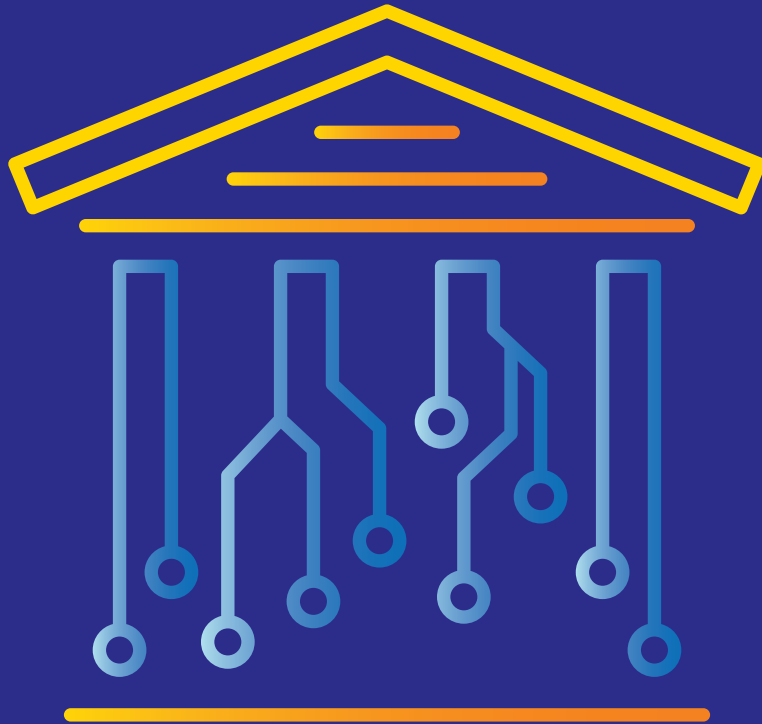




Let's Solve

 A Larsen & Toubro
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Whitepaper



Open Banking

Authored by: **Manish Ranjan**

Introduction

Banks around the world are expanding their line of businesses and transforming their services in order to cater to the increasing customer demand. Additionally, Banks have to respond to the demand generating from various financial institutions for integrated solutions. At the core of this transformation lies the agility of banks to enable institutions to access their services through secure APIs. The complete ecosystem which empowers banks to make their services available to the third- party is called "Open Banking." This ecosystem provides a platform of data exchange, which is essential to execute certain specialized services for the customers.

What is Open Banking?

Open Banking is a process of making banking data accessible to other external players through a secure channel. Technically, Open Banking is a collection of standard RESTful APIs (Representational State Transfer – a JSON-based architectural style of web-services) available in the public domain for subscription. Through this platform, banks are exposing services such as Accounts, Payments, Lending and Fund Transfer. Regulatory agencies across the world are setting rules for Open Banking. European Union and United Kingdom have made this compulsory while Australia, Hongkong, United States, India and Singapore have rolled out plans to implement this in a phased manner.

The concept of wallet-based payments has created a lot of enthusiasm in the society. Services such as PayPal, Apple Pay, GPay are popular at a global level, while some are at local levels. Similarly, Payconiq, Payback, Paylib, Swish, Pingit in Europe, WeChat Pay and Alipay in China, Paytm and BHIM Pay in India, fall in the above category. Adoption to app-based services are growing at a record pace. This is obvious that changing customer patterns, emergence of innovative competing elements like digital payment tools, and the advent of technologies that support this ecosystem indicates that banking is not going to be the same again.

We like it or not, mobility has taken over our lives and the disruption caused by it is irreversible. Emergence of Uber, Lyft and Ola are good case studies. Taxi agencies which are not on mobile app are facing tough competition and are struggling to survive. In the finance world, a similar churning is going on and adoption of Open Banking has become one such necessity imposed upon banking firms. App/wallet-based payment is just a starting point of API-based banking services. Open Banking, by standardization of APIs, taking these services to the next level – opening up opportunities to innovate, to develop and to launch a new set of services, which are not provided by traditional banking and financial institutions.

