

**Internet Appendix for**

**“Inter-firm Inventor Collaboration and Path-breaking Innovation:  
Evidence from Inventor Teams Post-merger”**

## Appendix IA1: Tracking an inventor's patenting career

The United States Patent and Trademark Office's (USPTO) PatentsView database contains application dates of granted patents and the number of citations received by these patents, as well as the patents' technology classes (using the Cooperative Patent Classification). It also has the list of assignees of a patent, which are typically firms or their subsidiaries where the research was conducted, as well as the list of inventors. Of particular importance to us, the PatentsView database provides a unique identifier for each assignee and a unique identifier for each inventor, which are required to help establish inventor-employer linkage over time in order to track inventors' career paths. The KPSS database provides the patent-PERMCO link for patents applied for between 1926 and 2019; we use this information to match patent and patent assignees to CRSP firms.

To determine an inventor's employer(s) throughout her patenting career, we rely on inventor and assignee information in the PatentsView database (<https://www.patentsview.org>) and patent-PERMCO (i.e., the firm identifier in the CRSP database) link in the KPSS database. We proceed in the following steps.

### Step 1

Using the PatentsView database, we first identify all inventor-year pairs in which an inventor applied for at least one patent in that year. For each inventor-year pair, we then obtain assignees associated with all of that inventor's patents. If there is only one assignee for all her patents applied for in that year, the inventor's employer for that year is unambiguously identified. If there are multiple assignees for her patents in that year, the assignee to which the inventor applied for the most number of patents in that year is identified as her employer.

### Step 2

The process from Step 1 divides inventor-year pairs into two sets: those associated with a unique assignee (UA) and those associated with multiple assignees (MA, representing 13% of the sample). We determine the employer of an inventor-year pair in Set MA using the matched information in Set UA. Specifically, we match an assignee to an inventor-year pair in Set MA if the inventor has been matched to the same assignee for the year prior in Set UA. If we cannot determine an assignee for an inventor-year pair based on the matched information in Set UA, we randomly pick one of the assignees. The above process results in matched inventor-assignee-year observations for years in which an inventor applied for patents.

### Step 3

We augment the inventor-assignee-year (I-A-Y) sample from Step 2 by filling gaps in which an inventor is not matched to an assignee as follows. If both I-A-Y1 and I-A-Y2 are observations in the sample and there are no other observations of inventor I between year Y1 and Y2, then we assume inventor I's employer is A during the period from Y1 to Y2. If both I-A1-Y1 and I-A2-Y2 are observations in the sample and there are no other observations of inventor I between year Y1 and Y2, then we assume inventor I's employer is A1 during the period from Y1 to  $Y_m$  and A2 during the period from  $Y_{m+1}$  to Y2, where  $Y_m = \text{int}(Y1 + (Y2 - Y1) / 2)$ .

By the end of Step 3, we obtain inventor-assignee-year information on each inventor's active career that spans the year of her first patent application and the year of her last patent application in the PatentsView database.

#### Step 4

Using the patent-PERMCO link in the KPSS database, we further match inventor-assignee-year observations to U.S. public firms. Specifically, we first merge patent-PERMCO pairs in KPSS and patent-assignee pairs in PatentsView by patent number, and keep only those patent-PERMCO pairs in which a patent has a solo assignee. We then merge the resulting assignee-PERMCO pairs with the inventor-assignee-year sample from Step 3 by patent number and obtain the sample of inventor-PERMCO-year observations.

#### Step 5

The inventor-PERMCO-year sample from Step 4 can be divided into two sets: those inventor-year pairs associated with a unique public firm (UP) and those inventor-year pairs associated with multiple public firms (MP). For inventor-PERMCO-year observations in Set UP, the public firm is identified as the employer of the inventor for the year. For inventor-PERMCO-year observations in set MP, we use information on the starting and ending dates of firm names provided by CRSP to help filter out firms if the date range of the matched firm name does not cover the focal year. For those inventor-year pairs that are still associated with multiple firm names, we manually check and pick the most likely match.

By the end of Step 5, we obtain inventor-PERMCO-year information on each inventor's active career that spans the year of her first patent application and the year of her last patent application in the PatentsView database.

## Appendix IA2: Establishing the causal effect using withdrawn bids

We employ deal-level data to help establish the causal effect of deal completion on collaboration, and of collaboration on path-breaking innovation.

