



# ROGER FEDERER IN STATISTICS (Reloaded)



By Rubén A. Báez www.TennisTop10.com

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# **ROGER FEDERER IN STATISTICS (Reloaded)**

Date of Report<sup>1</sup>: 03.12.2018 By *Rubén A. Báez*<sup>2</sup>

**Technical Data** 

- Name: ROGER FEDERER
- Country: Switzerland
- Age: **36**
- Birthdate: 08.08.1981
- Birthplace: Basel, Switzerland
- Prize Money: \$115,542,337 (Singles + Doubles)
- Titles:
- a) Grand Slams: 20
- b) ATP World Tour Masters 1000: 27
- Height: **1.85 m**
- Weight: 85 kg
- Drive: Derecho
- Turned Pro: **1998**
- Coaches: Ivan Ljubivic and Severin Luthi
- Racquet Model:

<sup>1</sup> Report elaboration based on data from official Websites:

www.AustralianOpen.com www.RolandGarros.com www.Wimbledon.com www.USOpen.org www.ATPWorldTour.com www.DavisCup.com Lavercup.com London 2012 Olympic Games Rio 2016 Olympic Games

<sup>2</sup> Tennis Instructor, Bachelor's in Business Administration, Public Accountant, Post grade's degree in Finance Management and Capital Markets, MBA (IAE Business School, Austral University, Argentina).



- Wilson Pro Staff RF97
- Strings: Wilson Natural Gut (main) 48-52 pounds, Luxilon ALU Power Rough (crossed) 45-49 pounds.
- String pattern: 16 main x 19 crossed.
- Clothes: Nike
- Sitio web: <u>www.RogerFederer.com</u>
- Facebook: <u>www.facebook.com/Federer</u>
- Twitter: twitter.com/rogerfederer

# **ROGER FEDERER (Reloaded) - SUMMARY**

Once again, we are analyzing this so particular tennis player, that season after season beats historical records. This report is the third delivery of **Tennis Top 10** about Roger Federer. We inform to the interested and fans that we have data for statistical analysis and performance not only from Federer, but of all the players of the circuit that play of ATP World Tour 250 at least. For those who have not read my previous reports (2) about Roger Federer, here are the links:

- "Roger Federer in Statistics" Report of 28/03/2012
- <u>"Roger Federer in Statistics (Updated)</u>" Report of 24/09/2015

I have divided the report in three parts, in the first part I comment briefly about the performance that Roger has had in recent seasons, more precisely from the 2011 season to February 2018 and explained a little that what the **General Performance Index** is. In the second part (Annex I) and the third (Annex II), I present statistical tables and graphs respectively. The information in Annexes I and II is presented for all surfaces, hard, clay and grass.

# **GENERAL PERFORMANCE INDEX (GPI)**

In recent years I have collected tournaments information from the professional tour by tons and I noted that it is not enough to evaluate a particular tennis player only just for his/her ATP ranking or the statistics such as they are published, this is very limited, as I will demonstrate as soon as possible, not always those who are at the top of the ranking, in the Top 10 for example, have the best performance. A player ranked 20<sup>th</sup> could have, and indeed has had, better performance than Roger Federer (ranking 2, at the end of 2017) for a given period, the 2017 season for example.



To evaluate the performance of a player I have made an index that I have called it **General Performance Index (GPI)**. I explain the calculation methodology of this index in the report: <u>"General Performance Index (GPI) of the 2017 Season - ATP Top 100"</u> (December 11<sup>th</sup>, 2017). "The basic purpose of this index is to measure the performance of the players by evaluating certain statistical parameters and depending on the output, order it from highest to lowest to establish a **performance ranking**."

This performance ranking or GPI ranking does not necessarily have to coincide with the ranking published by the ATP.

The **ATP** orders the ranking of the players according to the number of points and the **GPI ranking** orders them according to the performance in aspects such as services, points won with the services, returns, break points, tiebreak, matches won, etc.

We are going to begin by briefly commenting on **figure 1** and then move forward with the explanation of **table 1**.

The analysis covers the entire seasons from 2011 to 2017 and partially the 2018 season (Until the Rotterdam Open, February 2018).

The tournaments included are the ATP World Tour 250, 500, 1000, the Barclays ATP World Tour Finals, Nitto ATP Finals 2017. On the side of the ITF are included the Australian Open, Roland Garros, Wimbledon, US Open and the Davis Cup. Also, are included the statistics of the 2012 and 2016 Olympic Games and the Laver Cup 2017 (exhibition tournament).

