EBOOK

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Building an OT Organization in an IT World

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Introduction

The technologies and automation under the umbrella Operating Technology (OT) are relatively new and rapidly evolving. Many solution sets didn't even exist as viable categories five years ago, including: simulation & emulation, machine vision, industrial data operations /industrial internet of things, human machine interface platforms, smart connected machines, automated mobile robots, automated storage and retrieval systems. Now, the technology is mission critical, but ***many organizations struggle with the proper internal leadership structure to "own" this space.***

Unlike enterprise applications (IT), OT technologies:

- **Can't allow operating delays which last longer than seconds and minutes across three shifts**
- **Must endure environments that are often harsh to technology hardware, software, paper and learning aids**
- **Significantly depend on manufacturing equipment connectivity, and**
- **Serve users whose level of sophistication with technology varies widely.**

While IT has matured its organization models over decades, time tested by ERP, CRM, eBusiness and more, ***OT organization maturity lags*** in comparison. As a result, we have often observed a "land grab" for OT responsibility between IT, engineering and operations, each wanting to play a lead role owning this capability to better control their destiny in this space.

For example, a Director of Engineering – Controls & IS for a food and beverage manufacturer recently commented that, "IT clearly focuses on enterprise applications like ERP, and we clearly focus on automation power and controls and MES. It is the stuff in the middle that we arm wrestle about." That arm wrestling often leads to OT being treated as a site- or project-specific function, disconnected from the broader strategy. The result? Fragmented projects, missed opportunities for scale, and limited visibility across operations.

Without a deliberate, integrated approach, OT efforts become isolated, making it harder to replicate success, share lessons learned or drive transformation across the enterprise.

Given this backdrop, it is time to rethink this organizational structure to one designed for maximum connectivity and impact.

Current State of IT/OT Organization Structures

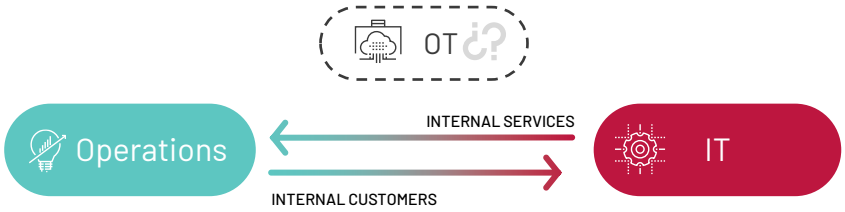
First, let's start with the current state of OT organization structures in the market today. In general, we find that OT capabilities have been built up organically over time, often as a reaction to an increasing pain point or need. As a result, these companies often end up with underused and overlapping resources, making it difficult to shift budgets toward high-impact areas, scale appropriately and enable digital transformation.

These organically developed OT resources typically fall into four organization structures. Let's explore how organizations often got to these structures and their limitations.

1. ***No Defined OT Organization***
2. ***OT embedded in IT***
3. ***OT embedded in Operations***
4. ***Independent Coexistence***

1

No Defined OT Organization



Companies without an OT organization unit may have hired individuals with OT expertise based on an incremental need triggered by a pain point, or perhaps to help implement a new solution. These new hires are often scattered across IT, Engineering and Operations at both the corporate and field levels.

LIMITATIONS:

- Leaders don't have a full view of the priorities and payroll dollars invested in OT resources.
- There's no formal management for the OT outcomes strategy.
- Projects remain siloed at plant or function level and aren't connected to Corporate IT objectives or strategy.

2

OT embedded in IT

In this scenario, the CIO or most senior IT leader recognized the growing need for OT capabilities and started claiming the space by hiring OT resources. These resources were mapped to key internal customers and subject matter experts in Engineering and Operations, using their existing IT structure to incrementally meet OT needs.

LIMITATIONS:

- Both Engineering and IT require OT resources and capabilities.
- Solely embedding OT in either IT or Operations can lead to misalignment with critical stakeholders necessary to support OT initiatives.

