ONLINE APPENDICES

For

Effects of an Information Sharing System on Employee Creativity, Engagement, and Performance

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Online-Appendices

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Month 3 Memorandum
1. Recipients: Every promoter working at the company’s stores
2. Time: July 2016
3. Content:
   Subject: Produce the Best Posters to Increase Your Sales!
   Dear Team Leaders and Promoters,

   To win in the market, we need to create high-quality posters that communicate the best deals and information about our products to our customers. High-quality posters should be attractive and useful.

   An attractive poster is one that grabs your customer’s attention. For example, you know that a poster is attractive if a customer stops to read it and then walks into the store.

   A useful poster meets the needs of your local customers and communicates information about the products or deals offered. For example, you know that a poster is useful if a customer that sees the poster asks about the products or deals in it.

   A high-quality poster will help increase your sales. So go ahead, use the chart paper and colored pens at your store, the store’s computer, or any other material to do your posters.

   Have fun producing high-quality posters at your store!

   Kind regards,

   ________________

Month 5 Memorandum to Group A (stores implementing the information sharing system)
1. Recipients: Group A
2. Time: September 2016
3. Content:
   Subject: We’re Introducing a Poster Sharing System at Your Store!
   Dear Team Leader and Promoters,

   We want to thank you all for attending the workshop for creating high-quality posters and for learning about the new poster sharing system! We really appreciate your effort in creating posters that communicate the best deals and information about our products to our customers. Please remember that high-quality posters should be attractive and useful.
An attractive poster is one that grabs your customer’s attention. For example, you know that a poster is attractive if a customer stops to read it and then walks into the store. A useful poster meets the needs of your local customers and communicates information about the products or deals offered. For example, you know that a poster is useful if a customer that sees the poster asks about the products or deals in it.

As we explained in the workshop, we are introducing a— poster sharing system— that will help you share posters amongst each other. Seeing other people’s work should enable you to create great posters.

The poster sharing system is accessible through the following poster sharing link: http:// XXX.

Please read the instructions attached on how to use the system. If you have trouble accessing the system or uploading the photo, please contact XXX.XX@ZZZ.com or YYY.YY@ZZZ.com.

Do the following to get started:

1. Use the poster sharing link (http://XXX) to create an account if you haven’t. After the Head Office checks your information and approves the account, you will receive an email that your account has become active. You can then go to the poster sharing link to log into the system using the username and the password you have chosen when you created the account.

2. After your account is approved, please upload a clear photo of a poster you created between September 1st and September 5th. If a poster is not uploaded for your brand at your store, there will be a blank spot with an X mark on it.

3. The Head Office will notify you by the 7th or 8th of September via email that all the posters are updated and ready for you to see. You can then log into the system at any time to see the posters created by all of you.

Going forward, in the last week of every month, you will receive an email reminding you to upload a new photo of a poster created by you during the first five days of the month. So, at the end of September, you will receive an email reminding you to upload a new poster between October 1 and October 5. That is to say, the photos in this sharing system will be updated once every month.
always have some interesting posters to look at when you are in the creative process of producing posters!

It is important that you remember: (1) to log out if you finish using the system; (2) to use the “Back” button in the system, not the back button on your browser.

Remember that you can use the chart paper and colored pens at your store, the store’s computer, or any other material to do your posters.

We hope that you will enjoy using this poster sharing system and are as excited about this project as we are!

Have fun producing high-quality posters at your store!

________________

Month 5 Memorandum for Group B (stores in the control group)

1. Recipients: Group B
2. Time: September 2016
3. Content:

Subject: Keep Producing the Best Posters to Increase Your Sales!

Dear Team Leader and Promoters

We want to thank you and your store for attending the workshop for creating high-quality posters!

We really appreciate your effort in creating posters that communicate the best deals and information about our products to our customers. Please remember that high-quality posters should be attractive and useful.

An attractive poster is one that grabs your customer’s attention. For example, you know that a poster is attractive if a customer stops to read it and then walks into the store.

A useful poster meets the needs of your local customers and communicates information about the products or deals offered. For example, you know that a poster is useful if a customer that sees the poster asks about the products or deals in it.

Remember that you can use the chart paper and colored pens at your store, the store’s computer, or any other material to do your posters.

Have fun producing high-quality posters at your store!

________________
Online Appendix 2: Pre- and Post-Experimental Survey of Promoters

We employed the following pre- and post-experimental survey to measure the promoters’ job engagement, their motivation and ability to create high quality posters, and the quality of the creative sales posters. The survey questions that aim to measure employee job engagement are from Rich et al. [2010]. Some of the questions on the motivation to generate creative work are adapted from the survey questions on psychological empowerment from Zhang and Bartol [2010]. All other questions were designed by us. We translated the survey questions into Hindi and pilot-tested these questions before implementing the survey.

