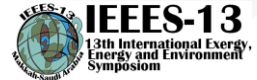


**13th International Exergy, Energy and Environment
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Umm Al-Qura University, Makkah, Saudi Arabia



**THE CHALLENGE IN DAMAGE CLAIM IN BRAZILIAN ENERGY SECTOR
– CUSTOMERS AND SERVICE PROVIDERS RESPONSIBILITIES**

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The scenario: Brazilian electric policies and regulations define **customers' reimbursement by possible damages caused by the energy distribution services**. Some kind of events could cause possible damages to users' appliances connected to the grid, as unsafe and unprotected private energy network and/or energy grid disruption, non-compliance energy services, operational intervention, environmental or climate occurrences into a provider or home grids. Moreover, there are no standardized or audited regulated procedures in the country to guarantee better energy home installations and regular inspections to avoid obsolescence and detect co-responsibilities.

Considering the historical customer claims requiring reimbursement (judicialized or not), damage claims quantification and qualification indicators were defined, and money and controls dispensed were analyzed as a big data processing. An analytical and AI tool was developed to support operational strategies to avoid or decrease the number of claims and customers' appliance damage.

The solution: analytical process dealt with around 11 million energy installations at an energy distribution company over 5 years of grid and relationship information (2 Terabytes of data). It provided support to appliances energy fragilities analysis and metrology evaluation by lab-specific studies, as well as grid simulations to understand the quality of energy service offered, possible interferences of distributed energy generation, and digitalization currently aggregated to the grid. This approach also concerned with grid events analysis; maintenance and investments strategies; improving business; human resources, and leadership competencies to deal with customers' claims; and workflow scope review, from attendance effectiveness from the multi-channel relationship to regulated/nonregulated process operationalization. The tool deals with the possible events' causes; climate correlations; and operational and organizational interferences from the regional and local grid.

Procedure's review and better practices in a dynamic way with the world market reinforce the necessary Brazilian regulatory updating to accommodate the grid digitalization, robustness, and service quality, rethinking and evolving services providing.