3

OT embedded in Operations

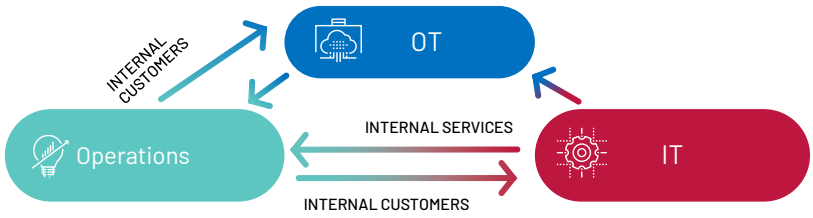
In this structure, an Operations and Engineering lead recognized and anticipated the needs for OT capabilities and started claiming the space by hiring OT resources. These resources were mapped to key internal service providers and subject matter experts in IT. They are building out their base organization model while leveraging existing IT capabilities, such as Network/Infrastructure, PMO, and Help Desk to meet their needs in Engineering and Operations.

LIMITATION:

- Separating OT resources from IT capabilities necessary to support OT projects can lead to misalignment between Engineering and IT on technology objectives and outcomes.

4

Independent Coexistence



In this scenario, the CIO or most senior IT leader recognized the growing needs for OT capabilities and started claiming the space by hiring OT resources. These resources were mapped to key internal customers and subject matter experts in Engineering and Operations. They are leveraging their base organization model of existing IT resources to meet the needs of Engineering and Operations on an incremental basis.

LIMITATIONS:

- Both Engineering and IT require OT resources and capabilities.
- Solely embedding OT in either IT or Operations can lead to misalignment with critical stakeholders necessary to support OT initiatives.

All four of these current state organization models for OT are suboptimized for spending purposes and have often not been aligned with the strategic direction for digital manufacturing transformation. A resilient IT/OT organization must be purpose-built to accommodate the unique responsibilities and needs of both teams.

Future State Organizing Model Options for OT

We've identified four clear OT organization model options that help companies build a strong, structured approach to OT. These options allow you to start with what works today based upon your unique company and scale for future needs and transformation.

STAND ALONE IT AND OT FUNCTIONS UNDERNEATH IT

Nestled under IT, two separate IT and OT functions are led and governed by the Global CIO/CTO. Operations/Engineering are the internal customer of the OT and shared services IT organizations

IT	OT	OPERATIONS/ ENGINEERING
• Scope: IT • Reports to Global CIO/CTO • All Tech Functions & Capabilities	• Scope: OT • Reports to Global CIO/CTO • All Tech Functions & Capabilities	• Internal Customer of OT • Provides operations/ engineering subject matter experts to supplement OT team

STRENGTHS:

- **Empowers OT teams by giving them responsibility on-par with IT**
- **OT visibility at corporate level creates a feedback loop aligning OT projects with the corporate technology strategy.**

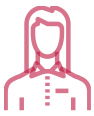
IT LED WITH OPS SHARED SERVICES

This scenario allows for dedicated OT capabilities embedded in the overall IT pyramid, with Shared Services supporting both IT and OT needs. Operations/Engineering are the internal customer of the OT and Shared Services IT organizations.

IT	OT	OPERATIONS/ ENGINEERING
• Scope: IT+ OT • Reports to Global CIO/CTO • Manages Traditional IT Enterprise Applications & Infrastructure • Provides IT Shared Services to OT	• Scope: OT • Reports to IT • Only OT Dedicated Capabilities • Leverages IT for Shared Services	• Internal Customer of OT • Provides operations/ engineering subject matter experts to supplement OT team

STRENGTHS:

- **Strong alignment between OT projects and traditional IT shared services (cyber, network) that significantly impact OT initiatives.**
- **Streamlines OT capabilities to focus on continuous improvement and OT strategy, leveraging organizational centers of excellence for shared service and support functionality.**



OPERATIONS/ ENGINEERING LED

In this structure, dedicated OT capabilities are owned and managed by Operations/Engineering, who also rely on IT for Shared Services capabilities.

IT	OT	OPERATIONS/ ENGINEERING
• Scope: IT • Reports to Global CIO/CTO • Manages Traditional IT Enterprise Applications & Infrastructure • Provides IT Shared Services to OT	• Scope: OT • Reports to Operations & Engineering • Only OT Dedicated Capabilities • Leverages IT for Shared Services	• Owns & Manages OT • Provides operations/ engineering subject matter experts to supplement OT team

STRENGTHS:

- **Close alignment with primary customer of OT capabilities in Operations & Engineering.**
- **Enables OT organization to focus on tactical, continuous improvement initiatives that realize the highest return on investment at any given time.**

SEPARATE BUT EQUAL

OT belongs completely to Operations and Engineering and operates independently from IT.

