongst those taking advantage of such technology to exploit weaknesses in border security may be groups or individuals with more malicious intentions than just economic or socially driven migration, such as terrorist networks.

These socio-technical trends converge with those described earlier on social networks and virtual presence. Virtual identity becomes of equal importance as physical presence based on the use of a virtual 'Avatar' that is used ubiquitously across virtual worlds (such as Facebook and other social media, second life and even business environments and mobile phones). Technology allows virtual worlds to converge with 'holographic' video conferencing

¹⁸⁶ IOM, *Migration and Climate Change - Migration Research Series No. 31* (Geneva: International Organisation for Migration, 2008).

¹⁸⁷ Howard Rheingold, *Smart Mobs: The Next Social Revolution* (Cambridge, MA: Basic Books, 2003). Available from: <http://www.smartmobs.com/book/>

capabilities and young people start to ignore notions of physical borders. The EU and the rest of the world is working to a physical paradigm not accorded to by all and border guards find themselves in the midst of a conceptual and a derived practical debate.

A decade of cyber attacks on government IT assets, public and personal computers and the private sector has helped identify some of the origins of IP addresses used in attacks as originating from the Far East, but no instigating entity is ever proven or identified. The increase in the sophistication of attacks suggests the capability of a nation-state is behind them, but a recent hacking attack on prisons in the EU using advanced cyber-war capabilities to hack into Siemens PLCs (programmable logic controllers) controlling prisons, as well as some border crossings gates, suggest criminal networks are involved.¹⁸⁸ At the same time, organised criminal groups with access to technological and computer expertise may well hack into various EU computer systems, but rather than collapsing the systems, they covertly jeopardise them through discreetly corrupting the data in such a way that it is only discovered long after the initial attack, by which time the system and the data it contains is completely compromised from a data assurance perspective.

In addition to compromising data, the potential for over-reliance on technological systems to simplify and control border crossings, such as GIS and GPS, means that if these systems are deliberately jammed, crash or are corrupted, by organised criminals, terrorists or hostile nation states, it may mean that there are no back-up systems, that older paper based systems have been abandoned/forgotten and that there is no resilience built into the border security system.

In spite of EU attempts, through the European Network and Information Security Agency (ENISA), there is little or no real time coordination amongst nations' CERTs (Computer Emergency Response Teams). The EU finds this 'NetWar' – which becomes a cyber-NetWar conducted by swarming hackers, criminals and terrorist networks – an impossible socio-technical challenge.¹⁸⁹ Although the US -DARPA started projects to identify patterns in social media to enable interruption of swarming early-on, these projects are developed separately from EU projects, while protagonists in cyberspace cooperate in emergent patterns.¹⁹⁰

¹⁸⁸ "PLCs are small computers that can be programmed to control any number of things, such as the spinning of rotors, the dispensing of food into packaging on an assembly line or the opening of doors. Two models of PLCs made by the German-conglomerate Siemens were the target of Stuxnet, a sophisticated piece of malware discovered last year that was designed to intercept legitimate commands going to PLCs and replace them with malicious ones. Stuxnet's malicious commands are believed to have caused centrifuges in Iran to spin faster and slower than normal to sabotage the country's uranium enrichment capabilities." Kim Zetter, "Researchers Say Vulnerabilities Could Let Hackers Spring Prisoners From Cells", *Wired – Threat Level*, 29 July 2011.

¹⁸⁹ The term 'Netwar' describes a new kind of conflict used by terrorists, criminals, gangs, and ethnic extremists; and by civil-society activists (such as cyber activists or WTO protestors) through social networks which are decentralised and have unconventional and flexible network structures. For more details see: J Arquilla and D Ronfeldt, *Networks and Netwars: The Future of Terror, Crime, and Militancy* (Santa Monica, CA: RAND, 2001).

¹⁹⁰ AFP, "Pentagon looks to social media as new battlefield", *PHYSORG.com*, 21 July 2011. Available from: <http://www.physorg.com/news/2011-07-pentagon-social-media-battlefield.html>

And;

Similarly, in 2011, the US Intelligence Advanced Research Projects Activity (IARPA) started the Open Source Indicators (OSI) project based on Google-trends and similar tools and was surprised to discover these were used in a similar manner by the protagonists themselves – using similar COTS software and capabilities for OSI.¹⁹¹

In the absence of overarching EU security governance, technology is exploited by protagonists' networks that frequently cyber attack airports, trains and the transportation industry in general, as well as specific border crossings before attempts to smuggle through them.

In reaction, border guard services return to manual checks more frequently but with fewer staff with consequent effects on speed of crossing. Some border sectors are subject to mass influxes of illegal or irregular crossings and others to 'swarming' events coordinated by facilitators and traffickers who monitor weak points.

A final 'wild card' generated through the increased development of technology might be that because of super-Skype video-conferencing via mobile phones that project a hologram on the wall virtual reality conferencing makes travel redundant, mainly in the business field, where 'virtual' meetings and conferences can be increasingly facilitated without leaving the office.

EU Policy and National Framework

EU border control collapses in some points and the resultant vacuum leaves the borders porous. Population movement is uncontrolled, organised trans-national crime flourishes and smuggling increases exponentially becoming an endemic problem to Europe.

As a result of the various barriers to greater European cooperation to counter the increasing threat posed by an international criminal 'consortium', the level of organised criminal activity in Europe increases over the short term and spirals uncontrollably in the longer term. This negatively impacts many of the EU member states both within the countries and at their borders.

Fighting and disruption abroad means that the EU border security organisations are overwhelmed by waves of refugees. In particular Malta and the Italian island of Lampedusa cannot cope with the numbers of Libyan and Tunisian refugees arriving by sea, the security fences around the Spanish North African enclaves of Ceuta and Melilla, as well as Spanish and Portuguese territories in the Atlantic off the African coast are overrun by refugees

IARPA, "Proposers' Day Notice for the IARPA Open Source Indicators (OSI) Program", *Federal Business Opportunities*, 1 July 2011. Available from:

https://www.fbo.gov/index?s=opportunity&mode=form&id=96898fc66832142a28f9291186f3d965&ab=core&_cvview=0

¹⁹¹ "The idea that web search trends, blogs, internet traffic and webcams could hint at the future is nothing new. Google Flu Trends was set up in 2009 to predict flu outbreaks, counting on the fact that hordes of people searching for "flu symptoms" might mean something. In some cases Google was faster than the government at identifying where the next outbreak would occur." Lena Groeger, "Spies Want to Mine Your Tweets for Signs of the Next Tsunami", *Wired - Danger Room*, 7 July 2011. Available from: <http://www.wired.com/dangerroom/2011/07/spies-tweets-tsunami/>

escaping unrest in Morocco and other North African states. At the same time, Cyprus witnesses massive numbers of refugees from Syria, whilst thousands of asylum seekers from the Middle East transit through Turkey in an effort to travel into the EU through Greece and the Balkans.

In the short term, despite their best efforts, the border guards of EU member states and the wider EU are unable to cope with the level of human trafficking across both the Mediterranean into Southern Europe and across land borders into Greece and the EU Balkan states. In the longer term EU border security is effectively unable to cope with waves of irregular activity, as well as the sheer magnitude of inflow of people desperately seeking refuge in Europe.

Due to the seriousness of environmental threats associated with climate change, calls for responsible and restricted consumerism and social-attitude changes will lead to mass reductions in tourism. Moreover, responsible consumption will lead to certain areas only being open to tourists at restricted times (e.g. the entrances areas of cultural heritage and/or nature reserves). With effective legal restrictions (quotas) and/or social restrictions (peer pressure) and/or economic restrictions (taxes) in force only people with significant financial means will be able to travel. Border guards will be required to limit any duration of stay and restrict tourists to/from certain areas through the granting of permits, as well as using technological means that will inform them of the location of any particular tourist at any given moment.

9. Scenarios Overview

9.1 Scenarios and the ‘Aligning Idea’ (Compact Table)

The scenarios presented in detail in this section were developed by applying the methodologies outlined above to the ‘aligning idea’ and emerged from the taxonomy and the extrapolation futures detailed in Work Package 1. The main points of each are presented below in table form for ease of consultation, but also will enable planners to ‘mix-and-match’ parts of each scenario in order to create new ones which might be of national relevance.

