

Whitepaper



Enabling Business Agility through SAP Migration to Public Cloud

A Custom Paper
for LTI

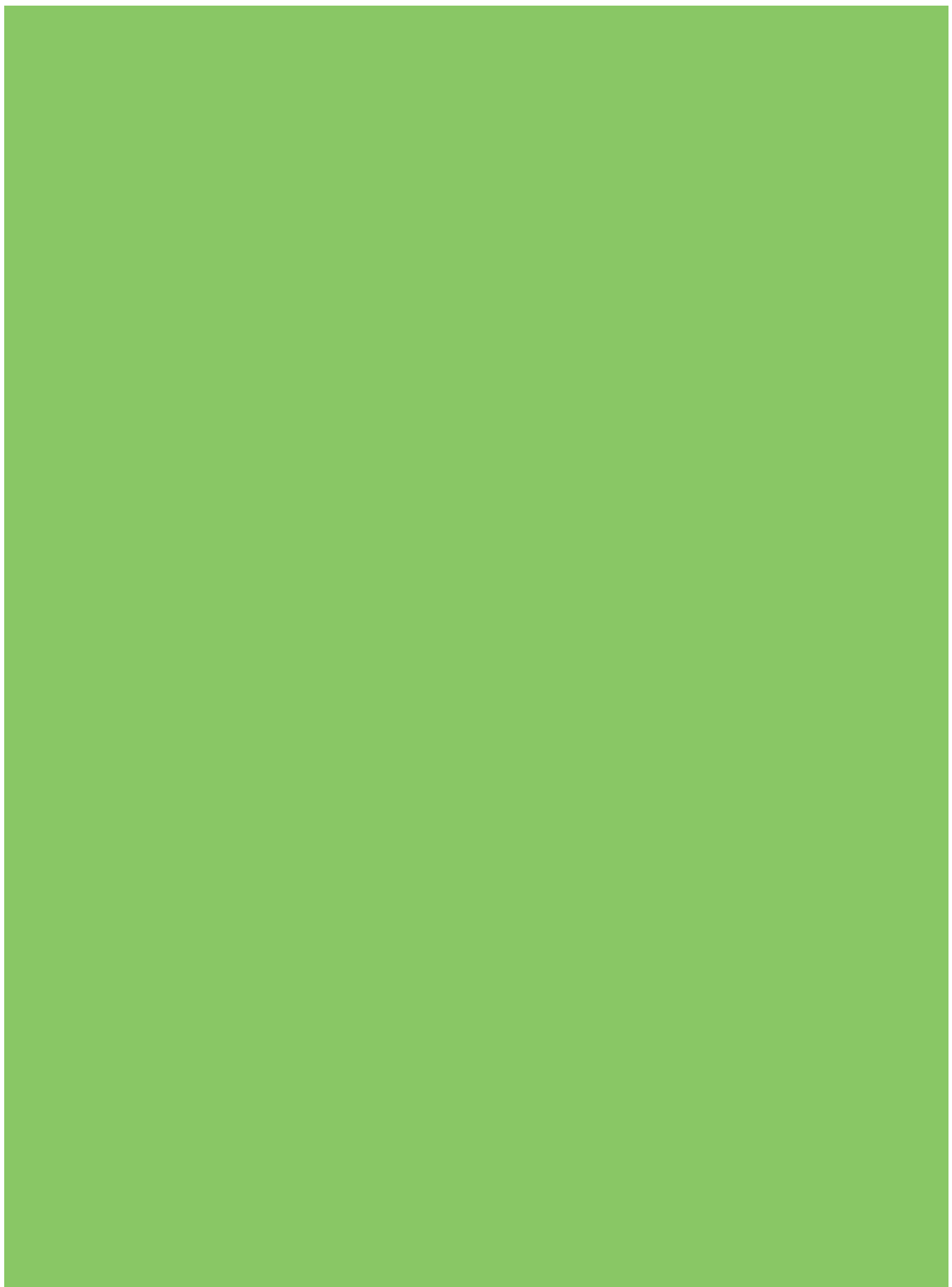
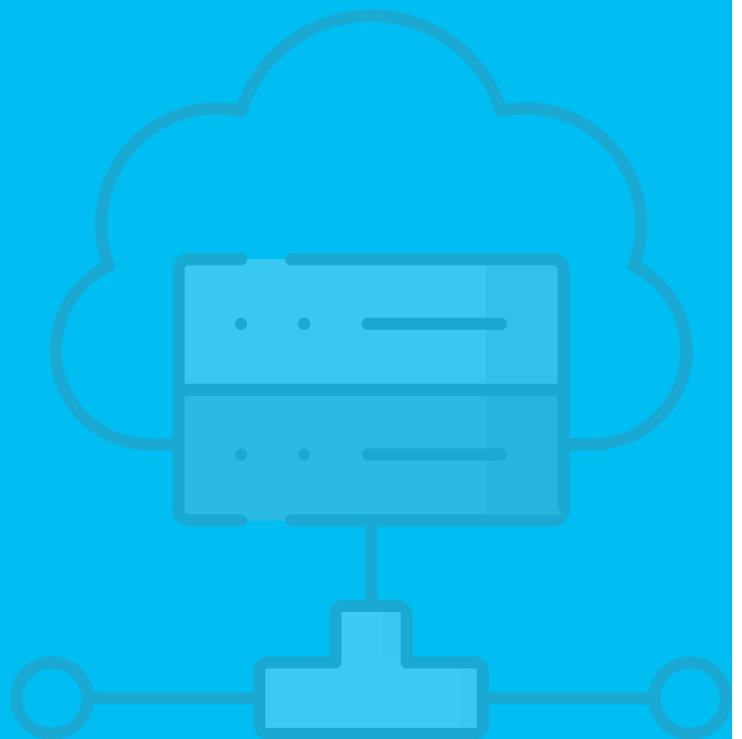


