White paper

Rethinking TEM/EMM savings in the coming era of mass change events

As IoT Threatens to Create the Most Confusion, Enterprises Must Shift Perceptions and Actions Now

An AOTMP White Paper on Behalf of NTT Ltd.

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Introduction: The Coming Technology Barrage

Every technology management program – including telecom, mobility and IT – has room to improve and mature, especially as new advancements make their way into the enterprise. To that point, the advent of 5G, and the increasing adoption of Internet of Things (IoT) devices and their associated services, make that reality all the more prescient. Enterprises must get their telecom, mobility, and IT expense management practices under control now before 5G and greater reliance on IoT create new problems.

One of the most pressing domains to address is that of supposed savings gleaned from ongoing audits. When savings continue to come through, they indicate oversights; they are missed opportunities that, contrary to popular opinion, actually point to inefficiency. Most of the time, 'savings' stem from errors and overages caught after the fact, rather than proactively. As 5G and IoT gain traction, change events – the underlying change that spurs the need for a move/add/change/delete (MACD) transaction – will happen more often. Therefore, enterprises must assess and, where needed, correct their expense management practices to ensure they can handle the inevitable tidal wave of change events with precision. Considering that IT and mobility will make up the majority of technology spending from 2020 to 2022, this is imperative.

Setting the Stage: Projected Global IT, Mobility, and Telecom Spending

According to AOTMP Efficiency First® Analytics, the information technology segment, which broadly includes hardware, software, and services (IoT comprises a portion of all this), will produce the most significant compound annual growth rate (CAGR) of 4.3% year- over-year the next four years. In dollars, that stands out as a jump from USD 2.2 trillion in spending in 2020 to nearly USD 2.5 trillion by 2022. Note, however, that IoT on its own will stand out from the crowd.

"We would expect IoT growth to be higher than the average for the information technology segment," said Scott Lawrence, vice president of performance insights for AOTMP.

Mobility, which includes 5G and the connectivity supporting IoT, will achieve the second-highest CAGR of 3.8% from 2019 to 2022. That marks a jump from USD 400 billion to USD 447.35 billion.

Along the way, enterprises still will use telecom assets and services to the tune of USD 1.25 trillion in 2020 and USD 1.34 trillion by 2022, or a CAGR of 2.3%.

More adoption of IT, mobility, and telecom assets and services means enterprises will juggle more change events than ever before. Without safeguards and new ways of thinking, things will quickly get out of hand.

The Fallacy of Recovered Savings

Despite AOTMP Research & Advisory's repeated emphasis that ongoing, large savings are not, in fact, a positive, most enterprises still buy into messaging that savings represent the success of a telecom expense/enterprise mobility management (TEM/EMM) program. Consider the evidence. In April 2019, the bulk of enterprise respondents told AOTMP Research & Advisory that frequent carrier invoice audits return significant amounts of money to their coffers (see Figure 1).

- **70%** Yes
- **30%** No
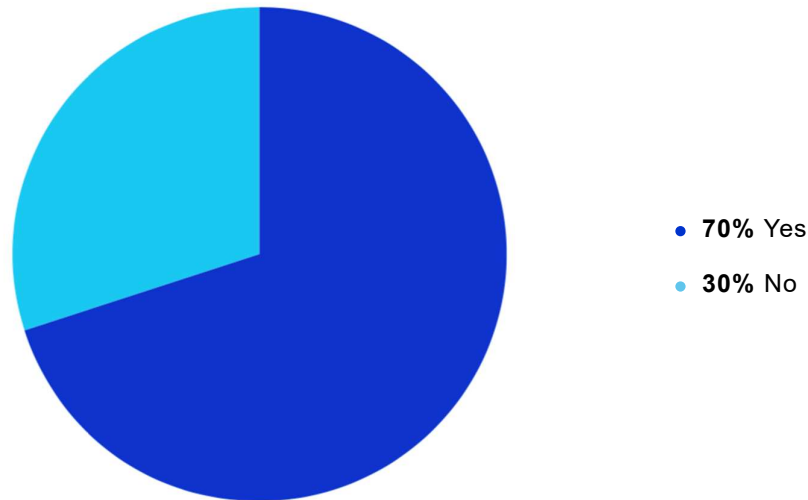
Source: AOTMP Research & Advisory, 2019

Figure 1 Do You Conduct Frequent (Monthly, Quarterly, Annual) Audits of Carrier Invoices that Result in Large, Recaptured Savings?

