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Meaning at work

Nava Ashraf
Oriana Bandiera
Virginia Minni
Luigi Zingales

LSE The London School of Economics and Political Science

UKRI Economic and Social Research Council

Abstract
We evaluate a firm's unusual, worker-centered, solution to the agency problem: enabling employees to reduce the cost of effort rather than pushing them with performance rewards. We randomize the roll-out of the firm's "Discover Your Purpose" intervention among 2,976 white-collar employees and evaluate their out-comes over two years. We find that performance increases because the low performers either leave the firm or improve in their current jobs. The trade-off between meaning and pay flattens as those with low meaning and high pay leave the firm. Treatment also reshapes stated priorities and reduces gender gaps in preferences and behaviors, including uptake of parental leave. A cost-benefit analysis reveals high returns that are shared between the firm and the employees through higher bonuses. Finally, we show that observational data obscure these gains, causing firms to underestimate the intervention's true value.

Key words: incentives, worker motivation, worker performance, meaning-making
JEL Codes: J2; J3; M5; C93

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Nava Ashraf and Oriana Bandiera, STICERD and Department of Economics at London School of Economics. Virginia Mini, University of Chicago, CEPR, IZA and Centre for Economic Performance at London School of Economics. Luigi Zingales, University of Chicago and NBER.

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> "What, then, constitutes the alienation of labor? First, the fact that labor is external to the worker; that in his work, he does not feel content but unhappy, does not develop freely his physical and mental energy...The worker therefore only feels himself outside his work, and in his work feels outside himself. He feels at home when he is not working, and when he is working he does not feel at home."
> — Marx, Karl, 1844. *Estranged labor*.

1 Introduction

Modern society is characterized by a clear demarcation between work and personal life. One of its defining features is the reliance on the marketization of labor, which implies that most people are disconnected from the output they help produce. Indeed, the alienation of workers - not only from the product of their labor or each other but also from an individual's "human essence" - has long been a critique of capitalism.[1]

Firms traditionally attempt to compensate for this alienation through monetary rewards that connect workers to the firm's profits, or, more recently, through non-monetary incentives that aim to connect workers to the firm's broader purpose (Henderson and Steen, 2015; Gartenberg, Prat and Serafeim, 2019; Cassar and Meier, 2018). All these policies are designed to induce behavior that fulfills the firm's purposes, taking as given that this differs from the workers' because their effort is costly for them and beneficial to the firm. In other words, the accepted wisdom is that, barring a handful of artists, scientists, and sports people, most people dislike putting in effort at work, but are willing to bear it to get the reward.

This paper takes a different route. We collaborate with a large multinational to evaluate a solution that lies not in pushing employees to exert painful effort, but in understanding what makes effort costly in the first place and reduce it. The "Discover Your Purpose" (DYP) intervention is a combination of readings, essay writings, and a workshop. It draws on the principles of logotherapy, a psychiatric practice developed

[1] Marx (1844) described four dimensions of alienation in modern capitalist society: alienation of labor from the product of its labor, from their productive activity (working in ways that are debilitating physically or mentally); from other workers (seeing others as means to ends); and from their own human nature ('species-essence'; Gattungswesen). Alienation from one's own human nature—which is purposeful, generative, and self-realized—underpins the other three.

by the neurologist and psychiatrist Viktor Frankl that emphasizes the importance of meaning in life as a central element of well-being (Frankl, 1985). Seen through the lens of Frankl's theory of meaning, effort is costly in terms of well-being when it is spent on activities that have low meaning or that do not contribute to one's purpose. The intervention enables employees to assess whether their jobs are meaningful in this sense.

We randomize the offer of this intervention among 2,976 white-collar employees of a consumer goods multinational and evaluate its impacts over the subsequent two years on exits, performance, pay, and well-being using the firm's administrative data and our own surveys.

First, by encouraging workers to think about their sense of meaning in their current job, the intervention also enables them to see the meaning of their outside option. Hence, we hypothesize that workers whose current jobs have low meaning are more likely to quit and move to a job with higher meaning when treated. We find that the annual exit rate in the treated group is 2.8pp higher, an increase of 21% relative to the control mean (13.2pp). Using the random invite as an instrument for participation indicates that the compliers are 5pp more likely to leave the firm relative to the control group within three months of being treated.

Next, we look at the impact on performance. Using HR records on employees' yearly performance evaluations, we find a sizeable drop in the share of employees who perform below the expected standards (ITT 2.6pp, LATE 5.3pp, control mean at baseline 10.4pp). Using baseline data on performance, we show that half of the effect is due to selection and the other half to performance improvements. In other words, treated workers who performed below the expected standard at baseline either leave the firm or improve their performance.

This improvement is reflected in an increase in workers' overall compensation. The share of employees who earn performance bonuses increases (ITT 3.4pp, LATE 6.7pp), and the mean bonus earned also increases (ITT 8.7% of one standard deviation, LATE 17.3%). Two thirds of these effects are due to selection, in line with the fact that it is low performers who leave the firm.

To interpret our findings in the context of the standard principal-agent framework, we introduce meaning as an agent-job specific parameter that decreases the cost of

effort. We model the intervention as an increase in the agent's ability to see the connection between any activity and their purpose. After verifying that the augmented model yields the increase in exits and performance that we find in the data, we derive implications that illustrate the mechanism that underpins our results. The key insight is that meaning is specific to the individual and embedded in them: it is akin to training that increases human capital, and that the employee takes with them if they leave the firm.

This has three implications, all of which are borne out in the data. First, the money-meaning frontier, that is, the combination of pay and meaning that keeps employees indifferent between the firm and their outside option becomes flatter. Second, if meaning is embedded in the individual, their outside option will improve, so their utility must increase, notwithstanding the increase in effort. We find empirical support on both fronts. Using data on meaning at work from our surveys we estimate the money-meaning frontier in the cross-section of controls and treated. Both are downward sloping, as expected, and the frontier for the treated group is flatter, as implied. Moreover, and in line with the second implication, the frontier tilts outwards, suggesting an increase in utility. This is confirmed by estimating the effects of treatment on job satisfaction and on the employees' reports of alignment with the firm.

Third, we provide evidence that the intervention leads employees to put their individual priorities (or purpose) above the identities and values imposed by education and socialization. For example, gender is a dimension of identity that has strong implications for roles in the workplace, and indeed the priorities of employees in the control group are strongly gendered. Treatment closes these gaps, and the importance of work-life balance decreases for both genders.

This result is compelling in light of Marx's insight about not feeling home in work: as the separation between home and work disappears due to the alignment between employees' goals and the firm's, so does the need to balance the two. These changes in stated preferences manifest themselves in different actions: treated men are more likely to take parental leave by 1.3 percentage points based on the ITT estimates.

Does the firm benefit? Plugging in these estimates in a cost-benefit analysis yields an internal rate of return (IRR) of 3.8% if the enhanced performance lasts for one year and this jumps to least 72% if it lasts for two years. This is largely due to the fact

that the facilitators are employees themselves, making the intervention relatively inexpensive. If the firm hired consultants, the IRR would drop to 2% if the effects last two years, but they would increase rapidly after that, once the accrued benefits have covered the additional consultancy costs.

These results beg the question of why this intervention is not universally adopted. Our cost-benefit analysis is based on the causal estimates obtained from the RCT. However, firms rarely run RCTs to inform their decisions, so if we want to understand firms' actual choices, we need to know the impact based on observational variation. A unique feature of our context is that we can compare the two sets of estimates because the firm began rolling out the DYP intervention two years before we ran the RCT. This exercise shows clear sorting patterns. It is the top performers who are more likely to participate in the DYP and the impact of sorting is stronger than the causal impact on exits, so, on average, DYP participants are more likely to stay, and retention rates are substantially higher. This implies that the firm does not see the increase in productivity as a result of selection. Moreover, the fact that top performers are more likely to select into the DYP intervention implies that they do not see the productivity increase because low performers increase their effort levels.

The observational evidence is consistent with the effect of most incentive policies, as documented in the extensive literature on the topic. Starting from Lazear, 2000, economists have been working in collaboration with firms to evaluate their strategies to motivate employees. The evidence that emerges from this literature is that tying pay to performance increases average performance by making top performers more productive. The smaller literature that studies the effect of managerial incentives also shows that managers improve the average performance of their subordinates by diverting resources towards top performers (Lazear, 2018). The approach we evaluate in this paper is unique in its capacity to increase average performance by increasing the effort and productivity of workers on the left tail.

Our paper brings together two strands of literature. First, a long tradition in organizational behavior and organizational psychology argues that individuals obtain meaning from their work that extends beyond financial compensation (for a review, see Rosso, Dekas and Wrzesniewski, 2010 and Cassar and Meier, 2018). Although many have called for greater incorporation of meaning into economics, see, in par-

ticular, Karlsson, Loewenstein and McCafferty (2004), and Chater and Loewenstein (2016) — much less is known about how to generate meaning effectively in the workplace. In a lab experiment, Ariely, Kamenica and Prelec (2008) manipulate meaning by changing the fate of Lego figures assembled by subjects and find large effects on performance and labor supply. Chandler and Kapelner (2013) extends these results to a field experiment by having Amazon's Mechanical Turk (M-Turk) workers label tumor cells, but some workers are explicitly told the purpose of their task is to help researchers identify tumor cells, while others are not. These papers vary the degree to which employees understand the impact of their work. Instead, we focus on the meaning of the task itself. To illustrate the difference, imagine a research assistant undertaking a data cleaning task which can feel menial. Learning how the data will be used can help, but if the research assistant sees himself as a researcher (and has the autonomy to explore this), every variable becomes a discovery and exploration rather than another box to tick.

Within economics, more recent research has highlighted the importance of job mission as a source of worker alignment in a principal-agent framework (Besley and Ghatak, 2005; Delfgaauw and Dur, 2007; Delfgaauw and Dur, 2008; Cassar and Armouti-Hansen, 2020), which is supported by empirical evidence of workers willing to accept lower wages due to an organization or a job having a strong mission (Preston, 1989; Leete, 2001; Chandler and Kapelner, 2013; Gosnell, List and Metcalfe, 2016; Hedblom, Hickman and List, 2019; Colonnelli, McQuade, Ramos, Rauter and Xiong, 2023; Khan, 2023; Krueger, Metzger and Wu, 2023). Although existing research has exclusively focused on settings or workshops where meaning is defined by the organization, we run a field experiment to study the impacts of workers engaging directly in *meaning-making* and envisioning their *own* sense of purpose.

2 Institutional context and data

2.1 Setting

The experiment is carried out in a multinational firm (hereinafter the MNE) with offices in more than 100 countries worldwide. The firm has a workforce of about 124,000 employees, of which approximately 69,000 are white collar and 55,000 are blue collar;

30,000 are in high-income countries, and 94,000 are in low- to middle-income countries. The firm has a turnover in the order of tens of billions of dollars.

The typical white collar jobs in this MNE are in sales, engineering, marketing, HR, R&D, and general managerial activities. Blue-collar workers are predominantly machine operators. Entry-level educational requirements are standardized across establishments: white collars are required to have a college degree and blue collar secondary education. The company is organized into a work-level hierarchy that goes from one to six, where one is entry level, 2+ are managers, and 6 is C-Suite.

This paper focuses on white-collar entry-level employees over 2 years from January 2019 until December 2021. As baseline outcomes and variables, we take the average values over 2018. As our intervention partially overlaps with COVID-19, 13% of the workers in the treatment group did the workshop virtually. In the Appendix, we check whether our results are sensitive to the exclusion of workshops that were conducted virtually (Table A.3, Panel a) and also to restricting our sample to before April 2020 (Table A.3, Panel b).

2.2 Global administrative data

Our main source of data is the company's personnel records, which is updated monthly and covers the universe of employees. We create a panel data set for our empirical analysis by combining global personnel records with payroll and performance data and the surveys we designed as part of the intervention.

The personnel records contain information on age, gender, tenure, as well as the employees' hierarchy levels, functions, and job titles. The data also record voluntary exits and redundancies. Employees work in one of 14 functions, of which six account for the bulk of the workforce. These are Sales, HR, R&D, Supply Chain, Finance, and Marketing. Functions are further divided into several sub-functions.

The payroll data contain employee earnings and bonus payments. Salary differences are an important metric to assess performance within the firm. Practically, there are three ways in which workers with the same job title can earn a different salary: the salary grade, the salary band, and the annual bonus (variable pay, which is on average 10% of fixed pay for work level 1 white-collar workers).

In addition, the firm's talent management system includes worker evaluations,

such as the annual performance score set by the manager. The manager is the main decision-maker after considering the views of all the colleagues who have interacted with the worker (360-degree reviews). The decision process is designed to be as fair as possible and to limit potential manager bias. The manager has to justify any salary increase, transfer, or promotion decision against a set of objective criteria to the rest of her colleagues in talent forums dedicated to this discussion. The performance assessment is done in the same way in every function and office so that comparisons can be made between workers in different jobs and offices.

2.3 Local data from country offices

While most of the data come from the global personnel records, country offices provided access to two data sources. The first consists of the logistical details of the Discover Your Purpose (DYP) intervention: the list of participants, attendance (including the time of each workshop) and the names of the facilitators. The second is sales monthly performance data at the individual or team level (depending on local HR practices).

The worker sales performance is based on reaching targets each month set by the country demand planning teams in the Supply Chain function. Some examples of sales targets include growth of sales, product placement, on-shelf availability, additional exhibitions, and number of orders vs. total visits each month. Sales data are managed independently in each country and require to be separately collected on a country-by-country basis by liaising with the countries' local sales teams. The annual performance score is strongly positively correlated with the sales performance measure (see Appendix Figure A.1). In particular, moving from being a worker in the low group of the performance score (a score of 70) to being a worker in the standard group (a score of 100) increases sales productivity by 0.21SD.

2.4 Surveys

We survey workers 6 months after the DYP roll-out to obtain measures of meaning, team engagement, job satisfaction, life satisfaction, and clarity of mind. Appendix Table B.2 lists the survey questions and their references.

Figure I illustrates the survey administration timeline. For the treatment group, the timing of the surveys is anchored around the timing of the treatment (the DYP invitation email). In particular, a "reflections survey" is sent 7 days after the delivery of the workshop, and the endline survey is sent 6 months after the workshop. The reflections survey is only sent to the compliers (the workers in the treatment group who take up the workshop invitation), as it asks workers to reflect on their workshop experience. This survey timing ensures that we hold constant the time horizon of the endline survey outcomes among all compliers (6 months horizon).

For the employees in the control group, we run one endline survey and we use the median workshop date of the treatment group within each country to anchor its timing. This same method is adopted to send the survey among the non-compliers in the treatment group who do not attend the workshop. We check whether the treatment group has a higher variation in responses given the greater variation in the calendar month at which they receive the endline survey compared to the control group workers who receive the endline survey all at the same time. We do not find any differences in the coefficient of variations across all survey questions (see Appendix Figure A.2).

The average response rate of the endline survey is 43.7% for the treatment group and 44.9% for the control group. The average response rate of the reflections survey, which is sent only to compliers, is 24.5%.

3 Intervention and evaluation

3.1 "Discover Your Purpose" (DYP)

We study the impact of the "Discover Your Purpose" (DYP) intervention, designed and implemented internally by the MNE. The DYP program was created to provide employees with an opportunity to reflect on their life purpose and understand whether and how it can be connected to their job. It was initially implemented among the MNE's global leadership in 2017, and was then rolled out to the rest of the managerial workforce and, eventually, to frontline workers.

The intervention asks employees to take ownership of what gives them meaning in life and to shape their activities inside and outside work to align with that. Thus, it represents a fundamental shift in the relationship between the firm and its employees.

Simply put, it turns the paradigm of the principal agent framework upside down by putting the interests of the employees at the core.[2]

The guiding principle of DYP is that purpose is unique to each individual. The intervention is deeply rooted in logotherapy, developed by neurologist and psychiatrist Viktor Frankl, which is based on the idea that the primary motivation in life is the search for meaning (Frankl, 1985).