To disentangle selection (i.e., a firm-pair is more likely to merge if their inventors need to collaborate with each other) from the treatment effect of M&As (i.e., M&As result in more collaboration between the two firms), we exploit a quasi-experiment in which the control group is a sample of failed bids for reasons unrelated to innovation (Bena and Li 2014; Seru 2014).<sup>20</sup> We run the following difference-in-differences regression:

$$\begin{aligned} \#Patents\ by\ hybrid\ teams_{m,t} \\ = \alpha + \beta_1 After_t + \beta_2 After_t \times Completed_m + Deal\ FE_m + e_{m,t}, \end{aligned} \quad (1)$$

where the dependent variable is *#Patents by hybrid teams* associated with completed deal (withdrawn bid)  $m$  in year  $t$ . *After* is an indicator variable that takes the value of one over the period  $cyr+1$  to  $cyr+5$ , and zero over the period  $cyr-5$  to  $cyr-1$ . *Completed* is an indicator variable that takes the value of one for the completed deals, and zero for the withdrawn bids. Deal fixed effects are included to control for deal/firm-specific time-invariant unobservables that might drive the M&A decision and outcome variable. Table IA5 Panel A presents the results.

Column (1) presents the ordinary least squares (OLS) regression results using the completed deal sample. We show a significant rise in the number of patents produced by collaboration between acquirer and target inventors post-merger. In terms of economic significance, the number of collaborative projects increases by 0.580 per deal-year, which is substantial relative to the average number of collaborative projects per deal-year at 0.015 over the five-year period prior to bid announcement. Column (2) repeats the analysis in column (1) using only the matched completed deals to establish the total effect of M&As on hybrid team formation. Column (3) presents the results using the specification in Equation (1). We show that the coefficient on the interaction term *After*  $\times$  *Completed* is positive and significant at the 5% level, suggesting a significant treatment effect from deal completion on the frequency of collaboration between acquirer and target inventors. Importantly, we show that the selection effect of M&As on hybrid team formation as captured by the coefficient on *After* at 0.211 is much smaller than the treatment effect as captured by the coefficient on the interaction term *After*  $\times$  *Completed* at 1.695, suggesting that the treatment effect dominates, at least from the human capital synergy angle.

Next, we investigate whether collaboration between acquirer and target inventors leads to more path-breaking innovation in merged firms employing a difference-in-differences specification and using the full sample of 942 completed deals:

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<sup>20</sup> Our sample consists of 74 completed deals matched to 18 withdrawn bids. One key reason for us ending up with such a small sample of withdrawn bids is that we require both acquirer and target firms to have inventors both before and after deal completion. We start with 1,274 withdrawn bids over the period 1979–2016. After removing bids that do not satisfy this requirement, we are left with only 246 bids; and we then manually check their reasons for withdrawal.

$$\begin{aligned} \#Path - breaking\ patents_{m,t} \\ = \alpha + \beta_1 After_t + \beta_2 After_t \times \#Hybrid\ teams_m + Deal\ FE_m + e_{m,t}, \end{aligned} \quad (2)$$

where the dependent variable is the number of radical/impactful/valuable patents associated with completed deal  $m$  in year  $t$ .<sup>21</sup>  $\#Hybrid\ teams$  is the logarithm of one plus the frequency of collaboration between acquirer and target inventors over the period from  $cyr+1$  to  $cyr+5$ . Table IA5 Panel B presents the results.

In columns (1) – (3), we show that the coefficients on  $After$  are negative and significant (in two out of the three specifications), suggesting that M&A deals per se are not associated with more path-breaking innovation. Columns (4) – (6) present the results using the specification in Equation (2). We find that the coefficients on the interaction term  $After \times \#Hybrid\ teams$  are positive and significant when the dependent variables are the number of radical patents and the number of impactful patents. These findings suggest that inter-firm inventor collaboration is one means through which acquirers manage to produce more path-breaking innovation post-merger than they do pre-merger, supporting our earlier cross-sectional evidence that inter-firm inventor teams are more productive in path-breaking innovation than intra-firm inventor teams post-merger.

To disentangle the treatment and selection effects, we run the following triple-difference regression:

$$\begin{aligned} \#Path - breaking\ patents_{m,t} \\ = \alpha + \beta_1 After_t + \beta_2 After_t \times Completed_m \\ + \beta_3 After_t \times Completed_m \times \#Hybrid\ teams_m + Deal\ FE_m + e_{m,t}. \end{aligned} \quad (3)$$

All variables are defined earlier in Equations (1) and (2). Table IA5 Panel C presents the regression results.

