VIEW POINT

BUSINESS PROCESS REENGINEERING – STP: ARE WE THERE YET?

Organizations frequently struggle to align technology and operations, often hindering the success of transformation initiatives. However, there are a few proven frameworks that can facilitate the integration of technology modernization and process optimization with the primary focus on improving straight-through processing (STP) capabilities. By bridging the gap between technology and operations, they offer a solution to streamlining business processes. These frameworks can empower companies to improve their STP, adapt to the evolving business landscape, and gain a competitive edge.

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Introduction

"Reengineering is new, and it has to be done."[1]
-Peter F. Drucker

In the early nineties, Peter F. Drucker, who is known as the "father of management thinking", said that "Reengineering is new, and it has to be done." Even in 2023, Drucker's call to action remains pertinent. Most companies are still not quite done yet, while some are very far from being done with reengineering.

Most companies have embarked on multiple journeys to harness various technology enablers. These include enterprise resource planning (ERP), supply chain management (SCM), product lifecycle management (PLM), digital experiences, web services, enterprise application integration (EAI) and application programming interface (API), workflows, and computer vision powered by artificial intelligence (AI), among others.

At the same time, many enterprises embraced process optimization initiatives such as Six Sigma, Define – Measure – Analyze – Improve – Control (DMAIC), Lean, Total Quality Management (TQM), Kaizen, Plan – Do – Check – Act (PDCA), the 5 Whys technique, business process management (BPM), and more. Despite these technology transformation and process optimization efforts, most corporations have not achieved their business process reengineering (BPR) objectives and have often fallen significantly short of meeting their BPR aspirations.

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STP: An Elusive Target

We must acknowledge that many companies have indeed benefited from technology investments in process reengineering, such as streamlining the quote-to-cash function by leveraging SAP or Oracle ERP.

Operational excellence is now considered "table stakes" and no longer a potential source of competitive advantage, as Ross et al.,[3] observe. Yet, even today, many industries struggle to achieve some of the fundamental objectives of reengineering, particularly in improving straight-through processing (STP). STP involves the seamless execution of a process without the need for human intervention, aiming at a flawless and automated workflow. As a result, business operations (BizOps) expenses and staffing level continue to be two to three times higher than that in IT. Modernizing business process to achieve higher STP has been an ongoing challenge and continues to be "The crisis that will not go away" as Hammer and Champy[2] cautioned in 1993. Core operational processes continue to be plagued by manual and inconsistent process-driven activities, resulting in unreliable data, despite trillions of dollars invested in IT over the last couple of decades.

Every new generation of technology has been touted as a solution for inefficient and expensive operations, with RPA, web/digital/mobile, cloud native, AI, and generative AI (GenAI) among the most recent trends. The issue is not related to the absence of the right amount of technology investments made at the right time, with the right capabilities, or with the right intent. However, only a few technology projects have succeeded in delivering on their touted STP objectives.

The Right Mindset is Foundational

The ongoing crisis is partly fueled by a lack of coordination and synergy between IT and BizOps. Each entity often sees itself as the primary driver, working independently. However, they need greater cooperation and synergy to challenge the status quo and bring about substantial change.

For example, at a leading custodian bank, a senior IT leader inherited a substantial program that had invested tens of millions of dollars over four years in modernizing a mainframe transfer agency platform. After a thorough evaluation of the deliverables, he harbored serious doubts about implementing the transformed solution due to the lack of discernible benefits for core operations. At another major regional bank, IT had dedicated several years and invested millions of dollars to modernize their end-of-life digital experience channels platform, without incorporating any enhancements for core operations. In both instances, IT leaders leading the transformation focused mainly on modernizing the technology but missed the opportunity to collaborate with the operations teams for simultaneous process transformation and enhanced STP.

At the same time, operations leaders have embraced cost-effective solutions for the near term rather than tackling the STP challenge head-on. As the INR-USD exchange rate went from around 49 in 2002 to approximately 82 in 2022, several custodian banks lifted and shifted their operations overseas to capitalize on labor arbitrage, without making any technology investments to significantly improve the STP. However, with impending regulations for T+1settlement, these firms are now struggling to introduce STP, handicapped by legacy technology and fragmented processes and data architecture.

