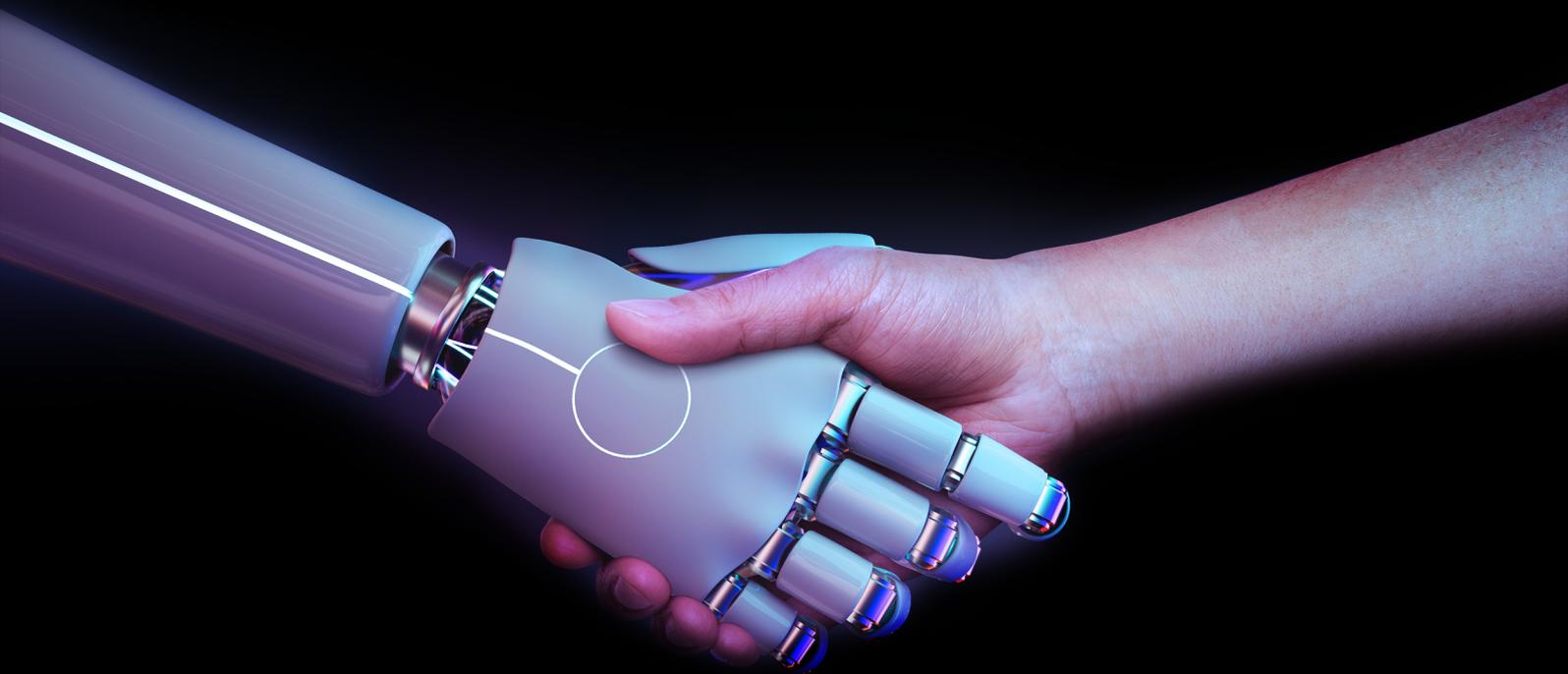


INNER SOURCING

The Key to Improving Collaboration and
Driving Innovation Within the Enterprise



INTRODUCTION

The term “Inner Source” was first coined by Tim O’Reilly in 2000, when the principles and practices of open source were applied within a single organization. Since then, the concept of “inner sourcing” has gained popularity, with some early adopters leading the way. However, it is only in recent years that the conditions have become favorable for widespread adoption of Inner Sourcing.

This “**perfect storm**” has been fueled by the success of open-source software, the rapid digital transformation and siloed development it has brought about, the maturity of agile software development practices and tools, and the influx of the Gen Z workforce. All of these factors have contributed to the urgent need for Inner Sourcing in enterprises.