These organizations are stuck in a reactive pattern of trying to recover savings that arguably should have been whittled down or ended after the first or second audit (see Figure 2).

- **40%** All the time
- **45%** Some of the time
- **10%** Half of the time
- **5%** Never
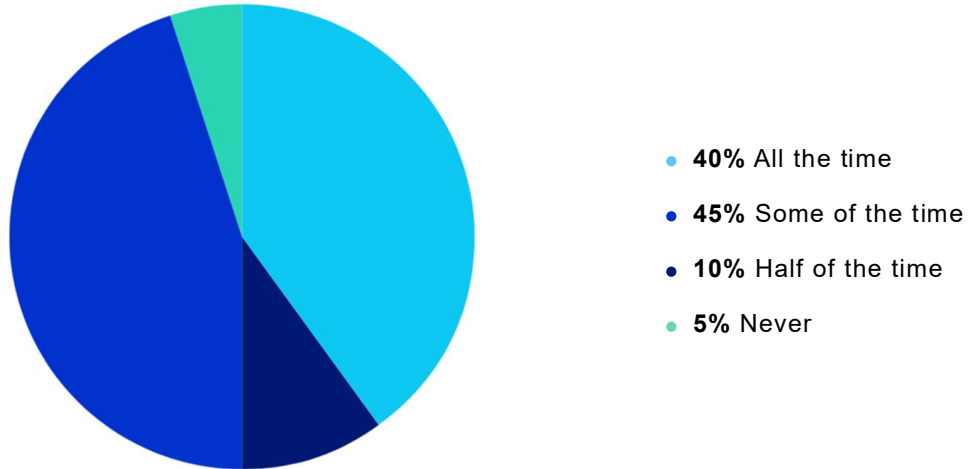
Source: AOTMP Research & Advisory, 2019

Figure 2 When conducting audits, how often does your Organization find zero-use wireless devices, or assets and services that have not been turned off (e.g., a fixed circuit at a closed location)?

'We would expect IoT growth to be higher than **the average for the information technology segment.'**
– Scott Lawrence, Vice President of Performance Insights, AOTMP

right means savings fall to a minimal amount month after month because processes are accurate and streamlined, allowing telecom/ mobility/IT management professionals to address any aberrations as they arise rather than after the fact. These proactive professionals update fixed and wireless inventory as changes take place and even, on the mobile side, adjust service plans before the end of a billing cycle to accommodate over- or under consumption. For the most part, these organizations avoid paying money they would only have to get back from carriers.

There still may be cases when they reactively pursue savings. The key, however, is that these enterprises act more quickly than their counterparts because they have the tools to do so.

Thus, their rapid response creates valuable, measurable return on investment. Enterprises that continue to uncover so-called savings after the billing cycle are not relying on sound fundamental practices, and are instead viewing recouped dollars as proof that their TEM/EMM programs work. They also are delaying their ROI on any recovered savings.

Forward-thinking CFOs will advocate for fewer 'savings.' They understand that constantly recovering funds from service providers is akin to getting a tax refund from the IRS – it's money the organization loaned to the carrier for free. The feedback from enterprise respondents in Figure 3 reinforces this point.