I. Pre- and Post - Experimental Survey of Promoters Filled by Store Managers

Please provide the following information:

Name of the team leader evaluating the promoter: ______________________________________________

When did you (the team leader) start working at this store? Month ____ Year____

Name of the promoter evaluated: ___________________________________________________________

Brand for which the promoter works: _______________________________________________________

When did the promoter start working for [Company Name]? Month ____ Year____

Please identify the promoter’s gender: Male ___ Female ___

Please tell us the promoter’s age: ____ years old

Please tell us the promoter’s hometown: _____________________________________________________

Please identify the promoter’s education level: (MA/M.Sc./M.Tech) ______; Bachelors (BA/B.Sc. / B.Tech) ______; 12th ______; 10th ______

Promoter’s Engagement

On a scale from 1-5 (1=never true of the promoter, 2=rarely true of the promoter, 3=sometimes true of the promoter, 4=very often true of the promoter, 5=always true of the promoter), please indicate the extent to which each item describes the promoter you are evaluating.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Very often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>He/she works very hard on the job</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>He/she brings a lot of energy to the job</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>He/she is interested in the job</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>At work, he/she pays a lot of attention to the job</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Quality of Sales Posters

On a scale of 1-5 (1=Lowest rating, 2=Second to lowest rating, 3=Medium rating, 4=Second to highest rating, and 5=Highest rating), please rate the promoter relative to other promoters working for the same brand based on the points given below:

<table>
<thead>
<tr>
<th>How attractive his/her posters are</th>
<th>Lowest rating</th>
<th>Second to lowest rating</th>
<th>Medium rating</th>
<th>Second to highest rating</th>
<th>Highest rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>How well his/her posters communicate promotion deals</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>How effective his/her posters are in generating profitable sales</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Motivation to Create High-quality Posters

On a scale from 1-5 (1=never true of the promoter, 2=rarely true of the promoter, 3=sometimes true of the promoter, 4=very often true of the promoter, 5=always true of the promoter), please indicate the extent to which each item describes the promoter you are evaluating.

<table>
<thead>
<tr>
<th>Over the past month, he/she has been very interested in creating sales posters.</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Very often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over the past month, he/she has felt proud of the sales posters he/she came up with.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Over the past month, he/she has realized that creating high-quality sales posters is an important part of the job.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Ability to Create High-quality Posters

On a scale from 1-5 (1=never true of the promoter, 2=rarely true of the promoter, 3=sometimes true of the promoter, 4=very often true of the promoter, 5=always true of the promoter), please indicate the extent to which each item describes the promoter you are evaluating.

<table>
<thead>
<tr>
<th>Over the past month, he/she greatly improved his/her ability to create high-quality sales posters.</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Very often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over the past month, he/she greatly improved his/her ability to create sales posters with more appealing visual designs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Over the past month, he/she actively sought ways to learn about how to create better posters.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Online Appendix-3: Interview Questions

On the use of the poster sharing system

1. Do you know how to access and use the poster sharing system? Ask the interviewees to demonstrate how to access and use the system.
2. Have you experienced any trouble accessing or using the system? Please explain.
3. When and how often (if ever) do you access and use the poster sharing system?
4. Why don’t you access the system more often?
5. Why do you use the poster sharing system?
   If the person doesn’t answer, provide examples: To upload your own posters and let others see them? Because the TLs asked you to do so? Because you are curious to see the posters created by people in other stores so that it would give you more ideas in creating your own posters? Other reasons?
6. When you access the system, what posters do you view most often?
   If needed, prompt an answer: Your own posters? The posters created by other employees in your store? The posters created by employees in other stores but for the same brand? The posters created by employees in other stores and for different brands? The posters that you labeled as “favorites”?
7. Have you had any challenge uploading your own posters? If so, how do you think the company can improve the process of updating the system with new posters?

On the impact the poster sharing system has had on interviewees

8. What do you think is a high-quality poster? Has the poster sharing system changed what you consider to be a high-quality poster? Explain.
9. Do you consider the creation of posters an important part of your job? Why, or why not?
   Has the poster sharing system changed the way you think about the importance of creating posters as part of your job? Explain.
10. Has the poster sharing system changed the way you make new posters? Explain.
11. Have you found the poster sharing system to be helpful? Why, or why not?
12. Is there anything (else) you like about the poster sharing system?
13. What do you dislike about the poster sharing system?
14. How do you think the system can be improved to be more useful for you?
Online Appendix-4: Customer Panel Sessions

In the pre-intervention period, we tested ways to collect and codify the photos of the posters and used some of the pictures taken in month 2 to conduct a pilot trial of the customer panel evaluation to test for clarity of the instructions and the number of panelists required to go over the posters.\(^1\) By the end of the experiment, we had collected 683 unique posters in total from both treatment and control groups. These posters were then evaluated by customers for their quality along two dimensions: value (operationalized as “usefulness”) and novelty (operationalized as “attractiveness”) and by two income groups of customers: “high income” and “low income.”\(^2\) Each poster was evaluated by 8 customer panelists: 2 customers per income group \(\times\) 2 income groups (low and high) \(\times\) 2 dimensions (usefulness and attractiveness).