It is important to distinguish between purpose and "mission", as it has been studied in the earlier literature. Mission refers to a high-level goal that several people can pursue, such as reducing carbon emissions or saving endangered species. It has been shown elsewhere that productivity is higher when workers know that their effort goes to a cause they believe in. "Purpose" reflects a person's unique mix of personality and beliefs that have been shaped by life experiences and ultimately determine what a person enjoys doing and what makes them uncomfortable or unhappy.

This is more easily illustrated by an example. Think of someone who loves structure and dislikes inefficiency and chaos, their purpose could be "To bring clarity to complex problems so that others can act with confidence", or someone who is driven by fairness and is averse to inequality might choose something like "To fight injustice by giving voice to those who are ignored". Now imagine that these two people have the same job, say administrative assistant. The first person can make their job meaningful by developing filing systems, crafting actionable points out of unstructured discussions, and so on. The second can bring to the table concerns of staff who are afraid to do so themselves, organize EDI groups, and other activities that are in line with their sense of fairness.

Two points are of note. The first is that both our fictitious employees can find meaning in their existing jobs once they recognize what their purpose is. The second is that the intervention only enables them to see whether they can or cannot find meaning, it does not tell them specifically to create filing systems or EDI initiatives. In this sense, the principal agent model is turned upside down because it is the agent who aligns the job to their own purpose.

The intervention consists of two parts, both of which are centered on reflecting

[2]In fact, the intervention was designed for 'purpose-driven leaders' and there was an internal dialogue among senior managers about whether it would be appropriate for the employees at lower tiers of the firm hierarchy.

on individual purpose and connecting it with work and personal life. The first is done independently by each participant over two weeks by completing a pre-work briefing pack. The second is a day-long workshop, which is attended in person by 4 to 5 participants, and is run by internal facilitators. [3]

The pre-work consists of readings and videos, such as a summary of "Man's Search for Meaning" book by Victor Frankl (1985), and the "From Purpose to Impact" Harvard Business Review article by Craig and Snook (2014), and self-reflection exercises. In the self-reflection exercises, participants are prompted to reflect on their life experiences to date and bring them alive by asking family and friends what words they would use to describe them and by preparing personal life stories they would tell at the workshop.

Life purpose is shaped by past experience. Thus, in the workshop, participants are asked to reflect on pivotal personal life experiences through story telling and, together with the help of the other participants, to find a common theme, or through-thread. This through-thread becomes their purpose statement. Participants are then asked whether and how you can pursue this purpose at work.[4]

The workshop is structured around 4 personal stories that are prepared in the pre-work.[5] The four stories, described in Figure II, consist of:

1. When I Was Young: *Think back to your childhood. Before you knew about the 'right' or 'expected' thing to do. What did you love? What did you enjoy spending your time doing and where were you at your happiest?* This story helps participants connect to activities that feel 'effortless' for them and that they truly enjoy.

[3]On average, 20 workers attend the workshop on the same day. For each workshop, there is one Lead Facilitator and several Group Facilitators. Facilitators are internal workers from any function and in any position who volunteer to act as facilitators. Before acting as facilitators, they must have done the DYP intervention and completed a training course run by the firm HR. The workshop must have at least one facilitator for every 4 workers (including the Lead Facilitator).

[4]The workshop day lasts for 8 hours and starts with a welcome session in a plenary room, which consists of an introductory presentation by the Lead Facilitator about the goals of the day. Subsequently, participants are randomly divided into small groups of 3-4 people, each led by a Group Facilitator, and given a personal workbook to take notes during the group discussions. Before starting, the Group Facilitator reiterates the three ground rules: "Today is all about learning, instead of assessment," "Everything that is said in the room stays in the room", and "Nothing that is said here will be misused."

[5]The pre-work contains relevant questions and details to help workers craft personal stories for each of the 4 themes. Participants are told that each story should take approximately 5 minutes to tell in the in-person workshop. Moreover, they are prompted to ensure that each story is about a situation or experience that has been completed rather than something that is still ongoing and to choose situations and experiences that have really helped shape their life and have a strong personal connection to who they are.

2. Crucible: The Challenge That Shaped Me: *Think about your life in general or your career so far. When have you faced a real challenge? Why was it so tough? Did it challenge your skills, values, or identity? Were you with people or in a place that you found difficult? What did you do and how did that challenge shape you? How did it change how you see yourself? How did it redefine you?*

3. Sparking My Interest: *Forget the Company for a moment. Outside of work, what do you most enjoy doing? What about this energizes you, makes you tick, or sparks your interest? What got you interested in this? Has there been a significant or special moment as you have explored this interest?*

4. My Success Story: *Think about your career and your life outside work. When have you been really successful and thriving or at your best? Why were you so successful? What was it about what you did that made you succeed and what motivated you to achieve these things? Why did it make you feel proud?*

Participants are actively prompted to ask questions and comment on each other's stories, to make notes on the stories they hear from their fellow group members, so as to provide them with their feedback and insight. Once all participants have told all 4 of their stories, they have 15 minutes for self-reflection exercises to review the feedback and insights they captured in their workbook and consider what key themes are emerging that may help them define their purpose.

Participants then begin to work on the first draft of their purpose statement, a one-line sentence that completes the prompt "My Purpose is to …". As part of the facilitator handbook, it is stated that: "It [your purpose] provides you with a compass that motivates you and inspires you to be your best in a changing world so that you can embrace the changes that are coming at you."

As an example of a purpose statement, we describe a video interview with the head of human resources which is shown during the workshop. His purpose statement is "to be a firework artist," reflecting his childhood passion for fireworks and his partly rebellious spirit. When reflecting on whether his purpose is connected to his current job, he saw a connection that the beauty of fireworks arose from coordinating many individual explosions, like a human resource manager whose success depends upon the ability to coordinate the creativity of many employees.

Working in their group, each participant reads through and shares their responses to the workbook questions and their draft purpose statement, and group members reflect and share their thoughts as to whether this reflects what they have seen and heard from this person. After this, participants are given some additional time to refine and shape their purpose statement based on the group discussion and on some final workbook questions, such as describing your purpose as if you were talking to a 10-year-old child. Participants are then asked to reflect on how and whether they can live their purpose statement in their current job. They are encouraged to continue refining their purpose statements and applying it both inside and outside of work.

In the Reflections survey, which is sent to the participants one week after the DYP workshop to gauge workers' feedback, participants report having found a unifying group of words that inspire them, which still resonate with them now.[6] Approximately 80% of the participants share their purpose with family and friends, the team, and their line manager, and more than 80% of the participants write down their purpose statement somewhere. Figure A.4 shows where workers write it down: the most popular locations are the personal diary, the internal platform of the Company (Workday), and the phone and laptop screensaver.

Regarding the content of the purpose statements, only 99 out of 194 workers answered the open text question "Can you tell us how you have used your purpose statement so far either in the context of your job or outside of work?", limiting the scope of the statistical analysis we can do with these statements. However, a word frequency analysis helps convey how the intervention is broadly about "one's life" rather than solely about the current job at the company: 48% of statements are categorized as personal as opposed to work related. The categorization comes from two research assistants independently manually coding the statements as personal versus work-related. Figure A.5 shows that the top 5 words are work, people, help, life, and new. Some examples of the responses to this question are: *"I used my purpose statement at Company by proposing an environmental campaign project aside from launching new product"*; *"My Purpose is related to telling stories and as a marketeer I learn how to get better at*

[6]Workers express great satisfaction with the initiative, as shown in Figure A.3. Moreover, in Appendix Table B.1, we report some anonymous quotes from the focus groups that we conducted on the usefulness of the intervention and the purpose statements. Workers describe how being conscious of their purpose affects them (e.g., quote No. 1, 2 and 7) and how they act on their purpose (e.g., quote No. 3 and 6).

telling stories everyday"; *"I use my purpose in my everyday life, with my family, as a father, much more than in the context of my job"*.

It is important to appreciate how this intervention differs from the more common forms of corporate training that aim to instill the *corporate purpose* amongst employees.[7] As implied by its name, corporate purpose takes a top-down approach, with the company defining the purpose and persuading its employees to adopt it as their own. In contrast, by its very name, the "Discover Your Purpose" intervention is intended to help employees realize the personal meaning that they get out of every activity and crystallize it for their *own* purpose.

3.2 Interpretation of the intervention: self-narrative and purpose

It may not be immediately obvious why telling personal stories and finding their through-thread leads to purpose.

Story-telling is a fundamental way of constructing human knowledge, and, indeed, there is a growing literature in economics about the importance of narratives - about the economy, about organizations, etc. (Shiller, 2017; Gibbons and Prusak, 2020; Akerlof, Matouschek and Rayo, 2020).

There is also a large literature within psychology and economics on how new experiences are interpreted in terms of old stories (Schacter, Addis and Buckner, 2007; Cohen and Kahana, 2022; Bordalo, Gennaioli and Shleifer, 2020; Malmendier, 2021; Malmendier and Wachter, 2022; Ashraf, Bryan, Delfino, Holmes, Iacovone, Meyer and Pople, 2024).

We bridge these two literatures by focusing on the importance of self-narratives, and the potential they have to organize information about existing activities and objects. Moreover, a growing literature in neuroscience on the brain's process of valuation sheds light on this potential, showing that an individual's purpose changes the brain's valuation of object by influencing the perceived usefulness of an object, as well as the links between seemingly unrelated objects (De Martino, 2012; Castegnetti, Zurita and De Martino, 2021).

An intuitive way to envisage the intervention's mechanism can be the 'wooden vs metal chair' comparison in Castegnetti et al. (2021), where one would see the stark

[7] For more on corporate purpose, see Bartlett and Ghoshal (1994) and Gartenberg et al. (2019).

difference between the two chairs when prompted to consider their abilities to prevent hypothermia in a 'Cast Away' like scenario. In other words, the potential of a wooden chair to serve as a heat source does not appear out of a vacuum or perish based on one's thinking; the thought process helps to connect with this novel use. The "epiphany" that comes out of the intervention gives people a mental causal model that changes what their work means to them and, hence, how they approach their job. The power of an exogenously given purpose to organize and value an option set is clear from these experiments; the intervention we study instead asks participants to define an endogenous purpose and use it to evaluate the use of their time and effort.

3.3 Experiment

The experiment is based on the staggered roll-out of the DYP intervention. Employees were familiar with the fact that, due to logistical constraints, the firm could not offer DYP to everyone at the same time. It was also common knowledge that all employees would be able to participate in the intervention at some point.

The fact that the company has been implementing this intervention for an extended period prior to our experiment is important to consider when interpreting our results. Due to the long-standing implementation, the DYP intervention is well integrated into the firm's operations and culture. Therefore, our experimental estimates do not capture the effects of a newly introduced initiative or a broader shift in the overall strategy of the firm. Instead, we are evaluating the specific outcomes of the intervention in a relatively stable environment where the broader organizational strategies have remained consistent. This stability allows us to isolate the effects of the intervention more effectively, minimizing the influence of other potential changes within the firm that could confound our results.

Participation was entirely voluntary, and neither HR nor managers could use DYP as criteria for high performance and promotion. No employee was told that s/he was part of an experiment run by external academic researchers nor that an experiment was being carried out to evaluate the DYP intervention.

One employee from HR in each country acted as the Experiment Facilitator, i.e., as the main point of contact between the Research Team and the local organization of the intervention. S/he was in charge of communicating with the Research Team

and ensuring that the DYP intervention was conducted according to the agreed execution principles. The Experiment Facilitator was responsible for sending the lists of employees who had yet to be invited to attend the DYP intervention, which the team randomized, and for the treatment group receiving the invitation emails. S/he was also responsible for ensuring that attendance at the DYP intervention was carefully tracked and that all employees in the study sample would receive emails to complete the surveys designed by the Research Team.

The research was carried out in 14 countries where the DYP intervention had not yet been widely implemented at the beginning of 2019.[8] The 14 countries that participated in the experiment are: Costa Rica, El Salvador, Ghana, Greece, India, Indonesia, Italy, Mexico, Nigeria, Philippines, Russia, Singapore, South Africa, and Thailand. In each of these countries, the Research Team obtained the list of employees not invited yet to the intervention and randomized it to create the treatment and control groups with a 50% split. The randomization is at the worker level, stratified by country. Figure III illustrates the experimental design. The study sample corresponds to 2,967 workers in these 14 countries.

In practice, the only difference between the treatment group and the control group is that the former received an email inviting them to participate in one of the DYP workshops that will take place at the office within the next months. We followed the firm's existing practice of using email to invite participants to take part in the intervention. The control group did not receive an invitation email to sign up for a DYP workshop during the sample period. We agreed with the company that the control group would only be invited after the end of the study period in December 2021.

It was common knowledge among the company's employees that everyone would have the opportunity to attend the intervention at some point and that participation was entirely voluntary. In addition, historically, the actual workshop sign-up date had been dictated by calendar constraints.

The overall intervention experience is different from a team-building exercise. In fact, in our sample, only 29% of the workers do the workshop with at least one col-

[8]There was some variation in which stage of the workers' roll-out each of these 14 countries was in, with the share of the workers already invited to the intervention before the RCT ranging between 30% and 50%.

league.

Panel (a) in Table I shows that the treatment and control groups are balanced in terms of the baseline variables. Appendix Figure A.6 compares the demographics of the RCT sample with those of the 'work-level 1' employees outside of the RCT sample. The RCT sample has slightly more female, younger, and lower-tenure workers working in the Supply Chain function (compared to the Customer Development function) than the rest of the white collars in work-level 1.

Of those invited to participate, 65.3% accepted. In what follows, we will report Local Average Treatment Effects (LATE) and Intention To Treat (ITT) estimates. The ITT identify the treatment effect (i.e., the effect of receiving the invitation) under the assumption that being invited is exogenous to other correlates and that only the treated are affected (SUTVA). Exogeneity is guaranteed by the randomization procedure, and SUTVA requires no spillovers to control. We do not find evidence of spillovers to the control group, as shown in Appendix Table A.1.

Two facts provide support to the understanding that the roll-out of the intervention among the RCT participants was equivalent to that of the other workers. First, the take-up rate among the two groups is also very similar (65.3% in the RCT sample and 68.3% in the non-RCT sample).

Second, Appendix Table A.2 compares the baseline performance of workshop attendees who were part of the RCT with those who were not part of the RCT. We do not find systematic differences in performance between the two groups at baseline. The lack of correlation between the email invitation and worker performance outside the RCT also further reinforces the understanding that participation was never a criterion for promotion. This also helps alleviate concerns that the email may have been perceived as a signal of special recognition from management.

We present the balance table between treatment and control in Panel (a) of Table I. Panel (b) of Table I shows how the takers compare to the non-takers using baseline characteristics. Participants are more likely to be female, have less tenure, be younger, and have a higher performance score.

4 Treatment effects: estimates

The intervention can affect performance by changing the composition of the workforce and by changing the effort of those who remain. In what follows, we first provide evidence on the first channel and then evaluate the overall effect on performance as well as the contributions of worker selection versus worker effort.

