ASSESSING THE TRUE COST OF OPERATIONAL DOWNTIME
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Overview

Despite innovations in print and mail production, and finishing and sorting technologies, many businesses are still dealing with the drag operational downtime places on productivity and profit.

Minor interruptions in production output that result from a brief equipment failure can be made up by employees’ working a little longer. But when that downtime stretches to hours and days, the loss can be more permanent.

To assess the true cost of operational downtime, Bell and Howell conducted a study to examine the concerns with respect to downtime and the number of incidents of downtime they faced in a typical year. Furthermore, participants also shared how downtime negatively impacts their customer experience and how they combat, or plan to combat it, with preventative maintenance and other proactive efforts.

This report summarizes the results.

Downtime /ˈdounˌtɪm/ is defined as a time where a machine is out of action or unavailable for use.
Key Findings

More than 80 percent of respondents of this study belong to a mail presort operation, while 45.83 percent are from a company with more than $10 million in annual revenue.

Operational Downtime

It’s interesting to note that idle employees was the biggest concern when dealing with operational downtime (66.67 percent). And just as downtime can be minimized with a good maintenance program, so can idle time with good workflow management tools.

Respondents also noted customer satisfaction as the primary concern when it came to operational downtime (58.33 percent).

Downtime Incidents

When asked to report the number of downtime incidents within the past 12 months, 54.17 percent responded with more than three. Additionally, 60.87 percent reported between two to six hours of average duration of downtime incidents at their operation. Interestingly, 52.17 percent reported that zero to six hours is the maximum length of downtime per incident they are willing to tolerate before it negatively impacts their customer experience. Having a successful preventative maintenance program outweighs the cost of unscheduled downtime.

Additionally, an overlooked benefit of a contracted maintenance program is reduced downtime due to the recognition of components being obsolete.

Preventative Maintenance

The goal of a successful preventative maintenance program is establishing consistent practices designed to improve equipment performance and safety. More than 66 percent of respondents reported that they had preventative maintenance performed more than four times a year.

Data Protection and Recovery

Operational downtime poses a major threat to business continuity for mail operations of all sizes. That is why many print and mail operations are turning toward data protection and recovery to backup and restore their operational data and system configuration. More than 61 percent of respondents reported that they average backing up their system configurations between one and four times a year.

Optimal Efficiency

The ability to run a successful business relies on their equipment’s operating at optimal levels. More than 47 percent of respondents rated their critical equipment’s optimal efficiency as average when compared with when it was new. Additionally, 52.38 percent rated their critical equipment’s optimal efficiency as average when compared with others in the industry.
Study Demographics

More than 625 mail and print professionals were invited to participate in this study on assessing the true cost of downtime. As shown in Figure 1 below, the majority of the respondents belong to a mail presort operation (80.77 percent), with the second most belonging to an in-plant or in-house print and/or mail operation (46.15 percent).

FIGURE 1. Industry Breakdown

*Other: Total mail processing folding/inserting/package processing, card manufacturer, election services and fulfillment
Next, respondents were asked to identify the size of their company in terms of annual revenue. As shown in Figure 2 below, the majority of respondents belong to a company with more than $10 million in revenue (45.83 percent), and the second most belong to a company with an annual revenue between $5-$10 million (25.3 percent).

FIGURE 2. Company Size in Terms of Revenue
Defining Operational Downtime

We suspected that operators would each have their own view of what “downtime” means to them, so we asked them to define downtime as it relates to their operation. Not surprisingly, an overwhelming majority of respondents confirmed that – for them – downtime relates to the time during which an equipment is not operational. More specifically, the majority of respondents said that downtime relates to a lack of production due to equipment failure.

Some respondents included the time a machine is down and undergoing scheduled maintenance in their definition of downtime. Finally, at least one respondent defined downtime in terms of resources that sit idle or underutilized during a period that should otherwise be productive.

“[Downtime is the] inability to process mail due to mechanical, electrical or software-related issues outside the control of the operator.”

“Downtime results in lost production time, which means the delay of getting our customers their correspondence to them in a timely manner.”

“Downtime is any time an asset, including personnel, is available during scheduled business hours to perform functions, but there is insufficient work to justify the use of the asset.”

“[Our definition of downtime is being] unable to process mail because of a lack of on-hand parts or an on-site technician when a system is down.”
Operational Downtime Concerns

Respondents were asked to identify their areas of concern with respect to downtime in their operation. As shown in Figure 3 below, the majority of respondents said that idle employees was a concern more than any other single factor, while customer satisfaction (62.5 percent) came in second. Excess labor costs (58.33 percent), lost or missed revenue (45.83 percent), repair costs (41.67 percent), employee morale (33.33 percent), quality of finished product (33.33 percent) and other* (25 percent) rounded up the bottom.

