Luther Case Study

Allianz Safe Trade Network
SME Onboarding
end-to-end Process Operations

Allianz

Luther Systems

1. Executive Summary

Small to Medium Sized Enterprises (SMEs) form the backbone of the real economy, with over 2,500,000 SMEs in Germany alone. SMEs are experts in the products and services that they offer, but often lack visibility of their wider SME community or clear understanding of the different financing and growth opportunities available to them. Allianz Trade (AT), formerly Euler Hermes, a subsidiary of Allianz, is an international financial services enterprise offering a range of financial services to companies, monitoring the financial health of 80 million[1] of these companies internationally. AT has access to, stores information, and has developed internal credit ratings for this 2,500,000 German SME population. However, before working with Luther, AT's current core client group (SMEs that use AT's products and services other than the internal credit rating) contained only ~14,000 of these companies. There was considerable scope for AT to further expand and attract more SMEs.

Before working with Luther, clients accessing AT's financial services would discover them through advertising or word of mouth from other SMEs. However, since the SME community was disjointed and poorly connected, it was unlikely that this discovery would occur. Additionally, since the AT client network was underdeveloped, there was no incentive for SMEs to access these services other than the services themselves. As a result, AT's client base was not as large as it could be.

AT wanted to develop an "SME Connectivity Platform and Safe Trade Network" to realize the huge potential of this wider SME network. This community would provide an "AT approved and validated" network of SMEs. This network would enable SMEs to better connect with their local and wider business community, backed by accredited and verified business information provided by AT, particularly an "AT-backed Credit Rating". Also, AT would expand their client group and provide SMEs with a large variety of financial products and services, supported by a data-driven community that allows them to better provide these services. These products and services will also help establish and enhance adoption and retention of community members.

The estimated commercial impact of implementing the Luther Platform MVP for Allianz Trade are:

ROI 10X	Cost reduction 50%	Avg. Speed increase 4X

A key component of this SME network will be the company onboarding process. Already used to integrate SMEs into AT's financial services, the onboarding process will be used to integrate SMEs into the Safe Trade Network. To be integrated into the wider SME network, companies will need to be identified as good candidates from AT's database, invited to the network via communication with a company representative, who must have their identity verified. Then the company identity is verified for regulatory and compliance reasons, before the company is given full access to the network. An efficient onboarding process will ensure this happens smoothly and at low cost. For a full breakdown of the process see section 2.5.

The onboarding process involves 4 teams: i) the AT Onboarding Team, ii) the AT Communications Team, iii) the Company Representative, and iv) the AT Verification Team. For a full breakdown of the teams and participants involved see section 2.4.

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[1] https://www.infomediaire.net/le-leader-mondial-de-lassurance-credit-change-de-nom/

Allianz Trade stores financial information on 2,500,000 SMEs in Germany alone, and over 83 million businesses around the world[2]. In Germany, SMEs employ 55% of employed people, and contribute 25% of total business turnover in the country[3]. For the MVP of the SME Network, 6,000 of AT's core client group were chosen. These SMEs accessed credit from AT of up to €250,000 each. This showed the potential for growth in providing financial services if the core client group could be expanded using the Safe Trade Network.

German SMEs in AT's database	German SMEs in AT's core client group	Credit limit accessed by AT core clients
2,500,000	14,000	€250,000

Allianz Trade operates the SME onboarding process, as part of the client acquisition value chain. This process operates across 4 teams & 10 software systems and includes 107 tasks end-to-end.

Teams	Software systems	Tasks
4	10	107

To operate the process end-to-end, each team operates a number of functions. Each function performs the same Operations Cycle (series of steps); i) send data & info to the system, ii) receive response from system, iii) compute & validate response, iv) share & store execution of step, v) evaluate & initiate next step.

Operational Silos cause unreliable Process Operations

Allianz Trade operate the Process across 4 teams & 10 Software Systems

each team & system performs a function for the Process (perform checks, review docs, ...)

these teams & systems are siloed, they have separate ops, tech & governance

but the end-to-end process operates across them

For reliable operations, all teams & systems involved should operate the same end-to-end process. However, they often don't! This leads to operational & technical challenges, which make process operations unreliable. The opportunity is providing a platform to reliably operate the end-to-end process, across all teams & systems involved. Traditional solutions to end-to-end process operations are unreliable & expensive.

Enterprise Operations are generally function-first, which means they continue to focus on improving functions & systems, but processes are considered secondary. The thinking is that if we have great functions & systems, the business can operate any process! Traditionally enterprises use bespoke connectors & local operations scripts for process operations, which are fragmented, siloed, and changed separately, and so are ineffective for reliable process operations.

Enterprises primarily focus on the operations of individual teams & systems, and continuously improve them

operations of the end-to-end process across 4 teams & 10 systems is of secondary focus, especially as the process evolves

This costs the enterprise millions in operational costs, and days in delays

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[2] https://www.allianz-trade.com/en_GB/about-us.html
[3] https://www.destatis.de/EN/Themes/Economic-Sectors-Enterprises/Enterprises/Small-Sized-Enterprises-Medium-Sized-Enterprises/_node.html

For Allianz Trade's proposed SME onboarding process, this would lead to:

Practical Problems in the onboarding process	Operational Problems for Allianz Trade
Inefficient process limits network growth	Nonstandard ops: across process steps
Poor onboarding could damage AT reputation	Nonstandard ops: over time
Lower client retention due to slow process	Inconsistent changes
Manual verification means risk of fraud	Lack of execution status visibility
Lack of data transparency reduces inter-SME trust	Need for execution reconciliation
Lengthy and error-prone process reduces SME trust	Large Ops teams
Manual reconciliation limits scalability	Compliance fees & violations

To remedy this, enterprises use automation tools. However, they are ineffective at end-to-end process operations, due to their limited scope and scale, and stitching them together also doesn't solve the problem.

Luther's platform is designed process-first, & primarily focuses on end-to-end processes. Reliable end-to-end process operations include consistent operations, and great functions & systems.

> Luther's platform takes a **Process First Approach**
> focusing on reliable operations of the end-to-end process across all teams & systems,
> instead of cobbling & stitching together the separate & siloed functions
> of 4 teams & 10 software systems

The Allianz Safe Trade Application, operated on the Luther Platform, provides the complete solution for AT's requirements. Using the Luther Platform and Luther's Deep Process Automation Technology, the application benefits from a reliable and adaptable infrastructure, a single source of truth for stored information about SMEs, and reduced friction and delays when signing Common Operations Script. The rich web of data and information that the application offers provides numerous opportunities for AT to offer a wide range of financial products and services to these SMEs, including the opportunity to network with a large pool of potential suppliers and customers, strengthening individual SMEs, the network, and AT.

Luther's unique value for reliable end-to-end Process Operations is providing i) standard connectivity & ii) a common operations script, across all teams & software systems.

> Luther's unique value for reliable end-to-end Process Operations is providing
>
> **standard connectivity**
> **a common operations script**
>
> across all teams and software systems.

Luther's platform vertically integrates i) distributed system technology ii) optimal resource allocation & management, iii) real time event ordering & streaming, iv) deterministic event processing & execution, for reliable end-to-end process operations.

> Luther's platform vertically integrates
>
> **distributed system technology**
> **optimal resource management**
> **real time event streaming**
> **deterministic event execution**
>
> To make reliable end-to-end process operations possible.

Luther's platform does this by i) connecting systems to standard platform nodes, rather than to each other, and ii) teams & systems can change the common operations script but all teams & systems have to know & agree to the change, so all teams & systems involved operate the same end-to-end Process all the time!

Finally the Luther Platform reliably operates the end-to-end SME onboarding process across 4 teams, 10 software systems & 107 tasks.
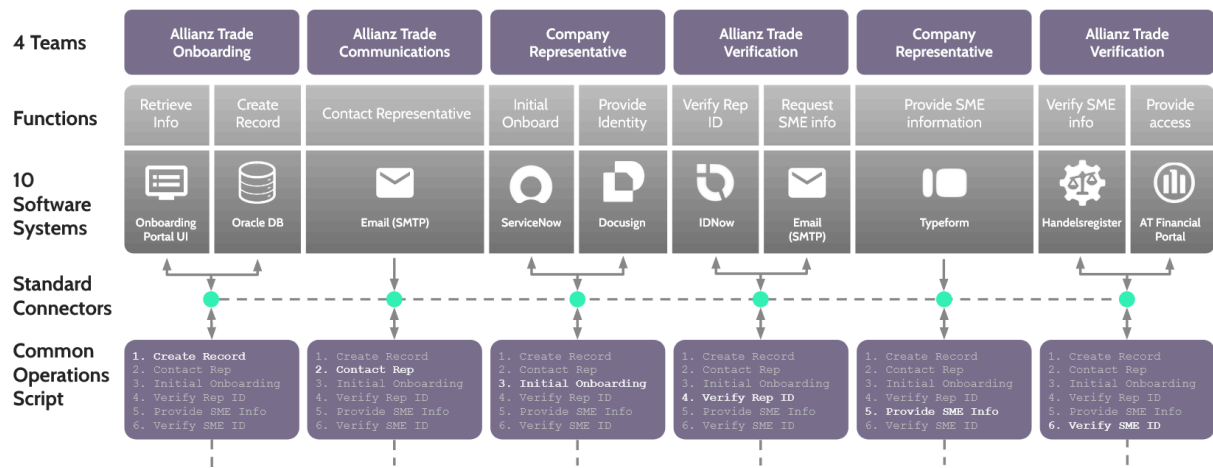

4 Teams	Allianz Trade Onboarding		Allianz Trade Communications		Company Representative		Allianz Trade Verification		Company Representative		Allianz Trade Verification	
Functions	Retrieve Info	Create Record	Contact Representative		Initial Onboard	Provide Identity	Verify Rep ID	Request SME info	Provide SME information		Verify SME info	Provide access
10 Software Systems	Onboarding Portal UI	Oracle DB	Email (SMTP)		ServiceNow	Docusign	IDNow	Email (SMTP)	Typeform		Handelsregister	AT Financial Portal
Standard Connectors												
Common Operations Script	1. **Create Record** 2. Contact Rep 3. Initial Onboarding 4. Verify Rep ID 5. Provide SME Info 6. Verify SME ID		1. Create Record 2. **Contact Rep** 3. Initial Onboarding 4. Verify Rep ID 5. Provide SME Info 6. Verify SME ID		1. Create Record 2. Contact Rep 3. **Initial Onboarding** 4. Verify Rep ID 5. Provide SME Info 6. Verify SME ID		1. Create Record 2. Contact Rep 3. Initial Onboarding 4. **Verify Rep ID** 5. Provide SME Info 6. Verify SME ID		1. Create Record 2. Contact Rep 3. Initial Onboarding 4. Verify Rep ID 5. **Provide SME Info** 6. Verify SME ID		1. Create Record 2. Contact Rep 3. Initial Onboarding 4. Verify Rep ID 5. Provide SME Info 6. **Verify SME ID**	

Fig 1. SME Onboarding process operations built on the Luther Platform

To implement the platform, i) Luther's team mapped the Process, ii) Identified teams & software systems in the process, iii) allocated nodes (servers) to teams, iv) connected nodes to systems, v) set up the Platform on the nodes. vi) Allianz Trade's team along with Luther's team developed the Common Operations Script (code) for Process Operations, vii) the process went Live.
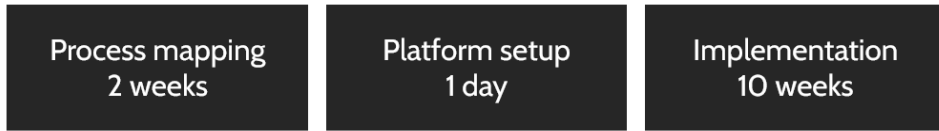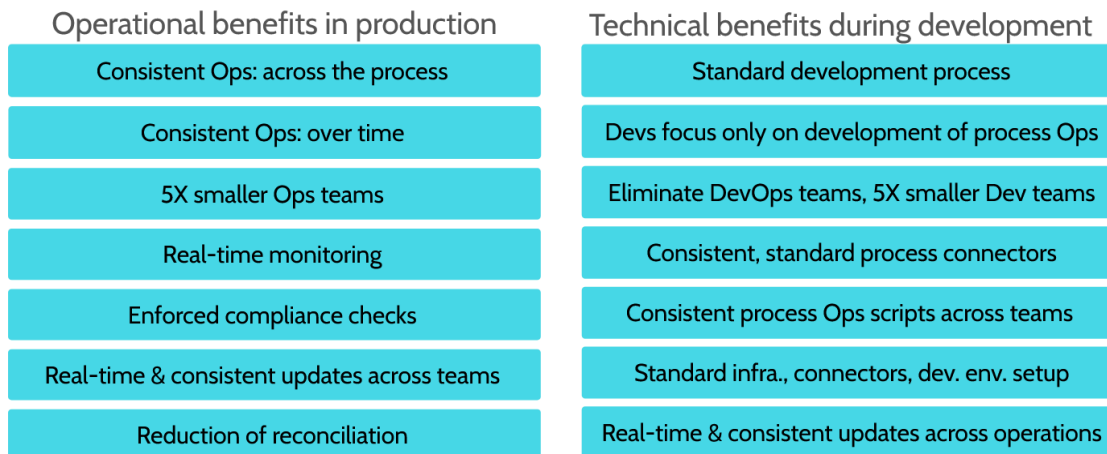
Process mapping 2 weeks	Platform setup 1 day	Implementation 10 weeks

Fig 2. Implementation timeline for the MVP of the SME onboarding process.