Even when there is a 'partnership' between the IT and operations teams, the latter is usually reluctant to embrace the transformative potential of technology. They often ask IT leaders to re-implement the same manual and inefficient processes using newer technologies. At one of the major asset management firms, a senior operations leader, supporting the transformation of a core record-keeping platform, insisted that the transformed solution continue to retain the ability for operations teams to stop any process at any point based on their intuition, and then manually restart the process using their judgement. This legacy capability of human-controlled operations was believed to mitigate operational risks.

This demand signifies the preference to maintain the status quo of human control over processes, rather than relying on the modernized platform's capabilities, including real-time insights and rules-engines, for automated process control. Therefore, the modernized technology landscape continues to harbor inefficiencies and manual steps that do not add any value for the firm and its stakeholders.

As a result of this mindset, IT landscapes have become more complex, siloed, and fragmented in their applications and systems, as well as their data and processes. Business processes are stitched together as a combination of manual and semi-automated activities spanning fragmented applications and data repositories.

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Collaboration-enablers for Technology-led STP

We have observed that when the IT and BizOps teams collaborate in defining, shepherding and driving programs towards well-defined BPR and STP objectives, these initiatives have consistently achieved success.

Many of our clients have made tremendous strides by bringing technology and operations under a single executive leader such as the chief information officer (CIO) or the chief operations officer (COO) of a line of business (LOB). Some organizations have vested ownership of these functions with different roles but have implemented joint budgeting and synchronized investment and business cases. Recently, we have seen this approach result in outsourcing requests for proposals (RFPs) for combined technical support and business operations, with the stipulation of achieving substantial reduction in overall operations effort through tech-transformation and modernization. While it is encouraging to see companies strive for better alignment among leaders, budgets, and key performance indicators (KPIs), the mechanism for driving collaboration at the program execution level lacks the refinement of a well-established engineering discipline. The process of tech-transformation and BizOps collaboration is highly inefficient, yielding ineffective results. So far, there were no well-designed and proven frameworks that could help establish these linkages to interleave tech-transformation and BizOps. We have embodied our insights and experience from large and complex programs into a few frameworks to help IT and BizOps leaders to jointly plan, design, build, and deliver transformation to meet STP objectives.

A real-life definition

At Infosys, STP is not about zero human intervention. Instead, it represents the elimination of human intervention that has zero value-add. While STP may include strategically and surgically inserted human interventions, those that lack specific value are termed zero-value-add manual steps (ZVAMS). Manual data entry from a paper format into a system or the swivel chair process of transferring data from the user interface (UI) of one system into another are examples of ZVAMS. When an STP process fails, either due to inadequately engineered business rules or technological limitations, the resulting manual steps also fall under the zero-value-add category.

On the other hand, a paper document such as a 401K withdrawal request form can be technologically processed without human intervention. However, based on certain insights or rules, including the withdrawal amount, customer's age, and tax implications, we may want to automatically insert certain human interventions to discuss the situation with the customer. Further, manual steps for approval by the applicant's spouse or a legal authority also do not qualify as ZVAMS. Infosys' definition of STP requires systemic capabilities to pre-process information, such as policies, rules, and contracts, and present the resulting decision to the approver for approval or rejection, through the most efficient means of communication & workflow. This approach eliminates ZVAMS related to searching, synthesizing, and processing information for decision-making.

Some nuances of manual steps can be classified as value-creation activities. For example, a customer may opt to pay for a white-glove service for order creation, either in-store or through a call-center rather than use a self-service mobile app. In such a scenario, the manual steps taken by the operations team are seen to create value, provided this process is optimized to ensure that the cost of the white-glove service is lower than the customer's opportunity costs.

Baseline and Opportunity Assessment

When examining processes within any enterprise, we find varying levels of STP maturity, depending on the technologies used.