- **45%** 1-3 months
- **15%** 6-9 months
- **40%** 3-6 months
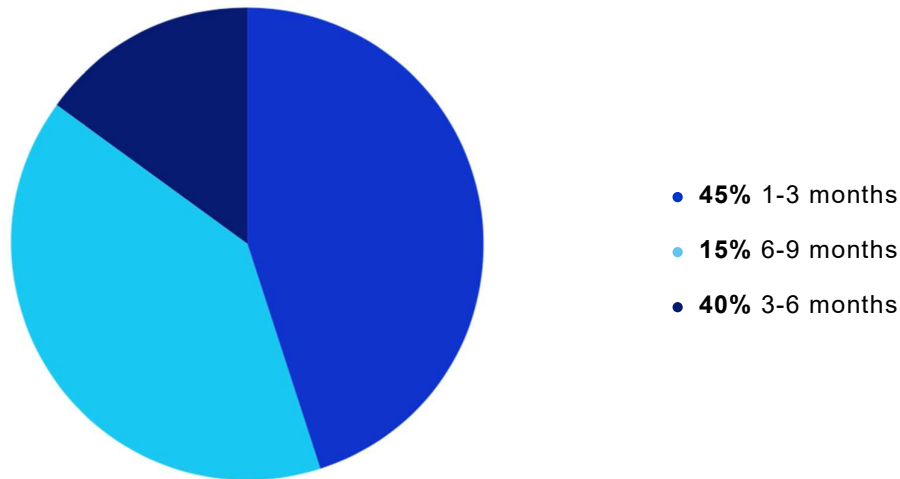
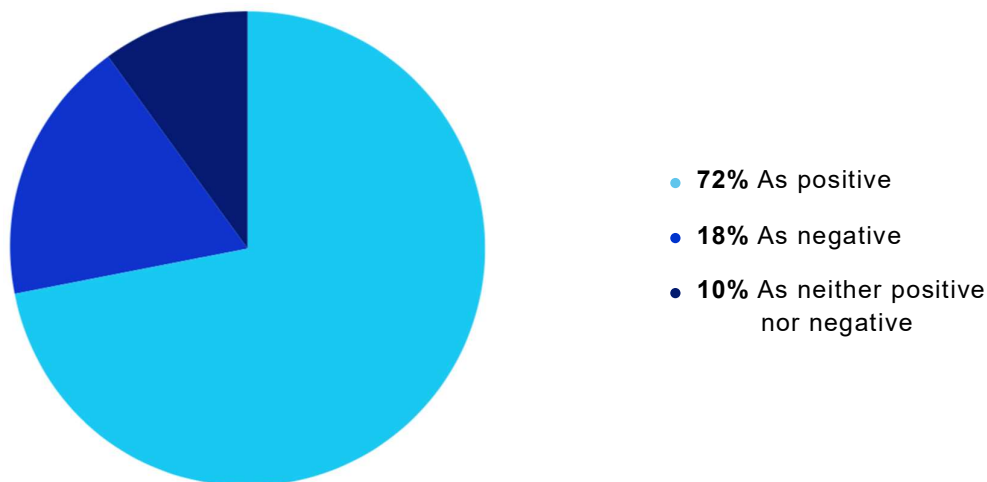*Source: AOTMP Research & Advisory, 2019*

Figure 3 How long does it take, on average, to recover savings from carrier errors?

Operating without money that was the enterprise's in the first place deprives the organization of resources it could have used to bolster its technology initiatives. Yet, at the moment, too many finance executives do not yet seem to view that as the case (see Figure 4).

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Source: AOTMP Research & Advisory, 2019

Figure 4 How does your CFO view audit results that create large, recaptured savings?

- **72%** As positive
- **18%** As negative
- **10%** As neither positive nor negative

AOTMP Research & Advisory would like to see more C-suite leaders better understand how TEM/EMM practices should contribute to the enterprise's top and bottom lines rather than serve as a source of false-positive savings.

Who's Really Responsible for 'Savings'?

Typically, enterprises put the onus on providers when they have to recover money. They tend to blame glitches in service ordering or billing. However, NTT Ltd., one of the leaders in the CLM industry, has made a surprising discovery.

In early 2019, NTT Ltd. conducted its own extensive internal research of two years' worth of anonymous, aggregated client recoveries and reached a critical finding: Most of the time, 'savings' arose from ineffective change management within the enterprise. Indeed, NTT Ltd. discovered that of 53,180 valid savings opportunities totalling almost USD 471 million, only 8,301, or 15.6%, originated from carriers. The remaining 84.4% came from the enterprises themselves (see Figure 5).