**Figure 1** shows the evolution in the ranking that Roger has had. Since 2002 he has always remained within the **TOP 10** and only three years of this period he has ended outside the Top 3 in the seasons 2002 (6), 2013 (6) and as No. 16 in the 2016 season where he had to retire because of a knee injury in the middle of the season<sup>3</sup>. Federer has remained among the three (3) best players on the planet 13 of the last 16 seasons. In the current 2018 season he is as No. 1 of the Emirates ATP ranking. Five (5) years ended No. 1, six (6) years No. 2 and two (2) years (2011, 2015) as No. 3.

Regarding the performance of Federer in the period that we are analyzing his work tool, his racket, it had some modifications that have obviously contributed in some way to the rebirth of this athlete. We could simplify that between 2011 and 2018, this period is divided into five parts:

<sup>&</sup>lt;sup>3</sup> The last match of the 2016 season dates from July 8<sup>th</sup>, 2016 in the Wimbledon semifinals situation where he was defeated by Milos Raonic (CAN) in five sets 3-6,7-6 (3), 6-4, 5-7 and 3-6 in 3 hours and 24 minutes.



- 1) Wilson Six.One Tour BLX Racket (2010 2011). It was a hard racquet with a 90-inch head. Federer had begun to be overtaken in speed by his rivals, in the context of an increasingly aggressive tennis. He was attacked a lot on his backhand and in-hooked the balls quite often.
- 2) Wilson BLX Pro Staff Six.One 90 Racket (2012 2013). It was not exactly the Federer's best time in his professional career with Paul Annacone as coach. That 2013 season Roger finished 6<sup>th</sup> in the ATP ranking. By Roger Federer's standards it was a setback, maybe for another player it would be the glory to finish No.6 worldwide.
- 3) Wilson Prototype Racquet (January June 2014). In this period Federer was experimenting with a prototype with a 97-inch head. He was needing a racquet that had more output power for the ball and more stability in the hits.
- 4) Wilson Pro Staff RF97 Racket (July 2014 July 2016). Wilson Pro Staff RF97 Racket (July 2014 July 2016). It was already approaching to the goal to reach a racquet that get the standards that Roger was demanding.
- 5) Finally, the last black version of the Wilson Pro Staff RF97 arrived (July 2016 present). Racket with 97-inch head. We have already seen what that Federer "Reloaded" has achieved since he returned at the beginning of the 2017 season.

Federer + Wilson Pro Staff RF97 + Ljubicic + Luthi = FEDERER RELOADED

Obviously, that everything achieved by Roger in recent months is not due exclusively to the racket, there were changes with respect to the duration of the points (they are shorter), always talking about percentages he improved the points won with service especially with the second, the return has remained stable in the last seasons analyzed, with respect to his backhand he has experienced a considerable improvement, especially with his running parallel shots that are already became a legend. Federer has that ability to reinvent and recharge himself with energy and achieve goals that are for very few people. Federer is an intelligent person and has known how to choose his coaches in a timely manner. This aspect, his intelligence, almost nobody has mentioned it, but Roger is very smart. Note that with Edberg he began to frequent more the area of the net and with Ljubicic he has improved his serve and the backhand. Roger had good serve, now it's better. He plays near the bottom line and hits the ball practically when it is upping printing more speed to his game and suffocating his rivals. He moves like a dancer through the court with a wonderful synchronicity. The addition of improvements to his already excellent tennis of the past has made Federer a unique sporting phenomenon.

Roger has been very clever in handling his physique leaving more than one sports journalist with the stone between his teeth when they mention his age whenever they have occasion. Something similar happens with Serena and Venus Williams. Never mind about Roger's age! We must enjoy him without restrictions about this stuff! Roger Federer has been commented by such journalists on the issue of age since he was 34/35 years old and since then he has already won 4 Grand Slams, 2 ATP World Tour Masters 1000, etc.





#### FIGURE 1

#### COMMENTS OF TABLE 1 – GENERAL PERFORMANCE INDEX (GPI)

Next, we will comment the **table 1**. The first level<sup>4</sup> statistical analysis that I have been elaborating include, from the 2017 season, the **General Performance Index (GPI)** that is calculated, I repeat, considering several parameters such as serves, returns, break points, etc.