The customers read the following definitions when rating the posters at the stores based on either attractiveness or usefulness\(^3\):

Attractiveness:
- Very attractive posters are those that grab your attention the most. For example, you know that a poster is attractive if it prompts you to stop, read it, and walk into the store.
- Not attractive posters are those that grab your attention the least. For example, you know a poster is not attractive if it does not stand out.

Usefulness
- Very useful posters are those that most clearly communicate the products or the deals offered.
- Not useful posters are those that are least able to communicate the products or the deals offered.

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\(^1\) None of the customers joining the pilot panel were invited to participate in the panel in the post-intervention period and none of their evaluations were used for any purpose other than the initial pilot test.

\(^2\) We define “high income” customers as those earning more than 5 lacs (500,000 rupees) a year; “low income” customers as those earning equal to or less than 5 lacs a year. Participants identified whether they belonged to the high-income or low-income category when they answered the few survey questions leading up to completing the poster-evaluation assignments.

\(^3\) We carefully wrote, rewrote, and pilot tested these definitions to ensure that the customers understood them. Our first definition of attractiveness (our proxy for novelty) indicated that the poster should be “original,” but this word did not resonate with customers. It is difficult to operationalize originality without a reference point. Customers could not fully assess the originality of the posters vis-à-vis all other posters in the company because they were not exposed to the huge volume of posters displayed across the stores. Our second definition of novelty was better than our first; it was based on the posters’ ability to visually grab customers’ attention and draw them into the store. We thought this should capture the extent to which posters were “original” in the visually crowded commercial environment where these customers and stores transact.
In order to ensure quality and speed on the collection of customer ratings, we developed a software application that assigned the 683 posters to 128 different batches (“assignments”). Each assignment consisted of 25 posters organized by brand. We recruited three proctors (an independent researcher hired by the research team and two head office employees at MPR) to conduct the customer evaluation sessions. The proctors set up computer stations at five different retail stores, some locations serving high-income customers and others serving low-income customers. The proctors then approached the customers at the stores and asked them whether they wanted to participate in a study to assess the quality of some sales posters. Each potential participant was told that they could get paid 300 rupees for completing one assignment on the computer (i.e., evaluating 25 posters according to the instructions) and they could complete up to 8 assignments (i.e., get 2,400 rupees in total). If they agreed to participate, they were shown to the computer station, where they signed a consent form on the screen, selected their preferred language (Hindi or English), and answered a few survey questions as shown below.

The software randomly determined whether the participant would rate the posters based on their “attractiveness” or their “usefulness.” If the computer assigned the customer to the “attractiveness” condition, the instruction screen the participant saw looked as follows:

---

4 We grouped posters from the same brand into the same assignment to facilitate comparison and avoid confusion (e.g. some individuals during pilot tests confused the “attractiveness” of the posters with the “attractiveness” of the brands). To complete 25 posters per assignment even if the number of posters per brand was not a multiple of 25, we assigned some of the posters twice to different batches. If the number of posters of a single brand was less than 25, we combined that brand with another brand promoting similar products (whether they were handsets, connections, insurance or credit) at similar prices to generate the batches corresponding to those two brands as belonging to the same group.

5 Instructions for the evaluation of “usefulness” were identical to those in this screen except that they replaced the word “attractiveness” with “usefulness” and provided these definitions of “usefulness”: Very useful posters are those that most clearly communicate the products or the deals offered. Not useful posters are those that are least able to communicate the products or the deals offered.
To complete the assignment the participants entered a screen where they were presented a stack of 25 posters to be “dragged” and sorted into five different buckets. The software allowed the participants to view the posters already assigned and rearrange them. The screen looked as follows once the participant finished sorting:6

6 The screen for the evaluation of “usefulness” is similar to this screen except for the labels of the five buckets: “Not Useful (least able to communicate the products or deals offered)”, “Slightly Useful”, “Somewhat Useful”, “Useful”; and “Very Useful”.
After the participants finished one assignment, they received a completion code and were asked whether they wanted to exit the system and get paid, or to continue and complete more assignments (up to 8 in total).