The results have been highly impactful. Thanks to increases in efficiency and operations reliability, a process that traditionally took more than 13 hours can now be completed in 3.5 hours and operational costs have been reduced by 50%. Reduced timescales result in smoother operations for SMEs and company representatives. Beyond the commercial results, this led to operational benefits in production; i) reliable operations across the end-to-end process & over time, ii) 5X smaller Ops teams, iii) real-time monitoring, iv) enforced compliance checks, v) real-time and consistent updates across all teams, vi) reduction of reconciliation. Also, technical benefits during development; i) standard dev. process so developers can focus on operations, ii) 5X smaller Dev teams, iii) standard process connectors, iv) automated infrastructure and connectors setup, v) real-time and consistent updates with the rest of operations.

Operational benefits in production	Technical benefits during development
Consistent Ops: across the process	Standard development process
Consistent Ops: over time	Devs focus only on development of process Ops
5X smaller Ops teams	Eliminate DevOps teams, 5X smaller Dev teams
Real-time monitoring	Consistent, standard process connectors
Enforced compliance checks	Consistent process Ops scripts across teams
Real-time & consistent updates across teams	Standard infra., connectors, dev. env. setup
Reduction of reconciliation	Real-time & consistent updates across operations

The automated SME onboarding process demonstrates a reliable and effective system built on the Luther platform to standardize and automate the onboarding of SMEs onto Allianz Trade's new Safe Trade Application, by seamlessly integrating all participants into a more efficient process. Luther's solution simplifies the complex onboarding process without adversely affecting the operations of the participants. The network could be expanded to include more SMEs Allianz Trade has a relationship with, including creating new networks in other countries where AT provides financial services.

The automated SME onboarding process forms part of the larger collaboration between Allianz Trade and Luther Systems to develop the Allianz Safe Trade Application, an automated system that is used by SMEs in AT's network to discover and do business with other members of the SME community, to easily access, share and verify their AT Credit Rating and the Credit Rating of their clients, and to easily and efficiently carry out transactions with other SMEs.
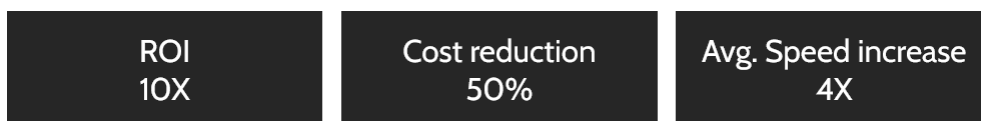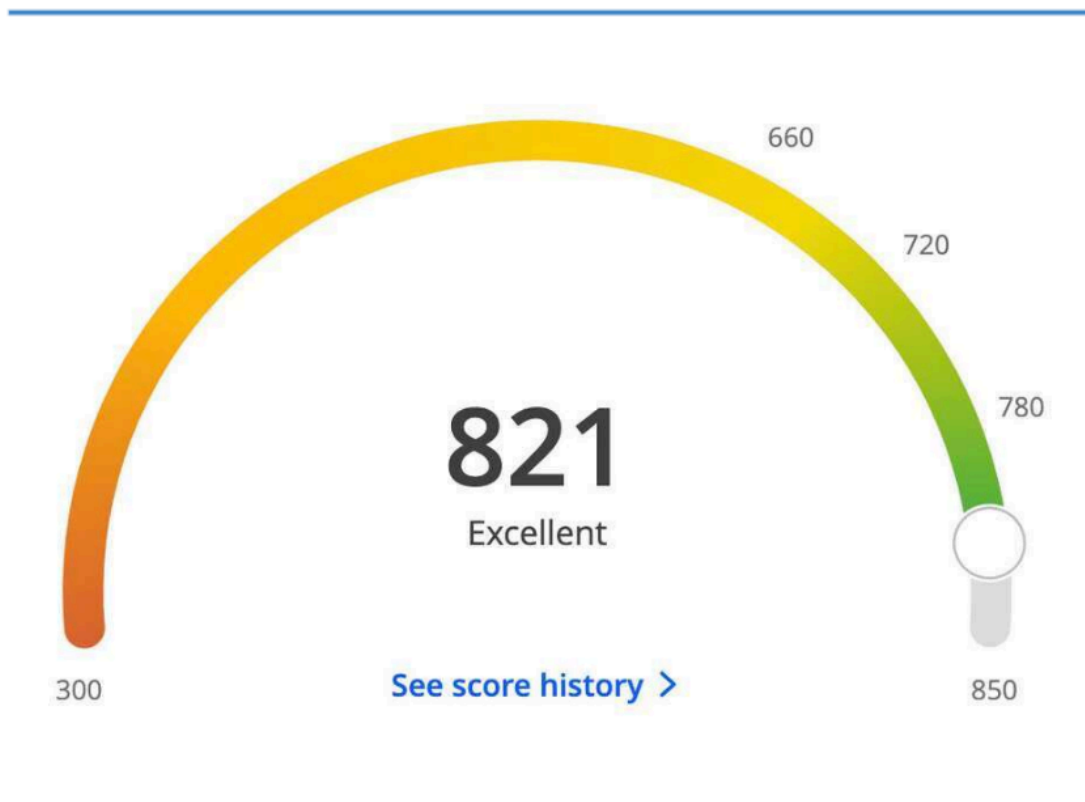
ROI 10X	Cost reduction 50%	Avg. Speed increase 4X

Fig 3. Estimated results of implementing the Platform for the SME onboarding process.

660
720
780

821

Excellent

300

See score history >

850

2. The Process

2.1. Process Operations

Different teams have different operations, rules and governance and they also utilize and operate a variety of software systems in different ways. Each system operates a specific function for the process. To operate the process end-to-end, each function performs the same cycle of steps: i) **Send**: send data & information to the System, ii) **Receive:** receive response from the System, iii) **Validate:** compute & validate response, iv) **Store:** share & store execution of step, v) **Initiate:** evaluate & initiate next steps.
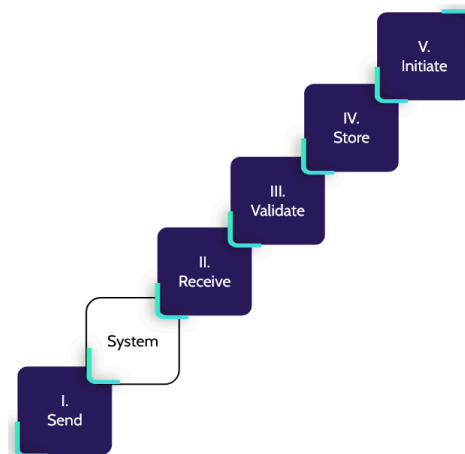
Fig 4. These are the requirements that repeat for all functions across the end-to-end Process Operations.

Enterprises operate a set of specific functions based on their objective. For example, an investment management company's functions help it to manage investment portfolios. While the functions and systems may change, the process remains the same. However, expecting processes to be efficient because of efficient individual tools simply does not work for enterprises. Luther empowers enterprises with a process-first approach.

Tasks are simple events that are localized to one team involving one or two software systems, for example retrieving data from a database. Workflows are more complex, involving 10-20 tasks between one to two teams, and two to three software systems. An example of a workflow is onboarding a new employee. Processes are complex, involving 50+ tasks, 3 or more teams and multiple software systems. Onboarding a company is an end-to-end process.
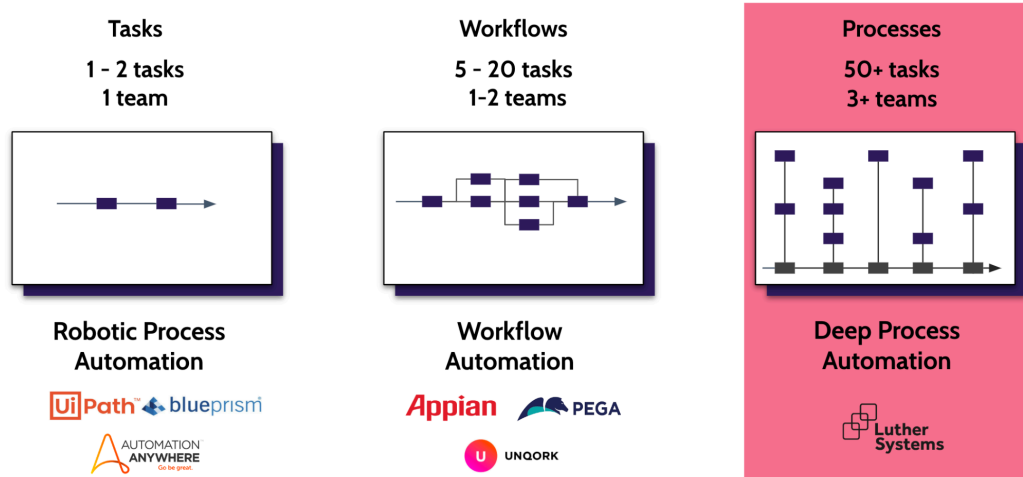

Fig 5. Different tools are used to automate different levels of complexity.

2.2. Function First Operations and its limitations

Generally, enterprise operations are function-driven. They have a large collection of software systems each operating a specific task. Tasks often have dedicated software systems and are operated by specific teams. By developing, purchasing and maintaining efficient systems, most enterprise tasks operate highly reliably.

Enterprise processes, however, operate across multiple teams and software systems, and involve many tasks. This means reliable end-to-end process operations require efficient teams and systems, as well as efficient connectivity and operations across these teams and systems.
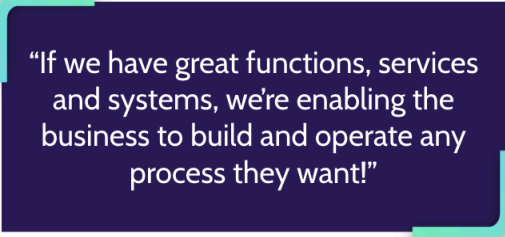
Enterprises generally take a "function-first" approach to process operations. Great individual teams and systems provide the required ingredients for great process operations, so they focus on enhancing and improving the performance and efficiency of individual teams and software systems. A good analogy of this approach is "if we have great ingredients, anyone can cook anything they want and it'll be of great quality!" Processes are considered secondary to functions and systems, as they are considered ever changing, and efficient functions and systems can enable any process that the business may envision. The problem is, efficient functions do not necessarily create an efficient process.

Efficient software systems and functions are not enough to reliably operate a process end-to-end

In practice, most enterprises have a defined charter and mission, particularly if they are in a regulated industry. They provide specific products and services which are generally enumerated and these rarely change. These form the basis of the value streams provided by an enterprise. For example, Allianz Trade analyzes the financial services market, acquires and manages new clients, provides business insurance, and provides payment protection. The majority of "enterprise operations" are in operating these value streams. Each value stream has a set of processes, which are generally enumerated and these rarely change. The details might vary over time but the process functions remain the same. For example the client acquisition and management value stream includes these processes: SME identification, lead generation, SME onboarding, inter-SME contract management, issue resolution and feedback collection. These are well known processes with well known functions, the details and data in these processes might change over time, however the functions of these processes remain the same.

The majority of processes and their functions (what each process does end-to-end) are enumerable for an enterprise. In fact a large deviation from these processes and venturing into new areas that are drastically different from the enumerated processes within an enterprise is a major event at an enterprise and is a multi-year plan. The vast majority of enterprise processes (what the process does) are enumerable and remain largely the same.

The prevailing view is if we build or purchase efficient teams and systems, then any process can be built on top of these great teams and systems. Processes are secondary to these functions and systems, as they are considered ever changing, and functions and systems are there to enable any process that the business may envision or desire to build!

"If we have great functions, services and systems, we're enabling the business to build and operate any process they want!"

Enterprises continue to optimize and improve, and incorporate better functions and systems. Example functions include contract signing, eNote submission, customer onboarding, finance, payments, settlement, fraud, compliance, reconciliation. Example software systems include databases, CRMs, RPA, Workflow tools, cloud services, microservices, data lakes, and others.

The problem is i) processes are well-defined, and not a by-product of the systems used to operate them, ii) efficient teams and systems are not enough to build efficient end-to-end processes.

For enterprise operations the process and its function (end-to-end operations) are equally as important as the individual teams and systems and their individual technology and functions (what they each do).

> Each enterprise generally operates a specific set of value chains and processes, in particular in regulated industries, as explicitly stated by their primary activities. An insurance company insures!
>
> For each enterprise most processes are already known and don't change.
> For most processes, the majority of the process operations are already known and don't change.
>
> **It's time to take a Process first approach in the enterprise!**

2.3. Process First Operations

Luther's platform is designed process-first. For efficient enterprise operations, effective end-to-end operations are as important as effective individual services and teams and systems, primarily since enterprises core value is delivering a specific set of processes and value streams, particularly in regulated industries, where most value streams & processes are explicitly enumerated!

> **Enterprise Operations are generally function-first.**
> They continue to improve functions & systems. Processes are considered secondary.
> If we have great functions and systems, the business can operate any process!
>
> **Luther's platform is designed process-first.**
> Primary focus on end-to-end processes.
> Reliable end-to-end process operations include consistent operations, & great functions & systems

The most important attributes of process first operations are i) standardized connectivity between all systems involved in the process, ii) Common Operations Script operating the end-to-end process.

> Luther's unique value for reliable end-to-end Process Operations is providing
>
> **standard connectivity**
> **a common operations script**
>
> across all teams and software systems.