<sup>&</sup>lt;sup>4</sup> The second level statistical analysis involves more sophisticated studies with mathematical average, standard deviations, correlations, distribution of probability, trends and Data Mining. In the short term we could be presenting this type of analysis if there is a justification that deserves that effort.



The purpose of this **GPI index** is to measure the performance of a tennis player in a given period (month, year) to establish a performance ranking.

Table 1 shows the General Performance Index (GPI) for the complete seasons 2011 - 2017, and for January and February 2018.

### TABLE 1

	(a)		Played	Matches		(b) General Performance Index (GPI) by Surface							
Year	ATP Ranking	Total	Hard	Clav	Grass	GPI Index (Total)	GPI Rkn (Total)	GPI Index (Hard)	GPI Rkn (Hard)	GPI Index (Clav)	GPI Rkn (Clav)	GPI Index (Grass)	GPI Index (Grass)
2011	3	75	52	16	7	175,75	3	218,53	2	106,42	35	151,64	13
2012	2	83	48	18	17	193,59	3	207,28	5	116,01	25	294,61	1
2013	6	62	39	17	6	143,13	10	155,22	11	155,22	28	121,88	24
2014	2	85	63	12	10	208,00	1	276,82	1	77,85	55	218,68	2
2015	3	74	45	17	12	165,45	5	176,48	8	113,41	30	242,86	5
2016 <sup>5</sup>	16	28	10	5	13	59,00	72	35,25	100	29,42	108	250,36	4
2017	2	59	46	-	13	134,48	8	177,15	4	-	-	271,31	1
2018 <sup>6</sup>	1	12	12	-	-	126,85	7	156,05	4	-	-	-	-

#### **GENERAL PERFORMANCE INDEX (GPI)**

As we have already mentioned, in **table 1** we can clearly see the two types of ranking, one of them the **ATP** (column a) and the other the **GPI** (column b, calculated by **Tennis Top 10**). The first one positions a player based on the net points obtained in his participation in the tournaments of the season and the **GPI** or **General Performance Index** allows us to establish a ranking that will be based on the way this player has played in a certain period, a season in this case.

<sup>6</sup> Only includes January and February 2018.

<sup>&</sup>lt;sup>5</sup> In the 2016 season Federer played only 5 matches in clay, 3 in Monte Carlo (Quarterfinals) and 2 in Rome (3<sup>rd</sup> Round). Clarification to take into account when viewing the tables and figures. He did not play Grand Slam in clay, for that reason in the tables and figures there are no matches in clay. On the other hand, these played matches (5) appear in the tables and figures that do not correspond to Grand Slams.



### GPI Index (General Performance Index) → GPI Ranking

Each **GPI index** has a **GPI ranking** associated, one is a consequence of the other. The main variable is the **GPI index**, the order of highest to lowest of that variable is the **GPI ranking** (which is also a variable that depends on the main variable). The **GPI ranking** is a function of the **General Performance Index** or **GPI**.

## GPI ranking = f(GPI) ↓

Not necessarily these two rankings must coincide, sometimes it happens. In the case of Federer they coincide in the 2011 season, where Federer finished as No. 3 in the **ATP ranking** and as No. 3 in the **GPI ranking**.

**Table 1** also shows the columns of the **GPI** indexes and rankings by type of surface. Then we have General **GPIs** (all surfaces, column b), for hard courts, clay courts and for grass courts. You will notice that there are two measurements in each type of surface, one corresponds to the **GPI index** and the other column is the **GPI ranking**. For example, in the 2017 season Federer finished No. 2 in the **ATP ranking** and No. 8 in the **GPI ranking** (all surfaces), that is, he was the 8<sup>th</sup> best player of the season based on his performance according to our researches. There were 7 other tennis players who performed better than him in the 2017 season. The reason why the other players, except Rafael Nadal (Ranking No. 1 in 2017), did not surpass Federer in the **ATP ranking** despite in the fact that they surpassed him in the **GPI ranking**, I will explain it below with an example. We also note that it finished No. 4 in the **GPI ranking** of hard courts and No. 1 in the **GPI ranking** of grass courts in the 2017 season (it did not play in clay in the 2017 season).

Let's see an example. We chose Roberto Bautista Agut to compare him with Roger Federer. We will continue with the 2017 season. According to the **ATP ranking**, Bautista Agut finished the 2017 season as the No. 20 in the world and according to the **GPI ranking** finished No. 5. On the other hand, Roger Federer finished with an **ATP ranking** No. 2 and a **GPI ranking** No. 8.