Table of Contents

1	LTI SAP Cloud Migration Approach	05
2	LTI SAP Cloud Migration Offerings	07
	A. Migration Tools	
	B. Industry-specific offerings	
3	LTI SAP Cloud Migration Delivery Capabilities	12
4	North America, Manufacturing & Retail Lead Adoption	13
5	Increasing Automation Will Enhance Ability to Scale	14
6	Summary	15



The Public Cloud enables generating increased value from SAP

The overall SAP ecosystem remains dominated by on-premise installations with only a minority of SAP systems currently hosted on cloud. Even where SAP systems are hosted on cloud, this tends to be a private cloud rather than public cloud. NelsonHall estimates that ~35% of S/4HANA implementations to date have been on the cloud, the majority being hosted on private clouds and a minority hosted in public clouds such as AWS, Azure and Google Cloud Platform.

On-premise hosting of SAP can limit the value of upgrading to or adopting SAP and S/4HANA. Specific examples of areas where on-premise impacts the overall value case includes:

Hardware Cost: The cost of procuring, standing up and maintaining traditional server, storage, and network hardware with backup/HA solutions.

Utilization: Sizing of infrastructure is a challenge and it isn't until after go-live that hardware is oversized.

Limitation on Automation: On-premise infrastructure limits the ability to apply automation in the operations and maintenance of SAP, increasing cost.

Disaster Recovery: SAP customers cannot afford a second datacenter for disaster recovery and tend to rely on old-style tape backup.

Scalability: Limited ability to scale rapidly to support changing business needs and growth.

Compute Capacity Lock-in: Dev, Test and QA environments are primarily only busy during the implementation and can then be idled after go-live; but environment costs are locked-in at the peak capacity requirement.

These challenges and the greater maturity of hyperscale cloud providers are driving the increased demand for hosting SAP on the cloud. Over the last few years, this has begun to accelerate with 60% of IT service buyers identifying increased agility of core production systems such as ERP as a very high priority in 2020, and organizations are increasingly looking to take advantage of the incremental cost and flexibility of using a public cloud provider (particularly when upgrading to S/4HANA and implementing associated capabilities). Cloud provides a simpler avenue for adopting many of the incremental capabilities that drive the value of S/4HANA, such as adding analytics, IoT and AI/ML capabilities, or other SAP cloud products (such as Ariba and Hybris).

LTI is focusing on enabling this growing interest in adopting a public cloud for SAP. To enable its clients to accelerate the entire SAP lifecycle on cloud, LTI is leveraging two decades of SAP experience, and ~50 purpose-built tools. LTI estimates that using public cloud can help clients realize a 40-70% operating cost savings over hosting an equivalent ecosystem on-premise.

Hosting SAP in a hyperscale environment helps to address many of the cost challenges of on-premise, including:

- Limited up-front infrastructure capital expenditures to stand up new infrastructure in the cloud with built-in high availability/disaster recovery functionality.