16%
of errors from carrier side

USD 374,705,567

84%
of total cases were
from client side

69%
of the total savings
opportunities

53,180
saving opportunities analyzed

equated to:
USD 470,875,280
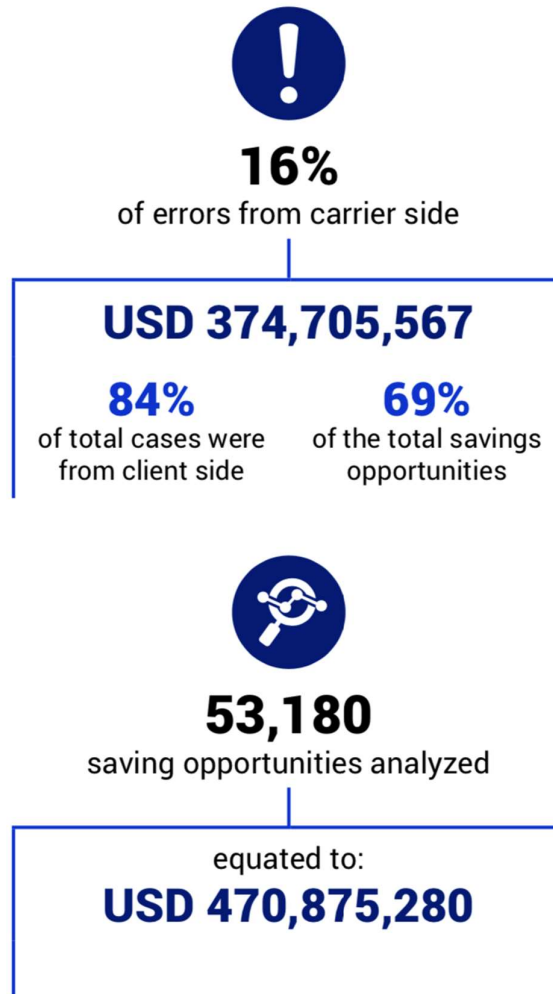
Figure 5 Challenging traditional ideas of TEM/EMM savings

Note, though, that carrier errors accounted for nearly one-third of the total savings opportunities NTT Ltd. identified – USD 96.2 million or 31.3%. This is important because it illustrates how much inaccuracies can cost the enterprise, thereby underscoring the value of CLM as compared to traditional TEM/EMM.

Mobility Drives Change Events

NTT Ltd. further broke down the sources of savings instances by fixed and mobile. The company found that mobile services are four times more likely to create savings opportunities than their fixed line counterparts. This should come as no surprise, given that mobility inherently contains more chances for change – employees joining or leaving the organization, or moving within the company and being assigned new or different devices, for example. People lose devices and others stash them in a desk drawer; service remains connected and the enterprise

keeps paying for unused smartphones, tablets, and even IoT sensors. Other scenarios include more subtle change events, such as a retailer's seasonal/holiday requirements or the shift from tracking voice minute charges to data plan management.

Nonetheless, the majority of enterprise respondents so far report few issues dealing with such occurrences (see Figure 6).

● **43%** Yes

● **57%** No
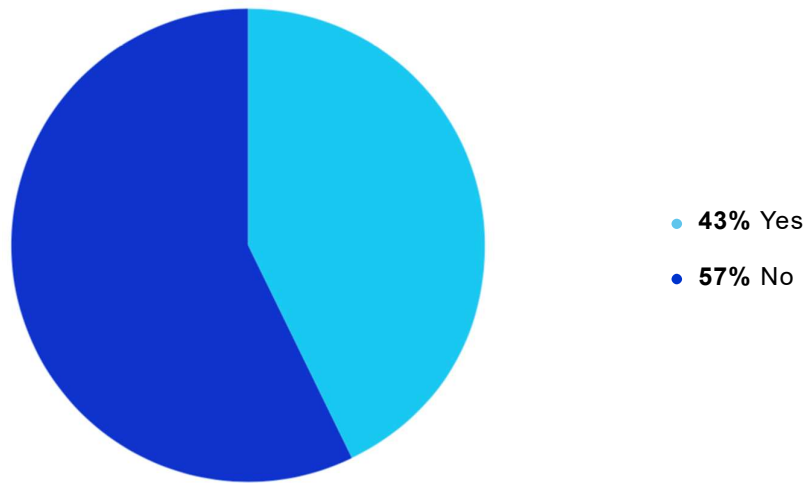
Source: AOTMP Research & Advisory, 2019

Figure 6 Are frequent change events, especially those associated with mobility, impacting the effectiveness of your TEM/EMM practice?

‘Audits that consistently yield material savings signal **an operational breakdown in the technology management lifecycle.'**
– Timothy C. Colwell, Executive Vice President, AOTMP

These findings could be interpreted in a couple of ways – first, that the majority of enterprises have their telecom/ mobility/IT environments well under control; second, that most organizations are not seeing change events as an issue. Given AOTMP Research & Advisory's interactions with enterprises, analysts lean toward the second possible conclusion.

