

Elevator Service – Preventive or Predictive

Market Differentiation Through Remote Monitoring Data and a Predictive Service Program



Russell Gray
Sr. Consultant, Business Process Group – Aftermarket Service Platform
Manufacturing & Hi-Tech Business Unit, Wipro Technologies.

Market Differentiation Through Remote Monitoring Data and a Predictive Service Program

The elevator service business has, and continues, to undergo many changes. Overwhelming market competition coupled with relentless cost increases has placed an unprecedented squeeze on sales and margins. Most service providers have completely restructured their service programs opting to eliminate the standard “preventive” service program. Most will say they now provide some form of “predictive” service program and emphasize that they utilize remote monitoring of elevators to gain visibility of faults and estimate when components may need to be replaced due to actual usage. When asked, the typical company representative will explain that their program monitors the elevator and therefore they know when it “faults” or that they will replace a consumable part before its useful life has expired. Is this a “predictive” program? Or, is it merely a preventive, slightly enhanced, usage-based program? This paper will challenge the word “predictive” and review what is required to be truly “predictive”.

Remote monitoring data is readily available in most markets. Most manufacturing companies with broad service bases do not take a holistic view of how this machine data can provide organization-wide benefits. The data is vast and, potentially, overwhelming. However, within this data lies the ability to empower management to make real-time decisions based on real-time, actionable intelligence. To make this data useful, the organization must understand how to categorize and catalogue it while at the same time creating intuitive pictures (dashboards) for the organization to easily understand and act upon it. Envision a Facebook-like tool unique to the OEM's organization and dedicated to disseminating real-time actionable intelligence derived from running elevators. Deploying an Integrated Service Lifecycle Management platform driven by advanced analytics will provide a Predictive Service Program unique only to the OEM. Such a program will provide the OEM meaningful market differentiation, optimized processes, real-time intelligence, and improved organizational results.

The cost of providing elevator service continues to escalate placing unprecedented strains on margins. Costs such as material, labor, and fuel continue their rise while market pressures force service agreement pricing to remain static in most markets. Additionally, the market is willing to accept third-party maintenance providers marketing: "We can maintain that OEM's elevator as well and for a lower cost". To address these challenges, a majority of OEM service providers are introducing innovative service delivery processes.

Traditionally, elevator service was simple – field technicians were allotted monthly time to perform service tasks at their discretion. "Quality" of elevator service was mutually gauged by the amount of "time" the technician spent performing service on the elevator. In the recent past, as market pressures and costs-of-doing-business increased, the technician's monthly time was reduced in order to control costs and preserve necessary service business margins. Since "time" was the historical quality gauge, the dramatically reduced time spent on site caused consumers to become concerned about the overall quality of service they were receiving for the same monthly expenditure.

Inevitably, the consumer began asking questions and became critical of the situation. Additionally, many markets were faced with internal criticism from their own field force questioning whether or not they were allowed to provide the best, or even adequate, preventive service to their customers. Since service technicians are often the most trusted advisors the consumer has, it became imperative to change the internal perception quickly. Organizations were faced with the need for yet another change. Organizational steering committees had questions such as:

- How to increase service customer satisfaction
- How to increase service business margins
- How to increase service contract sales
- How to optimize service operations
- How to optimize parts inventories
- How to increase elevator up-times and greatly reduce callouts
- How to redesign equipment for optimal service profitability
- How to efficiently train average service technicians to handle advanced troubleshooting issues
- How to improve enterprise-wide visibility of the service business

Suddenly, the elevator service business was no longer a simple, profitable business line. Historical preventive service programs had to be replaced.

Marketing departments embraced ideas such as "usage-based", "task-based", or "predictive" service programs. These concepts were considered market differentiators.

Preventive vs. Predictive Service

Preventive service applies a planned service program, and often incorporates a usage-based element, to provide service to an elevator before a failure occurs. Historically, preventive service programs have been thought of as the ideal service program. They were relatively simple to establish, manage, and make profitable. Early on, the marketing concept was just as simplistic. Selling the annual service contract was nearly as simple as making statements to the customer: "You own a valuable elevator. You must protect that elevator from undue wear. You must protect the riding public utilizing that elevator. The local code authority requires you maintain that elevator. We manufactured that elevator; therefore, we must maintain it." While simplistic, the preventive service program is not very efficient for a multitude of reasons including large inventory requirements in multiple locations, large technician staffs to perform planned service tasks, multiple local technical experts, troubleshooters required to perform onsite troubleshooting tasks, etc. Typically, preventive service programs provided adequate service to meet most market demands but fell short in meeting many organizational goals.