4.1 Worker selection

Denote treatment assignment by T_i, where $T_i = 1$ if worker i is invited to take part in DYP and 0 if not. Denote participation by P_i, where $P_i = 1$ if worker i accepts the invite and takes part in DYP and 0 if not. We estimate both intent to treat (ITT) and local average treatment effects (LATE) on workers' exits. Exits are recorded in the firm's personnel data at the monthly level. To evaluate the ITT on worker exits we estimate the following specification in the cross section for each month between 1 and 16 after the invites are sent:

$$Y_i^E = \beta^E T_i + \boldsymbol{C_i} + \boldsymbol{M_i} + \epsilon_i^E \quad E \in [1, 16] \tag{1}$$

where Y_i^E is an indicator= 1 if employee i exits within E months of DYP invitation, C_i are indicators for the country where i works, and M_i are indicators for the calendar year-month the observation corresponds to. For the workers in the control group, we take the median DYP invitation date in the country. The country and calendar indicators control for business cycles and all other characteristics that might vary due to the fact that the intervention is implemented in different countries at different times. To estimate the local effect on the treated we instrument participation with treatment assignment and estimate:

$$Y_i^E = \gamma^E \widehat{P}_i + \boldsymbol{C_i} + \boldsymbol{M_i} + \epsilon_i^E \quad E \in [1, 16] \tag{2}$$

Figure IV, shows treatment effects on cumulative exits starting from the month invitations are sent until 16 months later. ITT estimates are in panel (a) and LATE estimates are in panel (b). The figure makes clear that treated workers are more likely to exit three months after receiving the invitation to the workshop, and the gap remains

stable thereafter.

The average yearly exit rate in the control group is 13.2pp, being assigned to treatment increases it by 2.8pp (21% of the control mean) while the treatment effect on the compliers is 5.1pp (39% of the control mean). The fact that the control group does not catch up suggests that the treated workers who exit would have not left the firm in the absence of treatment. In other words, the intervention does not accelerate exits that would have occurred in any case; rather, it changes the choice of a group of employees who leave because of it.

4.2 Worker performance

To evaluate the effect of DYP on performance we exploit the panel structure and estimate the following difference in difference specification at the worker-month level:

$$Y_{it} = \alpha + \beta_1 T_i + \beta_2 Post_t * T_i + \beta_3 Post_t + \boldsymbol{\psi_{c(i)}} + \eta_{it} \tag{3}$$

where Y_{it} is the outcome of interest for worker i in year-month t, $T_i = 1$ if i is assigned to treatment, and 0 otherwise, $Post_t = 1$ if month t is after the invitation.

The ITT estimate is the interaction coefficient β_2, which captures both the effects of treatment due to changes in workers' behavior and those due to changes in workers' composition. To separate the two effects, we estimate the regression model in equation 3 replacing Y_{it} with Y_{i0}, that is, the performance of worker i before the experiment started. Since Y_{i0} is time invariant for a given worker, under the assumption that, in the absence of treatment $Y_{it} = Y_{i0} + c$ where c is an arbitrary constant, β_2 estimates the ITT effect on Y_{it} through the worker selection channel.

Finally, to estimate the LATE we replace treatment assignment T_i with treatment take-up P_i in equation 3, and we instrument P_i and $Post_t P_i$ with T_i and $Post_t T_i$. Throughout, we cluster standard errors at the level of randomization, that is, the worker.

Employee performance is assessed annually by their managers based on discussions with colleagues with whom the employees have interacted in the workplace. This method, commonly known as "360-degree review", is frequently used in the industry and yields comparable scores in each of the units that make up the firm. The output of this process, the performance score, is used to compute the employee's per-

formance bonus. Performance scores are recorded in the firm's talent management system, which we merge with the payroll and demographic data. Performance is scored between 0 and 150, and employees are expected to score between 80 and 125 as standard performance. This gives us three groups of interest: those who perform below standard or low performers (< 80), those who meet the standard (≥ 80 but < 125), and those who exceed it, that is, high performers (≥ 125).

Panel A of Table II reports the treatment effect on the performance score. The penultimate row shows that 10.4% of the controls do not meet the expected standards, 77.5% meet them and 12.1% exceed them. The LATE estimate indicates that treatment moves $5.3pp$ - equivalent to 51% of the control mean - out of the low performance group. The ITT is 2.6pp and worker selection accounts for 50% of it. Summing up, treatment leads to a sizeable reduction in the share of workers performing below standard. This reduction is due to two factors: low performers leave the firm, and those who stay perform better. Each of the two factors accounts for half of the effect.

Panel B of Table II reports the effects on earnings split in fixed and variable pay. Bonus pay represents 10% of fixed pay on average and is the way the firm rewards worker performance each year. In fact, the estimates mirror those described above as being assigned to treatment increases the share of those receiving a bonus by $3pp$ and the share of employees who earn bonuses larger than the first quartile at baseline increases by $6pp$. In line with the fact that treatment mostly affects low-performance employees, we find no change in the share of employees who earn more than the median bonus at baseline.

Finally, we show that the amount of bonuses paid to employees significantly increases, while fixed pay, which depends on performance only when this triggers a promotion, does not change (column 5 shows the effect on overall compensation). Two thirds of the estimated increase in bonuses comes from the fact that low performers, who were not earning bonuses, leave the firm. The remaining one third is due to stayers performing better.

Taken together, these results indicate that treatment increases performance from the bottom up. It reduces the share of employees performing below standards and this results in higher bonus pay. This stands in stark contrast to the effect of financial rewards and other commonly used incentive schemes, which are generally most

effective on strong performers, and thus have the drawback of increasing inequality.

5 Treatment effects: interpretation

We develop a simple model to illustrate the psychological mechanism that underlies the effects on exit and performance. We verify that the model yields the two key findings, and then we use it produce two tests to shed light on the reasons behind the effectiveness of the intervention.

5.1 Theory

Set up We start from a textbook agency model. A principal (the firm) hires an agent (the employee) to perform a task. We assume that the output is linear in effort and ability (θ_i), that the agent is risk neutral, and that the principal uses linear contracts of the form of $S + bf(\theta_i, e)$, where $S \geq 0$ is a fixed component of the salary designed to attract a worker to job j if the expected rent (difference between bonus and effort) is not sufficiently large to make the job more attractive than the alternative, while $b > 0$ is the performance-based component to motivate workers to exert effort when they are at work. Conditional on a worker showing up, their output is $f(\theta_i, e) = \theta_i e$.[9]

The assumption at the core of the principal agent model is that effort is costly and non-contractible as this is what creates a wedge between the interests of the two parties. If effort were contractible, it would be contracted upon, and if effort were enjoyable, there would be no misalignment. Seen through the lens of Frankl's theory of meaning, effort is costly in terms of well-being when it is spent on activities that do not contribute to one's purpose.

To incorporate this idea in the standard model, we assume that the cost of effort that agent i devotes to job j depends on m_{ij}, the meaning that job j has for i's purpose. The higher the meaning, the lower the cost. The DYP intervention enables individuals to see the meaning of each activity more clearly. We model this by introducing the parameter λ_i that captures the extent to which person i can "see meaning".

The effect of the intervention is thus embedded in the individual and enables each

[9]This set-up raises the standard question of why the principal does not sell the firm to the agent. Thus, we assume that the agent is wealth-constrained.

person to see the meaning in every activity, not solely the job assigned to them by the principal.[10] Accounting for the effect of meaning, and of the intervention, the cost of agent i's effort in job j is:

$$c_{ij}(e) = \frac{e^2}{2(1 + \lambda_i m_{ij})} \tag{4}$$

Each worker chooses e_i to maximize their expected utility. Thus, in the present job p, worker i maximizes

$$U(e_i) = S + b\theta_i e_i - \frac{e_i^2}{2(1 + \lambda_i m_{ip})} \tag{5}$$

where e is effort and S is the fixed component of the salary. Let $e_p^* = argmax(S + b\theta_i e - c_{ip}(e))$. Solving for the optimal effort:

$$e_{ip}^* = b\theta_i(1 + \lambda_i m_{ip}) \tag{6}$$

The principal is maximizing profits subject to the agent incentive compatibility constraint, thus the principal maximizes

$$\theta_i(1 - b)e_i^* - S, \tag{7}$$

which leads to $b^* = 1/2$. Note that while the optimal b is the same, regardless of the m_{ip} of the specific job, the expected bonus that each worker receives in each job ($\frac{1}{2}\theta_i e_{ip}^*$) is a function of the meaning that worker i draws from job j (m_{ip}), and of worker i's ability to know how to connect activities to their own purpose, λ_i. In both cases, the expected bonus increases with the values of these parameters. If $\frac{1}{2}\theta_i e_{ij}^*$ is not sufficient to attract worker i, firm j will add a fixed component $0 \leq S_j \leq \frac{1}{2}\theta_i e_j^*$.

In equilibrium, employees work for a firm if the utility they derive from working at the present job p is greater than what they would get in their best alternative a. Assume, for simplicity, that the outside option pays $S_a + \frac{1}{2}f(\theta_i, e)$ and gives meaning

[10] The assumption that monetary compensation is what mainly matters for motivation at work is at odds with many observations. For example, Stern (2004) shows that scientists pay to be scientists. Moreover, a long tradition in organizational behavior and organizational psychology argues that individuals get meaning from their work that extends beyond financial compensation (for a review, see Rosso et al., 2010).

m_{ia}, then individual i works at job p if and only if:

$$(S_p - S_a) \geq \frac{\lambda_i \theta_i^2}{8}(m_{ia} - m_{ip}) \tag{8}$$

that is, if their meaning is at least:

$$m_{ip}^* = -\frac{8(S_p - S_a)}{\lambda_i \theta_i^2} + m_{ia} \tag{9}$$

This illustrates the key difference between the DYP intervention and policies that aim to align the workers' interests with the firm's. The DYP intervention is specific to the individual, that is, by training employees to see meaning in their current job, the intervention enables workers to see meaning in all jobs, changing workers' reservation utility. In contrast, a typical policy, for instance, changing the power of incentives, b, only affects the utility on the job, leaving the reservation utility unchanged.

We summarize this as Treatment increases λ_i for all i while keeping the contract parameters. The assumption that the principal cannot adjust the parameters of the contract after the intervention is a necessary condition for workers to participate voluntarily, and indeed, it is what we observe in practice.

Verification In this framework, treatment can be seen as an increase in λ_i of treated individuals. Since the treatment is randomized, we expect the average λ_i of the treated group (λ_T) to be higher than the average λ_i of the control group (λ_C).

To begin with, we verify that the model produces our experimental findings, that is, that the treatment improves performance through both effort and selection. Next, we use the model to derive auxiliary predictions that shed light on the channel through which treatment operates.

Verification 1: *The DYP treatment raises the average productivity through selection.*

Before the treatment, a worker will be employed in job p if and only if

$$m_{ip} - m_{ia} \geq \frac{8(S_a - S_p)}{\theta_i^2 \lambda_i}. \tag{10}$$

In other words, there are two reasons why a worker does not quit. One is that the present job has a higher meaning than the best alternative ($m_{ip} > m_{ia}$), and this dif-

ference is large enough to compensate for the potential lower fixed salary ($S_p < S_a$). The second is that the present job is not the one with a higher meaning, but the fixed component is so much larger than the fixed component of the alternative ($S_p > S_a$) that a worker will stay.

The treatment raises λ_i without changing any other parameter of the compensation schedule. As a result, if an employee was staying because the job had a relatively high meaning $m_{ip} > m_{ia}$, she would never quit because the right-hand side of equation (10) had become smaller. However, if an employee was staying in spite of the fact that $m_{ip} < m_{ia}$ and because $S_p > S_a$, i.e.,

$$m_{ia} - m_{ip} \leq \frac{8(S_p - S_a)}{\theta_i^2 \lambda_i}, \tag{11}$$

the increase in λ may induce them to leave. Since m_{ia} and m_{ip} are given, the increase in λ would lead to workers with a lower m_{ip} to leave, increasing the average m_{ip} of those who stay. Since productivity is a linear function of m_{ip} (see Equation 6), the departure of employees with low m_{ip} will increase the average productivity of the remaining ones.[11]

Verification 2: *The treatment increases the productivity of the employees who remain.* Consider an individual who works in job j and stays in the same job after the treatment. Then, their effort will be

$$e_T^* = \frac{1}{2}\theta_i(1 + \lambda_T m_{i,j}) > \frac{1}{2}\theta_i(1 + \lambda_C m_{i,j}) = e_C^* \tag{12}$$

Since $\lambda_T > \lambda_C$, i's effort after treatment is greater than the effort of an identical individual who was not treated.

Implications The model has three implications that help us interpret the effects of the intervention. The first is that by allowing agents to see the meaning of the job for their purpose, the intervention will change the observed relationship between meaning and pay.

Implication 1: *The meaning-pay frontier becomes flatter.*

[11] For completeness in showing this result, one may assume that m_{ia}, m_{ip} and θ_i are independent of one another and across different i, and follow a uniform distribution $U[0, 1]$.

The treatment will induce some workers with low meaning and high salary to leave. Consequently, if we plot workers' meaning against their fixed pay, we should observe that the curve flattens out among the treated because the high-salary and low-meaning employees have left.

The second implication regards the effect of treatment on workers' utility.

Implication 2: *Treatment increases the stayers' utility on the job.*

When we substitute a worker's optimal effort, worker i's utility in the present job (Equation 5) becomes

$$U(\lambda_i, \theta_i) = S_p + \frac{\theta_i^2(1 + \lambda_i m_{ip})}{8} \tag{13}$$

which is increasing in λ_i. Hence, the result. Notice that this is a treatment effect that follows from the fact that the intervention is specific to the worker, and because of this, it affects the reservation utility as well as the utility on the job. For this reason, the employer cannot extract all the rents created by the intervention. It is akin to providing training that generates human capital *embedded* in the worker: the same way that the worker can take the human capital with them when they leave the firm, they can also take their purpose with them in another job.

The third implication of the model is precisely that:

Implication 3: *Treatment enables meaning in all activities, inside and outside the firm.*

5.2 Evidence

Implication 1: Meaning and Pay. Our endline survey collected information that can be assembled in an individual measure of meaning. Specifically, we measure meaning by drawing on the psychology literature and taking the average of several psychometric survey instruments: (1) the intrinsic motivation index, (2) the meaningful work index, (3) meaning at work, (4) meaning outside work, and (5) the meaning and impact at work index. Appendix Table B.2 reports the individual survey questions and the references from the literature.

Figure V plots non-parametric estimates of workers' meaning against the fixed component of their salaries separately for treatment (dashed) and control (solid). The plot shows the equilibrium relationship between meaning and pay, that is, for every

level of meaning we can see the average pay that workers with that meaning are willing to accept to work for the firm. The relationship is negatively sloped because of the participation constraint: workers derive utility from both meaning and pay, thus, in equilibrium, those who draw less meaning must get higher pay.

Our framework makes clear that if the intervention increases the weight workers put on meaning, the amount of pay they need to be compensated for lower meaning increases, hence the meaning-pay frontier must be flatter in the treatment group. This follows from the fact that the current level of pay is no longer sufficient which, combined with the fact that the firm pay structure is unchanged, implies that workers with low meaning and high pay leave the firm. Under the assumption of linearity, the test for difference in slopes between the treatment and the control group yields a coefficient estimate of 0.153 with SE = 0.078 (p-value < 0.05).

Implication 2: Effort and Utility at Work. The second testable implication is that employees who remain after the intervention are happier at work despite putting in more effort, since effort is less costly. Figure V is consistent with this increase in utility as the money-meaning frontier in treatment is above the one for the workers in the control group, that is, for any given level of meaning, employees in the treatment group get higher pay and hence higher utility. Table III shows that workers report higher meaning, job satisfaction, and overall happiness in life.[12]

Standard incentives increase the benefit of effort leaving the cost unchanged - in other words, workers experience disutility from effort, but they are willing to bear it to get the utility from the performance reward. The intervention, in contrast, allows workers to see how the job contributes to their purpose, hence bringing them lower disutility. Our survey includes several questions based on the "Adapted Inclusion of Others in Self (IOS) scale" (Aron, McLaughlin-Volpe, Mashek, Lewandowski, Wright and Aron, 2004), which measures the extent to which individuals perceive community- and self-interest as overlapping (for more details, see Appendix B). Table IV shows that workers report higher alignment with colleagues and the company. There is higher self-reported overlap with colleagues and the company, team collabo-

[12]We report the treatment effects of the separate sub-components of the meaning index in Appendix Table A.4.

ration, and a closer relationship with the manager.[13]

This also suggests that focusing on personal alignment not only coexists with a sense of collective belonging but may actually enhance it. As a placebo question, in the last column of Table IV, we look at whether the treatment increases the overlap of goals with the community. If our understanding of the mechanism through which the intervention operates is correct, we should not expect any effect. In fact, we see no differential effects between the treatment and control groups on this dimension.

