Wipro EcoEnergy

NEW MATURITY MODEL CAN FIRE UP RESTAURANT OPERATIONS

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Abstract

With rapid decline in cost of sensors and meters, restaurant automation business cases have become attractive. However, restaurant operators find it difficult to decide how they can adopt technology balancing quick wins while retaining modularity so that their systems can be expanded in future.

Further with increased automation, there is also more data to deal with. For example, with 200 restaurants, the number of data points that build up is close to 10 million per day. This requires capabilities such as software platforms, rules engines and analytics models to handle such a large quantum of data and continuously generate value out of it.

The Controlled-Intelligent-Integrated-Agile (CIIA) framework makes it easy for a restaurant operator to understand his current maturity level and build a path of technology adoption. The framework helps an operator reach the agile state where convergence of data helps drive cross-functional efficiencies, improving guest experience while expanding bottom line. This paper explains the added value that the CIIA model can create for restaurants.

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What is in, what is not

Restaurant operators worldwide are investing in customer facing and Front of House (FOH) technologies including wireless payments, iPad menus as well as social media marketing.
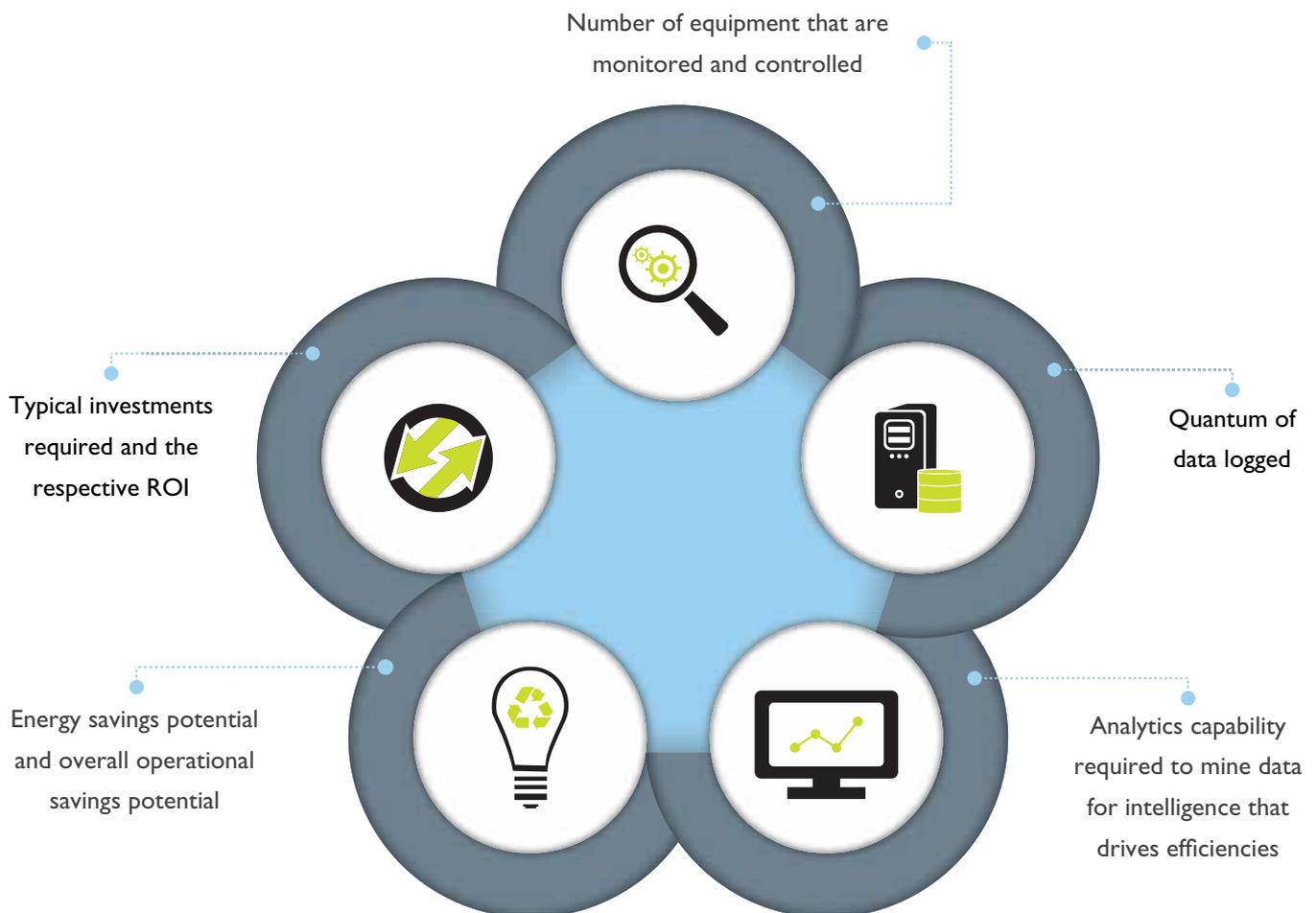
There are equally big opportunities in Back of House (BOH) that can lead to higher profitability and guest satisfaction. BOH, which is typically the passive infrastructure of restaurants including HVAC units, lighting, ovens, fryers, refrigeration units, that traditionally have been managed and operated like distinct and disjointed pieces of hardware. This transformation can help reduce energy costs and improve equipment reliability, aiding restaurants to better plan for both CAPEX and OPEX.

