

A New Best Practice: Adopt positive incentives to align workforce with organization.

CERT National Insider Threat Center

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Abstract

A new best practice: “Adopt positive incentives to align workforce with organization.” can assist organizations in attracting employees to act in the interests of the organization. Positive incentives reduces the baseline insider threat risk. Positive incentives that align the workforce values and attitudes with the organization’s objectives form a foundation on which traditional security practices that rely on forcing functions can be built to improve the effectiveness and efficiency of the insider threat defense.

Best Practice: Adopt positive incentives to align workforce with organization.

HR	Legal	Physical Security	Data Owners	IT	Software Engineering
✓	✓	✓	✓	✓	✓

Attracting employees to act in the interests of the organization through positive incentives reduces the baseline insider threat risk. Positive incentives that align the workforce values and attitudes with the organization’s objectives form a foundation on which traditional security practices that rely on forcing functions can be built to improve the effectiveness and efficiency of the insider threat defense.

This practice is related to Practice 5, “Anticipate and manage negative issues in the work environment,” and Practice 8, “Structure management and tasks to minimize insider stress and mistakes.” The difference is that this practice focuses on the use of positive incentives to improve employee attitudes independent of whether a specific negative issue or insider stress exists or is even identifiable. The detection of negative work issues or insider stress is not necessary in order to gain value by adopting positive incentives to reduce insider incident frequency.

1. Protective Measures

Insider threat is unique in the realm of cybersecurity defense in that the potential threat agents—the organization’s employees and trusted business partners—play fundamental roles in accomplishing the organization’s mission. Insider goodwill is essential to both keeping intentional insider threat to a minimum and ensuring organizational success generally. The CERT Division’s research suggests that the organization’s practices and managerial processes can create a working environment conducive to insider threats by undermining insiders’ goodwill [Moore 2018, Moore 2015]. This is not to imply the organization is at fault in insider compromise – most insider threat cases are violations of law or agreements with the organization that are prosecutable in court. Nevertheless, organizations may reduce the *frequency of insider misbehavior* and *its associated costs* by instituting practices that reduce insider disgruntlement [Moore 2017]. Without properly dealing with the context in which insider threats occur, insider misbehaviors are likely to be *repeated as a natural response* to existing counterproductive practices.

Traditional security practices focus on negative incentives that attempt to *force* compliance through constraints, monitoring, and punishment. This CSG practice recommends adopting positive incentives for *attracting* individuals to act in the interests of the organization. Positive incentives focus on properties of the organizational context of workforce management practices – including those relating to the employees’ *job*, their *organization*, and the *people* with which they work:

- *Job Engagement* involves the extent to which employees are excited and absorbed by their work. Strengths-based management and professional development investments made by the employer are known to boost employee job engagement. Strengths-based management

focuses primarily on identifying and using an individual's personal and professional strengths in directing their career and managing their job performance [Buckingham 2010].

- *Perceived Organizational Support* involves the extent to which employees believe their organization values their contributions, cares about their well-being, supports their socio-emotional needs, and treats them fairly. Here, programs promoting flexibility, work/family balance, employee assistance, alignment of compensation with industry benchmarks, and constructive supervision that attends to employee needs can boost perceived organizational support [Eisenberger 2011].
- *Connectedness at Work* involves the extent to which employees want to interact with, trust, and feel close to the people they work with. Practices involving team building and job rotation can boost employees' sense of interpersonal connectedness, creating an experience of being embedded in valued relationships with coworkers, managers and the broader organization [Brien 2012, Malone 2012].

CERT research suggests the particular importance of Perceived Organizational Support [Moore 2016]. These findings are consistent with social exchange theory, and associated research on the employee-employer relationships, which shows that individuals reciprocate their employer's treatment of them, whether that treatment is perceived as good or bad.

Figure 1 depicts an extension of the traditional security approach with positive incentives. The right side of the figure depicts the traditional approach, which focuses on negative incentives that use employee restrictions and sanctions to prevent and punish abuse. This approach is based on a negative form of deterrence as promulgated in Deterrence Theory, which says that people obey rules because they fear getting caught and being punished. In this model, restricting, monitoring, and punishing employees deters abuse through negative reinforcement.

The left side of the figure shows organizational support (including organizational justice) as the foundation of positive deterrence. With this foundation in place, connectedness with co-workers and job engagement serve to strengthen an employee's commitment to the organization. Organizational support and connectedness also strengthen overall engagement in a feedback effect. This form of positive deterrence complements the use of negative deterrence by reducing the baseline of insider threat by improving employees' satisfaction, performance, and commitment to the organization.

