

Chapter 8

Conceptualizing the Potential Role of IoT-Enabled Monitoring System in Deterring Counterproductive Work Behavior



J. Savitha and K. B. Akhilesh

Abstract With our society apparently becoming technology-obsessed day by day, business organizations would have to involuntarily adapt these innovations to be more efficient and productive. With respect to human resource management, lot many processes such as recruitment, training, and payroll have changed with the technology innovations. These technologies can further be used to detect any potential bad behaviors (also called as counterproductive work behaviors) in organizations. Researchers are increasingly focusing on these behaviors due to its effect on the well-being of the members of the organization and of the organization itself. Internet of things, abbreviated as IoT, is a technology framework that brings technologies together to execute specific actions. It is one of the most intriguing concepts that are attracting the attention of many organizations. This paper discusses the potential use of Internet of things in reducing counterproductive work behaviors (CWB). The paper emphasizes on different devices and techniques of identifying potential CWB. Further, the paper identifies some challenges the organizations might face while including IoT in its system.

Keywords Employee behavior · Counterproductive work behavior · IOT

8.1 Introduction

Organizational scholars are increasingly focusing on employee behaviors that are against the legitimate interest of the organizations. This increasing focus is because of its effect on the well-being of the members and also its cost to the company. Apart from direct costs to business from theft, Sabotage, there are indirect costs that result from reduced productivity, harming organization's reputation, loss of customer, etc.

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Considering the widespread presence and enormous costs of CWB, controlling these negative behaviors becomes crucial for corporate prosperity. Organizations try to stamp out these workplace evils with effective supervision, electronic surveillance, establishing conformity to rules, regulations, policies, and procedures, non-legitimated pressures, informal discussion, and decision making. Further, organizations rely on technological advances and adapt themselves to innovative changes to make the workplace more efficient, productive, and safe. For example, organizations use tech-enabled devices or Internet of things (IoT), people analytics for smoothening various process of human resource management from attendance, to recording of timesheets, and even monitoring for any possible bad behaviors in organizations.

Counterproductive work behaviors (CWB) can be reduced to the extent that organization controls, shape the employee's perception that any bad behavior will be monitored, caught, and punished and thus emphasizing the link between the perception of control system and behavior (Parilla et al. 1988). Technological advancements have reformed the monitoring systems in the workplace. Capturing and analyzing huge amount of information on employee's behavior are made easy by internet of things. The advancements in the field of people analytics and organization network analysis also substantiate that the employers are interested in advanced and innovative techniques to quantify employees. Research suggests that in the year 2015, 1 billion IoT-enabled devices have been shipped and according to the prediction of analysts demand for these devices will increase over 3000% in next four years (Deloitte 2015). Already, many business organizations have been relying on IoT-enabled devices to perform various tasks like watch traffic (using Cameras), monitor bridges (using stress gauges), and monitor and regulate temperature (using thermostats).

This paper intends to review the literature on counterproductive work behavior (CWB) and conceptualize the role of IoT technologies in deterring CWB in organizations.

8.2 Concepts of Counterproductive Behaviors

Robinson and Bennett (1995) quote Kaplan's definition as "the deviant acts that occur due to lack of motivation to conform and/or acquire the motivation to violate the normative expectations." According to this definition, all intentional violation of norms is considered as CWB with no focus on its consequences and the target (e.g., effects of these acts and whom does these acts affect). Robinson and Bennett (1995) defined the same by emphasizing on the consequences of these behaviors. They defined counterproductive behavior as intentional behavior that does not comply with organizational norms thereby threatening the well-being of the organization or members of the organization or both. This definition encompasses the intentional behaviors as opposed to accidental that are targeted at the individuals or organization or both that can have severe consequences on organization. A behavior is considered as CWB when an employee either lacks the motivation to conform to, or gets

motivated to violate the organization norms. Organizational norms here are formal or informal policies, procedure, or rules specified in any organization. Counterproductive work behaviors include any intentional employee behaviors that are against legitimate interest of an organization (Dalal 2005).

Marcus and Schuler (2004) identified the following conditions to be satisfied for any behavior to be called as counterproductive workplace behavior.

1. The act must be volitional (as opposed to accidental).
2. The behavior must be foreseen as harmful (they need not necessarily end up in an undesirable outcome).
3. The act must be against the legitimate interests of the organization.