However, the question remains where to begin. Our experience of pilots & projects across restaurant chains shows that the typical cost of connecting BOH equipment ranges from $4000 to $15000 per restaurant. For an operator with 200 restaurants, this translates to an investment of $800,000 to $3.0 million. This is not a small amount considering the competitive investment needs for remodels, menu enhancements and marketing.

The industry needs a framework or a roadmap to help better understand how they can plan the investments that enable quick wins while enabling a multi-year transformation journey.

Introducing CIIA – for More efficient operations

The CIIA Model envisages 4 stages of a restaurant's maturity to manage its BOH assets and leverages the resultant data to drive efficiencies. The model provides a step-by-step method for a multi-year transformation journey and a mechanism to deal with the electrical, temperature, mechanical and operational data. The key characteristics of the four-step model are:

Number of equipment that are monitored and controlled

Typical investments required and the respective ROI

Quantum of data logged

Energy savings potential and overall operational savings potential

Analytics capability required to mine data for intelligence that drives efficiencies

Restaurant Energy & Operational Capability Model

Level 1 Maturity CONTROLLED	Level 2 Maturity INTELLIGENT	Level 3 Maturity INTEGRATED	Level 4 Maturity AGILE
Site Fire-up/Fire-down Automation			
• Basic automation • Lighting and Fans	• Advanced automation • Lighting, Fans & Key Kitchen Equipments	• Advanced automation • Lighting, Fans and Key Kitchen Equipments • Detection of override patterns and awareness & training plans to prevent it	• Advanced automation • Lighting, Fans and Key Kitchen Equipments • Detection of override patterns and awareness and training plans to prevent it
• HVAC remote management	• HVAC remote management	• HVAC remote management • Planning of setbacks • Mode mismatch and override pattern detection • Alignment of crew behaviour - Change management	• HVAC remote management • Planning of setbacks • Mode mismatch and override pattern detection • Crew behaviour Change management • Equipment issue detection and rectification
Refrigeration Management			
• ------------------	• Walk-ins Temperature Monitoring	• Walk-ins Temperature Monitoring • Compliance Tracking & network wide improvements	• Walk-ins Temperature Monitoring • Centralized compliance tracking • Equipment issue detection and rectification
Energy Management			
• ------------------	• Energy Monitoring – Mains, HVAC & Lighting	• Energy Monitoring – Mains, HVAC & Lighting • Energy savings measurement and verification • Continous operational energy savings opportunity identification	• Energy Monitoring – Mains, HVAC & Lighting • Energy strategy planning • Intelligent equipment maintenance, repair, overhaul, replacement decisions
Leveraging Centralized Web-based Platform			
• Exception & Deviation reporting	• Actionable intelligence to crew and technicians • Energy consumption tracking • Temperature compliance	• Actionable intelligence to crew & technicians • Energy consumption tracking • Temperature compliance • Enterprise wide visibility, Restaurant Benchmarking • MIS – Energy, Temperature, Billing, etc	• Actionable intelligence to crew and technicians • Energy consumption tracking • Temperature compliance • Enterprise-wide visibility, Restaurant Benchmarking • MIS – Energy, Temperature, Billing, etc
Centralization of Energy Analytics & Operations Support Teams			
• ------------------	• ------------------	• Setting up of a Level 1 helpdesk for deviations detection across network, Change Management, Trainings, Communication • Central Analytics Energy Services for ongoing Energy Saving Strategies (ESS) identification & Energy Savings Strategy Effectiveness Analysis	• L1 helpdesk • Central Analytics Services • Setting up of a centralized Level 2/Level 3 SME support for remote resolution for reduced dispatches and truck rolls • Dispatch management and Performance tracking of the issue resolution

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The four maturity levels are:

Level 1 Maturity – CONTROLLED

The entry point for the CIIA maturity path is a stage where localized HVAC and lighting schedule are automated, and are not manual. Our experience with restaurants across the US, Europe and India shows that this can save 5% to 6% in terms of energy spend.

