Digital Transformation Requires a Commitment to Automation

Digital transformation requires a focus on agility, innovation, and the end customer; as well as for infrastructure leaders to strike deeper partnerships with lines of business leaders around business outcomes they care about.
Digital transformation will fail without a commitment to automation – what AHEAD refers to as Relentless Automation. With the advent of public cloud and all of its promise, along with the ripple effect from the DevOps mantra of “automate everywhere”, technology teams must spin up new infrastructure, maintain configurations, and set up and tear down environments much faster than ever before.

Of course, no one should automate for the sake of automating, or to simply be ahead of the curve. But while not every activity warrants automation - whether due to the complexity and nuance of the task, or its infrequent occurrence - Relentless Automation means identifying those tasks and processes where the benefits of automation outweigh both its upfront and recurring costs.

Thankfully, the business benefits of standardizing and automating IT work are easy to spot:

> Freeing up staff for higher value work
> Reduction in errors and process variability
> More auditability and accountability, helping lower operating risks
> Faster execution

In addition to allowing work to be completed faster, automation takes repetitive tasks out of human hands, allowing those humans to focus on higher value, meaningful work. That more meaningful work will likely include the very transformation work you’re trying to affect in the first place.
Automation is Still Not a High Priority

54% are not automating continuous configuration management
49% are not applying automation to network management
40% are not fully automating incident response
37% are not fully automating scripts across their infrastructure

(Source: Gartner)
What’s Holding Back Automation?

According to a recent study of enterprise Infrastructure & Ops leaders, automation is still not a high priority. Fifty-four percent of respondents said they’re not automating continuous configuration management, while 49% were not applying automation to network management. More surprising, 40% were not fully automating incident response, and 37% not fully automating scripts across their infrastructure.

What about a hot button issue like security? In a survey by security specialist Everbridge, 90% of companies surveyed had invested in a ticket management system, but the time it took them to begin investigating a majority security incident after it was classified as such, was on average 27 minutes. The study found that the greatest inefficiencies in incident response was a lack of automation.

The reasons why automation is both behind, and difficult to pull off, can be explained by a chain of attributes describing the typical large enterprise IT department (see Figure 1.)
FIGURE 1
Reasons Why Automation is Lacking
**Complex, Bespoke Environments**

Too many organizations still don’t treat infrastructure as a resource pool - because it’s complicated. The infrastructure and operations teams depend on developers to tell them where they need the database, where to add the servers, and how large they should be. Usually these are one-off requests. Those resources should go back into the pool when the need is complete, but too often they linger as property of the dev team. A pooled approach requires standardization and rules, which are prerequisites for automation - no one can automate a bunch of unique resources.
A Suboptimal Focus on Task Automation

Most IT shops have progressed more with task automation than orchestration or process automation, due to the complexity of the latter and the former being seen as low hanging fruit. But when you combine a task automation focus with heavily custom environments, you find inefficient task hand-offs. For example, a network administrator may need to provision an IP address which is then sent to a server administrator for the virtual machine creation. Each of these tasks may be automated by themselves but fragmented automation like this can increase costs, because multiple tools are being used in ad hoc ways to address narrow tasks.
**Automation Tool Sprawl**

A side effect of bespoke environments and task automation is tool sprawl. According to Gartner, through 2022, 80% of infrastructure and operations teams will continue using more than 10 different tools to automate their operations environments. Automation features exist in a variety of management tools, but they don’t often play nice with each other, creating a need for more service orchestration functions. Once again, overall costs can actually increase in these cases because of automation - not a strong selling point to the CIO.
No Mandate or Strategy

As a result of the complexity, low-level task focus, and tool sprawl, we see a lot of inertia with respect to automation. A typical mindset can be, “I know we can do it faster, but right now we’re getting it done in a day, and that’s good enough for our internal customers.” Think of how quickly those “good enough” views can add up in an enterprise IT department. The cumulative inefficiencies can be staggering. We’ve found that many organizations lack a mandate, and therefore struggle in determining where and how to apply automation.
Understanding the Automation Landscape: Service Versus Task

There are many automation tools designed to work at either the task level - specific, well defined technical steps in one domain - or the service level, which is orchestrating the delivery of multiple tasks across different IT domains. Before considering a strategy for Relentless Automation, consider the differences between the two.

- **Task Automation**: These are highly technical tasks, frequent and repetitive in nature, and usually limited to one domain (e.g., network configuration.) Tools in this category use scripting for core IT tasks like provisioning, configuration, patch, change management, compliance and life cycle management.