On the same lines, Spector and Fox (2002) described CWB as intentional behaviors that hurt or aim to hurt the organization and/or its stakeholders like employees or clients/customers.

Counterproductive work behaviors are set of acts that can have potential harmful effects on organizations and its stakeholders. This set comprises of acts like theft, sabotage, and aggression that are overt in nature or some passive (covert) acts like intentionally making mistakes or working slowly. Less severe counterproductive work behaviors commonly occur before the decision to initiate a major damaging act. Grouping these behaviors based on expression (overt/covert), severity (major/minor), and target (organization/its members) will help simplify the process of understanding many of its underlying factors.

An accurate and comprehensive typology of counterproductive behaviors was developed by Robinson and Bennett (1995) by integrating and organizing numerous deviant workplace behaviors according to the target (individuals vs. organization) and severity of the behavior (major vs. minor). A combination of these two dimensions results in four types of deviant behaviors. Acts like leaving early and working slowly are categorized as production deviance that affects organization with minor severity. Acts such as sabotaging organization equipment, stealing, and lying about hours worked are referred to as property deviance that affects organization with major severity. Behaviors that are classified under political deviance are those that targets members of the organization. Exhibiting favoritism, gossiping, and non-beneficial competition can be classified as political deviance. Personal aggression like abuse, sexual harassment, and endangering others affects organization members with major severity.

Spector et al. (2006) identified five dimensions of CWB as production deviance, abuse, withdrawal, theft, and sabotage as shown in Table 8.1.

8.2.1 Antecedents of CWB

Literature shows many studies that would connect potential antecedents to different forms of CWB like aggression, theft, abuse, and so on. Fox and Spector (1999), in their work frustration-aggression model, identified many organization constraints as

Table 8.1 Five dimension of CWB (Source Spector et al. 2006)

Dimensions	Definitions
Abuse	Behaviors that intend to harm people in organization either psychologically or physically
Production deviance	Failure to execute the job tasks as required
Sabotage	Deface/destroy physical property of the organization
Theft	Unauthorized acquisition of property belonging to organization or its members
Withdrawal	Behaviors that limit the productive time in an organization

frustrating situation that would lead to CWB. The situations included constraints in the area of communication, time pressure policies, social support, training, etc. Bowling and Eschleman identified role ambiguity, role conflict, and overload as role stressors that may lead to CWB.

Cognitive interpretation of situation contributes to the particular emotion experienced and this emotion potentially influences the individual's behavior. An individual experiences negative emotions when he/she appraises a situation as stressful. Negative perception of a particular environmental event (situation) produces negative affective reaction that in turn prepares an individual to respond with CWB (Spector and Fox 2002). These affective reactions include job dissatisfaction, feeling of stress, frustration, anxiety, and anger that further stimulate and drive subsequent behavior (Fox and Spector 1999).

Other than the organizational situations, an employee's personal life situations or events also elicit negative emotions that might lead to CWB. Situations like financial problem, relationship problems, and addiction to drugs and alcohol can also encourage CWB. But not many empirical studies on these factors exist in the literature.

Apart from the above-mentioned environmental factors, individual factors are also considered to be influencing CWB. Some of the studies consider both environmental and individual factors as antecedents to CWB (e.g., Spector and Fox 2002). The CWB literature has a number of studies that links CWB with individual **traits** like **conscientiousness** (Bowling and Eschleman 2010), **agreeableness** (Skarlicki et al. 1999), **trait anger** (Fox and Spector 1999), and **locus of control** (Fox and Spector 1999). These personality traits may predispose an employee to acts of espionage, theft, violence, or destruction. These traits may be reinforced by environmental and organizational stressors.

8.2.2 Consequences of CWB

The exploding interest of researchers in CWB is a result of its increasing prevalence and the enormous cost associated with it. CWB is a common problem among almost all organizations with almost 95% of them reporting CWB experience (Henle 2005). Nearly 75% of employees have accepted their involvement in workplace deviant acts as absenteeism, theft, sabotage, embezzlement, or sabotage (Appelbaum et al. 2007)

According to Fox et al. (2001), CWB is a manifestation of behavioral strain. Job stressors can cause strain **psychologically** (e.g., turnover intention or job dissatisfaction), **physically** (e.g., symptoms of headache, physiological changes like variations in blood pressure), or **behaviorally** (e.g., addiction to alcohol, smoking, or lack of interest in work).

