

# REFERENCE SECTION

Figure 1: UAS Categorization

UAS Categories	Acronym	Range (km)	Flight Altitude (m)	Endurance (hours)	MTOW (kg)	Currently Flying
<b>Tactical</b>						
Nano	η	< 1	100	< 1	< 0,025	yes
Micro	μ (Micro)	< 10	250	1	< 5	yes
Mini	Mini	< 10	150 <sup>b</sup> to 300 <sup>a</sup>	< 2	< 30 (150 <sup>b</sup> )	yes
Close Range	CR	10 to 30	3.000	2 to 4	150	yes
Short Range	SR	30 to 70	3.000	3 to 6	200	yes
Medium Range	MR	70 to 200	5.000	6 to 10	1.250	yes
Medium Range Endurance	MRE	> 500	8.000	10 to 18	1.250	yes
Low Altitude Deep Penetration	LADP	> 250	50 to 9.000	0,5 to 1	350	yes
Low Altitude Long Endurance	LALE	> 500	3.000	> 24	< 30	yes
Medium Altitude Long Endurance	MALE	> 500	14.000	24 to 48	1.500	yes
<b>Strategic</b>						
High Altitude Long Endurance	HALE	> 2000	20.000	24 to 48	(4.500 <sup>c</sup> )12.000	yes
<b>Special Purpose</b>						
Unmanned Combat Aerial Vehicle	UCAV	approx. 1500	10.000	approx. 2	10.000	yes
Lethal	LETH	300	4.000	3 to 4	250	yes
Decoy	DEC	0 to 500	5.000	< 4	250	yes
Stratospheric	STRATO	> 2000	>20.000 & <30.000	> 48	TBD	no

Figure 2: UAS Categories & Airframe + Propulsion Characteristics

UAS Categories	Airframe Types				Optionally Piloted	Propulsion					
	Rotary Wing	Fixed Wing	Others	Lighter-than-air		Piston - Avgas	Piston - Diesel	Turbo-prop	Jet - Turbin	Electric / Solar	Others
<b>Tactical</b>											
Nano	■		■ D,E							■	
Micro	■	■	■ D,E			■				■	■ M
Mini	■	■	■ D,K	■		■				■	
Close Range	■	■	■ D,F,K	■		■				■	
Short Range	■	■	■ G,K	■	■	■					■
Medium Range	■	■	■ H,T		■	■	■ Y		■		
Medium Range Endurance	■	■			■	■	■ Y		■		
Low Altitude Deep Penetration		■				■			■		
Low Altitude Long Endurance		■				■					Hy
Medium Altitude Long Endurance	■	■				■	■	■	■		■Hy
<b>Strategic</b>											
High Altitude Long Endurance		■		■	■	■			■	■	
<b>Special Purpose</b>											
Unmanned Combat Aerial Vehicle	■	■							■		
Offensive		■				■					
Decoy	■	■				■			■		
Stratospheric		■		■							
Exo-stratospheric		■									
Space	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

D = Shrouded Fan      E = Flapping Wing      F = Gyroplane      G = Tilt Rotor  
H = Rotor Wing      K = Motorised Parafoil      M = Chemical Muscle      T = Tilt Body  
TBD = To be decided      Y = Desired      Hy = Hydrogen