IT	OT	OPERATIONS/ ENGINEERING
• Scope: IT Only, Independent from OT • Reports to Global CIO/CTO • Manages Traditional IT Enterprise Applications & Infrastructure • Provides IT Shared Services Only	• Scope: OT • Reports to Operations & Engineering • Dedicated OT Capabilities • Dedicated Shared Services for OT	• Owns & Manages OT Independent from IT • Owns and Manages Shared Services for OT • Provides operations/ engineering subject matter experts to supplement OT team

STRENGTHS:

- **Empowers ownership of OT functions through increased responsibility and visibility.**
- **Close alignment with primary customer of OT capabilities in Operations & Engineering.**
- **Enables clear focus on OT-specific Shared Services concerns (Cyber, Network).**
- **A bit clunky with prepositional phrases - to clarify, who is the primary customer?**
- **Gives them a cleaner line/counterpart**

All four of these models allow you to overcome the limitations of the current state models. Selecting the best fit for your company will depend on a Manufacturing Digital Transformation Strategy and a rigorous analysis of OT needs, requirements and complexity, OT maturity, company culture and more.

So where do you start? In creating the evaluation framework, we identified three critical factors that drive the methodology:

START WITH WHAT YOU'VE GOT

Take a close look at your current IT and OT setup. What do your teams need to succeed? What's already working well? Keep those strengths in mind as you think about evolving your structure.

THINK ABOUT YOUR BUSINESS REALITY

Your unique locations, budget and existing skills all shape what's possible. The right model should fit your unique context, not fight against it.

LET TECHNOLOGY HELP YOU MOVE FASTER

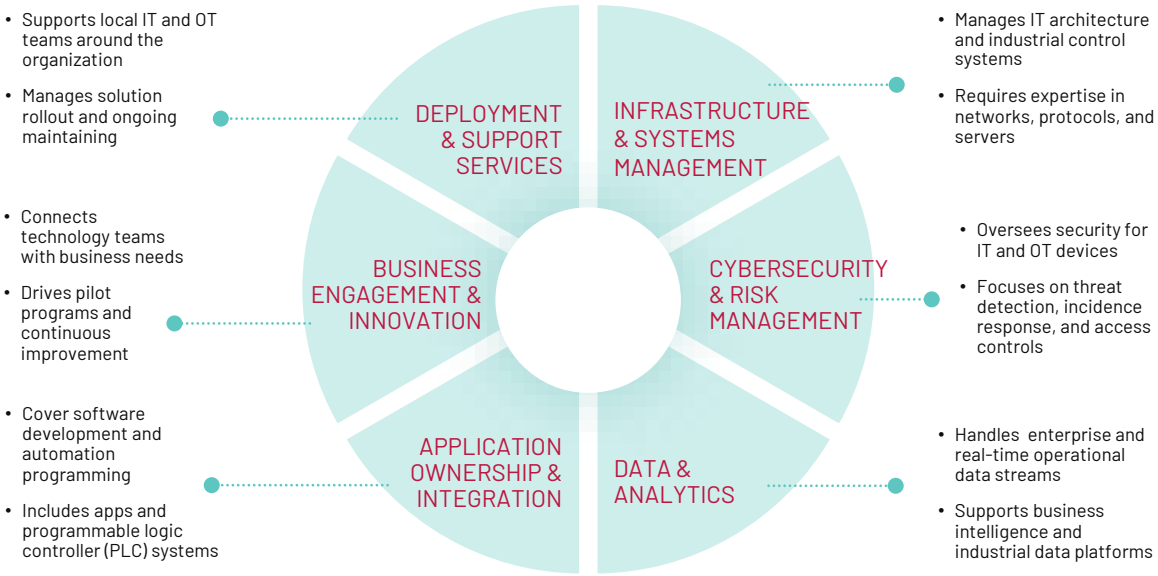
Digital tools and artificial intelligence can not only streamline tasks, they can also help you rethink roles, skills and how your teams work together. Make sure your future structure leaves room for that evolution.

Designing Your Future IT/OT Organization

Bringing IT and OT together isn't easy. Even with a clear vision, it's one of the toughest challenges tech leaders face. To make it work, you need a structured approach, starting with how your teams are set up today, and what strengths you want to carry forward.