Infosys' STP-Up© framework comprises a four-tiered structure that maps process flows based on their current and targeted maturity levels. Figure 1 illustrates the scenarios of ZVAMS for sunny day (error-free) and rainy day (exceptions or errors) scenarios using Infosys' STP-Up© framework. This framework enables BizOps & IT managers to categorize a given process into four maturity levels: Gold, Silver, Bronze, Copper, based on the number of ZVAMS. ZVAMS ideally range from zero for Gold to the highest number indicated by Copper. Bronze and Silver fall within the four-point spectrum.

Once a process is mapped to these maturity levels, leaders can devise a strategy to elevate the maturity level of the process. The objective is to enable the required technological capabilities and drive adoption to increase the processing volume toward the Gold maturity level.

THE FOLLOWING PARAMETERS DEFINE EACH MATURITY LEVEL:

1 **Number of ZVAMS**
Current and/or targeted, for sunny-day and rainy-day scenarios. Additionally, skills needed / task-complexity measured on a scale of low to high can be incorporated as corresponding multipliers (e.g. 2, 3, 4) applied to a ZVAMS

2 **Technology Solutions**
Existing, targeted, solution gaps / required tech-capabilities, technology limitations / tech-constraints

3 **Processing Volume**
Current, targeted, categorized as VG, VS, VB, or VC, with the total adding up to 100, each ranging from 0% to 100%