Figure 3: UAS Categories & Quantities Procuded/Developed per Country

	Producing Countries	UNMANNED AIRCRAFT SYSTEM CATEGORIES														Total	%	
		η	μ	Mini	CR	SR	MR	MRE	LADP	LALE	MALE	HALE	UCAV	STRA	EXO			?
1	Argentina			7	2	3					1						13	1,33
2	Australia			7	7	6	2			1							23	2,36
3	Austria					1	1										2	0,21
4	Belgium			1													1	0,10
5	Brazil				1	2	1										4	0,41
6	Bulgaria			1													1	0,10
7	Canada			4		1											5	0,51
8	Chili					1									1		2	0,21
9	China (PR)			4	5	4	7	1	1			2			4		28	2,87
10	Colombia			3				1									4	0,41
11	Croatia					2	1										3	0,31
12	Czech Rep.					1											1	0,10
13	Finland			1													1	0,10
14	France		3	24	7	3	13	2			3	1					65	6,67
15	Germany		9	17		2	7					1					36	3,70
16	Greece						1										1	0,10
17	Hungary			1													1	0,10
18	India			2	2		1										5	0,51
19	International		2	1	1	5	14	2	2		3	1	2	2			35	3,59
20	Iran			2	3		1										6	0,62
21	Israel		3	16	16	10	12	2			8	1			4		72	7,39
22	Italy		1	17	1	2	1	1	2			2	1	1	1		30	3,08
23	Japan		1	6	7		1					1					16	1,64
24	Jordan				2	1											3	0,31
25	Malaysia			1	1		1										3	0,31
26	Mexico					3	1										4	0,41
27	Netherlands	2		6	2	1											11	1,13
28	New Zealand										2						2	0,21
29	Norway	1	4	1	1	1	1			1							10	1,03
30	Pakistan		1	2	14	9	2								1		29	2,98
31	Poland		1	4													5	0,51
32	Portugal			2			1										3	0,31
33	Romania			1		1											2	0,21
34	Russian Fed.		3	13	8	8	9		5		1	2	3				53	5,44
35	Serbia			3		1											4	0,41
36	Singapore			6		1	1					1					9	0,92
37	Slovenia			3		1											4	0,41
38	South Africa			2			5		1		1						9	0,92
39	South Korea			2	3	1	4			1							11	1,13
40	Spain			8	2	1	4										15	1,54
41	Sweden			1		5							2				8	0,82
42	Switzerland			9			1	1								1	9	0,92
43	Taiwan ROC		1	2	1	2	1										7	0,72
44	Tunisia					2											2	0,21
45	Turkey			6	3	1	1				1						12	1,23
46	U.A.E.				1	1	1	1			1	1					6	0,62
47	UK			23	12	2	6	4				1	3				51	5,24
48	Ukraine			1	1		1										3	0,31
49	USA		34	82	35	44	59	10	1	1	13	31	11		3	17	341	35,01
	<b>Total</b>	<b>3</b>	<b>63</b>	<b>300</b>	<b>139</b>	<b>127</b>	<b>165</b>	<b>25</b>	<b>12</b>	<b>4</b>	<b>33</b>	<b>45</b>	<b>23</b>	<b>3</b>	<b>3</b>	<b>29</b>	<b>974</b>	<b>100</b>
	%	0,31	6,47	30,80	14,27	13,04	16,94	2,57	1,23	0,41	3,39	4,62	2,36	0,31	0,31	2,98	100,00	

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Figure 4: Annual Comparisons

UAS Referenced	2004	2005	2006	2007	2008
	Qty	Qty	Qty	Qty	Qty
Total Quantity of UAS Referenced	477	544	603	789	974
Quantity of Producers/Developers	203	207	252	312	369
International Teamed Efforts	12	20	32	34	35
Quantity of Producing Countries	40	43	42	48	48

UAS Development Status	2004	2005	2006	2007	2008
	Qty	Qty	Qty	Qty	Qty
Proof-of-concept/demonstrators		85	150	230	217
In inventory and/or in service		134	100	110	128
Ordered/entering service		8	8	7	17
Ordered as test/demo system		29	38	45	49
Development continuing		310	333	470	589
No longer in production/development		17	39	40	40
Developed & market ready		72	95	119	137

UAS Applications	2004	2005	2006	2007	2008
	Qty	Qty	Qty	Qty	Qty
Civil/Commercial	33	55	47	61	115
Military	362	397	413	491	578
Dual Purpose	39	44	77	117	242
Research UAS	43	35	31	46	54
Developmental UAS		219	217	269	293