Table 6. Mapping of factors/drivers of human mobility and border checks onto scenarios¹⁹²

	‘More of the Same’ (Probable)	‘Back to the Future: A Perfect Storm’ (Alternative)	‘Borders Eurotopia’ (Plausible - Preferred)	‘Here be Dragons’ (Wild Card)
i. Economic	Fair economic growth in Europe (GDP per capita increasing by around 2% per annum)	Continuing economic decline, growth of ‘Black Economy’	Rapid economic convergence of developing and developed countries (led by the BRIC countries) 10% growth of GDP per capita per annum	Collapse of Euro and European economy
ii. Geopolitical/ External	No major turmoil, some localised low-intensity conflicts in various parts of the world	Violent conflicts and civil unrest Worldwide leads to ‘splendid isolationism’ and breakdown in goodwill among member states	Multi-polar world order, political stability worldwide	A number of member states pull out of the EU and the Union breaks apart
iii. Ideological / Religious	Slow religious and ideological shift towards more secular positions	Isolation of communities based on ideology/religion	Rapid shift from religious and ideological to secular	‘Clash of civilisations’ begins between ‘Westernised’ Europeans and religious, non-liberal cultures
iv. Demographic / Ethnic	Population ageing in the developed world continues at its current pace	Population ageing in developed world continues, fertility levels in the developing world, especially Sub-Saharan Africa, will be stalling	Total fertility rates of 2.1 children per woman on average, ‘Glocalisation’	Population ageing accelerates quickly

¹⁹² For an explanation of this methodology see Appendix I of annex.

	'More of the Same' (Probable)	'Back to the Future: A Perfect Storm' (Alternative)	'Borders Eurotopia' (Plausible - Preferred)	'Here be Dragons' (Wild Card)
v. Social Networks/ trends	Legal and illegal, migrant networks will continue to work as a 'pull' factor	Due to globalisation countries will become more generic, unemployment will become more common among migrants and their children	Better integration of migrants into host society	Limits to the numbers of tourists (both international and intra-regional) according to location's social capacity
vi. Service quality / Privacy / Ethics	Increasing need for border guards who speak different languages, such as Chinese		Unified standard of efficiency and courtesy for border guards, expedited queuing services	
vii. Environmental	No significant long-term effects of climate change yet	First signs of forthcoming problems, some 'environmental refugees' to EU	Climate change has no impact	Mass displacement of people worldwide due to floods and drought
viii. Technology / Sociotechnical	Technology proliferation in border checks – dependent on national funds and investment	Restriction on aviation, more travel by boat, higher risk of disease/epidemics	Funds are made available to poorer member states for technology Also, Technology reduces need for some business travel	Technology collapse at borders and BGs. technology used by masses to swarm, criminals to organise
ix. EU Policy/ National Framework	Remains consistent	Reinstatement of internal borders within the Schengen zone	EU admission policies liberal, asylum policies generous. EU policy towards cross border criminal activity results in major reduction in crime and illegal immigration	EU border control collapses and the resultant vacuum leaves the borders porous
x. Possible effects of scenario on no. of passengers/passenger movement (BCEs)¹⁹³	Natural growth in no. passenger movement across inter and external EU borders. Increase extrapolated in BCEs accordingly	Decrease in passenger movements, Much fewer BCEs	Large positive growth in line with economic growth in tourism and leisure sector in parallel to decrease in business travel	Huge increase in irregular border crossings and flux yet similar no.s in regular BCEs

¹⁹³ The predicted variables can have unpredictable consequences resulting in different effects on passenger movement.

	'More of the Same' (Probable)	'Back to the Future: A Perfect Storm' (Alternative)	'Borders Eurotopia' (Plausible - Preferred)	'Here be Dragons' (Wild Card)
xii. Implication for BGs work	Proliferation of information volume and IT. BGs work is more technological and sophisticated so more education and training required. BGs attract young 'tech savvy' workforce.	Less technical orientation in BG work (uneconomical investment) BGs do not attract young labour force (ageing workforce, unsustainable leading to demise of knowledge)	Smaller, smarter better paid workforce. Funding for technology, less surprises since uncertainty reduced through technology and planning and predicting capabilities. Mechanism for flexibility and adaptability through EU cooperation	Emerging requirement to involve police, militaries and other security services due to chaotic illegal flows (since not at border crossing points. Lack of EU coordination and resources to BGs means no flexibility mechanisms

10. Overall Summary of WP2

The first part of the study reviewed current estimates of flows across borders and the trends and drivers affecting them, while the second part of the study portrayed various futures based on these building blocks. From both these parts a clear pattern emerges, of which a few elements are repetitive in all trends and in the scenarios, and also have impact on the methodological limitations familiar in futures studies.

Firstly, the dimensions of the uncertainties in futures of the EU are clear and it is evident that complexity and dynamic changes are seminal in understanding futures.¹⁹⁴ This directly impacts on the capability of governments and authorities to deal with rapid change, create mechanisms for identifying emerging events and adapting and coping with them (as well as scanning capability of those on the horizon). The public sector needs to be prepared to deal with 'wicked problems' that have no clear, immediate answer, but rather the nature and dimensions of the problems dynamically change at the same time that solutions are sought.¹⁹⁵ Obviously, this emerging requirement is also decisive for futures of border guards' work and for borders management in Europe.

The scenarios serve to focus on some of the key issues that emerge when seeking to plan for unknown future flows. Probable scenarios are adequate for planning day-to-day operations of border guards, since they are located within the realms of relatively high probability and low impact, largely following 'business as usual' trajectories and are characterised by inertia. On the other hand, alternative scenarios draw attention to gaps in policy. Wildcards, in particular, may require the creation of contingency plans in case of events which may have low probability, but potentially very high impact on the border security, and may occur very rapidly.

In projecting passenger flows it is quite clear that we should plan for dealing with emergency situations such as mass influxes. The importance of push factors and the potential for massive changes in flows means that planning should allow for a degree of flexibility in numbers. Given the prevailing uncertainty, the key message is that there has to be enough flexibility in the EU border control system and sufficient reserves in terms of resources, to allow Frontex and MS border guard services to react appropriately in rapidly changing circumstances.¹⁹⁶ The RABIT approach, used by Frontex in 2010, may be the first move in the right direction of planning and utilising additional mechanisms to create organisational flexibility and adaptive capabilities for BGs in Europe. It can be argued that trying to over-

¹⁹⁴ Foresight, "Dimensions of Uncertainty", Government Office for Science, Department for Business Innovation and Skills (BIS), UK, (2010). Available from: <http://www.bis.gov.uk/assets/bispartners/foresight/docs/horizon-scanning-centre/dimensions-of-uncertainty-final.pdf>

¹⁹⁵ Australian Government, "Tackling Wicked Problems - A Public Policy Perspective", (Commonwealth of Australia 2007).

¹⁹⁶ For a discussion, see: S Makridakis and N Taleb, "Living in a world of low levels of predictability", *International Journal of Forecasting*, 25(4) (2009): 840–844.

optimise resources, with mainly the probable scenarios in mind, can drastically increase the vulnerability of European border protection should less predictable events happen.

The proliferation of technological systems in border management is a trend driven by demands on increasing flows of diverse passengers and security requirements, often in reaction to challenges emerging from a 'learning competition' with innovative terrorist or criminal adversaries who continually adapt their *modus operandi*. Critically, what the scenarios demonstrate is that an overreliance on technology may itself be dangerous in the face of increasingly sophisticated and organised international criminal organisations. Furthermore, security investments may become potentially uneconomic if travel is reduced or indeed collapses. Thus, dependence and overreliance on technology creates vulnerability in terms of the economics of security, since:

- Even with expensive, often reactive technology, threats from those who are less dependent on technology remain- gaining them an asymmetric innovation capacity. For example, flight security technology has proliferated over the years in response to terrorist attacks, seeing the introduction of x-ray and explosives detection, yet 9/11 was successful because of its simplicity and (then) unexpectedness. Security technology adoption should not be done on the basis of trying to 'fight the last war' but in view of the possible next one.
- In light of the economic crisis facing EU states, public acceptance of big budgets on technology that also challenge privacy and rights may lead to public outcry, particularly in some member states.
- Failure, in the event of loss of power, connectivity or IT - through deliberate criminal acts, natural disaster or malfunction demands back-up of more basic and knowledge-based border guarding.
- Investment in technology becomes a wasted expense if travel collapses in the future due to: social trends such as teleworking, unaffordability, an ageing and less mobile population, 'glocalisation' (so no point in travelling), fears over pollution, rising oil prices and disruptions in its distribution, political unrest, war, terrorism and more.