As we said a moment ago, the **ATP** and **GPI** rankings do not necessarily have to match each other. This explanation is valid for future reports where I will no longer explain this topic and whoever has any doubt or question will be referred to this report.

That is to say, Bautista Agut has performed better than Federer in terms of the parameters we have used to calculate the indexes of all the players. I will not go into details of whether Bautista Agut had better services or returns than Roger, or that he gained more points with serves or defended better, etc. The curious reader has at his disposal the statistics to find out by himself in previous reports, because there are the statistics of the **TOP 100** of the 2017 season. The idea here is to explain why if Bautista Agut had better performance than Federer he finished 20 in the **ATP ranking** and Roger finished No. 2. That is the question.



The answer is simple and easy to understand. To explain this question, I show you tables A and B. Table A shows the amount of points awarded per round by the **ATP** and the **ITF** for the played matches. Bautista Agut played 24 tournaments, 69 matches (he won 48 and lost 21), lost 415 net ATP<sup>7</sup> points and finished No. 20 in the **ATP ranking**.

On the other hand, Roger Federer played 11 official tournaments (Laver Cup is not computed for the ATP points, but is computed for the calculation of statistics), 59 matches (he won 57 official, 2 in the Laver Cup and lost 5), won 7,025 ATP<sup>8</sup> net points (Points at the end - points at the beginning of the season) and finished No. 2 in the **ATP ranking**. The areas of color in Tables A and B are showing us the points (table A) and the number of matches (table B) played by the two players in question.

Although Bautista Agut played more tournaments (24 vs 11 of Federer), more matches (69 vs 57 of Roger), in the tournaments that give more points Roberto did not obtain very good results. Bautista Agut played, 9 ATP Word Tour Masters 1000 and only in one of them he reached the quarterfinals. Roger, on the other hand, plays fewer tournaments, but wins more matches and gets better results in points. The corollary of this fact is that Federer playing less, participates in the most important tournaments winning more points and, consequently, achieves a better ranking at the end of the season, in this case, than Bautista Agut.

So, if Federer wins so many points and reaches decisive instances in the most important tournaments, why did Bautista Agut have a better **GPI index** or better performance than Roger? Should not Federer have had a better **GPI** than Bautista Agut? Well, the answer is that Bautista Agut had better statistics because the calculation of the GPIs of the players gives the same importance to the statistics of a 250 tournament as to a Grand Slam. The **GPI index** does not discriminate for the different categories of tournaments, it considers them all the same. Obviously, if all the tournaments awarded the same amount of points, Bautista Agut would have achieved an **ATP ranking** better than Federer's or at least one better than the 20th. A player like Federer, sometimes wins playing not so well, he plays very well the important points and has developed over the years that instinct to detect the precise moment to strike mortally in a match. To finish, multiplying table A by table B cell by cell you will obtain the gross points that each one of them won in the 2017 season. Bautista Agut (2,250 points) and Roger Federer (9,425).

<sup>&</sup>lt;sup>7</sup> Net points lost in 2017 = points at the end of the season - points at the beginning of the season = 1,935 - 2,350 = -415 points <sup>8</sup> Net won points 2017 = points at the end of the season - points at the beginning of the season = 9,005 - 1,980 = 7,025 points



Referencies: Roger Federer Roberto Bautista Agut Federer + Bautista Agut

Round	ATP 250	ATP 500	ATP 1000	Master	G. Slam
1			10		10
2	20	45	45		45
3		45	90		90
4			0		180
QF	45	90	180		360
SF	90	180	360	400	720
F	150	300	600	500	1.200
W	250	500	1.000	1.500	2.000

### TABLE A Scale of Points of the ATP and ITF

### TABLE B Played Matches

Round	ATP 250	ATP 500	ATP 1000	Master	G. Slam
1			4		
2	1	1	1		
3		1	2		1
4			1		3
QF		3	1		1
SF	4			1	
F			1		
W	2	2	3		2



# ANNEX I (Tables)



	Ha	ard	CI	ay	Gra	ass	TOTAL		
Year	1 <sup>st</sup>	2 <sup>nd</sup>							
2011	185	153	190	155	187	159	187	155	
2012	183	153	185	153	185	158	184	155	
2013	184	153	184	151	179	153	183	153	
2014	184	152	183	154	186	160	184	155	
2015	185	152	185	151	189	162	186	155	
2016	189	161	185	152	187	160	187	158	
2017	186	155	-	-	183	158	185	155	
2018	188	168	-	-	-	-	188	168	