2.4. SME Onboarding Process in context

Allianz Trade has multiple Value Streams involved in providing financial services. One of these value streams is "client acquisition & management". This value stream includes multiple processes. Onboarding new SMEs they intend to work with is a key process for Allianz Trade, as it allows them to fulfill their enterprise goals of providing financial services to these SMEs and creating intercompany interactions that boost commerce.
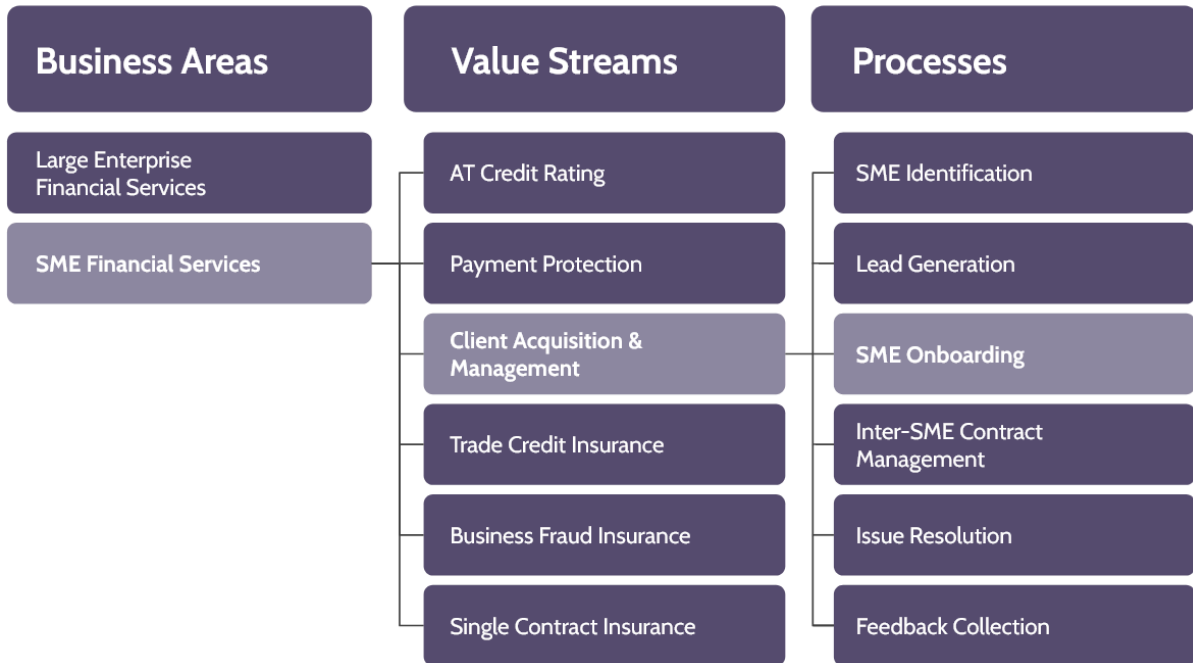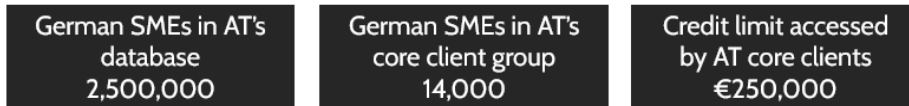
Business Areas	Value Streams	Processes
Large Enterprise Financial Services	AT Credit Rating	SME Identification
SME Financial Services	Payment Protection	Lead Generation
	Client Acquisition & Management	SME Onboarding
	Trade Credit Insurance	Inter-SME Contract Management
	Business Fraud Insurance	Issue Resolution
	Single Contract Insurance	Feedback Collection

Fig 6. Allianz Trade operates many value streams as part of their operations in financial services. Each value stream contains many processes. Client acquisition & management is a value stream. It contains many processes, including SME onboarding.

Business Credit Ratings are essential for enterprises. Much like personal credit ratings for individuals, a good business Credit Rating score can help a SME obtain funding and insurance from financial services providers. Additionally, business Credit Ratings are useful for cost-savings, as they can help secure lower interest rates and larger loans. Credit Rating is not only useful for dealing with financial services providers. New partners, business customers, or suppliers may only agree to work with SMEs with a sufficiently high Credit Rating, as it demonstrates reliability and trustworthiness.
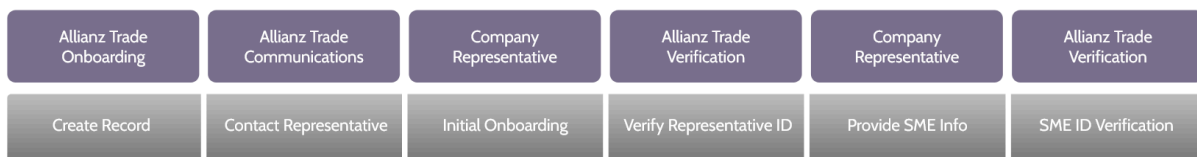
Business Credit Ratings are offered by various independent credit reference agencies and financial service providers. One such provider is Allianz Trade (AT). AT monitors the financial health of over 80 million companies, and holds data, to varying levels, on nearly 2,500,000 German corporations and SMEs. For the information of every SME within the AT Database there is an associated "AT Credit Rating" that utilizes this stored information. This Credit Rating is used to provide different financial products and services to these companies, or for other companies looking to view this Credit Rating.

As a leading credit insurance and financial services provider, AT is a trusted source for many enterprises, and the ability of an SME to seamlessly provide its AT Credit Rating to other SMEs can have considerable impact on its ability to advertise its products and services and attract new customers, suppliers and trading partners. This ultimately results in higher growth potential and business stability for the SME. This further incentivizes the SMEs to seek ways of improving their credit score and to boost their network and commercial opportunities.
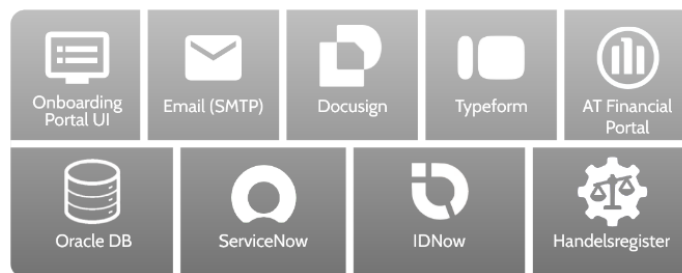
To work with Allianz Trade, SMEs will often conduct business through a company representative, either an employee of the company or an external contractor. These company representatives interact directly with AT as an agent for the SME. It is important for AT to verify the identity of both the company and the company representative, to comply with identity management constraints and financial regulations. For this, an efficient onboarding process is crucial. By expanding their core client group, Allianz group will be able to offer financial service to more SMEs and increase the credit provided to these businesses.

German SMEs in AT's database 2,500,000	German SMEs in AT's core client group 14,000	Credit limit accessed by AT core clients €250,000

Here, we illustrate the 4 different teams each operating functions for the end-to-end process operations:

Allianz Trade Onboarding	Allianz Trade Communications	Company Representative	Allianz Trade Verification	Company Representative	Allianz Trade Verification
Create Record	Contact Representative	Initial Onboarding	Verify Representative ID	Provide SME Info	SME ID Verification

Each team has a number of software systems. These systems include:

Onboarding Portal UI	Email (SMTP)	Docusign	Typeform	AT Financial Portal
Oracle DB	ServiceNow	IDNow	Handelsregister	

2.5. SME Onboarding Process before

To work with Allianz Trade, SMEs go through a company onboarding process to add the company to AT's database. This process involves i) the initial onboarding where initial access is provided to the system, and ii) identity verification where both the companies' and the company representative's identities are verified. Once a company is integrated into the AT network, they can use the network to do business with other SMEs. In this case study, we will focus on the process of onboarding an SME to the AT network. However, inter-company business transaction is also an important process that also benefits from building an application on the Luther Platform, and Luther Systems worked with Allianz Trade on developing the entirety of the Safe Trade Platform, of which SME onboarding was only one part.

1. AT Onboarding Team retrieve the SMEs information from its database of 2,500,000 SMEs
2. AT Onboarding Team creates a new record of this company as part of their trade network
3. AT Communications Team contacts the company representative of the company and requests they complete initial onboarding and provide identity verification documents
4. The Company Representative completes initial onboarding for the company into the network
5. The Company Representative provides their identity verification documents
6. AT Verification Team verifies the identity of the Company Representative
7. AT Verification Team request the companies verification information from the Company Representative
8. The Company Representative provides verification information for the company
9. AT Verification Team verify the company's identity, financial information and history, and approve them for full onboarding
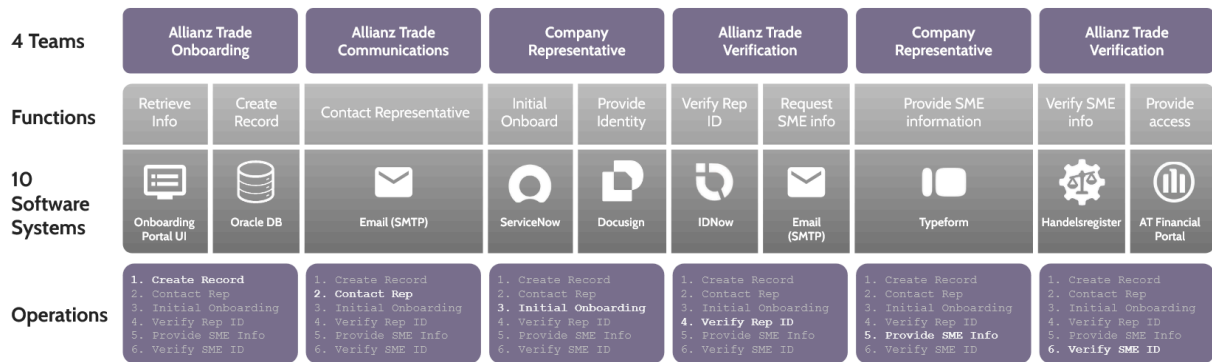10. AT Verification Team provides the company with full access to the financial services and SME network.

4 Teams	Allianz Trade Onboarding		Allianz Trade Communications	Company Representative		Allianz Trade Verification		Company Representative	Allianz Trade Verification	
Functions	Retrieve Info	Create Record	Contact Representative	Initial Onboard	Provide Identity	Verify Rep ID	Request SME info	Provide SME information	Verify SME info	Provide access
10 Software Systems	Onboarding Portal UI	Oracle DB	Email (SMTP)	ServiceNow	Docusign	IDNow	Email (SMTP)	Typeform	Handelsregister	AT Financial Portal
Operations	1. **Create Record** 2. Contact Rep 3. Initial Onboarding 4. Verify Rep ID 5. Provide SME Info 6. Verify SME ID		1. Create Record 2. **Contact Rep** 3. Initial Onboarding 4. Verify Rep ID 5. Provide SME Info 6. Verify SME ID	1. Create Record 2. Contact Rep 3. **Initial Onboarding** 4. Verify Rep ID 5. Provide SME Info 6. Verify SME ID		1. Create Record 2. Contact Rep 3. Initial Onboarding 4. **Verify Rep ID** 5. Provide SME Info 6. Verify SME ID		1. Create Record 2. Contact Rep 3. Initial Onboarding 4. Verify Rep ID 5. **Provide SME Info** 6. Verify SME ID	1. Create Record 2. Contact Rep 3. Initial Onboarding 4. Verify Rep ID 5. Provide SME Info 6. **Verify SME ID**	

Fig 7. Illustrates the process of onboarding an SME and the participants and systems involved.

3. Problem

3.1. Enterprise Process Operations Problems

Enterprises are complex organizations operating many processes. Enterprises operate processes across fragmented and siloed teams and software systems. This means that teams change their operations as functions and information change, but other teams operating the process are not made aware of that change. Consequently, other teams are operating on constantly changing and incorrect information, resulting in disjointed, inconsistent, inefficient end-to-end operations which lead to high costs, delays and errors. As a result, disjointed process operations require monitoring and reconciliation to correct errors, and this also increases operating costs.

Operational Silos cause unreliable Process Operations

Specifically, operating processes across fragmented and siloed teams and software systems affect process operations both i) technically during the development phase and ii) operationally once they go live in production.

On the technical side, for process changes, enterprises set up case-by-case projects, which includes large development and DevOps teams, and set up non standard case-by-case infrastructure and development environments, as well as bespoke connectors between different systems. Further, as the teams and systems change over time they deploy local updates which usually impact the end-to-end operations, requiring further updates and patching.

Technical hurdles in development

Inconsistent developer process
Dev teams focus on setup and maintenance
Large Dev & DevOps teams
Inconsistent and nonstandard process connectors
Inconsistent process Ops scripts across teams
Non-standard infra., connectors, dev. env. setup
Inconsistent updates & patches over time

Operational problems in production (live)

Nonstandard ops: across process steps
Nonstandard ops: over time
Inconsistent changes
Lack of execution status visibility
Need for execution reconciliation
Large Ops teams
Compliance fees & violations

Once the process is live, the fragmented and separated teams and systems result in non-standard operations across the process and over time as the teams, operations, and systems change. The fragmentation also results in a lack of execution visibility and operations monitoring. This further results in the execution requiring reconciliation, which is often lengthy and expensive. This could also result in compliance issues and violations. All of this requires large operations teams to run the processes and fix their recurring issues.

3.2. Problem Overview

For reliable process operations, all teams and systems involved should operate the same end-to-end Process.

They often don't!

AT's current network of clients is small, with poor visibility of other SMEs and poor connections to them. A lack of central infrastructure to connect these SMEs lies at the root of this problem, compounded by an unstandardized, operationally siloed onboarding process for these SMEs into the core client group. As a result, AT is missing out on opportunities to provide their clients with their financial products and services. Additionally, SMEs are underutilizing the rich network of potential clients and business partners that exists within the wider German SME community.

3.3. SME Onboarding Process Operations Problems

It is important for AT to offer a platform which provides a straightforward SME-to-SME invitation process, as well as a straightforward onboarding process to integrate SMEs into the network.

For the successful development of the AT SME community, there are several important factors. The most successful communities are those in which all parties trust and experience the benefits of being part of the network. As well as a strong community and AT offering useful products and services, the platform on which this Safe Trade Network is built must be robust, able to scale, and manage data storage, validation and verification at a large scale. Also, AT required the platform to allow for multiple participants to participate in fully digitized and secure contract execution.

For any community to be successful it must be widely adopted by its participants. To adopt SMEs, the onboarding and verification process to integrate them into the AT community is crucial. A good onboarding process ensures secure and comprehensive information gathering about the SME, which in turn allows AT to offer better products and services, as well as enriching the network of SMEs. Verification ensures that SMEs and company representatives brought into the network are compliant of any laws and regulations and of good repute, which both maintains the usefulness and safety of the network for all SMEs involved, but also maintains trust and reputability, both for the network and AT themselves.

