



# **CIGRE Statistics**

**On January 1, 2018  
Prepared by Yves Maugain**



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68<sup>th</sup> Technical Committee Meeting, Vienna (AT), March 27-29, 2018



## *Evolution of the number of SC Working Bodies*

**01/01/  
2016**

**+37**

**01/01/  
2017**

**+ 44**

**01/01/  
2018**

**230**

**2016-2017**

**226**

**2017-2018**

**232**

**-41**

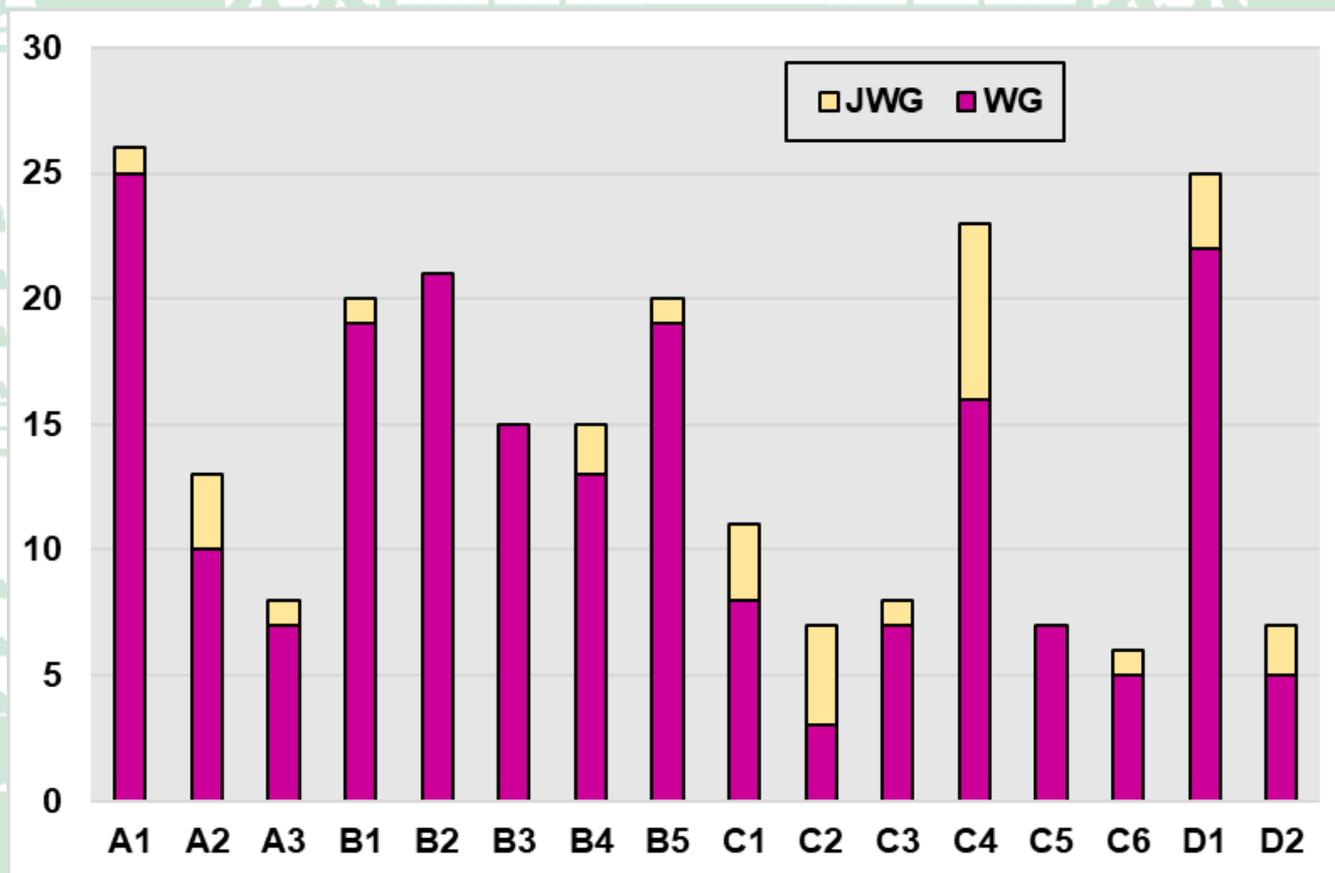
**- 38**



## *Distribution of WGs on Study Committees*

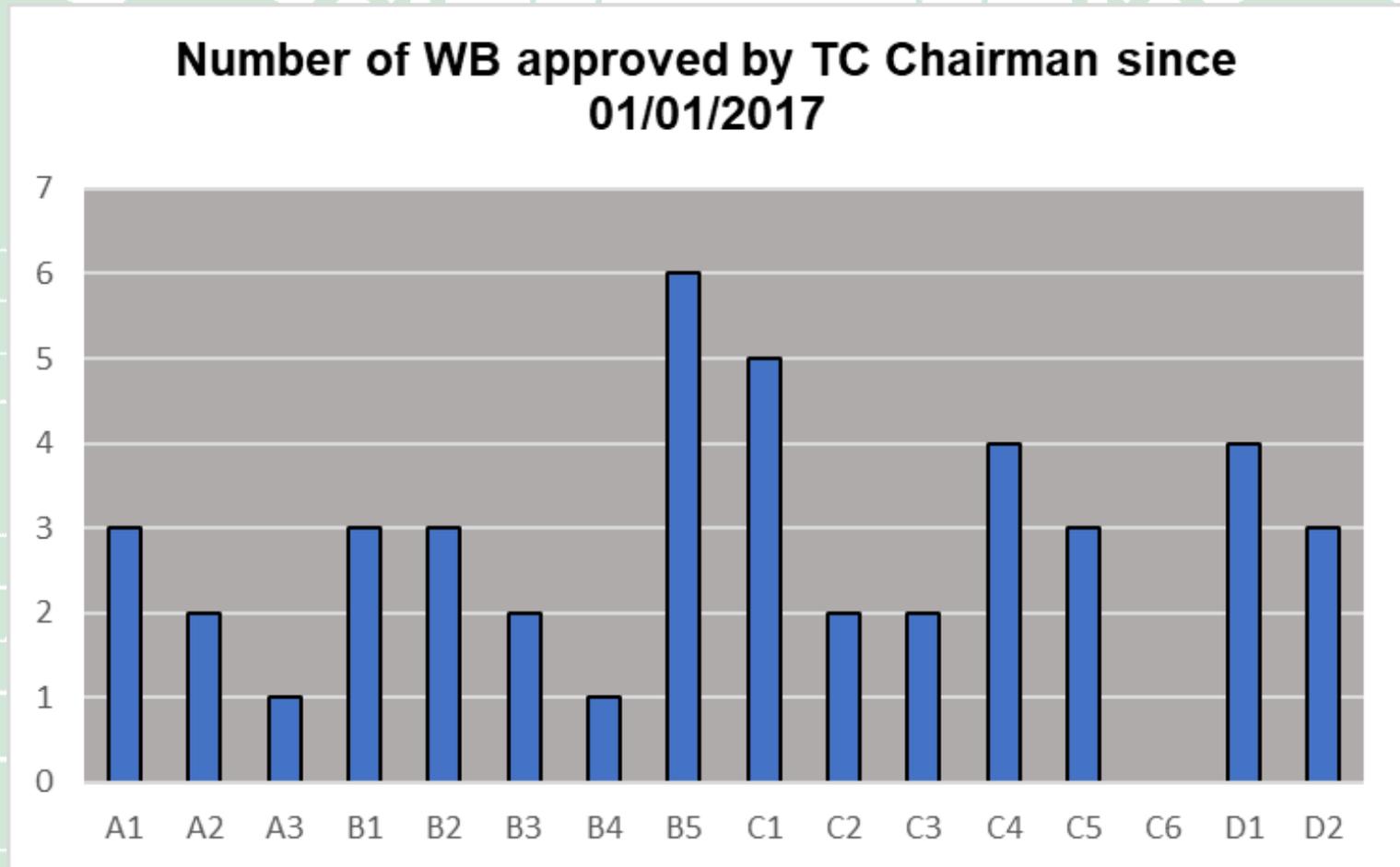
SCs	WG	JWG	Total
All	202	30	232

JWG : 13% last year 14%





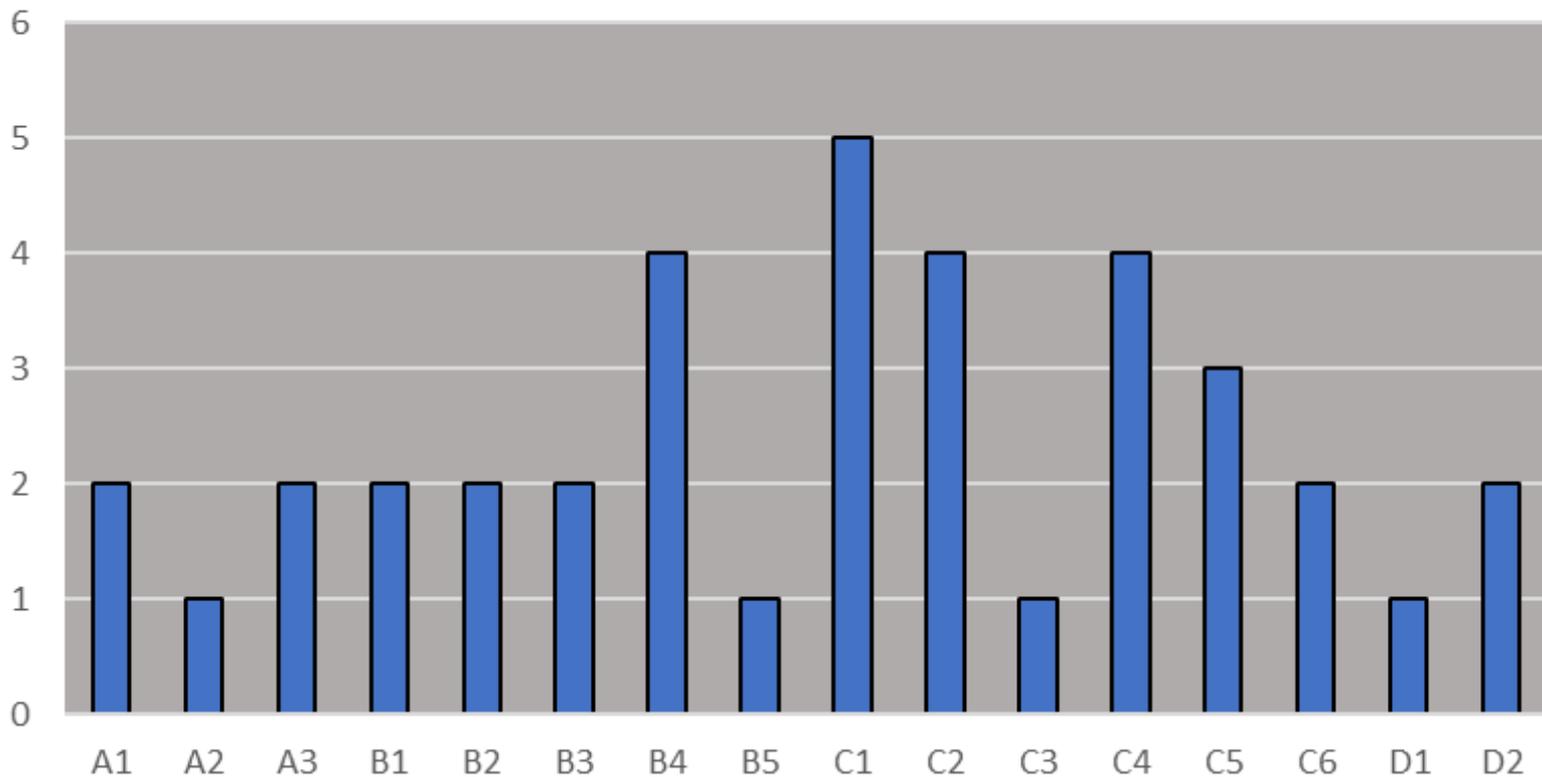
## *Working Groups approved since January 2017*