# TABLE 2 AVERAGE SPEED OF THE 1<sup>st</sup> AND 2<sup>nd</sup> SERVICES (Km/h) – GRAND SLAMS

# TABLE 3 WINNERS) v UNFORCED ERRORS (UE) – GRAND SLAMS

	Har	d	Clay		Grass	S		TOTAL	-
Year	Winners	UE	Winners	UE	Winners	UE	Winners	UE	UE/W
2011	456	410	284	235	238	83	978	728	74%
2012	372	260	293	252	284	126	949	638	67%
2013	383	303	210	163	89	19	682	485	71%
2014	494	345	167	151	303	112	964	608	63%
2015	442	287	188	143	302	110	932	540	58%
2016	239	198	-	-	268	98	507	296	58%
2017	637	462	-	-	256	77	893	539	60%
2018	279	172	-	-	-	-	279	172	62%



	NET FOINTS WON (NPW)- GRAND SLAMS												
		Hard		Clay				Grass	TOTAL				
Year	NPW	Total	%	NPW	Total	%	NPW	Total	%	NPW	Total	%	
2011	282	409	69%	134	183	73%	112	161	67%	528	753	70%	
2012	198	274	72%	113	162	70%	192	262	73%	503	698	72%	
2013	249	334	75%	81	124	65%	56	79	71%	386	537	72%	
2014	329	477	69%	72	107	67%	179	256	70%	580	840	69%	
2015	229	341	67%	106	154	69%	187	257	73%	522	752	69%	
2016	121	167	72%	-	-	-	151	207	73%	272	374	73%	
2017	293	410	71%	-	-	-	111	150	74%	404	560	72%	

# TABLE 4 NET POINTS WON (NPW)- GRAND SLAMS

# TABLE 5 FASTEST SERVICE AVERAGE (Km/h) – GRAND SLAMS

Year	Hard	Clay	Grass	Total
2011	207	209	207	208
2012	204	205	203	204
2013	205	203	203	204
2014	205	203	202	204
2015	204	205	204	205
2016	207	204	206	206
2017	208	-	202	205
2018	207	-	-	207





#### TABLE 6 TIEBREAKS

		Hard	-		Clay			Grass		TOTAL			
Year	Won	Lost	Total	Won	Lost	Total	Won	Lost	Total	Won	Lost	Total	Total %
2011	10	4	14	7	4	11	3	1	4	20	9	29	69%
2012	15	8	23	1	4	5	5	3	8	21	15	36	58%
2013	11	5	16	3	2	5	1	3	4	15	10	25	60%
2014	20	10	30	2	4	6	5	2	7	27	16	43	63%
2015	5	3	8	5	5	10	7	2	9	17	10	27	63%
2016	1	1	2	-	1	1	8	3	11	9	5	14	64%
2017	16	8	24	-	-	-	7	1	8	23	9	32	72%
2018	5	1	4	-	-	-	-	-	-	5	1	6	83%

# TABLE 7MATCHES PLAYED BY SURFACE

	Hard			Clay				Grass		TOTAL			
Year	Won	Lost	Total	Won	Lost	Total	Won	Lost	Total	Won	Lost	W + L	
2011	45	7	52	12	4	16	6	1	7	63	12	75	
2012	41	7	48	15	3	18	15	2	17	71	12	83	
2013	28	11	39	13	4	17	5	1	6	46	16	62	
2014	57	6	63	8	4	12	9	1	10	74	11	85	
2015	27	3	30	13	4	17	11	1	12	51	8	59	
2016	8	2	10	3	2	5	10	3	13	21	7	28	
2017	42	4	46	-	-	-	12	1	13	54	5	59	
2018	12	0	7	-	-	-	-	-	-	12	0	12	





#### TABLE 8 ACES

Year	Hard	Clay	Grass	Total
2011	311	125	105	541
2012	379	151	160	690
2013	399	90	56	545
2014	481	75	124	680
2015	254	110	128	492
2016	87	16	142	245
2017	431	-	126	557
2018	130	-	-	130