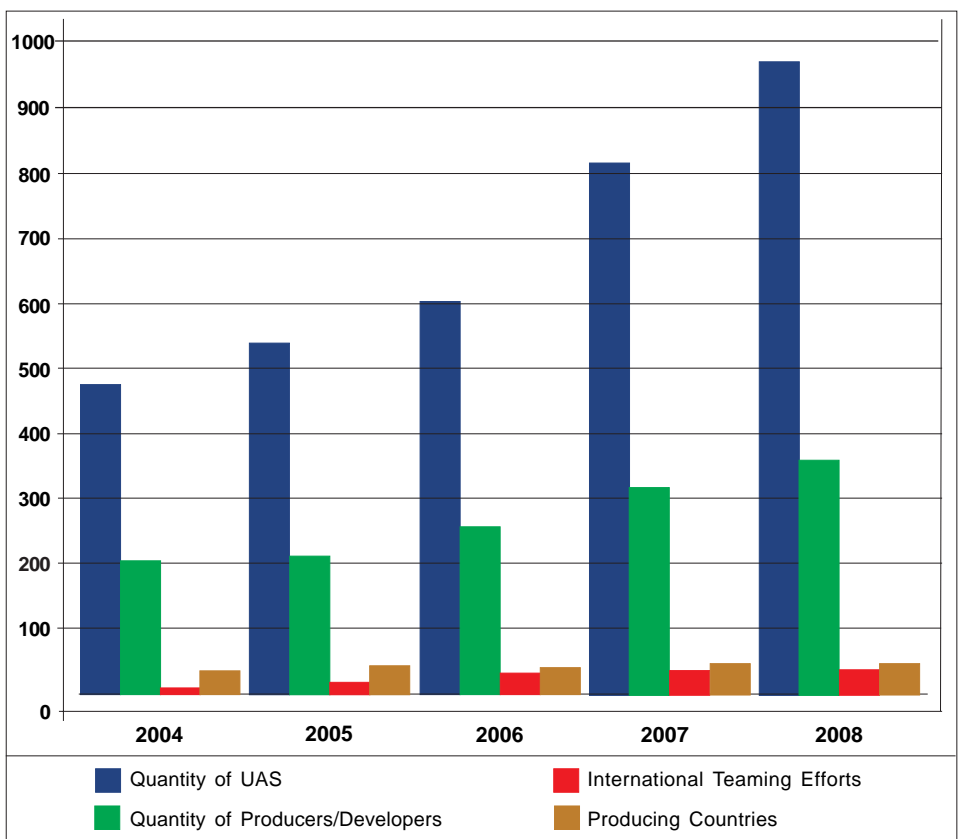
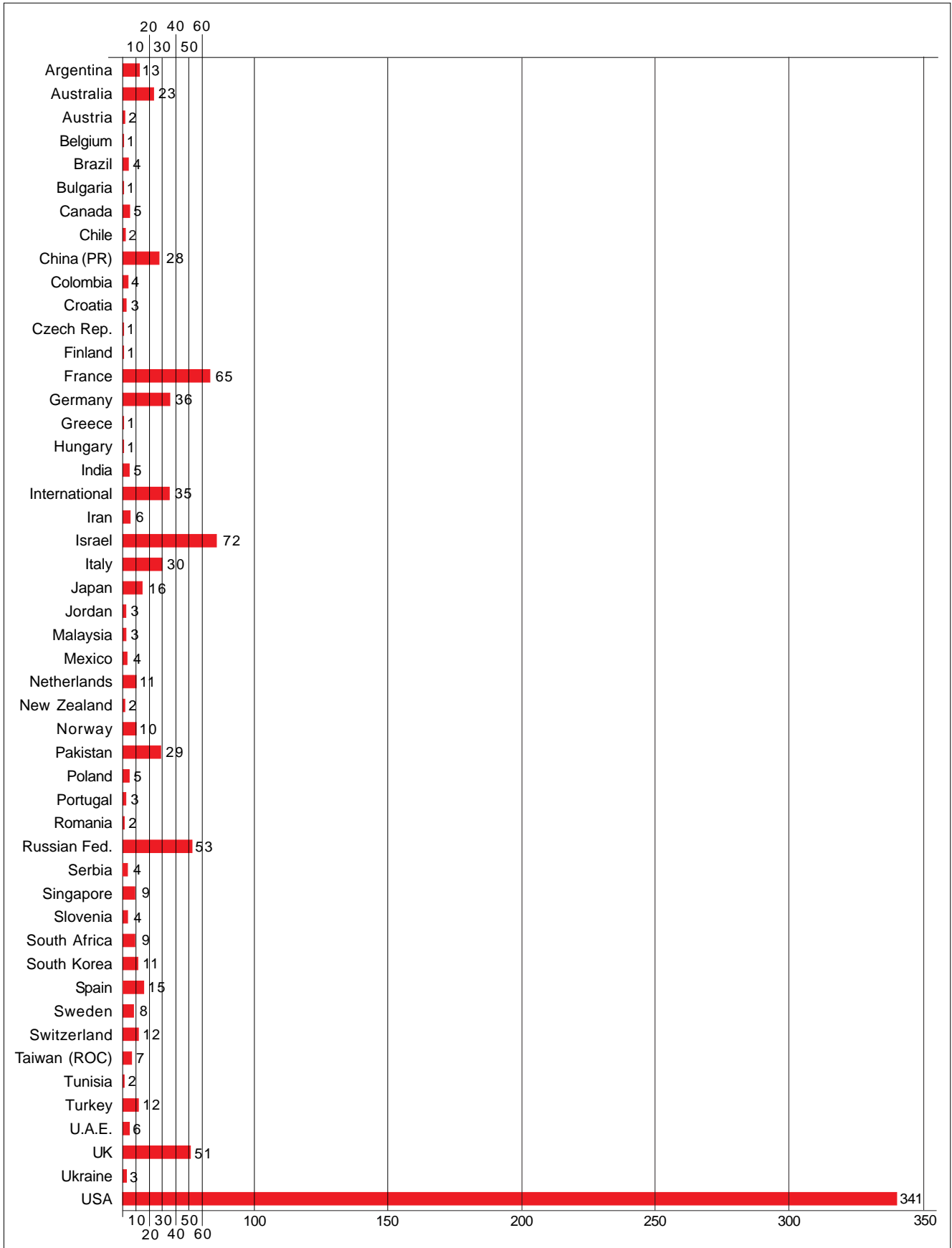