It is important to note that a majority of respondents selected all of the available responses as operational downtime concerns, indicating that downtime has a broad negative impact on their operation.

FIGURE 3. Operational Downtime Concerns

*Other (write-in): inability to meet required service level agreements, delayed election results and political implications, and waiting for technical support.
But when respondents were asked to pick their number one concern when it came to operational downtime (as shown below in Figure 4), the majority selected customer satisfaction (58.33 percent). Lost or missed revenue (16.67 percent), excess labor costs (12.5 percent), repair costs (8.33 percent) and quality of finished product (4.17 percent) were the next listed primary concerns.

It is important to note that employee morale and idle employees were not selected by any of the respondents as their primary concern.

**FIGURE 4. Primary Operational Downtime Concern**
Downtime Incidents

We wanted to understand how often mail professionals see downtime in their operation. So we asked them to report the number of downtime incidents they had experienced in the past 12 months, as shown below in Figure 5. The majority experienced more than three incidents in the last year (54.17 percent), with some reporting two to three incidents (20.83 percent) and some with only one incident (20.83 percent). However, there was a small percentage (4.17 percent) who reported zero downtime incidents at their facility.

**FIGURE 5.** Downtime Incidents Experienced in Last 12 Months
While downtime incidents vary in duration, the vast majority appear to last for fewer than 6 hours. Figure 6 shows the majority of respondents who said they experienced between two to six hours (60.87 percent), while others experienced an average of two hours (13.04 percent), six to 12 hours (8.70 percent) and more than 12 hours (13.04 percent). There were a few number of respondents who pointed out that downtime was not applicable in their case (4.35 percent).

**FIGURE 6. Average Duration of Downtime Incidents**
The effects of downtime can often be negative and permanent, and in some cases can result in losing a customer. We wanted to understand where the threshold for serious customer impact was, so we asked what the maximum duration of a downtime incident they are willing to tolerate before it negatively impacts their customer experience. Figure 7 shows that the majority of respondents (52.17 percent) said between zero to six hours, with others stating between six and 12 hours (26.09 percent) and more than 12 hours (4.35 percent).

It is interesting to note that a portion of respondents (17.39 percent) had zero tolerance for even the slightest downtime.

**FIGURE 7. Tolerated Length of Downtime Per Incident Before It Negatively Impacts the Customer Experience**

<table>
<thead>
<tr>
<th>Duration</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Hours</td>
<td>17.39%</td>
</tr>
<tr>
<td>0-6 Hours</td>
<td>52.17%</td>
</tr>
<tr>
<td>6-12 Hours</td>
<td>26.09%</td>
</tr>
<tr>
<td>More than 12 Hours</td>
<td>4.35%</td>
</tr>
</tbody>
</table>
Unplanned Downtime

A system’s being unable to perform due to unforeseen failure in hardware or software components, or operator mistakes, can be extremely costly to any organization, especially those that rely on 24-hour service. But unexpected downtime can result from a number of different causes, and it can sometimes be difficult to identify them.

Respondents were asked what they thought was the primary cause of unplanned downtime. A majority of them agreed that unplanned downtime was a result of equipment failure. Some respondents pointed to human error, while some listed the age of the equipment as the reason for unplanned downtime.

“Unplanned downtime is a result of not being able to identify potential equipment failures.”

“Lack of on-site replacement parts, and early cutoff times for ordering replacement ones are often the cause of unplanned downtime.”

“Unplanned downtime is a direct result of wear and tear on machines.”

“Unplanned downtime is often caused by excessive troubleshooting time, since some technicians are not as knowledgeable as others.”
Preventative Maintenance

The term, “if it ain’t broke, don’t fix it,” still applies to many organizations. And yet, for many years, preventative maintenance has been the gold standard across industries.

The goal of a successful preventative maintenance program is establishing consistent practices designed to improve equipment performance and safety. But there remains an active debate on whether a preventative maintenance program is worth having in place.

Do the man hours and money invested in a program outweigh the cost of emergency repairs? And what are other benefits of a successful preventative maintenance program?

Respondents were asked how many times on average, they performed preventative maintenance on their equipment in a given year. As shown below in Figure 8, the majority of respondents (66.67 percent) had preventative maintenance performed on their equipment more than four times a year. Others reported that they had preventative maintenance performed between three and four times (19.05 percent) and one and two times (14.29 percent).

Interestingly, there were some respondents (17.39 percent) who reported having performed no preventative maintenance on their systems.