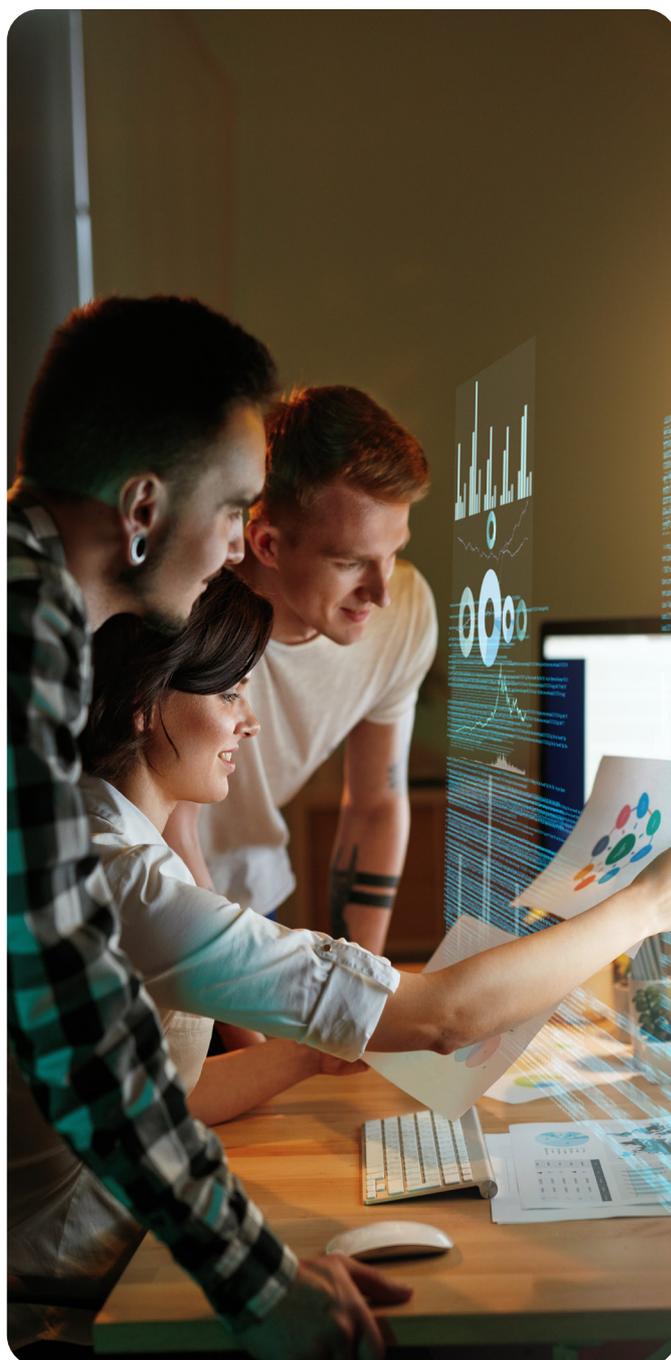
Despite the economic uncertainty brought about by the COVID-19 pandemic, engineering goals remain the same: to reduce costs and boost productivity. Customers continue to demand faster, better, and more affordable solutions. Inner Sourcing offers a promising approach for enterprises to navigate these challenges while achieving their engineering goals.



THE BENEFITS OF INNER SOURCING FOR THE ENTERPRISE

Inner Sourcing brings with it a set of tools and techniques from open-source communities that allow groups to work together on projects. By implementing Inner Sourcing methodologies in the enterprise, organizations can achieve standardization of technologies, frameworks, libraries, and tools, as well as processes. This standardization allows for the reuse of design, code, and best practices, which results in faster and higher-quality deliveries while reducing bottlenecks and resource dependencies.

In addition to these practical benefits, **Inner Sourcing can also break down departmental silos and promote knowledge sharing, leading to better employee engagement.** It can also foster a sense of purpose and encourage innovation by bringing together diverse perspectives on the same software. Overall, Inner Sourcing can help reduce time to market, optimize costs, and promote innovation within the enterprise.





KEY DIMENSIONS OF INNER SOURCING

Goals & Objectives

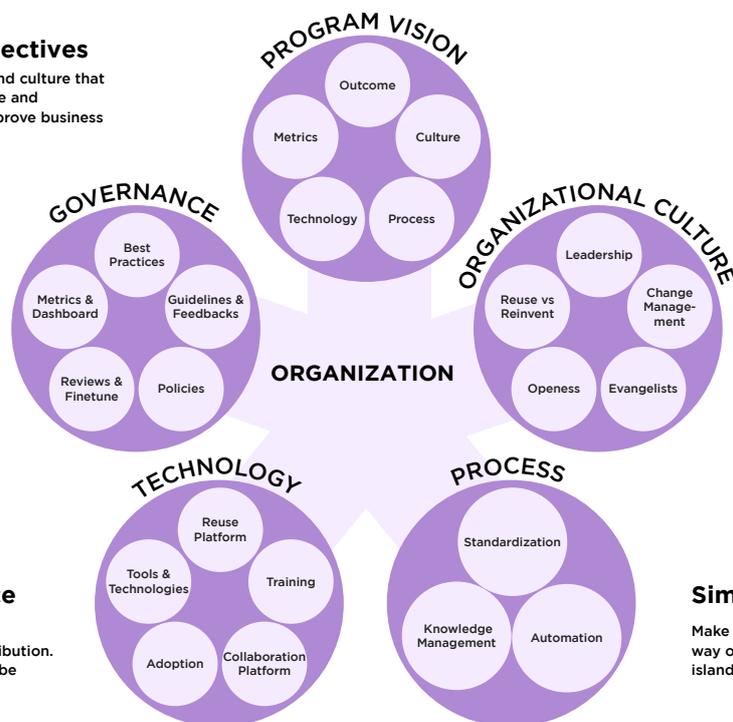
A Reuse platform and culture that focuses on the reuse and collaboration to improve business agility.