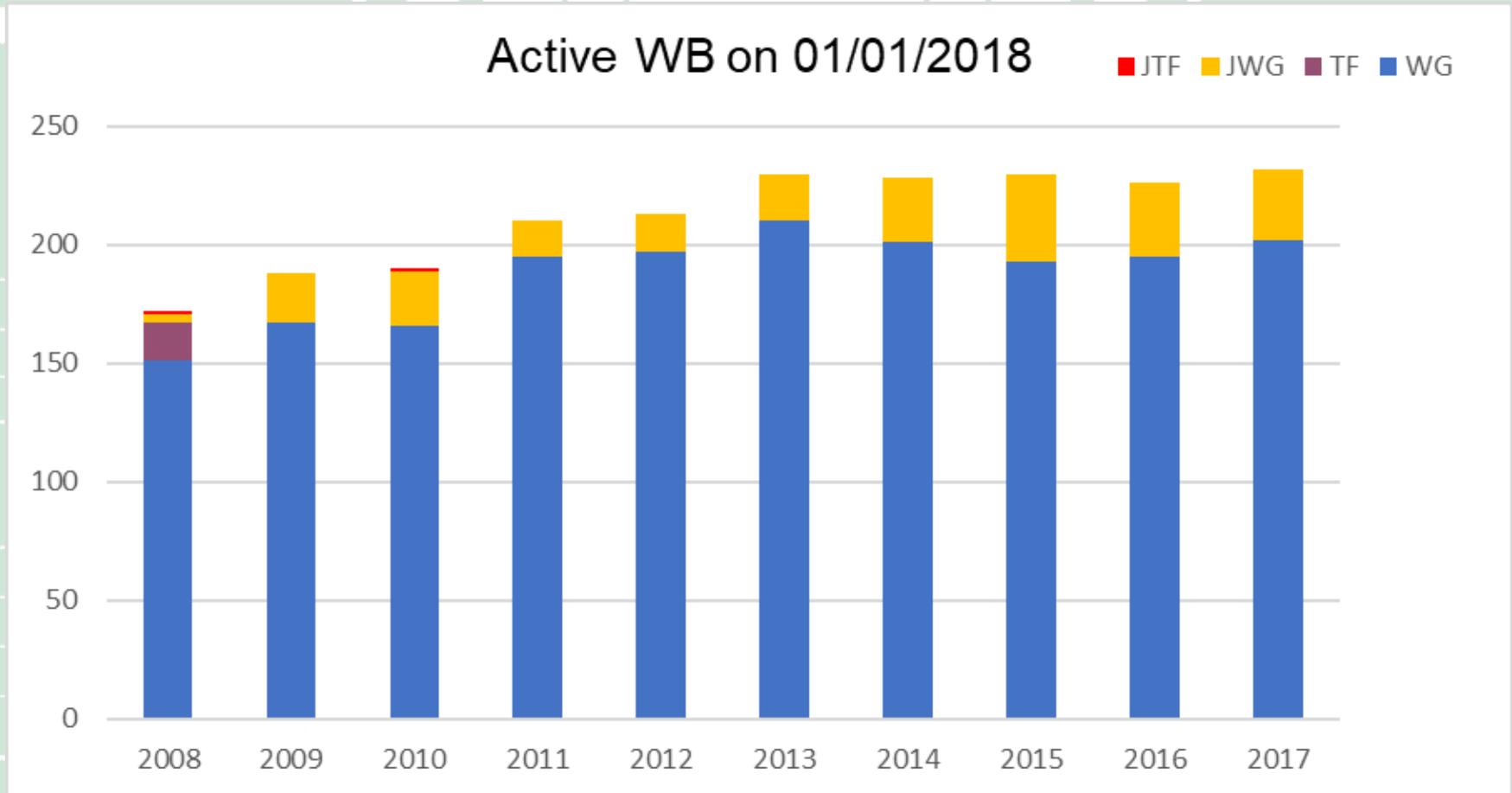
## *Working Groups disbanded since January 2017*