- Systems can scale up, out or down depending on system workload requirements.
- Many administration activities can be automated to enable IT to focus on more strategic tasks.
- DR environment can be quickly set up without affecting existing production environment.
- Dev/Test/QA environments can be “parked”, once the implementation is completed to minimize compute costs.

To support the expected increasing demand for these services, LTI is focusing on building the following capabilities:

- A broad set of migration tools tailored to the specific needs of SAP and public cloud.
- Industry-tailored offerings to accelerate value realization in targeted verticals.
- Converged delivery capabilities and automated toolsets.

To enable its clients to realize value from migrating SAP to a cloud environment while accelerating and de-risking the migration process, LTI has developed a standardized approach, and a breadth of offerings supported by foundational delivery capabilities.



LTI SAP Cloud Migration Approach

LTI has developed a standard multi-phase approach to assess, plan, migrate and support a client's SAP solution to the public cloud. This approach is underpinned by four key imperatives that LTI views as critical to the client's migration success:



Transform-as-you Migrate:

Identify and eliminate the unused systems during migration, while doing technology modernization.



Minimal Business Impact:

Understand business user personas, their business cycles, and manage user experience.



Workload Prioritization:

Prioritize workload migration using LTI's 3D approach of Risk, Complexity & Business Impact.



Right size target & Optimize Performance:

Optimize instances and provisioning by understanding usage patterns.



The first phase of the approach is a cloud suitability assessment to understand the current state of the client's SAP landscape and gauge the suitability, impact and complexity of migrating each component to a public cloud environment. Specific tasks include:

- Review current SAP Landscape
- Business Impact Assessment
- Application portfolio analysis against factors

The second phase of the program focuses on the detailed profiling of the SAP technical landscape. This includes analysis of:

- SAP landscape architecture
- SAP system sizing for cloud

The third phase is the process of developing and executing the migration strategy. This strategy is designed to span all components and considerations for the migration including:

- Strategy for standalone & less critical instances to cloud
- Strategy for integrated units in planned cutover
- SAP Application downtime & cutover strategy
- HA/DR strategy
- Recovery strategy

Finally, once the migration has been completed successfully, LTI offers the on-going maintenance and support of the SAP environment, including:



1 Post-migration support.



2 Technical decommissioning as required.



LTI SAP Cloud Migration Offerings

A. Migration Tools

By merging its cloud migration and SAP capabilities, LTI has developed a toolset to support this approach to shifting from an on-premise SAP landscape to a cloud-based one, which it has used across a broad set of clients, including Fortune 500 companies.

LTI has developed a broad toolset to aid clients on this journey, regardless of the path taken. Specific tools include:



S/4HANA Smart Analyzer



Cloud RapidAdopt



MigExpress Migration Suite



Cloud Value X-Ray





S/4HANA Smart Analyzer

Clients looking to adopt cloud are frequently, in parallel, looking to migrate legacy SAP instances to HANA or S/4HANA. To enable this, LTI uses its S/4HANA Smart Analyzer to identify necessary configuration changes and custom code modifications required to operate in a S/4HANA cloud solution. It is deployed as part of a consulting engagement and extracts information enabling LTI to analyze an existing ERP system over the course of a three-week engagement.

Smart Analyzer looks at the functionality and processes implemented in the current system to assess the impact of migrating to S/4HANA. This includes analysis of:

Custom objects impacted

Data needing to be cleansed before conversion

Add-on functionality not currently supported by core S/4HANA

Languages not supported

Processes that need to be addressed, including the following: Master data management | Finance and control | Procure-to-pay | Production planning | Order-to-cash

Smart Analyzer uses this information to develop a roadmap for adoption. It supports the development of a business case by identifying the process and performance impact of migrating to S/4HANA. It also looks at user experience changes that can be realized through the adoption of Fiori applications.

LTI supports its clients through three distinct adoption approaches: Greenfield approach, standing up a new SAP environment consisting of standard processes and objects and migrated data; Brownfield approach of migrating the existing custom processes, objects and data, or a hybrid, Bluefield approach.

LTI is primarily witnessing the clients choose to re-implement S/4HANA as a Greenfield solution in the cloud rather than trying to migrate a customized, legacy SAP landscape. It estimates 60% of its clients have chosen this adoption path.