4 **Velocity and throughput**
Including constraints and bottlenecks

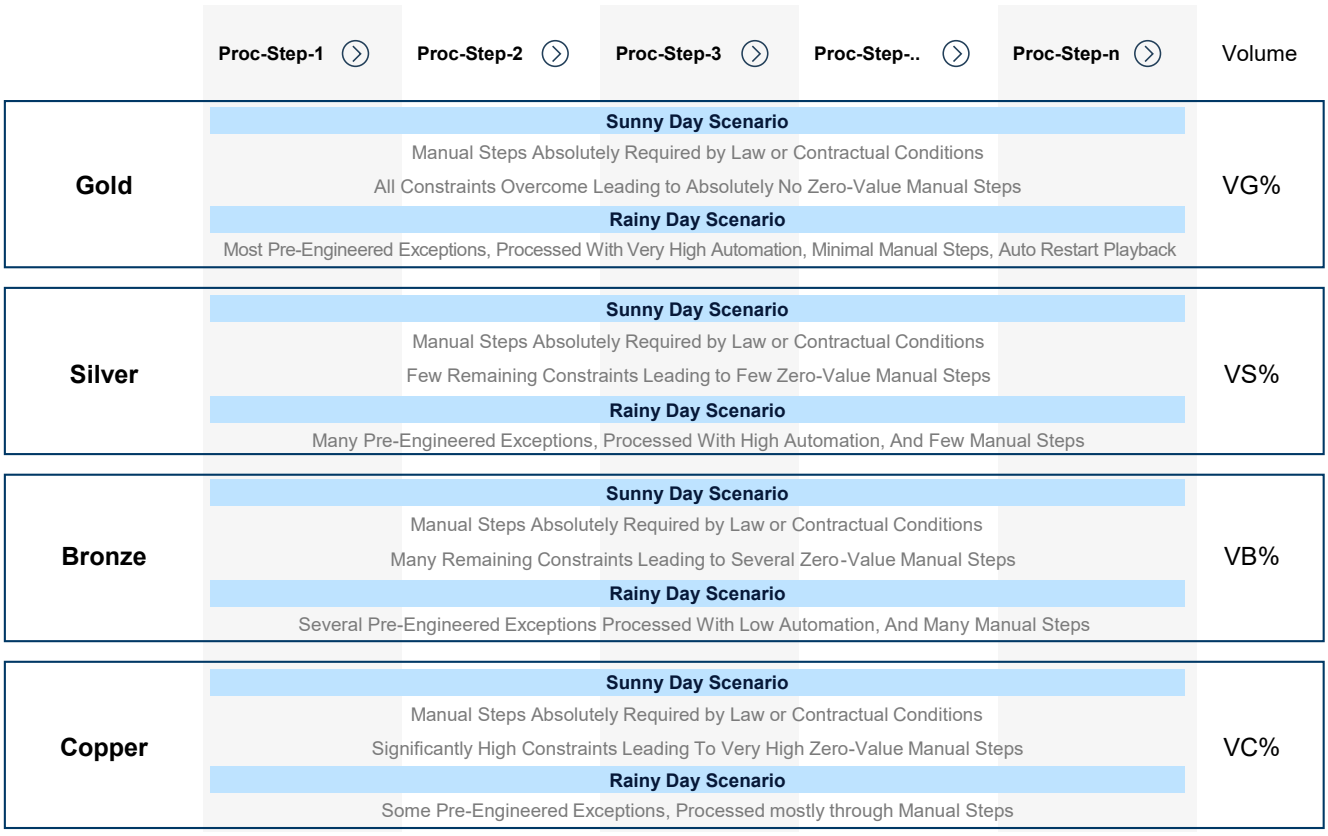

Figure 1 | Infosys STP-Up© framework

Infosys STP-Up Factor©

The Infosys STP-Up Factor© helps quantify the impact of a technological capability in elevating a process from its current level to the targeted level of STP maturity.

This definition reflects the improvement, measured as a reduction in ZVAMS, adjusted proportionately to the existing ZVAMS baseline. The higher the STP-Up Factor© value, the greater the benefit to the organization in terms of STP improvement. This factor assists in comparing the options for elevating a given process to different maturity levels (e.g., from Copper to Silver or Copper to Bronze). Similarly, this factor can be used to compare the impact of technology on STP maturity elevation across multiple processes.

For instance, it helps assess the benefits of elevating process A from Copper to Silver versus process B from Bronze to Gold. This approach helps in optimizing and prioritizing STP investments for an individual process or across multiple processes.

Infosys STP-Up Factor ©:
(Difference between Current ZVAMS and New ZVAMS)
X
$$\frac{\text{Current ZVAMS}}{\text{Future ZVAMS}}$$

We have adapted the traditional suppliers, inputs, process, outputs, customers (SIPOC) tool to map the current parameters and identify targeted parameters to elevate the maturity level of the process from its baseline to a target. We call this Infosys SIPOC-for-STP©. The table below lists the features of Infosys SIPOC-for-STP©, along with examples of mapping them to transformation and modernization levers.

	Suppliers	Inputs	Process	Output	Customers
Traditional SIPOC	Initial users Intermediate users Organizations Individuals Systems / Applications Internal External	Initial input data Intermediate generated data Referenced data Processed/derived or raw data Insights/forecast or predictions Structured/unstructured text data Audio/video	Core 'sunny day' and pre-engineered exception 'rainy day' flows Intermediate or transitional flows Unknown error flows Ad hoc, orchestrated case flows	Final output data Intermediate generated data Processed/derived or raw Insights/forecast or predictions Structured/unstructured text data Audio/video	Intermediate users Final users Organizations Individuals Systems / Applications Internal External
