

FACT SHEET NO.: 4 / 5

PERFORMED BY: PRO

A GENERAL INFORMATION		
A 1	Category	4. Internal markets
A 2	Subcategory	4.5 Internal markets - Aviation
A 3	Transport policy measure (TPM)	Implementation of the Single European Sky initiative
A 4	Description of TPM	<p>The transport policy measure Single European Sky ATM (Air Traffic Management) Research is the infrastructure modernisation programme for the Single European Sky (SES) initiative and represents its technological pillar and operational dimension. The Single European Sky initiative, launched by the European Commission, aims to reform and harmonise the European air traffic architecture by proposing a legislative approach to increase aviation capacity and safety on European level.</p> <p>The European air traffic control infrastructure modernisation programme (SESAR) will be implemented (from 2013) and meet the projected traffic by the year 2020. SESAR will quote a paradigm change in ATM by closing rank between ground and air by fastening and simplifying the exchange of information. ATM concerns ground based controllers which primary tasks are to organise and expedite the flow of air traffic. The improvement of technologies exchanging these information will not only be restricted between air traffic controllers and pilots, but also improve the information flow from airline operation centres, meteorological services and airports, hence the overall network performance. Founded by the European Commission and Eurocontrol, the SESAR program members cover the whole aviation industry including airport operators, air navigation service providers, equipment makers and aircraft builders. [1]</p> <p>SESAR aims at developing the new generation European air traffic management network which has hardly been modernized since the 1960s. ATM includes Air Traffic Controlling (= managing the synchronisation and separation of aircrafts on the ground and in flight), Air Space Management (by establishing permanent or dynamic air space structures in order to accommodate the different types of air activity, the traffic and the resources) and organisation of Air Traffic Flow and Capacity Management (by creating an orderly flow of air traffic). In Europe the ATM services are provided by Air Navigation Service Providers (ANSPs, typically one per country) and Eurocontrol. The purpose of the SESAR programme is to develop new flight procedures and to design the future European ATM system as an integrated and distributed system, which is interoperable and based on a single ATM architecture and common standards.</p>
A 5	Implementation examples	
A 6	Objectives of TPM	<p>The development of a better exchange of information by Single European Sky initiative will lead to an overall improvement within the European aviation sector by:</p> <ul style="list-style-type: none"> - increasing safety - increasing of system capacity and the manageable number of flights - environmental benefits - a better planning of flights leading to less congestion - increasing the fluidity of air transport by a higher predictability of departures and arrivals and avoid unnecessary waiting times - lower costs for airlines and tickets by increasing efficiency; lower maintenance and procurement costs - increasing cost-efficiency regarding economies of scales - development and avoidance of fragmentation - EU community level standards [1] [3] [4] [9]
A 7	Key changes concerning:	
A 7.1	- Choice of transport mode / Multimodality:	No change
A 7.2	- Origin and/or destination of trip:	No change
A 7.3	- Trip frequency:	Increase of possible trip frequency due to higher capacity / predictability / manageable number of flights
A 7.4	- Choice of route:	No change
A 7.5	- Timing (day, hour):	Improvements in flight planning (operators, ground control) will increase capacity
A 7.6	- Occupancy rate / Loading factor:	No change
A 7.7	- Energy efficiency / Energy usage:	Improvement of energy efficiency. Less energy usage, because of reduction no delays (ground / air)
A 8	Main source	[5]