Implication 3: Treatment changes the meaning given to all activities. Figure A.7 presents the cumulative distribution functions of the priorities at work for the treatment and control groups separately. The answers are reverse-coded so that rank 12 is the highest and rank 1 is the bottom. The plots concretely convey that the treatment and control groups state different job priorities. The distribution of the treated first-order stochastically dominates the control one for the categories of helping others, being useful to society, growing and learning new skills, opportunities for advancement, and high prestige (Panel a). Conversely, the control distribution first-order stochastically dominates the treatment one for work-life balance, flexible time, job security, and independent work (Panel b).

To deepen our understanding of this interpretation, we analyze its influence on gender roles. Specifically, gender is a predominant example of social identity. Gendered norms, often deeply ingrained in societal expectations, can dictate specific behaviors for women and men in the workplace, even when these norms are not aligned with individuals' preferences. If the intervention offers a platform for workers to embrace their authentic preferences, without being restricted by social constraints, we expect the intervention to close gender gaps in job priorities.

Figure VI revisits the ranking of job priorities and plots the gender gap in each job priority separately for the treatment and control groups. In nine of the twelve dimensions, the gender gaps in priorities shrink for the treatment group. This suggests that the intervention effectively alters traditional gender-based priorities within the workplace.

A striking practical implication of this change is reflected in taking parental leave,

[13]These results are unchanged when we control for pay, as shown in Appendix Tables A.5 and A.6. Please refer to Appendix B for more details on the overlap question.

a domain often riddled with gender stereotypes. In particular, the ITT estimates in Table V suggest that men in the treatment group are more likely to take parental leave.

Unfortunately, we do not have information on the number of children per employee, but parental leave take-up indicates that there is a higher chance of taking any parental leave at all and of taking longer parental leave. This pattern hints at a meaningful change in caregiving, reshaping entrenched gender norms.

6 Rate of return and adoption

6.1 Cost-benefit analysis

The intervention is expensive in terms of lost work days and leads to increased turnover and associated costs. Thus, even if it increases workers' productivity, it might not be in the firm's economic interest. To evaluate the profitability of the DYP intervention, we conduct a cost-benefit analysis from the shareholder's perspective. We base our calculations on 2019 income statement data available from Orbis, as our data share agreement with the firm does not cover financials.

There are two main components of cost: the opportunity cost of the employees' time and the cost of replacing employees who exit. The DYP workshop lasts for 8 hours. Thus, the first component of the cost is the day of work that each participant loses. In addition, there is one coordinator for every four participants; therefore, for every person-workshop, the company loses 1.25 days of work. The 2019 value added per employee is $VA = \$80,301$. As we need an estimate for one working day only, we divide it by 250, the number of working days per year.

The second component of costs is the increased training costs of new hires. HR estimates for 'work-level 1' workers replacement costs ($\gamma_{replace}$) range between 10% and 30% of annual salary. This cost includes the lower productivity of a new hire. To be conservative, we take the upper bound.

We compute the average total cost per employee by dividing the costs of employees by the number of employees from Orbis. In 2019, it amounts to $w = \$47,857$. From the LATE estimates in Figure IV, the treatment group has a 5% higher annual exit (β_{exit}) than the control group in the first 6 months after treatment. To be conservative, we

assume that all replacement costs are incurred right away. Hence:

$$\text{Cost of DYP} = \underbrace{\left(\frac{VA}{\text{\# Working Days}}\right) * 1.25}_{\text{foregone production cost}} + \beta_{exit} \cdot w \cdot \gamma_{replace} = \$1,119$$

In the first year after the treatment, the financial benefit for the firm is given by the difference between the increase in performance and the increase in pay. As a benchmark for the increase in worker productivity, we use the average percentage increase in the annual performance score, $\beta_{VA} = 2.51\%$. We apply this increase to the value added per employee provided by Orbis. From this number, we subtract the increase in worker overall compensation (albeit statistically insignificant, see column 5 Table II), which is $\beta_w = 1.14\%$ on an annual wage, $w = \$47,857$.

The firm will enjoy this benefit only if the worker does not leave. The average worker probability of leaving for any reason is $\rho_{exit} = 0.21$. If we assume an annual discount rate of δ, the present discounted value of the cumulative net benefit after T years is:

$$\text{Discounted Net Benefit of DYP}_T = \sum_{t=1}^{T} \frac{(1-\rho_{exit})^t}{(1+\delta)^t} \cdot \left(\underbrace{\beta_{VA} \cdot VA}_{\text{increase in productivity}} - \underbrace{\beta_w \cdot w}_{\text{increase in wages}} \right)$$

If the enhanced performance lasts only one year, the net benefit of DYP before discounting is given by \$1,161, and the Return on Investments (which in this case coincides with the internal rate of return) is given by: $ROI_{T=1} = \frac{Net\ Benefit - Cost}{Cost} = 3.8\%$. Thus, if the enhanced performance lasts only one year, organizing the workshop is not profitable for a firm with a cost of capital of around 10%; if the enhanced performance lasts two years, however, as our analysis suggests, then the IRR is 72%.

Appendix B.3 repeats the analysis under the assumption that the firm hires consultants to run the intervention. The cost of doing so is such that the intervention breaks even if its effects last two years.

The combination of positive worker outcomes and the firm's financial gains suggests that the benefits of the intervention are shared between both parties. This is particularly noteworthy, as the success of the intervention depends on the firm not capturing the entire surplus value but rather credibly committing to allowing workers

to retain a portion of the rents generated.

6.2 Understanding adoption

Our estimated rate of return is such that we would expect programs such as DYP to be widely adopted, which is not what we observe in practice. In this last section, we discuss two reasons that could explain the gap between potential returns and actual adoption. This discussion is speculative, we cannot show that these are the only reasons that matter or that they matter at all.

The first reason is theory-driven. Trivially, the intervention is effective only if workers are willing to participate. More subtly, workers are willing to participate only if they trust the employer not to change the terms of the contract ex-post to extract all the value created by the intervention. This restricts the set of firms for which the intervention is viable.

The second reason is empirical. Firms learn from piloting interventions on their employees, but piloting is rarely based on an empirical strategy that allows the estimation of causal effects. Our estimates of the rate of return are based on treatment effects from a RCT, which is designed to shut down self-selection or sorting into the program so as to isolate its causal effect from the effect of the traits of those who voluntarily sign up for it.

Most firms and most economic actors, in general, rarely run RCTs to inform their decision. We are generally concerned about sorting that generates positive results and leads to the adoption of programs that have no causal impact on the outcome of interest. But any difference due to sorting will lead to a decision that would have not been taken had the firm known the causal effect. The bottom line is that both sets of estimates are informative, the experimental estimates because they tell us about optimal choices, and the non-experimental estimates because they can explain actual choices.

A distinctive feature of our context is that we can compare the two sets of estimates because the firm began rolling out the DYP two years before we conducted the RCT. To do so, we take 100 random samples of the same size as the RCT sample and compare the results of workers who chose to do the DYP with the results of workers who chose not to.

Using the potential outcomes framework, denote the outcome of interest by Y and participation in DYP by D. Assume that the perceived benefit of worker i' of participating in DYP is equal to θ_i, unobservable to the econometrician, and that there is a threshold θ^* such that worker i participates if and only if $\theta_i > \theta^*$. Then the relationship between non experimental treatment effects, experimental treatment effects and sorting is given by:

$$\begin{aligned} E(Y=1|D=1) - E(Y=1|D=0) &= E(Y=1|\theta_i > \theta^*) - E(Y=0|\theta_i < \theta^*) \\ &= \underbrace{[E(Y=1|\theta_i > \theta^*) - E(Y=0|\theta_i > \theta^*)]}_{\text{Average Treatment Effect on the Treated (ATT)}} \\ &+ \underbrace{[E(Y=0|\theta_i > \theta^*) - E(Y=0|\theta_i < \theta^*)]}_{\text{Sorting Effect (Selection Bias)}} \end{aligned} \tag{14}$$

that is, the non experimental effect is equal to the sum of the experimental effect (the ATT) and the sorting effect.

Figure VII shows that the sorting effect is larger in magnitude and is opposite in sign to the causal effect. In the first panel, we show that the overall effect on exit by month 12 is $-7pp$, given that we know the causal effect is 5.1, the sorting effect is $-12pp$, that is, those who volunteer to take part in DYP are 12pp less likely to leave the firm in the next 12 months. By the same logic, we can compute sorting by baseline performance. The second panel of Figure VII shows that low and high performers are less and more likely, respectively, to select into the program.

In summary, sorting into the program hides both the productivity increase due to selection and the change in effort of employees whose performance is below expected standards. These can only be seen if the program is taken up by all employees, but observational data from the pilot make that unlikely to happen.

7 Conclusion

As economies grow, so do the size and complexity of organizations, and so does the distance between individual laborers and the products of their labor. This is challenging for employers because standard performance pay tools lose power as it becomes harder to measure the contribution of each individual to the performance of the organization and therefore to incentivize employees to exert costly effort. Most impor-

tantly, knowing that the employer cannot see their contribution and being unable to see it themselves has severe consequences for the well-being and mental health of the employees.

The workplace intervention that we study in this paper is informed by the tenet that humans seek meaning. Inspired by the principles of logotherapy (Frankl, 1985), the intervention trains employees to see how activities that make their job contribute to their personal purpose. This also implies that some people realize that their jobs do not contribute to their purpose and leave the firm. Those who stay increase their effort, improve their performance, earnings, and job satisfaction.

Most firms make decisions based on observational evidence, and we have shown that endogenous selection can play an important role. Our analysis also explains why not all firms can successfully implement this type of intervention. First, the firm must be credible in its commitment not to use (let alone abuse) the information revealed during the intervention and not to exploit the greater alignment of the employees who stay to cut bonuses and wages. There may thus be an important interaction between firm governance structure and the ability to implement such programs. Second, it is likely the case that such an intervention can only have the effects we measure when embedded in a culture where speaking about what gives meaning is considered a legitimate reason to move to another job or change one's own job activities.

Our results hold significance in the coming future. Labor productivity has long been stagnant and the labor share has been falling (Adler, Duval, Furceri, Çelik, Koloskova and Poplawski-Ribeiro, 2017; Decker, Haltiwanger, Jarmin and Miranda, 2017; Fernald, Inklaar and Ruzic, 2023). With the growth of generative AI for white collar workers, ensuring "pro-worker" AI relies, as well, on increased agency and voice among employees. The intervention we study enables workers to design their own job with the available factors (or leaving the firm if they cannot do so). This could also make them more open to the adoption of new technologies. More research is needed to establish whether and how the interaction between AI and real employees seeking meaning will lead to a more efficient and equitable division of labor.

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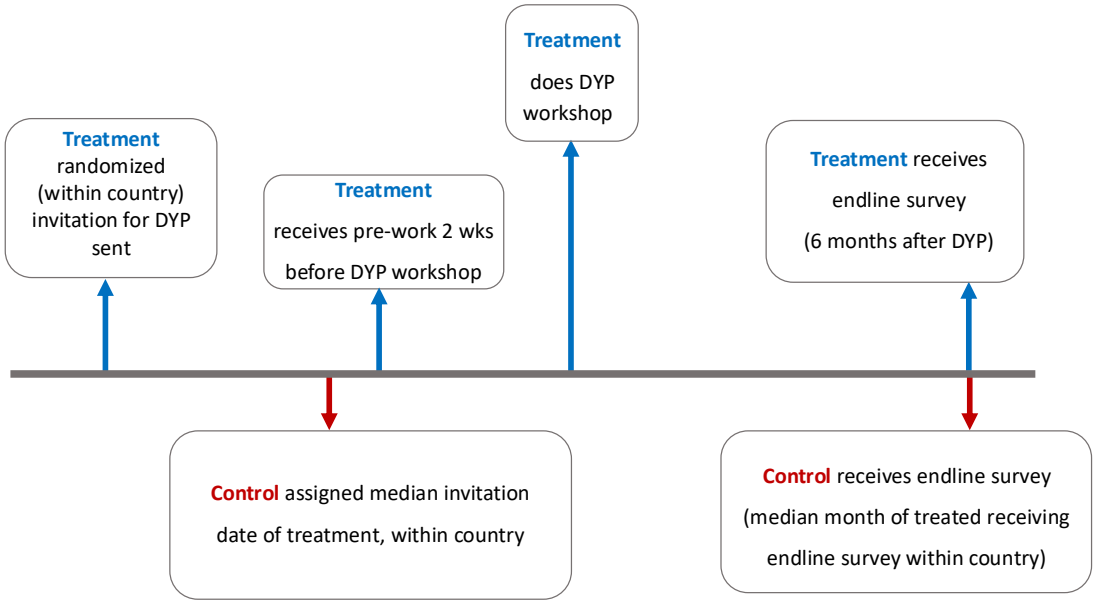
9 Figures

Figure I: Timeline of the intervention

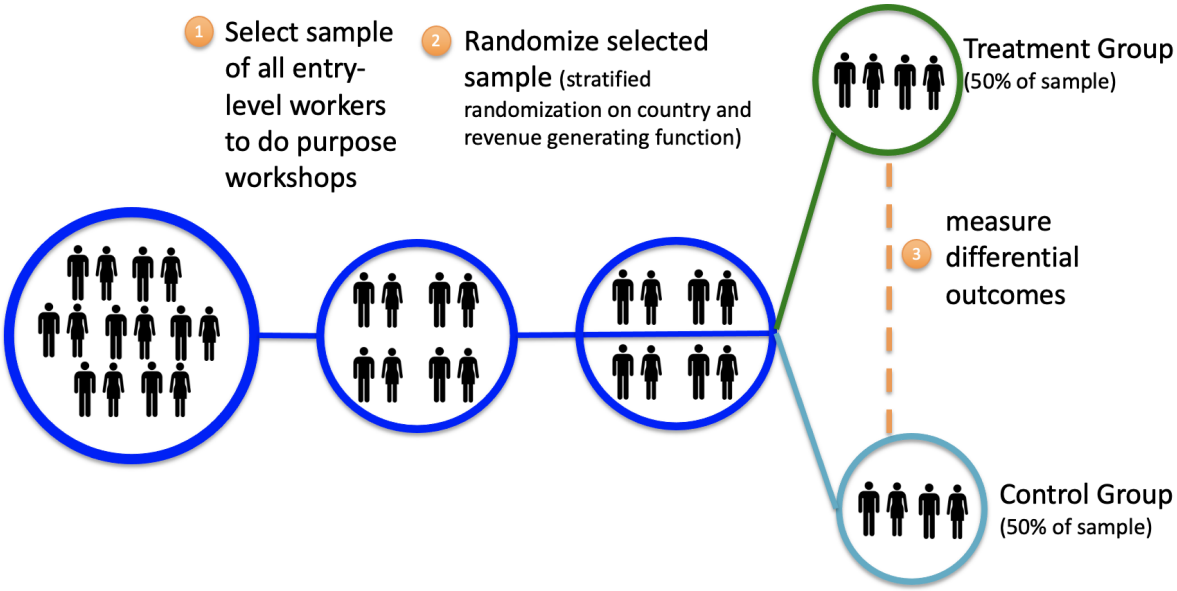


Notes. The median workshop date of the treatment group within each country is used to anchor the timing of the control group and non-compliers surveys.