In columns (1) – (3), we show that the coefficients on  $After \times Completed$  are not statistically different from zero, suggesting that compared to firm pairs in the withdrawn bids, merged firms in the completed deals do not produce more path-breaking innovation. Columns (4) – (6) present the results using the specification in Equation (3). We find that the coefficients on the three-way interaction term  $After \times Completed \times \#Hybrid\ teams$  are positive and significant when the dependent variables are the number of radical patents and the number of impactful patents, suggesting that compared to firm pairs in the withdrawn bids, hybrid teams of acquirer and target inventors in the completed deals result in a significant increase in path-breaking innovation.<sup>22</sup>

<sup>21</sup> Since large firms tend to file more patents, we need to ensure that the variations in the outcome variables are not driven by the variation in firm size. Following Kogan et al. (2017), we scale the outcome variables with the deal value (in 2019 dollars), which can be interpreted as the number of path-breaking patents per billion dollars spent in a deal.

<sup>22</sup> One potential concern of our patent- and inventor-level results is that there may be a crowding-out effect of acquirer inventors working with target inventors that we fail to capture. In this scenario, other acquirer inventors in non-hybrid teams suffer a drop in productivity, due to having lost collaboration opportunities with those acquirer inventors who are collaborating with target inventors after deal completion. Our deal-level results suggest that the

In summary, using the quasi-experiment to separate treatment from selection, we show a significant treatment effect of deal completion on the frequency of collaboration between acquirer and target inventors, and of collaboration on path-breaking innovation.<sup>23</sup>

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positive effect of inter-firm inventor collaboration on path-breaking innovation dominates any negative crowding-out effect.

<sup>23</sup> There are a number of caveats to using withdrawn bids to establish the counterfactual. First, canceling a deal often has demoralizing effects on managers and employees that could affect the latter's productivity. Second, if a bid is withdrawn for antitrust reasons, inventors from both sides may be prohibited from working in teams, or both sides may not want their inventors to work together to avoid additional scrutiny and accusations of collusion. One way to address the second issue is to exclude bids withdrawn for antitrust reasons and then see if our main findings in Table 8 remain. In untabulated analysis, using a much smaller sample of 5 withdrawn bids and 15 matched completed deals, our main findings largely do remain. We thank an anonymous referee for the above discussion.

**Table IA1**  
**Inventor- and inventor-pair characteristics and collaboration between acquirer and target inventors**

This table examines the relation between inventor- and inventor-pair characteristics and collaboration between acquirer and target inventors. The dependent variable is an indicator variable that takes the value of one for a sample pair, and zero for pseudo pairs. We first identify acquirer-target inventor pairs that have collaborated in at least one patent applied for over the period  $cyr+1$  to  $cyr+5$ . For the target (acquirer) inventor in each sample pair, we then randomly pick three other target (acquirer) inventors and form pseudo pairs with the acquirer (target) inventor in the sample pair. In Panel A (B), the sample consists of true pairs and pseudo pairs where acquirer (target) inventors are matched with randomly picked target (acquirer) inventors. Detailed variable definitions are provided in Appendix B. All models control for deal fixed effects. Robust standard errors clustered at the deal level are reported in parentheses. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

Panel A: Acquirer inventors paired with randomly picked target inventors

	<i>1 for sample pairs, 0 for pseudo pairs</i>				
	(1)	(2)	(3)	(4)	(5)
Same core	0.236*** (0.036)	0.236*** (0.036)	0.222*** (0.030)	0.207*** (0.037)	0.244*** (0.038)
Distance	-0.046*** (0.006)	-0.047*** (0.006)	-0.047*** (0.006)	-0.045*** (0.007)	-0.047*** (0.006)
Target inventor significant co-inventor stay		-0.053** (0.024)			
Target star inventor			0.169*** (0.030)		
Target inventor network size				0.067*** (0.010)	
Target inventor specialization					-0.212** (0.103)
# of observations	21,344	21,344	21,344	21,344	21,344
Adjusted R <sup>2</sup>	0.133	0.135	0.146	0.160	0.138