**Number of WG disbanded since 01/01/2017**



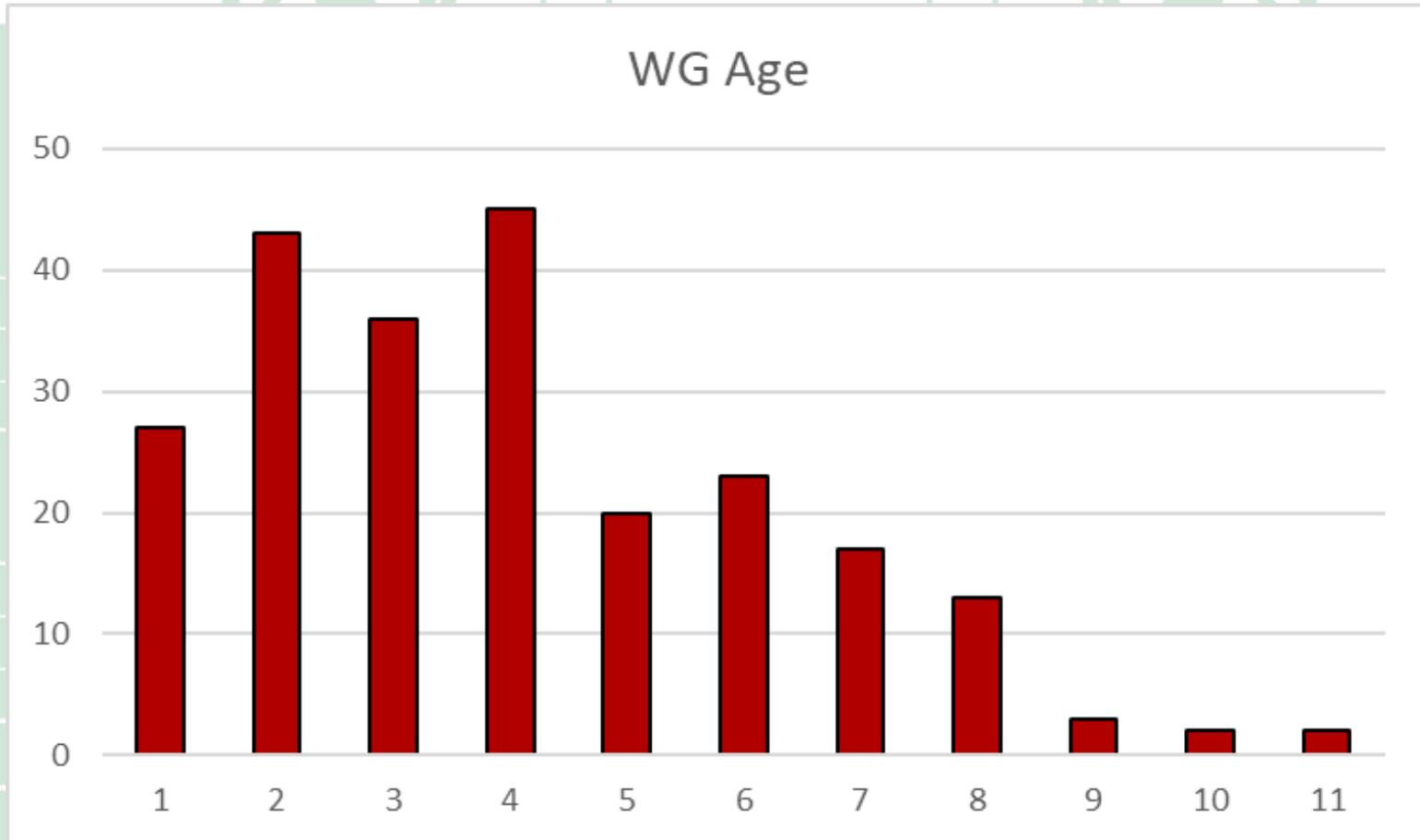


## *Working Groups since 2008*

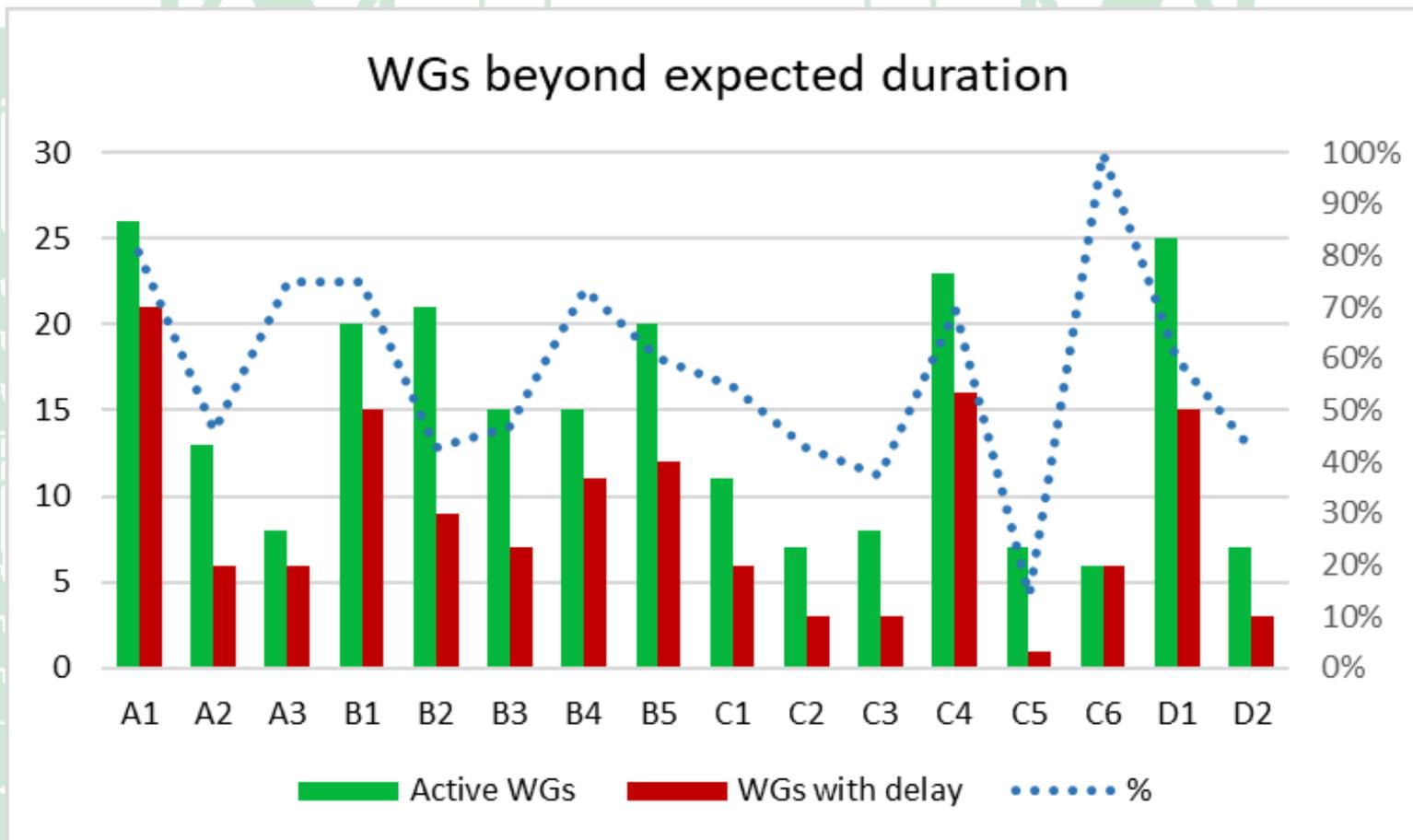


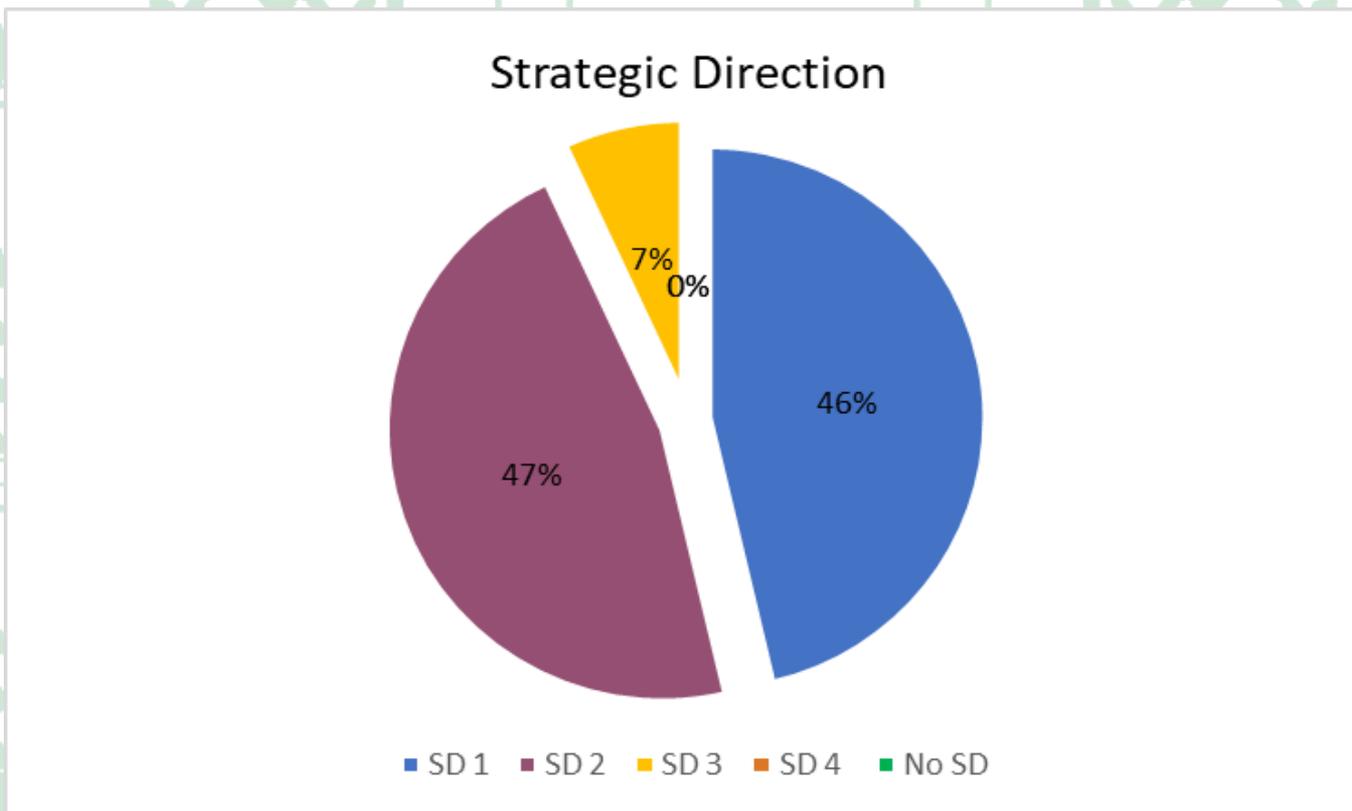


## *Age of Working Groups*

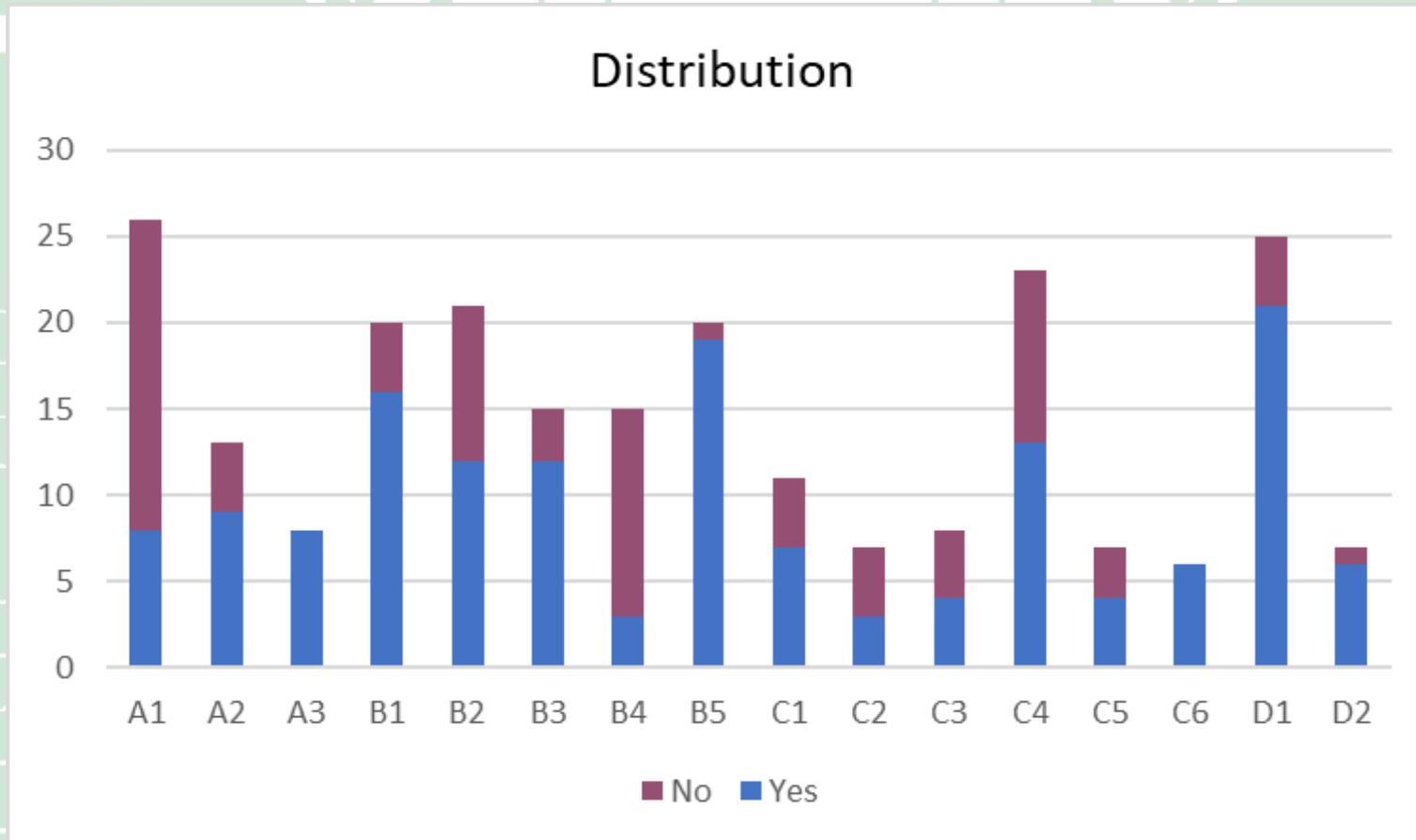


# Age of Working Groups





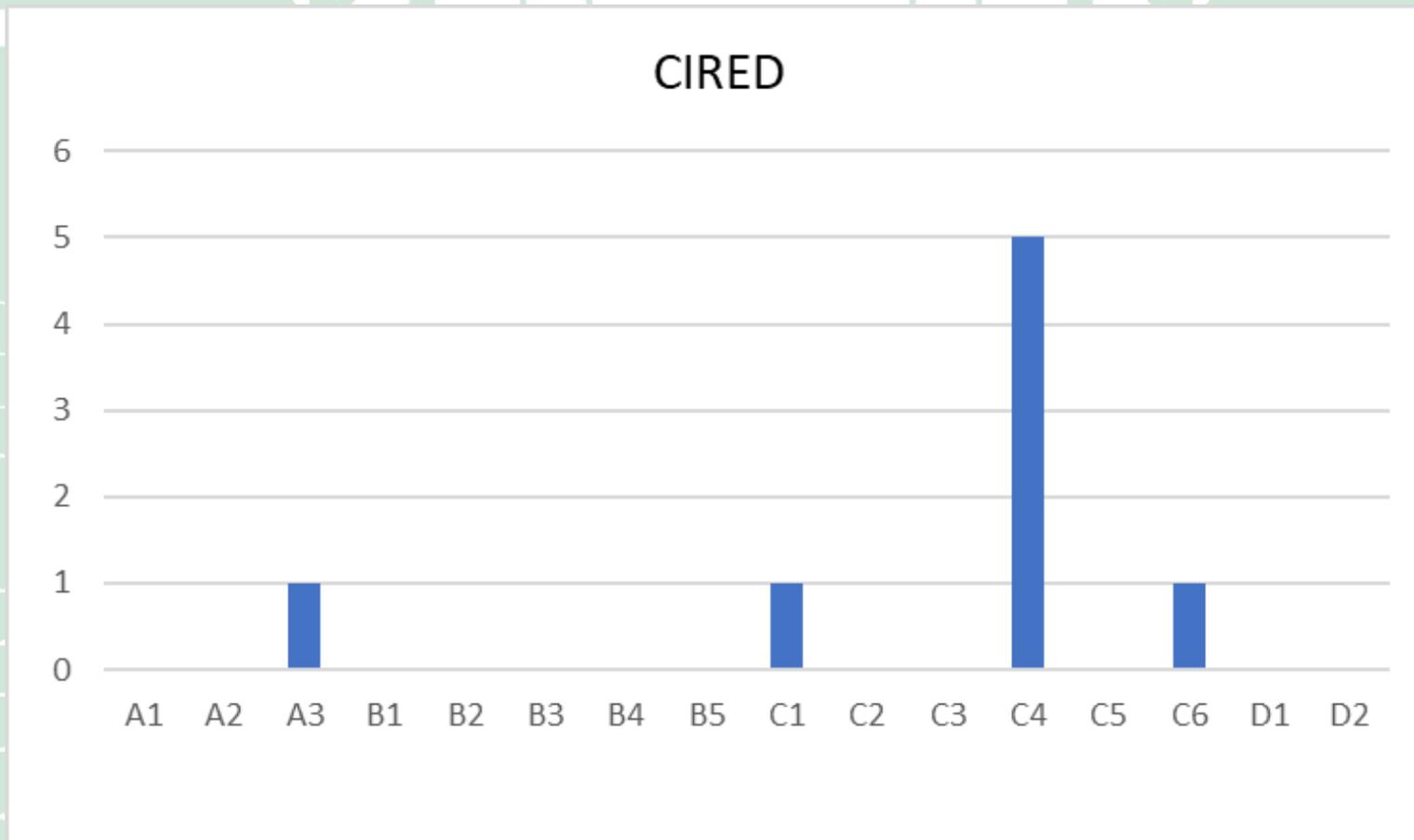
SD 1: Network of the future. SD2: Existing System, SD3: Environment, SD4: Communication



2017: 65 %, Last year: 58%

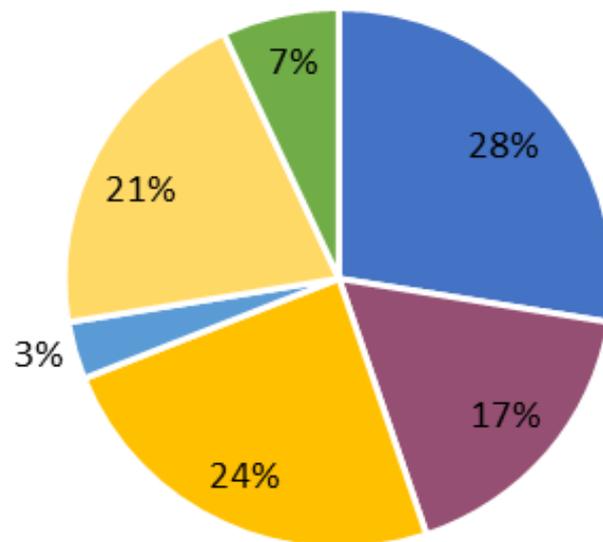


## *JWGs with CIRED*



2017: 3 %, Last year: 4 %

## Potential Benefit



■ PB 1 ■ PB 2 ■ PB 3 ■ PB 4 ■ PB 5 ■ PB 6





# **WG Membership**

**On January 1, 2018**



# CIGRE Synthesis of the 2017 review

SC	Nb WG	Nb countries	Nb Positions	Nb Experts		Pos/expert	Ladies/experts
				Nb experts	of which Nb Ladies		
A1	28	40	408	301	4	1.36	1%
A2	15	44	435	367	37	1.19	10%
A3	9	29	189	181	12	1.04	7%
B1	30	34	432	347	34	1.24	10%
B2	18	44	576	385	23	1.50	6%
B3	17	45	444	353	26	1.26	7%
B4	17	32	460	386	38	1.19	10%
B5	23	36	423	366	18	1.16	5%
C1	11	36	218	196	28	1.11	14%
C2	7	33	151	143	16	1.06	11%
C3	8	30	149	106	33	1.41	31%
C4	32	54	697	587	42	1.19	7%
C5	8	32	125	106	17	1.18	16%
C6	9	34	201	175	16	1.15	9%
D1	25	39	626	443	38	1.41	9%
D2	11	39	260	227	18	1.15	8%
<b>All SC</b>	<b>240</b>	<b>72</b>	<b>5470</b>	<b>3986</b>	<b>336</b>	<b>1.37</b>	<b>8%</b>

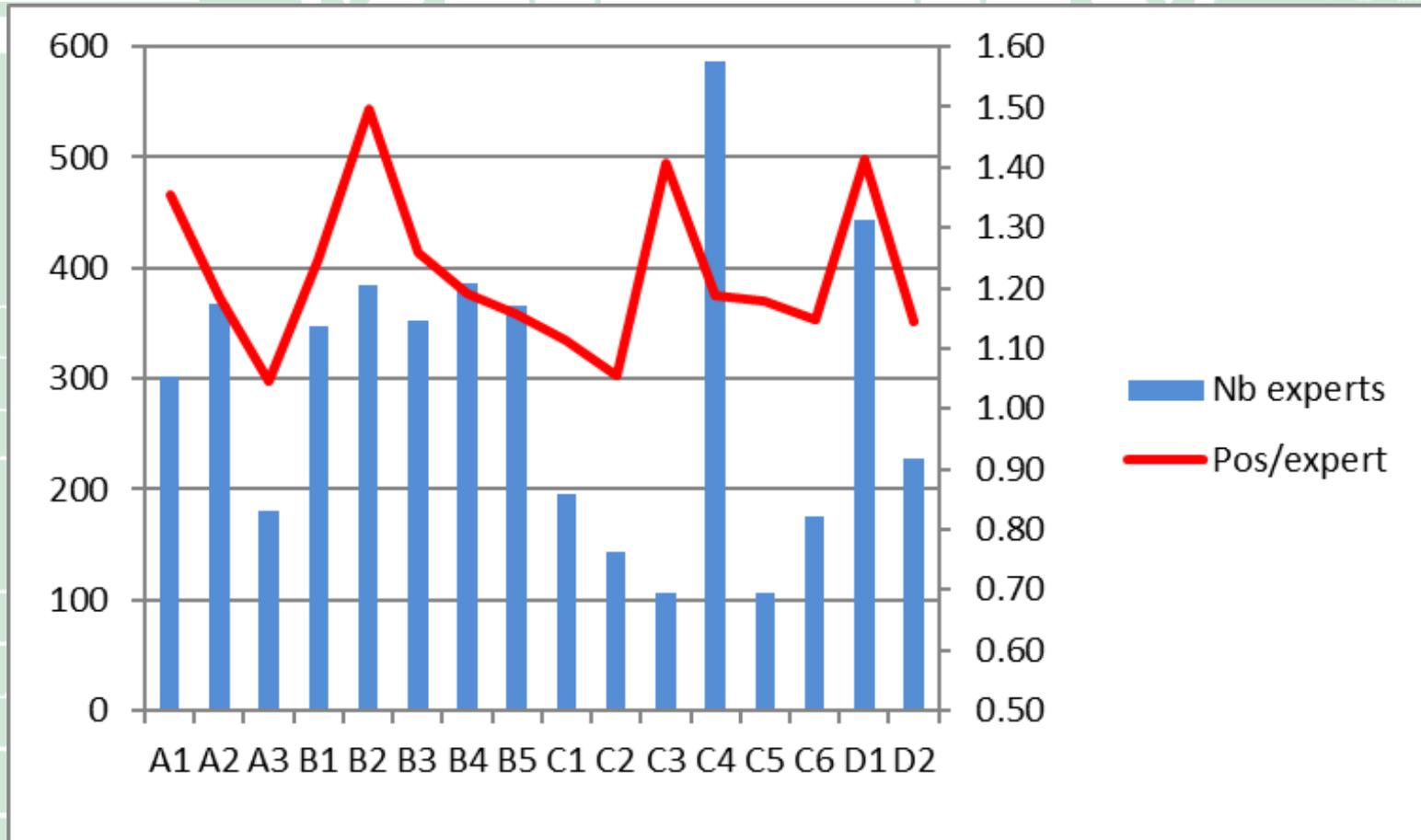


# Reminder : 2016 review

SC	Nb WG	Nb countries	Nb Positions	Nb Experts		Pos/expert	Ladies/ experts
				Nb experts	of which Nb Ladies		
A1	25	38	341	255	1	1.34	0%
A2	14	40	383	327	29	1.17	9%
A3	11	27	224	207	15	1.08	7%
B1	27	33	403	323	30	1.25	9%
B2	19	42	543	369	21	1.47	6%
B3	16	38	277	253	21	1.09	8%
B4	21	33	520	442	36	1.18	8%
B5	21	40	466	414	18	1.13	4%
C1	17	38	234	207	35	1.13	17%
C2	9	34	158	143	12	1.10	8%
C3	5	25	75	61	18	1.23	30%
C4	27	50	678	520	27	1.30	5%
C5	8	29	90	90	19	1.00	21%
C6	9	37	255	214	18	1.19	8%
D1	18	36	405	305	24	1.33	8%
D2	7	35	211	187	18	1.13	10%
<b>All SC</b>	<b>243</b>	<b>67</b>	<b>4973</b>	<b>3766</b>	<b>299</b>	<b>1.32</b>	<b>8%</b>