The limitation of this level is that automation of fire up/fire down schedule of kitchen equipment, which constitutes 35-40% of energy consumption, is missing. There is also no refrigeration monitoring where deviations can have both energy impact and food safety impact.

Level 2 Maturity – INTELLIGENT

The next level of maturity involves automation of fire up and fire down of key kitchen equipment, based on the predefined schedule and sequence of operations. This is in addition to the HVAC and lighting which was done in Level 1.

Other elements of this level are energy monitoring at mains (and sub-meters where justified) and refrigeration monitoring through automated temperature logging. The data from the sites is logged centrally and some basic trends and reports are available in a Web-hosted application. The operator is also able to remotely update HVAC and lighting policies remotely through the Web interface available to him.

At this level, a restaurant will be able to understand the impact of energy and correlate it with the business volume. Automated refrigeration data also reduces the workload on the crew to manually log it, improving staff productivity.

Level 3 Maturity – INTEGRATED

This level in the CIIA framework makes sense for operators who have a chain of restaurants and have to manage energy, assets performance, and compliance and drive profiles across the network. The stage requires the ability to manage raw data from a large number of sites. An intelligent software platform is needed along with deep statistical skills to mine raw data to identify patterns that become efficiency opportunities.

Level 4 Maturity – AGILE

In this stage, the operator is effectively able to correlate the information from multiple data sources — business data, energy data, operational data of assets, maintenance data, etc. to drive agility and efficiency across multiple functions.

The data convergence enables decisions like: which make and model of a fryer, as a lower cost of ownership based on field energy and repairs data, is the HVAC design appropriate to meet the store needs? What is the effectiveness of the preventive maintenance cycles? This stage aims at aligning information flow and business processes to channelize cross-functional intelligence within an organization.

Below is a snapshot of the commercial business case for the four levels for a typical restaurant:

	CONTROLLED	INTELLIGENT	INTEGRATED	AGILE
Capex Investment (per site)	$4000-$5500	$5500-$7000	$7000-$9000	$9000-$15000
Recurring Costs (per year)	$200	$300	$800	$1200
Savings	5-6%	6-7%	7-10%	10-15%
ROIs	Less than 1.5 years	2-2.5 years	2-2.5 years	2-2.5 years

These figures are based on Wipro's experience of running pilots & projects.

The journey across the levels doesn't need to be a step-by-step process. It is possible to jump-start from Level 3. However, going from Level 3 to Level 4 requires time. An organization would need to understand data and then redefine internal process flows, which would enable the data to be consumed across the organization in a timely manner so that business benefits are accrued.

How the CIIA Model Makes You Future-ready

The CIIA model helps restaurant operators self-assess where they are in terms of their technology adoption and lays down a blueprint of a multi-year journey for transformation. It can:

- Help you compare on a common industry framework for technology adoption
- Help assess current maturity levels with respect to technology adoption
- Offer the ability to validate whether or not you are getting the desired ROI from the existing investment
- Enable a structured multi-year technology investment planning
- Offer a shared understanding of the roadmap across facility management, finance and business functions

About the Author

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HAPS Dhillon heads Wipro EcoEnergy's practice that is focused on creating Energy Management and Sustainability solutions for the hospitality and banking sectors. As part of Wipro EcoEnergy's Senior Leadership Team, HAPS is responsible for global P&L for these segments. He has extensive experience in operational cost reduction, Analytics, Energy Efficiency, M2M, Managed Services, with deep skills in solution architecting, delivery and product development.

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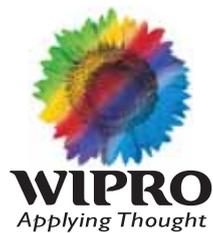
About Wipro EcoEnergy

Wipro EcoEnergy is the energy services business division of Wipro Limited that provides intelligent, sustainable solutions for energy consumption and management. Utilizing leading edge analytical tools we deliver energy efficient solutions to our clients that reduce their carbon footprint, energy usage & recover avoidable energy losses.

Wipro EcoEnergy's Managed Energy Services offering, holistically addresses the entire spectrum of energy and sustainability services providing sustained energy savings. Wipro EcoEnergy has created a strong local ecosystem of partners in North America, Europe & APAC and has deployed its Energy Management Services solution for a number of clients around the world. These clients have seen substantial energy savings and cost reduction during the course of their engagement with Wipro EcoEnergy.

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