Panel B: Target inventors paired with randomly picked acquirer inventors

	<i>1 for sample pairs, 0 for pseudo pairs</i>				
	(1)	(2)	(3)	(4)	(5)
Same core	0.193*** (0.012)	0.193*** (0.012)	0.193*** (0.012)	0.191*** (0.011)	0.195*** (0.012)
Distance	-0.084*** (0.010)	-0.084*** (0.010)	-0.084*** (0.010)	-0.084*** (0.010)	-0.084*** (0.010)
Acquirer inventor significant co-inventor stay		0.008 (0.011)			
Acquirer star inventor			-0.012 (0.012)		
Acquirer inventor network size				0.011* (0.006)	
Acquirer inventor specialization					-0.088** (0.037)
# of observations	19,283	19,283	19,283	19,283	19,283
Adjusted R <sup>2</sup>	0.248	0.248	0.248	0.248	0.248

**Table IA2**  
**Collaboration, inventor characteristics, and impactful innovation**

This table examines how collaboration between acquirer and target inventors and inventor characteristics together are associated with impactful innovation over the period  $cyr+1$  to  $cyr+5$ . The dependent variable is the number of impactful patents. In Panel A, the sample consists of 4,257 target inventors who have applied for at least one over the period  $cyr+1$  to  $cyr+5$ . In Panel B, the sample consists of 28,166 acquirer inventors who have applied for at least one patent over the period  $cyr+1$  to  $cyr+5$ . Detailed variable definitions are provided in Appendix B. All models control for deal fixed effects. Robust standard errors clustered at the deal level are reported in parentheses. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

Panel A: Collaboration, target inventor characteristics, and impactful innovation

	<i>#Impactful patents</i>			
	(1)	(2)	(3)	(4)
On hybrid team	0.218*** (0.067)	0.128*** (0.026)	0.076 (0.083)	0.293*** (0.091)
Inventor significant co-inventor stay	-0.008 (0.017)			
On hybrid team × Inventor significant co-inventor stay	-0.092 (0.071)			
Star inventor		0.132** (0.063)		
On hybrid team × Star inventor		0.195* (0.105)		
Inventor network size			0.022* (0.013)	
On hybrid team × Inventor network size			0.021 (0.027)	
Inventor specialization				-0.156** (0.068)
On hybrid team × Inventor specialization				-0.269* (0.144)
# of observations	4,257	4,257	4,257	4,257
Adjusted R <sup>2</sup>	0.089	0.102	0.091	0.093

Panel B: Collaboration, acquirer inventor characteristics, and impactful innovation

	<i>#Impactful patents</i>			
	(1)	(2)	(3)	(4)
On hybrid team	0.265*** (0.073)	0.218*** (0.054)	0.147 (0.097)	0.541*** (0.135)
Inventor significant co-inventor stay	-0.008 (0.008)			
On hybrid team × Inventor significant co-inventor stay	0.035 (0.063)			
Star inventor		0.225*** (0.042)		
On hybrid team × Star inventor		0.377** (0.172)		



Inventor network size			0.034***	
			(0.006)	
On hybrid team × Inventor network size			0.032	
			(0.029)	
Inventor specialization				-0.141***
				(0.044)
On hybrid team × Inventor specialization				-0.509**
				(0.198)
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# of observations	28,166	28,166	28,166	28,166
Adjusted R <sup>2</sup>	0.059	0.072	0.063	0.061
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**Table IA3**  
**Collaboration, inventor characteristics, and valuable innovation**

This table examines how collaboration between acquirer and target inventors and inventor characteristics together are associated with valuable innovation over the period  $cyr+1$  to  $cyr+5$ . The dependent variable is the number of valuable patents. In Panel A, the sample consists of 4,257 target inventors who have applied for at least one patent over the period  $cyr+1$  to  $cyr+5$ . In Panel B, the sample consists of 28,166 acquirer inventors who have applied for at least one patent over the period  $cyr+1$  to  $cyr+5$ . Detailed variable definitions are provided in Appendix B. All models control for deal fixed effects. Robust standard errors clustered at the deal level are reported in parentheses. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

Panel A: Collaboration, target inventor characteristics, and valuable innovation

	<i>#Valuable patents</i>			
	(1)	(2)	(3)	(4)
On hybrid team	0.301*** (0.096)	0.210*** (0.062)	-0.019 (0.102)	0.525*** (0.136)
Inventor significant co-inventor stay	-0.095*** (0.030)			
On hybrid team × Inventor significant co-inventor stay	-0.039 (0.062)			
Star inventor		0.059 (0.056)		
On hybrid team × Star inventor		0.444*** (0.154)		
Inventor network size			0.006 (0.020)	
On hybrid team × Inventor network size			0.079** (0.037)	
Inventor specialization				-0.096 (0.089)
On hybrid team × Inventor specialization				-0.509** (0.226)
# of observations	4,257	4,257	4,257	4,257
Adjusted R <sup>2</sup>	0.220	0.231	0.223	0.222