However, even though AT currently stores data on nearly 2,500,000 German SMEs, these SMEs lack visibility of the wider SME community and lack clear understanding of the different financing and growth opportunities available to them from AT. This is due to the operational inefficiencies and unstandardized operations involved in the SME discovery and onboarding process for AT, which results in fewer clients accessing their services.

The current onboarding process is not suitable for the expanded network that AT wants to develop. Manual verification of company representative and SME identity and financial information means that the process is error-prone and lengthy. For a secure trade network, the process must be transparent and error-free to foster trust within the other SMEs in the network, which will encourage trade and increased access to AT's financial services. Additionally, AT has information on over 2,500,000 SMEs, and onboarding all these companies will be very slow and costly with the current process, as high manual reconciliation limits the scalability of this process.

Practical Problems in the onboarding process	*Operational Problems for Allianz Trade*
Inefficient process limits network growth	Nonstandard ops: across process steps
Poor onboarding could damage AT reputation	Nonstandard ops: over time
Lower client retention due to slow process	Inconsistent changes
Manual verification means risk of fraud	Lack of execution status visibility
Lack of data transparency reduces inter-SME trust	Need for execution reconciliation
Lengthy and error-prone process reduces SME trust	Large Ops teams
Manual reconciliation limits scalability	Compliance fees & violations

4. Traditional approaches to process operations and automation solutions don't work

4.1. Approach to Process Operations today

Enterprises typically establish dedicated projects and project teams to set up process operations. This involves mobilizing large development and DevOps teams, as well as large operations and support teams. They create custom, often non-standard project infrastructure, connectors, and development environments, which require dedicated ongoing maintenance once the process is live. The project team writes bespoke operations code to manage the end-to-end process, including code that links the operations of various software systems.

As the process moves into production, developers must continuously write custom local code to adapt to the evolving landscape of team operations, process rules, and software systems. Additionally, the project team or other development teams need to develop and integrate separate execution monitoring software and reconciliation software. These tools are essential for detecting errors and inconsistencies, determining root causes, and correcting the issues. Furthermore, they deploy multiple distinct application systems, such as compliance software systems, to support the overall operation.

This demonstrates the bespoke, fragmented nature of process operations development, in addition to multiple auxiliary systems required to keep the operations going. Most importantly, this approach cannot keep pace with the ever-changing process operations.
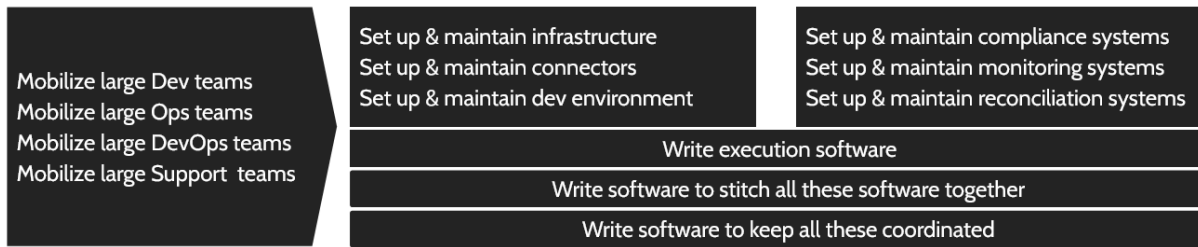
As a result, Enterprise process operations are unreliable!

Fig 8. Enterprises generally carry out all of the above to run a process.

4.2. Bespoke Connectors & Operations Scripts & why they don't work

To manage the SME onboarding process, Allianz Trade typically; i) sets up local connectors between directly linked systems involved in the process, ii) Develops and updates local operations scripts to manage the process end-to-end. Both the bespoke connectors and operations scripts require regular updates and modifications as teams, process operations, and software systems evolve. These updates are reactive and localized, addressing immediate changes without fully considering the entire process.

The problem arises because these connectors and scripts are integral to the end-to-end process, where each step depends on others and assumes specific functions from other parts. Local changes alter the immediate local operations, but the rest of the process continues to rely on outdated assumptions about those functions. This results in a gradual drift and fragmentation between different parts of the process.

This drift and fragmentation requires further patches and updates, which will require further patches and updates in other parts of the process, and the cycle continues!
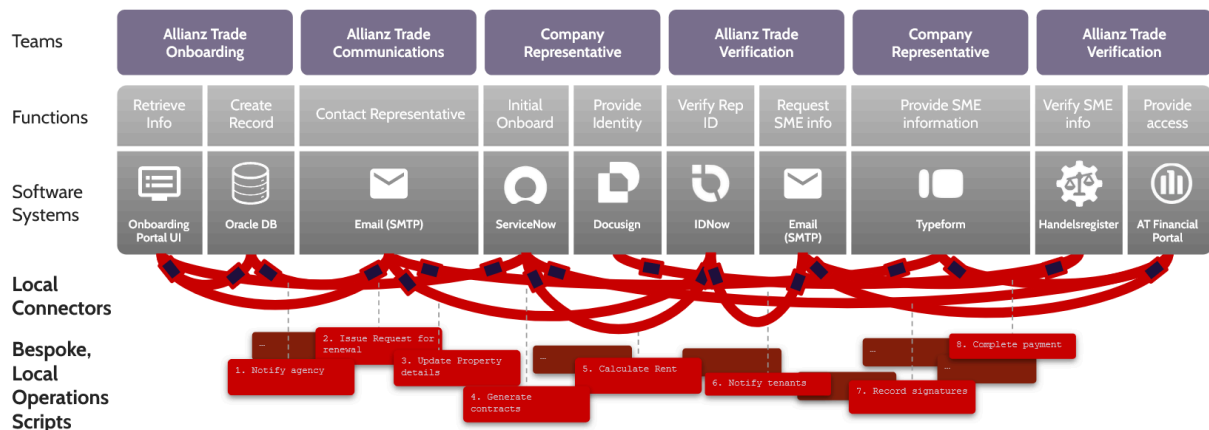
Fig 9. Bespoke local connections across the end-to-end process that are internally developed by the enterprise.

4.3. Local Automation tools (RPA, Workflow) & why stitching them together doesn't work
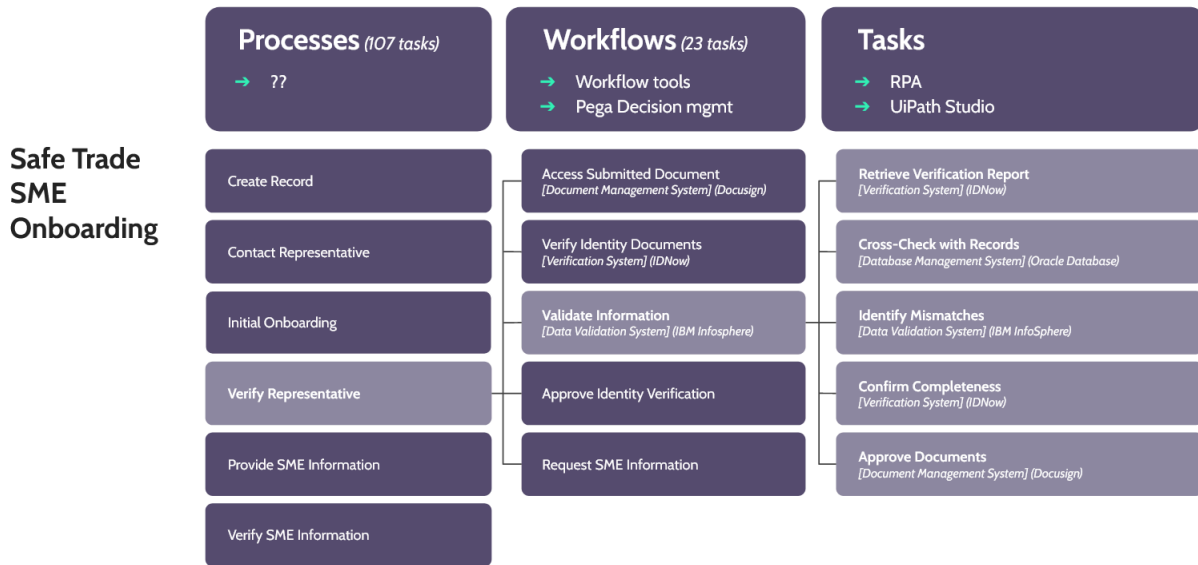

Processes (107 tasks)	**Workflows** (23 tasks)	**Tasks**
→ ??	→ Workflow tools → Pega Decision mgmt	→ RPA → UiPath Studio

Safe Trade SME Onboarding

Create Record	Access Submitted Document *[Document Management System] (Docusign)*	Retrieve Verification Report *[Verification System] (IDNow)*
Contact Representative	Verify Identity Documents *[Verification System] (IDNow)*	Cross-Check with Records *[Database Management System] (Oracle Database)*
Initial Onboarding	Validate Information *[Data Validation System] (IBM Infosphere)*	Identify Mismatches *[Data Validation System] (IBM InfoSphere)*
Verify Representative	Approve Identity Verification	Confirm Completeness *[Verification System] (IDNow)*
Provide SME Information	Request SME Information	Approve Documents *[Document Management System] (Docusign)*
Verify SME Information		

Fig 10. Today, there are no traditional tools which effectively automate processes.

Enterprise processes consist of numerous operations (tasks). Each process includes a collection of workflows, and each workflow is a collection of multiple tasks. Tasks are simple, localized events involving one team and one or two software systems. For example, accessing a database is a task. Workflows are more complex, comprising 10-20 tasks that span one to two teams and involve two to three software systems. For instance, creating a record for a SME is a workflow consisting of 23 tasks. Processes are complex, involving over 50 tasks, three or more teams, and multiple software systems. An example of a process is the end-to-end onboarding of an SME, which includes 107 tasks.

Enterprises utilize Robotic Process Automation (RPA) tools to automate individual tasks. RPA tools have evolved into highly effective solutions for this purpose. However, for automating workflows (comprising 10-20 tasks), enterprises turn to Workflow Automation tools, as individual RPA bots are not scalable to handle such complexity. Workflow Automation tools have similarly advanced, becoming highly effective at automating entire workflows. These tools leverage a diverse array of technologies, including traditional ones like Workflow tools, ERPs, and BPMs, as well as modern innovations such as Hyper Automation, Intelligent Automation, and various developer tools.

> **RPA tools and Workflow tools do not scale to operate end-to-end processes**

To overcome the limitations of the traditional approach, enterprises deploy numerous RPA and Workflow tools across the end-to-end process, and then connect and orchestrate these tools to function reliably. This integration and coordination are typically developed internally by the enterprise.

Process orchestration approaches integrate combinations of RPA and workflow systems using point-to-point message passing techniques. These services often employ a batch scheduler or workflow system, which effectively coordinates tasks within a single team. However, this method falls short for processes involving multiple teams. Each team tends to create bespoke code for their tasks, leading to "script bloat" — the proliferation of numerous, often redundant, and poorly documented scripts. This complicates maintenance and scalability. Furthermore, there is a lack of transparency between participants in the process. This lack of coordination and integration results in inefficiencies and errors, causing delays and operational friction. For a full explanation of traditional process operations and Luther's solution, request access to the Deep Process Automation Primer.
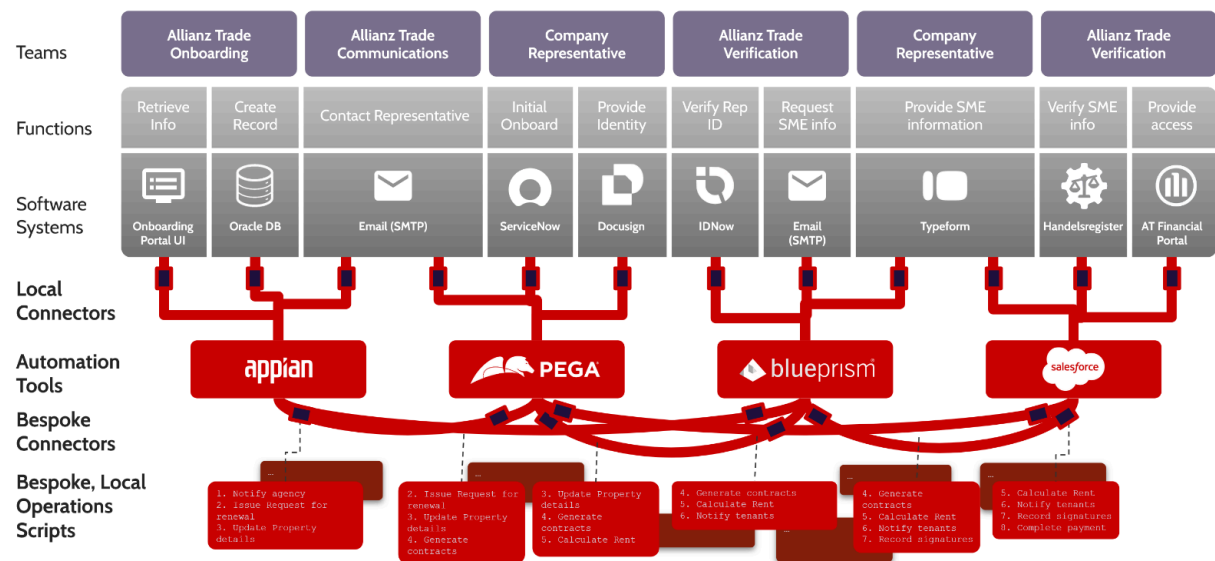
Fig 11. Stitching together local automation tools through local RPA and workflow tools is messy, localized and ultimately unreliable.