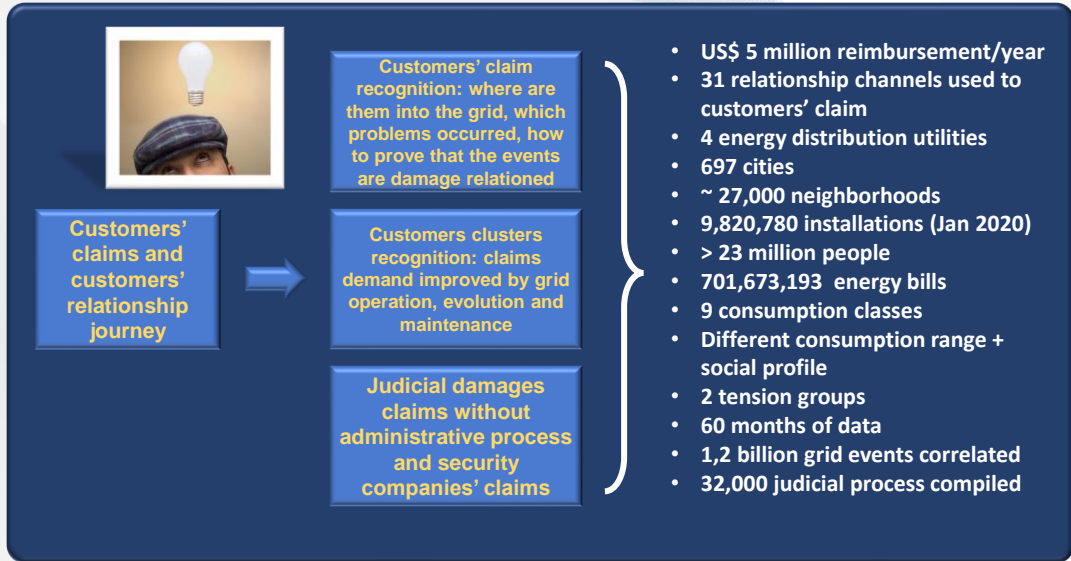
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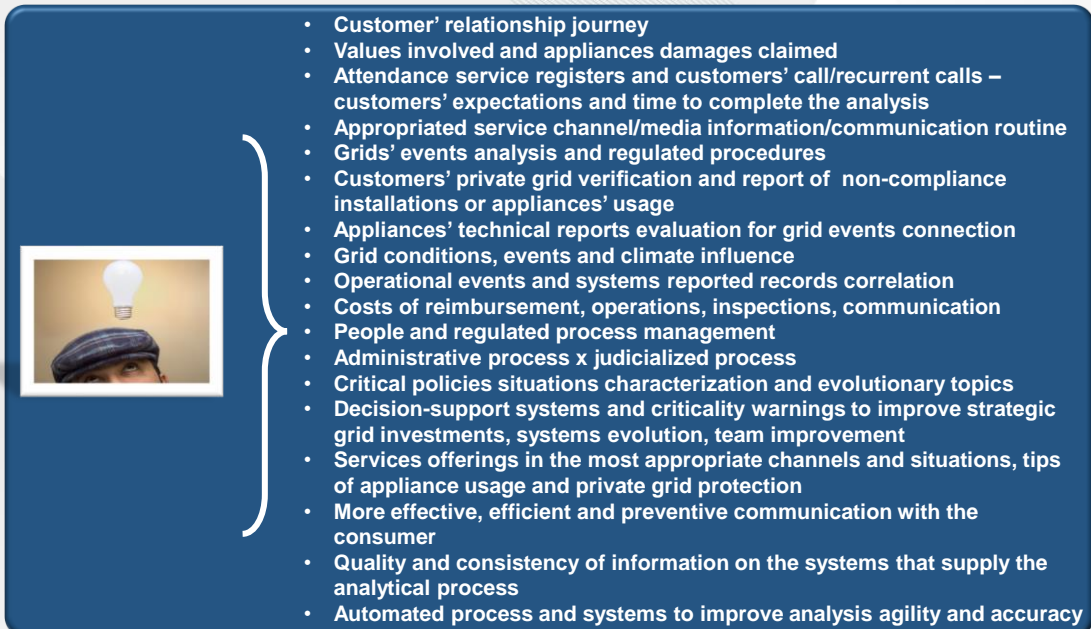
Problem dimensioning



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Solution dimensioning



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Indicators -> Claims x grid events correlation
 Indicators => Knowledge
 Knowledge => Control and Strategy
 Control = indicators



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Methodology + Systems = strategy

neighborhood granularity
 + KPI + KQI + warnings

Client grid
 Utility services

Co-responsibilities

Energy events and customer' claim



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Results



- Analytical and strategic software framework system available
- Data quality improvement, KPI and KQI organization
- Grid events correlated to claims x maintenance services improvement
- Human attendance reorganization, new scripts, training and automated procedures available within the system
- Clustering claims analysis based on regional grid and customers skills
- Usability (web and mobile access) with executive and technical charts and structured data
- Costs of each process part reveled
- Monthly warnings, historical tendencies, grid events characterization
- New tendencies available with prosumers
- Customer's journey reports
- Judicial claims analysis and appropriated automated information/reports to support defenses



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Studied Cases

Reasons to improve strategy

energy outbreaks and grid robustness
payments correlated and regional claims demand
distribution grid investments alerts
recognition of process/team evolution reorganization
appliances usage and strength to support energy level variation

Ways to improve communication with the client

relationship and regulated letters, e-mails, bills
tips to support outbreaks into the proprietary energy grid
energy standards and co-responsibilities at home

Services organization

response time
services and relationship response time
grid evolution strategy

Costs

attendance organization/registration systems involved
responsiveness and workflow control
reworks done
regulated scenarios and team culturally/technically improving
possible fraud prevent and detection



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