The proctors read the instructions with each participant, answered their questions, and made sure that they fully understood the assignments and the meaning of “attractiveness” or “usefulness”. They also asked the participants to explain their rationale for arranging the posters into the different buckets after they had sorted the first 10 posters of each assignment. This forced them to think carefully about the evaluation criteria, and verify that they understood them (rather than rushing through the assignments to get paid). Throughout the exercise, the proctors accompanied and monitored the participants.

The software system captured every rating of each poster, assigning the lowest score (1) to the far-left category (“Not Attractive” or “Not Useful”) and the highest score (5) to the far-right category (“Very Attractive” or “Very Useful”).
### Online Appendix-5: Correlation Tables for the Main Variables of Interest

#### Panel A: Sample Used to Test the Effect of MPR’s Information Sharing System on Financial Performance and Engagement

<table>
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<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Sales</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>2 – Attendance</td>
<td>0.012</td>
<td>1.000</td>
<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>3 – Info sharing</td>
<td>-0.005</td>
<td>-0.015</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4 – Post</td>
<td>0.139</td>
<td>0.054</td>
<td>-0.044</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>5 - Active access</td>
<td>0.223</td>
<td>-0.017</td>
<td></td>
<td>0.013</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>6 - # of promoters for the brand at the store</td>
<td>0.153</td>
<td>-0.281</td>
<td>0.020</td>
<td>0.118</td>
<td>0.048</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 - Store physical size</td>
<td>0.143</td>
<td>-0.010</td>
<td>-0.451</td>
<td>-0.039</td>
<td>0.436</td>
<td>0.053</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 - Store age</td>
<td>-0.142</td>
<td>-0.018</td>
<td>0.087</td>
<td>0.024</td>
<td>0.196</td>
<td>0.028</td>
<td>0.022</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 - Sales days</td>
<td>0.038</td>
<td>0.106</td>
<td>-0.048</td>
<td>-0.030</td>
<td>0.073</td>
<td>0.012</td>
<td>0.024</td>
<td>-0.014</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 - # of nearby stores</td>
<td>-0.095</td>
<td>-0.018</td>
<td>-0.376</td>
<td>-0.047</td>
<td>0.048</td>
<td>0.071</td>
<td>0.333</td>
<td>0.222</td>
<td>0.058</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 - Distance to head office</td>
<td>-0.254</td>
<td>0.013</td>
<td>-0.286</td>
<td>-0.028</td>
<td>-0.409</td>
<td>-0.119</td>
<td>-0.080</td>
<td>0.236</td>
<td>-0.043</td>
<td>-0.041</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 - Tenure</td>
<td>-0.161</td>
<td>0.076</td>
<td>-0.042</td>
<td>-0.002</td>
<td>0.003</td>
<td>-0.057</td>
<td>0.072</td>
<td>0.144</td>
<td>0.000</td>
<td>0.155</td>
<td>0.025</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 - Gender</td>
<td>-0.113</td>
<td>0.011</td>
<td>-0.015</td>
<td>-0.044</td>
<td>-0.127</td>
<td>-0.010</td>
<td>-0.078</td>
<td>-0.027</td>
<td>-0.015</td>
<td>-0.040</td>
<td>0.154</td>
<td>-0.030</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>14 - Pre-intervention sales</td>
<td>0.879</td>
<td>-0.063</td>
<td>0.001</td>
<td>0.024</td>
<td>0.253</td>
<td>0.104</td>
<td>0.183</td>
<td>-0.154</td>
<td>0.013</td>
<td>-0.061</td>
<td>-0.303</td>
<td>-0.145</td>
<td>-0.086</td>
<td>1.000</td>
</tr>
<tr>
<td>15 - Pre-intervention attendance</td>
<td>-0.196</td>
<td>0.164</td>
<td>-0.106</td>
<td>-0.132</td>
<td>-0.054</td>
<td>-0.082</td>
<td>0.032</td>
<td>0.062</td>
<td>0.005</td>
<td>0.075</td>
<td>0.076</td>
<td>0.095</td>
<td>0.002</td>
<td>-0.130</td>
</tr>
</tbody>
</table>

Note: Sample includes 4,818 observations. Correlations highlighted in bold are significant at a 10% level. The Appendix in the paper provides detailed definitions of the variables.
Online Appendix-5: Correlation Tables for the Main Variables of Interest (Continuation)

Panel B: Sample Used to Test the Effect of MPR’s Information Sharing System on the Quality of Creative Work