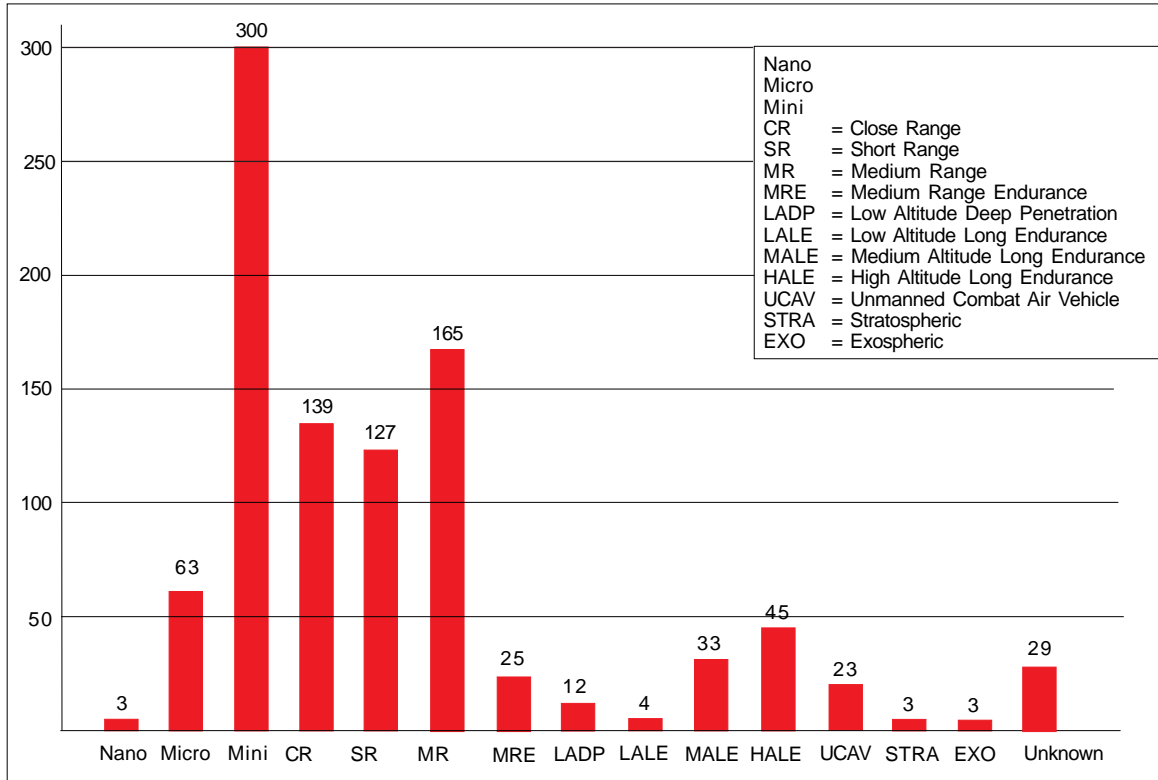