The personalisation of risk emerges as a factor for the future as EU and MS government policies become more person-centric rather than nation-centric. At the border, differential treatment, based on trusted traveller schemes, will affect how a person is processed so that it becomes progressively less important where you are from but, rather, who you are- with the key aims of providing expedited service and strengthened security. Thus, futures scenarios involve more sophisticated forms of identity theft, 'social engineering' and a constant search for the human weak links – in border guards.

EU cooperation has also been shown to be a changeable factor and certainly not a given. With possible temporary closures of internal EU borders as a result of external global crises (with France and Denmark providing recent examples) there is a need to both foster cooperation and also necessitates contingency planning should such cooperation suffer a serious blow.

11. Conclusions and Recommendations

During the early stages of this study in 2010, a number of scenarios were considered for the second part of this report. These included the 'Wild Card' scenario that major civil unrest and conflict in the Middle East and on the boundaries of Europe would result in a significant influx of migrants from these countries, which would cause instability and additional demands for European border security agencies. In fact as the 'Arab Spring' developed it became apparent that this 'Wild Card' was rapidly becoming reality, with an influx of asylum seekers into the island of Lampedusa and the countries of Southern Europe. This in turn led to discussion among Member States concerning the re-establishment of internal borders, in effect returning to the border security situation that prevailed prior to the Schengen Agreement. These developments highlighted two key factors, firstly the relevance, importance and validity of futures methodologies and scenarios in preparing border guards and related institutions, and secondly, the importance of constantly re-evaluating and adjusting such scenarios and any associated planning as events unfold.

While the need to imagine the future and to do so regularly is therefore clear, this report also highlights that any research and resultant extrapolations in this field, particularly in the areas of longer-term mobility are prone to various methodological and conceptual problems.¹⁹⁷ These include by definition, the covert nature of irregular flows such as drug smuggling and human trafficking, and the limited release of data into the public domain by official bodies. In addition, 'multipliers' used to estimate illegal border flows, based on the numbers of those detained, are generalised and fail to take into account the significant variance of illegal flows across various EU external borders, leading to large margins of error. Such measurements also fail to take into consideration the impact of external factors, in particular additional border security. Finally, as shown by the recent events, any extrapolations of border flows can change rapidly due to external political, social and security developments.

The aim and scope of the study were limited to a review of existing research, secondary data, in order to highlight what exists and is relevant for border guards. The study identifies relevant literature and surveys current estimates in the various domains of knowledge relevant to borders in Europe. The design of the study and complex methodological approach produced additional by-products of use for border guards, Frontex and national policy makers and as a base for further research (such as a taxonomy, prioritisation of trends and drivers and a compact table for scenarios useful towards possible more enhanced morphological analysis)

Most importantly, emerging from this study is the need for future research in the field of border management in the EU both on estimates and on methodologies relevant for them. A

¹⁹⁷ See earlier discussion in Clandestino on methodological limitations

methodological gap on current and future flows across borders – especially regarding irregular flows- is clear and results in a possible policy gap. There are, in other words, a number of “known unknowns”, which can only be made known via research.

Similarly, the need for active consideration of futures for Frontex and for border guards in the EU has been proven eloquently by recent actual events. Improved estimation of near future is required and must take into account the unexpected. A horizon-scanning capability could be developed, either within Frontex R&D or in an outsourced manner –tapping into existing EU capability (such as, for example, the UK Horizon Scanning Centre). This is relevant both for technology horizon scanning but also regarding patterns of events as they emerge that are connected to border control operations.

Border guards’ education should be informed by futures preparation. Education through teaching about complexity, futures and technology could aid high level BG managers, to help build a futures thinking capability as well as inform about futures methods, scenarios and the importance of preparedness. Such ‘mental preparedness’ is required for adaptive behaviour – both at individual and organisational level (which may mean creating mechanisms for adaptive response).

Most importantly, this study has shown clearly that futures thinking is of practical use to policy-makers and planners. The study itself should be used as a dynamic point-of-reference which is iteratively revisited yearly. The future is unknown. As it unfolds, this study can help prepare only if the trends and drivers affecting it and the scenarios are constantly updated.

Furthermore, futures methods can and should be directly connected to risk analysis by border guard units and management. While futures studies contribute some specific useful methods for analysing future risk, when entwined into risk analysis units’ work it also supports a forward look through scenarios into futures implications of implementing various policy options.

However, the essence of futures studies is an iterative, requiring constant checks into the assumptions and the data at the foundations. Any futures study must be examined periodically in light of dynamic changes in the environment and contemporary events. These may act as a testing ground (as were the events of the ‘Arab Spring’ during this study) or as a base for amending data, identified trends and drivers – or their implications on scenarios.

As discussed elsewhere,¹⁹⁸ forecasting in general can be seen as a continuous and sequential process, whereby once the real-life outcomes of the predicted processes (e.g. border crossings) become known, they are included in a next-round forecast with a further horizon. In order to achieve that goal, A. P. Dawid proposed an elegant and coherent probabilistic framework for such sequential forecasts, utilising the advantages of Bayesian statistical inference, which is in essence based on updating beliefs in the light of new evidence¹⁹⁹.

¹⁹⁸ A P Dawid, "Statistical Theory: The Prequential Approach", *Journal of the Royal Statistical Society A*, 147(2) (1984): 278–292.

¹⁹⁹ Idem.

Including the approximation of costs (economic and other) of over- versus under-predicting the future streams of border crossing events in the analysis, can help make better informed decisions with respect to planning and resource allocation. Such a study could follow the general outlines of a risk analysis, identifying likelihoods and potential impacts of various scenarios. The analysis could be potentially enhanced by a probabilistic analysis and a formal inclusion of the expertise of Border Guard practitioners.²⁰⁰ This could be embodied in a sequential framework, discussed above, which could ultimately lead to creating an expert system for producing continuously updated predictions of border events.

We see the value of this study primarily as educational in triggering interest among practitioners and managers alike, to think about the future and futures risks and research them further. We recommend that policy-makers and border guard practitioners alike, take an active approach towards the future. What may translate one future scenario into another is often relatively smaller acts performed by humans at intervention points as early as possible. This is true for everything from strategic, long term policy decisions to tactical behaviour at border crossings. In the words of Peter Drucker, the late management guru:

“The best way to predict the future – is to create it”

²⁰⁰ For an outline of such an approach, see e.g. Chapter 11 of Bijak (2010).

Bibliographies

Bibliography – Introduction

Bijak, J, and A Wiśniowski. “Bayesian forecasting of immigration to selected European countries by using expert knowledge.” *Journal of the Royal Statistical Society Series A*, 173 (4) (2010): 775-796.

Clandestino. *Size and Development of Irregular Migration to the EU - Counting the Uncountable: Data and Trends across Europe*. Comparative Policy Brief, October 2009.

Clarke, J. “The Problems of Evaluating Numbers of Illegal Migrants in the European Union”. P. Bruycker. (Ed.). *Regularisations of Illegal Immigrants in the European Union*. Brussels, Bruylant, 2000.

Dalkey, N C. *The Delphi Method: An Experimental Study of Group Opinion*. RAND, 1969.

Freeman, Carla, and Drew Thompson. “China on the Edge - China’s Border Provinces and Chinese Security Policy.” The Center for the National Interest and Johns Hopkins SAIS, April 2011.

Glaser, B G, and A L Strauss. *The discovery of grounded theory : strategies for qualitative research*. Hawthorne, N.Y.: Aldine de Gruyter, 1967.

Goulding, C. *Grounded theory : a practical guide for management, business and market researchers*. London ; Thousand Oaks, Calif.,: SAGE, 2002.

Haddal, Chad C. “People Crossing Borders: An Analysis of U.S. Border Protection Policies.” Congressional Research Service, May 13, 2010.

Helmar, O. *Analysis of the Future: The Delphi Method*. RAND, 1967.