Also, the respondents who said change events are not significantly affecting their TEM/EMM practices indicated that largely is due to their BYOD programs. Still,

AOTMP Research & Advisory suspects most respondents actually have more change events in their environments than they realize.

NTT Ltd. sees the same probable gap. In fact, the vendor wrote in a recent paper, 'CLM Savings Analysis,' that the key to understanding change events lies not in comparing fixed versus mobile services, but in pinpointing the number of change events. "Knowing this, it becomes easier to recognize that our ability to identify a change event, optimize our response to that change and to take that action as rapidly as possible will minimize the false positives of change-related savings opportunities and avoid the great many cases of excess costs that should never have been incurred in the first place," the paper reads.

Keep in mind, though, that mobility is not the sole consumption-dependent service TEM/EMM professionals are administering these days. Cloud services and web-based conferencing and collaboration platforms foment the same persistent change events as mobility because of their variable usage, cost, deployment, and adoption patterns. If not managed well, the meter will keep ticking, charging the organization unnecessarily. What's more, the number and frequency of changes will escalate as organizations roll out more IoT sensors and services.

Fortunately, most enterprise respondents seem to be at least somewhat aware that this will require their attention (see Figure 7).

- **69%** Yes
- **31%** No
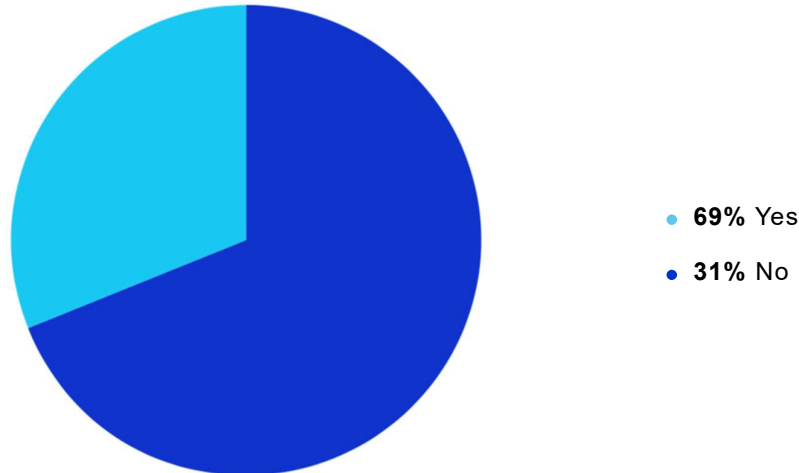
Source: AOTMP Research & Advisory, 2019

Figure 7 Do you think IoT deployments will increase the number of change events in your Organization?

These results are significant, and highlight that now is the time to plan ways to handle the coming onslaught of change events. The key to circumventing unnecessary savings opportunities lies in knowing where change events will happen within the enterprise, no matter whether they are tied to fixed, mobile, or IT, and managing those changes in a platform that removes siloes and allows for real-time tweaks.

NTT Ltd.'s Solution to the Change Events Problem

NTT Ltd.'s response to the conundrum comes in its latest version of NTT Ltd.'s proprietary CLM Platform. The vendor has added a broad range of REST APIs that facilitate and support change management, and streamline data from departments including human resources, IT, procurement, operations, and more. This focus on automation eliminates intensive manual labour that eats employee time and leaves room for inadvertent human error.

"We have a method for collecting data from many different sources and systems of record," said Dave Snow, vice president of NTT Ltd.'s Global Communications Lifecycle Management practice. "That enables early detection and identification, which we think is the first step. Then that lets us apply specific analytics or business rules for the optimal response to the detected change. In some cases, we are actually able to proactively or pre-emptively prescribe a response. Then the final step is executing the required action or transaction."

These four steps help telecom/mobility/ IT management departments create a meaningful return on investment through cost avoidance, a notion that, granted, goes against legacy ways of thinking. Perhaps the best way to solidify this point is to consider how handling IoT change events in a new way will impact ROI. NTT Ltd. has built the latest version of the CLM Platform to do just that.

Handling IoT Changes in NTT Ltd.'s CLM Platform

NTT Ltd.'s CLM Platform now features an interface to some IoT provisioning and monitoring systems. For example, NTT Ltd.'s CLM Platform and Cradlepoint's NetCloud Manager are directly connected; NTT Ltd.'s CLM Platform will support Cisco Meraki in the third quarter of 2019. This means telecom/mobility/IT department managers can immediately detect and respond to changes. They do not need to wait for the carrier to provide data usage information.