Figure II: DYP intervention: telling the stories that have shaped your life

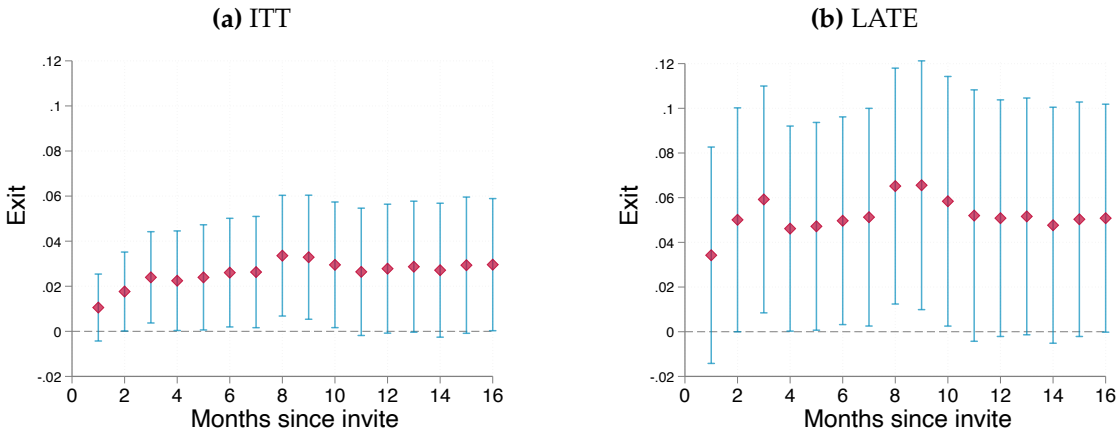
Notes. The intervention content consists of self-reflection exercises around the four main themes illustrated in the figure.

Figure III: Experimental design



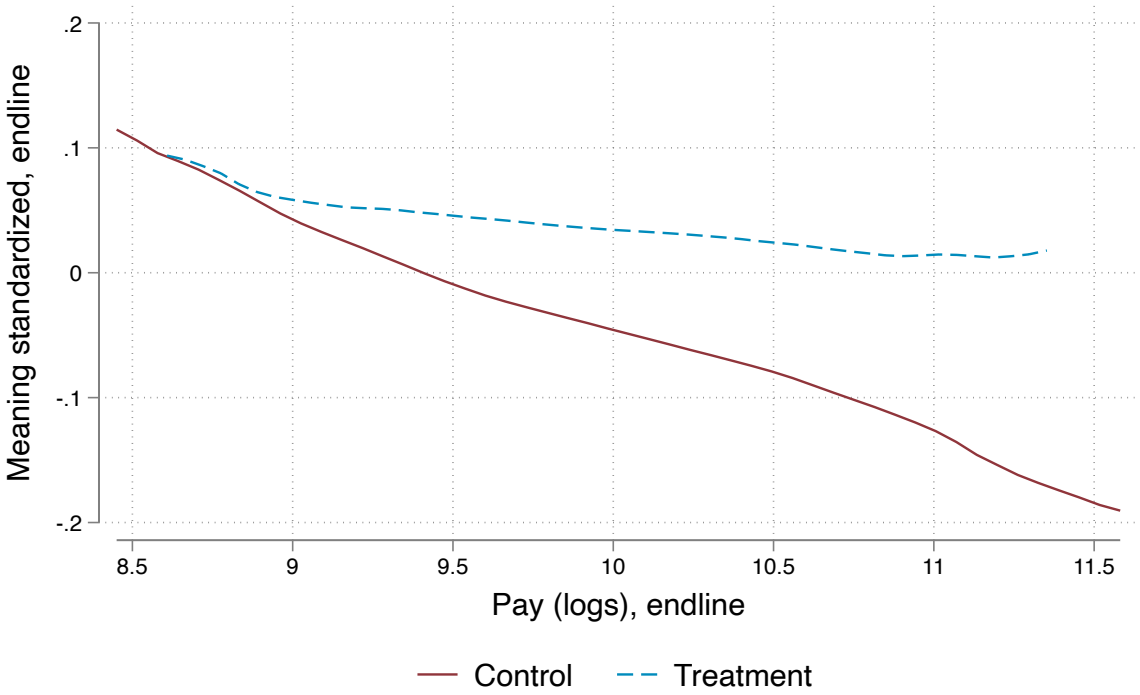
Notes. First, we select a sample of all work level 1 white collar workers to invite to sign up for the DYP intervention. Next, we randomize stratifying by country. Finally, we randomly split 50-50 within each group into treatment and control groups.

Figure IV: Worker exit



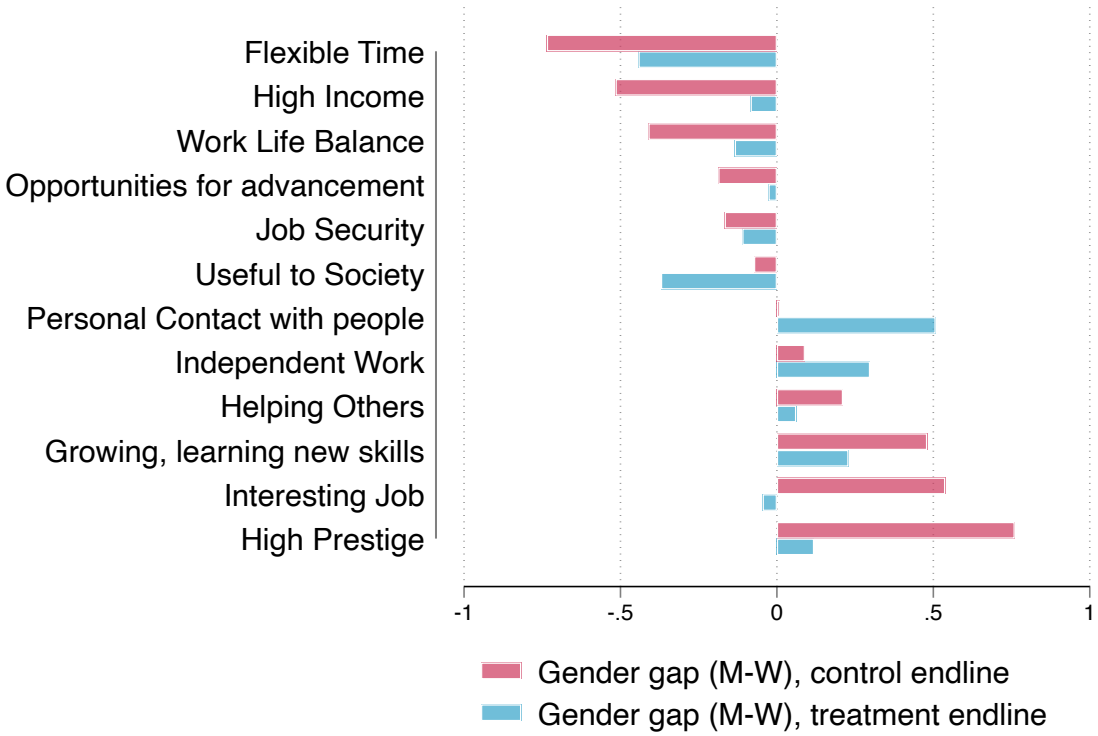
Notes. The figure reports ITT (*Received Invitation*) and LATE (*Did DYP*) estimated from cross-sectional regressions as in equations (1) and (2), as well as 95% confidence intervals based on Huber-White robust standard errors. When estimating LATE, the variable for participating in the DYP workshop, *Did DYP*, is instrumented with invitation treatment. All regressions include year-month and country fixed effects.

Figure V: Pay and meaning



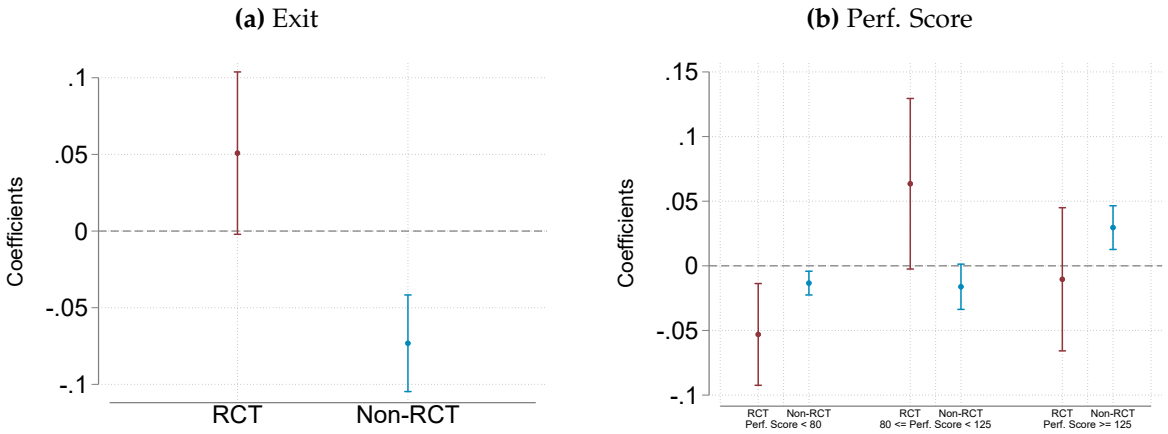
Notes. Local polynomial smooth plot for the relationship between standardized meaning and pay in logs. Kernel bandwidth is 0.6. The reported differences in slopes uses a linear regression model with robust standard errors.

Figure VI: Gender gaps in job priorities



Notes. Gender gap in the average ranking of the job priorities sorted from low to high (more favored by men vs. more favored by women). For example, for the control group on average, women rank high prestige -0.76 lower than men and rank flexible time 0.74 higher than men.

Figure VII: DYP impacts: randomized into the intervention vs. own choice



Notes. This figure reports point estimates and 95% confidence intervals.
RCT estimates report LATE (*Did DYP*), where *Did DYP* is instrumented with invitation treatment. In panel (a), the outcome variable is whether an employee left the firm within 12 months after the DYP invitation, the confidence interval is calculated based on Huber-White robust standard error, and the regression includes year-month and country fixed effects. In panel (b), the outcome variables are whether an employee's performance score falls in certain intervals, the confidence intervals are calculated based on clustered standard errors on the employee level, and regressions include country fixed effects.
Non-RCT estimates report the effects of workshop participation on employees' exit and performance outcomes in the sample of workshop participants that are not a part of the RCT conducted by the research team. In panel (a), the outcome variable is whether the employee left the firm within 12 months after the workshop, country and year-month fixed effects are included in the regression, and the confidence interval is calculated with the bootstrapped standard errors. The bootstrap sample size is the same as the RCT sample size. Bootstrap repetition is 100 times with random seed 1532. In panel (b), the outcome variables are whether an employee's performance score falls in certain intervals, country fixed effects are included in the regressions, and the confidence interval is calculated with the bootstrapped standard errors.

10 Tables

Table I: Balance table

	Panel A: Treatment vs. control		
	(1)	(2)	(3)
	Control	Treatment	Difference
Female	0.536	0.503	-0.032*
	(0.499)	(0.500)	(0.018)
Tenure (years)	7.320	7.584	0.304
	(9.171)	(9.547)	(0.308)
Age	35.406	35.823	0.418
	(10.696)	(10.788)	(0.357)
Perf. Score	97.324	98.175	0.889
	(22.551)	(22.214)	(0.927)
Pay	24,509.840	24,841.660	337.867
	(13,071.404)	(13,072.136)	(319.170)
Bonus	2,290.273	2,297.025	18.691
	(2,171.437)	(2,218.692)	(57.370)
Observations	1,508	1,459	2,967
	Panel B: Compliers vs. non-compliers		
	(1)	(2)	(3)
	Did not do DYP	Did DYP	Difference
Female	0.436	0.537	0.105***
	(0.496)	(0.499)	(0.029)
Tenure (years)	8.794	6.970	-1.889***
	(10.195)	(9.145)	(0.522)
Age	37.511	34.967	-2.034***
	(11.007)	(10.577)	(0.599)
Perf. Score	95.578	99.538	3.165**
	(23.766)	(21.244)	(1.533)
Pay	24,199.535	25,183.459	237.828
	(12,667.279)	(13,277.416)	(517.967)
Bonus	2,412.534	2,234.107	98.881
	(2,221.344)	(2,216.021)	(88.457)
Observations	491	968	1,459

Notes. This table reports mean and standard deviations (in parentheses) in columns (1) and (2). Column (3) reports differences in means and corresponding robust standard errors (in parentheses) after controlling for country fixed effects. Panel (a) compares treatment and control workers, while panel (b) compares the compliers and non-compliers in the treatment group.

Table II: Worker performance

	Panel A: Worker Performance Score				
	(1) Perf. Score < 80	(2) 80 $\leq$ Perf. Score < 125	(3) Perf. Score $\geq$ 125		
Did DYP (LATE)	-0.053***	0.064*	-0.010		
	(0.020)	(0.034)	(0.028)		
Received Invitation (ITT, Total Effect)	-0.026***	0.030*	-0.004		
	(0.010)	(0.016)	(0.014)		
Received Invitation (ITT, Selection Effect)	-0.013	0.005	0.008		
	(0.010)	(0.012)	(0.009)		
Baseline control mean	0.104	0.775	0.121		
Baseline control S.D.	0.305	0.418	0.327		
N	64706	64706	64706		
	Panel B: Worker Bonus and Pay				
	(1) Bonus>0	(2) Bonus>p25	(3) Bonus>p50	(4) asinh(Bonus)	(5) log(Pay+Bonus)
Did DYP (LATE)	0.067**	0.116***	0.044	0.641***	0.014
	(0.027)	(0.032)	(0.031)	(0.229)	(0.028)
Received Invitation (ITT, Total Effect)	0.034***	0.057***	0.022	0.322***	0.010
	(0.013)	(0.015)	(0.015)	(0.109)	(0.012)
Received Invitation (ITT, Selection Effect)	0.023***	0.023**	0.013	0.200***	0.005
	(0.008)	(0.010)	(0.010)	(0.068)	(0.013)
Baseline control mean	0.758	0.686	0.403	6.459	10.069
Baseline control S.D.	0.429	0.464	0.491	3.703	0.583
N	86053	86053	86053	86053	86053

Notes. This table reports LATE (*Did DYP*), ITT (*Received Invitation*, total effects), and ITT (*Received Invitation*, pure selection effects) estimated from equation (3). When estimating LATE, the variable for participating in the DYP workshop, *Did DYP*, is instrumented with invitation treatment. When estimating ITT pure selection effects, the outcome values are replaced by the corresponding employee's baseline values before the RCT started. All regressions include country fixed effects, and standard errors are clustered at the employee level. In panel A, outcome variables are dummies indicating whether the employee's performance score falls in certain intervals. Performance scores are based on the manager's assessment of their employees' performance, which ranges between 0 to 150, with median equals 100 at baseline. In panel B, *asinh(Bonus)* corresponds to the inverse hyperbolic sine transformation of the annual performance bonus received by workers. *Bonus>0*, *Bonus>p25* and *Bonus>p50* are dummies which equal to 1 if the performance bonus of the employee is positive, greater than the 25 percentile baseline bonus and greater than the median baseline bonus respectively. *log(Pay+Bonus)* corresponds to the worker overall pay and bonus (in logs). The baseline control mean and S.D. report the mean and standard deviation for the outcome variable among the control group in 2018.

Table III: Meaning and happiness

	(1) Meaning	(2) Job satisfaction	(3) Happiness
Did DYP (LATE)	0.111**	0.230***	0.149**
	(0.053)	(0.068)	(0.069)
Received Invitation (ITT)	0.081**	0.168***	0.109**
	(0.038)	(0.049)	(0.051)
Control mean	4.888	5.338	4.846
Control S.D.	0.801	1.289	1.183
N	1264	1264	1264

Notes. This table reports LATE (*Did DYP*) and ITT (*Received Invitation*). When estimating LATE, the variable for participating in the DYP workshop, *Did DYP*, is instrumented with invitation treatment. All regressions include country fixed effects, and Huber-White robust standard errors are reported. Outcome variables are standardized using the corresponding baseline control mean and standard deviation, while the reported control means and control standard deviations are raw endline values. Each outcome variable is an index constructed from survey questions on meaning, job satisfaction, and happiness, respectively, where workers declare how much they agree with statements related to the three themes, from 1 (strongly disagree) to 7 (strongly agree). See Table B.2 for the construction of these indices. See further Table A.4 or a breakdown of the effects on questions and sub-indices that are used to construct the *Meaning* variable.