Locke, K. *Grounded Theory*. London; Thousand Oaks, Calif.: Sage, 2001.

United Kingdom Ministry of Defence. Strategic trends Programme, *Global Strategic Trends – Out to 2040*. Development, Concepts and Doctrine Centre DCDC, February 2010

United States Joint Forces Command. Joint Operating Environment: JOE 2010. USJFCOM, February 2010.

Bibliography – Temporary Mobility

American Express. *2008 GLOBAL BUSINESS TRAVEL FORECAST*. <http://www.universal-travel.com/2008GlobalBusinessTravelForecast.pdf>.

Cloudt, H. “Transport 02/11.” Statistics in Focus, Eurostat, February 2011.

Cole, S, and V Razak. “Tourism as Future.” *Futures* 41:6 (2009): 335-345.

Dennis, N. "Stimulation or saturation? Perspectives on European low-cost airline market and prospects for growth", *Transportation Research Record* (2007). pp. 52-59

Dobruszkes, F. "Does liberalisation of air transport imply increasing competition? Lessons from the European case." *Transport Policy* 16:1 (January 2009): 29-39.

Egencia. *2011 Global Corporate Travel Forecast and Hotel Negotiability Index*.

http://www.egencia.com/mktg/2011_global_forecast/documents/2011_global_travel_forecast_uk_final.pdf.

EUROCONTROL. *Industry Monitor - The EUROCONTROL bulletin on air transport trends, Issue no. 127*, EUROCONTROL, 23/02/11.

—. "Medium-Term Forecast - Flight Movements." February 2011.

European Commission. "Europe, the world's No 1 tourist destination – a new political framework for tourism in Europe, ." In *Communication from The Commission to The European Parliament, The Council, The European Economic and Social Committee and The Committee of the Regions*. Brussels: COM(2010) 352 final, 30.6.2010.

—. "Preparing the Next Steps in Border Management in the European Union - Summary of the Impact Assessment". In Commission Staff Working Document - Accompanying Document to the Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Regions. Brussels: Sec(2008) 154, 13.2.2008

—. *Flightpath 2050 - Europe's Vision for Aviation, Report of the High Level Group on Aviation Research*. Luxembourg: Publications Office of the European Union, 2011 .

European Union. *Commission Decision No 1999/34/EC of 9 December 1998 on the procedures for implementing Council Directive No 95/57/EC on the collection of statistical information in the field of tourism*, 1998. http://eur-lex.europa.eu/pri/en/oj/dat/1999/l_009/l_00919990115en00230047.pdf

European Travel Commission. <http://www.etc-corporate.org>.

—. "Factsheet." November 2010.

European Travel Commission. "European Tourism 2010 – Trends & Prospects." Quarterly Report - Q3/2010.

Eurostat. *Air Transport Statistics, Data from January 2011*.

http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Air_transport_statistics

—. *Applying the Eurostat Methodological Guidelines in Basic Tourism and Travel Statistics, A Practical Manual (revised version)*. Eurostat, March 1996.

—. *Legislation, Tourism Statistics*.

<http://epp.eurostat.ec.europa.eu/portal/page/portal/tourism/legislation>.

- . *Pocketbook on Tourism Statistics*. Luxembourg: Office for Official Publications of the European Communities, 2008.
- . "Tourism statistics in the European Statistical System - 2008 data." European Commission, 2010 Edition.
- FAA. <http://www.faa.gov/>.
- GBTA Europe. <http://www.gbtaeurope.org/>.
- Hall, C M, and A M Williams. *Tourism and migration: new relationships between production and consumption*. Dordrecht/London: Kluwer Academic , 2002.
- IATA. <http://www.iata.org/Pages/default.aspx>.
- ICAO. <http://www.icao.int/>.
- ICAO Chief Economic Analysis and Policy Section. "37th Session of the ICAO Assembly." Edited by N Teyssier. *Aviation Data*. Montreal: ICAO, 29th September 2010.
- Jackson, R T. "VFR Tourism: Is It Underestimated? (original 1990 article reprinted)." *Journal of Tourism Studies* 14:1 (May 2003): 17-24.
- OECD. *OECD Tourism Trends and Policies 2010*.
http://www.oecd.org/document/24/0,3746,en_2649_34389_44607576_1_1_1_1,00.html
- Pearce, D G, and R W Butler. *Tourism Research: A 20-20 Vision*. Oxford: Goodfellow, 2010 .
- Petersen, M S, et al. *Report on Scenario, Traffic Forecast and Analysis of Traffic on the TEN-T, taking into Consideration the External Dimension of the Union – Final Report*. Copenhagen, Denmark: European Commission DG TREN, 2009.
- Smeral, E, and S F Witt. "Econometric forecasts of tourism demand to 2005." *Annals of Tourism Research* 23:4 (October 1996): 891-907.
- Song, H, and G Li. "Progress in Tourism Management: Tourism demand modeling and forecasting—A review of recent research." *Tourism Management* 29 (2008): 203–220.
- Swarbrooke, J, and S Horner. *Business travel and tourism*. London : Butterworth/Heinemann, 2001.
- Tourism Forecasting special interest group (SIG). *Tourism forecasting outputs from academic journals, industry reports, working papers, books, and media reports, etc., Journal Articles*:.
http://tourism.forecastingprinciples.com/index.php?option=com_content&task=view&id=48&Itemid=28.
- Tretheway, M, and D Mak. "Emerging tourism markets: Ageing and developing economies." *Journal of Air Transport Management* 12:1 (January 2006): 21-27.
- United Nations. "Recommendations on Statistics of International Migration." In *Revision 1, Statistical Papers, Series M, No. 58*. New York: United Nations, 1998 .

UNWTO. *Press Release, International Tourism 2010: Multi-speed recovery*. Madrid : UNWTO, 17 January 2011.

—. *Press Releases, UNWTO Future Vision: Tourism Towards 2030 MADRID, SPAIN, 20 NOVEMBER 2008*.

http://www.unwto.org/media/news/en/press_det.php?id=3091&idioma=E.

—. *Tourism 2020 Vision - excerpt* <http://www.unwto.org/facts/eng/vision.htm>.

—. *Tourism and Migration: Exploring the Relationship between Two Global Phenomena*. UNWTO, 2010.

—. "Tourism Barometer, Vol 9, no.1." February 2011.

—. "Tourism Highlights, 2010 Edition." <http://www.unwto.org/facts/menu.html> (accessed 02 03, 2011).

World Tourism Organization and the European Travel Commission. "The Russian Outbound Travel Market with Special Insight into the Image of Europe as a Destination ." UNWTO, 2009.

WTTC. *Economic Data Search Tool*.

http://www.wttc.org/eng/Tourism_Research/Economic_Data_Search_Tool/.

—. *Press Release*. May 2011.

http://www.wttc.org/eng/Tourism_News/Press_Releases/Press_Releases_2011/WTTC_Global_Travel_and_Tourism_Summit_powers_global_growth/

Bibliography – Long-term Legal Migration

Ahlburg, D A. "Simple versus complex models: Evaluation, accuracy and combining." *Mathematical Population Studies* 5(3) (1995): 281–290.

Bauböck, Rainer, Eva Ersbøll, Kees Groenendijk, and Harald Waldrauch. "Introduction." In *Acquisition and Loss of Nationality. Policies And Trends In 15 European States.*, by IMISCOE, edited by Rainer Bauböck, Eva Ersbøll, Kees Groenendijk and Harald Waldrauch, 15. Amsterdam: Amsterdam University Press, 2005.

Bijak, J. "Forecasting International Migration in Europe: A Bayesian View." *Springer Series in Demographic Methods and Population Analysis* 24, Springer, Dordrecht, Chapter 3 (2010).

—. *Forecasting of immigration flows until 2025 for selected European countries using expert information. IDEA Working Paper No. 7*. Warsaw: Central European Forum for Migration and Population Research, 2009.

Bijak, J, M Kupiszewski, and A Kicingier. *International Migration Scenarios for 27 European Countries, 2002-2052. CEFMR Working Paper 4/2004*. Warsaw: Central European Forum for Migration Research, 2004.