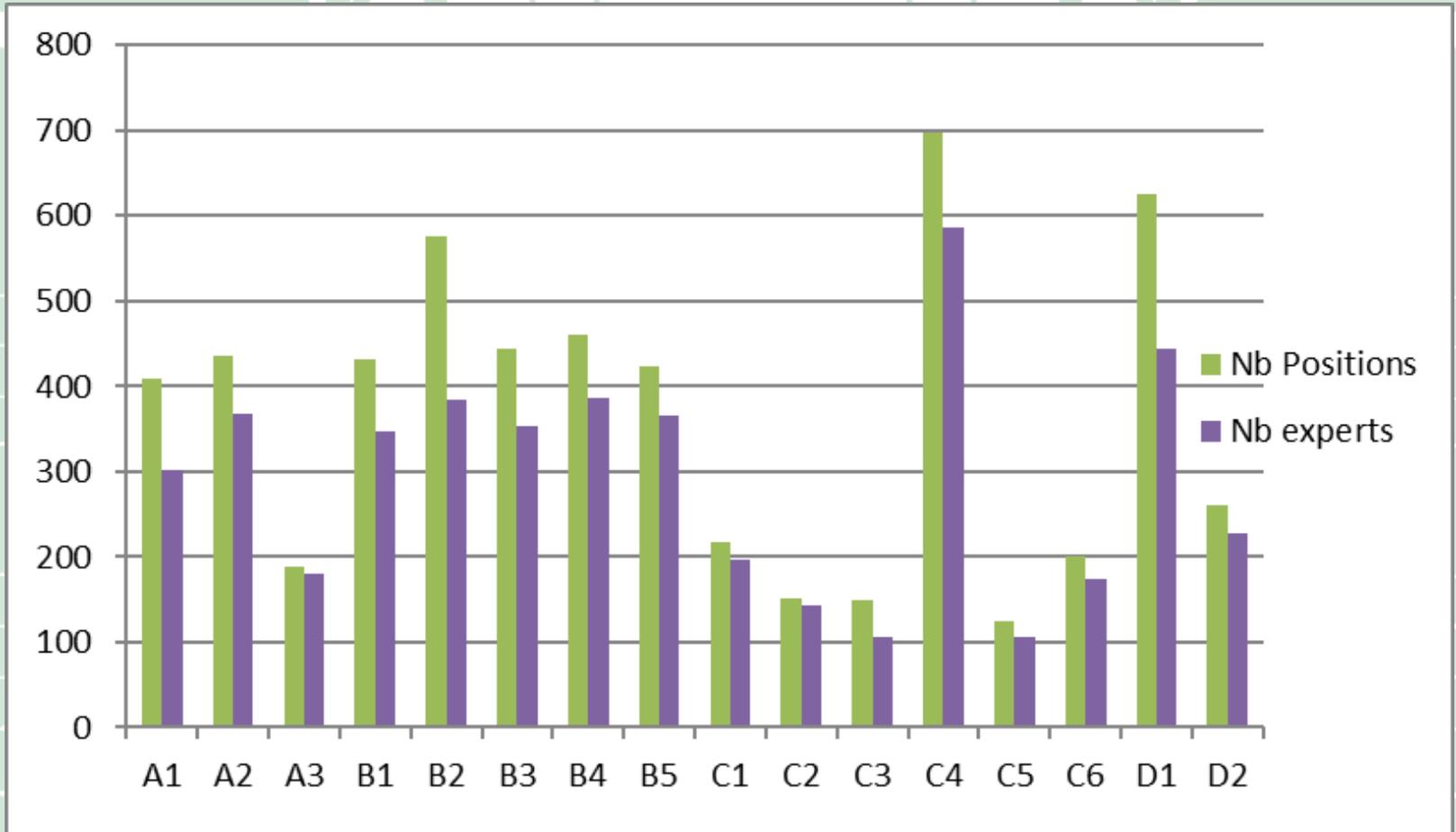


# Cigré *Synthesis of the 2017 review*





# Synthesis of the 2017 review

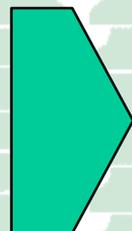




# Synthesis of the 2017 review

	All SC	WG		
	Countr	Expe	Positic	Pos/E
1	US	337	481	1.43
2	DE	298	396	1.33
3	CA	230	349	1.52
4	UK	224	308	1.38
5	CN	217	264	1.22
6	JP	213	291	1.37
7	FR	203	252	1.24
8	BR	176	242	1.38
9	AU	140	187	1.34
10	ZA	137	198	1.45
11	ES	135	158	1.17
12	IT	128	169	1.32
13	SE	126	160	1.27
14	CH	112	159	1.42
15	NL	98	119	1.21

**2016**



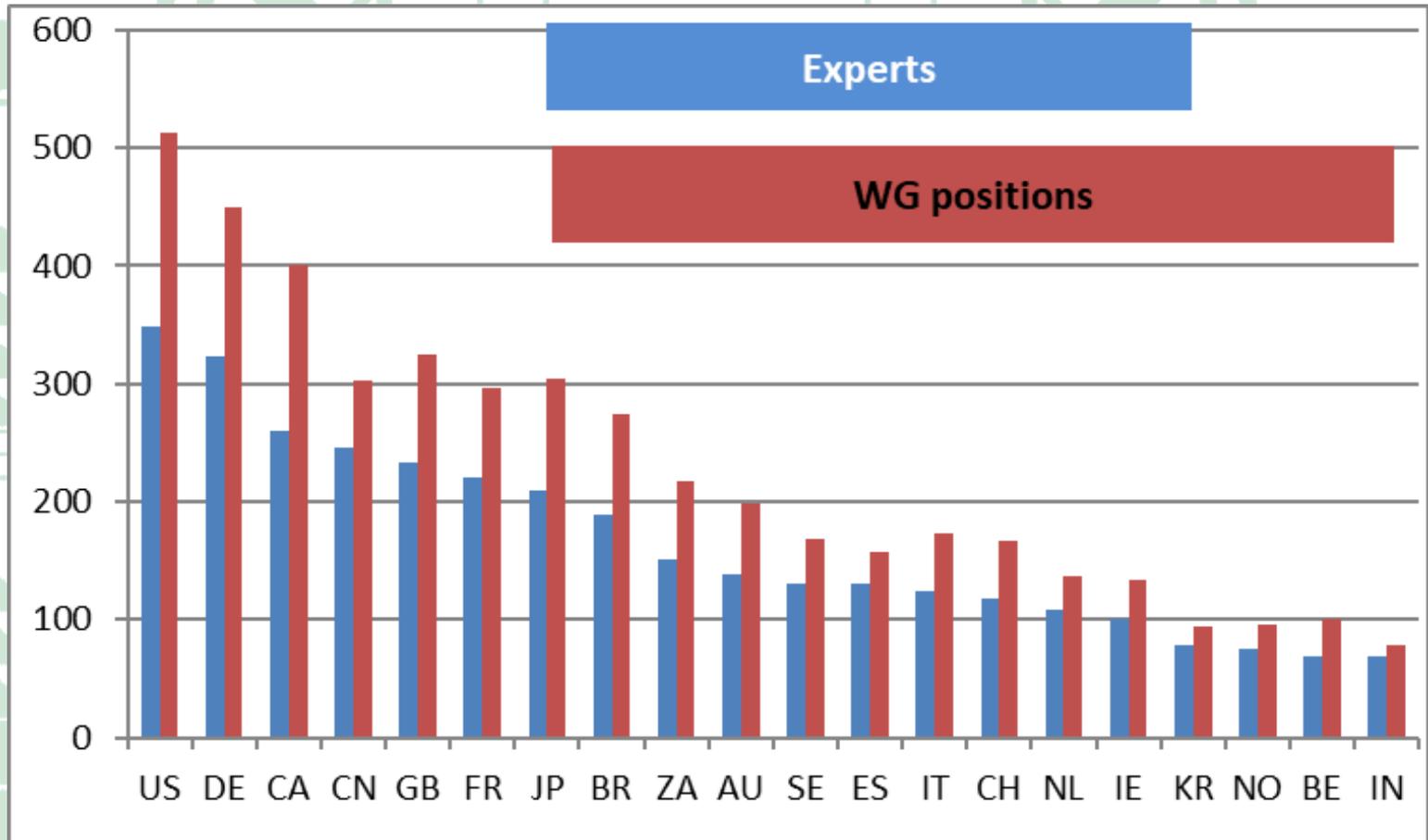
	All SC	WG		
	Countr	Expe	Positic	Pos/E
1	US	348	513	1.47
2	DE	323	450	1.39
3	CA	260	401	1.54
4	CN	246	302	1.23
5	GB	233	324	1.39
6	FR	220	296	1.35
7	JP	210	304	1.45
8	BR	189	274	1.45
9	ZA	151	217	1.44
10	AU	139	199	1.43
11	SE	130	168	1.29
12	ES	130	158	1.22
13	IT	124	173	1.40
14	CH	118	166	1.41
15	NL	108	137	1.27