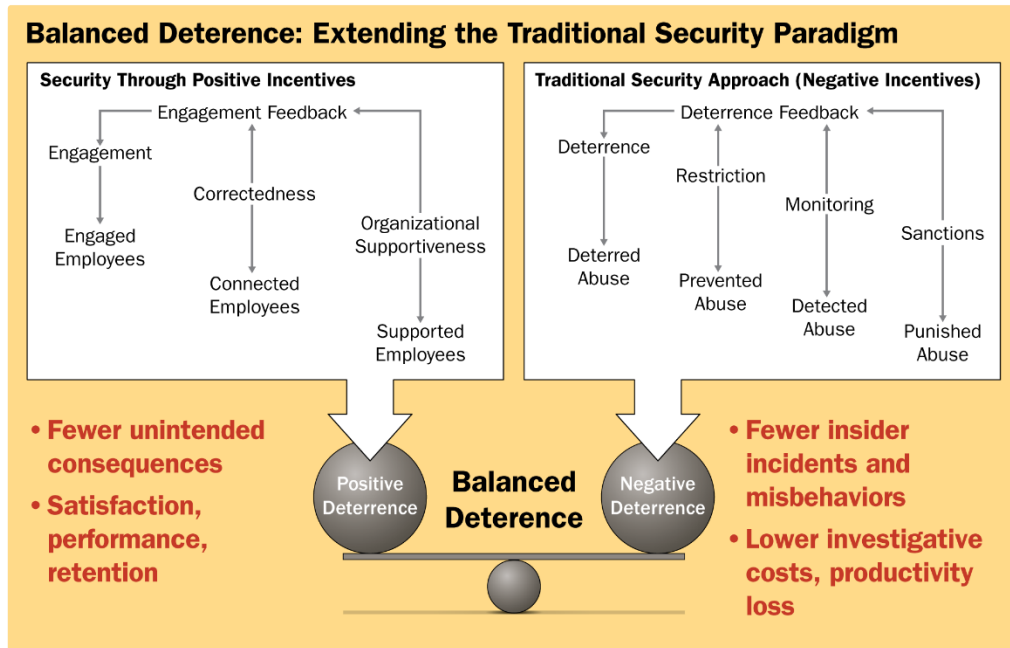


Figure 1: Extending the Traditional Information Security Paradigm (extended from [Straub 1998])

The right mix and ratio of positive and negative incentives in an insider threat program can create a net positive for both the employee and the organization—moving an insider threat program from a “big brother” program to a “good employer” program that actually improves employees’ work life. In effect, use of positive incentives can cause employees to view negative incentives as more legitimate and appropriate as a function of the enhanced relationship that employer positive incentives create. An insider threat program that balances organizational incentives can become an advocate for the workforce and a means for improving employee work life - a welcome message to employees who feel threatened by programs focused on discovering insider wrongdoing.

2. Challenges

1. Positive incentives are less tangible than traditional incentives. Managers may be more comfortable instituting constraints, and detecting and punishing misbehaviors rather than trying to improve satisfaction and decrease disgruntlement in the workforce.
2. Determining the right mix of positive and negative incentives can be difficult, and largely dependent on organizational culture. For example, environments that require high levels of innovation and creativity may require a larger percentage of positive to negative incentives, especially when an in-demand workforce may be alienated and attracted to the competition. More regimented environments that are based in rule following and proper conduct may thrive when negative incentives dominate their positive counterparts.

3. Case Studies

The claim made by this practice is that positive incentives, especially those that increase perceptions of organization support, can reduce the baseline insider threat risk by improving employee

attitudes. In contrast to the case studies described in other practices, which focus on example insider compromises that occur when the practice is not implemented, we describe studies that reflect the relationship between employee attitudes and lower insider threat.

Incident Analysis

Although job engagement and connectedness at work have been found to negatively correlate with counterproductive work behaviors, e.g., [Ariani 2013] [Sulea 2012], an initial analysis of intentional insider threat incident data suggests that perceived organizational support is a foundational positive incentive for reducing insider threat. In this project, a team of three CERT researchers rated information on real insider incidents along a 5-point scale for each of the three dimensions—job engagement, perceived organizational support, and connectedness with coworkers—as shown in Figure 2. The incident information came from public, non-sensitive sources such as media reports and published books. The high end of the scale (+2) indicates the most positive assessment of the dimension, whereas the low end of the scale (-2) indicates the most negative assessment.

