Building a Scalable Automation Model for Organizations: a practical guide

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Current state of automation in most organizations

- Teams and/or persons automate on their own in isolation - solo hero works or nothing at all
- No governance, tribal knowledge -> very high "bus factor“
- Some curiosity found in individuals, perhaps also in management slides: "we need to do automation, I heard it’s the future!“
- Still deciding should the leap be made, uncertain of the future

How do we move from pockets of automation to a sustainable, scalable automation capability?

Automation maturity journey

— Has 4 stages:
  1. Ad-Hoc
  2. Coordinated
  3. Scaled
  4. Institutionalized

— Breaking point is between coordinated and scaled

— If you do not implement governance and standards, you will not reach the scaled part! This is where most organizations fail to fully commit to their automation journey

Aerial image by David Gunter / Flying Dog Inc.

Organizational automation model

Sustainable automation at scale

Structure

Clear ownership, Defined roles, Governance

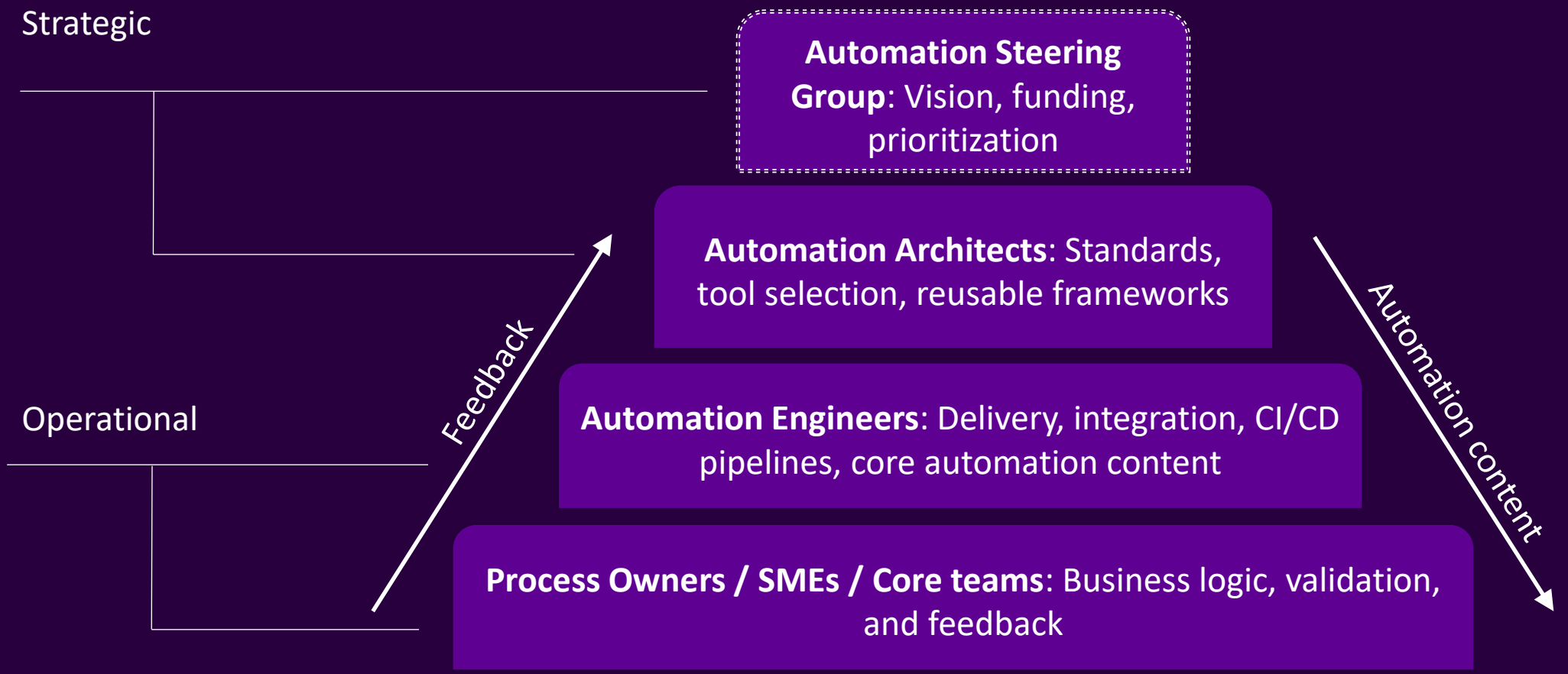
Collaboration

Shared workflows & Platforms, Version control, Review process

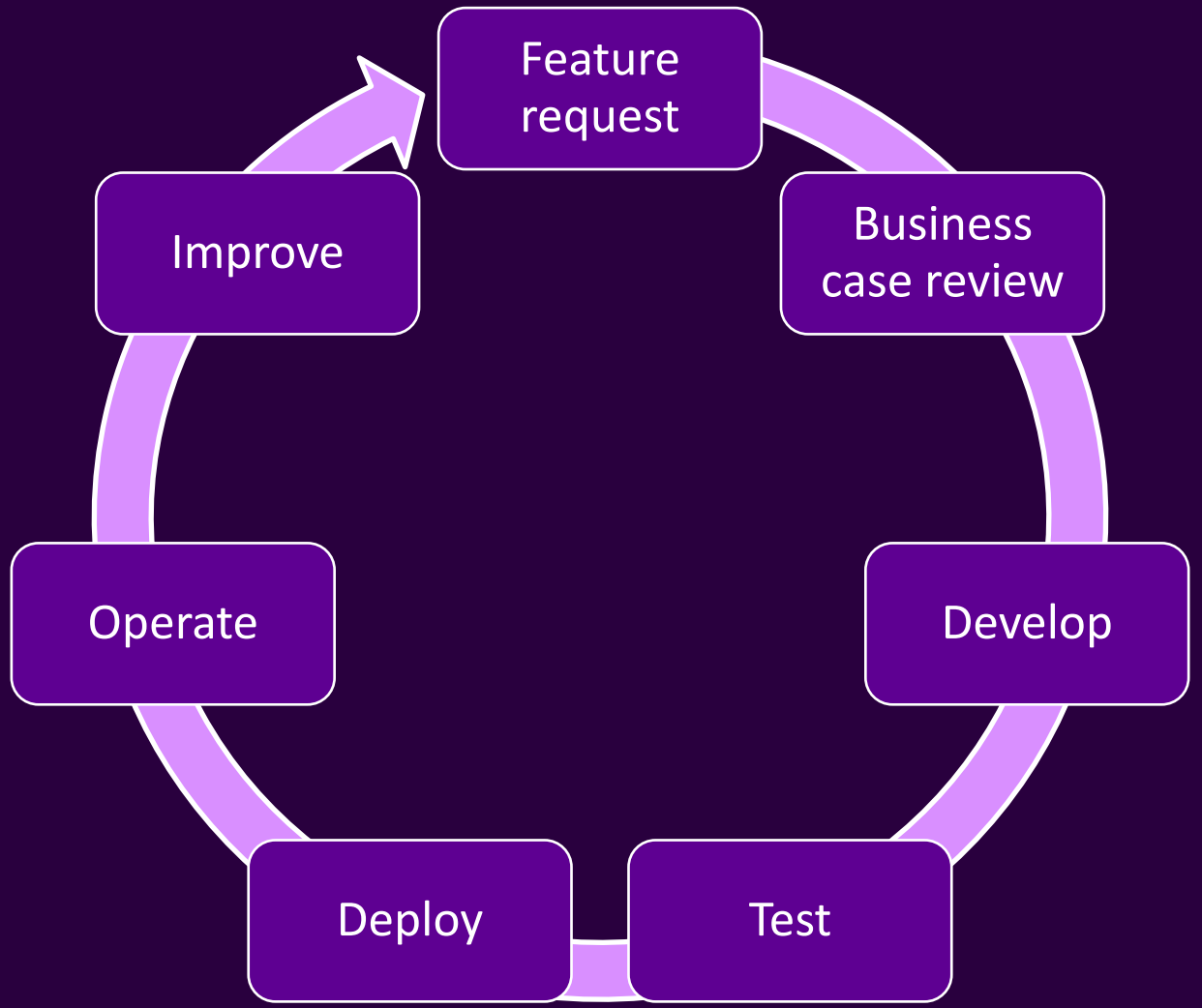
Practice

Testing, Standards & Best practices

Role model structure



End-to-end automation lifecycle



Ensuring scalability and manageability

Scalability

- **Modularity**. Ensure that the produced automation is easy to deploy and expand
- **Documentation**. Provide teams with clear and thorough documentation to guide them in producing and implementing automation
- **Deployment**. Ensure that the implementation of automation is consistent and repeatable

Manageability

- **Governance model.** Core team oversees all automation projects to ensure compliance with best practices