5. Solution

5.1. Luther Platform

Luther Systems designed and implemented the Safe Trade Application process, which keeps records of companies and models company interactions as a Common Operations Script for each company, improving transparency, and giving SMEs easy access to a record of their transactions and clients. AT and Luther produced a mobile-first application, which provides an attractive and intuitive interface to the users, with access dependent on their specific roles and privileges, ensuring data safety and security. Also, AT staff and admins have full visibility of the SME network and data and Common Operations Script stored on the Luther Platform. The Luther Safe Trade Application was designed to accommodate 6,000 companies as part of an MVP.

> Luther's unique value for reliable end-to-end Process Operations is providing
>
> **standard connectivity**
> **a common operations script**
>
> across all teams and software systems.

Each company's data is recorded on the platform, and each contract between companies is modeled as a Common Operations Script associated with the participants' records. The Common Operations Script will interact with the participants in the process providing each participant with their roles, information and action items. As a result, the Safe Trade Application provides a seamless and simple user experience for all participants. The Safe Trade Application also

automates and streamlines the process of onboarding SMEs to the Safe Trade Network, allowing the easy expansion of the network.

This is very difficult and costly with traditional automation tools and workflows. Building the Connectivity Platform and Safe Trade Network requires Luther's Deep Automation Platform. The automated SME onboarding process and the Safe Trade Network is the result of this work and is an end-to-end system that standardizes the process of SME onboarding and contracts between SMEs, with minimal manual intervention while reducing onboarding timeframes, increasing visibility for SMEs of each other, and providing opportunities for AT to provide financial services to SMEs, thereby expanding the scope for customer relationships.

5.2. How it works on the Luther Platform

The Luther Platform standardizes data formats and data entry for Allianz Trade onboarding. The platform can automatically verify and approve SME and representative information based on predetermined rules stored on the platform, which saves time for manual reconciliation. Importantly, all teams and systems still perform their function. One key feature of the Luther Platform is that teams operating the process can update their operations scripts as before, and the platform doesn't complicate or change the way the process is operated. With the Luther Platform, when a team does decide to change their operations, all other teams are automatically notified. The Luther Platform simply streamlines manual operations and cross-team visibility, turning siloed operations into a cohesive end-to-end process.

How it works on the Luther Platform:

1. The AT Onboarding Team retrieve the SMEs information from its database of 2,500,000 SMEs
2. The AT Onboarding Team creates a new record of this company as part of their trade network, the platform automatically fills this record with all known information
3. The AT Communications Team contacts the company representative of the company and requests they complete initial onboarding and provide identity verification documents
4. The Company Representative completes initial onboarding for the company into the network
5. The Company Representative provides their identity verification documents
6. The AT Verification Team automatically verifies the identity of the Company Representative using the Luther Platform
7. The AT Verification Team request the companies verification information from the Company Representative
8. The Company Representative provides verification information for the company
9. The AT Verification Team verify the company's identity, financial information and history automatically using the Luther Platform, and the platform approves them for full onboarding
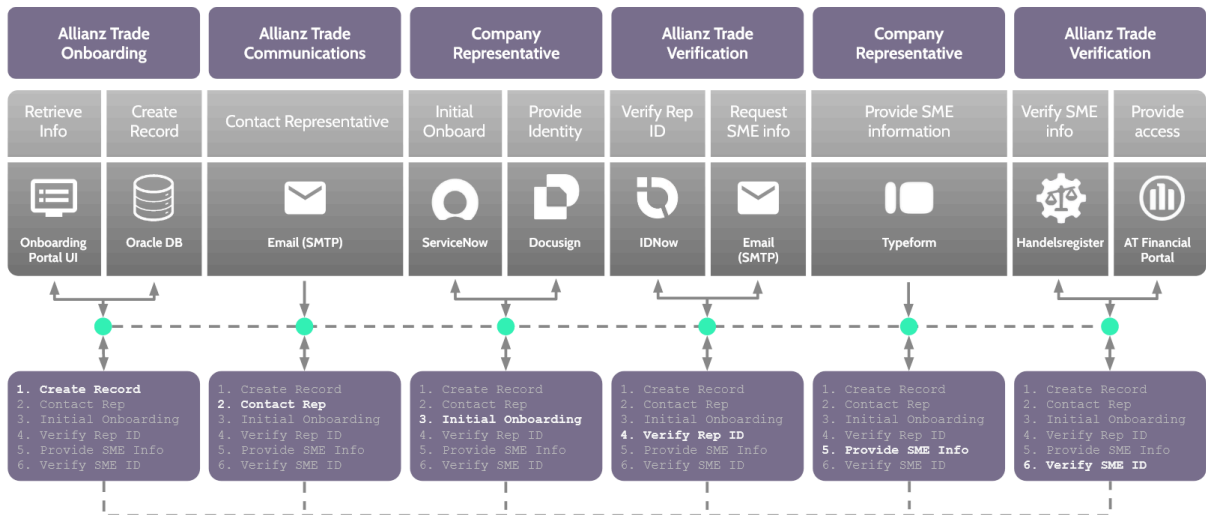10. The Luther Platform automatically provides the SME full access to the Safe Trade Network.

Fig 12. Overview of the Luther Platform automating the SME onboarding process.

For a more detailed view of the steps operating the Luther Platform, please view the appendix.

6. Implementation

Luther's team worked with the Allianz Trade team to implement the SME onboarding process on the platform.

First, Luther's team worked with the teams at Allianz Trade to map the process. View a process map here. Luther then identified all teams and all software systems involved in the operations of the process. Luther then allocated a node to each team, deployed the platform on all nodes, and connected the nodes to each of the software systems, through Luther's standard connectors. Then Luther's team worked with Allianz Trade developers to develop a robust common operations script for process operations. Then the application went live.

For more information please visit these links, for implementation steps, implementation in general, and sandbox.

Customer Team		Business Owner, Application Owner, Technical Lead	Day 1
Discover	Phase 1	Describe process operations	1 week
	Phase 2	Describe systems & technical requirements	
Process mapping		Map the process	1 week
Platform set-up		One-time platform set-up	1 day
Build application		Develop (code) application operations	10 weeks

Fig 13. Implementation timeline for the automated SME onboarding process.

To implement the Safe Trade Application for the SME onboarding process, Luther and Allianz Trade followed these steps:

6.1. Process mapping

Luther's team worked with multiple Allianz Trade teams to map the process operations. The process map includes i) functions, ii) data inputs and outputs at each step, and iii) rules and decisions at each step. Teams are operationally separate entities involved in the process. As part of process mapping, Luther identified the exact set of software systems and teams involved in operating the end-to-end process.

6.2. Identify teams and software systems

Luther's team identified the teams and participants involved in end-to-end process operations. These teams and participants are: AT Onboarding Team, AT Communications Team, Company Representative and AT Verification Team.
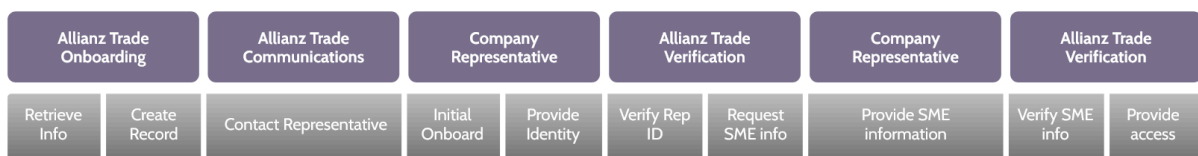
Fig 14. Luther's team worked with Allianz Trade to map the process including 4 teams involved in end-to-end operations.

Luther's team identified the software systems involved in end-to-end process operations. These systems are: Onboarding Portal UI, Oracle DB, Email (SMTP), ServiceNow, Docusign, IDnow, Typeform, Handelsregister, and AT Financial Portal.
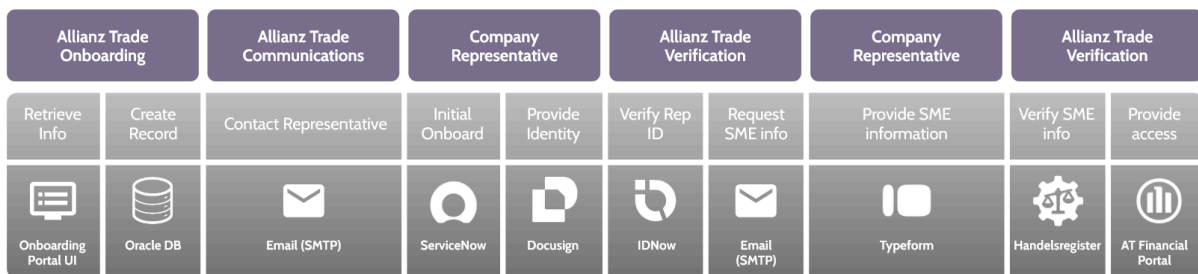

Fig 15. Luther's team identified the software systems involved in the end-to-end process operations.

6.3. Nodes and Connectivity through distributed system for end-to-end team connectivity

Luther's team assigned a dedicated node to each team involved in the process by allocating servers to their respective teams. These servers are cloud-native and can be deployed on either public or private clouds, depending on security requirements. All nodes are interconnected through a distributed system, which facilitates the sharing and validation of operational functions and data among all teams.
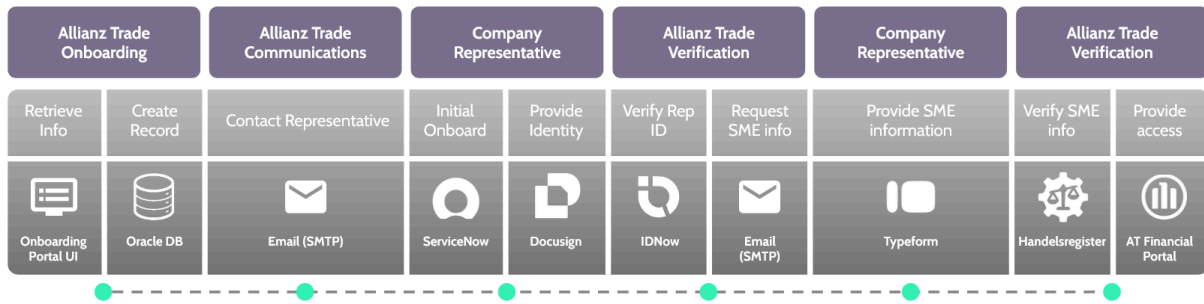

Fig 16. Nodes are connected via a distributed system on the Luther Platform.

6.4. Connectors to software systems

Each team has a number of software systems involved in its operations, as identified in the process map. For each team, Luther's platform connects its node to all software systems involved in its operations. Luther has a set of standard connectors across a wide range of enterprise systems, which the Luther platform deploys to rapidly connect to the systems involved in operating the process. This is done by determining the technology, type and system of the connector to connect to each system in the process.
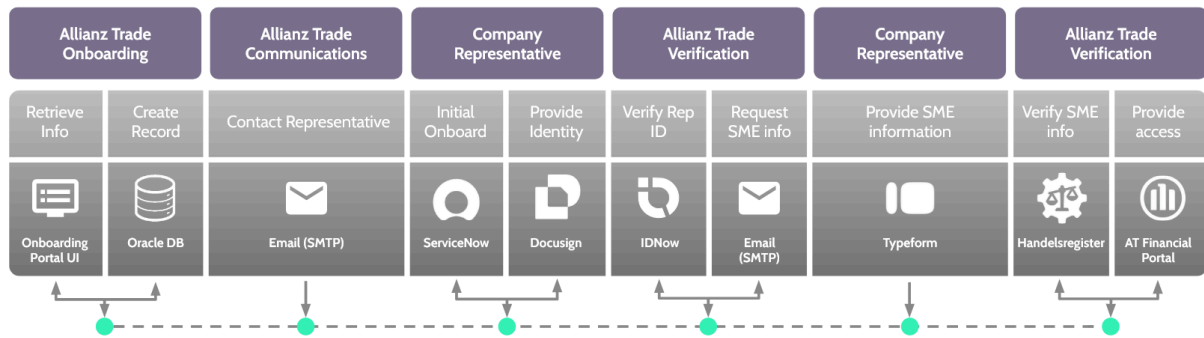

Fig 17. Luther's team set up connectors that link the processes together.

Luther, through numerous enterprise implementations has standard connectors to a majority of enterprise software systems across a range of processes and industries. For a full list of our connectors, please visit: *"Luther Platform Connectors"*.

6.5. Platform set-up

The Allianz Trade team selected a set of configurations for their platform specifications. This selection depends on i) the process complexity (number of tasks), ii) amount of data processed (KB) per process run, iii) number of participants, iv) reliability, availability and security requirements for the application. Based on these selections, Luther's team deployed the platform on all nodes. For more details on platform configuration specs please visit: *"Luther Platform Connectors"*.
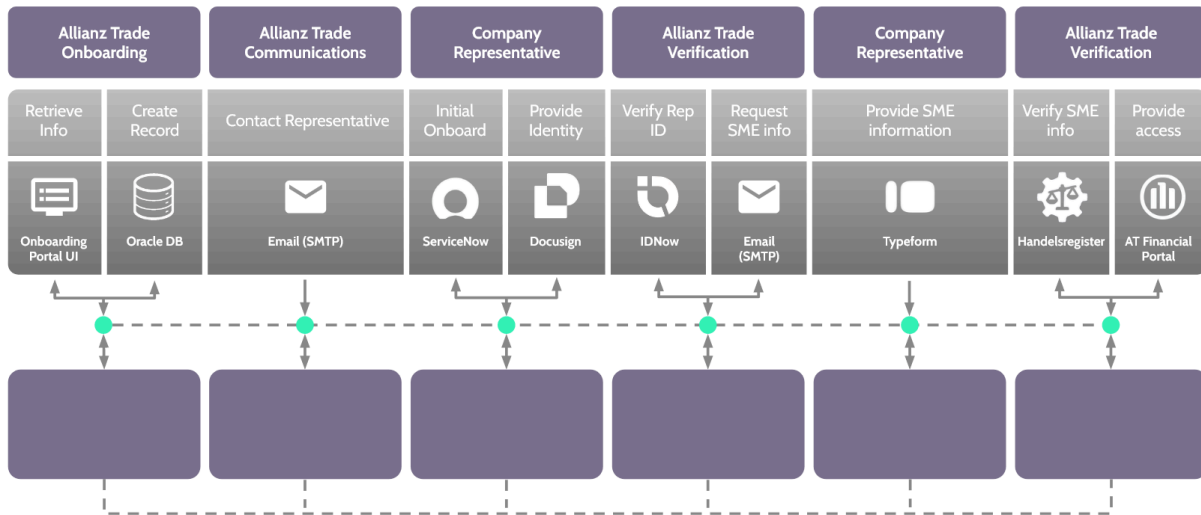

Fig 18. The platform is set up on each of the nodes, ready to reliably operate the end-to-end process at each step.