To provide raters with clearer meanings regarding the scale’s response anchors, we provided an example at each anchor point and provided previously developed survey questions used in established assessments for each dimension. The final scales used for each dimension—with examples and clarifying questions—are provided in the full technical report [Moore 2016]. Because the information available for each incident is not always sufficiently detailed to answer each established survey question, this activity is inexact. To increase the accuracy and consistency of the rating process, the final rating for each incident was determined through discussion and consensus by the three raters involved.

Raters considered three incidents where intentional harm perpetrated by disgruntled insiders took place.¹ Figure 3 provides an overview of our analysis of each of the three incidents (Case1, Case2, and Case3) rated along the five-point scale, +2 to -2. The three dimensions are represented as separate graphs. Each incident is rated for each of three time periods—early, middle, and late. These time periods were specific and well-defined for each incident. The raters for each case also provided their assessment of the overall score for each dimension.

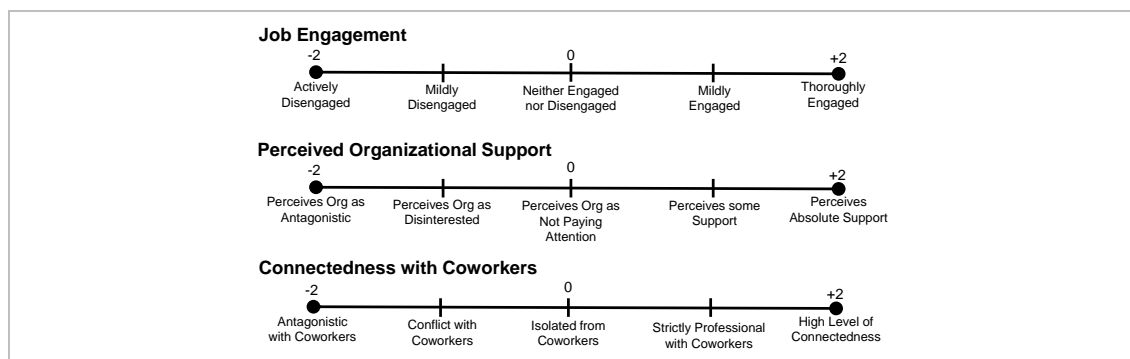


Figure 2: Overview of Five-Point Scales for Interest Alignment

¹ This report does not identify the insiders involved in the incidents rated.

As shown in Figure 3, Perceived Organizational Support was negative in all three incidents, while Job Engagement was negative in only two of the three (Case2 and Case3). Connectedness at Work was negative in only one of the three (Case2).

This finding was a bit surprising. As we looked at the incidents, it seemed like the individual in Case1 could be fairly engaged in their job despite conducting activities counter to the organization. Even more surprising, the individuals in Case2 and Case3 maintained fairly good relations with their co-workers while engaging in activities that betrayed both their organization and country.

Although it is impossible to draw general conclusions from this small number of cases, the results suggest that perceived organizational support is an important factor in using positive incentives to reduce insider threats. Of the three dimensions that we studied, the strongest negative correlation with counterproductive work behaviors found in the literature was also linked to perceived organizational support. The combination of evidence obtained from our case analysis and literature search argues in favor of focusing on the organizational support dimension for organizational quick wins and in our survey work discussed below.

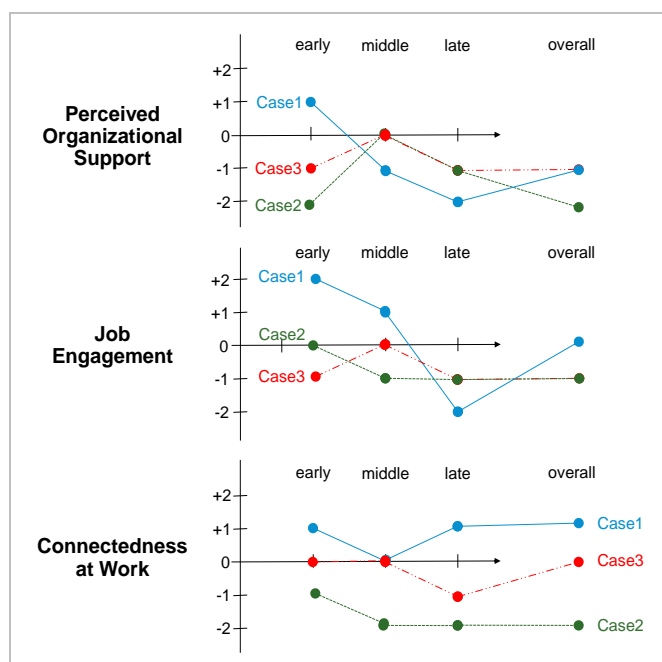


Figure 3: Incident Analysis Overview

Survey on Organizational Supportiveness and Insider Misbehavior:

For this project, we surveyed organizations from the Open Source Insider Threat Information Sharing Group—a group that meets regularly to discuss operational issues related to insider threat programs in their organizations—to understand how perceptions of organizational support influence insider cyber misbehavior. We used the 36 survey questions from the Survey of Perceived Organizational Support, which is based on a 5-point Likert scale (from 1 = *strongly disagree* to 5 = *strongly agree*) and has been extensively used and validated [Eisenberger 1986, Eisenberger

2011]. We developed our own 5-point frequency scale (from 1 = *never* to 5 = *all the time*, i.e., at least once a day) for insider cyber misbehavior; we based this frequency scale on precursors in CERT insider incident data and previously reported counterproductive work behaviors [Spector 2006]. The survey included 22 questions on the frequency of cyber misbehaviors.

We received 23 responses to this survey. Figure 4 illustrates the statistically significant, negative correlation between perceived organizational support and insider misbehavior.

We call workforce management practices that increase perceived organizational support *positive incentives* because they attempt to attract (rather than force) an employee to act in the interests of the organization. Our research report characterizes organizational support principles and practices in more detail [Moore 2016, Section 5] and our modeling and simulation work projects some of the benefits in terms of cost and threat reduction [Moore 2017].

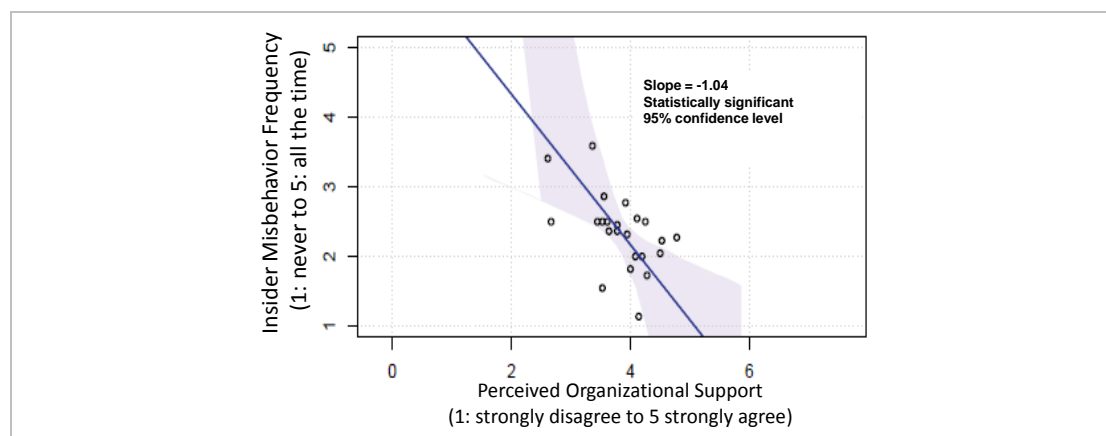


Figure 4: Negative Correlation between Perceived Organizational Support and Insider Misbehavior

4. Quick Wins and High-Impact Solutions

1.4.1 All Organizations

Organizational support appears to be important for reducing insider misbehaviors, and therefore is a good starting place for organizations wanting to capitalize on the power of positive incentives. Organizations can improve perceptions of organizational support in five basic areas

- ☐ Organizational justice (fairness) (e.g., compensation aligned internally among employees and externally with industry standards)
- ☐ Performance-based rewards and recognition (e.g., transparent criteria for promotions, and discretionary rewards/recognition based on project performance)
- ☐ Transparent and respectful communication (e.g., regular employee orientation, mentoring, and expectation setting)
- ☐ Personal and professional supportiveness (e.g., employee assistance programs and professional development for furthering employee careers and sense of mastery)

In addition, hiring staff that have values congruent with that of the organization's values is an important prerequisite for developing a workforce that can be positively incentivized to working on behalf of the organization. The above provides example workforce management practices that could positively incentivize employees - other practices are outlined in section 5 of [Moore 2016].

Organizations can choose to focus on practices that represent their own challenge areas for improvement.

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