B IMPACTS																																																																																																																																																																										
B 1	OVERVIEW ON IMPACTS	<table border="1"> <thead> <tr> <th colspan="13">AFFECTED SEGMENTS</th> <th colspan="2">Geographical level</th> <th colspan="2">Source</th> </tr> <tr> <th colspan="5">Passengers</th> <th colspan="6">Transport operators</th> <th rowspan="2">Employees in transport</th> <th rowspan="2">Residents</th> <th rowspan="2">Economy</th> <th rowspan="2">Public bodies</th> <th rowspan="2">Society</th> <th rowspan="2">1st level</th> <th rowspan="2">2nd level</th> <th rowspan="2">Source of assessment</th> <th rowspan="2">Spatial level of source</th> </tr> <tr> <th>Road</th> <th>Rail</th> <th>Air</th> <th>Public transport</th> <th>Slow modes</th> <th>Road</th> <th>Rail</th> <th>IWW</th> <th>Air</th> <th>Maritime</th> <th>Public transport</th> </tr> </thead> <tbody> <tr> <td>B 1.1</td> <td>Summary</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>B 1.2</td> <td>Summary: Income groups</td> <td colspan="18">- Decrease of transport costs lowers the gap between the different income groups, which leads to social inclusion and more opportunities. The reduced costs are based on the fact that the aviation systems becomes more efficient, assuming that benefits are passed on to the customer.</td> </tr> <tr> <td>B 1.3</td> <td>Summary: Age groups</td> <td colspan="18"></td> </tr> <tr> <td>B 1.4</td> <td>Summary: Disabled people</td> <td colspan="18"></td> </tr> <tr> <td>B 1.5</td> <td>Summary: Gender groups</td> <td colspan="18"></td> </tr> <tr> <td>B 1.6</td> <td>Summary: Ethnic groups</td> <td colspan="18"></td> </tr> </tbody> </table>	AFFECTED SEGMENTS													Geographical level		Source		Passengers					Transport operators						Employees in transport	Residents	Economy	Public bodies	Society	1st level	2nd level	Source of assessment	Spatial level of source	Road	Rail	Air	Public transport	Slow modes	Road	Rail	IWW	Air	Maritime	Public transport	B 1.1	Summary																			B 1.2	Summary: Income groups	- Decrease of transport costs lowers the gap between the different income groups, which leads to social inclusion and more opportunities. The reduced costs are based on the fact that the aviation systems becomes more efficient, assuming that benefits are passed on to the customer.																		B 1.3	Summary: Age groups																			B 1.4	Summary: Disabled people																			B 1.5	Summary: Gender groups																			B 1.6	Summary: Ethnic groups																		
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B 3.1	Transport costs			↓					↓									I	N	S	I
B 3.2	Private income / commercial turn over																	I	N	S	I
B 3.3	Revenues in the transport sector								↑									I	N	S	I
B 3.4	Sectoral competitiveness																	I	N	S	I
B 3.5	Spatial competitiveness																	I	N	S	I
B 3.6	Housing expenditures																	I	N	S	I
B 3.7	Insurance costs																	I	N	S	I
B 3.8	Health service costs																	I	N	S	I
B 3.9	Public authorities & adm. burdens on businesses																	I	N	S	I
B 3.10	Public income (e.g.: taxes, charges)																	I	N	S	I
B 3.11	Third countries and international relations																	I	N	S	I
B 3.I	Overall impacts on social groups																				
B 3.II	Implementation phase	<ul style="list-style-type: none"> - Increase of asset costs for airspace operators (airlines), air navigation service providers, airports. - Research and development, implementation and deployment of SESAR will burden costs for public authorities (EU and national bodies) and aviation businesses. "The total estimated cost of the development phase of SESAR is € 2.1 billion, to be shared equally between the European Union, Eurocontrol and the industry (€700 million European Union, €700 million Eurocontrol, €700 million industry)" [3]. 																			
B 3.III	Operation phase	<ul style="list-style-type: none"> - Reduction of costs to maintain legacy systems [5] - Reduction of operating costs for air navigation service providers (ANSP) [5] - Increasing demand for aviation equipment after roll-out of SESAR - growing business revenues for aviation equipment manufacturers [5] 																			
B 3.IV	Summary / comments concerning the main impacts	<ul style="list-style-type: none"> - Competitive advantages for European air transport industry (equipment manufacturing, research & development sector) because of similar programmes being duplicated in other parts of the world. [5] - Deployment costs are expected to be significant. [EE] - Aviation industry directly impacts the level of economic activity; more efficient air travel improves the productivity (added value) in the transport sector, which positively affect wages. [5] - Aviation equipment manufacturers will experience increase in demand [5] - The aviation sector increase of output (capacity gains), will accommodate the projected growth in traffic demand, which will have positive direct, indirect and induced effects on wider economy. [5] [EE] - Increasing efficiency in air transport (passenger and freight) -> generates economies of scales in resource allocation -> increases competitiveness of European industries and consumers -> lower prices for import, export, travel -> positive for trade, investments and economic activities -> consumer have more choices and lower costs. [5] - SESAR directly aims to enhance the spatial competitiveness of air transport operators 																			
B 3.V	Quantification of impacts	<ul style="list-style-type: none"> - The European aviation sector (without manufacturing) accounts for about 0.9% of GDP (ACARE study, 2003), with indirect and induced impacts it accounts for 1,5%. [5] - 2008 - 2020: Cost savings due to direct ATM (SESAR) costs per flight will account for around 8 bn € for commercial airlines. [6] - 2013 - 2020: impacting the GDP by 419bn € (41% direct effects). [7] - Aviation equipment manufacturers will experience limited increase of benefits by 10%. [7] - Cost reduction for airspace users of 50% until 2020 compared to 2005. [5] 																			