- **Service Orchestration**: This category represents a collection of tasks within and across domains required to provision, configure and maintain broader IT service. Tools in this category coordinate the work of multiple tasks to deliver services like application releases, container management, or cloud management.
Relentless Automation Can Increase Quality and Speed with Lower Costs

Without a formal strategy and roadmap, your organization won’t realize the efficiency and productivity savings from automation. AHEAD created the Relentless Automation framework to help guide your efforts to first standardize, then automate at the task and service level, in a way that reduces automation tool sprawl.

We identified three zones where relentless automation must apply, each including a continuum of task automation up to service orchestration (see Figure 2.) Each category is further decomposed into components that deliver domain-specific services through automation. These components are outlined in the section that follows.
FIGURE 2
AHEAD Taxonomy for Relentless Automation
Enterprise Cloud Infrastructure & DevOps

Use of rules-based automation to provision infrastructure faster and more efficiently from a resource pool, plus the use of automation to align the Dev and Ops pipelines and support more continuous development on your infrastructure across public and private.

SAMPLE COMPONENTS

- Environment provisioning & configuration management
- DevOps pipeline automation & integration
- Cloud services enablement & delivery

As a developer, I need access to the latest approved OS images

As a developer, I need the ability to lay down my own configurations within a configuration management tool

As a developer, I need a new environment including server and storage

SCENARIOS
Monitoring & Operations

Use of automation to improve general IT hygiene, for instance, reclaiming resources from development after a batch process or auto-scaling event has completed, or automatically deploying the most recent patches the next time a resource gets deployed for a developer.

**SAMPLE COMPONENTS**

- Alert response, i.e., security patching
- Incident identification, i.e., application performance
- Logging remediation, i.e., server reboots

**SCENARIOS**

As an application owner, I need to know when specific thresholds are met responding with an action

As a security analyst, I need to know when a component in the environment is out of compliance and respond with an action

As an infrastructure service owner, I need to know when my resources are hitting a threshold so I can respond with an action
Workflow & Governance

Use automation to ensure changes are audited, and services ranging from incident routing and response, to aspects of demand management and prioritization are supported by automation where possible.

**SAMPLE COMPONENTS**

- Standard change approvals
- CMDB adoption
- Cost management

**SCENARIOS**

- As a process owner, I need to integrate with the change process and release events to understand the change success rate.
- As a CMDB owner, I need to ensure accurate attributes are captured throughout all provisioning workflows.
- As a budget owner, I want to understand the cost of specific services based on resources used and length of lease/duration time.
As with all of our Digital Delivery Platform imperatives, AHEAD created a 5-stage maturity model to help guide Relentless Automation journey and monitor your progress. Consider this a high-level roadmap.
STAGE 0
Reactive

Demand for IT services are not well understood and unmeasured. Customers do not have a well-established method of requesting services nor an understanding of status. The fulfillment is performed ad-hoc without a focus on service level agreements.

- Requests are obtained from a multitude of sources
- Service fulfillment processes are inconsistent from team to team
- Process documentation is either incomplete or lacks rigorous versioning
- Difficult requests typically filter to specific individuals with a track record of assisting
- Tooling is procured ad-hoc by individual teams without a strategy or direction
- Automation is narrow and untested for consistency
STAGE 1

Focused

IT is aware of existing automation limitations with active initiatives to improve service delivery in pockets. There is a formal method of requesting services in the organization, however, not followed or enforced completely. Limited processes and tools, and reactive with high dependency on an individual’s knowledge. Defined and repeatable IT capabilities, possibly with consistent results:

› A formal request form is in place with qualifying questions to properly route
› Documentation exists for all common services with pieces of the tasks automated
› There is a recognition that tooling is inconsistent and formal processes for procuring have been put in place
› Automation coding is inconsistent and not properly stored, versioned or approved
› Focus is on definition of capabilities; multiple IT capability improvement efforts underway which may or may not be coordinated
STAGE 2

Established

IT has a formal approach to processing service requests with an automated triage capability. Workflow milestones are measured for visibility into completeness. Tasks to complete services are well understood with a gap analysis on which automation has not been completed. IT is perceived as a more proactive organization.

› At least one primary IT Service has been automated and can be requested via a catalog experience
› Automation backlog established with prioritization placed on items either by demand or highest value
› Tooling is standardized as well as the process for code management across all teams
› Integration into broader services, like DevOps, still remain incomplete or inconsistent
› The vision for automation has been agreed upon by impacted teams but not communicated to business partners
STAGE 3

**Accelerated**

IT is actively delivering new services based on input from the business. Service levels and quality metrics are being captured and improved upon using continual service improvement methods.

- IT has a published catalog of services available to all business units
- Over half of the major IT services have been automated and measured by quality and consistency
- Developers have integrated the standard tooling into pipelines with defined outcomes
- Established focus on process excellence and execution but KPIs are IT-centric
Mature continuous service improvement program underway with an established cadence for enhancements. IT service prioritization is aligned directly with business initiatives pivoting as necessary.