<table>
<thead>
<tr>
<th></th>
<th>1</th>
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<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Value of creative work</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - Novelty of creative work</td>
<td>0.453</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 - Info sharing</td>
<td>0.010</td>
<td>-0.003</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 – Post</td>
<td>0.059</td>
<td>-0.010</td>
<td>0.064</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 – Active access</td>
<td>0.148</td>
<td>0.177</td>
<td>-</td>
<td>0.102</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 - # of promoters for the</td>
<td>0.000</td>
<td>-0.046</td>
<td>0.067</td>
<td>0.113</td>
<td>0.017</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>brand at the store</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 - Store physical size</td>
<td>-0.034</td>
<td>0.063</td>
<td>-0.438</td>
<td>-0.080</td>
<td>0.426</td>
<td>0.109</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 - Store age</td>
<td>0.056</td>
<td>-0.055</td>
<td>0.073</td>
<td>0.084</td>
<td>0.197</td>
<td>0.020</td>
<td>0.008</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 - Sales days</td>
<td>-0.074</td>
<td>0.005</td>
<td>-0.080</td>
<td>0.020</td>
<td>0.131</td>
<td>0.014</td>
<td>0.045</td>
<td>-0.022</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 - # of nearby stores</td>
<td>-0.017</td>
<td>-0.086</td>
<td>-0.427</td>
<td>-0.021</td>
<td>0.072</td>
<td>0.101</td>
<td>0.361</td>
<td>0.209</td>
<td>0.110</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 - Distance to head office</td>
<td>-0.121</td>
<td>-0.136</td>
<td>-0.320</td>
<td>-0.053</td>
<td>-0.426</td>
<td>-0.242</td>
<td>-0.104</td>
<td>0.198</td>
<td>-0.102</td>
<td>-0.070</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 - Tenure</td>
<td>-0.043</td>
<td>-0.061</td>
<td>-0.074</td>
<td>-0.003</td>
<td>0.048</td>
<td>-0.093</td>
<td>0.090</td>
<td>0.132</td>
<td>0.019</td>
<td>0.154</td>
<td>0.005</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 - Gender</td>
<td>0.012</td>
<td>-0.016</td>
<td>0.027</td>
<td>-0.007</td>
<td>-0.207</td>
<td>-0.017</td>
<td>-0.124</td>
<td>-0.022</td>
<td>-0.019</td>
<td>-0.067</td>
<td>0.182</td>
<td>0.011</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>14 - Pre-intervention value of</td>
<td>0.367</td>
<td>0.169</td>
<td>-0.087</td>
<td>-0.028</td>
<td>0.075</td>
<td>0.069</td>
<td>0.056</td>
<td>-0.009</td>
<td>-0.030</td>
<td>-0.021</td>
<td>-0.080</td>
<td>-0.030</td>
<td>-0.057</td>
<td>1.000</td>
</tr>
<tr>
<td>creative work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 - Pre-intervention novelty</td>
<td>0.160</td>
<td>0.434</td>
<td>-0.006</td>
<td>-0.018</td>
<td>0.084</td>
<td>0.086</td>
<td>0.048</td>
<td>-0.071</td>
<td>0.040</td>
<td>-0.155</td>
<td>-0.191</td>
<td>-0.092</td>
<td>0.000</td>
<td>0.433</td>
</tr>
</tbody>
</table>

Note: Sample includes 544 observations. Correlations highlighted in bold are significant at a 10% level. The Appendix in the paper provides detailed definitions of the variables.
Online Appendix-6: Robustness Tests

Robustness Tests for Table 2

In the accepted proposal, we included a robustness test where we planned to substitute all of our control variables for brand and store fixed effects. The results are presented in the table below. This analysis yields a significantly positive Info sharing × Post coefficient for Value of creative work. The coefficient in this case is only slightly bigger than that in Table 2 and suggests that the introduction of MPR’s ISSC resulted in a marginally significant increase of 0.18 points in the value of the poster ratings. The size of this coefficient is roughly equal to the minimum detectable effect size that we estimated for this analysis before running the field experiment, assuming a significance level of 10% and power (1- β ) equal to 80% and using 2015 data.

<table>
<thead>
<tr>
<th></th>
<th>Sales (1)</th>
<th>Value (2)</th>
<th>Novelty (3)</th>
<th>Attendance (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post</td>
<td>0.3379***</td>
<td>-0.0266</td>
<td>0.0076</td>
<td>0.1895***</td>
</tr>
<tr>
<td></td>
<td>(4.15)</td>
<td>(-0.37)</td>
<td>(0.08)</td>
<td>(4.09)</td>
</tr>
<tr>
<td>Info sharing x Post</td>
<td>-0.0246</td>
<td>0.1828*</td>
<td>-0.0678</td>
<td>0.1283</td>
</tr>
<tr>
<td></td>
<td>(-0.23)</td>
<td>(1.74)</td>
<td>(-0.57)</td>
<td>(0.84)</td>
</tr>
<tr>
<td>Brand fixed effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Store fixed effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>R² (Pseudo R²)</td>
<td>0.8108</td>
<td>0.1509</td>
<td>0.1790</td>
<td>0.0118</td>
</tr>
<tr>
<td>Observations</td>
<td>4,818</td>
<td>544</td>
<td>544</td>
<td>4,818</td>
</tr>
</tbody>
</table>