Table IV: Team collaboration and overlap with company

	(1) Team collab.	(2) Rel. w. manager	(3) Overlap with colleague	(4) Overlap with company	(5) Overlap with community
Did DYP (LATE)	0.133*	0.175**	0.205***	0.258***	0.094
	(0.072)	(0.074)	(0.075)	(0.072)	(0.078)
Received Invitation (ITT)	0.097*	0.127**	0.150***	0.188***	0.068
	(0.053)	(0.054)	(0.054)	(0.052)	(0.057)
Control mean	5.657	5.466	5.073	4.920	4.438
Control S.D.	1.114	1.426	1.360	1.379	1.554
N	1264	1264	1264	1264	1264

Notes. This table reports LATE (*Did DYP*) and ITT (*Received Invitation*). When estimating LATE, the variable for participating in the DYP workshop, *Did DYP*, is instrumented with invitation treatment. All regressions include country fixed effects, and Huber-White robust standard errors are reported. Outcome variables are standardized using the corresponding baseline control mean and standard deviation, while the reported control means and control standard deviations are raw endline values. The outcome variables are constructed from the endline survey, based on the "Adapted Inclusion of Others in Self (IOS) scale" (Aron et al., 2004).

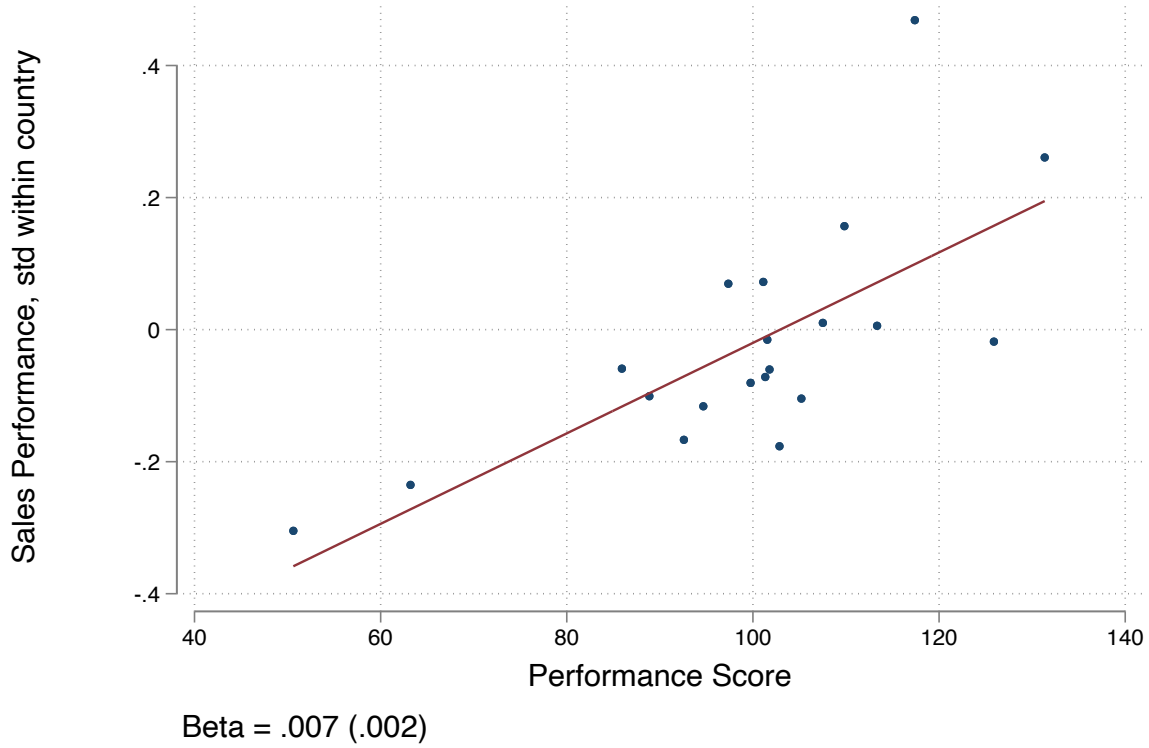
Table V: Parental leave, by gender

	Parental Leave		
	(1) Overall	(2) Men	(3) Women
Did DYP (LATE)	0.029*	0.026	-0.002
	(0.016)	(0.016)	(0.024)
Received Invitation (ITT)	0.014*	0.013*	-0.001
	(0.008)	(0.008)	(0.013)
Control mean	0.073	0.025	0.115
Control S.D.	0.260	0.155	0.319
N	81583	39225	42358

Notes. This table reports LATE (*Did DYP*) and ITT (*Received Invitation*). When estimating LATE, the variable for participating in the DYP workshop, *Did DYP*, is instrumented with invitation treatment. All regressions include country and year-month fixed effects, and standard errors are clustered at the employee level. The outcome variable is whether the employee took parental leave in the month. Columns (1), (2), and (3) report estimates based on the full sample, men sample, and women sample, respectively.

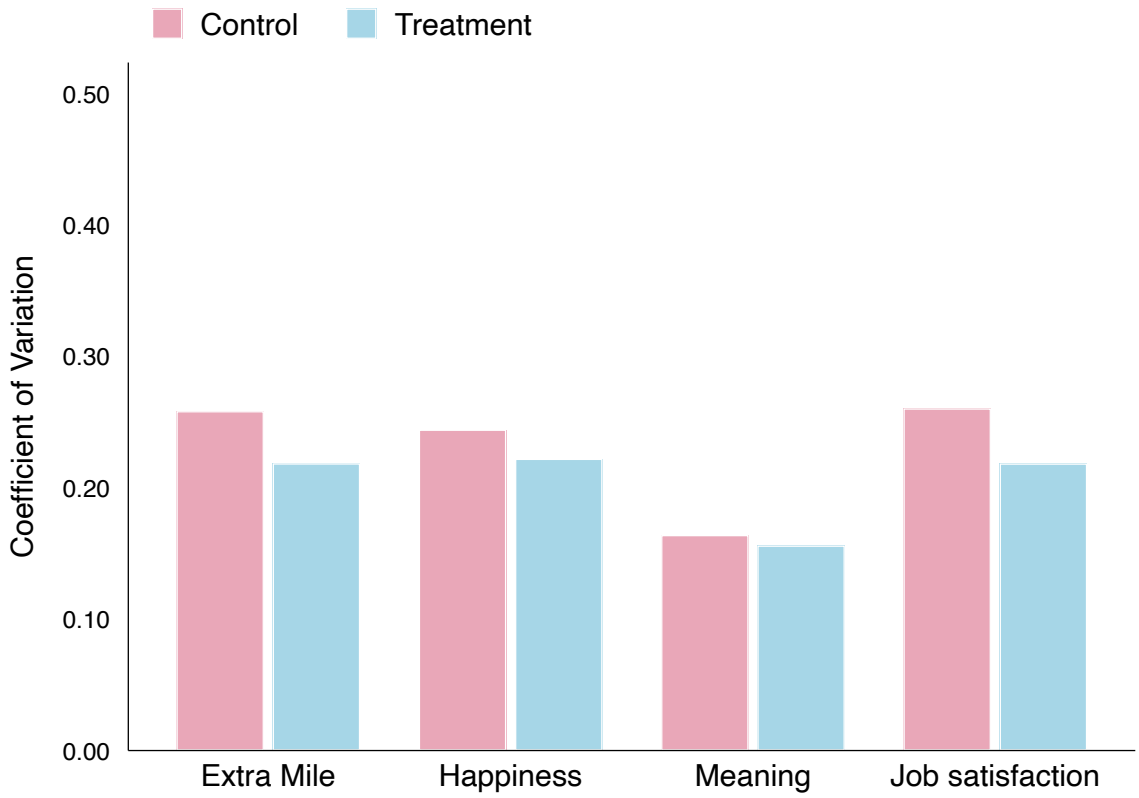
A Appendix: Additional figures and tables

Figure A.1: Correlation between sales bonus and performance score



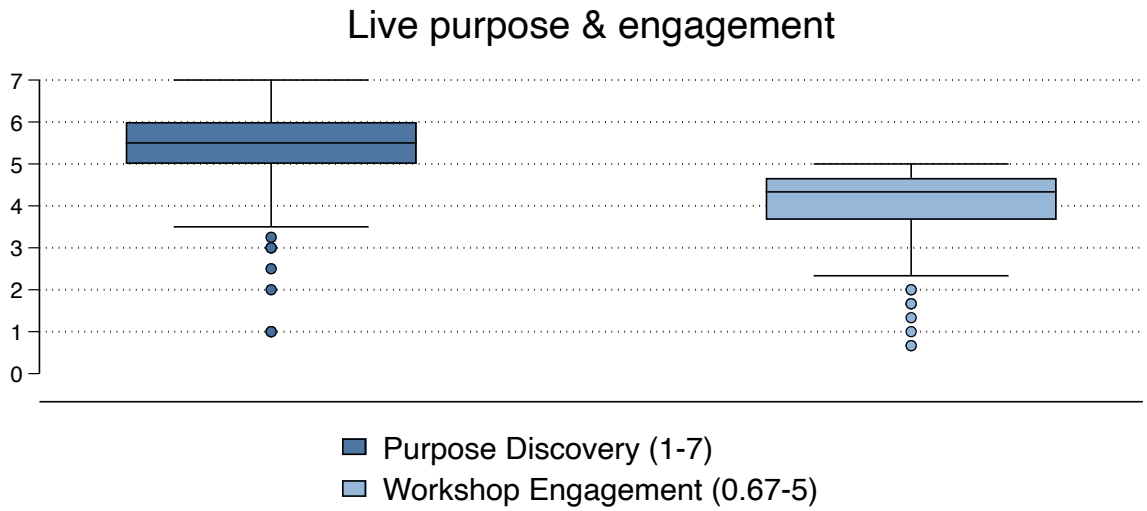
Notes. This figure reports binned scatterplots of employees' standardized sales performance against their performance score, controlling for country, product group, and year-month fixed effects. The estimated linear regression coefficient is 0.007, with Huber-White robust standard error 0.002.

Figure A.2: Coefficient of variation for survey questions



Notes. Coefficient of variation is calculated as the standard deviation divided by the mean of the survey questions at the endline, separately by treatment group. We didn't find systematic differences in survey outcomes between control and treatment groups.

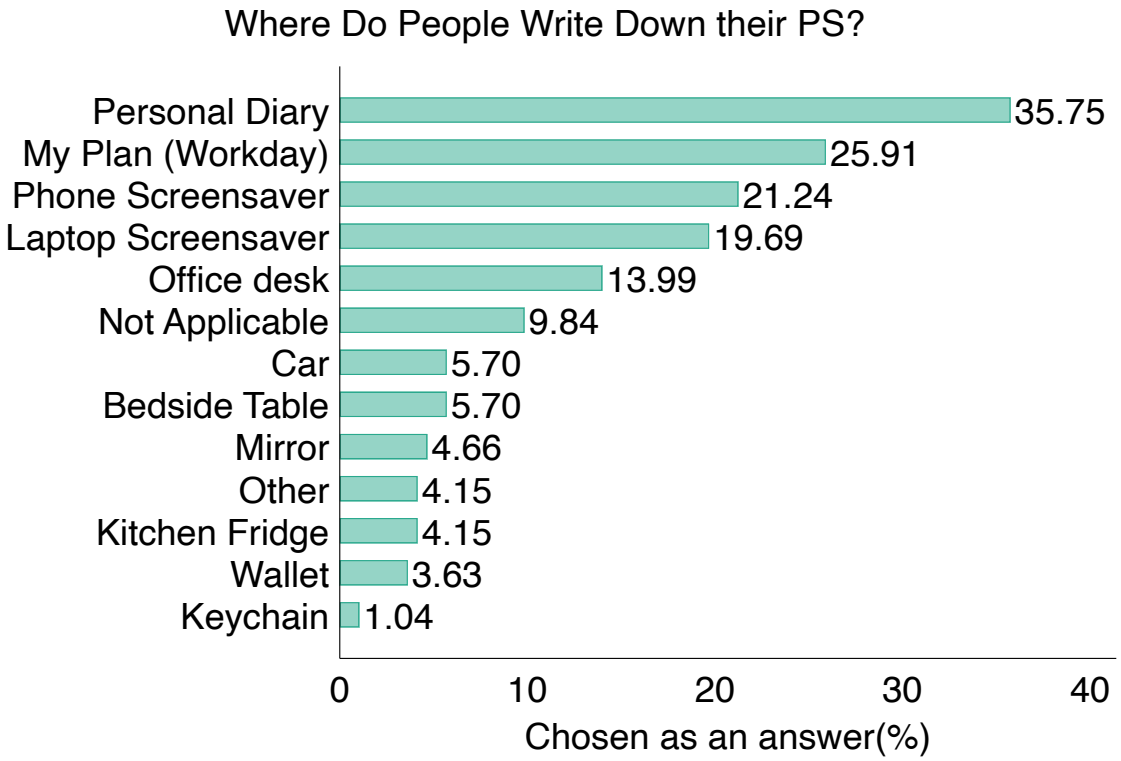
Figure A.3: DYP intervention: what do participants say?



Purpose Discovery questions:
I managed to find a unifying purpose sentence or a group of words that inspired me. These words still resonate with me now.
Workshop Engagement questions:
Overall this workshop was a valuable investment of my time. (1-7)
I felt the facilitator was helpful engaging and prepared to run the session. (1-7)
Would you be interested in becoming a facilitator? (0-1)

Notes. Box chart for the distribution of answers to the purpose discovery and workshop engagement questions. A score of 7 corresponds to "strongly agreeing" and a score of 1 corresponds to "strongly disagreeing". Dots are outliers. The upper and lower bound is the median plus 1.5 times the interquartile range. The box in the center contains the upper quartile, median, and lower quartile.

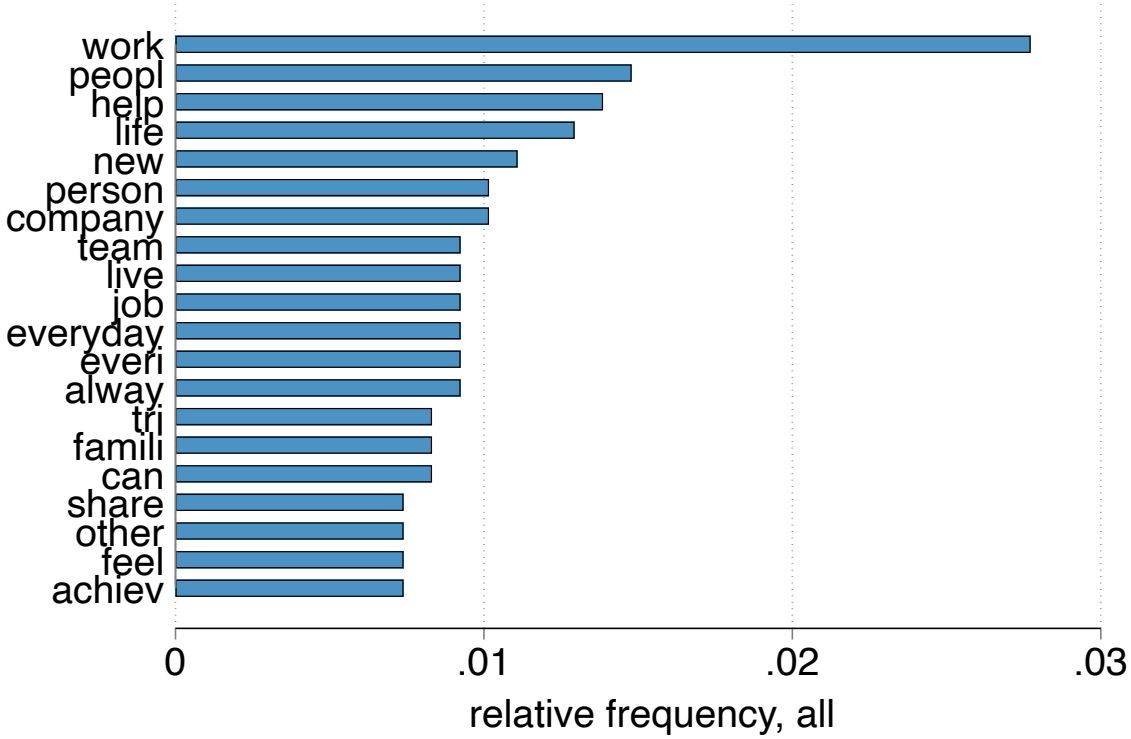
Figure A.4: DYP intervention: where do people write down their purpose statements?