Accept, Adapt, Adopt

A metrics, formal feedback and informal feedback approach to finetune the process and enhance collaboration.

Harness Open Source

The open-source world inherently promotes collaboration and contribution. These technologies and methods be extended into organisation.



A Mindset Reset

Create leaders, evangelists and technologies within each team to spread awareness, contribute, leverage and promote collaboration.

Simplify & Exemplify

Make it easier and integrate into the way of working rather than a seperate island.

The implementation of Inner Sourcing requires a **holistic approach and a full 360-degree analysis** of the enterprise. To successfully implement Inner Sourcing, there are several key dimensions to consider:



Program Vision

Inner Sourcing aims to create a platform where all developers have read access to all codes and are encouraged to contribute a predetermined percentage of their time to projects outside of their immediate scope. This improves business agility by empowering developers to volunteer their expertise and skills.



Organizational Culture

Inner Sourcing promotes the creation of evangelists and advocates within each team to raise awareness and encourage more contributions. It also lowers the transaction cost for information exchange, increasing awareness of organization-wide development efforts.



Process

Inner Sourcing should be integrated into each team, with a percentage of developer time set aside for contributions to projects within the organization. Developers can also reuse existing code to save development efforts.



Harnessing Open Source

Inner Sourcing resolves many of the problems of traditional software development by easing software reuse and enabling different parties within an organization to collaborate across boundaries. The awareness of other developers' activities and the availability of code at various levels of granularity are key features that distinguish Inner Sourcing from other approaches to software reuse.



Accept, Adapt and Adopt

One of the main benefits of Inner Sourcing adoption is easy access to information throughout the organization. Each company can create guidelines and instructions for sharing, contributing, and reusing code, tailored to their values and business practices.

Inner Sourcing helps to facilitate this process, making it easier for developers to collaborate and share knowledge within the organization. **By accepting and adapting to Inner Sourcing practices, enterprises can unlock the full potential of their internal talent and resources.**

WHERE TO BEGIN WITH INNER SOURCING

Not all components or code are suitable candidates for Inner Sourcing. Components that are specific to a company's business needs may not be reusable or of interest to potential contributors. The best candidates for Inner Sourcing are components that **solve general problems, such as infrastructural capabilities like publish/subscribe integration libraries, payment gateway implementations, or machine learning models.** It is okay if there are multiple components that solve the same problem, as this is common in the open-source world.

To achieve early success and maximize the benefits of Inner Sourcing, it's important to choose the right initial components. Guidelines and gates should be put in place to ensure that only suitable components are onboarded for Inner Sourcing, and to monitor and measure success. By following these best practices, organizations can ensure that they are on the right track with Inner Sourcing.



IMPLEMENTING INNER SOURCING

Inner Sourcing is a software engineering strategy that applies the best practices of open-source software engineering within an enterprise context. To understand how Inner Sourcing can be implemented within an organization, it is helpful to examine the motivations behind the open-source movement:



Core Team

A group of individuals identifies a need for a software, framework, or library that is not available in the market. They decide to build a minimal viable product (MVP) to meet their needs and invite other like-minded individuals with similar needs to collaborate and contribute to the project. **The core team is responsible for managing the software, updating it, and maintaining the website, documentation, issues, and backlog tool.**

Contributors

These are users of the software who check out and use the openly available source code, make changes to enhance features and fix bugs, and submit “pull” or “merge” requests for code that they believe can be contributed back to the core software release. Contributors do it because it makes them feel good to be a part of something that many other people and teams around the world use. They also like being able to take part in discussion forums and earn badges, upvotes, ranks, and respect through gamification.





Community

This includes the core team, contributors, and simple users (who may be using the software in binary form or paying customers). The community is driven by collaboration and a sense of belonging and may include conferences, user groups, and branded merchandise.