Luther's platform vertically integrates distributed system technology, optimal resource allocation and management, real-time event ordering and streaming (sharing), and deterministic event processing and execution, to provide a modern technology stack to reliably operate an end-to-end process across multiple software systems, at scale.

6.6. Common Operations Script for process operations

The platform is now fully set up and connected with all systems involved in the operation. The Allianz Trade development team, in collaboration with Luther, developed the Common Operations Script to manage the end-to-end process. Connectors translate data from local systems into a common data model utilized by the Common Operations Script. This script encapsulates the business logic, data, rules, and validations for each process step.

Luther's platform vertically integrates

distributed system technology
optimal resource management
real time event streaming
deterministic event execution

To make reliable end-to-end process operations possible.

The Common Operations Script effectively codes and operates the process map, executing the Operating Cycle for each system across the entire process. To operate the process end-to-end, each function performs the same cycle of steps: i) send data & information to the System, ii) receive response from the System, iii) compute & validate response, iv) share & store execution of step, v) evaluate & initiate next steps.
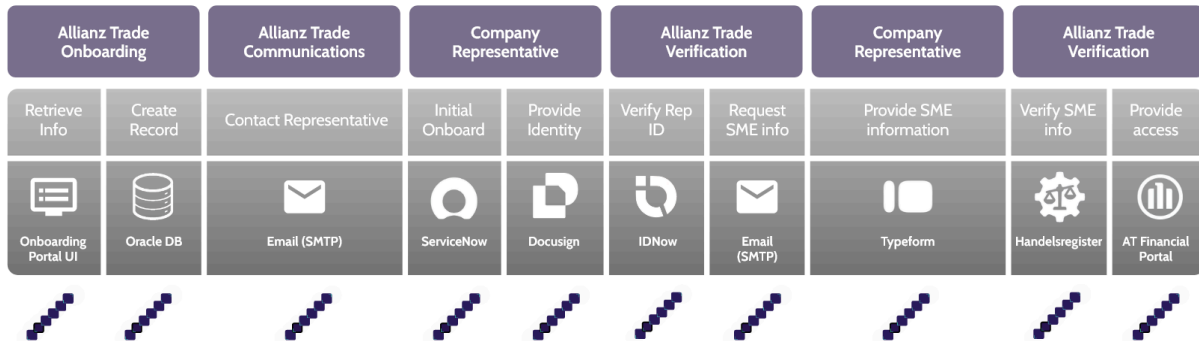

Fig 19. These requirements repeat for all functions across the end-to-end Process Operations.

For a more detailed description of how the Common Operations Script operates the Process please see the Appendix.

This script is shared by all participants and operates on the Luther Platform. Each participant can change the script through suggesting changes, once the changes to the script are approved by all participants the script is updated for all participants.

> **Teams & Systems can easily change the Common Operations Script**
>
> **They propose changes**
> **All other teams know and agree to the change upfront**
> **The Common Operations Script is updated for everyone**

The enterprise has full autonomy over the process operations to modify and change them, and it also ensures all participants are operating "the same process" at all times. When a team changes their operations, the operations for all participants are updated simultaneously. For a demo of the build process please visit our website.

> **All teams & systems involved operate the same end-to-end process all the time!**
> **The enterprise has full autonomy over its Operations & Operational changes**
>
> So, consistent changes are not an afterthought in a memo
> No need to call someone everytime you want to make a small change!

6.7. Go live (production)

Once the platform is set up and the Common Operations Script is coded, the application is ready to go live. Upon going live, it automates the operations of the end-to-end SME onboarding process by providing i) standardized connectivity between teams and systems, ii) the Common Operations Script, shared by all teams, ensures a consistent process operation at all times. For more information about Luther's platform please consult this video.
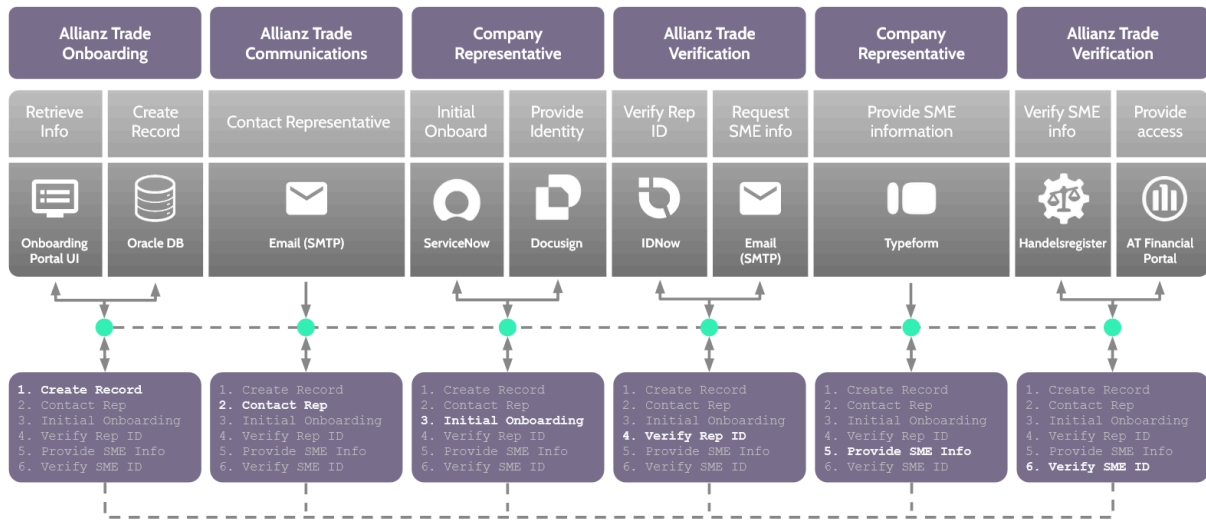

Fig 20. Luther and Allianz Trade developer teams work together to write the common operations script, converting tasks into an objective workflow that links every step in the process. The common operations script links independent systems into one cohesive process.

7. Results

7.1. Estimated Commercial results
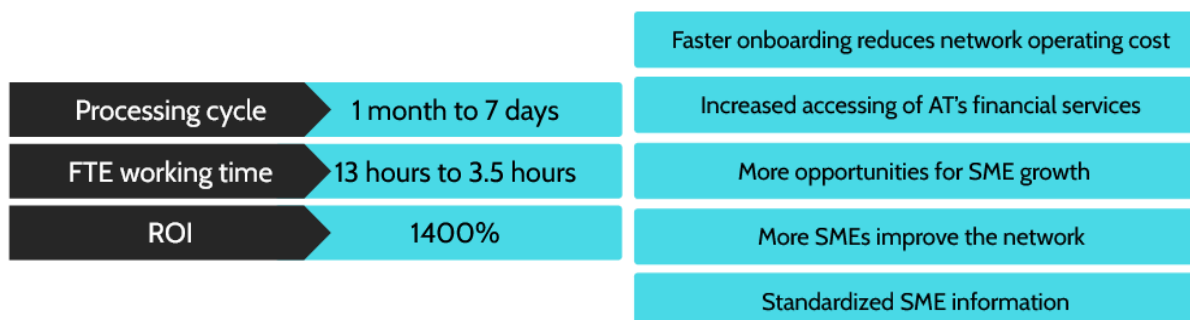
ROI: 10X

Cost Reduction: 50%

Average Processing Speed Increase: 4X

Using Luther's Deep Process Automation Platform, implementing the Allianz Safe Trade Platform is estimated to reduce the processing cost of the SME onboarding process by 50%. This is primarily due to FTE savings in both ops teams involved in process operations as well as ops teams involved monitoring and reconciling the process. It is also due to savings in devops teams who can now focus on developing better functions for the process instead of solving problems created by the siloed and fragmented nature of the old process. The average total time for the onboarding of the SME to the Allianz Trade Safe Trade Network was estimated to be reduced from 13 hours to just 3.5 hours, speeding up the average processing time by 4X. This results in an estimated return on investment of 1000%.

Luther's solution for SME onboarding to the Safe Trade Network doesn't just connect individual software systems and teams. It provides a platform that is flexible and scalable to the changing process for years to come, facilitating process operations where teams can focus on the tasks, rather than reconciling with other teams and causing large delays with new software systems.

Specific commercial advantages:

- Average total estimated time for the SME onboarding process reduced from 13 hours to 3.5 hours
- Cost savings of 50%, reducing the operational costs for the MVP from 2.8 million a year to just 1.3 million a year, resulting in an ROI of 1000%
- Reduced operating costs for onboarded SMEs
- Increased certainty around identity data quality means reduced risk of fraud and reduced downstream efforts and costs
- Shorter operational timeframes mean SMEs are integrated into the network faster and begin trading with other SMEs and accessing AT financial services faster

Processing cycle	1 month to 7 days
FTE working time	13 hours to 3.5 hours
ROI	1400%

Faster onboarding reduces network operating cost
Increased accessing of AT's financial services
More opportunities for SME growth
More SMEs improve the network
Standardized SME information

7.2. Results of the Safe Trade Application

The results of implementing the Safe Trade Application go far beyond commercial savings and efficiency increases in the SME onboarding process. A reliable, interconnected network of SMEs provides Allianz Trade with enhanced access to revenue generating opportunities, both by strengthening their relationship with potential clients, and also by connecting their clients to each other to make both wealthier, allowing clients to afford more Allianz Trade services. Since Allianz Trade primarily provides financial insurance products, increasing the amount of trade occurring will naturally increase the sales of their services. Additionally, the Safe Trade network provides a safe, electronic method for recording business transactions between SMEs, vastly reducing the risk of financial fraud. As a financial insurance provider, this will greatly reduce Allianz Trade's costs, as their expenses from paying out claims will be lower thanks to less claims in the first place! Finally, the Safe Trade application is also a win for SMEs. By joining the network, SMEs gain access to a huge web of potential clients and suppliers, which will lower their costs by allowing them to find more favourable transactions. Additionally, by improving their relationship with Allianz Trade through collaboration in the Safe Trade network, SMEs will be able to gain access to more financial services, allowing them to expand their business.

7.3. Operational benefits

Luther delivered a product that standardizes SME onboarding process operations, and demonstrated other processes integrated into the network, while reducing inefficiencies, improving process transparency, reducing the size of operations teams, and improving compliance, which could not have been achieved without Luther's Deep Process Automation Technology.

General operational advantages

The Luther Platform streamlines operations across enterprise processes, reducing process time and cost while maintaining transparency and flexibility.
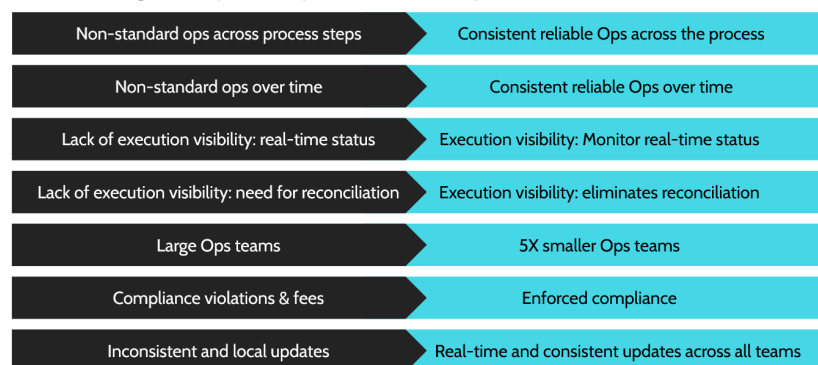
Non-standard ops across process steps	Consistent reliable Ops across the process
Non-standard ops over time	Consistent reliable Ops over time
Lack of execution visibility: real-time status	Execution visibility: Monitor real-time status
Lack of execution visibility: need for reconciliation	Execution visibility: eliminates reconciliation
Large Ops teams	5X smaller Ops teams
Compliance violations & fees	Enforced compliance
Inconsistent and local updates	Real-time and consistent updates across all teams

Fig 21. General results from implementation of the Luther platform

Specific operational advantages

Implementing the Safe Trade network and the automated SME onboarding process on the Luther Platform has streamlined the operations of the onboarding process, making it more efficient, faster, and standardized all while requiring minimal manual intervention, and without sacrificing transparency or integrity of data. The platform is flexible and scalable to future changes to the process or regulations.