Based on responses to question: *Where did you write it down or where do you plan to write it down?*
More than 1 Answer Allowed.

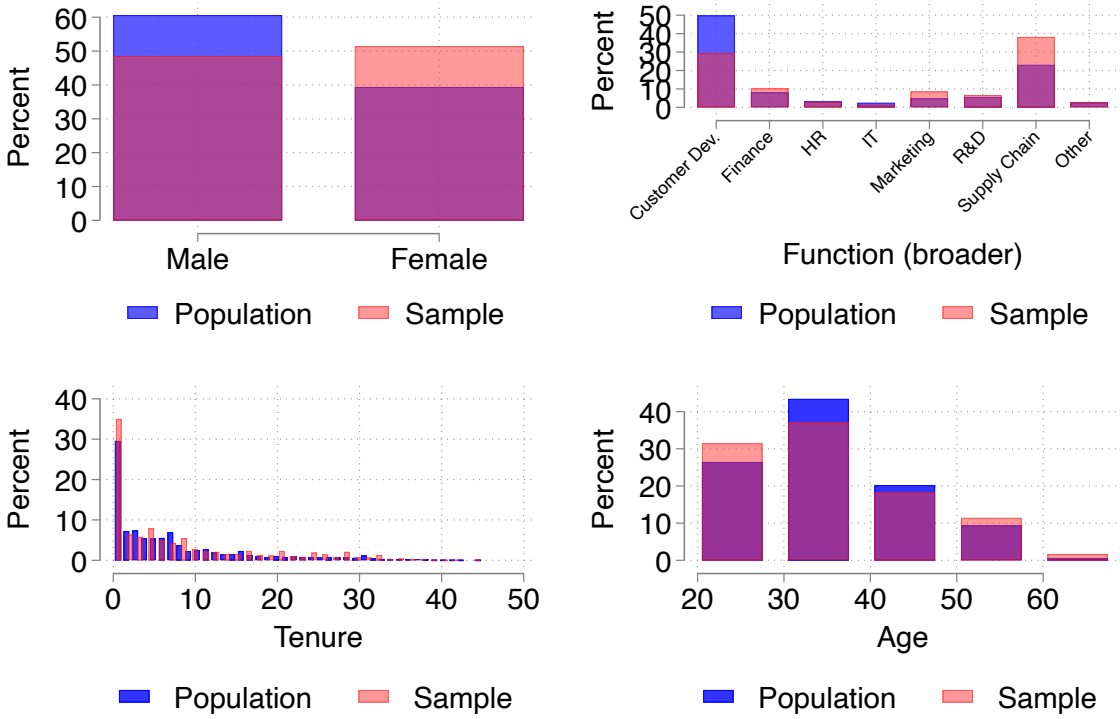
Notes. Average percentage share of where people write down their purpose statement at the individual level, multiple answers are allowed. For example, on average, 35.75% of employees who participated in the workshop wrote down their purpose statement in their personal diaries.

Figure A.5: DYP intervention: word frequencies of purpose use stories



Notes. We apply standard text-cleaning and parsing procedures, including removing numbers, symbols, punctuation, hyphens, symbols, URLs, and uppercases. We then utilize the "quanteda" package in R for quantitative textual analysis and remove stopwords in English. Next, we perform stemming on the words and remove "purpose", "workshop", "thing", "use", "statement" from the list. Finally, we replace the name of MNE with "company", generate word count, and rank the relative frequencies in descending order.

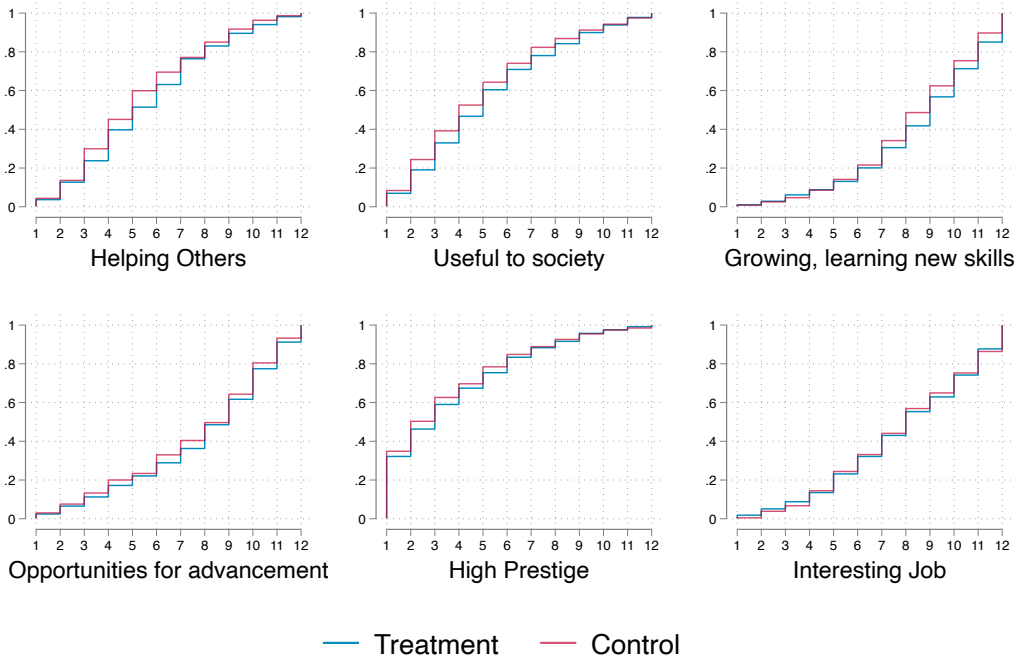
Figure A.6: Sample characteristics



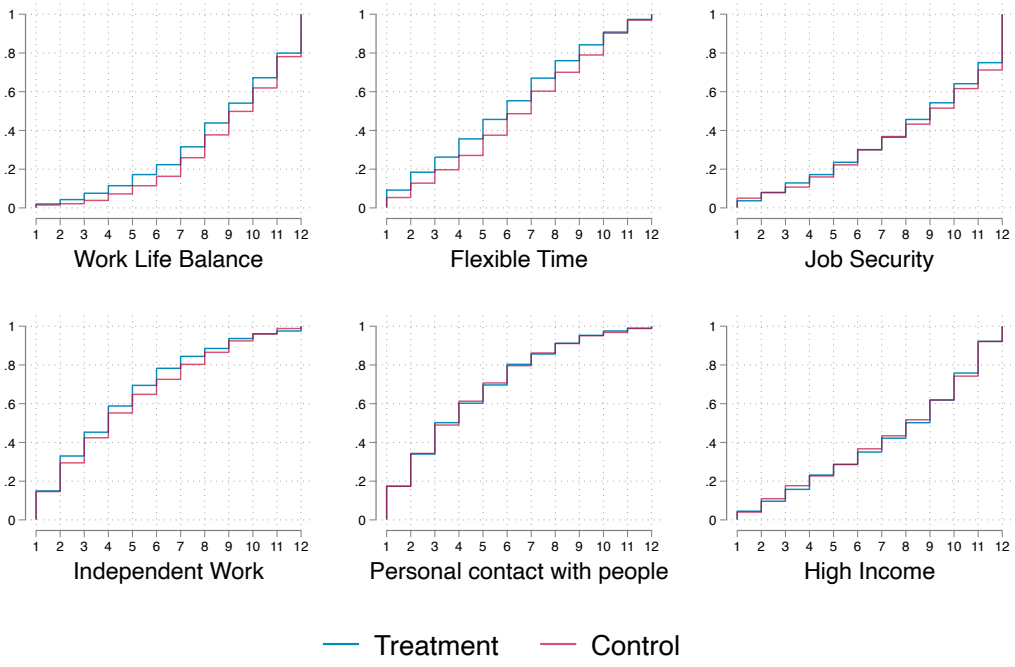
Notes. Each graph displays the comparison between the distribution of the RCT sample and the non-RCT sample (population), across gender, functional group, tenure, and age. The overlapping areas of sample vs. population in the box plot display a purple-like color.

Figure A.7: Ranking of job priorities

(a) Job priorities (I): society & growing and learning new skills



(b) Job priorities (II): work-life balance & job security



Notes. Cumulative distribution of ranking of the importance of 12 job priorities for the treatment and control group at the endline survey. The answers are reverse-coded so that rank 12 is the highest and rank 1 is the bottom.

Table A.1: Spillovers on the control group

	(1) Exit	(2) Perf. Score	(3) Perf. Score < 80	(4) $80 \leq$ Perf. Score < 125	(5) Perf. Score ≥ 125	(6) log(Pay+Bonus)
Share treatment in team	-0.032	-0.065	-0.018	0.034	-0.016	0.000
	(0.020)	(1.237)	(0.015)	(0.031)	(0.028)	(0.026)
N	43710	32369	32369	32369	32369	42946

Note. This table reports the estimated regression coefficients of key outcomes of interest against the share of treated workers in the team. The regression sample is restricted to the control group, all regressions include country fixed effects, and standard errors are clustered at the employee level. *Share treatment in team* indicates the share of team colleagues who received workshop invitation in that year. *Perf. Score* is the raw performance score, which ranges 0-150, with median equal to 100 at baseline. *Perf. Score* < 80 is an indicator for the performance score to be less than 80. $80 \leq$ *Perf. Score* < 125 is an indicator for the performance score to be between 80 and 125. *Perf. Score* ≥ 125 is an indicator for the performance score to be greater than or equal to 125. *log(Pay+Bonus)* corresponds to the worker overall pay and bonus (in logs).

Table A.2: Invitation to intervention: RCT vs. outside of the RCT

	(1) Perf. Score < 80	(2) $80 \leq$ Perf. Score < 125	(3) Perf. Score ≥ 125
RCT sample	0.008	0.015	-0.022
	(0.016)	(0.025)	(0.021)
Number of obs.	1762	1762	1762

Note. This table reports the estimated regression coefficients of key outcomes of interest against a dummy indicating if the employee is among the RCT sample. The regression sample is restricted to workshop participants who did not leave the firm during the sample periods, all regressions include country fixed effects, and Huber-White robust standard errors are reported. *RCT sample* indicates whether the worker has done the intervention as part of the RCT or outside the RCT. Outcome variables are constructed based on employees' performance scores, which ranges 0-150, with median equal to 100 at baseline. *Perf. Score* < 80 is an indicator for the performance score to be less than 80. $80 \leq$ *Perf. Score* < 125 is an indicator for the performance score to be between 80 and 125. *Perf. Score* ≥ 125 is an indicator for the performance score to be greater than or equal to 125.

Table A.3: Robustness: Virtual Workshop and Covid-19

	(1) Exit (3 months)	(2) Perf. Score < 80	(3) 80 $\leq$ Perf. Score < 125	(4) Perf. Score $\geq$ 125	(5) asinh(Bonus)
Panel A: No Virtual Workshop					
Did DYP (LATE)	0.067**	-0.057**	0.069*	-0.012	0.888***
	(0.028)	(0.022)	(0.037)	(0.031)	(0.257)
N	2474	55612	55612	55612	75298
Panel B: Before April 2020					
Did DYP (LATE)	0.074***	-0.056**	0.047	0.009	0.735***
	(0.027)	(0.022)	(0.037)	(0.031)	(0.265)
N	2525	49728	49728	49728	65168

Note. This table reports LATE (*Did DYP*), in which the variable for participating in the DYP workshop, *Did DYP*, is instrumented with invitation treatment. All regressions include country fixed effects (column (1) additionally includes year-month fixed effects), and standard errors are clustered at the employee level (except column (1), where Huber-White robust standard errors are reported). In Panel A, the regression sample excludes virtual workshop participants. In Panel B, the regression sample is restricted to those before (exclusive) April 2020. The outcome variable in column (1) is whether the employee left the firm within 3 months after the invitation treatment, outcome variables in columns (2)-(4) are dummies indicating whether the employee's performance score falls in certain intervals. In column (5), *asinh(Bonus)* corresponds to the inverse hyperbolic sine transformation of the performance bonus.

Table A.4: Survey Decomposition: Meaning

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Intrinsic Motivation							
	Int. Motive	Confident	JobChoices	WorkConnect	Insecure	Superficial	ChainObligation
Did DYP (LATE)	0.045	0.008	0.075	0.001	0.025	0.026	0.105
	(0.074)	(0.072)	(0.074)	(0.075)	(0.073)	(0.077)	(0.073)
Control mean	5.649	5.817	5.508	5.658	5.617	5.598	5.698
Control S.D.	1.144	1.189	1.331	1.249	1.245	1.304	1.298
N	1264	1264	1264	1264	1264	1264	1264
Panel B: Meaningful Work Index							
	MeaningWorkIndex	WorkImportant	WorkPersonal	WorkWorthwhile	WorkSignificant	WorkMeaningful	WorkValuable
Did DYP (LATE)	0.134*	0.077	0.146**	0.112	0.132*	-0.031	0.061
	(0.072)	(0.075)	(0.068)	(0.077)	(0.071)	(0.080)	(0.076)
Control mean	5.638	5.268	5.992	5.527	5.763	4.816	3.578
Control S.D.	1.124	1.418	1.218	1.325	1.267	1.317	1.462
N	1264	1264	1264	1264	1264	1264	1264
Panel C: Meaning and Impact at Work							
	MeaningImpact	NotJustJob	WorkPride	Contribute	Accomplish	MeaningWork	MeaningOutWork
Did DYP (LATE)	0.343***	0.191***	0.189**	0.147*	0.178**	0.180**	0.344***
	(0.075)	(0.073)	(0.078)	(0.081)	(0.074)	(0.077)	(0.078)
Control mean	4.758	5.802	5.035	5.009	4.863	4.121	3.720
Control S.D.	0.865	1.107	1.375	1.346	1.688	1.630	1.561
N	1264	1264	1264	1264	1264	1264	1264

Note. This table reports LATE (*Did DYP*), in which the variable for participating in the DYP workshop, *Did DYP*, is instrumented with invitation treatment. All regressions include country fixed effects, and Huber-White robust standard errors are reported. All outcome variables are standardized using the corresponding baseline control mean and standard deviation, while the control means and control standard deviations report raw endline values. In panel A, outcomes variables for *Intrinsic Motivation* are the *Intrinsic Motivation Index* itself plus all its components used to construct the index as in Table B.2. In panel B, outcome variables for *Meaningful Work Index* are the Meaning at Work Index itself plus questions corresponding to those in Table B.2 used to construct the index. Similarly, in panel C, outcome variables for *Meaning and Impact at Work* are the overall index plus the four corresponding questions (ordered the same way).