Keeping the list of questions above in mind, let's get more substantive about what a Predictive Service Program is and can be to an organization. Predictive Service carries an "execute at the right time" philosophy. Service shall be performed after analytical models predict that enough indicators are present to accurately predict such things as a component's deterioration or an elevator failure. Simplified, service actions take place only when necessary. Predictive Service utilizes real-time data allowing your operations team to prioritize scheduling and optimize service forces and inventories. Predictive Service Programs tend to exceed market demands and meet organizational goals.

The implementation of the Predictive Service Program addresses many concerns, customer needs, and organizational requirements. Quickly the Predictive Service Program became the desired industry standard in most markets. Or, did the standard preventive service program simply become something marketed as "predictive" when it really didn't have the necessary elements to be "predictive"? Was it merely a usage-based program that

fell short of actually “predicting” failures based upon a component’s, or a system’s, behavioral patterns?

Utilizing Remote Monitoring to Provide Predictive Service

What is Remote Monitoring? Is it merely connecting an elevator to a communication network and “monitoring” the number of runs, door opens, stops at a particular floor, or if it’s even responding to calls? Sure, that can easily be defined as “remote monitoring”. However, will this level of remote monitoring allow for an OEM to provide a true “Predictive Service Program” or is this “dumb” level of remote monitoring possible by any service provider and not unique to the OEM? This “dumb” level of remote monitoring hardly allows any OEM to be unique or be a market differentiator. Modern elevators are highly intelligent systems running sophisticated, proprietary software producing a wealth of data within every movement, or desired movement. In order to be beneficial in creating the OEM’s “Predictive Service Program”, the remote monitoring, or M2M data, must allow for immediate access to data, analysis of the elevator’s intelligence, component and system trend analysis, analytical models to predict component and system failures based upon established patterns, dissemination of proper knowledge to service operation teams, and accurate inventory predictions. Clearly, any service provider can perform “dumb” remote monitoring. Studies show that software failures are far more common than hardware failures. The “dumb” remote monitoring cannot monitor for hidden software failures and only the OEM can access the proprietary protocols to monitor them. Therefore, a true remote monitoring-driven Predictive Service Program is unique to the OEM and can provide tremendous benefits to the OEM’s organization while offering real market differentiation.

Elevator components and systems develop patterns, which can be analyzed, learned from, and utilized to predict future failures with a high degree of confidence. Predictive elevator service requires real-time data collection along with the application of advanced predictive analytics to the data analyzing past and current operational patterns. The results of the predictive analytics, coupled with dynamic organizational intelligence, are the key factors leading to a successful predictive service program. Without real-time data and advanced analytics we simply cannot have a “Predictive Service Program”.

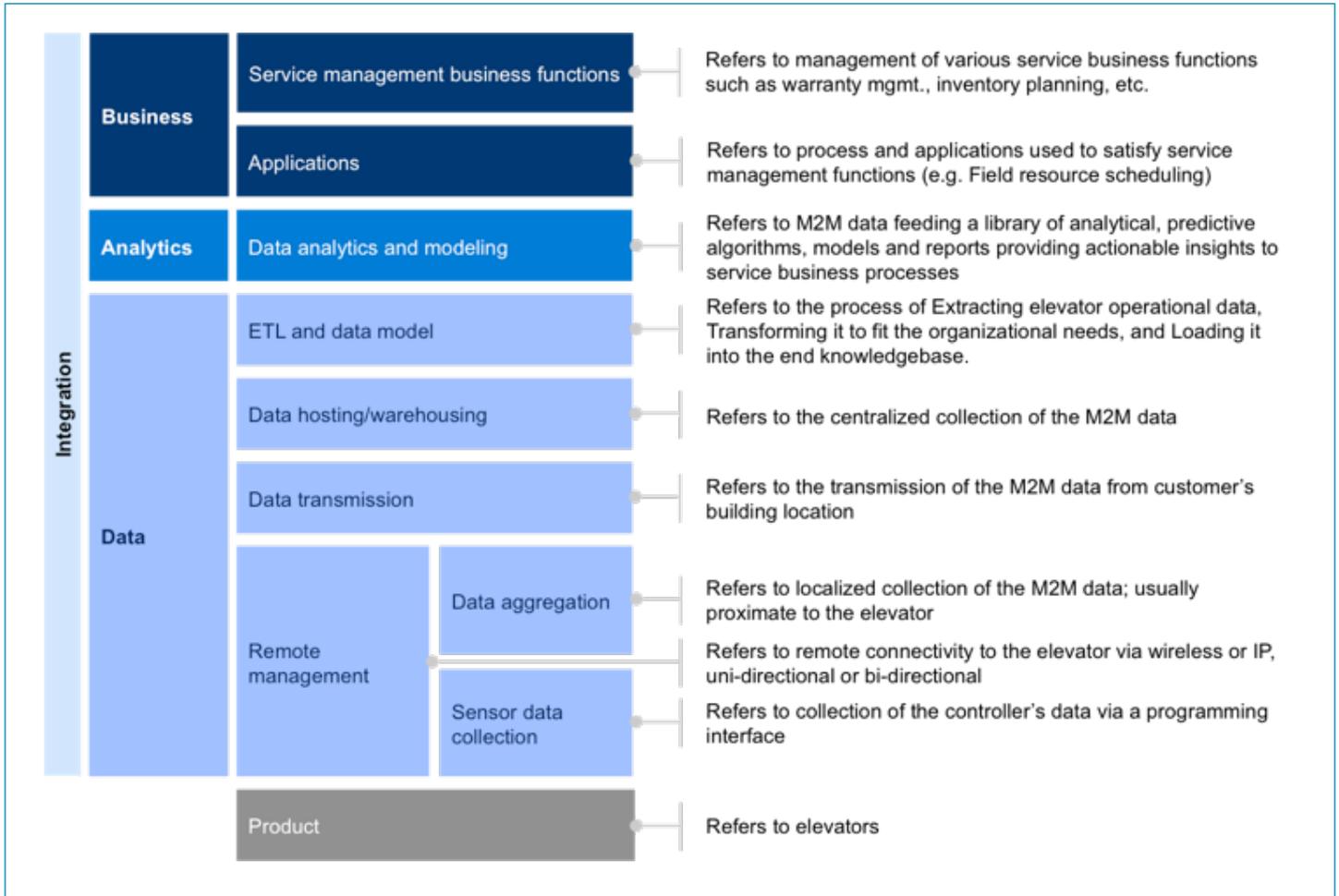
A true predictive service program has tremendous organizational benefits,