Figure 5: Quantities of UAS Produced/Being Developed per Country

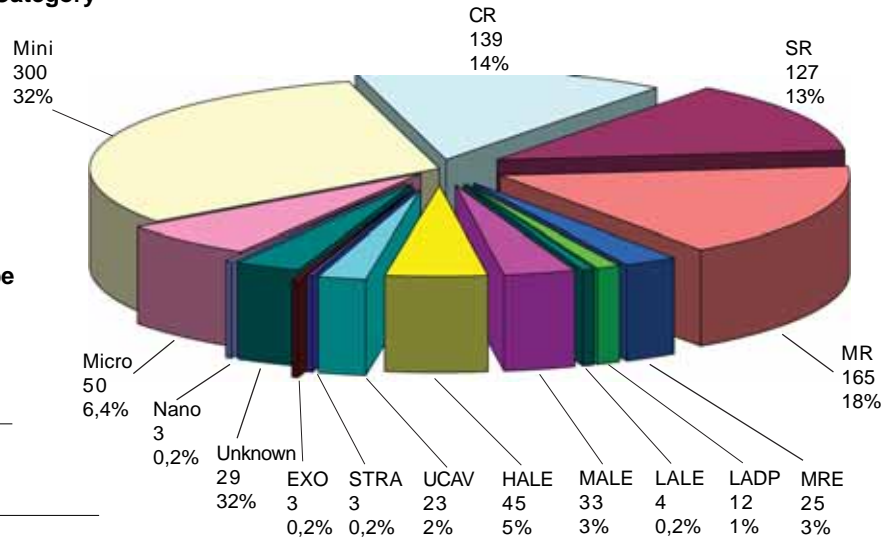


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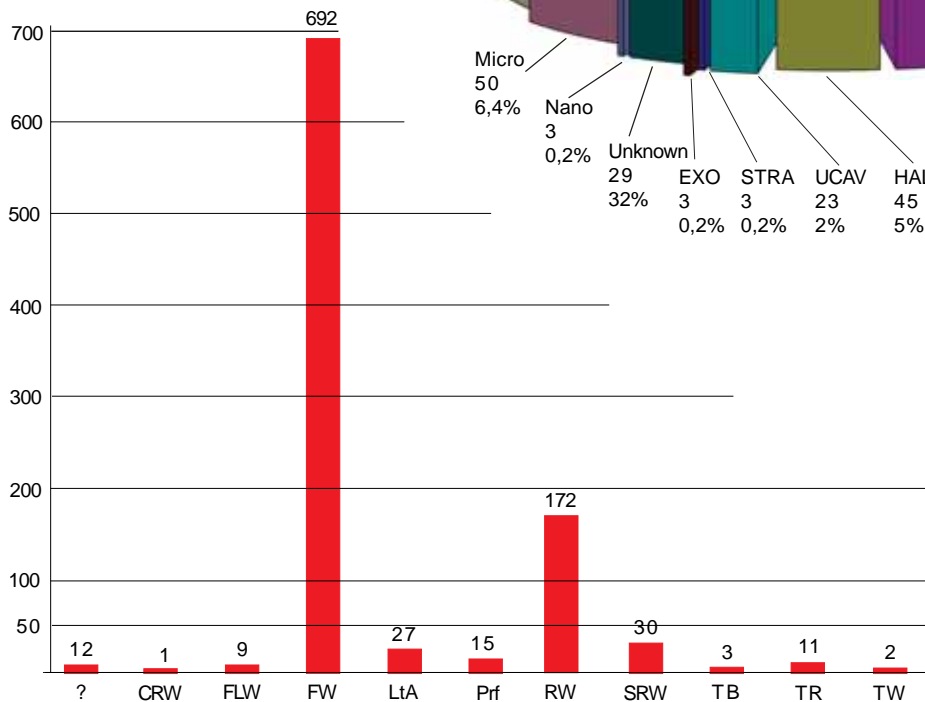
**Figure 6: Quantities Referenced per UAS Category**