- Dustmann, C, M Casanova, M Fertig, I Preston, and C M Schmidt. *The impact of EU enlargement on migration flows. Home Office Report 25/03*. London: Home Office, 2003.
- European Commission. *Demography Report*. Brussels: EC Directorate-General for Employment, Social Affairs and Inclusion, 2010.
- European Migration Network. <http://emn.intrasoft-intl.com>
- Eurostat. *Asylum Statistics (Nov. 2010)*.
http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Asylum_statistics.
- Fassmann, H, U Reeger, and W Sievers. *Statistics and Reality: Concepts and Measurements of Migration in Europe. IMISCOE Reports*. Amsterdam: Amsterdam University Press, 2009.
- IIASA. <http://www.iiasa.ac.at/Research/POP/proj07/index.html?sb=6>. .
- IMISCOE. www.imiscoe.org.
- Kupiszewska, D, and B Nowok. *Comparability of Statistics on International Migration Flows in the European Union - CEFMR Working Paper 7/2005*. Warsaw: Central European Forum for Migration Research, November 2005 .
- Lutz, W, W C Sanderson, and S Scherbov. *The End of World Population Growth in the 21st Century: New Challenges for Human Capital Formation and Sustainable Development*. London: Earthscan, 2004.
- Metropolis. <http://www.metropolis2010.org/?pid=214>. .
- MIMOSA. <http://mimosa.gedap.be/>.
- NORFACE. <http://www.norface.org/migration12.html>. .
- NRC (National Research Council). *Beyond Six Billion. Forecasting the World's Population*. Washington DC: National Academies Press, 2000.
- Orrell, D. *The Future of Everything: The Science of Prediction*. New York: Thunder's Mouth Press, 2007.
- Poulain, M, N Perrin, and A Singleton. *THESIM: Towards Harmonised European Statistics on International Migration*. Louvain-la-Neuve: Presses Universitaires de Louvain, 2006.
- PROMINSTAT. <http://www.prominstat.eu/drupal/?q=node/58>.
- UN. *Recommendation on statistics of international migration*. New York: United Nations, 1998.
- UNHCR. "STATISTICAL YEARBOOK 2009 - Trends in displacement, protection and solutions." October 2010.
- United Nations Department of Economic and Social Affairs. "International Migration Report." Population Division, 2006.

Bibliography – Temporary Irregular Mobility

- Alexander, Y, M Swetnam, and H Levine. *ETA: Profile of a Terrorist Group*. New York: Transnational Publishers, 2001.
- Allison, G. *Nuclear Terrorism: The Risks and Consequences of the Ultimate Disaster*. London: Constable, 2006.
- Barnaby, F. *How to Build a Nuclear Bomb: And Other Weapons of Mass Destruction*. London: Granta, 2003.
- Boutwell, J., ed. *Lethal Commerce: The Global Trade in Small Arms and Light Weapons*. Cambridge: American Academy of Arts and Sciences., 1995.
- Bowden, M. *Killing Pablo: The Hunt for the Richest, most Powerful Criminal in History*. London : Atlantic Books, 2001.
- British Medical Association. *Biotechnology Weapons and Humanity*. Amsterdam: Harwood Academic Publishers, 1999.
- Chouvy, P.A. "Narco-Terrorism in Afghanistan." *Terrorism Monitor* 2:6 (2004).
- Center for the Study of Democracy, "Organised Crime and Corruption: National Characteristics and Policies of the EU Member-States", *Policy Brief No 26*, (November 2010).
- Cilluffo, F. "The Threat Posed from the Convergence of Organised Crime, Drug Trafficking and Terrorism - Evidence presented to the US House Sub-Committee on Crime." Washington DC, 13th December 2000.
- Council of the European Union. "Acts Adopted Under Title V of the EU Treaty Council Framework Decision 2008/841/JHA of 24 October 2008 on the fight against organised crime, Article 1, Definitions, p.2." <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:300:0042:0045:EN:PDF>.
- Dwyer, A, et al. *Jane's Chem-Bio Handbook*. Surrey: Jane's Information Group, 2002.
- Edwards, A, and P Gill. *Transnational Organised Crime: Perspectives on Global Security*. London: Routledge, 2003.
- English, R. *Armed Struggle: A History of the IRA*. London: Macmillan, 2003.
- EUROPOL. *EUROPOL Convention*, "Indent added by the Council Act of 27 November 2003." *Official Journal* 002 (01 2004): 3.
- . *Organised Crime Threat Assessment OCTA 2011*. The Hague, 2011
- . *TE-SAT 2010: EU Terrorism Situation and Trend Report*. The Hague, 2010.
- . *TE-SAT 2011: EU Terrorism Situation and Trend Report*. The Hague, 2011

- EUROSTAT. *Crime Trends in Detail* (November 2010).
http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Crime_trends_in_detail
- . *Statistics on crime and the criminal justice system (last updated November 2010)*.
http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/Annexes/crim_esms_an1.pdf.
- Farrugia, E, and P Serf. *Corse: La Terrorisme*. Paris: Diffusion International Edition, 2004.
- Federal Research Division. *A Global Overview of Narcotics-Funded Terrorist and Other Extremist Groups*. Washington DC: Library of Congress, May 2002.
- Felbab-Brown, V. "Afghanistan: When Counternarcotics Undermines Counterterrorism." *The Washington Quarterly*, Autumn 2005.
- FORESEC. http://www.foresec.eu/wp3_docs/Foresec_report.pdf
- Frampton, M. *Legion of the Rearguard: Dissident Irish Republicanism*. Dublin: Irish Academic Press , 2010.
- Gero, D. *Flights of Terror: Aerial Hijack and Sabotage since 1930*. Yeovil: Patrick Stephens Limited, 1997.
- Glenny, M. *McMafia: Crime without Frontiers*. London: The Bodley Head, 2008.
- Gunaratna, R. *Inside Al Qaeda: Global Network of Terror. Second edition*. London: Hurst, 2003.
- Hainmuller, J., and J M Lemnitzer. "Why Do Europeans Fly Safer? The Politics of Airport Security in Europe and the U.S." *Terrorism and Political Violence* 15 Issue 4 (Winter 2003): 1-36.
- Harris, R, and J Paxman. *A Higher Form of Killing: The Secret History of Chemical and Biological Warfare*. London: Arrow Books, 2002.
- Hoffman, B. *Inside Terrorism: Revised and Expanded Edition*. New York: Columbia University Press, 2006.
- Jamieson, A. "The Use of Terrorism by Organised Crime: an Italian case study." In *Root Causes of Terrorism: Myths, reality and ways forward*, edited by T Bjorgo. London: Routledge, 2005.
- Jenkins, B.J. *Will Terrorists Go Nuclear?*. New York: Prometheus Books, 2008.
- Makarenko, T. "The Crime-Terror Continuum: Tracing the Interplay between Transnational Organised Crime and Terrorism." *Global Crime* 6:1 (February 2004).
- . *The Crime-Terror Nexus*. London: Hurst & Co., 2007.
- Mango, A. *Turkey and the War on Terror: For Forty Years We Fought Alone*. London: Routledge, 2005.

- Mangold, T, and J Goldberg. *Plague Wars: The Terrifying Reality of Biological Warfare*. London: St. Martin's Press-Macmillan, 2001.
- Nance, M. *The Terrorist Recognition Handbook*. Guilford, Connecticut : The Lyons Press, 2003.
- Napoleoni, L. *Terror Inc. Tracing the Money behind Global Terrorism*. London: Penguin, 2004.
- Poole, R W. "Toward Risk- Based Aviation Security Policy." Discussion Paper 2008-23, OECD/ITF, November 2008.
- RAND. "Database of Worldwide Terrorism Incidents".
<http://www.rand.org/nsrd/projects/terrorism-incidents.html>.
- Rich, D. "Recognising the threat of far right terrorism", ICT Commentaries. July 24 2011.
<http://www.ict.org.il/NewsCommentaries/Commentaries/tabid/69/Articlsid/959/Default.aspx>
- Robinson, J. *The Merger: The Conglomeration of International Organised Crime*. New York: Overlook Press, 2000.
- Sagramoso, D. "The Proliferation of Illegal Small Arms and Light Weapons in and Around the European Union: Instability, Organised Crime and Terrorist Groups." Centre for Defence Studies, Kings College, University of London, July 2001 .
- Schmid, A, and A Jongman. *Political Terrorism: A New Guide to Actors, Authors, Concepts, Data Bases, Theories, & Literature*. New Brunswick/London: Transaction Publishers, 1988.
- Shanty, F, and M Patit Paban. *Organized Crime: From Trafficking to Terrorism*. Santa Barbara CA: ABC – CLIO, 2008.
- Staffansson, P., ed. *Maffia: Den Kompletta Historien*. Stockholm: Bonnier Fakta, 2010.
- Stewart, M.G., and J Mueller. "Assessing the Risks, Costs, and Benefits of United States Aviation Security Measures." Research Report No. 267.04.08, University of Newcastle (Australia), 2008.
- Streatfield, D. *Cocaine: An Unauthorized Biography*. Picador, 2003.
- Szyliowicz, J. "Aviation Security: Promise or Reality?" *Studies in Conflict & Terrorism* 27:47-63 (2004).
- Thomas, A. *Aviation Insecurity: The New Challenges of Air Travel*. Amherst NY: Prometheus Books, 2003.
- UN.GIFT. "BP 027 Workshop: Transnational Organised Crime – Impact from Source to Destination." *Global Initiative to Fight Human Trafficking*. 2008.
- United Nations. "Convention Against Transnational Organized Crime and the Protocols thereto." New York, 2004.

