TOYOTA MOTOR ENGINEERING AND MANUFACTURING NORTH AMERICA: SUPPLY CHAIN-TREASURE HUNT PROGRAM

SOLUTION OVERVIEW

Toyota strives to place sustainability as a priority in all stages of vehicle production, which includes their supply chain. As part of their sustainability initiative, Toyota established an aggressive water and energy efficiency supply chain program. And because Toyota believes that a stronger supply chain network can be created through identifying inefficiencies, the partner implemented a Treasure Hunt program solely for their suppliers. Treasure Hunts can bring fresh eyes to manufacturing plants by engaging employees to identify low-cost/no-cost energy savings opportunities. Since the program's creation in fiscal year 2008, 40 suppliers have hosted training events that have identified $4.4 million in cumulative annual energy reduction opportunities.

ORGANIZATION TYPE

Automobile Manufacturer

BARRIER

Difficulty taking full advantage of energy Treasure Hunts at supplier facilities.

SOLUTION

Maintain frequent communication with suppliers throughout the Treasure Hunt planning and execution process to break down barriers and develop mutual trust.

OUTCOME

Participating suppliers have experienced continuous energy improvements, which help their bottom line.

POLICIES

The Treasure Hunt program's purpose can be broken down into four key components:

0. Promote awareness and benefits of energy reduction within industrial plants.

0. Find new ways to identify energy efficiency opportunities through facility wide Treasure Hunts.
0. Share technical resources with other partners through tools, knowledge and resources.
0. Build a strong relationship with national suppliers.

The program's creation is a reflection of Toyota's commitment to sustainability. Toyota believes sustainability creates three values for society; Safety and Peace of Mind, Environmental Sustainability, and Waku-doki (excitement and exhilaration that wows you). As such, the company has placed the environment as a management priority in all stages of vehicle production. Every five years Toyota establishes the Toyota Environmental Action Plan consisting of three priority themes: "contribution to a low carbon society," "contribution to a recycling-based society," and "environmental conservation and contribution to a society in harmony with nature." To go beyond zero environmental impact and achieve a net positive impact, these initiatives are being carried through by means of six challenges Toyota has set for itself:

0. Challenge 1: New Vehicle Zero CO_2 Emissions Challenge
0. Challenge 2: Life Cycle Zero CO_2 Emissions Challenge
0. Challenge 3: Plant Zero CO_2 Emissions Challenge
0. Challenge 4: Challenge of Minimizing and Optimizing Water Usage
0. Challenge 5: Challenge of Establishing a Recycling-based Society and Systems

Challenge 6: Challenge of Establishing a Future Society in Harmony with Nature

PROCESS

Toyota's Supplier Relations team works closely in the Treasure Hunt recruitment process. Together with the Purchasing team, Toyota sends out a voluntary application process for suppliers interested in the program. The Purchasing team functions as the main point of contact. Several questions are asked, including; "Are you willing to open your facility to Toyota and non-competitive suppliers for a complete energy audit?"

Once the Purchasing team has identified four suppliers (one per quarter), Toyota's facility engineers are selected to facilitate the Treasure Hunt. The Supplier Relations team helps promote the program through a network of suppliers interested in water and energy efficiency savings.

Several preliminary steps take place before the actual on-site Treasure Hunt. An introductory call is done to familiarize the host supplier with the Treasure Hunt program, and Toyota's facility engineers. From there, an in-depth Data Collection call is held, which allows Toyota to do initial research. The team is responsible for collecting key data metrics, such as total electricity use, HVAC tonnage, lighting systems, exhaust fans, and hours of operation. Once the data is aggregated and potential resources are identified, a Kick-off Meeting is scheduled. The meeting is set up over web conference, and brings together the host supplier, Toyota's facility engineers, and other non-competitive Toyota suppliers participating in the Treasure Hunt. Program logistics are as follows:

0. Toyota delivers a Detail Sheet, along with specific energy calculation tools. Teams of 5 to 10

are formed, and are a mix of members from every party.

0. The Treasure Hunt begins on Sunday, so the team can monitor the facility while it's still "asleep" – when production is offline yet energy is still being consumed.
0. Teams arrive early Monday morning to see the facility "wake up", and then return on Tuesday to observe break times (lunch) throughout the day. Total onsite analysis typically takes over 4 hours.
0. Each team concludes their findings Tuesday afternoon. There will most likely be dozens of savings opportunities identified, however only the most cost effective projects (3-5) are selected.
0. Once the presentation is assembled (~10 Slides), the host supplier takes ownership of the project and delivers it to senior management.

TOOLS AND RESOURCES

Toyota provides a Detail Sheet (calculators), during the first Data Collection call. This sheet aggregates the information provided, and runs a multivariate regression analysis. Additionally, for every Treasure Hunt, there is typically as many as 150 energy efficiency ideas. Therefore, Toyota's calculation sheet contains a built-in macro which ranks the top energy and water savings opportunities.

MEASURING SUCCESS

For the supplier, success is measured by potential dollars saved. For Toyota, a more energy-efficient supply chain can cut down on costs, improve production reliability and transparency, and improve competitiveness. Toyota also bases its success on replicability for other facilities:

0. Since FY08, 40 Suppliers have hosted training events
0. Employees from 180 Tier 1 suppliers have participated and been trained on the Treasure Hunt process
0. There has been $4.4 M in total annual energy reduction opportunities identified, the equivalent of43.5 million kilowatt-hours or15,200 metric tons of CO2 per year.


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