How Open Banking is different from traditional banking?

- > Traditional online banking is limited to payment, fund transfer and account services. Data related to transaction and credit history is available to the parent banks only. While Open Banking is about exposing the banking data and services to Third Party Partners (TPP) through public APIs, TPP is using these APIs to provide specialized services, which are not provided by traditional banks.
- > APIs expose data in a secure manner. This allows end-users to manage bank accounts via third-party service interfaces that do not belong to the primary bank.
- > In this model, the data is owned by consumer and upon consent, it will be available to TPPs.

Benefits and some implementation of Open Banking



Simplified view with mobile app-based solution. Single app for all financial tasks – payment, fund-transfer, tax management, investment and many more that are yet to come.



Competitive market for financial services – pressure on banks to innovate and to provide better services.



New opportunity: Streamlined lending due to accessible data related to banking transactions and credit history. Enrollment of new product requires less or no paper work.



Budgeting and account book maintenance: App-based integrated account management, tax management for small and medium business firms.

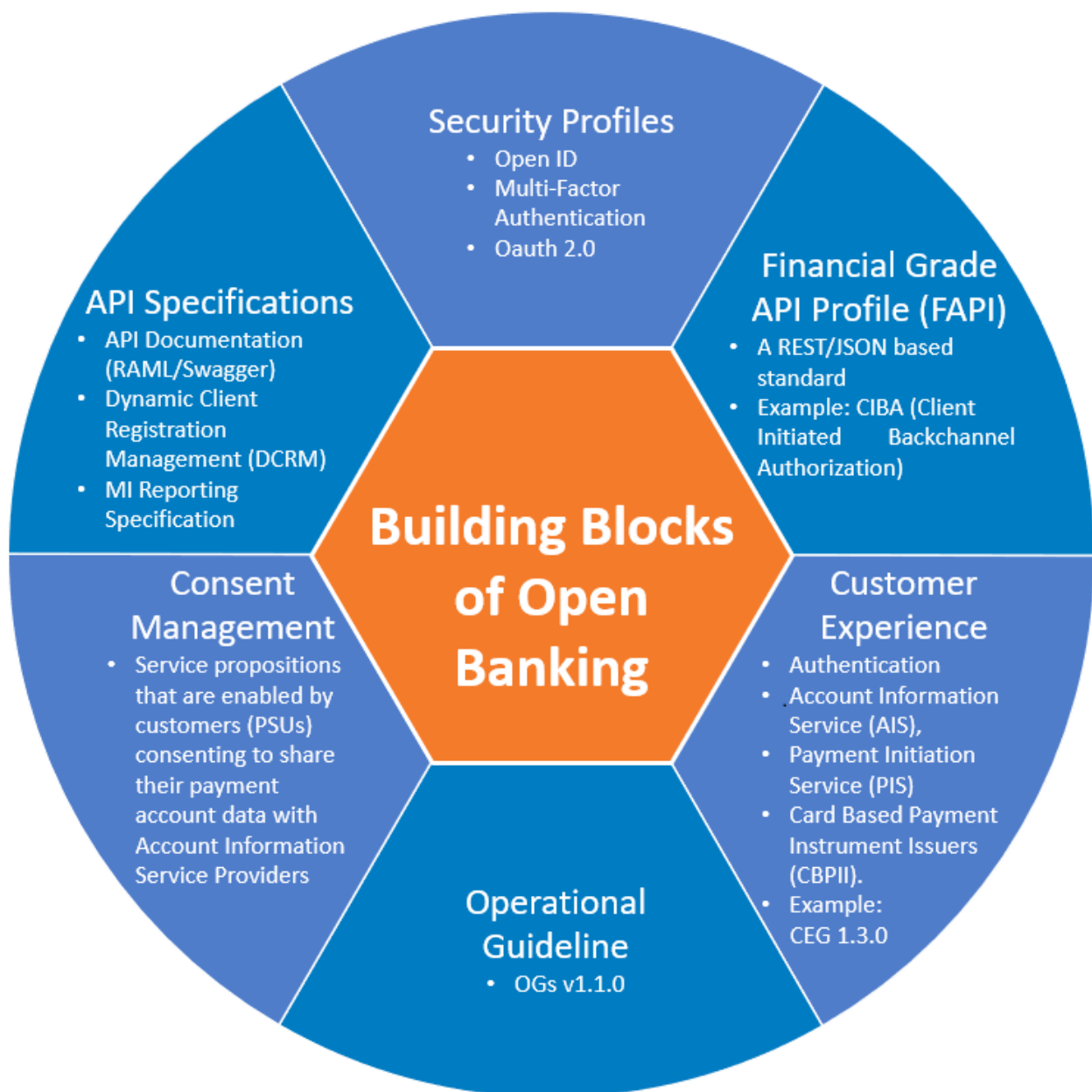


Fraud Management: Spending management and various liquidity management solutions are powered by professional services, which are providing proactive monitoring and preventing any potential financial fraud.



More payment options: Wallet payment, phone payment and email-based payment.

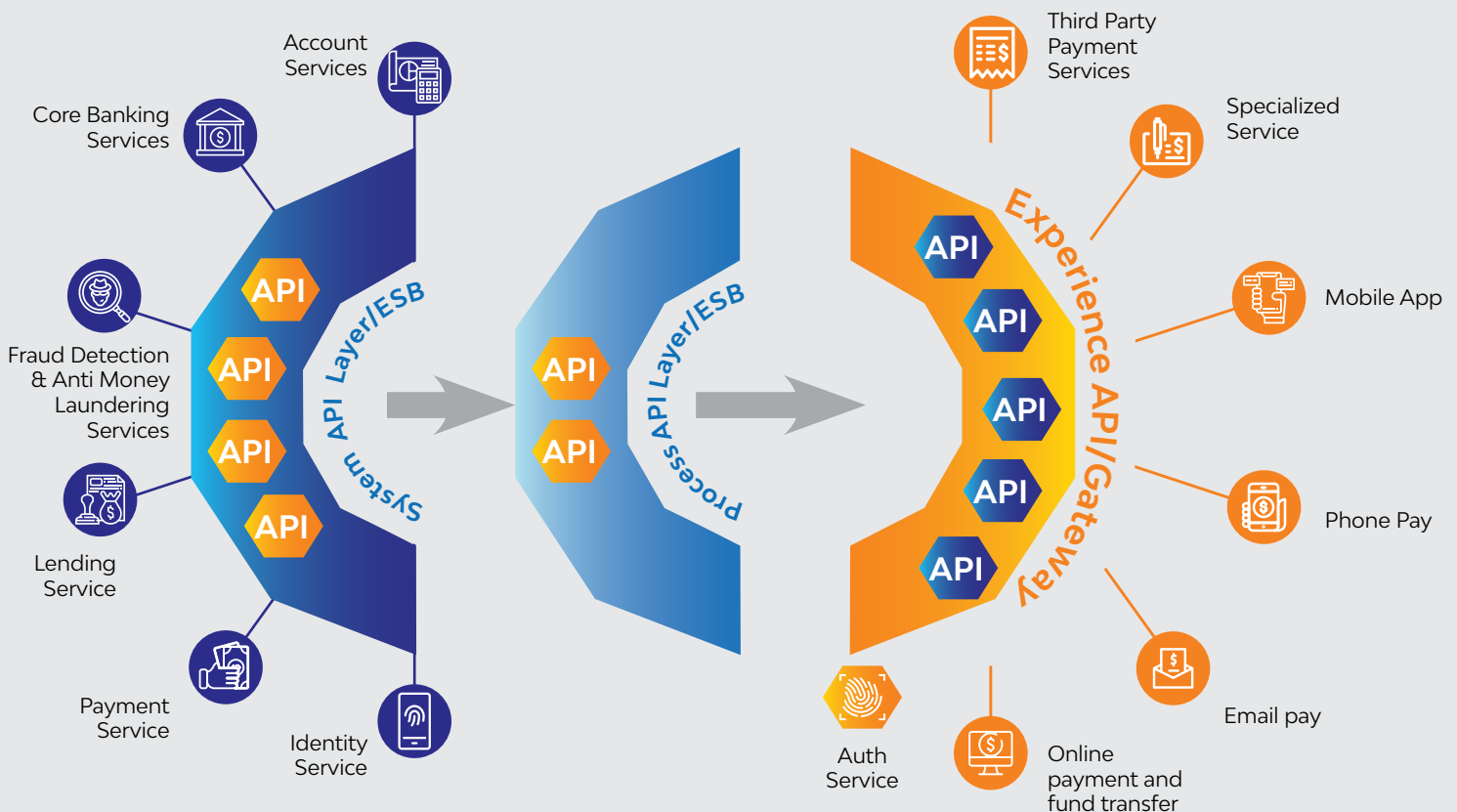
A suite of tools has been developed to enable firms to join the Open Banking ecosystem. Building blocks of “**Open Banking**” can be summarized as given below:



Technology Aspect of an Open Banking Platform

Open Banking guidelines are focused mainly on defining policies and processes for RESTful APIs, however, they don't suggest anything on implementation. The technical architecture is worth serious consideration because existing applications and processes are not designed as per the requirements of Open Banking. These processes are hardwired and interdependent so much so that breaking them would require heavy investment and time. Though banks can decide on the pace of change depending on budget and time, an evolutionary approach is recommended for this migration. In this approach, changes are made in phases – giving time and opportunity to open up gradually and learn and correct from previous steps.

Following diagram illustrates recommended architecture for APIs. A layered approach in which the layers are – Experience, Process and System.



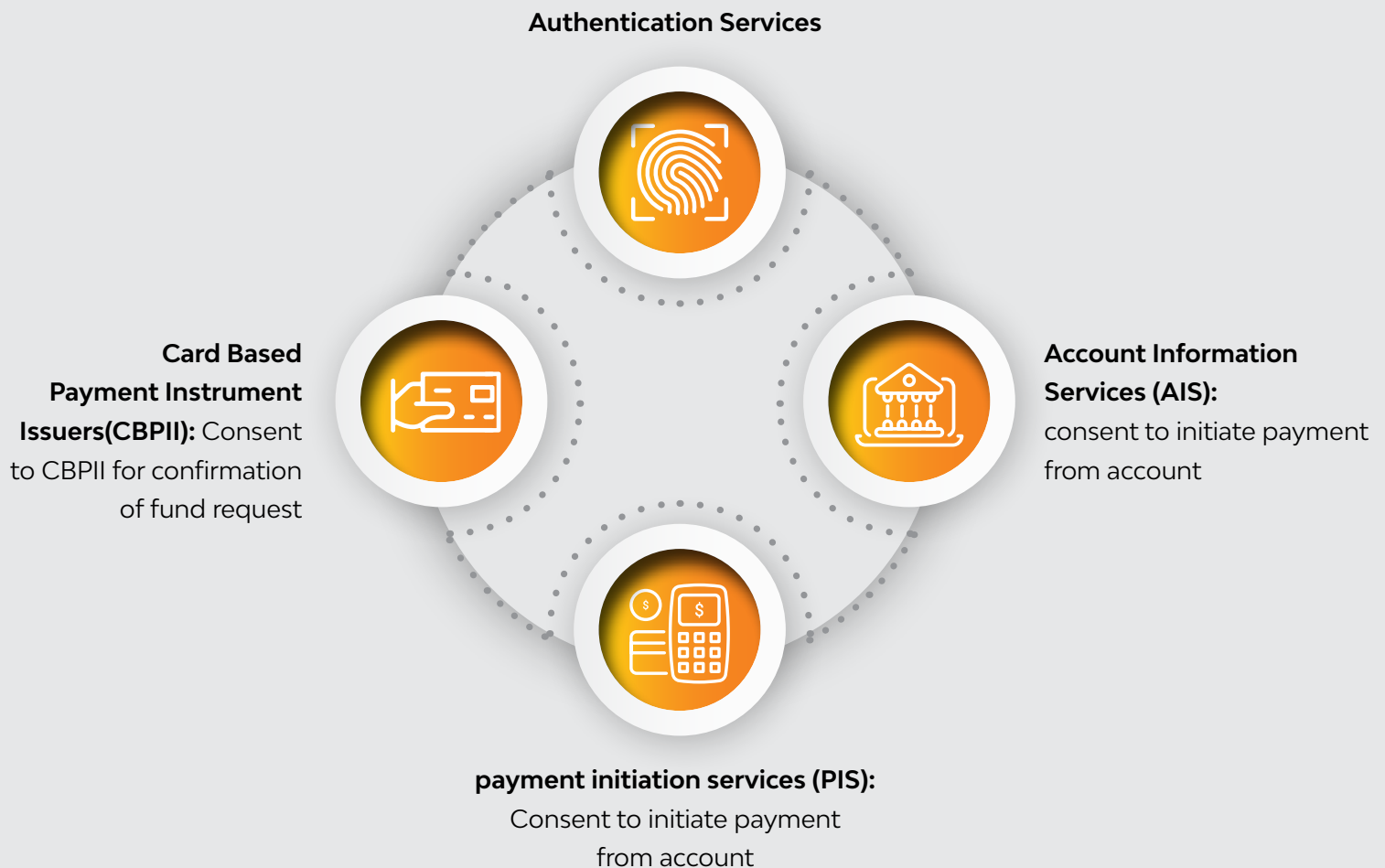
- > The Experience layer is the user layer that runs on Gateway as proxy. All security and façade related policies (set of activities to be performed on each interaction) are implemented at this layer. APIs exposed on this layer are available in public domain. These are subscribed by TPPs. TPPs can be online applications, mobile app or any other custom applications. Upon successful handshake between Experience API and TPP, data exchange is carried out through this layer. Open Banking guideline recommends standards such as FAPI (Financial Grade API Profile) and Customer Experience API Profile to be implemented for this layer. Banks can define their monetization policies which require recording of each event on this layer.
- > The Process layer is the orchestration layer. This layer works as Integration hub between experience APIs and backend services, which are exposed as System APIs.