Technology extension to SIPOC	**Interaction channels/ interfaces:** Paper, web, mobile, phone, interactive voice response (IVR), chat, email, and other channels Audio/visual File-Transfer / API Data Sharing	**Data/information management system:** IT system database, paper, human subject matter experts (SMEs) Transactional Operational data stores/ data warehouses Files/documents: structured/ unstructured, hand-written Image Current/historical/archived Internal, External	**Application/data processing systems:** Core systems End-user-computing (EUC) tools Manual steps Workflow Custom/commercial off-the-shelf (COTS)/software as a service (SAAS) AI/machine learning (ML) processing/expert systems	**Data/information management system** IT system- database, paper, human SME Transactional Operational data stores /data warehouses Files/documents: structured/ unstructured Image Current/historical/archived Internal, External	**Interaction channels/ interfaces:** Paper, web, mobile, phone, IVR, chat, email, and other channels Audio/visual File-Transfer / API Data Sharing
Relevant process improvement KPI/metrics	No. of clicks No. of screen hops/scroll No. of ZVAMS, etc.	Volumes/throughput No. of ZVAMS No. of errors, etc.	Volumes/throughput No. of ZVAMS No. of errors, etc.	Volumes/throughput No. of ZVAMS No. of errors, etc.	No. of clicks No. of screen hops/scroll No. of ZVAMS, etc.
Each is mapped to transformation/modernization levers. Examples					
Tech transformation /modernization themes	Systems/UI rationalization Omnichannel digital experience Self-service/auto-service NLP/GenAI	Optical character recognition (OCR)/ AI computer vision Rules engines APIs/data-API On-demand insights/ML Data harmonization GenAI Conversational AI -chatbots Industry models	Mainframe-batch to microservices real-time, APIs Event-driven R- dispositions for applications Rules engines Workflow, robotic automation platform (RPA) AI/ML - data harmonization NLP/GenAI	Self-service Auto-reports APIs/data-API On-demand insights/ML Data harmonization GenAI Conversational AI-chatbots Industry models	Systems / UI Rationalization Omnichannel digital experience Self-service NLP/GenAI