FIGURE 8. Average Number of Times Preventative Maintenance is Performed Within a Year
Operational downtime poses a major threat to business continuity for mail operations of all sizes. In fact, prolonged downtime can even force businesses to shut down. Of course, with time and effort, normal business operations can be restored, but a damaged reputation may never heal.

That is why many print and mail operations are turning toward data protection and recovery to backup and restore their operational data and system configuration. For instance, a sorting operation typically includes anywhere from five to 45 individual computers and servers. And while designed for industrial applications, these computers are not immune to hard disk and other failures that can corrupt data, wipe out configurations and bring sorting services to a halt.

Respondents were asked how often they back up their system configurations on average, every year.

As Figure 9 illustrates, the majority (61.90 percent) reported that they backup their systems between one and four times a year. Others reported that they back up their systems between five to 10 times a year (28.57 percent) and some (9.52 percent) said they back up more than 10 times a year.

It is encouraging to note that not a single respondent reported to not having any sort of systems configuration back up in place.

**FIGURE 9.** Average Number of Times a System Configuration is Backed Up Within a Year
Preventing and Minimizing Downtime

Planning is the biggest advantage of preventative maintenance. Unplanned, reactive maintenance has many overhead costs that can be avoided through proactive planning. The cost of unplanned maintenance includes lost production, higher costs for parts and shipping, as well as time lost responding to emergencies, and diagnosing faults while the equipment is not working.

Respondents were asked how they could be better prepared to prevent or minimize downtime at their operation. A majority of them agreed that having spare parts onsite would help minimize downtime. Others added that having an effective preventative maintenance program in place was vital to their business.

“Unplanned downtime can be drastically reduced by having parts on site, or having them delivered the next day.”

“Access to support 24/7 helps minimize downtime.”

“Having a well-designed preventative maintenance program in place is key to keeping downtime to a minimum.”
Optimal Efficiency

For many companies, the ability to run a successful business relies on their equipment’s operating at optimal levels. And while the price of a regular maintenance plan may initially feel like a costly investment, it is often significantly less costly than the expense of a major equipment breakdown that results in a production or service interruption.

One of the objectives was to better understand how equipment age affects operational efficiency. Respondents were asked how they would rate their critical equipment in terms of optimal efficiency compared with when it was new. As shown in Figure 9, the majority (47.62 percent) rated their equipment’s efficiency as average, while others rated it slightly above average (28.57 percent) and above average (14.29 percent) and. Below average and slightly below average were both tied (4.76 percent).

**FIGURE 9.** Rating Critical Production Equipment in Terms of Optimal Efficiency Compared with When it Was New
Next, respondents were asked how they would rate the efficiency their critical equipment compared with others in the industry (their peers or competitors). As shown in Figure 10, the majority (52.38 percent) rated their equipment’s efficiency as average, while others rated it slightly above average (33 percent), below average (4.76 percent) and slightly below average (4.76 percent).

It is interesting to note that not one respondent reported having their equipment be above average when compared with others in the industry.

**FIGURE 10.** Rating Critical Production Equipment in Terms of Optimal Efficiency Compared with Others in the Industry
Executive Summary

Many businesses are still dealing with the drag operational downtime places on productivity and profit, despite innovations in print and mail production, and finishing and sorting technologies.

When it comes to assessing the true cost of operational downtime, the results of this research show that idle employees ranked as the biggest concern (66.67 percent) for respondents. Additionally, customer satisfaction was a primary concern (58.33 percent) for respondents.

Additionally, operational downtime poses a major threat to business continuity for mail operations of all sizes. And many print and mail operations are turning toward data protection and recovery to backup and restore their operational data and system configuration (61.90 percent of respondents).

The ability to run a successful business relies on their equipment’s operating at optimal levels. One of this report’s objectives was to better understand how equipment age affects operational efficiency. The majority of respondents rated their equipment as average (47.2 percent).

If an organization’s in-house experts can initiate and manage a successful preventative program, then great. But if not, it is imperative to find a qualified organization to get and keep the ball rolling.
About this Research

Bell and Howell is shaping the future of mail and commerce. We deliver innovative service and technology solutions that enrich customer communications and fulfillment for the world’s largest finance, industry and public sector enterprises. Our software and hardware streamlines high-volume, high-integrity production of customer communications and products, maximizes postal discounts and monetizes every customer touchpoint. Our service organization is among the most sophisticated in the world of production workflow, automation and industrial mechatronics.

Headquartered in Research Triangle Park, N.C., with offices around the world, Bell and Howell is the trusted partner of thousands of organizations globally.

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