- > The System layer APIs connect with backend applications, which are carrying out processes.

LTI's MBIF (Micro-service-based Integration Framework) is one such solution which can help migrate into API-led architecture. Keeping existing legacy infrastructure untouched, banks can expose their services as public APIs. MBIF acts as a middleware that exposes services as API at one end and integrates legacy applications on the other. Services are mostly configuration-based and integrate with backend systems using their own native protocols and connectors.

Apart from the technology architecture, there are three important modules in Open Banking. These modules are Customer Experience, Consent Management and Monetization. Customer journey for an Open Banking can be depicted as:



Consent Management is a type of digital contract between the bank and customer. Through this process, banks obtain agreement from consumer to expose their data to selected TPPs. This contract is a mandatory step. Market authorities have defined clear guidelines on the consent management that includes how to obtain this contract, its term and conditions, flexibility, maintenance and renewal. Banks obtain consent from consumer for Authentication, Account Information Service, Payment Initiation Service and Card-based Payment Instrument Issuers. Consent must be obtained before exposing consumer's data through API.



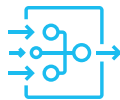
Monetization is a set of policies that are defined by banks to measure and charge the API usage by TPPs. Banks define SLAs (Service License Agreement) for API consumers, which is part of the contractual agreement between TPP and Bank. A complete ecosystem of usage-based payment system needs to be developed to implement this. Experience layer, as explained above, would implement policies that will capture API requests/response and then link that with the predefined SLAs.

