

Table S1: Patient Characteristics					
	Total (N=150) ¹	da Vinci® X (N=50) ¹	Hugo™ (N=50) ¹	Versius® (N=50) ¹	p-value
Age (years)	56.6 (12.4)	57.0 (11.7)	54.0 (10.5)	58.7 (14.4)	0.082
BMI	26.1 (5.3)	26.2 (5.5)	26.0 (6.0)	25.9 (4.2)	0.825
Charlson comorbidity index	1.6 (1.5)	1.7 (1.5)	1.4 (1.2)	1.8 (1.6)	0.506
Who performance status	0.4 (0.7)	0.5 (0.7)	0.5 (0.7)	0.4 (0.7)	0.378
Asa classification	2.0 (0.6)	2.0 (0.6)	1.9 (0.5)	2.0 (0.6)	0.465
Menopausal status (yes)	77 (51%)	25 (50%)	19 (38%)	33 (66%)	0.020
Previous pelvic surgery	87 (58%)	30 (60%)	31 (62%)	26 (52%)	0.647
Previous abdominal surgery					0.464
Gallbladder	100 (67%)	34 (68%)	31 (62%)	35 (70%)	
Gastrointestinal tract	35 (23%)	10 (20%)	12 (24%)	13 (26%)	
Abdominal hernia	10 (6.7%)	3 (6.0%)	6 (12%)	1 (2.0%)	
Liver	5 (3.3%)	3 (6.0%)	1 (2.0%)	1 (2.0%)	
Hysterectomy technique					0.019
Type a	143 (95%)	50 (100%)	49 (98%)	44 (88%)	
Type b1	7 (4.7%)	0 (0%)	1 (2.0%)	6 (12%)	
Uterine Weight (g)	173.2 (163.1)	178.2 (155.8)	212.0 (200.8)	129.3 (113.0)	0.0263
Surgical indication					0.290
Abnormal uterine bleeding, benign adenosis, benign cervical pathology, endometriosis, adenomyosis, other benign gynecological surgery	35 (23%)	13 (26%)	13 (26%)	9 (18%)	
Uterine fibroid/leiomyoma	43 (29%)	14 (28%)	19 (38%)	10 (20%)	
Pelvic organ prolapse (pop)	37 (25%)	12 (24%)	10 (20%)	15 (30%)	
Premalignant endometrial pathology, endometrial cancer, other uterine tumors	35 (23%)	11 (22%)	8 (16%)	16 (32%)	

¹ media (sd); n (%)

Menopausal status: Hugo™ vs Da Vinci X = 0.31; Versius vs Da Vinci X = 0.16; Versius vs Hugo™ = **0.009**

Uterine weight: Hugo™ vs Da Vinci X = 1.000; Versius vs Da Vinci X = 0.181; Versius vs Hugo™ = 0.027

Hysterectomy technique: Hugo™ vs Da Vinci X = 1.000; Versius vs Da Vinci X = 0.026; Versius vs Hugo™ = 0.112

Table S2. Multivariable regression analysis for factors associated with the total operative time			
	Beta Coefficient	95% Confidence Interval (CI)	P-Value
Robotic platform			0.24
da Vinci® X	—	—	
Hugo™	-0.01	-15, 15	
Versius®	12	-3.6, 27	
Menopausa status (yes)	0.45	-16, 17	0.96
Increase in uterine weight by 50 grams	0.07	0.02, 0.11	0.005
Hysterectomy technique			0.32
Type a	—	—	
Type b1	16	-15, 48	
Surgical indication			<0.001
Abnormal uterine bleeding, benign adenosis, benign cervical pathology, endometriosis, adenomyosis, other benign gynecological surgery	—	—	
Uterine fibroid/leiomyoma	-1.5	-20, 17	
Pelvic organ prolapse (pop)	38	16, 60	
Premalignant endometrial pathology, endometrial cancer, other uterine tumors	35	14, 55	

Table S3. Cost detailing by activity of the robot-assisted hysterectomy procedure through the three different robotic systems, in euros excluding consumables (n=144).

	da Vinci® X (n=50; 34.7%)				Hugo™ (n=48; 33.3%)				Versius® (n=46; 31.9%)				da Vinci® X - Hugo™	da Vinci® X - Versius®	Versius® - Hugo™
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	p-value*		
Room set up	255.43	76.36	102.75	446.20	306.60	74.30	133.86	502.41	306.46	101.62	144.98	629.85	0.0011	0.0063	0.9938
Anaesthesia	250.21	90.57	46.65	524.07	246.59	79.89	101.81	460.31	295.52	111.48	51.58	560.14	0.8342	0.0308	0.0160
Preparation and positioning	316.41	120.29	117.70	642.83	391.02	118.16	171.75	772.86	408.16	151.71	155.41	747.92	0.0026	0.0014	0.5415
Surgery	728.38	263.97	316.89	1448.64	803.98	268.36	372.12	1507.55	837.33	280.05	398.24	1568.57	0.1630	0.0527	0.5569

* The Kruskal–Wallis and F tests were used to identify differences between groups. Both tests were statistically significant. Therefore, pairwise comparisons were performed. Reported p-values are from the t-test. The results were consistent when Wilcoxon–Mann–Whitney was used instead.