UNODC. "Crime and Its Impact on the Balkans: And affected countries." United Nations Office on Drugs and Crime, 2008.

—. "World Drug Report 2010." Vienna, United Nations Organisation on Drugs and Crime, 2010.

Williams, P. *The Untouchables: Ireland's Criminal Assets Bureau and its War on Organised Crime*. Dublin: Merlin Publishing, 2006.

Bibliography – Long-term Irregular Mobility

Clandestino. <http://clandestino.eliamep.gr/>

Clandestino. *Size and Development of Irregular Migration to the EU - Counting the Uncountable: Data and Trends across Europe*, Comparative Policy Brief, October 2009.

Dowling, Samantha, Karen Moreton, and Leila Wright. "Trafficking for the purposes of labour exploitation: a literature review." Home Office Online Report, 2007.

European Commission, *Third annual report on the development of a common policy on illegal immigration, smuggling and trafficking of human beings, external borders, and the return of illegal residents*, European Commission Staff Working Document, SEC (2009) 320 final, Brussels, 9.3.200.)

EUROPOL. *Facilitated Illegal Immigration into the European Union*. The Hague : EUROPOL, September 2009.

Frontex. *Annual Risk Analysis 2011*. Warsaw: Frontex, April 2011.

—. "Western Balkans Annual Risk Analysis 2010." Warsaw, May/June 2010 .

Futo, P., ed. *Yearbook on Illegal Migration, Human Smuggling and Trafficking in Central and Eastern Europe. A Survey and Analysis of Border Management and Border Apprehension. Data from 2008, Including: Special Survey on the 2007 enlargement of the Schengen Area*. Vienna: ICMPD, 2010.

Futo, P, and M Jandl, eds. *2006 Year Book on Illegal Migration, Human Smuggling and Trafficking in Central and Eastern Europe*. Vienna, ICMPD, 2007.

GÉDAP, Migration and Asylum in Europe 2003, Report produced by the Gestion Démographique pour les Administrations Publiques (GÉDAP) and the Berlin Institute for Comparative Social Research (BIVS) on behalf of the European Commission, 2004.

Heckmann, F, T Wunderlich, S Martin, and K McGrath. "Transatlantic Workshop on Human Smuggling: Conference Report." Georgetown University, Autumn 2000.

Jandl, M. "The Estimation of Illegal Migration in Europe." *International Centre for Migration Policy Development (ICMPD), Studi Emigrazione/Migration Studies* XLI, no. 153 (March 2004): 141-155.

Jandl, M. *A multiplier estimate of the illegally resident third-country national population in Austria based on crime suspect data*. Hamburg Institute of International Economics (HWWI), Database on Irregular Migration, Working paper No. 2/2009, 2009.

Jandl, M, et al. *Report on Methodological Issues*. Clandestino, October 2008.

ICMPD. <http://www.icmpd.org>

IOM, <http://www.iom.int/jahia/jsp/index.jsp>

Riley, K Jack. "Beyond the Shadow of 9/11 - Air Passenger Security at a Reasonable Cost." RAND, 2011.

Salt, J. "Trafficking and Human Smuggling: A European Perspective." *International Migration* 38, Issue 3, Special Issue 1 (2000): 31–56.

UNODC. "Migrant Smuggling". <http://www.unodc.org/unodc/en/human-trafficking/smuggling-of-migrants.html>

—. *Smuggling of Migrants: A Global Review and Annotated Bibliography of Recent Publications*. Vienna: United Nations Office on Drugs and Crime, 2010.

Ventrella, M. *The Control of People Smuggling and Trafficking in the EU: Experiences from the UK and Italy. Law and Migration*. Ashgate Publishing Ltd., 2010.

Vogel, Dita, Vesela Kovacheva, Albert Kraller, and David Reichel. *Irregular migration flows: composition and trends for Austria (2000-2007)*. HWWI, January 2010.

Bibliography – Futures Foresight

ACI. "Information Brief - Simplifying Passenger Travel." March 2007.

AFP. "Pentagon looks to social media as new battlefield." *PHYSORG.com*, 21 July 2011.

Alexander, Y, M Swetnam, and H Levine. *ETA: Profile of a Terrorist Group*. New York: Transnational Publishers, 2001.

Amazon. *Amazon Mechanical Turk*. www.mturk.com

Arango, J. "Explaining migration: a critical view." *International Social Science Journal* 52 (2000): 283–296.

Arquilla, J, and D Ronfeldt. *Networks and Netwars: The Future of Terror, Crime, and Militancy*. Santa Monica, CA: RAND, 2001.

Australian Government. *Tackling Wicked Problems – A Public Policy Perspective*. Commonwealth of Australia, 2007.

Barnaby, F. *How to Build a Nuclear Bomb: And Other Weapons of Mass Destruction*. London: Granta, 2003.

Bauman, Z. *Liquid Times: Living in an Age of Uncertainty*. Cambridge: Polity Press, 2007.

Bijak, J. *Forecasting International Migration in Europe: A Bayesian View*. Dordrecht: Springer, 2010.

Bioexplorers. <http://bioexplorers.com/technology.html>.

Black, R, D Kniveton, and K Schmidt-Verkerk. "Migration and climate change: towards an integrated assessment of sensitivity." *Environment and Planning A* 43(2) (2011): 431–450.

BORDERS. "AVATAR Kiosk for Deception Detection." 27 July 2011.

Bowden, M. *Killing Pablo: The Hunt for the Richest, Most Powerful Criminal in History*. London : Atlantic Books, 2001.

Boyle, Rebecca. "How The First Crowdsourced Military Vehicle Can Remake the Future of Defense Manufacturing." *POPSCI*, 30 June 2011.

Brown, J S, S Denning, K Groh, and L Prusak. *Storytelling in Organizations: How Narrative and Storytelling are Transforming 21st Century Management*. Boston, MA: Butterworth Heinemann, 2004.

Buhalis, D, and M Zoge. "The Strategic Impact of the Internet on the Tourism Industry." In *Information and Communication Technologies in Tourism*, edited by M Sigala and et al, 481-492. Vienna: Springer Verlag, 2007.

Buhalis, D, and P O'Connor. "Information Communication Technology Revolutionizing Tourism." *Tourism Recreation Research* 30 (2005): 7-16.

Castles, S, and M Miller. *The Age of Migration: Inter-national Population Movements in the Modern World*. Basingstoke: Palgrave Macmillan, 2009.

Center for Strategic and International Studies (CSIS). "Biometrics in Airport Security." 5 February 2010.

Cilluffo, F. "The Threat Posed from the Convergence of Organised Crime, Drug Trafficking and Terrorism - Evidence presented to the US House Sub-Committee on Crime." Washington DC, 13th December 2000.

Constantinides, E, and S J Fountain. "Web 2.0: Conceptual foundations and marketing issues." *Journal of Direct, Data and Digital Marketing Practice* 9 (2008): 231–244.