For clients that do choose to migrate existing instances, however, LTI uses tailored versions of its cloud migration toolset, RapidAdopt and MigExpress, which can use ingested data from Smart Analyzer to develop the migration plan.



Cloud RapidAdopt

Cloud RapidAdopt is a cloud assessment tool that enables fast-track adoption of various cloud solutions and is designed to be cloud-agnostic. Specific capabilities include:

Cloud knowledge fabric: Metrics that measure how a target application would operate in a cloud environment. LTI currently uses ~17k metrics to analyze applications.

Discovery and dependency framework: A standard framework for developing an in-depth understanding of the application portfolio to inform how best to migrate each application and where it should reside.

Knowledge map: Created by RapidAdopt, the knowledge map identifies the business functions, interdependencies, and interactions across the application portfolio.

Future state: Identifies what happens as each application migrates to the cloud.

RapidAdopt is a proprietary framework built by LTI, based on commercially available products and open source technologies. LTI estimates it has been used to assess a total of ~1.5k applications, ~45k services and ~20PB of storage across its client base.



MigExpress Migration Suite

For workload migration, LTI has developed a set of tools called the LTI Cloud MigExpress Migration Suite. Rather than focusing on a single automated tool, it has curated a set of tools, assets, and processes.

Specific migration activities that are targeted for completion by the MigExpress Suite include:

Rehosting: Lift-and-shift of applications, including installing, deploying and reconfiguring applications.

Replatforming: Lift-and-reshape of applications, including designing infrastructure, reconnecting application, and migrating data.

Upgrading/re-installing packaged applications: Upgrading or remediating existing packaged applications, including re-installing and re-configuring applications to operate in the cloud, and migrating and testing data.

Re-architect customer applications: Re-architect and re-factor existing custom-developed applications, including re-writing, testing and deploying.

In parallel to modifying the applications, LTI also looks to implement automation and DevOps to manage the future state hybrid environment.

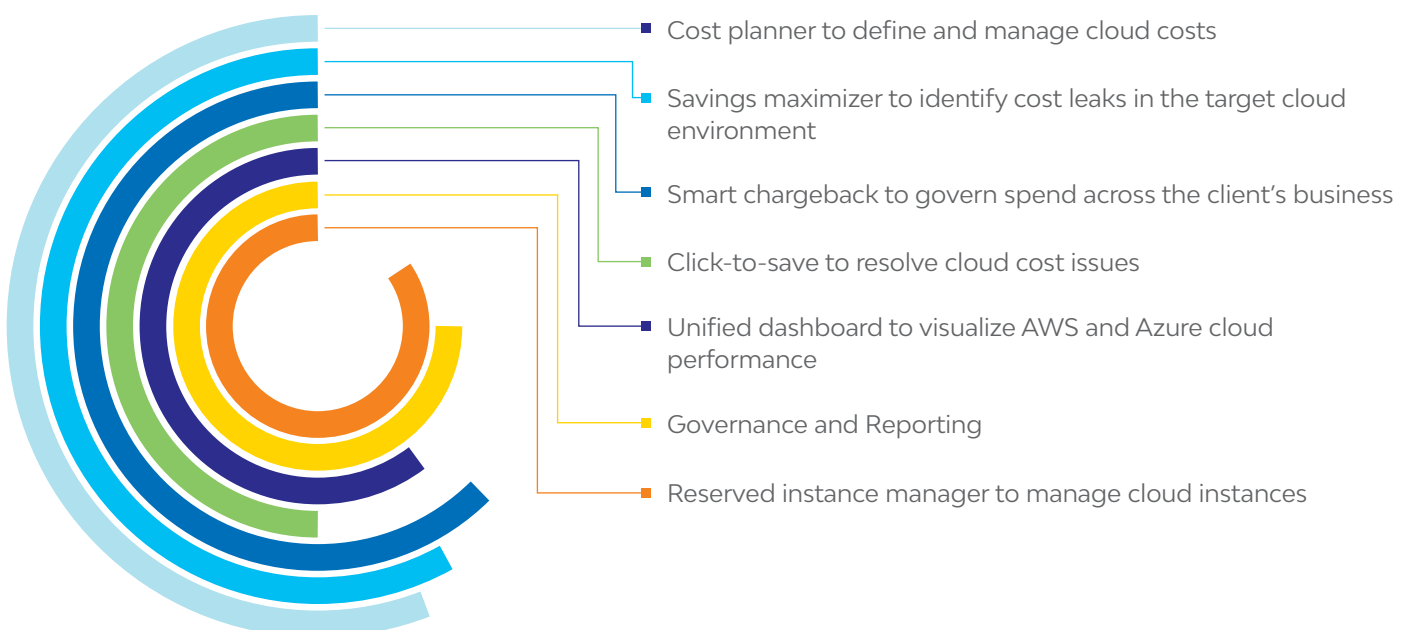
After an analysis of multiple migration tools available on the market, LTI selected tools to be included in the Migration Suite that can replicate existing applications residing on-premise in virtual machines to a newly stood-up cloud environment.