OUR EXPERIENCES WITH INNER SOURCING WITHIN STL TELECOM PRODUCTS VERTICAL

Challenges and the Opportunity

The STL Digital Telecom Products vertical has around **25 products across five portfolio areas**. The key challenges faced by this organization include:

- **Product customization efforts** that are 5 times the engineering efforts, resulting in custom functionality being delivered to different customers and Manufacturing Units (MFU), but not being contributed back to the core product as features.
- **High Annual Maintenance Costs (AMC) and Managed Services (MS) costs** due to the lack of common deployment, logging, and monitoring procedures.





- **Disparate tech stacks** used by each product, with each product solving the same problem in its own way (e.g., Caching using Hazelcast in some products, Redis for some) without reusing tools, technologies, experiences, learnings, or best practices.
- **No common processes across product lines**, with different engineering and software development processes and release cycles.

In 2018, it was decided to use inner sourcing principles to address these challenges and use this as an opportunity to go from monolithic architecture in products to microservices and web-scale (cloud-native) compliant products, as was the need of the market at the time.

Standardizing Processes, Tech Stack, Tools, and People Investments

To drive the implementation of Inner Sourcing, the following steps were taken over a period of two years:

1. Scaled Agile (SAFe) was chosen as the unifying process framework.
2. A core product team was formed for each product or product line to maintain the product design, architecture, and code, providing essential documentation for engaging with other developers in project delivery teams.
3. Multiple project delivery teams registered as users and contributors, generating fork and contribution requests while delivering to customers or MFUs.
4. All code was migrated to STL GIT repositories.
5. The STL Cloud Native Platform (STL CNP) was created to enable all product teams.
6. Monolithic products were decomposed into microservices that were containerized and orchestrated using Kubernetes (K8s).
7. A common logging framework using the ELK stack was implemented, with all logs centrally monitored and rules implemented for proactive operations.



8. A common observability framework using Jaeger, Kiali, Prometheus, and Grafana was adopted, with all applications and infra monitoring centralized and rules for automated alerts and actions.
9. Zero downtime deployments, rolling upgrades, and Liquibase-based DB updates were enabled to drastically reduce deployment and upgrade times.
10. A common in-house DevOps platform called DevOps On Tap (DOOT) was created and adopted by managers, developers, and testers across the organization.
11. Teams were trained and certified in SAFe agile.
12. Team members received technology trainings and certifications, including Cloud Native Computing Foundation (CNCF) and in-house trainings on new technologies and libraries.

Key Takeaways from the STL Inner Sourcing Experience

Some key takeaways from the STL Inner Sourcing experience include:

- Contributor-led feature development and issue fixing worked well for infrastructural features, but not for business logic-related features.
- A common process, enabled by a common tech stack and tools (such as a DevOps platform), is key. Adoption should be driven through incentives and top-down mandates.
- Training and process adoption should be implemented across all levels of the organization, from the Chief Technology Officer (CTO) down to junior developers and testers.
- While there may be pressure to seek quick wins, a long-term strategy is necessary to ensure that these solutions are effective and not counter-productive.
- Reorganizing people without a clear direction, sense of purpose, and KPIs was not effective.



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Srini's experience spans across three decades conceptualizing the platform architectures that includes Market Positioning, Product journey, User Experience layers and Business cases. Srini is passionate about Sustainability, Disruptive Innovation and keeps customers & teams at the heart of every strategy formulation.



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Jeet is responsible for building strong and sustainable business relationships with existing and new customers across the UK, Europe, North Americas, and India. As a leader who adopts a growth mindset, Jeet has a broad base of international experience across diverse domains, including Banking & Financial Services, Insurance, and Information Services.



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A hand holding a robotic hand, symbolizing human-robot collaboration. The STL Digital logo is overlaid on the image. The logo consists of the letters 'STL' in a bold, white, sans-serif font, followed by a purple right-pointing arrow, and the word 'Digital' in a smaller, white, sans-serif font.

STL ▶ Digital

ABOUT US

STL Digital - Engineering for Experience

STL Digital is a global IT Services company that enables enterprises and industries to experience the future of digital transformation. With an end-to-end portfolio of services across product engineering, software, cloud, data and analytics, enterprise application services, and cyber-security. STL Digital works with global businesses to deliver innovative experiences and operational excellence with agility. STL Digital is a whole owned subsidiary company of Sterlite Technologies Limited (STL), one of the industry's leading integrators of digital networks, providing All-in 5G solutions (<https://www.stl.tech/>)

To know more about STL Digital, contact us: contact.us@stltech or click on <https://stidigitaltech/>