Note: This table reports coefficient estimates from OLS regressions in columns 1-3 and Tobit regressions (with an upper limit=7) in column 4. R²’s are reported for OLS regressions and Pseudo R²’s for Tobit regressions. t-stats in parenthesis are based on robust standard errors clustered by store. ***, ** denote significance at a 0.10, a 0.05 and a 0.01 level respectively. “Sales” refers to the natural logarithm of weekly sales for a given brand in a given store. “Value” refers to the score given to the poster by the customer panel on how effective the poster is at communicating the products or deals offered using a not useful (1) – very useful (5) scale. “Novelty” refers to the score given to the poster by the customer panel on how attractive the visual design of the poster is using a not attractive (1) – very attractive (5) scale. “Attendance” refers to the number of days the average promoter working for a brand at the store reported to work during a given week. “Info sharing” is an indicator for whether the store is in the treatment group (i.e., where an information sharing system is implemented). “Post” is an indicator for whether the time period is after the intervention (month 5, 6, 8, or 9). Month 7 (November) is excluded due to the demonetization in India.

In addition to the above analysis, we conduct a series of tests not planned in the accepted proposal to ensure that our results in Table 2 are robust to alternative specifications. We rerun our analyses making the following changes, one at a time:

a. We winsorize our sales variable at the 1st and 99th percentiles.
b. We re-include store-brand-weeks when the sales are equal to zero, as long as a brand promoter attended the store in those weeks.

c. We re-include in our attendance measure cases when the promoter attended a different store than his/her home store for two days or less in a month or when the (new) promoter did not last more than a week at MPR.

d. We re-include November (which we had excluded from our main specification due to disruptions caused by the demonetization in India).

The purpose of these additional robustness tests is not to perform new analyses or generate new results; but to ensure that the results of our planned analyses are not driven by any of the adjustments that we used to clean up the data (which we could not foresee before collecting and inspecting it). All of these four specifications yield coefficients for the \( \text{Info sharing} \times \text{Post} \) variable that are statistically insignificant and similar in magnitude to the coefficients reported in Table 2.

**Robustness Tests for Table 3**

We conducted various unplanned robustness tests to ensure that the results of our planned analyses were robust to alternative explanations and were not driven by any of the adjustments that we used to clean up the data.

To control for any inherent differences between treatment stores that used the system more often and those that used it less, we split the treatment stores based on the median frequency of access of the system. We rerun the analyses including separate dummies for (a) high-access treatment stores (i.e., where the frequency of access to the system was at or above the median of all the treatment stores) and (b) low-access treatment stores (where the frequency of access was below the median) and interacting those dummies with the Post indicator variable. Untabulated results show that, for high-access treatment stores, the introduction of the system was associated with a significant increase in the value of creative work (Coef. = 0.34, t-stat = 2.38), and a positive but insignificant increase in the novelty of creative work (Coef. = 0.14, t-stat = 1.33). These stores also experienced an increase in attendance following the introduction of the system (Coef. = 0.45, t-stat = 2.39).

The results in Table 3 are robust to several other alternative specifications where we (a) winsorize sales at the 1st and the 99th percentiles, (b) re-include observations where sales are equal to zero,
(c) re-include attendance measures when the promoter attended a different store than his/her home store for two days in a month or less, or did not last more than one week with MPR, and (d) re-include November into the analyses. Yet the results change slightly when we implement an additional specification: when we substitute all of our control variables with brand and store fixed effects, the effect of the ISSC on our proxies for the quality of creative work become insignificant. However, its effect on both sales and attendance becomes significantly positive for stores where the staff accesses the system more frequently.

**Robustness Tests for Tables 4-6**

Unplanned robustness tests show that the analyses in Tables 4-6 are generally robust to (a) substituting all of our store and store-brand control variables for brand and store fixed effects, (b) winsorizing sales at the 1st and the 99th percentiles, (c) re-including observations where sales are equal to zero, (d) re-including attendance values when the promoter attended a store for two days in a month or less or did not last at MPR for more than one week, and (e) re-including November. But in some of these five alternative specifications, a few results become weaker. In the subsample with fewer nearby stores, the specification using brand and store fixed effects weakens the effect of the introduction of the system on Value of creative work \((\text{Info sharing} \times \text{Post Coef.}=0.370, \ t=1.69)\). In the subsample with divergent markets, using brand and store fixed effects weakens the effect of the ISSC on Value of creative work \((\text{Info sharing} \times \text{Post Coef.}=0.220, \ t=1.71)\). Re-including attendance data from promoters who only visited a store two days or less in a month or lasted less than one week with MPR weakens the effect of the system on Attendance \((\text{Info sharing} \times \text{Post Coef.}=0.220, \ t=1.71)\). Re-including data from November weakens the effect of the ISSC on Attendance \((\text{Info sharing} \times \text{Post Coef.}=0.140, \ t=1.52)\). The small decreases in statistical significance in these cases are not surprising, since the alternative model specifications rely on noisier measures than our original specifications.
Online Appendix-7: Power of the Proposed Tests