**2017**



# ICGH Synthesis of the 2017 review

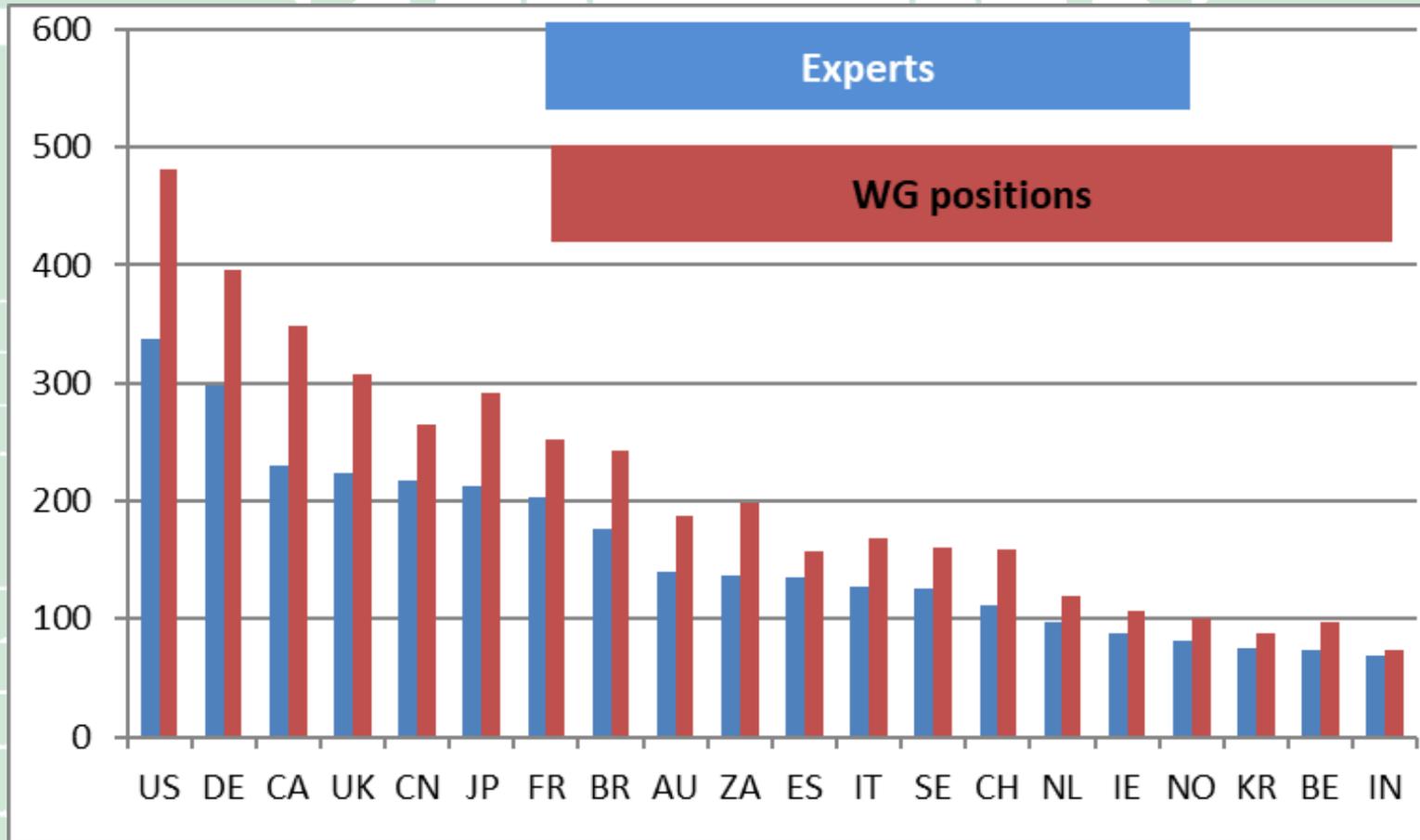
20 first countries



68<sup>th</sup> Technical Committee Meeting, Vienna (AT), March 27-29, 2018

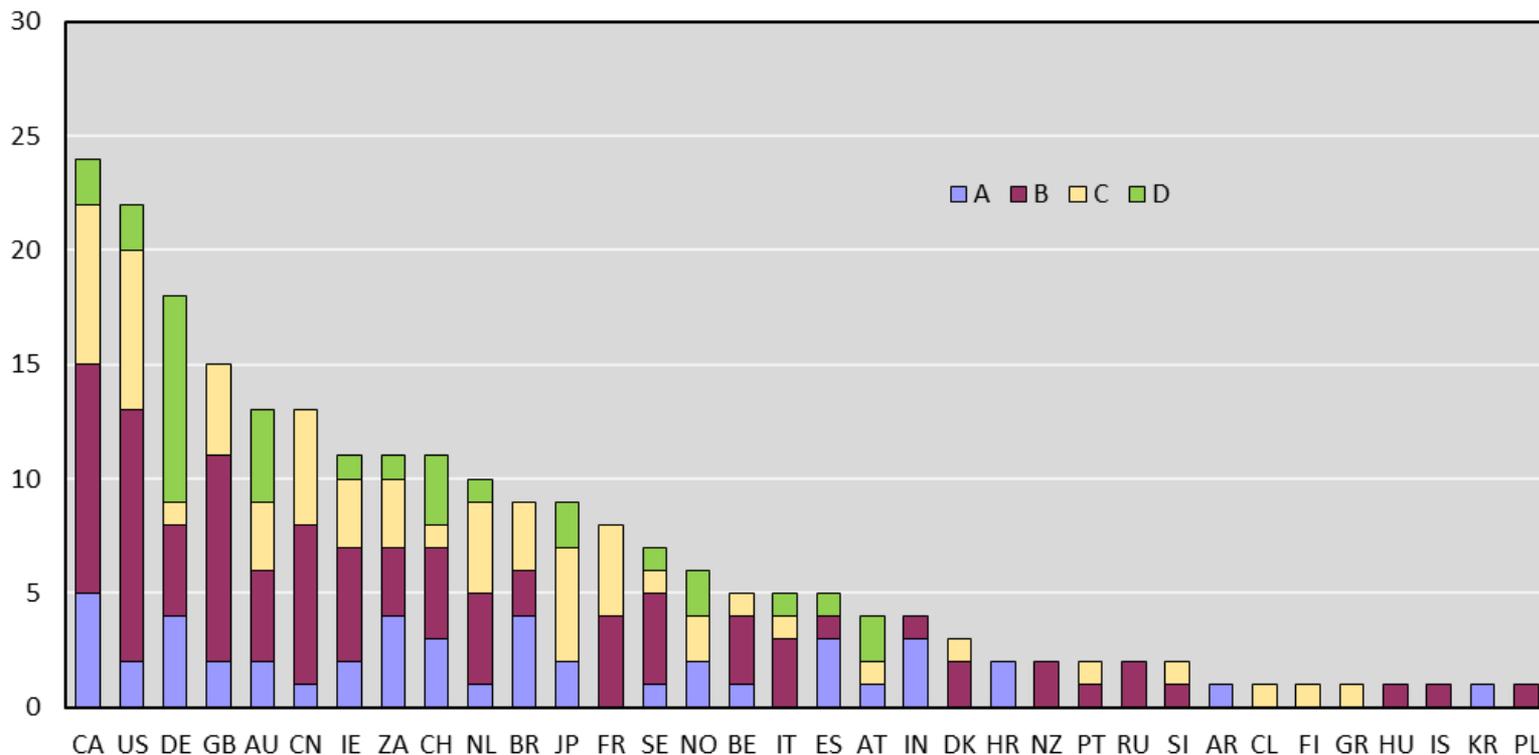


# Reminder : 2016 review



# Working Group Conveners' origins

34 countries provide WG Conveners on January 1, 2018





# Place of Women in CIGRE

— On January 1, 2018 —

68<sup>th</sup> Technical Committee Meeting, Vienna (AT), March 27-29, 2018

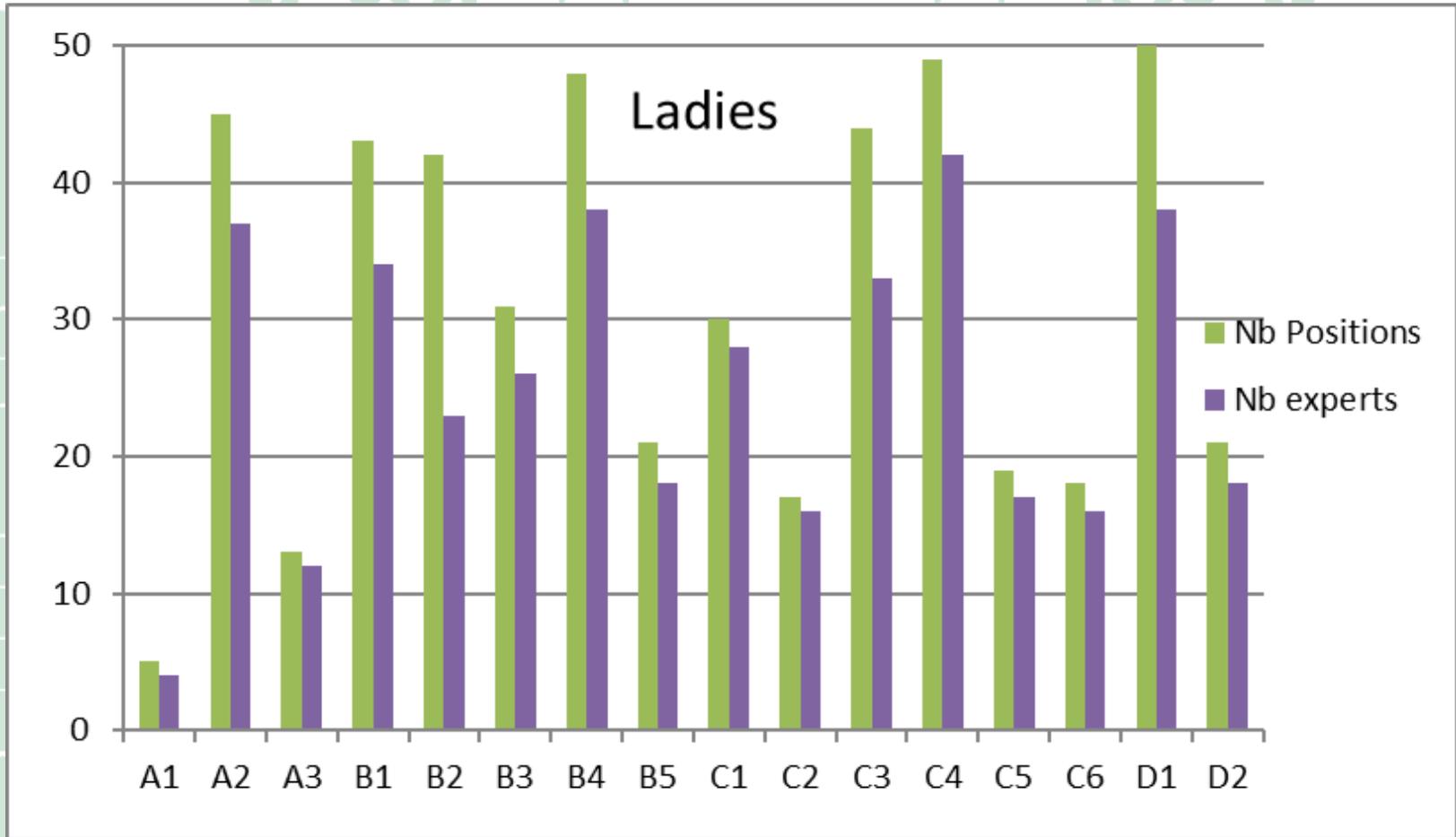


## *Place of Women in CIGRE*

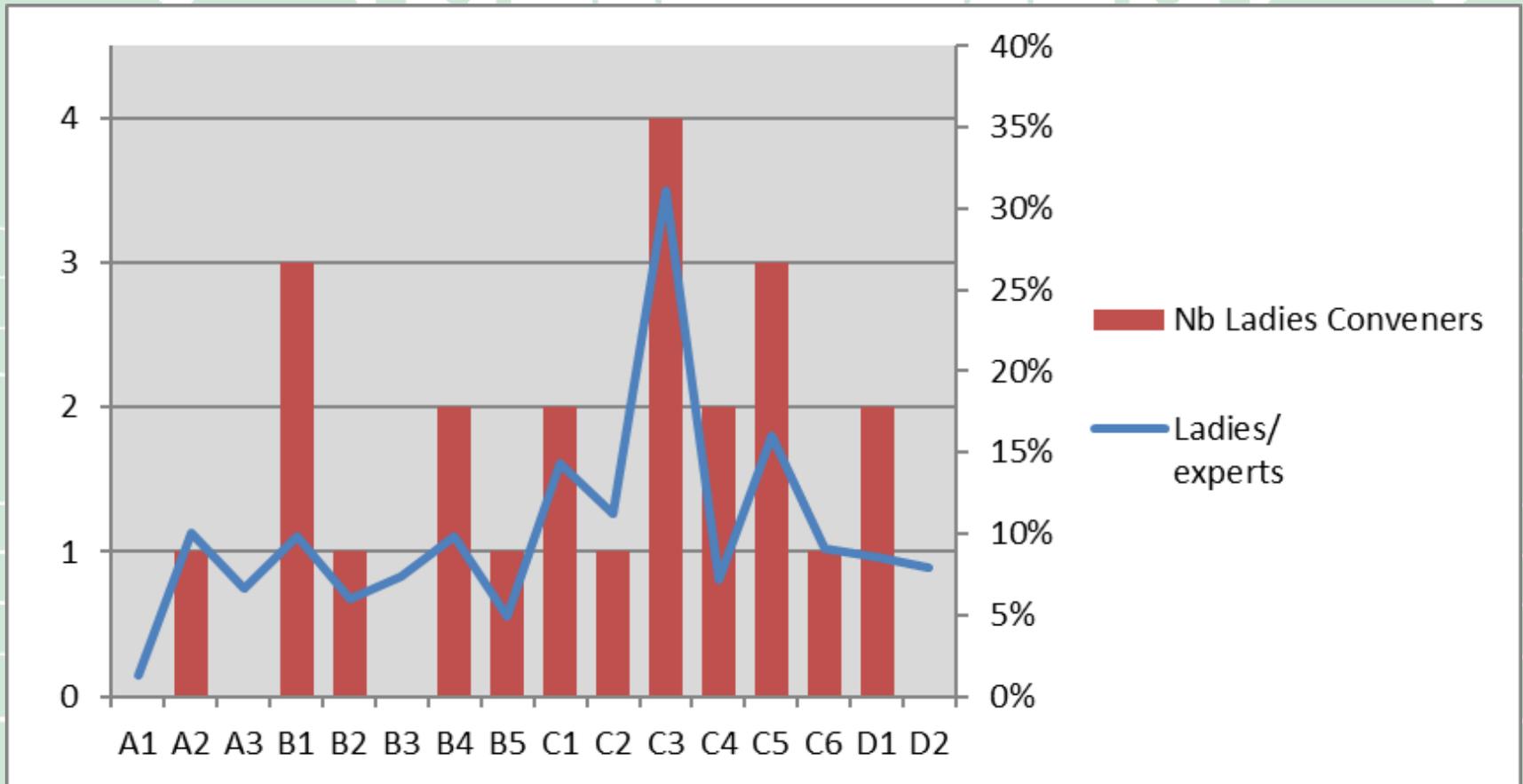
On Jan 1, 2018

- 2 SC Chairs (12.5 %)
- 3 SC Secretaries: B4, B5, C3 (19 %)
- 23 WG Conveners (10 %) last year 19
- 336 Experts (8 %) last year 299
- 470 Positions (8 %) last year 394
- On Sept 1, 2018: 3 SC Chairs, 3 SC Secretaries