Additionally, LTI uses AWS/Azure Database Migration Service to support migrating client databases to a cloud environment. The service supports homogenous migrations including Oracle to Oracle, as well as migrations between different database platforms such as Oracle to Amazon Aurora or Microsoft SQL Server to MySQL. It also allows streaming data to Amazon Redshift, Amazon DynamoDB, and Amazon S3 from any of the supported sources, including Amazon Aurora, PostgreSQL, MySQL, MariaDB, Oracle, SAP ASE, SQL Server, and MongoDB.



Cloud Value X-Ray

In 2017, LTI developed its Cloud Value X-Ray tool, which is designed to help clients better understand the operational cost implications of the defined cloud solution and then manage the multi-cloud environment. It is used in the planning stage of migration to optimize the cloud environment being targeted and then used to manage the cloud environment going forward. The Cloud Value X-Ray provides the following services:

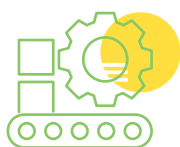


B. Industry-specific Offerings

IT service buyers have repeatedly shown that a key value they seek from their vendors is a deep understanding of their own industry. And, when it comes to cloud migration and ERP, buyers frequently look for vendors to understand how cloud adoption is best realized, based on the specific priorities or constraints of a given industry. For SAP users, who are looking to potentially migrate to S/4HANA in addition to migrating to the cloud, this includes prioritizing vendors that can deliver industry-specific functionality to augment core S/4HANA capabilities.

In addition to its toolset that works across industry sectors, LTI has developed migration blueprints that accelerate migrating specific SAP components to cloud environments. These are primarily delivered on SAP Cloud Platform and are implemented as a SaaS solution, integrated to a core S/4HANA implementation.

LTI has developed solutions for the industries, where it has seen early adoption of S/4HANA and the cloud, including:



Manufacturing



Oil & Gas



Engineering & Construction

Its manufacturing-focused offerings include enabling IoT capabilities, and LTI has already delivered this for an automotive client.

One of its oil and gas offerings is a compliance system for EPA requirements, currently deployed at a US-based oil refiner.

Additionally, it is building horizontal solutions that address specific areas of need in these industries. These solutions include intelligent asset management, smart supply chains, inventory optimization, finance of future and an intelligent payment solution.



LTI SAP Cloud Migration Delivery Capabilities

To support the delivery of its offerings, LTI has invested in building a combined group that spans both SAP and cloud skills. The makeup of this team includes:

1200

cloud specialists, including 350 certified and 120 architects

4.7k

SAP-skilled employees, 80% of which are located in India

Within its dedicated cloud team, it has identified a subset of specialized SAP experts that are dedicated to helping clients with migrating SAP to cloud environments. That team is growing and currently has 150-200 people dedicated to SAP cloud engagements, with another ~300 possessing SAP migration experience.

In terms of key partnerships, LTI is a SAP Global Strategic Services Partner for S/4HANA, SAP Guided Outcome Partner, delivery partner, re-seller, and client of SAP. The L&T Group (LTI's parent) has been a client of SAP since 1992. LTI migrated its own internal SAP to S/4HANA in early 2017 and is in the process of a phased roll-out.

LTI uses partnerships with public cloud providers to support the migration of SAP to the cloud, including Microsoft Azure, Google Cloud Platform and AWS.

4

North America, Manufacturing & Retail Lead Adoption

LTI's client footprint for SAP migration to the cloud totals ~100 to date, and the mix of sectors and geographies is similar to its broader client footprint.

LTI has developed differentiated, focused and tailored approaches for each of North America and Europe based on the different priorities and profiles within each region.

From an industry perspective, it estimates that 60% of its footprint comes from the following sectors:



Manufacturing



Retail



CPG



Energy



Pharmaceuticals

The most aggressive migrators of SAP to the cloud are based in the manufacturing and retail sectors.