Curry, Andrew, Tony Hodgson, Rachel Kelnar, and Alister Wilson. "Intelligent Infrastructure Futures, The Scenarios – Towards 2055, commissioned by the Foresight Programme of the Office of Science and Technology." Department of Trade and Industry (UK), January 2006.

- DARPA. "DARPA's Defense Manufacturing Efforts Support White House Vision - Adaptive Vehicle Programs Highlighted During Presidential Event ." 24 June 2011.
- Dawid, A P. "Statistical Theory: The Prequential Approach." *Journal of the Royal Statistical Society A* 147(2) (1984): 278–292.
- de Haas, H, C Vargas-Silva, and S Vezzoli. *Global Migration Futures: A conceptual and methodological framework for research and analysis*. Mimeo, 2010.
- Dole, S H, G Fisher, E Harris, and J String Jr. *Establishment of a Long-Range Planning Capability*. Santa Monica, CA: RAND, 1969.
- Dye, Lee. "Avatar Knows If You Are Lying." *ABC News*, 3 March 2011.
- Edwards, A, and P Gill. *Transnational Organised Crime: Perspectives on Global Security*. London: Routledge, 2003.
- ENISA. *ENISA Briefing: Behavioural Biometrics*. 2010.
http://www.enisa.europa.eu/act/rm/files/deliverables/behavioural-biometrics/at_download/fullReport
- English, R. *Armed Struggle: A History of the IRA*. London: Macmillan, 2003.
- EUROCONTROL. Long-Term Forecast: IFR Flight Movements 2010-2030. Released Issue, Edition Number: v 1.0
- European Commission. *Defining, measuring and evaluating carrying capacity in European tourism destinations - B4-3040/2000/294577/MAR/D2 - Final Report*. Athens, December 2001.
- EUROPOL. *Facilitated Illegal Immigration into the European Union*. The Hague : EUROPOL, September 2009.
- Farrugia, E, and P Serf. *Corse: La Terrorisme*. Paris: Diffusion International Edition, 2004.
- Federal Research Division. *A Global Overview of Narcotics-Funded Terrorist and Other Extremist Groups*. Washington DC: Library of Congress, May 2002.
- Fielding, N. and R. Warnes, "Computer-Based Qualitative Methods in Case-Study Research", in David Byrne (ed.) *The SAGE Handbook of Case-Based Methods*. London: SAGE publications, 2009.
- FORESEC. http://www.foresec.eu/wp3_docs/Foresec_report.pdf
- FORESEC. "D 2.2 Country report on United Kingdom." 16 June 2008.
- Foresight. *Dimensions of Uncertainty*. Government Office for Science, Department for Business Innovation and Skills (BIS), UK, 2010.
- Foster, Jr., Dr. John S. "Report of the Commission to Assess the Threat to the United States from Electromagnetic Pulse (EMP) Attack - Volume 1: Executive Report." 2004.

Frampton, M. *Legion of the Rearguard: Dissident Irish Republicanism*. Dublin: Irish Academic Press, 2010.

Frontex. *BIOPASS Study on Automated Biometric Border Crossing Systems for Registered Passenger at Four European Airports*. Warsaw, August 2007.

Frontex. "BIOPASS II Automated Biometric Border Crossing Systems Based on Electronic Passports and Facial Recognition: RAPID and SmartGate," *Frontex technical report No 1/2010*. European Union, 2010.

Frontex, *ED4BG Debate on 'Border Guards and Technology'*. Poland, 2011.

Futo, P., ed. *Yearbook on Illegal Migration, Human Smuggling and Trafficking in Central and Eastern Europe. A Survey and Analysis of Border Management and Border Apprehension. Data from 2008, Including: Special Survey on the 2007 enlargement of the Schengen Area*. Vienna: ICMPD, 2010.

Gero, D. *Flights of Terror: Aerial Hijack and Sabotage since 1930*. Yeovil: Patrick Stephens Limited, 1997.

Glaser, B G, and A L Strauss. *The discovery of grounded theory : strategies for qualitative research*. Hawthorne, N.Y.: Aldine de Gruyter, 1967.

Glenny, M. *McMafia: Crime without Frontiers*. London: The Bodley Head, 2008.

Gray, C S. "Defence Planning, Surprise, and Prediction." *Paper presented at the NATO 'Multiple Futures' Conference*, 2009.

Groeger, Lena. "Spies Want to Mine Your Tweets for Signs of the Next Tsunami." *Wired - Danger Room*, 7 July 2011.

Gunaratna, R. *Inside Al Qaeda: Global Network of Terror. Second edition*. London: Hurst, 2003.

Harris, R, and J Paxman. *A Higher Form of Killing: The Secret History of Chemical and Biological Warfare*. London: Arrow Books, 2002.

Helmer, O. *New Developments in Early Forecasting of Public Problems*. Santa Monica, CA: RAND, 1967.

HSNW. "Border Web cameras along Texas-Mexico border go online again." 21 November 2007.

Hoffman, B. *Inside Terrorism: Revised and Expanded Edition*. New York: Columbia University Press, 2006.

IARPA. "Proposers' Day Notice for the IARPA Open Source Indicators (OSI) Program." *Federal Business Opportunities*, 1 July 2011.

IATA. *Simplifying the Business*. <http://iata.org/tr/whatwedo/passenger/et/index.htm>

- IATA. *Photo Gallery - IATA's Checkpoint of the Future*. June 2011.
<http://www.iata.org/events/agm/2011/gallery/Pages/checkpoint-gallery.aspx>
- IATA. *Security briefing*. <http://www.iata.org/events/agm/2011/gallery/Pages/video-gallery.aspx?vid=20>
- IATA. *CheckPoint of the Future*. <http://www.iata.org/events/agm/2011/gallery/Pages/video-gallery.aspx?vid=21>
- IATA. *Press Release: IATA Reveals Checkpoint of the Future*. 7 June 2011.
<http://www.iata.org/pressroom/pr/pages/2011-06-07-01.aspx>
- International Monetary Fund. "World Economic Outlook Database." April 2011 edition.
- IOM. *Migration and Climate Change - Migration Research Series No. 31*. Geneva: International Organisation for Migration, 2008.
- Jackson, B. "Developing Robust Border Security Technologies to Protect Against Diverse and Adaptive Threats." Document submitted on December 17, 2007 as an addendum to testimony, RAND, December 2007.
- Jamieson, A. "The Use of Terrorism by Organised Crime: an Italian case study." In *Root Causes of Terrorism: Myths, reality and ways forward*, edited by T Bjorgo. London: Routledge, 2005.
- Jenkins, B M. "Terrorism and the Security of Public Surface Transportation." Testimony presented to the Senate Committee on Judiciary on April 8 2004, April 2004.
- Jenkins, B.J. *Will Terrorists Go Nuclear?*. New York: Prometheus Books, 2008.
- Khan, H. *On escalation: metaphors and scenarios*. New York: Praeger, 1965.
- Khan, H and A J Wiener, *THE YEAR 2000: A Framework for Speculation on the Next Thirty-Three years*. Washington DC: Hudson Institute, 1967.
- King, R. "Towards a New Map of European Migration." *International Journal of Population Geography* 8(2) (2002): 89–106.
- Kurzweil, R. *The Singularity is Near: When Humans Transcend Biology*. Viking Press, New York, 2005.
- Lem, S. *The Chain of Chance (Katar)*. [Harcourt Brace Jovanovich](#): New York, 1978.
- MacInnes, J, and J Pérez Díaz. "The Reproductive Revolution." *The Sociological Review* 57 (2009): 262–284.
- Makridakis, S, and N Taleb. "Living in a world of low levels of predictability." *International Journal of Forecasting* 25(4) (2009): 840–844.
- Makarenko, T. "The Crime-Terror Continuum: Tracing the Interplay between Transnational Organised Crime and Terrorism." *Global Crime* 6:1 (February 2004).