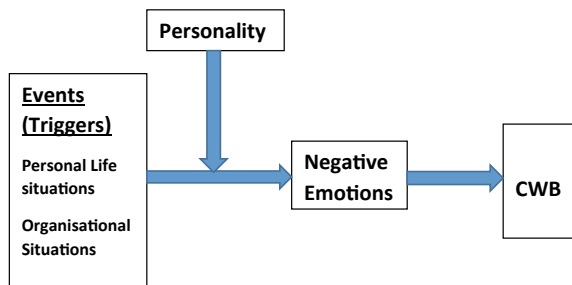
8.2.3 Emotion-Centered Model of CWB

There are a series of studies which highlight the central role of negative emotions in the relationship between different frustrating situations and resulting CWB (Fox and Spector 1999). This suggests a flow from environmental situations to its interpretation/appraisal and then to felt negative emotion that results in CWB. Spector and Fox (2002) quotes, “Emotion mediates the effects of environmental conditions on behavior” in his emotion-centered model of voluntary work behavior. The model identifies a variety of job/organizational conditions or situations (organization constraints, role conflicts, role ambiguities, conflict) that results in affective reactions (Fig. 8.1).

8.3 Internet of Things

The IoT can be viewed as a global digital nervous network of different devices and sensors that connects them with one another and with people (Vivekananth 2016).

Fig. 8.1 Causal model of counterproductive behavior



IoT technology does not restrict itself to a particular piece of device or a piece of technology. It has application for consumer wearables that track individuals heart-beat, oxygen consumed, step taken, posture, etc. to home appliances like refrigerator, washing machines, and lighting systems to monitoring and analytic systems that can be used in various organizations in all most all industries and sector. IoT refers to a technology framework that brings together many different technologies to execute specific actions.

The department of human resource management in any organization can make use of these innovative technologies in their activities, starting from the recruitment process to hiring of the employees and other different activities like payroll, and management of the benefits (Davenport et al. 2010). It assists in increasing the effectiveness and productivity of the employees in various ways. Firstly, it provides different means of collecting sufficient data by eliminating the chances of human error (Rose et al. 2015). This data further facilitates the HR personnel to come up with better decisions concerning employee safety, productivity, and effectiveness and also to optimize the strategy of the company with respect to the workforce. Eventually, organizations will be able to create a better workplace which is efficient, safe, and pleasant by looking at things like team interactions, productivity, travel and location trends, and patterns of communication.

8.3.1 IoT-Enabled Monitoring Tools

Inspecting worker performance is not a new concept as organizations have evaluated its workers for more than two hundred years, much before the emergence of industrial psychologists and human resource departments. In nineteenth century, FW Taylor, intending to identify the driving force of productivity, measured movements and behaviors of ironworkers in steel mills. Computers began to take over the workplace, assisting in all major activities. Using the data warehoused by HR departments, many companies were able to observe a relationship pattern between turnover and pay. Now, IoT technology empowers organizations to accumulate data regarding workplace activities that was out of reach to both employees and managers earlier.

8.4 Using IoT in Deterring CWB

Effective monitoring tools must take advantage of technology and go beyond the current standard that focuses on screening for biographic factors (i.e., criminal record, financial history) and the monitoring of computer and network activity.

Below are few IoT devices that can be used to reduce counterproductive work behaviors

1. Mobile Phones and Tablets

Mobile phones and tablets are very commonly used devices in any organizations. They provide easy access among the workforce. A solid mobile/digital culture can help establish a true beneficial connection between an employee and his or her team. This facilitates to reduce the misunderstanding between employees due to communication gaps and also helps to keep the employees abreast with the team's progress.

Further, HR department can publish suitable apps in the company's app store that can help employees select a flexible workspace or get access to any other facility like discussion hall, and training room with their mobile phones. A clear policy pertaining to these facilities can help the organization to optimally use the available organization resources and also avoid unnecessary conflicts among employees that might arise.

2. Wearable Health and Fitness Trackers

Going by the line, "Healthy people perform better and are more engaged," organizations are more concerned about their employee's health and fitness. Wearable devices such as Fitbit, smart watches, heart rhythm trackers, and other similar fitness trackers can help organizations quantify their employees by capturing data on employee's sleep, exercise, diet, pulse, movements, etc. They provide valuable information about the stress levels, fatigue, or any other anomalies in employee behavior.