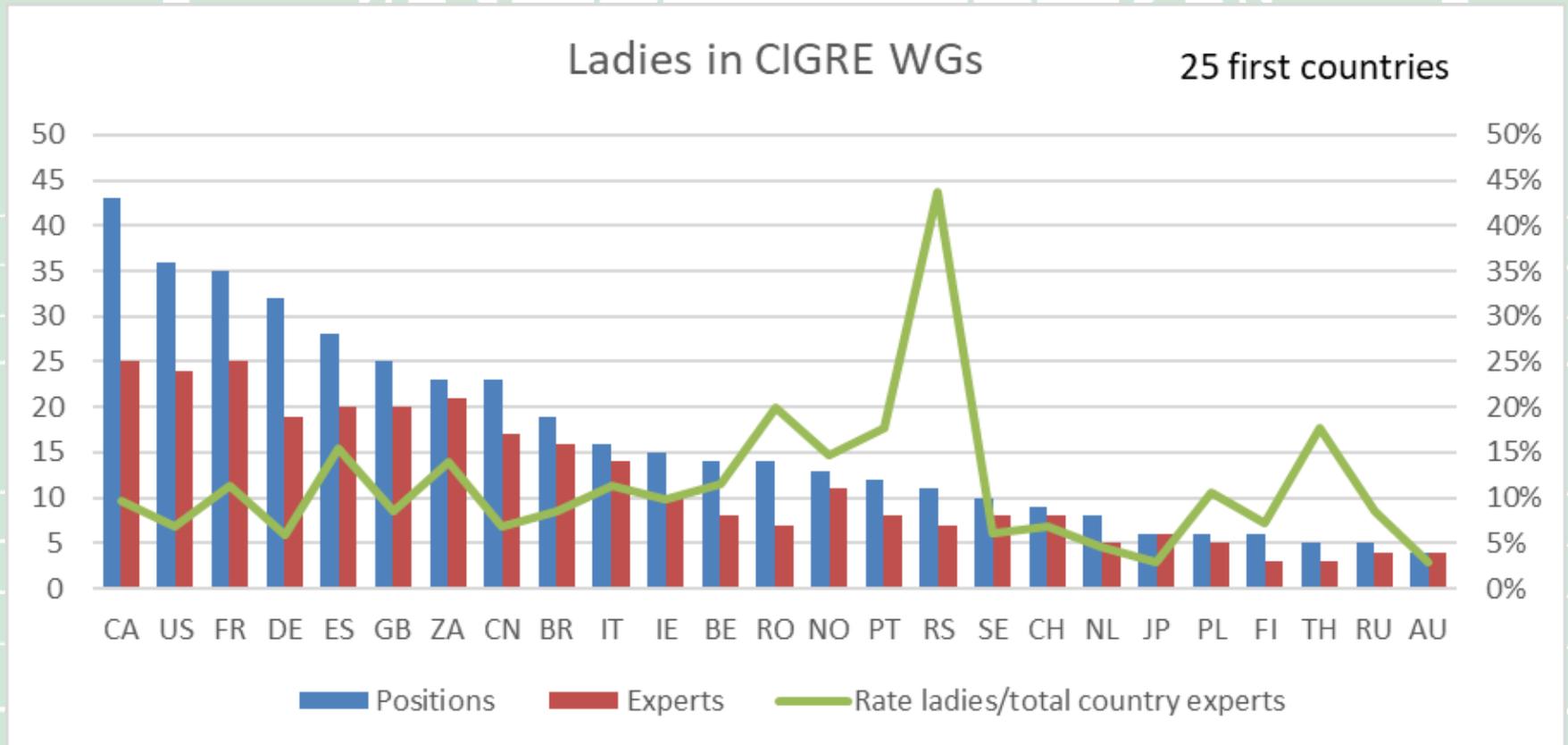
# Place of Women in CIGRE



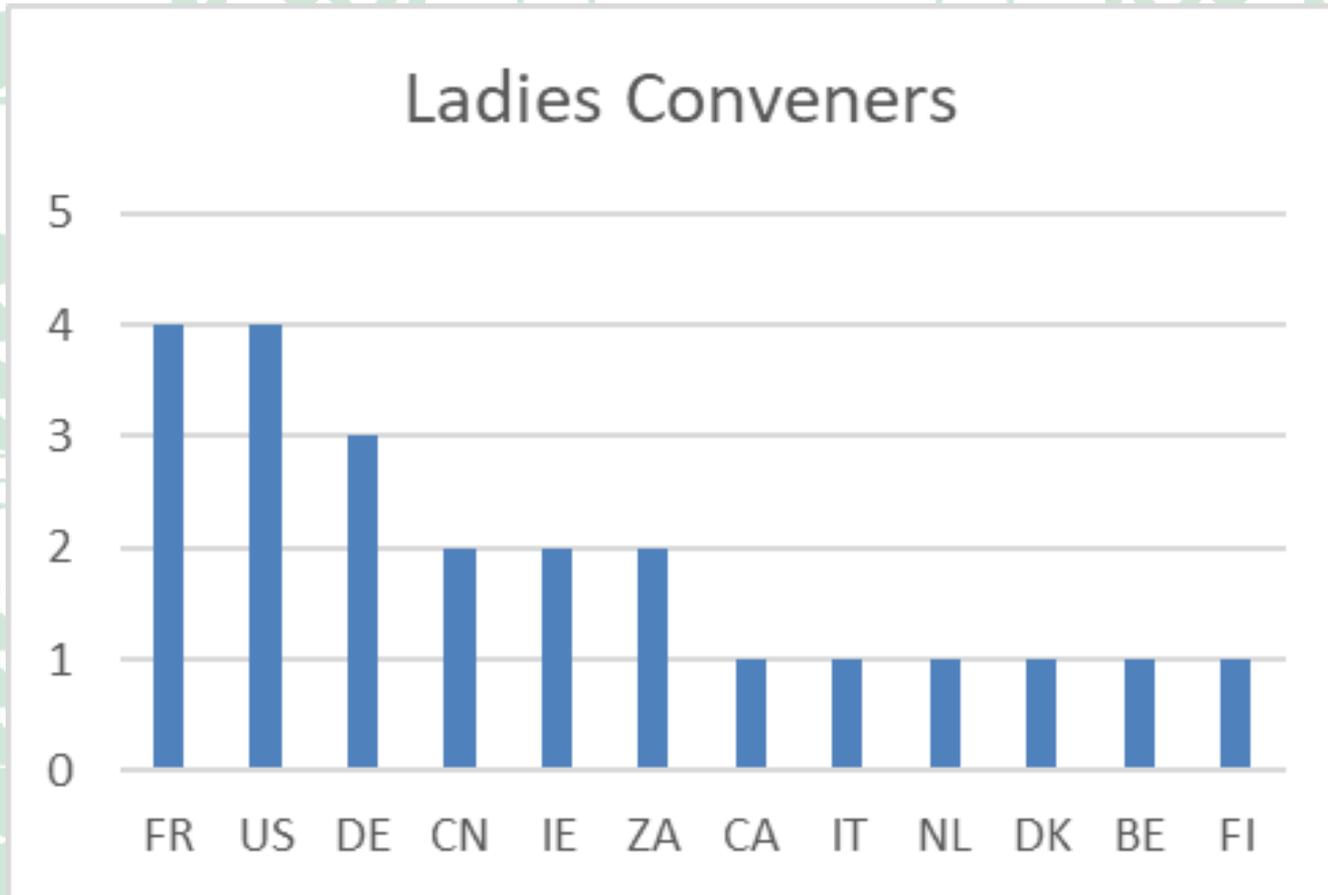
# Place of Women in CIGRE



# Place of Women in CIGRE



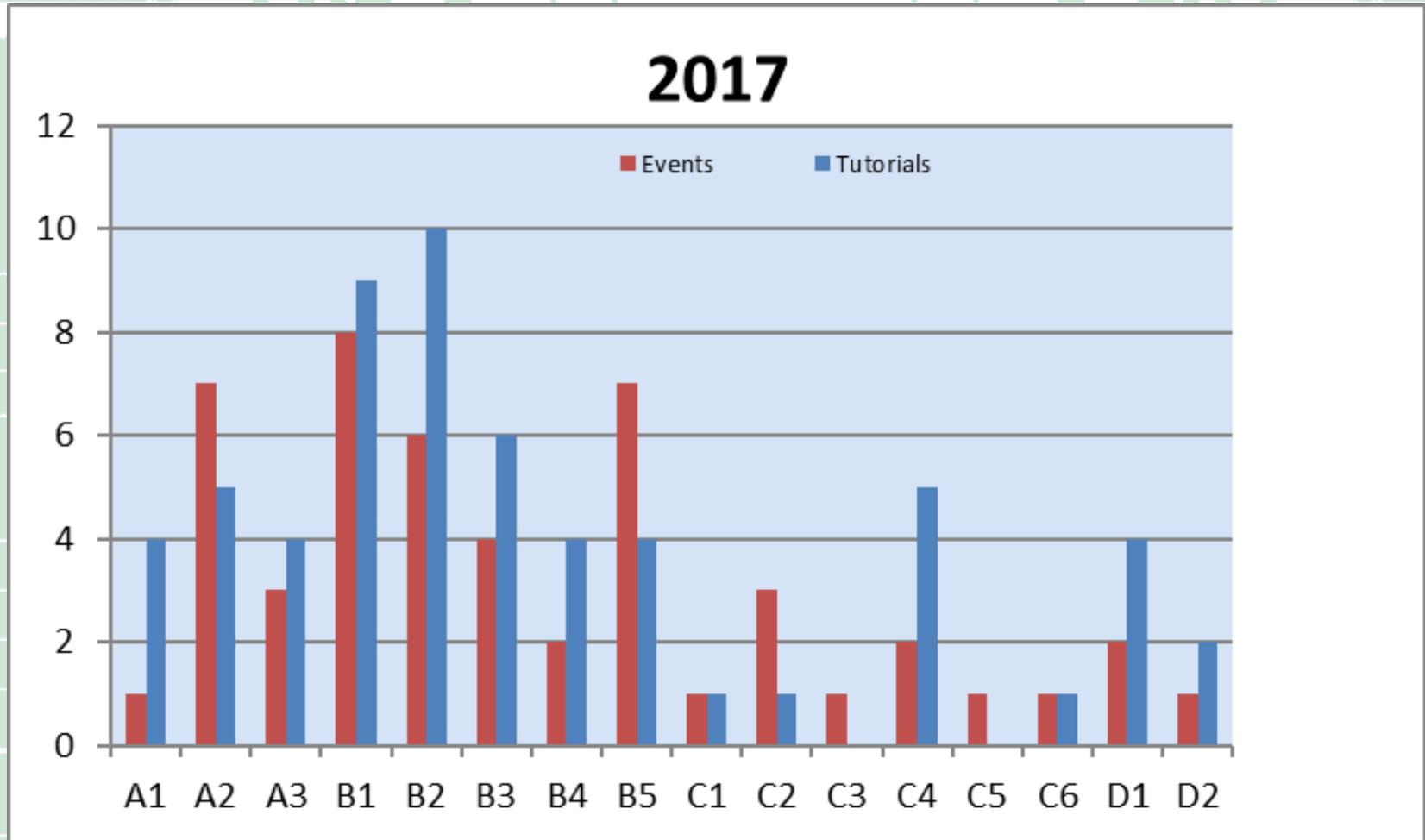
## *Place of Women in CIGRE*



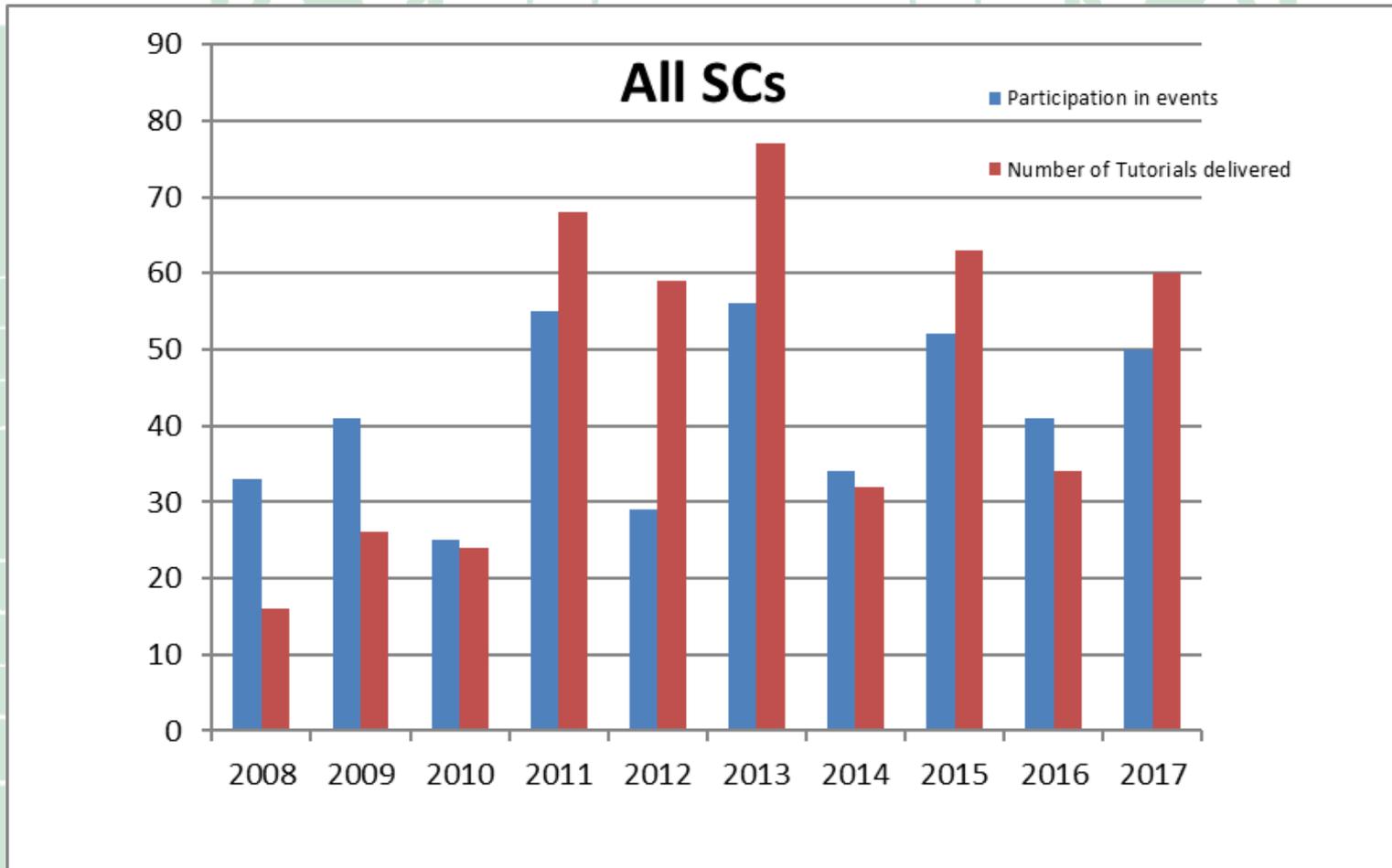
# **Participation in events**

## **Tutorials delivered**

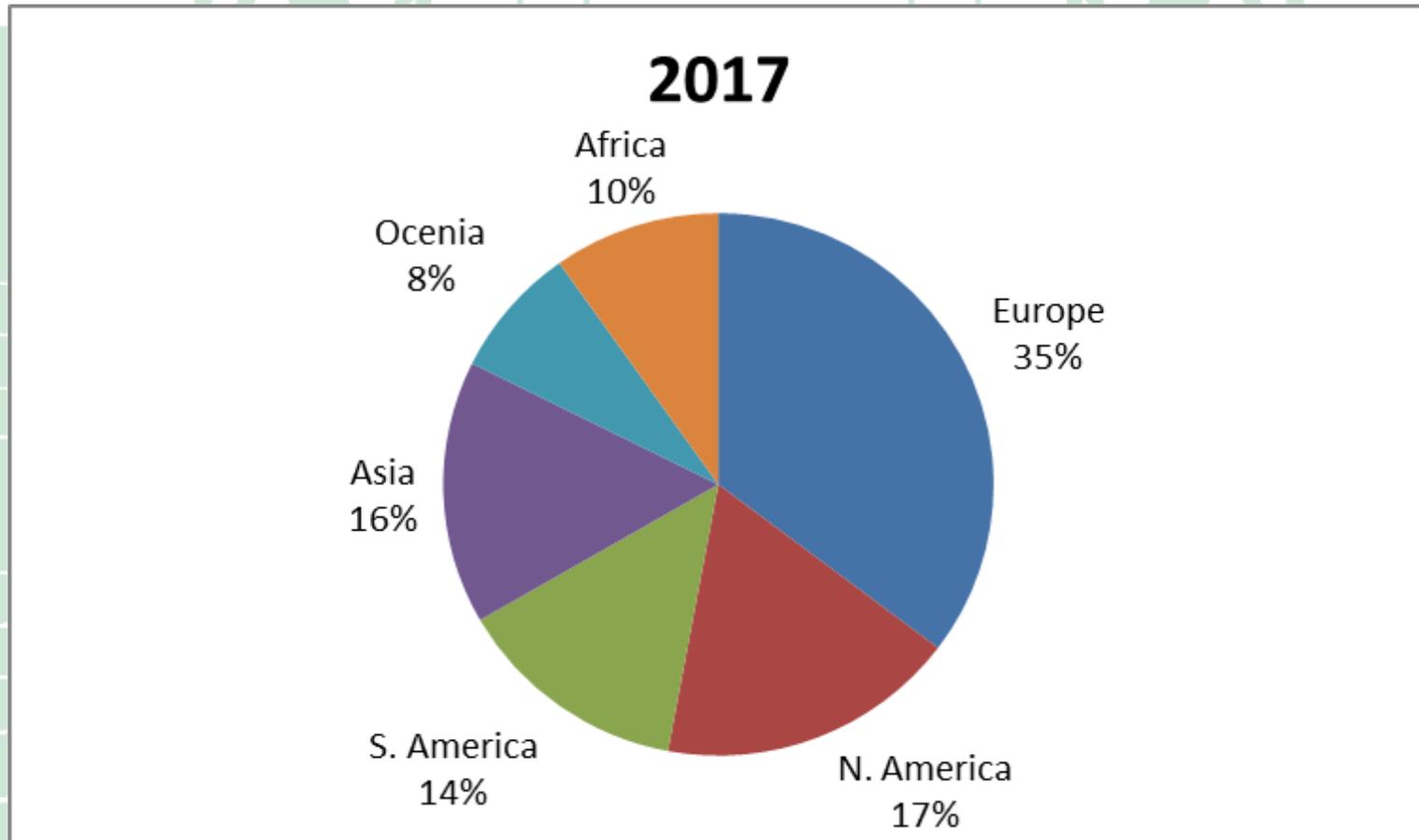
## *Participation in events*



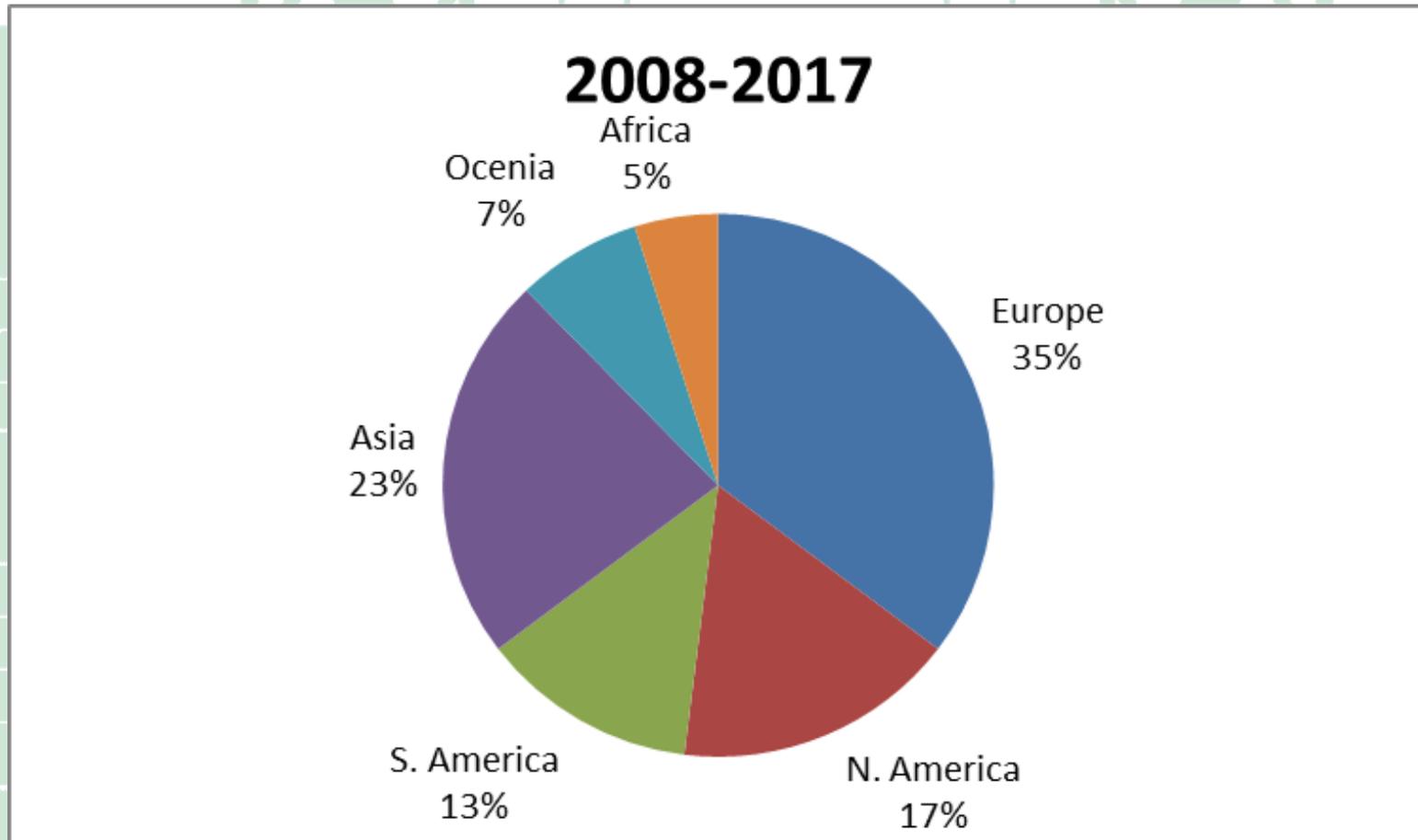