In our registered report proposal, we presented power analyses to verify that the proposed tests would identify any meaningful effect the information sharing system could have on the outcomes of interest. We employed a power analysis simulation approach (as described in Bellemare, Bissonnette, and Kroger [2014]) to take into account brand fixed effects and store fixed effects, and to cluster standard errors by stores.

To inform our simulations, we used the following inputs: 2015 data obtained from the company (roughly for the same months when we expected to conduct our field experiment in 2016), including store ID, promoter name, brand name, week, brand sales (by store and week), promoter attendance (by brand, store, and week), and information from prior literature on creative work (we used the creativity rating measure used by Kachelmeier, Reichert and Williamson [2008] as reference). Given that we did not have measures for all of our control variables, our simulations assumed a simplified version of the model we presented in equation (1) of the paper, replacing store characteristics with store fixed effects, and clustering standard errors by store:

\[
\text{Outcome}_{ijt} = \alpha_i + \delta_1 \text{Info sharing}_i \times \text{Post}_t + \delta_2 \text{Post}_t + \gamma_j + \epsilon_{ijt}
\]  

(1)

Where \(\text{Outcome}_{ijt}\) is the dependent variable (Sales, Attendance, or Quality of Creative Work) for store i, brand j, and week t (or month t when the outcome is Quality of Creative Work), \(\text{Info sharing}_i\) is an indicator variable for whether store i is a treatment store, \(\text{Post}_t\) is an indicator variable for whether week t (or month t) is in the post-intervention period, \(\alpha_i\) represents store fixed effects, and \(\gamma_j\) represents brand fixed effects. \(\delta_1\) is the treatment effect that we aim to estimate.

We used company data and results from prior literature to estimate the variance of the outcomes, and more specifically, how much of the variance of the outcomes could be explained by store fixed effects, by brand fixed effects, and by the “Post” period dummy variable; and how much of the
variance of the outcomes would remain unexplained. These data were then used to simulate 100 samples (see “Simulation Details below”) to obtain each of the points in the graphs displayed in Figure OA-7.1 with the following coordinates:

- $\delta_1$ levels: For each outcome variable, we pre-determined different levels of $\delta_1$ within a range where we could observe a dramatic increase in power. For each $\delta_1$ level we simulated 100 samples to generate each point in each graph (i.e., the power to detect an effect size of $\delta_1$).

- Power: We estimated the power to reject the null $\delta_1 = 0$ at each specified $\delta_1$ level by following two steps (a) we ran regressions for each of the 100 samples generated for the $\delta_1$ level specified, and (b) we estimated the fraction of times when the null was rejected.

Our power analyses assumed a significance level of 10% ($\alpha=0.1$) and two-sided tests. Panels A, B and C of Figure OA-7.1 show that, with a power equal to 80% we would be able to identify effects of the information sharing system of at least the following sizes for each outcome variable:

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Inputs in Power Analyses</th>
<th>Minimum Detectable Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales (the natural logarithm of weekly store-brand sales)</td>
<td>Weekly brand-store sales data from MPR in 2015.</td>
<td>13% change in sales</td>
</tr>
<tr>
<td>Quality of Creative Work</td>
<td>Creative ratings on a scale from 1 to 10 in Kachelmeier, Reichert and Williamson [2008]</td>
<td>0.35 points/10 points</td>
</tr>
<tr>
<td>Employee Attendance (# of days of attendance per week)</td>
<td>Weekly Promoter Attendance data from MPR in 2015 (1 to 7 days)</td>
<td>0.23 days/7 days</td>
</tr>
</tbody>
</table>

Because the information sharing system was directly related to creative work (sales posters, in this setting), which in turn was related to sales (for which the promoters were rewarded), we expected the information sharing system to have a high impact on both creative output and financial performance. According to our analysis, we would be able to identify an increase (or decrease) in
sales due to the information sharing system of 13% or more and an increase (or decrease) in the quality of creative output of 0.35 points or more (on a scale from 1 to 10 points).

