

# IFRS 16 Compliance: Leveraging Cognitive Technologies for Lease Data Extraction

## Abstract

The International Accounting Standards Board (IASB) published IFRS 16 Leases in January 2016. The regulation will come into effect on Jan 1, 2019. Under the new standard, lessees will be required to recognise almost all leases in their balance sheets. This will hugely impact lessees' accounting processes while lessors will remain largely unaffected. IFRS 16 compliance will require lessees to rapidly and accurately extract lease data elements which can be a big challenge given the large number of lease agreements that enterprises typically enter into. This paper suggests implementing a cognitive lease data extraction solution built on technologies such as natural language processing (NLP), optical character recognition (OCR), and machine learning (ML), to automate the capture and extraction of lease data elements.

## IFRS16 Leases: Implications at a Glance

IASB's IFRS 16 - Leases sets out new principles governing recognition, measurement, presentation, and disclosure of leases for lessees and lessors. The new standard, which replaces the earlier IAS17 standard, will be applicable for annual accounting periods starting on or after January 1, 2019.

A key impact of IFRS 16 relates to accounting treatment of lessees' operating leases – under the new standard, disclosures of such contracts on the entity's balance sheet is mandatory, which in the past were off-balance sheet items. Compared to the earlier standard, the IFRS 16 standard requires a wider range of data elements for calculations and financial reporting. This data, however, will not be part of the source feed, necessitating manual retrieval from an enormous number of individual lease documents in varied formats. Manually capturing the required data elements will pose mammoth challenges to lessee entities.

### The impact on financial institutions

In the financial services industry, banks typically lease a variety of assets such as properties, buildings, cars, IT equipment, IT networking devices, residential units, furniture, and so on. Banks will therefore need to make changes to their financial reporting and accounting processes to ensure IFRS 16 compliance.

The extraction of lease data elements will pose several challenges to lessee banks, such as:

- **Volume:** Extracting the required data from a contract that may be hundreds of pages long is a complex, manual task that can take several hours. Large banks with a number of lease agreements will need to process huge amounts of ever-growing unstructured and structured data in physical and digital formats.
- **Diversity:** Banks with global operations may have to scan documents that will vary in terms of the clauses and the nuances of legalese depending on jurisdictional requirements mandated by local regulatory bodies across counties, states, and countries. Also, contracts may be in the local language necessitating translation. In addition, the content may be free flow text or 'templated' with tables or other formats.

- Accuracy:** Given that audit is mandatory under the regulation, auditors will look at data accuracy as one of the primary check points in IFRS16 accounting. As a result, banks will need to ensure the accuracy of extracted information which will pose difficulties as data will need to be manually entered from scanned documents. Moreover, accuracy and speed in extracting data will be critical in case the regulation stipulates strict timelines for reporting and compliance.

## Tackling the Challenges Using Cognitive Technologies

Achieving timely IFRS 16 compliance will require banks to conduct a thorough assessment of their ability to collate the necessary data and identify new systems and processes that may need to be established for data extraction. Manual extraction of data is time consuming and costly, underscoring the need for automation. We propose a solution using cognitive technologies such as OCR, NLP, and ML with a 'self-learning' feature to drive accuracy (see Figure 1).