- **Versioning and updates.** Regural updates to automation based on feedback and evolving needs
- **Monitoring and reporting**. Establish systems to track automation performance and identify issues early

— As automation expands to the organizational level, it is critical to ensure that frameworks and automation remain scalable and manageable

Concrete steps for the organization's automation maturity journey

Stage 1: Get your platform setup

- Install AAP with the components you deemed necessary (most skip EDA at the start) into your test environment
- Get your Ansible lightspeed subscriptions for your automation developers
- Make sure you have a internal Git instance available for you
- Identify key persons that make up the core automation team:
  - Sysadmin for AAP (+git)
  - (Automation) architect
  - 1-2 additional developers
- Identify the first automation target and/or project

Stage 2: Baby steps

- Get your key persons acquainted to the environment and tools
- Train the key persons on how to develop automation:
  - Best practices on using Ansible
  - Good software development practices
  - What the tools available bring to the table
  - Asses your own environments automation capabilities

- At the end of stage 2, you should have successfully selected the first automation project and assigned development tasks to core team
- Core team should be able to develop the automation project successfully (possibly with external assistance) in test environment

Stage 3: Development is part of your work routines

— First automation flows are now in production

— Core team starts to become independent, no need for external help anymore

— New batch of people are onboarded and trained to become automation engineers

— First batch of production ready automation workflows are published internally for a company wide audience