Important considerations for a successful implementation of Open APIs:



API Governance

- > Operational models to develop, maintain and use APIs
- > Developing ecosystem for controlling, tracking, securing, and monetizing APIs
- > Decision on integration with external APIs
- > API analytics – Capturing API usage and traffic data



Architecture & Technology

- > Selection of right product that suites current technology landscape
- > Decision on cloud adoption of existing and new infrastructure requirements
- > Ensuring adherence to standards set by Open Banking regulators
- > Choosing right pattern as per current setup



API Design & Development

- > Development of APIs as per standard set by regulators and Open Banking promotion agencies
- > Developer portal for API documentation and mockup option
- > Integration with APIs exposed by external banking and non-banking service providers



Security & Consent Management

- > Decision and implementation of API security
- > Implementation strategy of consent management as per regulations



Bank's own API Strategy

- > Decision on including external banking and non -banking APIs
- > API product (packaging of APIs together to serve one group of customers) creation and its marketing
- > Monetization strategy of APIs - Developing an ecosystem to capture and record each event and then link that event with monetization policies
- > Decision on various subscription plans (SLAs) and its implementation
- > Setting up long term and short-term goals



API Lifecycle Management

- > Process guideline on launching new API
- > Process guideline on launching new version of existing API
- > Process on API retirement
- > Communication Management strategies with API consumers

Conclusion

An Open Banking model is establishing a new platform for a series of services to both consumers and providers through public APIs. Some products are already in the market, which are offering an integrated and personalized solution, with a full suite of services. As per market studies, this model will evolve to an all-in-one framework of data and service exchange platform.

Many innovative and specialized services are in about to hit the market that are based on these APIs. Banks will be compelled to join this journey if they want to be relevant in the changing time. They need to adopt a comprehensive API Management policy that can be used to capitalize the consumer base and to innovate new-age products, which are highly integrated.

Appendix

LTI's MBIF : Micro-service based Integration Framework: <https://www.Intinfotech.com/wp-content/uploads/2019/03/LTI%E2%80%99s-Microservices-Based-Integration-Framework.pdf>

API Directory for Open Banking: <https://www.openbankingtracker.com/api-directory>

OAuth 2.0 DCMR Protocol : <https://medium.com/@abilashini/oauth-2-0-dynamic-client-registration-management-dcrm-protocol-b55f222f481b>

MI Reporting Specification: <https://openbankinguk.github.io/mi-docs-pub/v3.1.2/specification/mi-reporting-profile.html>

API Specifications: <https://standards.openbanking.org.uk/api-specifications/>

Financial Grade API Profile: <https://openid.net/wg/fapi/>

CIBA Profile: <https://openid.net/specs/openid-financial-api-ciba-ID1.html>

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Manish is Lead Architect for various API implementations. He has 16+ years of experience in Enterprise Integration, with expertise in API implementation. He has been responsible for designing solutions for many Tier One BFS companies. He has also defined enterprise level API strategies for many manufacturing and supply chain clients globally.

LTI (NSE: LTI) is a global technology consulting and digital solutions company helping more than 420 clients succeed in a converging world. With operations in 32 countries, we go the extra mile for our clients and accelerate their digital transformation with LTI's Mosaic platform enabling their mobile, social, analytics, IoT and cloud journeys. Founded in 1997 as a subsidiary of Larsen & Toubro Limited, our unique heritage gives us unrivalled real-world expertise to solve the most complex challenges of enterprises across all industries. Each day, our team of more than 30,000 LTIes enable our clients to improve the effectiveness of their business and technology operations and deliver value to their customers, employees and shareholders. Find more at <http://www.Lntinfotech.com> or follow us at [@LTI_Global](https://twitter.com/LTI_Global)