Addressing Challenges with Adoption of Transformation and Reengineering

While the STP-Up© framework helps to assess, identify, target, and measure STP improvement opportunities, the eventual success depends on the level of adoption of the transformed and modernized capabilities.

For instance, it is common for banks to invest in mobile apps to enable users to deposit checks digitally, yet many people still visit a branch. Similarly, human resources (HR) departments may continue to use paper forms to enroll new employees for HR and retirement benefits. Several factors influence the adoption and movement of processes toward the most efficient Gold maturity level.

Therefore, having a framework to understand these factors and align priorities is vital for the success of STP-Up© initiatives. We understand that the STP-Up© framework must be complemented by a framework that can ascertain and increase the level of adoption for modernized and transformed capabilities and, in turn, increase STP. Infosys has identified three key factors that need to be addressed in harmony to increase STP adoption. STP capabilities can be characterized as being admissible (A), potentially contractual (C), and having effectual (E) features. Along these lines, the Infosys ACE© framework has proven valuable in acing the challenges of adoption of technology investments and process reengineering initiatives. Figure 2 illustrates how Infosys ACE© is used to improve STP.

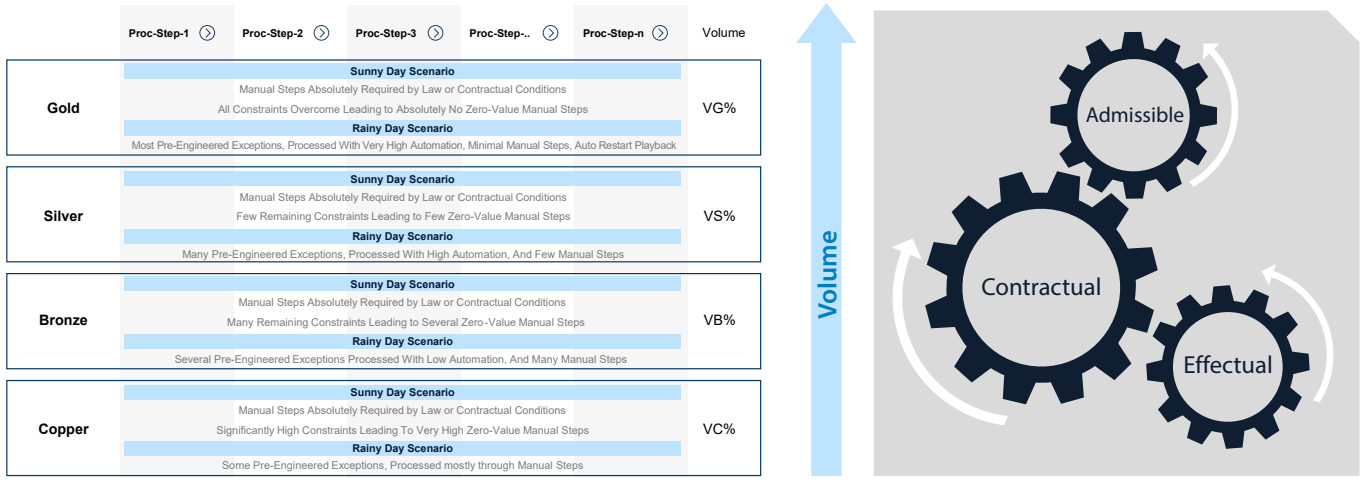

Figure 2 | Infosys ACE© to improve STP

In order to align priorities for greater success of STP-Up© initiatives, it is crucial to address three key drivers of adoption in harmony:

1 ADMISSIBLE

Capabilities must comply with legal regulations and adhere to relevant rules. For example, even as digital and omnichannel 401K withdrawal processing capabilities are available, providing paper forms to plan participants to help them apply for retirement plan withdrawals is necessary. The challenge lies in gradually reducing the use of paper-based forms while ensuring fulfillment of legal obligations. Solutions replacing activities executed by BizOps users with government licenses must also comply with the relevant regulations. Additionally, these solutions should provide efficient means to demonstrate compliance with regulations, using tools such as automated, immutable audit trails, and transaction playback capabilities.

2 CONTRACTUAL

Capabilities must align with existing contractual obligations or engender revised/new terms & conditions. Some firms or individual users may contractually prefer and, perhaps, be willing to pay for an inefficient channel or process due to certain constraints, opportunity costs, or other factors. For instance, a payroll processing supplier may offer API-based integration to onboard new employees. But the payroll provider's clients might choose to continue with batch-based file exchange due to differing modernization priorities. To overcome this challenge, the payroll provider must create a suitable quid pro quo, to define a better value proposition, and gain alignment for clients to adopt more efficient solutions. Organizations can lean on contractual obligations, possibly through pricing strategies & discounts that pass savings from efficient processes to their clients, leading to increased STP.

3 EFFECTUAL

Offering a strong value proposition to encourage users to transition from traditional, inefficient ways of working to new digital capabilities mandates robust technological capabilities, an enhanced user experience, and trust in the solution. Especially when catering to different demographic segments and work-cultures, it is essential to tailor and personalize the user experience along with addressing non-functional needs such as system performance, security, and privacy. For example, without designing and investing in the right infrastructure to handle the expected large-scale volumes, users might revert to paper or voice channels. Digital teams can use nudge campaigns to remind users to complete their digital signature authorization, enabling them to submit digitally signed documents in the future. IT teams may need to employ various tactics, including parallel testing, controlled toggle-switching, and in-production process-mining to instill confidence in the solution's capability to faithfully execute business processes.

Putting it All Together

Improving and optimizing the STP calls for proven methodologies and execution rigor. Fig 3 provides a simplified pictorial representation of a very detailed analysis used to initially baseline, and subsequently set the STP trajectory for a process. The figure includes the sunny day scenario to illustrate the application of STP-Up©, SIPOC-for-STP©, STP-Up-Factor©, and ACE©.