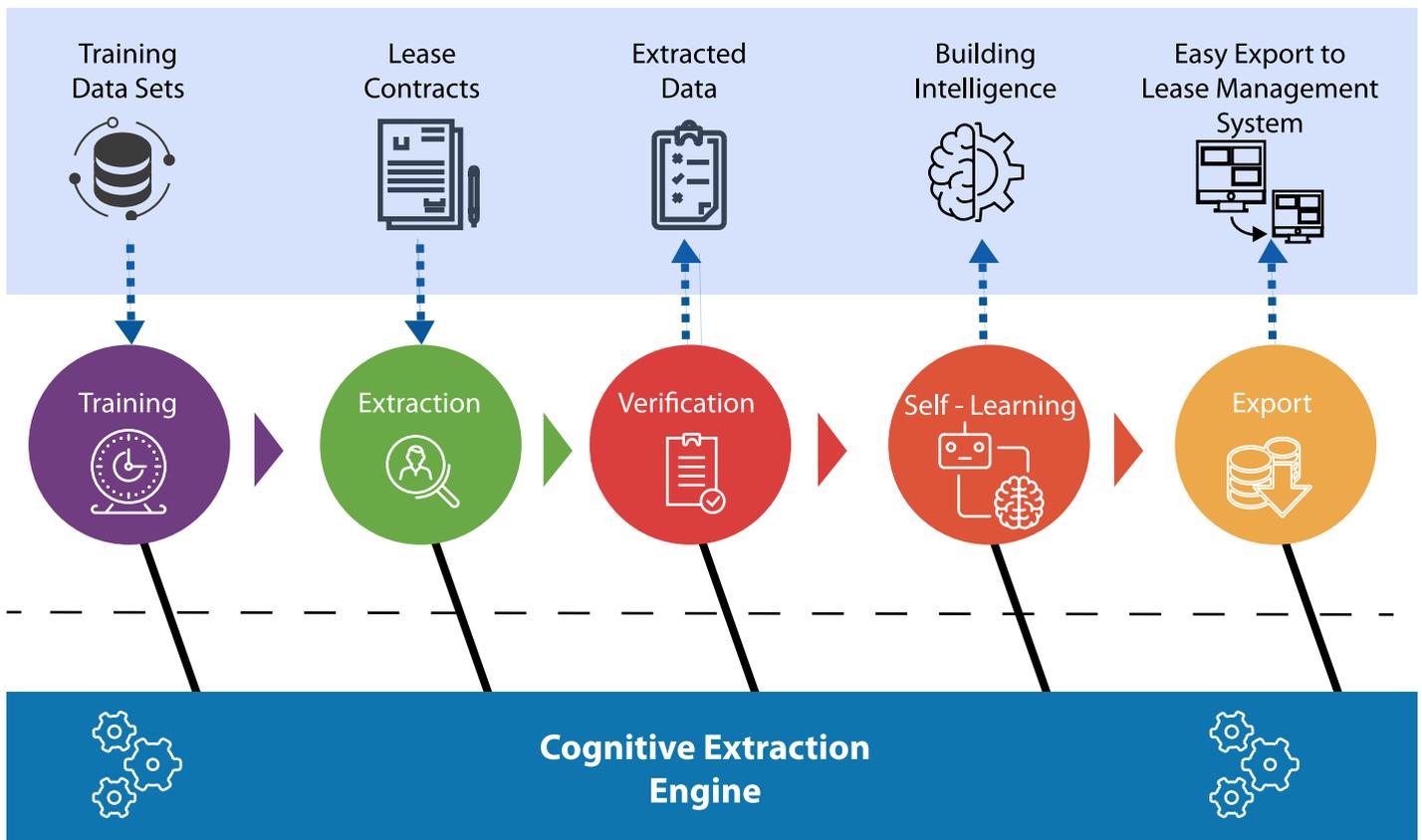


Figure 1 – A Cognitive Lease Data Extraction Solution

Let's examine some key components of the proposed cognitive data extraction solution:

### **Cognitive knowledge extraction engine**

At the heart of the solution is an extraction engine embedded with OCR technology to scan lease documents and extract the necessary data elements. The engine must be able to work across formats to extract the necessary information. The engine must have the capability to process lease documents in batches to save time and costs. Once extracted, the data must be delivered to the lease management system, where it will serve as the basis for IFRS 16 lease calculations.

### **Training module**

The training module is a crucial component to ensuring accuracy of data extraction. The extraction module must be trained to understand and interpret vast sets of documents in diverse formats. The accuracy of data extraction is directly proportional to the amount of time invested in training, and the volume and variety of training data supplied. Extensive training data enables the solution to capture and interpret all plausible statements (grammatically similar sentences, synonyms, and so on) and extract the necessary data. In addition, the module must be equipped with multilingual capabilities underpinned by NLP technologies to extract data elements from lease documents that are not in English.

### **Self-learning module**

This module is a subset of the training module; it must incorporate ML algorithms to detect newer language variations and identify new lease nomenclature. These elements must feed as inputs to the training module and enable the solution to adapt and auto-train, thereby augmenting its self-learning capabilities.

### **Verification module**

Verification of the extracted data is necessary for financial audit and scrutiny. The verification module must incorporate workflows to enable business users to verify the accuracy of the auto-extracted information. In addition, this module must store the extracted values and enable subsequent retrieval for audit verifications, if any, at a later date.

### Export module

The export module must offer the capability to export the extracted values directly to an IFRS16 calculation engine for further processing. Alternatively, the extracted data may be downloaded on to the lease management system. An extension can be built into the export module to enable visualization for decisioning and downstream reporting requirements.