This can also raise the question of employee privacy. For example, trackers that can monitor alertness on the job can warn truck drivers who can be scanned for fatigue while driving to prevent possible accidents. In the above case, the benefits to the employees outweigh the privacy concerns. Further, data from these devices can also be used to indicate the possible lack of employee engagement.

3. Attendance and Location Trackers

Connected ID badges or trackers with RFID chips can be used to monitor individual's whereabouts and movements. They can open doors and allow access to those facilities an employee is entitled for. This system reduces the possible misuse of organization resources and facilities. They have the advantage of providing continuous information when compared with outdated clocking system or biometric devices. These devices can also help monitor and analyze personal behavior and identify any possible "conduct risks" and take necessary action to mitigate them.

Sociometric badges that provide information about location, voice, and movement allow the analyst to know when people are stressed. The database system correlates with factors like "participants of the meeting," "time spent together by the team members," and even the person "who is pushing back his chair," with employee's level of stress and other factors of productivity. Data on these factors enables organization to identify possible CWB like interpersonal conflicts, abuse, and social loafing.

4. Social Media Data

In the present day scenario, individuals tend to be socially active by regularly tweeting, posting on blogs, emailing, texting, etc. This social media data brings in valuable inputs that can be used to analyze individuals based on their written and verbal words in day-to-day conversations. Most of this technology was developed for retailers to better understand their customers and product preferences. Some of this technology is referred to as sentiment analysis or micro-segmentation for marketing purposes.

Most relevant tools that use social media data to assess the risk of workplace bad behavior are personality mapping (psycholinguistics), life-event detection (text analytics), and emotion detection (sentiment analysis). Psycholinguistic tools analyze social media post by categorizing an individual's words and mapping them to psychological classifications that determine personality traits, values, fundamental needs, and emotional state. For example, words such as "with," "together," and "in" map to the work category "Inclusive," which then corresponds to the personality trait "agreeableness," which is associated with compassion and cooperation toward other people. Technologies such as natural language processing (NLP) and dictionary-based/rules-based text extraction have been able to detect not only life events but also emotional changes immediately following the event by using social media data.

Spector and Fox's (2002) emotion-centered model explains the transformation process where the organization events (in general, it can be personal life events as well) bring in negative emotions that encourage employees to commit CWB. Monitoring an employee's communication would help organizations to understand general intentions of any individual by decoding information on their life stressors and emotions. This also helps to detect potential CWB early in the transformation process.

8.5 Challenges with IoT

These technologies apart from being of much value to the organization pose some challenges also.

1. With both work-relevant and non-relevant data flooding in, the organizations using these applications must be equipped with relevant expertise to meaningfully interpret this data.
2. Data fuels the IoT. Very less or incorrect information can lead to wrong interpretation whereas too much information complicates the entire process. Organizations must be able to capture adequate and valuable data.
3. Many employees may not be comfortable if their bosses have unrestricted visibility into their activities at workplace as they fear privacy invasions and worry about how non-work activities could impact their job. Also, research shows that 75% of employees feel that their employers are collecting data about them without their knowledge (Mary 2013).

4. Continuous monitoring and too much surveillance may also end up with reduced employee engagement or generate frustration and stress.
5. Organizations must identify and design IoT applications that are suitable for them. Requirement of a package delivery companies can be different from that of a product designing firm. Ultimately, it should improve performance efficiency at the same time offering employees obvious, tangible value.
6. These monitoring systems are continuous and pervasive. If not managed effectively, it can encourage employees to assume organization unfairness and that might also lead to reduced organization commitment.

8.6 Conclusion

IoT technology helps to make workplace more efficient, productive, and meaningful for both organization and its members. It equips organization leaders to address many problems and make the company much more competitive by carefully balancing the business needs with employee's objectives of lifestyle and privacy concern.

The benefits of these technologies have to be clearly communicated to the employee. Organizations must develop policies and procedures for data governance, clear process to ensure data security, authorized access, and accountability for security and quality standards. Monitoring of email, social media, and other communications must be consistent with legal and regulatory requirements, organizations' internal policies, and other guidelines in ways that balance security requirements and employees' privacy rights.

Establishing a foundation of trust is a must when organizations intend to incorporate these IoT enable technologies to their workplace. This trust in turn ensures the user buy-in and compliance by the employees.

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