



England

Power Digital Public Services

Increasing Platform Adoption

March 2025



Challenges with a platform approach to building services/product

- Teams still often build their own versions ahead of using shared components/services
- Decision making whether to use a shared service was unclear
- Hard to achieve outcomes across services
- High variation in technologies used was causing excessive rewrites of services as suppliers change and higher cost for adopting platforms
- Often teams would agree to adopt service but repeated delay adoption by prioritizing features ahead of this work
- Guidance on which services to use often varied particularly where supplier staff were involved
- Lack of visibility on well run and less well-run products

Approach taken

- Created a set of guidelines for all teams to follow, these comprised
 - Engineering red-lines
 - Technology radar
 - Governance board to review exceptions and manage the guidelines
- Guidelines are to provide specific, unambiguous, and measurable targets for all teams
- Designed to let teams proceed within guardrails and know when to seek approval
- Focus on areas where convergence on a single approach / solution provides maximum benefit
- Provide better visibility of risk, by tracking non-compliance

Red Lines for Cloud / Infrastructure

Cloud / Infrastructure

Ref #	Red line	Related principles / patterns / etc
Cloud-1	<p>All new services must be developed on public cloud services, and:</p> <ul style="list-style-type: none">Accounts on AWS must be within the AWS Landing Zone in the NHS Digital AWS OrganisationAccounts on Azure must be within the NHSE-LZ-Root Management Group structure in the NHS DIGITAL Azure Tenant <p>Note: Crown Hosting is not considered "public cloud" in this context</p>	<p>Overproduction - building when you could reuse or buy principle</p> <p>Outsource from the bottom up pattern</p> <p>Cloud practices</p>
Cloud-2	<p>All services must be designed as Internet first - HSCN may be provided but only to support legacy connections.</p>	
Cloud-3	<p>All production environments must automatically scale down by at least 40% running cost from peak hourly usage to off-peak usage</p>	<p>Inventory — unnecessary resources principle</p> <p>Cloud practices: "services should scale automatically up and down", "infrastructure should always be fully utilised", etc</p>
Cloud-4	<p>Gold and platinum services must use zero-downtime blue/green deployments for all planned deployments</p>	<p>Deployments pattern</p>
Cloud-5	<p>Disaster recovery: Gold and platinum services must test (in isolation) a full restore from production backups of code and data at least every 24 months, i.e. a complete rebuild of the system on a new account, separate to the production system, in order to test that the system can be recreated following scenarios such as total account loss</p>	



Red Lines for Shared Services

Using Shared Services

Ref #	Red line	Related principles / patterns / etc
Reuse-1	NHS notify must be used for any physical or digital communications for communication to citizens. Currently there is no equivalent service for staff.	Overproduction - building when you could reuse or buy principle
Reuse-2	The single source of truth for demographic details must be PDS, no address or contact detail overrides can be captured outside of PDS	Overproduction - building when you could reuse or buy principle
Reuse-3	Citizen facing services requiring user authentication must use NHS login authentication – note: Proxy access is a known exception, which is not currently supported by NHS login	Overproduction - building when you could reuse or buy principle
Reuse-4	NHS staff facing services requiring user authentication must use CIS2	Overproduction - building when you could reuse or buy principle
Reuse-5	Teams must consult with the FDP/CDP teams in Data & Analytics where a data analytics platform is required: this includes when joining multiple large datasets together for analysis. Teams must not build additional analytics platforms, though can and should use cloud-native tools such as AWS Athena for simple data analysis.	Overproduction - building when you could reuse or buy principle
Reuse-6	All national cohorting generation must be performed by Cohorting As A Service	



Technology Radar

- **Mainstream** tools need no approval
- **Avoid** require deprecation plan
- **Contain** means no new usage
- **Proposed** are in pilot and need prior approval to use

Tech Radar - Engineering

Build tools

MAINSTREAM

1. Azure DevOps Pipelines
2. Docker
3. GitHub
4. GitHub Actions
5. Jenkins (Pipeline)
6. Kubernetes
7. make
8. Maven
9. npm (JS/TS)
10. NuGet (.NET)
11. Poetry (Python)
12. Terraform
13. VS Code
14. WSL (on a workstation)

CONTAIN

25. Ansible
26. Ant
27. AWS CDK
28. AWS CodeBuild
29. AWS CodeCommit
30. AWS CodePipeline
31. Chef
32. CircleCI
33. GitLab (CDT)
34. Gradle
35. Packer
36. pgAdmin
37. Puppet
38. Vagrant

PROPOSED

15. Amazon CodeWhisperer
16. AWS SAM
17. CloudFormation
18. Concourse CI
19. Expo Application Services
20. GitHub Codespaces
21. GitHub Copilot
22. Google Gemini Code Assist
23. Pulumi
24. Travis CI