## *Participation in events*



## *Events geographical distribution*



## *Events geographical distribution*





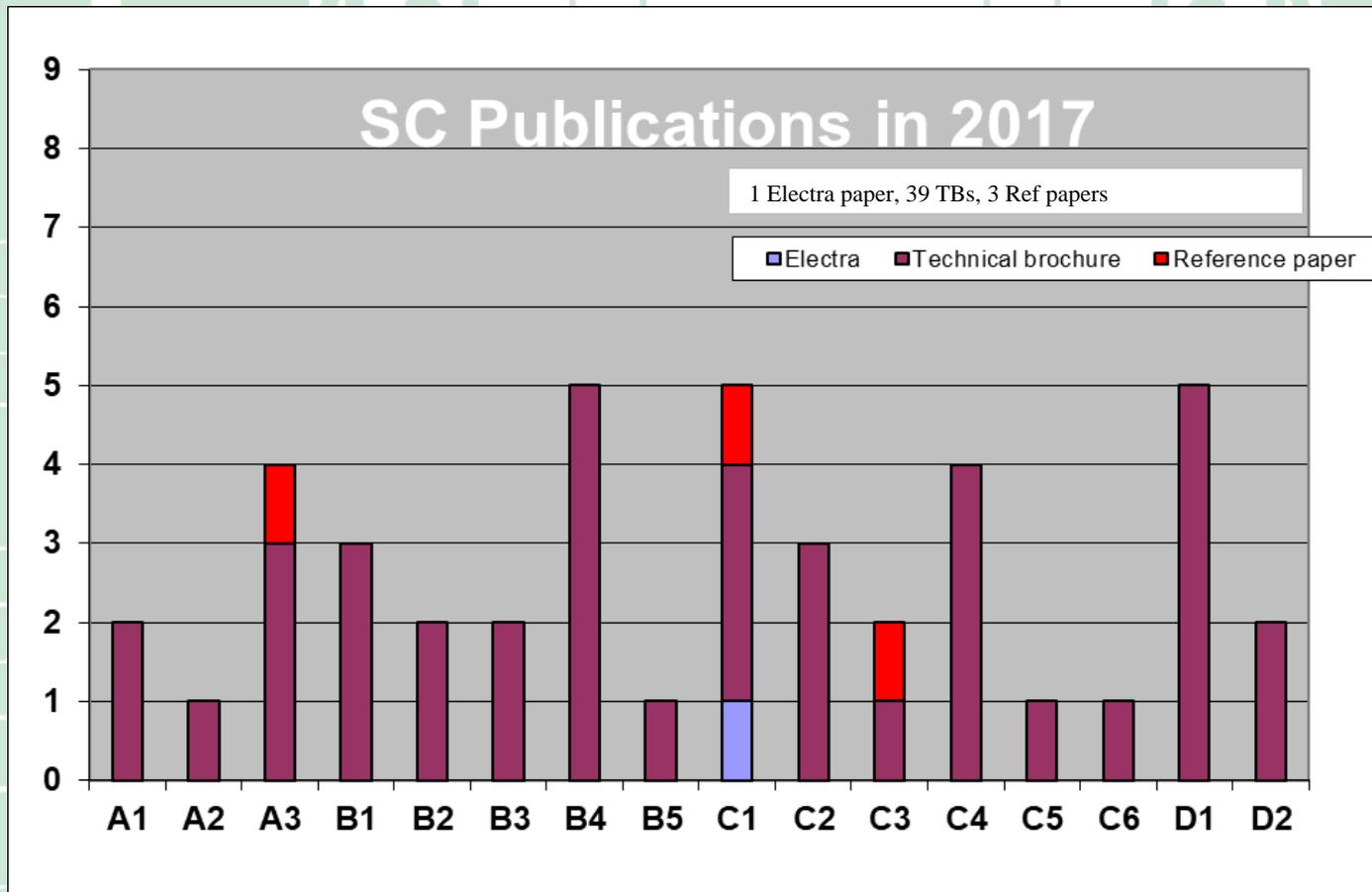
# Statistics on 2017 WG Publications

68<sup>th</sup> Technical Committee Meeting, Vienna (AT), March 27-29, 2018



# Working Group publications in 2017

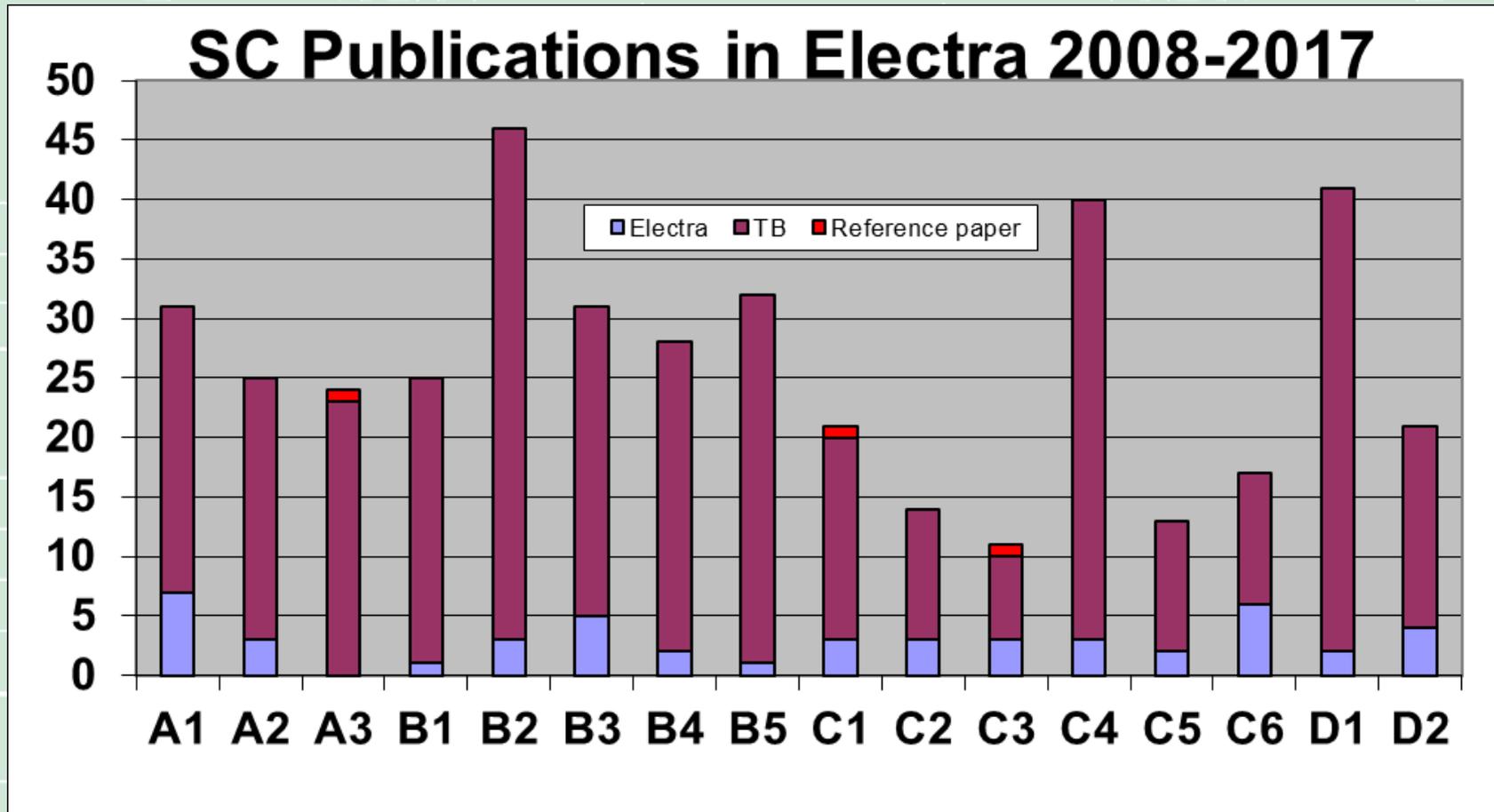
## Reference Electra (669 up to TB 707)