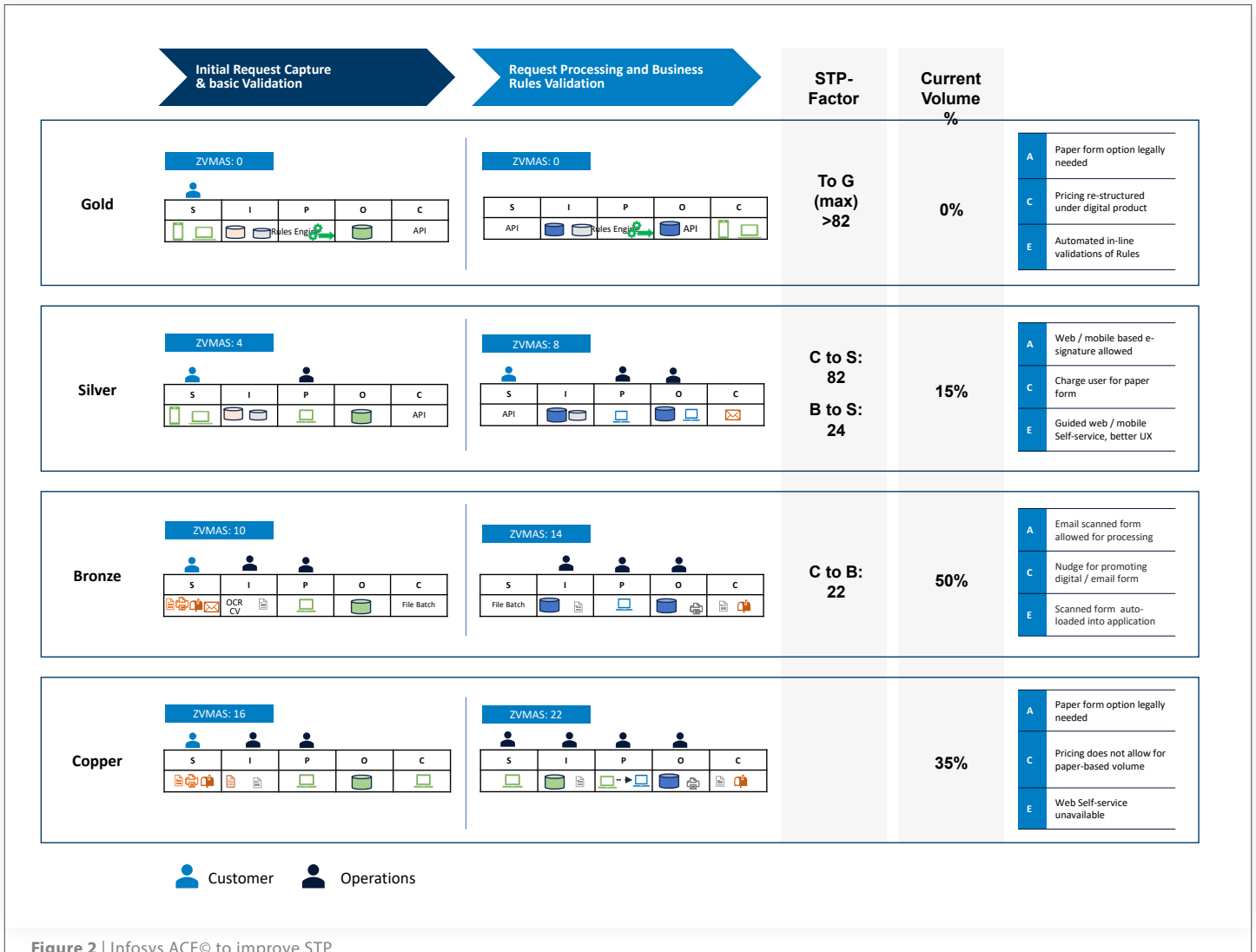

Figure 2 | Infosys ACE© to improve STP

Conclusion

The ultimate benefit of using these frameworks is that stakeholders from BizOps and IT, including leaders, managers, architects, product owners, and process specialists use the same semantics of processes and capabilities.

They share a common definition of STP, align on the factors that drive improvement, prioritize investments, and measure progress as well as the benefits of IT investments through simple, yet well-defined, metrics.

Organizations today face several challenges in aligning tech-transformation with BizOps. There is a need for close partnership and a unified approach between IT and BizOps to driven meaningful organizational change. Long-term strategies using effective frameworks and guidelines aimed at interleaving technology modernization and process optimization can elevate an organization's STP. Infosys STP-Up©, SIPOC-for-STP©, STP-Up-Factor©, and ACE© offer practical solutions to minimize manual interventions, enhance technology adoption, and streamline processes. By embracing Infosys' frameworks, organizations can position themselves to thrive in today's competitive business environment, delivering improved STP and reduced costs.

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