which cannot be matched by other service providers. By maximizing the OEM’s elevator system’s intelligence and organizational intelligence, a true predictive service program can be fully implemented allowing for an unmatched market differentiation, leaner organizational structure, greatly enhanced organization-wide visibility of post-sales equipment performance, and increased service margins. The cliché “easier said than done” is quickly applied. There are many obstacles preventing the rapid implementation of a predictive service program. M2M connectivity, component or system sensors, data housing, field tools to intuitively utilize data results, capability of existing software solutions, existing field operation structure and training levels...just to name a few.

Utilizing Predictive Service to Improve Organizational Results

Service operational excellence is key to optimizing service margins. We now have a new service program, Predictive Service, empowered by M2M connectivity generating a great deal of internal knowledge and predictive capabilities. How do we best manage this immense amount of data and information? Without proper management and utilization, the data will never become a valuable, usable knowledge base. Perhaps we introduce a basic Service Lifecycle Management (SLM) platform. At its core, the basic SLM provides the organization a process backbone to efficiently and profitably run its service business. The organization currently has solution packages such as ERP, SCM, CRM, or Warranty systems deployed. The SLM, while not a new concept, is still an evolving and required solution concept for service organizations. Many service organizations rely on their ERP systems for parts and service planning. However, ERP systems tend to fall short and cannot provide adequate resource allocations and localized inventory levels based upon accurate predictive analysis of serviced elevators and overall service organization history. A well developed, fully Integrated SLM platform bridges this gap and completes the service business landscape allowing for the implementation of a successful, profitable Predictive Service Program.

Integrated SLM Model



“Lean” has gone beyond being a buzzword used in business today. Lean practices have become mandatory for organizations to ensure competitiveness. Keeping a lean organization in mind, it would be appropriate to maximize the value of deploying an SLM solution. A well-designed Integrated SLM will not simply be an additional solution package for the organization to manage, but will be a fully integrated solution platform optimizing the value of the organization’s existing systems focusing on three important organizational goals: Increase Revenue, Improve Profitability, and Improve Customer Satisfaction/Loyalty. Look at the integrated SLM as a Facebook-like tool unique to the organization and allowing for real-time data dissemination and team collaboration throughout the organization.

Today’s best-in-class manufacturing organizations understand the value of “lean” and seek to implement its practices throughout their enterprise. At Wipro, we believe the Integrated SLM should facilitate the “lean” philosophy. Focusing on delivering value for customers ensures that the organization is dedicated to minimizing waste and maximizing resources.

Operational flexibility, sustainability, market competitiveness, desire to be best-in-class, reduced go-to-market times, lean structure...the list can continue and will sound very familiar to anyone reading this paper. Add

to this list the consumer’s demand for nearly perfect elevator uptimes, nearly immediate resolution to elevator failures, and static, or lower, costs of ownership. What is the single best opportunity to make a significant impact on all of these requirements? The answer: a truly predictive service program managed by an Integrated SLM platform driven by a robust remote monitoring program.