Table A.5: Meaning and happiness: controlling for pay

	(1) Meaning	(2) Job satisfaction	(3) Happiness
Did DYP (LATE)	0.106**	0.228***	0.145**
	(0.052)	(0.068)	(0.069)
Pay + Bonus (log)	-0.170***	-0.129*	-0.104
	(0.061)	(0.077)	(0.076)
Received Invitation (ITT)	0.077**	0.166***	0.106**
	(0.038)	(0.049)	(0.050)
Pay + Bonus (log)	-0.166***	-0.120	-0.098
	(0.061)	(0.076)	(0.076)
Control mean	4.888	5.338	4.846
Control S.D.	0.801	1.289	1.183
N	1263	1263	1263

Note. This table reports LATE (*Did DYP*) and ITT (*Received Invitation*). When estimating LATE, the variable for participating in the DYP workshop, *Did DYP*, is instrumented with invitation treatment. Country fixed effects are included in regressions, and Huber-White robust standard errors are reported. In all regressions, *Pay + Bonus (log)*, the log of the sum of a worker's fixed pay and performance bonus, is controlled. Outcome variables are standardized using the corresponding baseline control mean and standard deviation, while the reported control means and control standard deviations are raw endline values. Each outcome variable is an index constructed from survey questions on meaning, job satisfaction, and happiness, respectively, where workers declare how much they agree with statements related to the three themes, from 1 (strongly disagree) to 7 (strongly agree). See Table B.2 for the construction of these indices.

Table A.6: Team collaboration and overlap with company: controlling for pay

	(1) Team collab.	(2) Rel. w. manager	(3) Overlap with colleague	(4) Overlap with company	(5) Overlap with community
Did DYP (LATE)	0.130*	0.172**	0.202***	0.254***	0.090
	(0.072)	(0.074)	(0.075)	(0.072)	(0.078)
Pay + Bonus (log)	-0.112	-0.012	-0.122	-0.036	-0.222**
	(0.084)	(0.085)	(0.087)	(0.083)	(0.094)
Received Invitation (ITT)	0.095*	0.126**	0.147***	0.185***	0.066
	(0.053)	(0.054)	(0.054)	(0.052)	(0.057)
Pay + Bonus (log)	-0.107	-0.005	-0.114	-0.026	-0.218**
	(0.083)	(0.085)	(0.088)	(0.084)	(0.094)
Control mean	5.657	5.466	5.073	4.920	4.438
Control S.D.	1.114	1.426	1.360	1.379	1.554
N	1263	1263	1263	1263	1263

Note. This table reports LATE (*Did DYP*) and ITT (*Received Invitation*). When estimating LATE, the variable for participating in the DYP workshop, *Did DYP*, is instrumented with invitation treatment. Country fixed effects are included in regressions, and Huber-White robust standard errors are reported. In all regressions, *Pay + Bonus (log)*, the log of the sum of a worker's fixed pay and performance bonus, is controlled. Outcome variables are standardized using the corresponding baseline control mean and standard deviation, while the reported control means are raw endline values. The outcome variables are constructed from the endline survey, based on the "Adapted Inclusion of Others in Self (IOS) scale" (Aron et al., 2004).

B Appendix: Field implementation

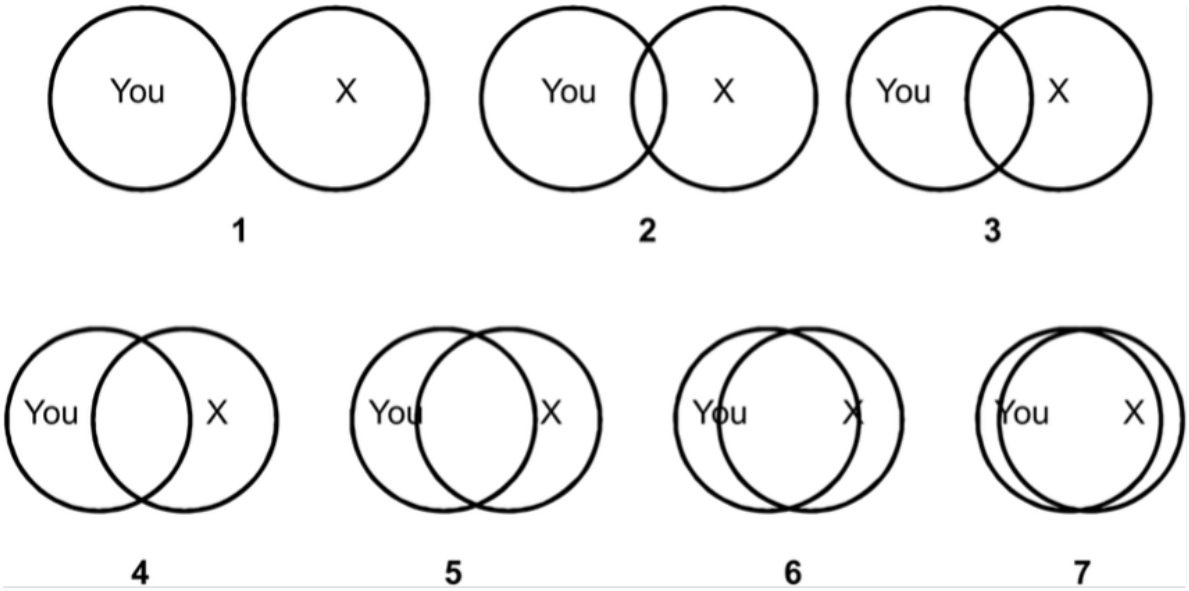
B.1 Qualitative evidence from focus groups

Table B.1: Anonymous quotes from the focus groups

No.	Quotes
1	*Being conscious of my purpose and being able to clearly articulate it to others means that I can proactively use it to steer my decisions inside and outside of work.*
2	*Since discovering my purpose I feel more recognition and empowerment to continue to do what I am best at. Your purpose should be something that you can action daily.*
3	*If I'm wondering, demotivated, or struggling, I can go read it and the meaningfulness of it and what sits behind it comes back to me.*
4	*You will probably find that your purpose statement is something that you have known about yourself but never been encouraged to put it into words. Once verbalized, it will be very easy to remember.*
5	*I read my purpose statement every morning to keep it in the back of my mind at all times, facilitate prioritization and allow it be a driving force on my actions and decisions.*
6	*I keep a journal to reflect often on what you are doing both at work and outside of work and if it fits with your purpose.*
7	*For 8 years, I had a monotonous lifestyle of work-home-work that I felt like a robot just trying to make ends meet that I came to forget and took for granted what is most important for me. Thanks to this workshop, it has reminded me of why I am doing this in the first place - for my family. So it has given me the drive to continue pursuing my career and to live life fully.*

B.2 Variable lists

Overlap in interests with colleagues, company, and community. Based on the "Adapted Inclusion of Others in Self (IOS) scale" (Aron et al., 2004), which measures the extent to which individuals perceive community- and self-interest as overlapping. IOS has been validated across a wide variety of contexts, and adapted versions are found to be strongly correlated with environmental behavior (Schultz, 2002) and connectedness to the community (Mashek, Cannaday and Tangney, 2007). We code the measure from 1 to 7, where 7 implies the highest overlap. Workers are asked to choose between sets of pictures, each showing two circles (labeled "self" and "community") with varying degrees of overlap, from non-overlapping to almost completely overlapping.



Notes. The term "x" indicates colleagues, company, and community, respectively.

Table B.2: Variable construction: survey measures

Variable	*Components*	*Details*	*Possible answers*
Panel A: Feedback from "Discover Your Purpose" Workshop			
Workshop expectations	I have high expectations about the workshop and I believe it will be a valuable experience.	Index formed by adding together responses.	1 Strongly disagree - 7 Strongly agree
	The workshop will probably be a waste of time.	Reverse coded.	1 Strongly disagree - 7 Strongly agree
Workshop engagement	Overall this workshop was a valuable investment of my time.	Index formed by adding together responses.	1 Strongly disagree - 7 Strongly agree
	I felt the facilitator was helpful, engaging and prepared to run the session.		1 Strongly disagree - 7 Strongly agree
	Would you be interested in becoming a facilitator?		0 No - 1 Yes
Purpose discovery	I managed to find a unifying purpose sentence or a group of words that inspired me.	Index formed by adding together responses.	1 Strongly disagree - 7 Strongly agree
	These words still resonate with me now.		1 Strongly disagree - 7 Strongly agree
Purpose use	Have you written your purpose down so that you could see it frequently?	Index formed by adding together responses.	0 No - 1 Yes or not yet
	Have you shared your purpose with members of your family and/or friends?		0 No - 1 Yes or not yet
	Have you shared your purpose with members of your team at $<$ *company* $>$?		0 No - 1 Yes or not yet
	Have you shared your purpose with your line manager?		0 No - 1 Yes or not yet
Alignment with job	I feel I am currently living my purpose in my everyday job.		1 Strongly disagree - 7 Strongly agree
Alignment with company	I feel I can live my purpose at $<$ *company* $>$.		1 Strongly disagree - 7 Strongly agree
Panel B: Motivation, job satisfaction and SWB			
Intrinsic Motivation	I feel confident that I can do things well on my job.	Index formed by adding together responses.	1 Strongly disagree - 7 Strongly agree
	I feel my choices on my job express who I really am.	Subset of questions from the BPNSF Scale	1 Strongly disagree - 7 Strongly agree
	At work, I feel close and connected with other people who are important to me.	(Chen, Vansteenkiste, Beyers, Boone, Deci, Van der Kaap-Deeder, Duriez, Lens, Matos, Mouratidis, Ryan, Sheldon, Soenens, Van Petegem and Verstuyf (2015); Schultz, Ryan, Niemiec, Legate and Williams (2015)).	1 Strongly disagree - 7 Strongly agree
	I feel insecure about my abilities on my job.	Reverse coded.	1 Strongly disagree - 7 Strongly agree
	I feel the relationships I have at work are just superficial.	Reverse coded.	1 Strongly disagree - 7 Strongly agree
	My daily activities at work feel like a chain of obligations.	Reverse coded.	1 Strongly disagree - 7 Strongly agree
Meaningful work index	The work I do on this job is very important to me.	Index formed by adding together responses.	1 Strongly disagree - 7 Strongly agree
	My job activities are personally meaningful to me.	From Psychological Meaningfulness Scale (PMS) (May, Gilson and Harter, 2004).	1 Strongly disagree - 7 Strongly agree
	The work I do on this job is worthwhile.		1 Strongly disagree - 7 Strongly agree
	My job activities are significant to me.		1 Strongly disagree - 7 Strongly agree
	The work I do on this job is meaningful to me.		1 Strongly disagree - 7 Strongly agree
	I feel that the work I do on my job is valuable.		1 Strongly disagree - 7 Strongly agree
Meaning at work	Currently, how often do you spend time working towards the things that matter to you at work?		1% of my time - 99% of my time (7 point)
Meaning outside of work	Currently, how often do you spend time working towards the things that matter to you in your personal life?		1% of my time - 99% of my time (7 point)
Meaning and impact at work	My work has special meaning: this is not just a job.	Index formed by adding together responses.	1 Strongly disagree - 7 Strongly agree
	When I look at what we accomplish, I feel a sense of pride.	From Great Places to Work Survey used in Gartenberg et al. (2019)	1 Strongly disagree - 7 Strongly agree
	I feel good about the ways we contribute to the community.		1 Strongly disagree - 7 Strongly agree
	I'm proud to tell others I work here.		1 Strongly disagree - 7 Strongly agree
Job satisfaction	Overall, I am satisfied with my job.	Index formed by adding together responses.	1 Strongly disagree - 7 Strongly agree
	I am inspired to go the extra mile in my job.		1 Strongly disagree - 7 Strongly agree
Satisfaction with life scale	In most ways my life is close to my ideal.	Index formed by adding together responses.	1 Strongly disagree - 7 Strongly agree
	The conditions of my life are excellent.	From the SWL (Diener, Emmons, Larsen and Griffin, 1985).	1 Strongly disagree - 7 Strongly agree
	I am satisfied with my life.		1 Strongly disagree - 7 Strongly agree
	So far I have got the important things I want in life.		1 Strongly disagree - 7 Strongly agree
	If I could live my life over, I would change almost nothing.		1 Strongly disagree - 7 Strongly agree
Life Satisfaction	All things considered, how satisfied are you with your life as a whole these days?	World Values Survey.	1 Completely Dissatisfied - 7 Completely Satisfied
Subjective Happiness Scale	Compared to your peers, how would you describe your overall level of happiness and peace of mind?	Question adapted from SHS (Lyubomirsky and Lepper, 1999).	1 Very Unhappy or Discontent - 7 Very Happy and Content
Team collaboration	I have been able to collaborate effectively with the members of the teams I am part of.		1 Strongly disagree - 7 Strongly agree
Relationship with manager	I have been able to be open with my line manager about my goals and priorities.		1 Strongly disagree - 7 Strongly agree
Overlap with colleagues	Perceives colleagues' interests and self-interest as overlapping	Adaptation of Inclusion of Other in the Self scale (Aron, Aron and Smollan, 1992).	1 No overlap - 7 Highest overlap
Overlap with company	Perceives company interests and self-interest as overlapping	Adaptation of Inclusion of Other in the Self scale (Aron et al., 1992).	1 No overlap - 7 Highest overlap
Overlap with community	Perceives community interests and self-interest as overlapping	Adaptation of Inclusion of Other in the Self scale (Aron et al., 1992).	1 No overlap - 7 Highest overlap

B.3 Cost-benefit analysis with external consultants

Table B.3: Hourly rate comparison among consulting firms

Consulting Company	Position/Category	Hourly Rate
Ernst & Young	1 Partner (522310) 5 Seniors (522310)	1×$511.51 5×$223.62
Deloitte Consulting	1 HRC Advisory Executive III - (EPM) 5 HRT Operations Sr. Professional IV - (EPM)	1×$413.66 5×$223.00
KPMG	1 Partner 5 Experienced Senior Consultant	1×$382.73 5×$178.26
McKinsey & Company	1 Senior Partner - Executive/Strategy 5 Associate – Executive/ Strategy	1×$1,147.66 5×$479.07
Average: $1,993.83 **Average cost of one workshop participant:** $(\frac{\$1{,}993.83 * 8\ hours}{20\ workers}) = \$797.53$		

Notes. 1 Partner/Associate Partner equivalent, 5 consultants equivalent. We define the average workshop cost as the cost required to cover one worker. The DYP workshop lasts for 8 hours, and each workshop facilitator can cover 4 people simultaneously. The 1 Partner equivalent, 5 consultants equivalent team structure is based on a McKinsey proposal submitted to the New Jersey Office of Emergency Management in April 2020 (link). In particular, we build our estimation based on the first proposed team structure in section 4.0 PROFESSIONAL FEES, Exhibit 4.1. Note that we exclude the wider support team that is outlined as part of the proposed team structure in constructing the external cost estimates.

The company organizes the workshops in-house. Thus, they are relatively inexpensive. We now consider costs when hiring outside consultants.

We assume that external consultants will run the workshops with the same ratio of coordinators to participants as before. In addition, we assume that for every five consultants, there is a partner responsible for creating the curriculum and supervising the workshop implementation. Thus, the cost of running 20 workshop will be one day of 5 consultants and one day of a partner.

Table B.3 summarizes this cost for the most reputable consulting firms (McKinsey & Company, KPMG, Deloitte Consulting, and Ernst & Young). In particular, we use these well-known consulting firms' price lists as contractors to the government published on General Services Administration (GSA).[14] We use the higher range of figures to offset potential differences in the contract prices between government and private firms. The average cost of bringing in external workshop specialists amounts to $798 per attending employee. Using the way we defined Cost of DYP earlier, the estimated

[14]They can be found on GSA eLibrary Contractor Listing. All the price lists are retrieved on January 16th, 2024. Where there is pricing for multiple years (e.g., 2023, 2024, and 2025), we always use the earliest year possible.

cost is given below:

$$\text{Cost of DYP}^{External} = \text{Days Missed} + \text{Consulting Cost} + \text{Training Cost} =$$

$$\$321 + \$798 + \$718 = \$1,837$$

If the effect lasts only two years, the IRR of an externally conducted workshop drops to 2% after discounting. If the effect is more long-lasting, the workshop becomes profitable even when conducted by external consultants.

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