## Putting it all Together

While the requirements of individual banks will vary, some key steps that must be taken before implementing a cognitive solution include:

- **Technology stacks:** Conduct an in-depth evaluation to assess the technology stack most compatible with the existing IT landscape. The chosen technology stack must seamlessly integrate with legacy systems. Java and Python are some of the most commonly used technology stacks for this solution.
- **Training:** Use large sets of varied legalese to train the extraction module; include newer formats and different combinations of documents in the training module to render the highest levels of accuracy. Based on our experiments in a laboratory environment, we believe that an accuracy percentage of 70 to 75 % can be targeted by using a large variety of data and investing more time in training the solution.
- **Usability:** Ensure ease of use for all users - business, IT, and others. Adopting intuitive designs for user interfaces, workflows, menus, and other elements, and making the solution self-explanatory facilitates easy learning and minimizes the training effort.
- **Business stakeholder participation:** Ensure participation by business stakeholders – this is key to successful implementation as with any business-driven use case. Involve business users in deciding the variety of documents to be used for training, the list of lease data elements to be extracted, and the final verification of the extracted data.
- **Traceability and lineage:** Ensure end-to-end traceability from the point of rendering documents to extraction all the way up to the output. Lineage must be maintained to ensure that the extracted values can be traced to the source of the data (i.e., the individual contracts). This is especially

important as business users may wish to revisit the extraction on a subsequent date to address queries, if any, from compliance teams.

By deploying a cognitive lease data extraction solution, financial institutions can dramatically minimize the effort required to accurately capture data elements translating into lower IT costs and error-free IFRS 16 calculations. This will in turn help ensure accurate and timely compliance and unlock exponential value by preventing the regulatory penalties and the consequent backlash associated with non-compliance.

## The Way Forward

It is indisputable that a cognitive lease data extraction solution will go a long way in helping banks achieve IFRS 16 compliance. However, banks must not rush into deploying the solution. In the absence of a one-size-fits-all solution, individual banks must conduct a thorough assessment spanning aspects such as volume of lease contracts in operation, degree of data sufficiency, the ability of existing processes to deliver the requisite lease data elements, and so on. Banks must perform a comprehensive cost-benefit analysis to determine the return on investment and embark on this journey only if the potential benefits outweigh the costs.

### About The Authors

#### Jm Kumar

Jm Kumar is a senior business consultant with the Finance and Reporting practice of TCS' Banking, Financial Services, and Insurance (BFSI) business unit. He has over 10 years of IT experience in finance, reporting, and compliance areas. Kumar started his career with a government bank in India. A Certified Associate of the Indian Institute of Bankers, Kumar holds a Master's degree in Finance from the Sri Sathya Sai Institute of Higher Learning, Anantapur, India.

#### Devang Patel

Devang Patel is the solutions head in the CTO Incubation Group of TCS' Research and Innovation (R&I) unit. He has over 22 years of IT industry experience in conceptualizing, designing, and building solutions using cognitive technologies, drones, IoT, and more. Patel holds a Bachelor's degree in Computer Science and Engineering from Mumbai University, India, and an MBA degree from the Narsee Monjee Institute of Management Studies, Mumbai, India.

#### Ketkee Pandit

Ketkee Pandit is a solution specialist with the CTO Incubation Group of TCS' Research and Innovation (R&I) unit. She has over 10 years of IT experience in solution design and development using cognitive technologies. Pandit holds a Bachelor's degree in Computer Science and Engineering from University of Technology of Madhya Pradesh, Bhopal, India.

Experience certainty. IT Services  
Business Solutions  
Consulting

### Contact

Visit the [Banking & Financial Services](#) page on [www.tcs.com](http://www.tcs.com)

Email: [bfs.marketing@tcs.com](mailto:bfs.marketing@tcs.com)

Blog: [Drive Governance](#)

Subscribe to TCS White Papers

TCS.com RSS: [http://www.tcs.com/rss\\_feeds/Pages/feed.aspx?f=w](http://www.tcs.com/rss_feeds/Pages/feed.aspx?f=w)

Feedburner: <http://feeds2.feedburner.com/tcswhitepapers>

### About Tata Consultancy Services Ltd (TCS)

Tata Consultancy Services is an IT services, consulting and business solutions organization that delivers real results to global business, ensuring a level of certainty no other firm can match. TCS offers a consulting-led, integrated portfolio of IT and IT-enabled, infrastructure, engineering and assurance services. This is delivered through its unique Global Network Delivery Model™, recognized as the benchmark of excellence in software development. A part of the Tata Group, India's largest industrial conglomerate, TCS has a global footprint and is listed on the National Stock Exchange and Bombay Stock Exchange in India.

For more information, visit us at [www.tcs.com](http://www.tcs.com)

All content / information present here is the exclusive property of Tata Consultancy Services Limited (TCS). The content / information contained here is correct at the time of publishing. No material from here may be copied, modified, reproduced, republished, uploaded, transmitted, posted or distributed in any form without prior written permission from TCS. Unauthorized use of the content / information appearing here may violate copyright, trademark and other applicable laws, and could result in criminal or civil penalties. Copyright © 2018 Tata Consultancy Services Limited