Enhanced onboarding process:
- Company record created automatically on the Safe Trade Network, enhancing SME visibility to other companies, enhancing trade opportunities
- Identity documents are now all submitted and verified electronically, reducing the risk of fraud, reducing onboarding times, and increasing transparency throughout the process

Enhanced operations:
- Elimination of manual intervention means smaller operational teams at Allianz Trade
- Standardization of the onboarding process reduces the need for labor-intensive reconciliation, ensuring faster timescales with lower costs
- Increased system reliability and flexibility reduce costs associated with last-minute changes in data

7.4. Technical benefits

General technical advantages

The Luther Platform makes process operations more consistent as well as standardizing the infrastructure used to operate the SME onboarding process. Real-time updates across the end-to-end process ensure less downtime in the process, improving efficiency. All this means that developer and developer operations teams can be reduced in size and that developers can focus on developing and improving process operations rather than focusing on handling inefficiencies in the process.
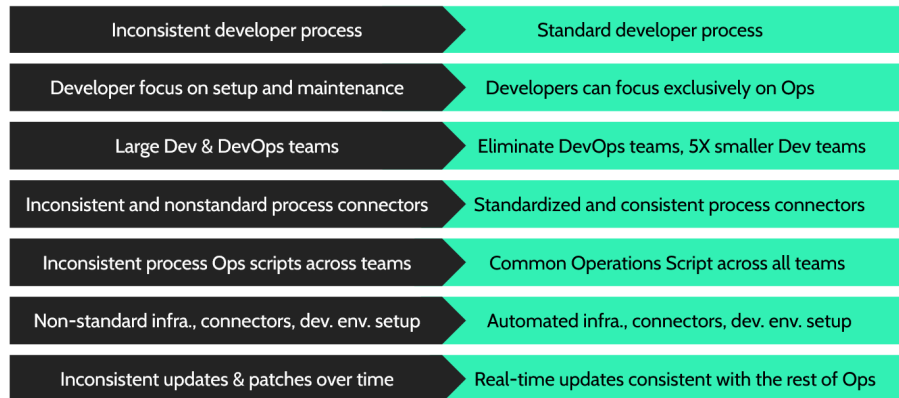
Inconsistent developer process	Standard developer process
Developer focus on setup and maintenance	Developers can focus exclusively on Ops
Large Dev & DevOps teams	Eliminate DevOps teams, 5X smaller Dev teams
Inconsistent and nonstandard process connectors	Standardized and consistent process connectors
Inconsistent process Ops scripts across teams	Common Operations Script across all teams
Non-standard infra., connectors, dev. env. setup	Automated infra., connectors, dev. env. setup
Inconsistent updates & patches over time	Real-time updates consistent with the rest of Ops

Fig 22. General technical results from implementation of the Luther platform.

Specific technical advantages

Improved operating efficiency:
- Automatically provides verified execution to increase system reliability and reduces processing errors
- Common execution visibility to all participants reduces troubleshooting effort and quickly identifies processing bottlenecks
- Automatically supports Common Operations Script updates for new data/document formats or verification/validation rules

Improved data storage and management:
- All SMEs can access their data and can remove their data from the system easily if they wish
- Data is automatically verified and then stored on the platform

Reduced technical complexity:
- Standardized process that reduces complexity reduces troubleshooting and makes the onboarding process more accessible for participants

8. Expansion

The Allianz Safe Trade Application means there is scope to expand the product in a number of ways. One potential direction could be for this platform to lead to the development of a German Company Registrar. Another possible expansion is the possibility of certain companies on the network running their own nodes. This option can be offered to companies with more resources and network activity. This option would provide the new nodes with more incentive to provide the network with their own group of connected companies and SMEs. In addition this option would provide the network with a more robust infrastructure operated by more than one independent entity and provides a more distributed network.

Additionally, another area of expansion could be a mechanism to invite companies that AT have no prior information on to the network, which would require more intensive onboarding and data checks. Given the level of information that AT has access to on the SME population, there are a vast number of products and services that AT could look to offer the community including:

- Simple and efficient contract process management between participants on the network
- Variable credit lines, invoice factoring and term loans personalized for the needs of the SMEs
- Visibility into and recommendations for a network of potential new suppliers and customers for the SME
- Digital signature capabilities across a set of document suites
- Targeted advertising to a relevant segment of potential suppliers, trade counterparts and customers

- Payment processing and settlement systems

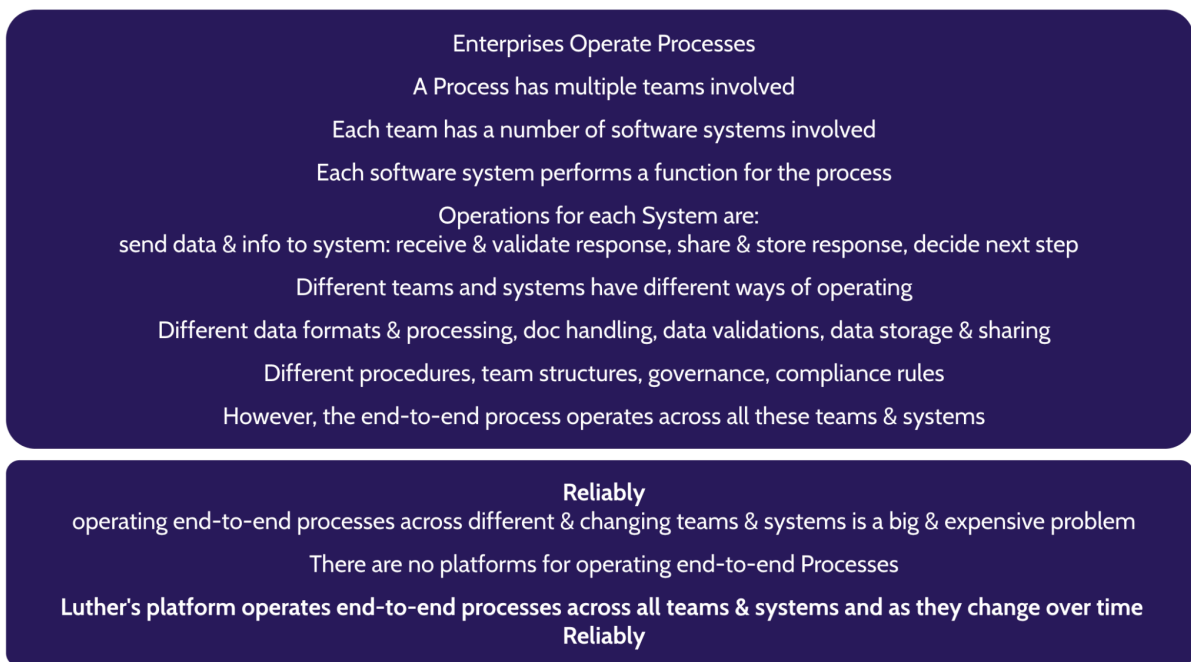# 9. Luther Company & Offerings

9.1. What Luther does

Enterprises Operate Processes

A Process has multiple teams involved

Each team has a number of software systems involved

Each software system performs a function for the process

Operations for each System are:
send data & info to system: receive & validate response, share & store response, decide next step

Different teams and systems have different ways of operating

Different data formats & processing, doc handling, data validations, data storage & sharing

Different procedures, team structures, governance, compliance rules

However, the end-to-end process operates across all these teams & systems

Reliably
operating end-to-end processes across different & changing teams & systems is a big & expensive problem

There are no platforms for operating end-to-end Processes

Luther's platform operates end-to-end processes across all teams & systems and as they change over time Reliably

Fig 23. Luther's platform solves the complicated problem of end-to-end enterprise process operations.

For more information about Luther, please visit our website.

9.2. "In a nutshell" - Luther's unique value

Luther's platform vertically integrates

distributed system technology
optimal resource allocation and management
real time event ordering and streaming (sharing)
deterministic event processing and execution

To make reliable end-to-end process operations possible.

Luther's unique value for reliable end-to-end Process Operations is providing

standard connectivity
a common operations script

across all teams and software systems.

Luther automates the operations of the end-to-end process
across multiple teams and systems

9.3. Platform implementation

To implement the Luther Platform, organizations work with Luther through an implementation process - laying out objectives and expectations for the project, then mapping the process and setting up infrastructure. After this, enterprise developers build code that will execute the agreed process.

Customer Team		Business Owner, Application Owner, Technical Lead	Day 1
Discover	Phase 1	Describe process operations	2-4 weeks
	Phase 2	Describe systems & technical requirements	
Process mapping		Map the process	1 week
Platform set-up		One-time platform set-up	1 day
Build application		Develop (code) application operations	4-8 weeks

Fig 24. Implementation timeline for an application operated on the Luther Platform.

Enterprises working with Luther fill in the details of all software systems and connectors for their processes. These documents are used to build the process map and subsequently, the application.

Item	Software System	Category	Connector Technology
System 1	Onboarding Portal UI	API Inputs	API Gateway (REST/JSON)
System 2	Oracle Database	ETL	Oracle DB 21c
System 3	Email (SMTP)	Notifications	SMTP/IMAP
System 4	ServiceNow	Workflow	ServiceNow REST API
System 5	Docusign	Agreements	Docusign Integration
System 6	IDnow	Verification	CIS REST/JSON API
System 7	Typeform	API Inputs	Webhooks API
System 8	Handelregister API	API Inputs	Industry Specific Connector
System 9	AT Financial Portal	API Inputs	JSON API Gateway

Fig 25. The list of software systems involved in end-to-end SME onboarding process operations.

Build Distributed Ledger

Item	Detail	Description	Input	Comments
Network	Number of organizations	These are separate IT teams that may be internal or external to one another.	4	Each participant belongs to a separate organisation.
Network	Number of peers per organisation	This determines the reliability of executing the process.	2	Each participant runs 2 peers for high availability.
Network	Number of peer cores	This is determined by the complexity of the process.	4	Each worker has 4 cores to process 10 claims per second max throughput.
Orderer	Number of Orderers	Number of orderer service instances.	3	Spread orderers across 3 availability zones for high availability and practically 100% system uptime
Orderer	Number of orderer cores	Number of cores allotted for each orderer instance.	2	Allow enough cores to support 10 claims per second max throughput.

Resource Management

Virtual Machines

Item	Description	Input	Comments
Number of Cores per Instance	Number of cores per instance in the cluster worker pool.	4	Ensure each peer has 2 cores for parallel event processing.
Ledger Size (GB)	Size of volumes used to store the ledger.	100	Provide enough storage for a years worth of transactions without resizing
Number of Worker Instances	Number of worker instances to utilize in the cloud region, distributed across availability zones.	4	One worker per participant

Cloud

Item	Description	Specifications	Comments
Cloud Provider Name	Cloud Service Provider that the platform is deployed into.	AWS	Deploy on AWS.
Cloud Service Account	What cloud service account will be used for deployment?	141812438321	Use existing AWS account.
AWS Role ID	Only necessary for AWS.	arn:aws:sts::343039485463:role/admin	Use role that requires MFA for InfoSec requirements
Cloud Provider Region	A cloud-specific string identifier for a geographic region.	us-east-2	Closest to customers
Cloud Provider Domain	A string identifier for a company domain	ford.luthersystemsapp.com	

Fig 26. A list of connectors and infrastructure, similar to one an enterprise building an application on the Luther Platform would fill out.

9.4. Results of the Luther platform for Process Operations Automation

At Luther, we recognize that enterprise processes of today are complex and challenging to automate. We provide a platform for successful process automation.

The results are incredible. Enterprises working with Luther see an average return of 10 times their investment. Time is saved everywhere, with development of process applications and automation technology sped up by 2.5

2.5X faster development

10X less operational costs

7X faster processing time

10X ROI

1000s of compliance rules automated

times, and processing times 7 times faster. Find out more about Luther's core platform features [here](#).

9.5. Luther's platform architecture

For a more detailed introduction on the Luther platform please request access to the "*Luther Deep Process Automation Primer*".
For a detailed introduction and documentation examples please see the [Luther Platform site](#).
For more information about Luther's platform please visit [luthersystems.com](#).

10. Appendix

10.1 How the platform operates an end-to-end process: Application walkthrough

Below is a more detailed walkthrough of the process operations, across the teams and software systems. Each step in the process follows the exact same 5 operational substeps which the Platform executes:

i) **Send:** Platform sends data & information to the System,
ii) **Receive:** Platform receives response from the System,
iii) **Validate:** Platform computes & validates the response,
iv) **Store:** Platform shares & stores execution of step,
v) **Evaluate:** Platform evaluates & initiates next steps.
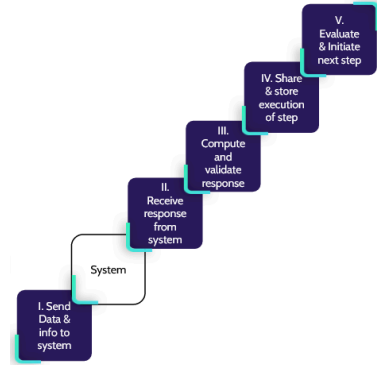
The Common Operations Script ensures that these operations cycle steps are carried out for all systems involved in the process to ensure reliable process operations.

The Platform operates the Process by standardizing the execution of each step in section 5.2. "How it Works on the Luther Platform"

The process involves 9 software systems, the systems' functions are as follows:

- Onboarding Portal UI: In Step 1, it retrieves existing SME info from the Allianz Trade financial database
- Oracle Database: In Step 2, it creates a new blank record for the SME on the new Safe Trade application
- Email (SMTP): In Step 3, it contacts the company representative with initial onboarding information and in Step 7, it requests SME information from the company representative
- ServiceNow: In Step 4, it conducts and guides initial onboarding of the company representative
- Docusign: In Step 5, it provides identity documents used for verification of the company representative
- IDnow: In Step 6, it verifies the identity of the company representative
- Typeform: In Step 8, it provides the SME information from the company representative to Allianz Trade
- Handelsregister API: In Step 9, it verifies the identity and information of the SME
- AT Financial Portal: In Step 10, it provides access to the Safe Trade Network to the SME.