Panel B: Collaboration, acquirer inventor characteristics, and valuable innovation

	<i>#Valuable patents</i>			
	(1)	(2)	(3)	(4)
On hybrid team	0.265*** (0.073)	0.218*** (0.054)	0.147 (0.097)	0.541*** (0.135)
Inventor significant co-inventor stay	-0.008 (0.008)			
On hybrid team × Inventor significant co-inventor stay	0.035 (0.063)			
Star inventor		0.225*** (0.042)		
On hybrid team × Star inventor		0.377** (0.172)		

Inventor network size			0.034***	
			(0.006)	
On hybrid team × Inventor network size			0.032	
			(0.029)	
Inventor specialization				-0.141***
				(0.044)
On hybrid team × Inventor specialization				-0.509**
				(0.198)
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# of observations	28,166	28,166	28,166	28,166
Adjusted R <sup>2</sup>	0.059	0.072	0.063	0.061
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**Table IA4**  
**Star inventors on hybrid teams**

This table examines whether star inventors of acquirer-target pairs are more likely to join hybrid teams and whether they help produce path-breaking innovation compared to those of matched pairs. In Panel A, the dependent variable is the indicator variable *On hybrid team*. Column (1) employs a sample of target inventors in acquirer-target pairs and acquirer-target control pairs. Column (2) employs a sample of acquirer inventors in acquirer-target pairs and acquirer control-target pairs. In Panels B and C, the dependent variables are the number of radical/impactful/valuable patents filed by an inventor. The sample in Panel B (C) is the same as the sample in Panel A column (1) (column (2)). *Sample* is an indicator variable that takes the value of one for inventors of the acquirer-target pairs, zero for those of the matched pairs. Detailed variable definitions are provided in Appendix B. All models control for deal fixed effects. Robust standard errors clustered at the deal level are reported in parentheses. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

Panel A: Likelihood of star inventors joining hybrid teams

	<i>On hybrid team</i>	
	Target/target-control inventors	Acquirer/acquirer- control inventors
	(1)	(2)
Star inventor	0.003** (0.001)	-0.00001*** (0.000)
Sample	0.381*** (0.042)	-0.005*** (0.002)
Star inventor × Sample	0.114*** (0.032)	0.025*** (0.008)
# of observations	41,237	27,774
Adjusted R <sup>2</sup>	0.409	0.131

Panel B: Path-breaking innovation by target/target-control inventors

	<i>#Radical patents</i>	<i>#Impactful patents</i>	<i>#Valuable patents</i>
	(1)	(2)	(3)
	On hybrid team	0.137*** (0.048)	0.130*** (0.041)
Star inventor	0.577*** (0.151)	0.698*** (0.110)	0.708** (0.332)
Sample	-0.079*** (0.024)	-0.175*** (0.050)	-0.050 (0.065)
Star inventor × Sample	-0.417*** (0.155)	-0.461*** (0.146)	-0.435 (0.372)
# of observations	41,237	41,237	41,237
Adjusted R <sup>2</sup>	0.040	0.056	0.050

Panel C: Path-breaking innovation by acquirer/acquirer-control inventors

	<i>#Radical patents</i>	<i>#Impactful patents</i>	<i>#Valuable patents</i>
	(1)	(2)	(3)
	On hybrid team	0.295*** (0.087)	0.274*** (0.064)
Star inventor	0.160*** (0.026)	0.634*** (0.102)	0.0004*** (0.00002)
Sample	-0.004 (0.010)	0.104*** (0.015)	0.156*** (0.023)

Star inventor × Sample	0.020 (0.040)	-0.385*** (0.112)	0.116*** (0.022)
# of observations	27,774	27,774	27,774
Adjusted R <sup>2</sup>	0.052	0.070	0.214

**Table IA5**  
**Increase in collaboration and path-breaking innovation after deal completion:**  
**Using firms in withdrawn bids as benchmark**