**Figure 7: Quantities Referenced per UAS Category**



**Figure 8: Quantities per UAS Airframe Type**



- ? = Unknown
- CRW = Canard Rotor Wing
- FLW = Flapping Wing
- FW = Fixed Wing
- LtA = Lighter-than-Air
- Prf = Motorized Parafoil
- RW = Rotary Wing
- SRW = Shrouded Rotary Wing
- TB = Tilt-Body
- TR = Tilt Rotor
- TW = Tilt Wing

Figure 9: Quantities per UAS Class

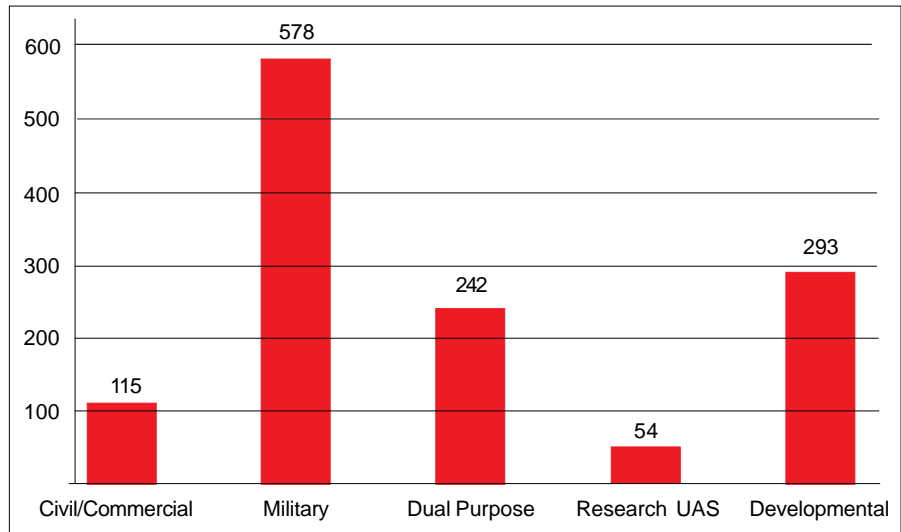


Figure 10: Quantities per Status

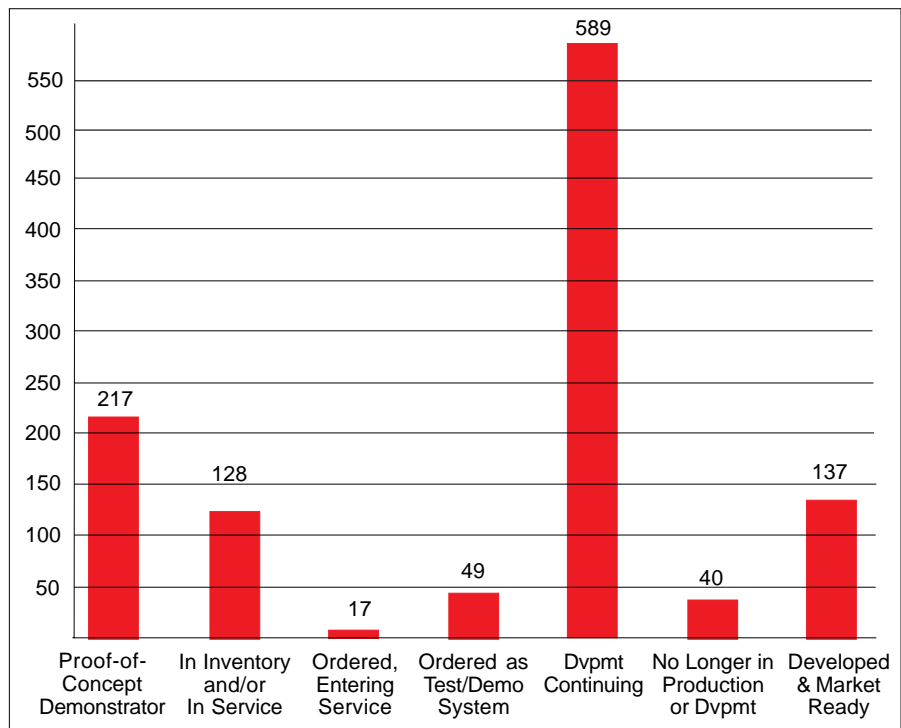


Figure 11: Quantities per Status