Foundation: The IT/OT Competency Model

Before you dive into org charts and reporting lines, take a step back and define the core capabilities your future IT/OT organizational will manage. Most team responsibilities fall into these six domains :



Before designing a future structure, inventory your current capabilities across these six domains, and identify any additional critical responsibilities that need to be managed by the newly merged organization. This mapping exercise creates a comprehensive view of what capabilities exist, where gaps persist, and how current functions support business priorities.

Modern industrial organizations typically require capabilities spanning real-time monitoring, predictive maintenance, quality assurance systems, supply chain integration, and safety system management. Evaluate each capability for its current maturity level and strategic importance to future business and technology objectives.

STEP 1:
Understanding Current Personas and Responsibilities

Effective organizational design starts with persona analysis. To build a future OT/IT model that works, you must first understand the roles, needs and challenges of current stakeholders. Focus on those who interact most frequently with your IT/OT systems. Their input will shape the adoption approach and ultimately dictate success. Here are some examples of the types of roles important to analyze.

IT-FOCUSED PERSONAS

ENTERPRISE/SYSTEM ARCHITECTS

- 70% of their time engaging with IT and OT systems
- Focus on integration, scalable architectures, and cybersecurity
- Often face challenges from legacy IT and OT systems and resistance from localized teams

NETWORK ENGINEERS

- 80% of their time on IT/OT activities
- Design and maintain secure, segmented infrastructure
- Value proven, reliable tech
- Face challenges with protocol mismatches and limited visibility into OT traffic

APPLICATION DEVELOPERS

- 85% of their time on IT/OT integration
- Develop apps and dashboards for operational data
- Agile and accustomed to iterative development
- Struggle with limited OT testing access, inconsistent data, and shifting stakeholder needs

OT-FOCUSED PERSONAS

CONTROL SYSTEMS ENGINEERS

- 90% of their time on IT/OT tasks
- Design, program, and maintaining industrial control systems
- Prioritize safety and reliability in automated processes
- Favor proven solutions with strong documentation and change control
- Face challenges with system integration, limited update windows, and the vendor complexity

PLANT OPERATIONS MANAGERS

- 25% of their time on IT/OT interactions
- Focused on improving visibility without slowing down operations
- Favor real-time monitoring and predictive analytics

MAINTENANCE PLANNERS/TECHNICIANS

- 35% of their time interacting on IT and OT systems
- Drive predictive maintenance and manage mobile workforce tools
- Struggle with limited access to OT equipment and existing integration configurations

HYBRID PERSONAS

DATA ENGINEERS

- 55% of their time on IT/OT integration
- Design and implementing data pipelines from OT to IT systems
- Building data lakes and analytics platforms that support AI, with emphases on data quality and accessibility
- Prefer cloud-based technologies, but they struggle with inconsistent OT data and accessibility with cybersecurity requirements

CONTINUOUS IMPROVEMENT LEADS

- 40% of their time on IT/OT activities
- Use data to spot improvement opportunities and track results across IT/OT environments
- Favor automation-driven solutions and analytics
- Struggle to balance quick wins with longer-term technology initiatives

STEP 2:

Assessing Time Allocation Technology Opportunities

New technology can significantly reshape how these personas allocate their time. Automation platforms, for example, can shift Control Systems Engineers from reactive maintenance to proactive optimization. Similarly, integrated monitoring platforms can free Network engineers from constant troubleshooting, allowing them to focus strategic planning.

Technology investments should explicitly target time reallocation opportunities that align with business strategic objectives.

Before finalizing a new IT/OT organization model, assess in-flight technology initiatives that may shift responsibilities. Map these changes to understand staffing impacts, skill development needs and which personas will have capacity to support future technology objectives.

STEP 3:
Defining Critical Workflows

With persona understanding established, it's time to map the critical processes the new IT/OT organization will support. These can vary by organization, but broadly fall into several categories:

IT/OT STRATEGY & EXECUTION

Defines the organization's IT and OT strategy and aligns it to business and technology objectives. These workflows create and track performance metrics and report on progress across domains.

INCIDENT RESPONSE & RECOVERY

Coordinates response to IT outages and OT failures, adapting protocols based on urgency and business impact.

SYSTEM MONITORING & MAINTENANCE

Combines enterprise security with industrial control system monitoring, enabling proactive maintenance, vulnerability detection, and standard-setting.

SOLUTIONING & DEPLOYMENT

Manages intake, prioritization, solution design, and rollout of new technology, overseeing pilots and deployment to the broader organization.