B 4	SOCIAL IMPACTS	AFFECTED SEGMENTS													Geographical level		Source				
		Passengers					Transport operators						Employees in transport	Residents	Economy	Public bodies	Society	1st level	2nd level	Source of assessment	Spatial level of source
		Road	Rail	Air	Public transport	Slow modes	Road	Rail	IWW	Air	Maritime	Public transport									
B 4.1	Health (incl. well-being)			↑														I	N	S	I
B 4.2	Safety			↑														I	N	S	I
B 4.3	Crime, terrorism and security								↓									I	N	S	I
B 4.4	Accessibility of transport systems																	I	N	S	I
B 4.5	Social inclusion, equality & opportunities																	I	N	S	I
B 4.6	Standards and rights (related to job quality)																	I	N	S	I
B 4.7	Employment and labour markets								→									I	N	S	I
B 4.8	Cultural heritage / culture																	I	N	S	I
B 4.I	Overall impacts on social groups	<ul style="list-style-type: none"> - Lower transport costs will lower the regarding availability of flights (travel) and leads to social inclusion and more opportunities. 																			
B 4.II	Implementation phase																				
B 4.III	Operation phase																				
B 4.IV	Summary / comments concerning the main impacts	<ul style="list-style-type: none"> - Reduced risk of accidents - increasing safety for society, residents living at the airport area and air passengers - SESAR will have the potential to increase the safety level in relation to the traffic growth [6] - Increasing health by reduced air pollutants and noise for society, as far as technological improvements keep pace with traffic growth. - SESAR directly impacts aviation industry and positively influences the level of regional employment [5] - Within the aviation sector (excl. manufacturing) it is unclear if SESAR will have positive (increasing number of flights) or negative (capacity improvements requires less employees) impacts on direct employment (transport operators). Indirect and induced employment is expected to grow (economy). [5] - SESAR (ATM Self Protection) will provide improvements to prevent unauthorised access to and disclosure of ATM information (affecting air transport operators and society). [6] 																			
B 4.V	Quantification of impacts	<ul style="list-style-type: none"> - SESAR will overall (direct, indirect, induced) create 328,000 additional jobs, largely derived from the increasing number of flights enabled (2013 - 2020). [7] 																			

B 5	ENVIRONMENTAL IMPACTS	AFFECTED SEGMENTS													Geographical level		Source				
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B 5.1	Air pollutants																	I	N	S	I
B 5.2	Noise emissions																	I	N	S	I
B 5.3	Visual quality of the landscape																	I	N	S	I
B 5.4	Land use																	I	N	S	I
B 5.5	Climate																	I	N	S	I
B 5.6	Renewable or non-renewable resources																	I	N	S	I
B 5.I	Overall impacts on social groups	<ul style="list-style-type: none"> - The reduction of noise will have very positive impacts on residential areas near airports - The reduction of air pollutants will have positive impacts on residential areas near airports 																			
B 5.II	Implementation phase																				
B 5.III	Operation phase																				
B 5.IV	Summary / comments concerning the main impacts	<ul style="list-style-type: none"> - Improvement of flight path efficiencies reduces the amount of fuels and emissions per flight [5] - Environmental savings by a reduction of air pollutants (CO₂, NO_x, SO_x) [5]; dependent on growth in air traffic according to the implementation of SESAR. [5] - Less noise emissions, dependent on growth in air traffic according to the implementation of SESAR. [5] - Reduction of pollutants causing climate change. [5] - Increasing number of flights lead to more people exposed to aircraft noise if technological improvements do not keep pace with traffic growth. [EE] 																			
B 5.V	Quantification of impacts	<ul style="list-style-type: none"> - "The enhancements in air traffic management through the optimisation of horizontal and vertical flight profiles have the potential to trim down the in-flight CO₂ emission cumulated over the 2008 to 2020 period with around 50 million tons." [6] - 2008 - 2020: Flight fuel efficiency savings 17 million tons (app. 8 bn €). [6] - Reduction of 50 million tons of CO₂ during 2013 ad 2030 [7] - Until 2020 10% reduction of environmental effects compared to 2005 [5] 																			

C REFERENCES	
C 1	Other TPMs of this subcategory

C 2	References	<p>International</p> <p>[1] European Commission (2010): The future of flying. SESAR Joint undertaking, Brussels.</p> <p>[2] European Commission (2006): The SESAR Initiative. Research paves the way for the Single European Sky, Brussels</p> <p>[3] SESAR Joint undertaking at http://www.sesarju.eu/</p> <p>[4] Steer Davies Gleave (2005): SESAME CBA and governance. Assessment of options, benefits and associated costs of the SESAME Programme for the definition of the future air traffic management system, London.</p> <p>[5] European Commission (2008): Communication from the Commission - The Air Traffic Management Master Plan (The ATM Master Plan). COM(2008)750. Brussels.</p> <p>[6] European Commission / Eurocontrol (2008): SESAR Consortium - SESAR Master Plan. SESAR Definition Phase - Milestone Deliverable 5</p> <p>[7] European Commission, Eurocontrol, OECD, SESAR Joint undertaking (2011): Assessing the macroeconomic impact of SESAR. Final report.</p> <p>[8] European Commission (2008): Commission Staff working document accompanying the proposal for a regulation of the European Parliament and Council amending regulations ...in order to improve the performance and sustainability of the European aviation system. Impact assessment. SEC(2008)2093, Brussels.</p> <p>[9] Council of the European Union (2009). Council resolution on the endorsement of the European Air Traffic Management Master Plan [30/03/2009]. Online: http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/trans/106966.pdf</p>
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