"It's instant," Snow said. "And in the IoT environment, this is a big deal."

To that point, NTT Ltd. has designed the CLM Platform integration with NetCloud to be intuitive. Users do not need esoteric knowledge to navigate and complete the fields – they just need to know business requirements and entitlement groups. They may view the inventory of all Cradlepoint devices assigned to the organization, as well as the networks, MAC address, SIM card, serial number, and other data associated with each one.

Ordering is as simple as building a new record and tying the device to the correct approval flow, delivery location, and business unit. If the enterprise is ordering from Cradlepoint, the vendor then ships to the designated location, whether that's a staging center or the address where the device will live. The enterprise also may order from its own warehouse, if it has the stock. Organizations may order SIM cards for their Cradlepoint devices in bulk, to have them on hand, or they can have Cradlepoint or the staging/ kitting center insert them. NTT Ltd. offers clients flexibility in accommodating different scenarios.

When an enterprise's Cradlepoint devices are up and running, NTT Ltd.'s CLM Platform and NetCloud keep tabs on their status. If a device goes offline, NTT Ltd.'s CLM Platform pulls alert information from NetCloud and triggers a help desk ticket. NTT Ltd.'s CLM Platform also talks with NetCloud about real-time data usage. When an IoT device approaches its data plan limits before the end of the billing cycle, NTT Ltd.'s CLM Platform sends an alert to adjust the plan accordingly.

Teaming with NetCloud gives NTT Ltd.'s CLM Platform even more abilities. For example, Cradlepoint's system knows when someone opens the SIM door on an IoT device. NetCloud will tell NTT Ltd.'s CLM Platform when that happens, and the enterprise can investigate right away. Finally, NTT Ltd.'s CLM Platform also tracks Cradlepoint devices' warranty and maintenance information.

NTT Ltd.'s CLM Platform maintains inventory through communication with NetCloud, too. NTT Ltd.'s CLM Platform processes Cradlepoint and carrier invoices, then ties the data back to inventory.

In terms of reporting, expect thorough information. For instance, the Savings Manager tab shows rate plan changes and lays out the spending the organization averted. Details include change dates and approvals.

Users may generate reports by topics including savings by type, top five vendors, assigned savings items, and more. NTT Ltd.'s CLM Platform can even deliver a waterfall report that shows what transpired within the client's environment over the course of a year.

All in all, NTT Ltd.'s CLM Platform, with NetCloud, aims to empower enterprises with real- time IoT device and data management; adding capabilities for Cisco Meraki and other IoT vendors will do the same. In AOTMP Research & Advisory's opinion, NTT Ltd. is achieving its goal of helping organizations avoid unnecessary charges.

"Instead of incurring overages, we right- sized your plan," said Brian Goddard, managing solutions architect for NTT Ltd.

'We've gone beyond [traditional TEM/EMM] to **include licensing, collaboration and conferencing, IoT, and 5G.**'
– Dave Snow, Vice President, Global CLM Practice, NTT Ltd.

'Instead of incurring overages, **we right-sized your plan.**'
– Brian Goddard, Managing Solutions Architect, NTT Ltd.

But Wait, There's More

In addition, NTT Ltd. and NTT Ltd.'s CLM Platform are not just tracking devices and their associated connectivity to avoid unnecessary expenses. Rather, the scope extends past traditional voice and data, and fixed and mobile.

"We've gone beyond that to include licensing, collaboration and conferencing, IoT, and 5G," Snow said.

As an example, NTT Ltd.'s CLM Platform collects data from MS Teams, Webex, and other platforms to analyze cost beyond the standard expense for licenses. This lets enterprise telecom/mobility/IT management personnel evaluate how or whether employees are using licenses – by business unit, geography, and other factors, as well as over time.

While having the tools to track and monitor all these technologies is crucial, and NTT Ltd.'s CLM Platform provides those, so is the ability to use the resulting information in a 'big data' way. Here, NTT Ltd. capitalizes on its access to databases to confidentially assess customers' actions broadly or even do specific benchmarking. This helps NTT Ltd. to steer its clients in more profitable directions, particularly by homing in on change events.