DATA INTEGRATION & ANALYTICS

Handles real-time data processing and continuously improves IT and OT solutions to address emerging challenges.

VENDOR MANAGEMENT & PROCUREMENT

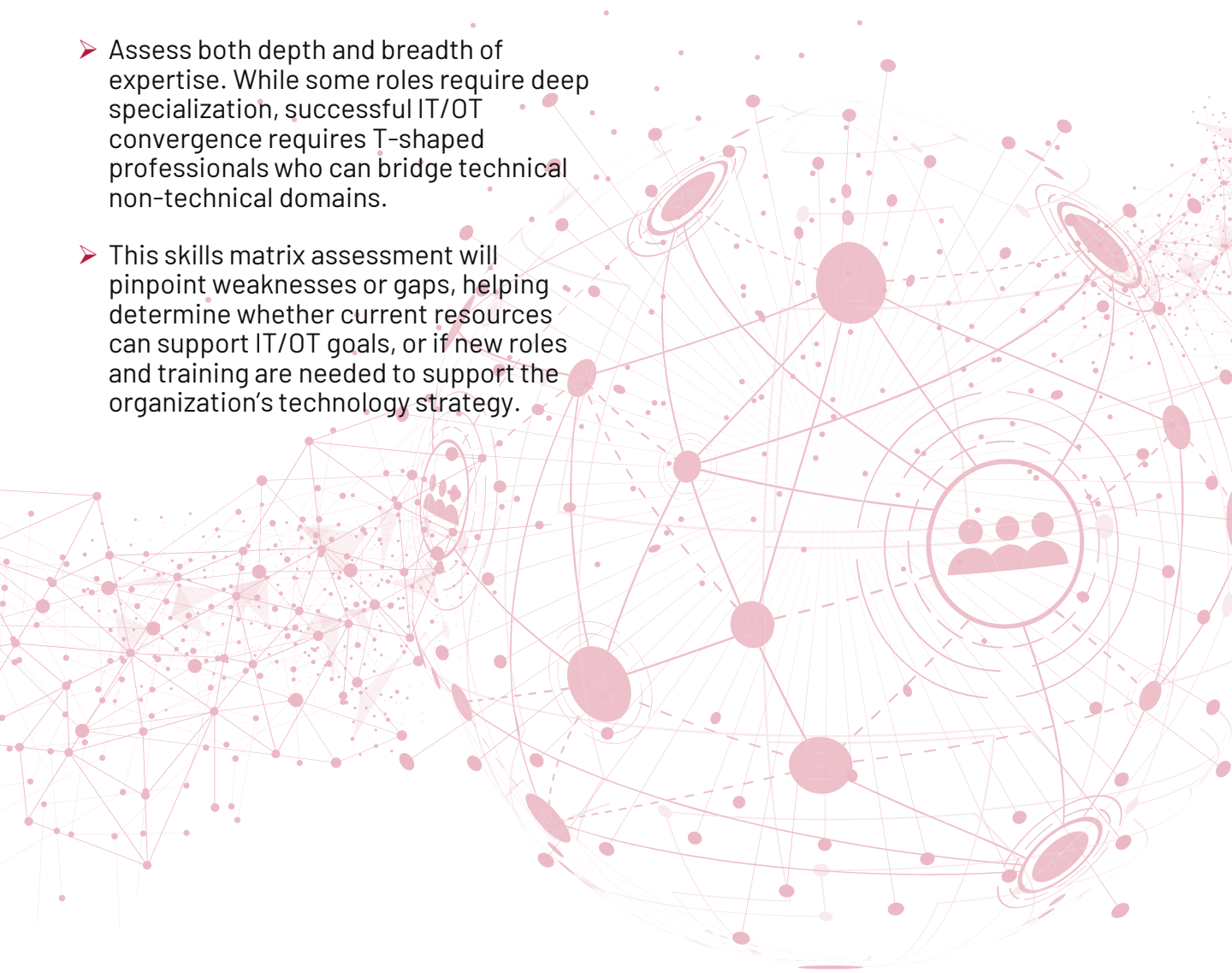
Manages commercial software licensing and industrial equipment procurement, maintaining a list of approved IT/OT suppliers.

These identified critical processes will form the basis of your newly designed IT/OT organization, setting the standard for how members will communicate and collaborate to perform critical responsibilities.