The managing director considered our minimum effect size on sales to be reasonable, given the promoters’ potential for improvement and her prior beliefs with respect to the impact of posters on sales. We also compared our minimum effect sizes on creative work with effect sizes identified in prior literature. For instance, Kachelmeier, Reichert and Williamson (2008) measure the creativity of rebus puzzles on a scale from 1 to 10 points. In their study, they find that introducing creativity incentives increased average creative ratings by 0.5 points (from 4.9 to 5.4 points). Our analyses would be able to capture an increase in creative ratings of 0.35 or more in a 1-10 scale (or 0.19 in the 1-5 scale we will employ).

The link between the information sharing system and employee engagement is less direct; but if there was a positive impact of the information sharing system on employee engagement, we expected to see a significant improvement on employee attendance, our proxy for employee engagement. According to the managing director, the promoter attendance level was generally low (some promoters only showed up at work half of the time). This made an increase (or decrease) of 0.23 days realistic.

**Simulation Details**

In our simulation we generated data as follows:

- $Outcome_{ijt} = \alpha_i + \delta_1 InfoSharing_i * Post_t + \gamma_j + \epsilon_{ijt}$
- $\alpha_i \sim N(0, \sigma^2_\alpha)$
- $\delta_1$ level was pre-specified
• 18 of the 36 stores were randomly assigned to the treatment condition, $InfoSharing_i = 1$, the other 18 were assigned to the control condition, $InfoSharing_i = 0$

• $Post_i$ was set to one for the second half of the sample period

• $\gamma_j \sim N(0, \sigma^2_{\gamma})$

• $\epsilon_{ijt} \sim N(0, \sigma^2_{\epsilon})$

Below are the specific inputs used to run the simulation:7

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Sales</th>
<th>Quality of Creative Work</th>
<th>Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>var($\alpha_i$)</td>
<td>0.702</td>
<td>1</td>
<td>1.120</td>
</tr>
<tr>
<td>var($\gamma_j$)</td>
<td>2.451</td>
<td>0.25</td>
<td>0.243</td>
</tr>
<tr>
<td>var($\epsilon_{ijt}$)</td>
<td>1.129</td>
<td>1</td>
<td>3.451</td>
</tr>
<tr>
<td># Stores</td>
<td>36</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td># Brands</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td># Time Periods</td>
<td>32</td>
<td>4</td>
<td>32</td>
</tr>
<tr>
<td># Observations</td>
<td>6,912</td>
<td>864</td>
<td>6,912</td>
</tr>
<tr>
<td>$\delta_1$ Range</td>
<td>0 - 0.3</td>
<td>0 - 0.75</td>
<td>0 - 0.5</td>
</tr>
</tbody>
</table>

For each simulated sample we ran the regression specified in equation (1) (on page 15 of the Online Appendices). And for each outcome variable and pre-specified level of $\delta_1$ used in the data generation process, we counted the number of times when the estimated coefficient $\hat{\delta}_1$ was significantly different from zero. Each point in Figure OA-1 reports a power value equal to the proportion of 100 simulations where the null hypothesis was rejected for each pre-specified $\delta_1$.

---

7 We used a random effects model to estimate the amount of variance attributed to store effects ($\text{var}(\alpha_i)$), brand effects ($\text{var}(\gamma_j)$), and residual noise ($\text{var}(\epsilon_{ij})$). First, we modeled Sales (natural logarithm of weekly shop-brand sales) as a function of shop and brand random effects and found that $\text{var}(\alpha_i)$=0.7023998, $\text{var}(\gamma_j)$=2.450665, and $\text{var}(\epsilon_{ij})$=1.1299. Second, we modeled attendance as a function of shop and brand random effects, and found that $\text{var}(\alpha_i)$=1.119777, $\text{var}(\gamma_j)$=0.2431426, and $\text{var}(\epsilon_{ij})$=3.450657. Table 2 of Kachelmeier, Reichert, and Williamson (2008) provided a useful benchmark for use in our power analysis of creativity. The creativity ratings in their study ranged from 1 to 10. The standard deviation of mean ratings was 0.3 for the control group and 1.0 for the treatment group. We used the square of the larger of the two standard deviations as the amount of unexplained variance in our power analysis ($\text{var}(\epsilon_{ij})^2$=1). We assumed that the variance explained by store and brand was close to what was estimated for attendance ($\text{var}(\alpha_i)$=1.120 and $\text{var}(\gamma_j)$=0.25=0.243).
Figure OA-7.1. Power Analysis Graphs

Power to detect an effect size of $\delta_1$ on the outcomes specified in each panel, according to equation (1) presented on page 15 of the Online Appendices.

Panel A - Natural Logarithm of Sales (measured for each store, brand and week)

Panel B - Quality of Creative Work (on a scale from 1 to 10)
Figure OA-7.1. Power Analysis Graphs (Continuation)

Panel C - Brand Promoter Attendance (measured in days per week)

References