Overall, NTT Ltd. approach to managing change comprises the following steps, Snow said:

● Develop RPA-based automated methods and processes to rapidly detect and identify change events.

● Enable rapid, optimal responses to specific changes.

● Automate using machine learning prescriptive/pre-emptive responses to changes as they occur.

● Automate execution and tracking of each transaction in response to each change event.

"The key is having a highly automated method for detecting and identifying the change,' Snow said. 'This cannot happen with just people and spreadsheets, especially not with IoT or today's enterprise mobility."

Another crucial piece comes in having a prescription for a known issue, Snow added. That shrinks cycle time because the telecom/mobility/IT management department is able to execute faster. NTT Ltd. enables the CLM Platform to team up with clients' existing systems to aid this goal.

"We ensure that our system has automated capabilities and we're integrating with the enterprise's other systems that have the information stored," Snow said. "ITSM must be part of what you do. The same goes for AP, HR, location databases, anything from the carrier. Anything you can digitize is a ripe target to reduce the cycle time in managing change."

All this adds up to an in-cycle ROI that impacts profit and loss totals, not just the balance sheet, according to NTT Ltd. For more insight, consider this excerpt from the company's paper, 'CLM Savings Analysis':

Unfortunately, in the legacy TEM model, much of the cost, usage and behavioural data arrives well after the costs have been incurred, forcing many clients to apply post-cycle analysis and recovery. Many of the companies applying 'mobile optimization' methods fall into this post-cycle category, where the longer it takes to capture the initial data or data that changes over time and complete the cycle, the more there will be a negative impact on the P&L. Savings opportunities that fall into this category are a misnomer; in reality, they are excess costs that should never have been incurred at all. Moreover, the costs to make the corrections are a painful increment and are at least equal to what the costs would have been to avoid these errors in the first place.

AOTMP Research & Advisory concurs with these observations and with NTT Ltd.'s contention that shifting from typical expense management to more evolved change management fuels real savings. Enterprises that want to reach the next level of TEM/EMM maturity must have proactive processes in place. Controlling and responding to change events up front makes more sense – and saves the organization from spending money it would only have to reclaim – than legacy approaches.

Anything you can digitize is a ripe **target to reduce the cycle time in managing change.**
– Dave Snow, Vice President, Global CLM Practice, NTT Ltd.

'IoT is going to have a much higher change rate than anything we've ever seen before. **Doing it the old way, retroactively optimizing, won't work.''**
– Dave Snow, Vice President, Global CLM Practice, NTT Ltd.

Case Study: From 'Telecom Janitor' to Proactive Leader

Take it from the contracts and telecom expense manager who has spent years evolving his Fortune 500 company's TEM/EMM practice from reactive to proactive. This enterprise runs four different, very large divisions and operates all over the United States. For a long time, having multiple locations translated into juggling

disparate fixed and wireless contracts, and payment systems and timelines. This all complicated invoice management, requiring TEM/EMM personnel to spend about 40 hours each month verifying charges and correcting errors.

> "Now we prevent **costs from being incurred.**"
> *– TEM Manager, Fortune 500 Enterprise*

Then, as mobility grew more indispensable to the business, expenses and complexity mounted. The organization bought thousands of smartphones and tablets, and, as people came and went from the company, usually did not update those MACDs. Devices sat in drawers, unused, while employees ordered new ones. TEM/EMM experts lacked insight into inventory across locations and did not have real- time access to important information, including data usage.

"Our work was cleanup," the TEM manager said. "It felt like we were the telecom janitor."

Overall, the TEM/EMM unit knew the enterprise was spending money unnecessarily but did not fully know where or why. Along the way, each of the four divisions was under pressure to reduce communications costs, especially for wireline.

Matters improved when the organization teamed with NTT Ltd. Thanks to the CLM vendor's technology, people, and processes, the enterprise's TEM/EMM practice has spent the past three years reaching maturity, as evidenced by its efficiency and productivity.

The TEM/EMM group started with organization-wide audits, examining the business purpose of each circuit, line, and asset. Right away, the enterprise was able to cut spending by more than USD 1 million, or about 30%, and streamline its contracts. Perhaps more importantly, though, the TEM/EMM department gained a solid grasp on its inventory and has maintained that accuracy. This is core to its status as a mature operation.