STEP 4:
Skills Matrix and Gap Analysis

With a clear view of personas and future processes, it's time to build a skills matrix to map current capabilities to what's needed, across both technical skills (industrial protocols, programming languages, security frameworks) and soft skills (cross-functional collaboration, communication, compliance management).

- Assess both depth and breadth of expertise. While some roles require deep specialization, successful IT/OT convergence requires T-shaped professionals who can bridge technical non-technical domains.
- This skills matrix assessment will pinpoint weaknesses or gaps, helping determine whether current resources can support IT/OT goals, or if new roles and training are needed to support the organization's technology strategy.



STEP 5:

Tailoring Your IT/OT Structure to Your Organizational

There's no one-size-fits-all model. Your ideal organizational structure depends heavily on company-specific factors including size, capital access, location, and existing capabilities.

Size and Capital Considerations

LARGE ORGANIZATIONS

(1000+ employees) can typically support specialized IT/OT integration teams with dedicated roles for governing critical processes. They have resources for comprehensive training programs and can develop or attract specialized talent to reside within their new IT/OT organization.

MID-SIZE ORGANIZATIONS

(100-1000 employees) often benefit from hybrid roles where individuals span both IT and OT responsibilities, often covering multiple critical processes. Skills development should focus on developing versatile team members and leveraging external partnerships for specialized capabilities.

SMALL ORGANIZATIONS

(<100 employees) typically require multi-skilled individuals who can handle diverse IT/OT challenges. They should prioritize vendor-managed services and standardized solutions that limit internal complexity or configuration.

Size and Capital Considerations

Organizations in major metropolitan areas typically have access to diverse talent pools and can recruit specialists in both IT and OT domains. Similarly, globalized organizations, or organizations not dependent upon a specific location can benefit from wider talent pools. Rural, specialized, or localized industrial locations may need to focus on developing existing talent, leveraging remote work arrangements, or searching for external partnerships to access specialized IT and OT skills.

It's important to assess your competitive position in the talent market and adjust your organizational design accordingly. Some may benefit from hybrid arrangements with shared service centers, while others may need to simplify governance, limit locally managed processes, or tailor responsibilities to match available skillsets.

STEP 6:

Mapping Processes to Roles

Once your organization has defined its IT/OT structure, including key IT and OT processes and personas, it's time to assign roles. Every identified critical process should be clearly mapped to specific roles and teams, with a defined reporting structure and allocation. For individuals sharing multiple processes, it's essential to clarify how their time is split across responsibilities, based on availability and persona analysis.

Guiding Principles for Organizational Process Mapping

These steps ensure your structure isn't just theoretical, but also operational. They connect strategy to execution and set the stage for future transformation.

1

Limit role overload. No single resource should own more than three categories of critical processes. Stretching responsibilities too far dilutes expertise and weakens execution.

2

Respect time constraints. If a resource is required to perform more responsibilities than they have available time, the process will suffer.

3

Clarify role accountability. Define how each resource is involved with a process (responsible, accountable, consulted, or informed). Each role carries different time and engagement demands.

CONCLUSION:

Successfully designing a joint IT/OT organization starts with a clear-eyed assessment of current capabilities and resources, a deep understanding of critical workflows, and thoughtful consideration of company-specific realities. Organizations that invest in this structured approach will be better positioned to build and scale digital capabilities while maintaining operational excellence.

But success doesn't stop at launch. The most resilient IT/OT organizations build in mechanisms for continuous improvement and adaptation. As technologies evolve and business needs shift, so too must the organizational model, core functions, and digital skillsets that support them. Organizations that build adaptability and innovation into their foundational design will achieve sustainable operational efficiency stemming in an increasingly connected industrial landscape.

By following this framework, companies can move beyond disjointed and largely ad hoc IT/OT collaboration toward a purpose-built structure that aligns strategy with execution, capabilities with business imperatives, and people with processes that drive value. ***The result is a future-ready organization positioned to thrive in the converged digital and operational technology landscape.***

Ready to act and position your organization for the future? **We can help.** From strategy to change management, let's maximize adoption and support for success.

About Kalypso

Kalypso, a Rockwell Automation business, helps companies bring digital solutions to product problems. Whether it's weaving a digital thread from product ideation all the way through manufacturing and service, or advancing operations from automation to autonomy, Kalypso specializes in improving what's being made and how it's made. Kalypso serves the largest names in the discrete, hybrid and process industries, around the world. Visit our website to learn more about Kalypso and our services.

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