- Mango, A. *Turkey and the War on Terror: For Forty Years We Fought Alone*. London: Routledge, 2005.
- Mangold, T, and J Goldberg. *Plague Wars: The Terrifying Reality of Biological Warfare*. London: St. Martin's Press-Macmillan, 2001.
- Massey, D S, J Arango, G Hugo, A Kouaouci, A Pellegrino, and J E Taylor. "Theories of International Migration: A Review and Appraisal." *Population and Development Review* 19 (1993): 431–466.
- MIT Mobile Experience Lab. *A day at MIT with Near-Field Communication*. 2009. <http://vimeo.com/2028724/>
- National Science and Technology Council. *Face Recognition*. August 2006. <http://www.biometrics.gov/Documents/FaceRec.pdf>
- NIC. "Global Trends 2025: A Transformed World." November 2008.
- Ocean's Eleven*. Directed by Steven Soderbergh. 2001.
- Orrell, D. *The Future of Everything. The Science of Prediction*. NY: Thunder's Mouth Press, 2007.
- SESAR Joint Undertaking presentation. "Today's Partners for Tomorrow's Aviation." 2008 .
- RAND. *Futures Methodologies*. http://www.rand.org/international_programs/pardee/pubs/futures_method/scenario_discovevery.html
- Ringland, G. *Scenarios in Business*. Chichester, West Sussex: John Wiley & Sons, 2002.
- RFID News. "Unisys predicts increase in airport biometric programs." Thursday, April 7, 2011.
- Rheingold, Howard. *Smart Mobs: The Next Social Revolution*. Cambridge, MA: Basic Books, 2003.
- Roberts, M. (2 November 2011). *Bionic contact lens 'to project emails before eyes'*. BBC News.
- RSA Laboratories. *Privacy and Security Issues* <http://www.rsasecurity.com/rsalabs/node.asp?id=2115>.
- Sagramoso, D. "The Proliferation of Illegal Small Arms and Light Weapons in and Around the European Union: Instability, Organised Crime and Terrorist Groups." Centre for Defence Studies, Kings College, University of London, July 2001 .
- Salt, J. "Trafficking and Human Smuggling: A European Perspective." *International Migration* 38, Issue 3, Special Issue 1 (2000): 31–56.

Schegg, R, and et al. "An Exploratory Field Study of Web 2.0 in Tourism , , pp." In *Information and communication technologies in tourism 2008: proceedings of the international conference in Innsbruck, Austria 2008*, edited by P O'Connor and et al, 152-163. Vienna: Springer, 2008.

Schmid, A, and A Jongman. *Political Terrorism: A New Guide to Actors, Authors, Concepts, Data Bases, Theories, & Literature*. New Brunswick/London: Transaction Publishers, 1988.

Shamah, David. *The latest in high-tech security - a mouse*. ISRAEL21c, February 24, 2011 .

SESAR Joint Undertaking. presentation: "Today's Partners for Tomorrow's Aviation." 2008 .

Shanty, F, and M Patit Paban. *Organized Crime: From Trafficking to Terrorism*. Santa Barbara CA: ABC – CLIO, 2008.

SITA. "Ten technological advantages that will change air travel." New Frontiers Paper, SITA , 2009.

Staffansson, P., ed. *Maffia: Den Kompletta Historien*. Stockholm: Bonnier Fakta, 2010.

Surowiecki, J. *The Wisdom of Crowds: Why the Many Are Smarter Than the Few and How Collective Wisdom Shapes Business, Economies, Societies and Nations*. New York: Doubleday, 2004.

Taleb, N. *Fooled by randomness : the hidden role of chance in the markets and in life*. New York: Texere, 2001.

—. *The black swan : the impact of the highly improbable (1st ed.)*. New York: Random House, 2007.

Taylor, M, and Horgan J. *The Future of Terrorism*. London: Frank Cass, 2000.

TETRA. "A Pocket Guide." May 2011. <http://pocketguide.tetra-association.com/>

Total Recall. Directed by Paul Verhoeven. 1990

Traynor, I. "EU considers reinstating national border controls ." *The Guardian*, 1 May 2011.

UK Horizon Scanning Centre. <http://www.sigmascan.org/Live/>

United Kingdom Ministry of Defence. Strategic trends Programme, *Global Strategic Trends – Out to 2040*. Development, Concepts and Doctrine Centre DCDC, February 2010

United Kingdom Ministry of Defence. "Strategic Trends Programme, Global Strategic Trends – Out to 2040." Development, Concepts and Doctrine Centre DCDC, February 2010.

United States Joint Forces Command. "Joint Operating Environment: JOE 2010." USJFCOM, February 2010.

United Nations. *World Fertility Patterns 2009*. UN, 2010.

—. *Smuggling of Migrants: A Global Review and Annotated Bibliography of Recent Publications*. Vienna: United Nations Office on Drugs and Crime, 2010.

UNODC. "World Drug Report 2010." Vienna, United Nations Organisation on Drugs and Crime, 2010.

Waxer, Cindy. *Asking the Crowd How to Make Something*. Technology Review published by MIT, 19 July 2011.

Werthner, H, and S Klein. *Information Technology and Tourism – A Challenging Relationship*. Vienna: Springer-Verlag, 1999.

Williams, P. *The Untouchables: Ireland's Criminal Assets Bureau and its War on Organised Crime*. Dublin: Merlin Publishing, 2006.

Zelinsky, W. "The hypothesis of the mobility transition." *Geographical Review* 61(2) (1971): 219–249.

Zenthöfer, A. "The Revolution of Rising Expectations." Mimeo, 2011.

Zetter, Kim. "Researchers Say Vulnerabilities Could Let Hackers Spring Prisoners From Cells." *Wired – Threat Level*, 29 July 2011.

Bibliography – Appendices

Bijak, J. "Forecasting International Migration in Europe: A Bayesian View." *Springer Series in Demographic Methods and Population Analysis* 24, Springer, Dordrecht, Chapter 3 (2010).

ETC. "National Statistical Offices in Europe". <http://www.etc-corporate.org/modules.php?name=Content&pa=showpage&pid=95>

EUROCONTROL. Long-Term Forecast: IFR Flight Movements 2010-2030. Released Issue, Edition Number: v 1.0

Europa. "Press Release RAPID - EU Passenger Name Record (PNR) - Frequently Asked Questions". Brussels, 2 February 2011.

<http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/11/60>

—. "Summaries of EU Legislation – European external border surveillance system (EUROSUR)".

http://europa.eu/legislation_summaries/justice_freedom_security/free_movement_of_persons_asylum_immigration/l14579_en.htm

—. "Summaries of EU Legislation - Next steps in border management in the EU."

http://europa.eu/legislation_summaries/justice_freedom_security/free_movement_of_persons_asylum_immigration/l14580_en.htm

—. "Summaries of EU Legislation – Obligation of air carriers to communicate passenger data".

http://europa.eu/legislation_summaries/justice_freedom_security/free_movement_of_persons_asylum_immigration/l14582_en.htm

European Council. "Conclusions – 10/11 December 2009".

http://www.frontex.europa.eu/gfx/frontex/files/european_council_conclusions_10-11_december_2009.pdf

—. "Directive 2004/82/EC of 29 April 2004 on the obligation of carriers to communicate passenger data".

European Parliament. "ARTICLE 29 Data Protection Working Party, US Watch lists : Passenger no-fly lists/ Selectee lists - Version 21/03/2007- 2 PNR subgroup. March 2007.

Lawrence, M, P Goodwin, M O'Connor, and D Önkal. "Judgemental forecasting: A review of progress over the last 25 years." *International Journal of Forecasting* 22(3) (2006): 493–518.

MOBIDIG. "6th Workshop on MOBILE ID in Europe". Netherlands Police Headquarters Eindhoven, November 2010. http://sta.jrc.ec.europa.eu/pdf/prima/Mobidig_Eindhoven-2010.pdf

N Keilman's contribution in: Willekens F. "Demographic Forecasting; State-of-the-Art and Research Needs. In: ." In *Emerging Issues in Demographic Research.* , edited by C A Hazeu and G A B Frinking, 9–66. Amsterdam: Elsevier, 1990.

Nelson, C, and C I Plosser. "Trends and Random Walks in Macroeconomic Time Series: Some Evidence and Implications." *Journal of Monetary Economics* 10(2) (1982): 139–162.

UNECE. "Links to official statistical organizations". <http://live.unece.org/stats/links.html>

U.S Customs and Border Protection, "Electronic System for Travel Authorization". Available from: <https://esta.cbp.dhs.gov/esta/>

Wright, G, and P Goodwin. "Decision making and planning under low levels of predictability: Enhancing the scenario method." *International Journal of Forecasting* 25(4) (2009): 813–825.