PROJECT FINAL REPORT - FIGURES

Table 1

Buy/Fly % by Mass	
BTF	Market Share
0-5	0.1%
5-10	54%
10-15	27%
15-20	19%
>20	0.1%

Table 2

Machined Costs			
Machining Cost	3.75	€/kg	€ 101
Plate Cost	40	€	€ 1,200
Profit	30%		€ 390
Total Price			**€ 1,691**

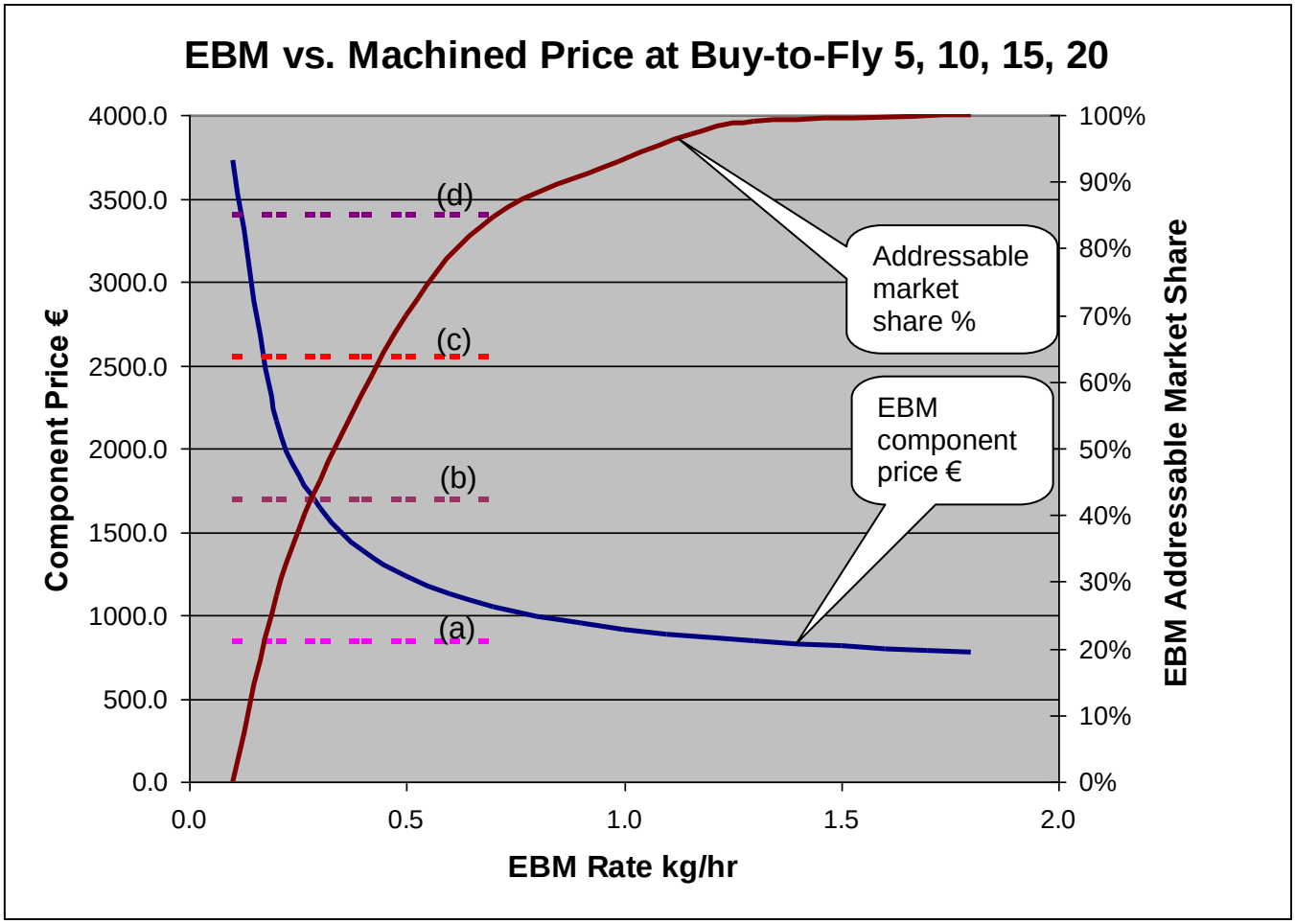
Assumptions		
Part Mass	3	kg
Buy/Fly	10	

Roughing Rate	40	kg/hr
Cost/hr	150	Euro/hr

EBM Price			
Process Cost	53	€/kg	€ 160
Powder Cost	125	€/kg	€ 375
Final machining			€ 90
Profit	30%		€ 161
Total Price			**€ 786**

Final machining	0.2	hrs/kg part
Build Rate	1.5	kg/hr
Process Cost	80	Euro/hr

Figure 1



Key:

Price for machined from plate at

(a) BTF=5
(b) BTF=10
(c) BTF=15
(d) BTF=20

Table 3

Market for Airframe Brackets

		2015	2016	2017	2018	2019
EU	*No of New Aircraft (EU >100 seats)*	*263*	*263*	*263*	*310*	*310*
	No. of Brackets (EU)	*94,572*	*94,572*	*94,572*	*111,672*	*111,672*
RoW	*No of New Aircraft (RoW >100 seats)*	*817*	*817*	*817*	*949*	*949*
	No. of Brackets (RoW)	*293,976*	*293,976*	*293,976*	*341,640*	*341,640*
EU	Market Size (EU - € millions)	74	74	74	88	88
	Market Share (EU)	*1%*	*2%*	*4%*	*6%*	*8%*
	No. of units (EU)	*946*	*1,891*	*3,783*	*6,700*	*8,934*
	Sales (EU - € millions)	**0.7**	**1.5**	**3.0**	**5.3**	**7.0**
RoW	Market Size (RoW - € millions)	231	231	231	268	268
	Market Share (RoW)	*0%*	*1%*	*2%*	*3%*	*6%*
	No. of units (RoW)	*0*	*2,940*	*5,880*	*10,249*	*20,498*
	Sales (RoW - € millions)	**0.0**	**2.3**	**4.6**	**8.1**	**16.1**
World	Total Market Size (World - € millions)	305	305	305	356	356
	Total No. of Units Sold (World)	*946*	*4,831*	*9,662*	*16,950*	*29,432*
	Total Sales (World - € millions)	**0.7**	**3.8**	**7.6**	**13.3**	**23.1**

Table 4

Political	• High value manufacturing process allowing EU to compete with low wage rate economies
Economic	• Grow EBM equipment market significantly • Reduce costs in airframe manufacture
Societal	• Job creation in EU
Technological	• Disruptive technology • Uses EU knowledge base to compete on world market
Legislative	• Reduced use of cutting fluids for machining with reduced pollution risks
Environmental	• Reduces metal waste and use of chemicals. • More energy efficient – less waste metal to be re-melted. • Able to produce parts for light-weighting in transport applications, significantly increasing efficiency and reducing emissions.