In addition, implementing NTT Ltd.'s CLM Platform created several other benefits. First, all data now flows from the enterprise's multiple platforms – HR, AP, ITSM, etc. – into NTT Ltd.'s CLM Platform. This gives the TEM/EMM department complete insight, through just one system. Second, NTT Ltd.'s CLM Platform supports an automated method of procuring wireless devices. As long as employees follow all the steps correctly, this process removes human intervention regarding cost allocations, entitlement groups, approvals, and more, freeing TEM/EMM experts to handle other initiatives. Rogue purchases are now almost impossible.

The enterprise also has been able to pare down and control the number of mobile devices in use while receiving and acting on real-time data consumption alerts. The TEM/EMM department then adjusts plans as needed. Given that mobility creates about 1,000 change events within the enterprise each month, automation and holistic visibility are imperative.

> "Our work was cleanup. **It feltlike we were the telecom janitor.**"
> – *TEM Manager, Fortune 500 Enterprise*

"We can't wait for an invoice to create saving opportunities," the TEM manager said. "Now we prevent costs from being incurred."

Notably, time spent on invoice management has fallen to about five hours per month.

What's perhaps most interesting about this enterprise is that not all four divisions follow the TEM/EMM group's recommendations. The one unit that does now reports optimal results. The other three continue to show savings opportunities and still consider those as positive. The TEM manager knows he faces an uphill battle in changing minds but refuses to give up. He builds detailed graphs and reports that show executives how taking a real-time approach to TEM/ EMM changes actually creates long- lasting outcomes that outweigh any short term savings from false-positive reimbursements. He also knows the issue will grow more pressing as the enterprise adopts IoT devices, and he's sharing the message that NTT Ltd.'s CLM Platform monitors those services and devices in real-time and optimizes spending before it occurs.

"That way we don't pay for what we're not using," he said.

That's the big takeaway: the enterprise's TEM/EMM group heads off false- positive savings. Money stays in the organization's pockets and everyone reaps the benefits of efficient processes and valid inventory even while emerging technologies filter into the enterprise.

Conclusion: Don't Get Crushed

As mass IoT deployments and 5G both loom large, promising to challenge enterprises' network management efforts, AOTMP Research & Advisory and NTT Ltd. have a message: Get a handle on change events now before next-generation technology makes ensuring accuracy even more difficult and leads to unnecessary and unrecoverable spending.

"By 2021, the sum of mobile phones, tablets, PCs, laptops, and wireline phones will be less than the number of IoT connections," Snow said. "The important idea is if you detect change, identify the type and then proactively, pre-emptively resolve the anomaly, you're getting in front of the savings opportunities. IoT is going to have a much higher change rate than anything we've ever seen before. Doing it the old way, retroactively optimizing, won't work."

This ties back to the CFO conversation. Again, too many of these finance executives perceive TEM/EMM 'savings' as a positive. But if the telecom/mobility/ IT management department encourages a different way of thinking, leaders are likely to embrace some new ideas.

"If you say, 'I've figured out how to create a sustainable impact on the P&L,' then you have the CFO's attention," Snow said. "Show how you reduce operating costs, impact the P&L on a steady basis, and keep costs controlled every month. Now you've got an organization that's much more efficient, carries sustainable impact on P&L, and removes the false-positive of savings."

Take the following evaluation from NTT Ltd. as proof. As the vendor noted in 'CLM Savings Analysis,' when telecom/ mobility/IT management departments stop spending and/or using the wrong amounts, they start spending and/or using the right amounts. This means corrections are being made faster, bringing positive results to the P&L. Conversely, NTT Ltd. wrote, "a slow response results in higher unrecoverable costs. Ideally, each of these change events are identified and resolved before excess costs are incurred, eliminating costs that should not be incurred at all."

AOTMP Research & Advisory agrees. Fostering return on investment from cost avoidance should appeal to executives and elevate the telecom/mobility/IT management group to that of strategic contributor, rather than commodity cost center.

Overall, getting in front of change is far more meaningful than trying to catch up with it. IoT in particular, with its data consumption and number of sensors, will challenge enterprises to stay on top of change. AOTMP Research & Advisory recommends facing the challenge with a proven partner such as NTT Ltd. That level of expertise and technology will truly save the enterprise money and time, and free people to focus on more strategic projects rather than trying to retrieve funds that did not, in fact, have to be spent.