#### TABLE 9 DOUBLE FAULTS

Year	Hard	Clay	Grass	Total
2011	75	20	4	99
2012	77	25	20	122
2013	79	19	6	104
2014	100	13	15	128
2015	60	15	17	92
2016	20	10	20	50
2017	90	-	16	106
2018	20	-	-	20



Year	Hard	Clay	Grass	Total
2011	24%	16%	4%	18%
2012	20%	17%	13%	18%
2013	20%	21%	11%	19%
2014	21%	17%	12%	19%
2015	24%	14%	13%	19%
2016	23%	63%	14%	20%
2017	21%	-	13%	19%
2018	15%	-	-	15%
Promedio	21%	25%	11%	18%

# TABLE 10DOUBLE FAULTS AS PERCENTAGE ON ACES



I SERVICE IN BI SURFACE (Average %)				
Year	Hard	Clay	Grass	Total
2011	63%	65%	68%	64%
2012	61%	63%	67%	63%
2013	62%	62%	65%	62%
2014	62%	67%	69%	64%
2015	63%	63%	68%	64%
2016	61%	60%	64%	62%
2017	61%	-	67%	62%
2018	61%	-	-	61%

# TABLE 11 1<sup>st</sup> SERVICE "IN" BY SURFACE (Average %)

# TABLE 121st SERVICE WON BY SURFACE (Average %)

Year	Hard	Clay	Grass	Total
2011	79%	77%	79%	78%
2012	79%	77%	77%	78%
2013	77%	74%	80%	76%
2014	79%	76%	80%	79%
2015	81%	77%	83%	80%
2016	80%	72%	82%	80%
2017	79%	-	82%	80%
2018	82%	-	-	82%



Year	Hard	Clay	Grass	Total
2011	95%	96%	98%	95%
2012	95%	96%	87%	95%
2013	94%	97%	96%	95%
2014	95%	96%	95%	95%
2015	93%	96%	95%	95%
2016	93%	93%	96%	94%
2017	94%	-	95%	94%
2018	95%	-	-	95%

### TABLE 13 2<sup>nd</sup> SERVICE "IN" BY SURFACE (Average %)

# TABLE 142<sup>nd</sup> SERVICE WON BY SURFACE (Average %)

Year	Hard	Clay	Grass	Total
2011	57%	56%	64%	58%
2012	61%	58%	58%	60%
2013	53%	58%	62%	55%
2014	58%	56%	63%	58%
2015	58%	58%	58%	57%
2016	55%	61%	56%	56%
2017	60%	-	62%	60%
2018	63%	-	-	63%



### TABLE 15 1<sup>st</sup> RETURN POINTS WON

Year	Hard	Clay	Grass	Total
2011	33%	34%	32%	33%
2012	31%	30%	31%	31%
2013	32%	35%	35%	33%
2014	32%	33%	31%	32%
2015	35%	32%	31%	32%
2016	33%	34%	30%	31%
2017	32%	-	34%	32%
2018	34%	-	-	34%

# TABLE 162<sup>nd</sup> RETURN POINTS WON

Year	Hard	Clay	Grass	Total
2011	53%	47%	49%	51%
2012	51%	52%	52%	51%
2013	52%	50%	49%	51%
2014	52%	47%	48%	51%
2015	52%	51%	47%	50%
2016	54%	48%	49%	50%
2017	52%	-	52%	52%
2018	51%	-	-	51%



#### TABLE 17 BREAK POINTS SAVED

Year	Hard	Clay	Grass	Total
2011	63%	64%	74%	65%
2012	70%	72%	67%	70%
2013	66%	63%	71%	65%
2014	71%	62%	78%	70%
2015	73%	61%	73%	68%
2016	55%	64%	69%	64%
2017	65%	-	74%	66%
2018	69%	-	-	69%

#### TABLE 18 BREAK POINTS WON

Year	Hard	Clay	Grass	Total
2011	43%	35%	52%	42%
2012	44%	42%	38%	42%
2013	37%	45%	41%	39%
2014	40%	38%	39%	39%
2015	39%	41%	40%	41%
2016	44%	48%	33%	40%
2017	44%	-	37%	42%
2018	41%	-	-	41%



# ANNEX II (Figures)





**FIGURE 2** 

### **FIGURE 3**







#### FIGURE 4

#### **FIGURE 5**







#### FIGURE 6





#### **FIGURE 7**





**FIGURE 8** 

### **FIGURE 9**







FIGURE 10





FIGURE 11

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#### FIGURE 14

