Table S4. Cost detailing by resources of the robot-assisted hysterectomy procedure through the three different robotic systems in euros (n=144).

	da Vinci® X (n=50; 34.7%)				Hugo™ (n=48; 33.3%)				Versius® (n=46; 31.9%)				da Vinci® X - Hugo™	da Vinci® X - Versius®	Versius® - Hugo™
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	p-value*		
Personnel	783.98	186.81	452.09	1203.55	837.28	175.06	519.25	1328.02	864.14	183.16	573.52	1331.03	0.1487	0.0366	0.4690
Operating room space	377.42	73.62	253.54	532.62	396.39	69.32	269.96	604.55	411.06	79.58	273.61	660.31	0.1926	0.0340	0.3426
Robotic platform †	389.03	75.88	261.34	549.00	514.51	89.98	350.40	784.69	572.27	110.79	380.91	919.26	0.000	0.000	0.0066
Robotic system (robotic platform + consumables)	3887.06	75.88	3759.37	4047.03	2100.51	89.98	1936.40	2370.70	1645.87	110.79	1454.51	1992.86	0.000	0.000	0.000
Total case time cost	5048.46	330.61	4494.63	5768.38	3334.18	330.52	2725.61	4303.27	2921.07	365.63	2301.87	3950.71	<0.001	<0.001	<0.001

* The Kruskal–Wallis and F tests were used to identify differences between groups. Both tests were statistically significant. Therefore, pairwise comparisons were performed. Reported p-values are from the t-test. The results were consistent when Wilcoxon–Mann–Whitney was used instead.

† The cost of the robotic platform is the sum of the indirect costs of the rental fee and of the maintenance.

Table S5. Multivariable regressions analysis of costs in hysterectomy surgery.

	Total cost	Total cost (excl. consumables)	Total cost with Length of Stay
Robotic platform			
da Vinci® X	—	—	—
Hugo™	-1711.93*** (64.25)	71.25 (51.32)	-1777.71*** (102.96)
Versius®	-2121.67*** (67.70)	120.68** (54.08)	-2073.93*** (108.49)
Age (years)	6.25* (3.66)	6.79** (2.93)	19.23*** (5.87)
BMI	22.24*** (5.44)	12.59*** (4.34)	23.89*** (8.71)
Menopausa status (yes)	-74.53 (92.72)	-87.22 (74.07)	-120.31 (148.59)
Hysterectomy technique			
Type a	—	—	—
Type b1	3.45 (137.98)	12.75 (110.23)	-77.35 (221.13)
Surgical indication			
Premalignant endometrial pathology, endometrial cancer, other uterine tumors	—	—	—
Uterine fibroid/leiomyoma	81.90 (91.85)	174.38** (73.37)	51.65 (147.19)
Pelvic organ prolapse	66.83 (82.11)	176.67*** (65.60)	60.65 (131.60)
Abnormal uterine bleeding, benign adenosis, benign cervical pathology, endometriosis, adenomyosis, other benign gynecological surgery	-77.05 (93.92)	48.82 (75.02)	-10.44 (150.51)
Observations	144.00	144.00	144.00
R-squared	0.91	0.20	0.80
Standard errors in parentheses. P-value: * p < 0.10, ** p < 0.05, *** p < 0.01			
Coefficient estimates represent the mean cost difference in euros (€) relative to the reference group.			

Table S6. Multivariable regressions analysis of costs in hysterectomy surgery for each activity, excluding consumables.

	RoomSetup Cost	Anesthesia Cost	Prep&Positioning Cost	Surgery Cost	Length of Stay Cost
Robotic platform					
Da Vinci	—	—	—	—	—
Hugo	55.23*** (17.15)	-4.12 (19.17)	77.73*** (25.04)	71.25 (51.32)	-65.78 (81.57)
Versius	53.67*** (18.07)	50.32** (20.19)	78.09*** (26.39)	120.68** (54.08)	47.73 (85.95)
Age (years)	0.13 (0.98)	1.70 (1.09)	-2.36 (1.43)	6.79** (2.93)	12.98*** (4.65)
BMI	0.75 (1.45)	2.09 (1.62)	6.80*** (2.12)	12.59*** (4.34)	1.66 (6.90)
Menopausal status - Yes	8.91 (24.75)	-15.50 (27.66)	19.28 (36.14)	-87.22 (74.07)	-45.78 (117.72)
Hysterectomy technique					
Type a	—	—	—	—	—
Type b1	-46.56 (36.83)	3.10 (41.16)	34.16 (53.79)	12.75 (110.23)	-80.80 (175.19)
Surgical indication					
Premalignant endometrial pathology, endometrial cancer, other uterine tumors	—	—	—	—	—
Uterine fibroid/leiomyoma	-24.92 (24.52)	21.38 (27.40)	-88.94** (35.80)	174.38** (73.37)	-30.24 (116.61)
Pelvic organ prolapse	-34.95 (21.92)	-34.32 (24.50)	-40.57 (32.01)	176.67*** (65.60)	-6.18 (104.25)
Abnormal uterine bleeding, benign adenosis, benign cervical pathology, endometriosis, adenomyosis, other benign gynecological surgery	-34.54 (25.07)	-2.64 (28.02)	-88.69** (36.61)	48.82 (75.02)	66.60 (119.24)
Observations	144.00	144.00	144.00	144.00	144.00
R-squared	0.14	0.11	0.23	0.20	0.13

Standard errors in parentheses. P-value: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Reference categories: Robot = Da Vinci; Menopausal status = No; Indication = Cancer ; Hysterectomy type = Total