The key to success is real-time predictions allowing for real-time decision-making capabilities.

An Integrated SLM and Predictive Service Program Driving Organizational Success

Improve Profitability

A real-time data and analytics driven predictive service program supported by an Integrated SLM will allow the organization to:

- Reduce overall inventories via visibility into which parts will be required, when, and where
- Based upon the "Execute at the right time" philosophy, optimize route scheduling allowing for minimal routine visits
- Provide visibility into part failures streamlining the warranty process and enhanced vendor visibility/planning
- Assure required part is available at time of dispatch allowing for first-visit-repair
- Predict an elevator problem prior to emergency status allowing for efficient regular-time labor scheduling
- Centralize troubleshooting expertise allowing for reduced number of highly trained troubleshooters in local regions
- Dispatch appropriate field technician with expertise to correct known problem on first visit
- Provide field technicians with high-level intelligence prior to dispatch, shortening MTR durations
- Optimize overall service operation team
- Reduce multiple service trips minimizing costs such as fleet fuel, etc.
- Decrease field force training expense and duration

Improve Customer Satisfaction/Loyalty

A real-time data and analytics driven predictive service program supported by an Integrated SLM will allow the organization to:

- Predict an issue before the customer sees it
- Have the necessary inventory on location minimizing the disruption to the customer's building
- Allocate the best field technician at the optimal time to reduce the customer's disruption
- Provide the field technician with detailed technical support based upon real-time intelligence from that particular elevator

- Provide the customer with nearly 100% elevator uptime
- Assure that there is organization-wide visibility to applicable real-time data and reports assuring the actionable intelligence is presented to appropriate parties
- Show the customer that the OEM provides unparalleled service that cannot be matched

Increase Revenue

An integrated SLM platform supported by data and analytics will provide the organization with the ability to:

- Increase warranty conversion rates through higher customer satisfaction levels
- Increase service contract sales and new equipment sales through increased customer satisfaction and market differentiation
- Obtain preferential pricing
- Have immediate input into organizational teams driving product design and/or re-design improving serviceability and marketability
- Have immediate visibility for sales and operational teams driving cross-selling activities, repair sales opportunities, and upgrade opportunities

Conclusion

Once advanced analytical models are applied to real-time remote monitoring data, the Integrated SLM will provide holistic management of this data intuitively providing the organization with a variety of actionable predictions, including failure predictions. The key to success is real-time predictions allowing for real-time decision-making capabilities. Real-time data driven predictive service is a paradigm shift from traditional reactive, preventive, usage-based service platforms, which are driven by fault resolution practices versus fault avoidance practices. A well developed, fully Integrated SLM solution allows for quicker workflow optimization, leaner organizational structure, enterprise-wide visibility/collaboration, and improved service margins. Lastly, third-party vendors cannot match a real-time data driven Predictive Service Programs.

A well developed, fully Integrated SLM platform bridges this gap and completes the service business landscape allowing for the implementation of a successful, profitable Predictive Service Program.

About Wipro Technologies

Wipro Technologies, the global IT business of Wipro Limited (NYSE:WIT) is a leading Information Technology, Consulting and Outsourcing company, that delivers solutions to enable its clients do business better. Wipro Technologies delivers winning business outcomes through its deep industry experience and a 360 degree view of "Business through Technology"— helping clients create successful and adaptive businesses. A company recognized globally for its comprehensive portfolio of services, a practitioner's approach to delivering innovation and an organization wide commitment to sustainability, Wipro Technologies has over 140,000 employees and clients across 54 countries.

For more information, please visit www.wipro.com or contact us at info@wipro.com



DO BUSINESS BETTER

NYSE:WIT | OVER 140,000 EMPLOYEES | 54 COUNTRIES

CONSULTING | SYSTEM INTEGRATION | OUTSOURCING

WIPRO TECHNOLOGIES, DODDAKANNELLI, SARJAPUR ROAD, BANGALORE - 560 035, INDIA TEL : +91 (80) 2844 0011, FAX : +91 (80) 2844 0256, email : info@wipro.com
North America South America Canada United Kingdom Germany France Switzerland Poland Austria Sweden Finland Benelux Portugal Romania Japan Philippines Singapore Malaysia Australia

© WIPRO TECHNOLOGIES 2013

"No part of this booklet may be reproduced in any form by any electronic or mechanical means (including photocopying, recording and printing) without permission in writing from the publisher, except for reading and browsing via the world wide web. Users are not permitted to mount this booklet on any network server."