Beyond geography and sector, the greater determinant of migrating to the cloud is SAP footprint size. Mid-sized HANA landscapes (2k to 5k users, up to 10k users maximum) have the agility and willingness to move to the cloud faster. This is particularly the case for SAP landscapes that are limited to a single instance dedicated to a single country.

LTI's clients that possess large, multi-instance landscapes have been much slower adopters. In addition to the complexity and customizations inherent in a multi-instance, multi-location landscape, concerns around risks such as data consolidation and regulatory constraints have acted as inhibitors.



Increasing automation will enhance ability to scale

LTI is able to deliver these services today to enable clients to achieve aggressive timelines. As an example, it was able to complete a S/4HANA migration in two months, which included the migration of two terabytes of data residing across 200 servers.

Going forward, LTI is focusing on accelerating its delivery through increased automation. It has already built automation for the installation of SAP, provisioning of infrastructure, and deploying applications into cloud environments. Now, it is focused on adding automation to the following:



End-to-end SAP migration



SAP basis reconfiguration



Functional test

LTI is investing in efforts to script and automate SAP-basis migration and post-migration validation testing. Rather than expanding the workforce to support greater SAP migration, it will use automation as a force multiplier, estimating that investments in automation technology will multiply its employee efficiency and effectiveness by 400%.

In addition to an expanded use of automation, when LTI looks ahead, it is focusing on two key areas to mature and evolve its capabilities: expanding the use of as-a-service contractual models and broadening its portfolio of industry-specific solutions.



To grow its as-a-service model footprint, it is leveraging its experience with Veolia, a French water, waste and energy management company. LTI migrated a de-centralized SAP environment to a centrally managed AWS-hosted SAP environment. Operating the system is delivered as-a-service and the resulting solution has improved performance while driving operating cost savings.

LTI is also looking to build out more industry-specific solution and using a digital solution, it has built targeting the engineering, construction and operations clients. This solution combines core S/4HANA with LTI proprietary solutions and IoT offerings from SAP Leonardo to integrate capabilities planning and execution.

Summary

The convergence of SAP and public cloud offerings is quickly becoming beneficial for enterprises. The business case for adopting S/4HANA can be enhanced through the reduced infrastructure costs associated with cloud, while migrating an ERP system provides a foundation for building a broader enterprise-wide hybrid cloud landscape. LTI is tracking several different business objectives that can be realized through the migration of SAP from on-premise to cloud. These include:

- 1 Pivot of SAP infrastructure cost from CAPEX to OPEX
- 2 Improved recovery times and rapid deployment of high availability solutions
- 3 Increased speed for provisioning of SAP systems and time to market
- 4 Support for enterprise digital transformation journey and adoption of HANA
- 5 Ability to archive data and enabling the corresponding SAP systems to be audit-proof

LTI has worked with clients across both SAP and cloud services and is now looking to sit at the forefront of their convergence. The integration of its SAP and cloud capabilities, combined with a focus on expanded use of automation in delivering these services, position LTI to support this rapidly growing client focus.

About NelsonHall

NelsonHall is a global industry analyst firm dedicated to helping organizations understand the 'art of the possible' in IT services (ITS) and business process services (BPS), and specifically how to identify, adopt, and optimize the next generation of digital technology and services for their business.

Founded in 1998, and with industry analysts in the U.S., U.K., and Continental Europe, NelsonHall has a 20-year track record of providing the highest quality market research to both the buy-side and supply-side of the ITS and BPS markets. All our research is onshore and in-house, and we are highly valued for both the insightfulness of our research and the quality and ready accessibility of our industry analyst inquiry/support service.

You can find out more about NelsonHall and its analysts, plus access the latest industry insights at research.nelson-hall.com.

About the Author

David McIntire is an IT Services Research Director at NelsonHall, with shared responsibility for IT Services research globally. David covers IT Services in the areas of digital transformation, consulting and application services.

He has been a part of NelsonHall's IT Services analyst team since 2016, providing comprehensive and insightful coverage of IT services markets in the world. In particular, he is recognized for his knowledge and coverage of digital transformation and application services. David assists both buy-side and vendor organizations in assessing opportunities and supplier capability across IT service lines.



**David
McIntire**

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 LTIites 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.Ltinfotech.com> or follow us at @LTI_Global

Info@Ltinfotech.com



A Larsen & Toubro
Group Company