This table examines, at the deal level, how the frequency of collaboration between acquirer and target inventors and the number of path-breaking patents change after deal completion. The sample consists of deal-year observations over the period *ayr-5* to *ayr-1* and the period *cyr+1* to *cyr+5*. In Panel A, the dependent variable is the number of patents in the target classes applied for by hybrid teams consisting of both acquirer and target inventors. Acquirer (target) inventors are identified as inventors working at the acquirer (target firm) in *ayr-1*. In column (1), the sample consists of 942 deals announced and completed over the period 1981–2012. Column (2) repeats and column (3) extends the analysis in column (1) using a quasi-experiment described as follows. We identify withdrawn bids over the period 1981–2012 by manually examining the reason for withdrawal and keeping bids whose reason for withdrawal is unlikely to be related to innovation performance (i.e., difficulties to secure financing, objections by regulatory bodies, or adverse macroeconomic/market conditions). For each withdrawn bid, we then try to identify completed deals in our sample using the following criteria: 1) the announcement year of the completed deal is no more than ten year away from the withdrawn bid; and 2) the core area of the acquirer in the completed deal is the same as the core area of the acquirer in the withdrawn bid. A firm’s core technology class is the class with the greatest number of granted patents applied for over the five-year period ending in *ayr-1*. For each withdrawn bid, we then pick up to five matched completed deals whose relative size to acquirer book assets is closest to that of the withdrawn bid. We obtain 74 completed deals matched to 19 withdrawn bids. Column (2) repeats the analysis in column (1) using only the matched completed deals. Column (3) employs the specification in Equation (1). The sample consists of both the withdrawn bids and matched completed deals. *After* is an indicator variable that takes the value of one over the period *cyr+1* to *cyr+5*, and zero over the period *ayr-5* to *ayr-1*. *Completed* is an indicator variable that takes the value of one for the completed deals, zero for the withdrawn bids. In Panels B and C, the dependent variable is the number of path-breaking patents in the target classes in the deal-year scaled by the value of the deal (in 2019 dollar). In Panel B, the sample consists of 942 deals announced and completed over the period 1981–2012. Columns (4)–(6) employ the specification in Equation (2). *#Hybrid teams* is the logarithm of one plus the frequency of post-merger collaboration between acquirer and target inventors over the period *cyr+1* to *cyr+5*. In Panel C, the sample consists of both the 19 withdrawn bids and 74 matched completed deals. Columns (4)–(6) employ the specification in Equation (3). *Completed* is an indicator variable that takes the value of one for the completed deals, zero for the withdrawn bids. Detailed variable definitions are provided in Appendix B. All models control for deal fixed effects. Robust standard errors clustered at the deal level are reported in parentheses. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

Panel A: Deal-level frequency of collaboration between acquirer and target inventors

	<i>#Patents by hybrid teams</i>		
	(1)	(2)	(3)
After	0.580*** (0.129)	1.905** (0.779)	0.211** (0.104)
After × Completed			1.695** (0.785)
# of observations	9,200	740	930
Adjusted R <sup>2</sup>	0.470	0.425	0.427

Panel B: Deal-level path-breaking innovation: Using the full sample of 942 completed deals

	<i>#Radical patents</i>	<i>#Impactful patents</i>	<i>#Valuable patents</i>	<i>#Radical patents</i>	<i>#Impactful patents</i>	<i>#Valuable patents</i>
	(1)	(2)	(3)	(4)	(5)	(6)
After	-0.727** (0.332)	-0.732*** (0.253)	-0.170 (0.112)	-0.928** (0.384)	-0.885*** (0.293)	-0.155 (0.103)
After × #Hybrid teams				0.536** (0.231)	0.411** (0.208)	-0.042 (0.177)
# of observations	9,200	9,200	9,200	9,200	9,200	9,200

Adjusted R <sup>2</sup>	0.524	0.511	0.313	0.524	0.512	0.313
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Panel C: Deal-level path-breaking innovation: Using a quasi-experiment of withdrawn bids and their matched completed deals

	<i>#Radical patents</i>	<i>#Impactful patents</i>	<i>#Valuable patents</i>	<i>#Radical patents</i>	<i>#Impactful patents</i>	<i>#Valuable patents</i>
	(1)	(2)	(3)	(4)	(5)	(6)
After	-0.115 (0.120)	-0.595 (0.359)	-0.248 (0.175)	-0.115 (0.120)	-0.595 (0.359)	-0.248 (0.175)
After × Completed	-0.335 (0.366)	0.383 (0.410)	0.228 (0.179)	-0.593 (0.471)	0.233 (0.441)	0.218 (0.182)
After × Completed × #Hybrid teams				0.334** (0.163)	0.195** (0.096)	0.012 (0.025)
# of observations	930	930	930	930	930	930
Adjusted R <sup>2</sup>	0.188	0.029	0.152	0.193	0.030	0.151