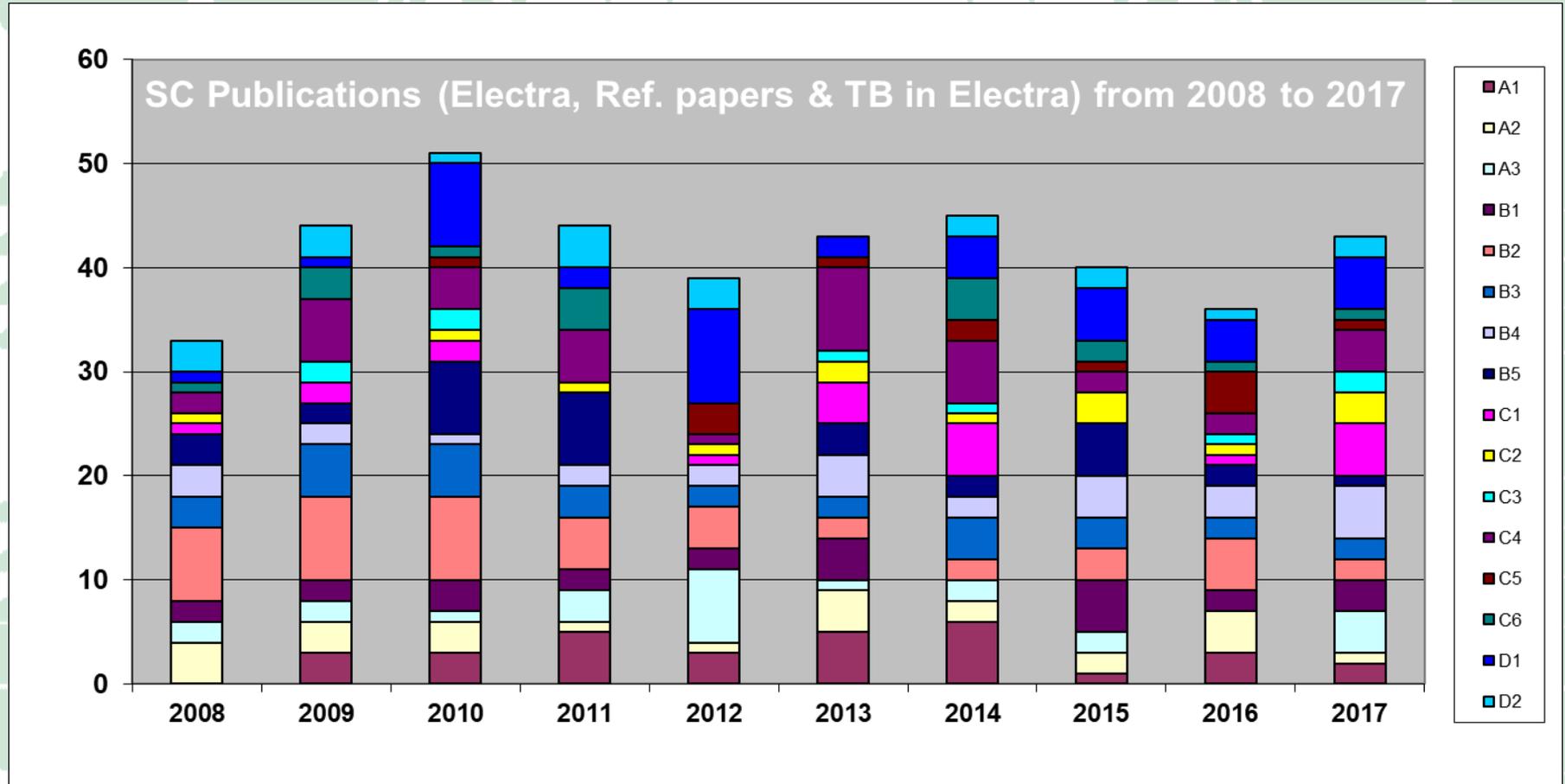
## Working Group publications

from 2008 (TB 339) to end of 2017 (up to TB 707)





# Study Committee annual publications since 2006 (TB 339 to TB 707)

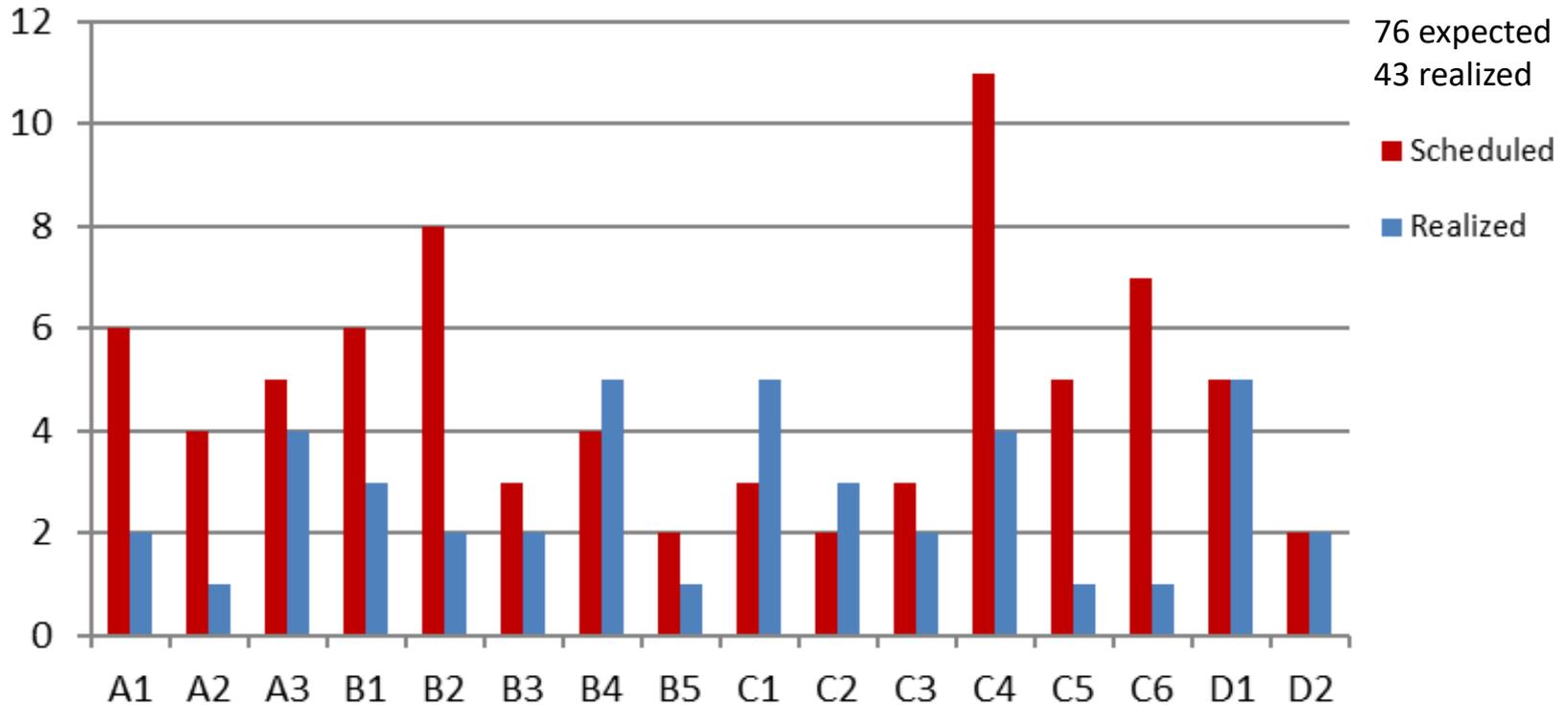




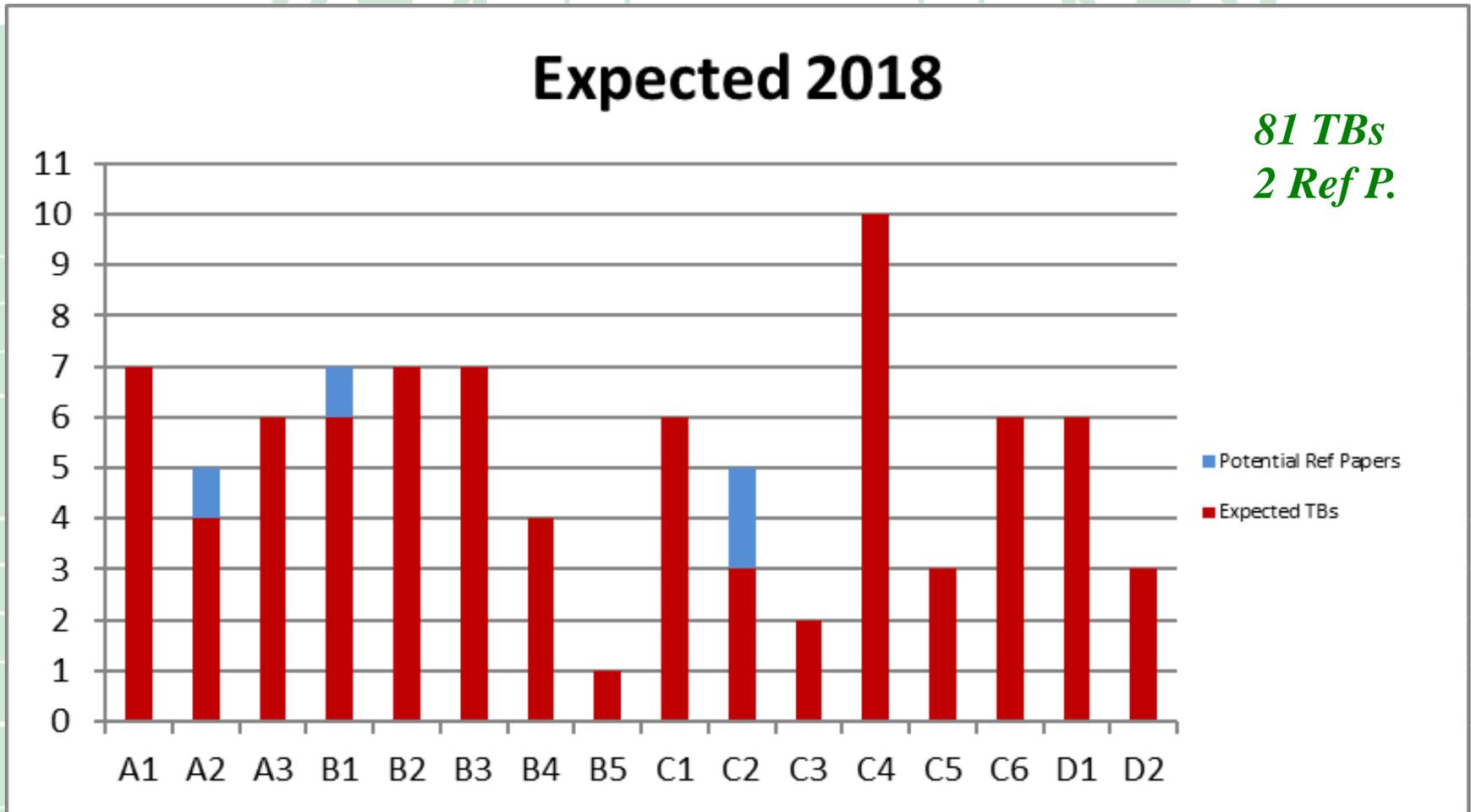
# Comparison expected vs. realized

76 vs. 43

## 2017 publications - expected vs. realized



*Better than last year 87 vs 37*





## *Future Reference papers*

- Potential reference papers:

- On SC A2 web site**

- Insulation ageing during transformer manufacturing

- On CIGRE web site**

- Underground cables, GIL and OHL – B1 – 1<sup>st</sup> half 2018
    - Network Restoration – C2
    - Effects of Increasing Power Electronics (PE) based Technology on Power System Stability Performance and System Operations – C2/C4





# Green Books

68<sup>th</sup> Technical Committee Meeting, Vienna (AT), March 27-29, 2018



## *Green Books - Already published*

- Already published :
  - 2014: B1 - Accessories, B2-OHL
  - 2016: D2 - Communication networks and Services
  - 2017: B3 - Contribution on a Springer book Power Series – Chapter on substations



## *Green Books – to be published*

- To be published :
  - 2018: B3 - Substations (MRW)  
B2 - Modelling of conductor vibrations (TB)
  - 2019: A3 - *Switching equipment (CS) may be 2018*  
B1 - Accessories for HV and EHV Extruded Cables (MRW)  
B2 - Innovative Solutions for Overhead Line Supports  
B3 - SF6  
B4 - FACTS  
B5 - Title tbd  
C6 - ?
  - 2020: C1 - Asset management  
B1 - Cable design



## *Green Books - future*

- Network of the future: All SCs. Publication date tbd
- Transformer procurement (A2)
- Plans, but not now (D2 on cybersecurity)
- No plans but contributions (C3)
- No plans (A1, C2, C4, D1)



Thank you for your attention!