- Full suite of IT services has been automated providing a direct impact to business outcomes
- Service offerings have multiple options to ensure the use case is delivered using automation
- Developers and IT have focused teams to deliver applications and software in the most agile way using metrics as performance indicators
- Every IT service has comprehensive documentation and adoption of standardized processes with seamless integration
- Focus on value realization with relevant measures of performance and contribution for the business
Questions to Ask Yourself to Establish an Automation Baseline

1. Where are you experiencing business issues as a result of a lack of automation, using the following as guides:
   - Cost overruns
   - Process inconsistencies or lack of quality
   - Operating risks
   - Inflexibility
   - Slow to change

2. What is preventing your organization from automating more?

3. Do you have the right foundation of standards, people, and process on which to automate? If not, why?

4. Catalog your progress, potential, and barriers that you’re experiencing in these automation zones:
   - Infrastructure / system automation
   - Operations
   - Application Development
   - Service Delivery
   - Enterprise Service Management
Jumpstarting Your Relentless Automation Journey

Below we outline four year-1 activities that are crucial to a relentless automation strategy and roadmap. You will be successful if the following criteria are met after these four activities:

- There’s a complete and shared understanding of your automation priorities and expected outcomes from across IT leadership and key business stakeholders.
- Discovery sessions have been conducted to capture current state and baseline metrics as they pertain to automation maturity.
- A roadmap for traversing the Relentless Automation maturity model is developed and agreed upon.
- Dedicated team(s) have been established to focused on automation and improve service offerings with defined scope.

Principles of Relentless Automation

- Self-service
- Tools and Process Standardization
- Capacity Management
- Cost Visibility
- Lifecycle Management
- Shared Infrastructure
- Integration-Focused
Our Expertise Sets Us Apart. Our Passion Puts Us AHEAD.

ACTIVITY 1

Visioning Workshop & Strategy

The Visioning Workshop would be an opportunity for AHEAD subject matter experts to meet with your executives to better understand existing pain points and insight into business initiatives. AHEAD would identify and correlate initiatives to IT capabilities including speed, cost, quality with a focus on opportunities to automate critical services.
ACTIVITY 2

Assessment & Maturity Evaluation

At start, we would work closely with your key stakeholders to understand existing automation capabilities across AHEAD’s Relentless Automation taxonomy. Interviews and discovery will provide insight into high value areas to begin or continue an automation journey. A maturity evaluation will be the artifact reviewed with the client to develop consensus on next steps and priorities.

- Interviews with key stakeholders
- Assessment based on Relentless Automation principles
- Maturity score for each Automation Zone and service area
- Define planned and unplanned demand
  - Developer requests and application strategy
  - Incident overview and ticket categorization
  - ITSM integration and workflows, e.g., Change Advisory Board
  - War Room methodology, i.e., environment fragility
ACTIVITY 3
Roadmap & Tools Rationalization

The assessment will provide clarity into the roadmap and features required by the business to meet desired initiatives. The refined focus will assist with identifying tooling gaps and opportunities for technical investments. If foundational services are needed in order to enable automation, those should be captured during this phase.

The roadmap will identify initial services to be developed by the core teams. Each service will have a baseline metric to be measured once introduced with automation.

The discovery will include an understanding of existing tools and the ability for integration to enable automation throughout the client’s environment. If gaps exist, they will be identified with a proposed remediation path. There may be capabilities that cannot be accomplished without introducing a tool.
ACTIVITY 4

Team Formation & Backlog Review

It is important to send work to focused teams based on the automation type taking advantage of skills, scope and service frameworks. Automation is the guiding principle for all three areas but is leveraged and adopted differently in each to maximize the value.

Once a roadmap is agreed upon, AHEAD would help staff the team members and drive the backlog review and prioritization. Each team will conduct a ‘formation’ sprint to align on tooling, coding practices, conduct value stream mapping and identify skills amongst the members.
A Widespread Effort Might Call for an Automation Center of Excellence

Key to the success of any automation strategy is an executive mandate, backed by clearly defined business goals. If you’re part of a large, complex enterprise, consider establishing an Automation COE with representation from across the three automation zones, or order to reinforce the mandate and its goals.

Team members should be tasked with a certain level of inspection in each of their own departments, but also crossing over into other departments, to identify areas where automation can make the most impact. The COE should be responsible for an automation architecture, tool selection, and the prioritization and ongoing review of the automation strategy. The ideal COE is one-part governance, one-part architecture and planning, and one-part glass breaking function. Empower them.
Relentless Automation is one of five imperatives that comprise the AHEAD Digital Delivery Platform.

The other imperatives are:
- Enterprise Cloud
- Intelligent Operations
- Integrated Security
- Scaled DevOps