Stage 3.5: Shifting the responsibilities

- By now the core automation team should depart from the automation engineers and form the automation architect team
- They should be focusing on select key areas:
  - implementing new automation areas:
    - Event driven Ansible
    - Infrastructure as Code with greenfield devices and environments
    - Compliance as Code
    - CI/CD pipelines (if not already implemented as part of your development workflow)
  - Set the best practices and standards of organization and the necessary training
  - Drive the (technical) vision of organizations automation capabilities in cooperation with the steering group

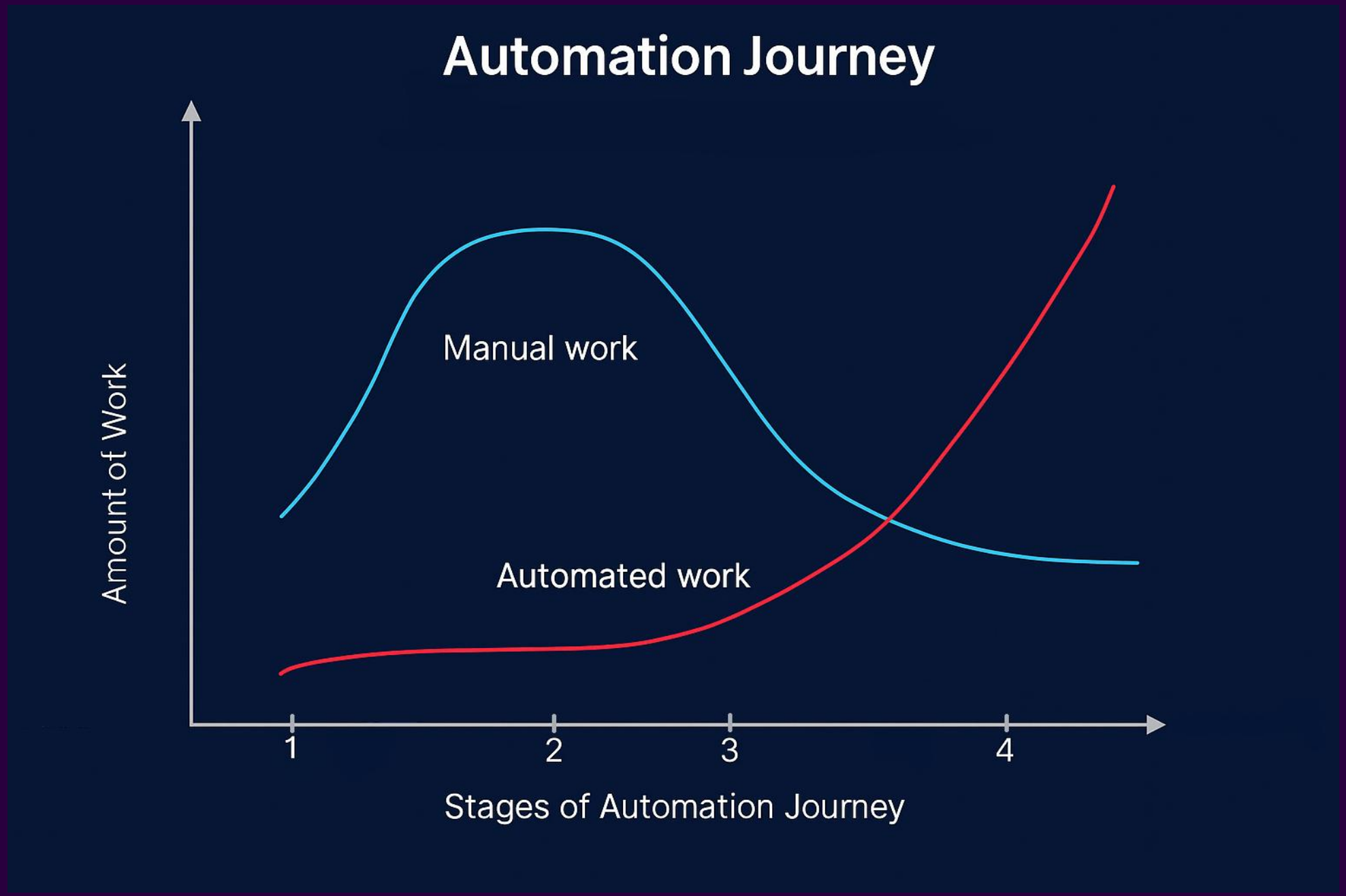
Stage 4: Institutionalize the automation

— All new deployments should be done with “automation first” mindset

— Old “bluefield” devices and services are being automatized where reasonable

— Automation culture is established in the organization from top to bottom

— Architect team implements new forms of automation described in previous slide


Automation Journey
Amount of Work
Manual work
Automated work
1
2
3
4
Stages of Automation Journey

The caveats

- This journey will not happen without necessary resources being allocated to it
- It is possible to bootstrap it when a couple of people work on it part time, but it is not feasible over a short period
- This is a big organizational change that won't happen overnight
- This journey depends greatly on the management:
  - Do you allow people to allocate their time to automation?
  - Do you provide training to them?
  - Do you create an automation-friendly working environment?

Any questions?

Thank you!