Step 1: AT Onboarding team executes Create SME Record, specifically Retrieve SME Information
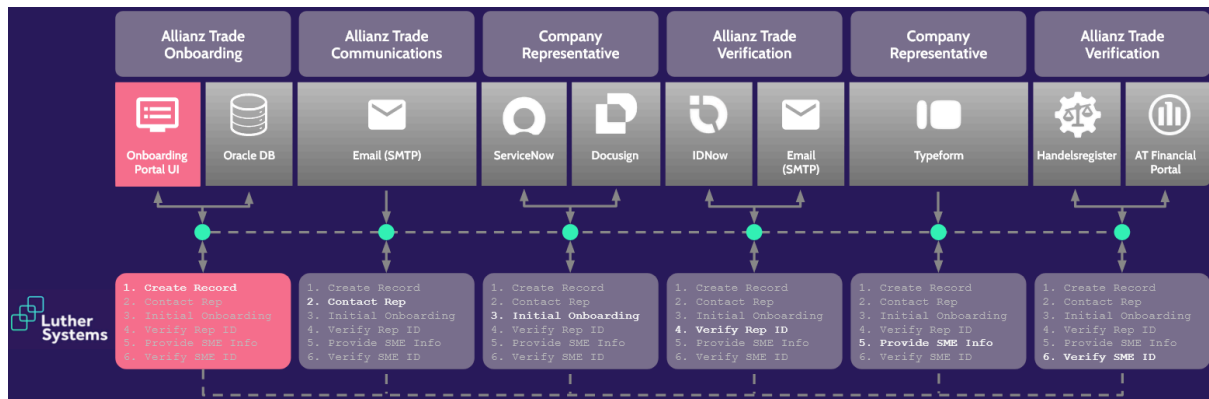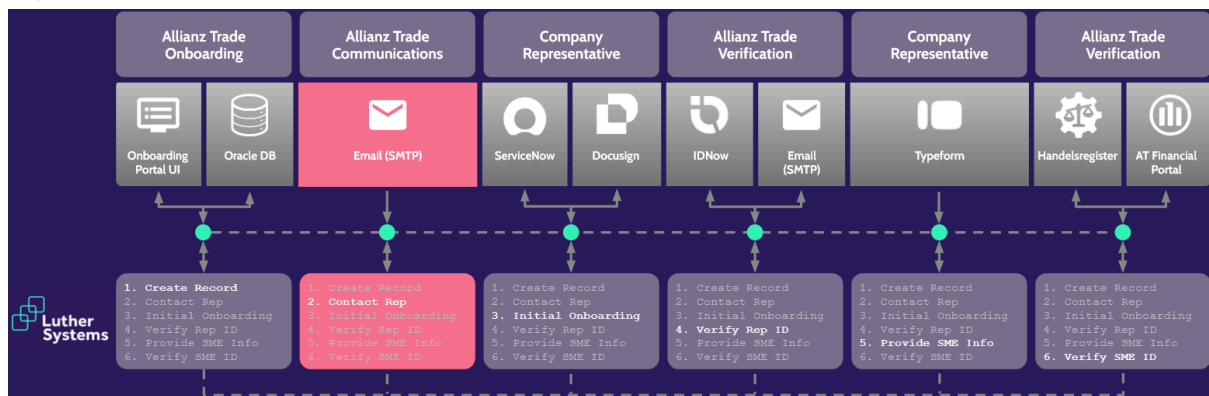

I. Platform sends *SME information* (request) to Onboarding Portal UI
II. Platform receives *SME information* (response) from Onboarding Portal UI
III. Platform validates *SME information* based on predetermined rules in the Common Operations Script
IV. Platform shares & stores *SME information* from Onboarding Portal UI
V. Platform evaluates & initiates next step

Step 2: AT Onboarding team executes Create SME Record, specifically Create Record On Safe Trade
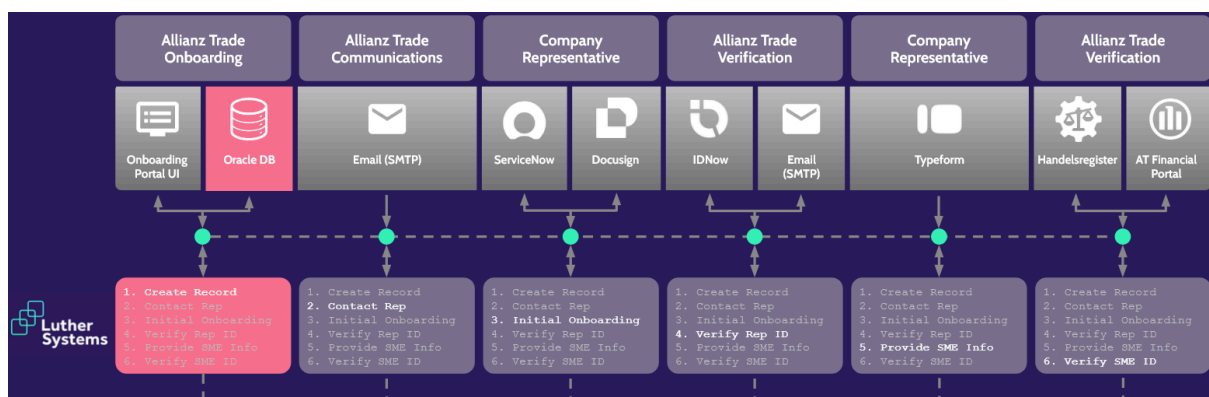
I. Platform sends *record creation* (request) to Oracle DB
II. Platform receives *record creation confirmation* (response) from Oracle DB
III. Platform validates *record creation confirmation* based on predetermined rules in the Common Operations Script
IV. Platform shares & stores *record creation confirmation* from Oracle DB
V. Platform evaluates & initiates next step

Step 3: AT Communications team executes Contact SME Representative, specifically Contact SME Representative

I.   Platform sends *contact SME representative (request)* to Email (SMTP)
II.   Platform receives *contact confirmation* (response) from Email (SMTP)
III.   Platform validates *contact confirmation* based on predetermined rules in the Common Operations Script
IV.   Platform shares & stores *contact confirmation* from Email (SMTP)
V.   Platform evaluates & initiates next step

The steps operate in a similar manner until the final step is reached:

Step 10: AT Verification team executes SME Identity Verification, specifically Provide SME Access
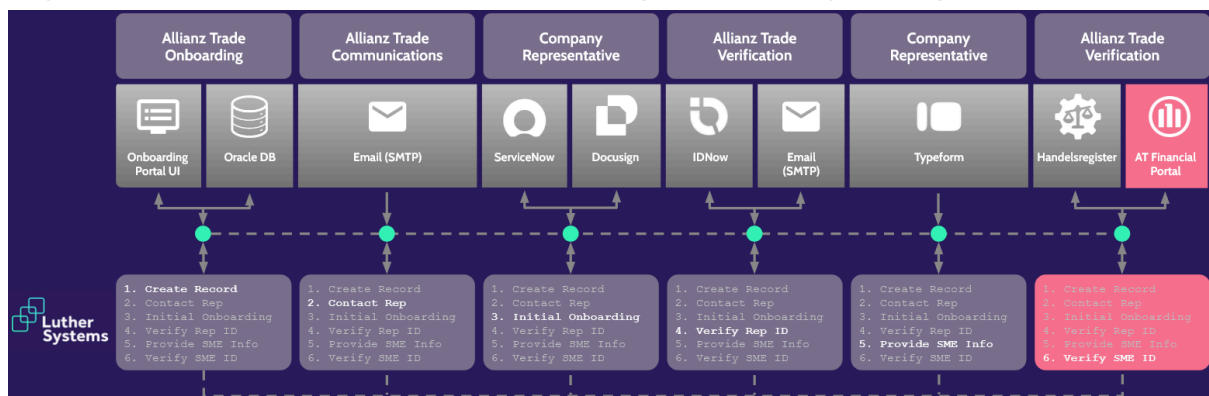
I.   Platform sends *user access* (request) to AT Financial Portal
II.   Platform receives *access confirmation* (response) from AT Financial Portal
III.   Platform validates *access confirmation* based on predetermined rules in the Common Operations Script
IV.   Platform shares & stores *access confirmation* from AT Financial Portal
V.   N/A

Final Step: The Platform completes the process:
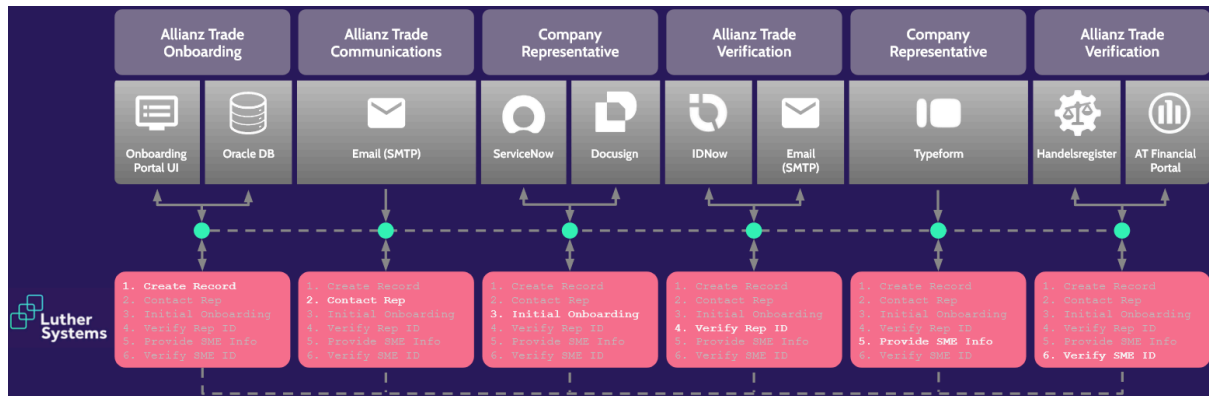
10.2. Definitions

Term	Definition	Examples
Task	Simple events that are localized to one team involving one or two software systems	Copying data between systems, retrieving SME info from a database, verifying a piece of information
Workflow	A series of 10-20 tasks involving 1-2 software systems and 1-2 teams	Collecting related data from several systems, creating a record for an SME
Process	A series of 20+ tasks involving 3+ teams and multiple software systems	SME Onboarding
Value Stream	A collection of processes delivering a business critical value	Client Acquisition
Participant	Operationally separate teams that have their own operations, governance and utilization of software systems and can make some autonomous decisions	AT Onboarding Team, AT Communications Team, Company Representative, AT Verification Team
Team	As broadly defined by enterprises, otherwise known as departments, groups, units, etc.	All employees in the verification team at Allianz Trade
Function	A unit of operations performed by a single team	Verifying the identity of the company representative
Process Operations	End-to-end completion of process operations across multiple teams and software systems, to deliver a specific business objective	The end-to-end SME onboarding process

10.3. Process Journey vs. User Journey

The Process Journey involves all the systems and teams including interactions with the users of the process, which usually interact with the process through UI systems and specifically designed Apps, with their own interfaces. However, process operations run through a much larger set of systems and teams, most of which are not visible to the user.

The User Journey is a small subset of the Process Journey. For an optimal User Journey, the whole process must operate reliably, not just the systems involved in the user journey! They must all operate correctly to operate the process end-to-end.
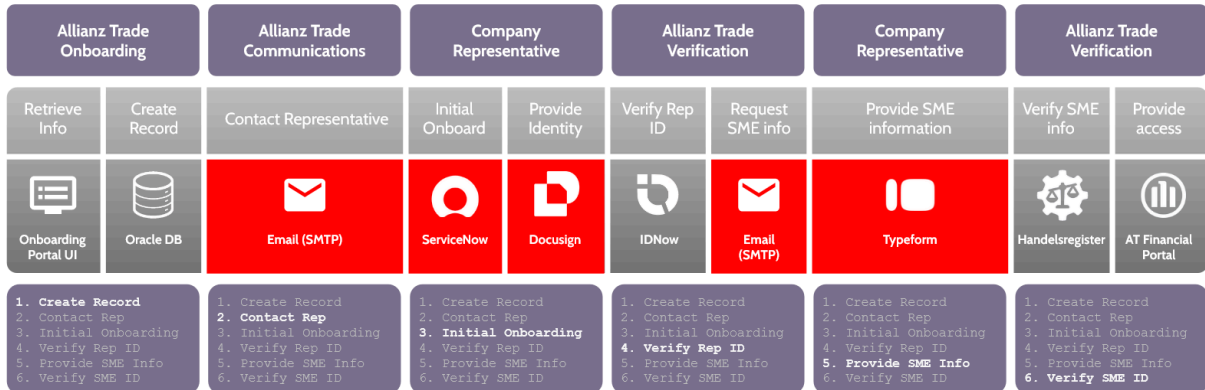

Fig 27. The process journey of the automated SME onboarding process. Systems highlighted in red directly interact with or require direct interaction from the user, i.e. the Company Representative.

10.4. Plaintext Links

6. Implementation

For a walkthrough of the implementation process, view the Luther Systems Sandbox Setup:
https://app.platform.luthersystemsapp.com/sandboxSetup

For a full explanation of the implementation process, view the Full Luther Platform Setup:
http://app.platform.luthersystemsapp.com

For a more detailed description of the implementation steps please visit:
https://www.luthersystems.com/platform/platform-overview

Request access to an example of a more detailed timeline here:
https://docs.google.com/spreadsheets/d/1jHSeFRhaWVkUiEtQ_crxGoyGFJ82eGUZ3rxhnYi4cro/edit?gid=1722375828#gid=1722375828

9. Luther's Company and Offerings

For more information about Luther's platform please visit our website:
http://luthersystems.com

Find out more about Luther's core platform features here:
https://app.platform-test.luthersystemsapp.com/features

For a demo of the build process please visit our website:
https://app.platform-test.luthersystemsapp.com/build

For more information about Luther's platform please consult this video:
https://www.youtube.com/watch?v=78H5m1aZZoU

For a more detailed introduction on the Luther platform and a full explanation of traditional process operations and Luther's solution please request access to the Deep Automation Primer here:
https://docs.google.com/document/u/1/d/1O3KIQUDuwMVOe5CzjNFMYoYnq7g_7AoU_qIHLOza_Tw/edit

For a detailed introduction and documentation examples please see the Luther Platform site:
https://www.luthersystems.com/platform/platform-overview