AVOID

39. Azure DevOps Repos
40. GitLab (self-hosted)
41. SVN
42. Team City
43. Team Foundation Services
44. Visual SourceSafe

Test tools

MAINSTREAM

63. AWS FIS
64. BrowserStack
65. Cypress
66. JMeter
67. Locust
68. Postman
69. Selenium

CONTAIN

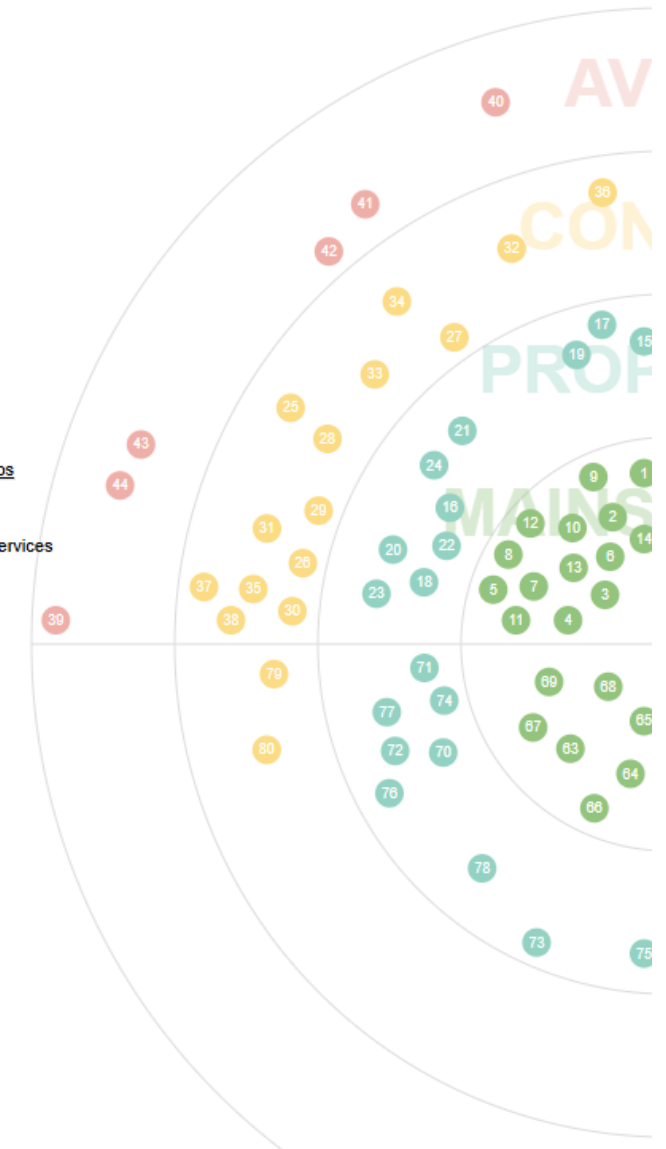
79. Axe
80. Karate

AVOID

81. Neoload

PROPOSED

70. Eggplant
71. Gatling
72. Guidedpup
73. Pa11y
74. Playwright (cross-browser)
75. Playwright (ui)
76. Siteimprove
77. Wave
78. Wiremock OSS



Benefits

1. Benefits for NHS England:

- Reduce risk: secure, reliable, highly-available services
- Reduce ongoing costs: efficient practices, reduce reinvention & promote reuse
- Help give delivery managers a view on engineering maturity/quality of their services
- Ability to deliver value to our users rapidly and incrementally
- Help track areas of concern and provide a framework for prioritizing remediation
- Help manage the risk of engineering teams with large ratio of supplier staff and help reduce work when transitioning suppliers
- Better manage the risk tech risk from legacy technology or new unproven technologies

2. Benefits for engineers:

- Reduce toil, e.g. by automating manual processes
- Reduce toil, e.g. by being bootstrapped with best-of-breed tools
- Use of best-practice ways of working
- Help reduce friction between NHSE and supplier staff via clear engineering expectations



Governance

- Governance is provided by the Engineering Board
 - Changes to the list of red lines
 - Exceptions to the red lines
- Exceptions are tracked and include a review date
 - Reviews of exceptions will consider any additional support that may be required to achieve the red line
 - The engineering profession will support teams to meet the red lines

Compliance

Project	<div>Cloud-1</div> <div>Cloud-2</div> <div>Cloud-3</div> <div>Cloud-4</div> <div>Cloud-5</div> <div>Cloud-6</div> <div>Cloud-7</div> <div>Cloud-8</div> <div>Reuse-1</div> <div>Reuse-2</div> <div>Reuse-3</div> <div>Reuse-4</div> <div>Reuse-5</div> <div>Reuse-6</div> <div>SDLC-1</div> <div>SDLC-2</div> <div>SDLC-3</div> <div>SDLC-4</div> <div>SDLC-5</div> <div>SDLC-6</div> <div>Soft-1</div> <div>Soft-2</div> <div>Soft-3</div> <div>Soft-4</div> <div>Soft-5</div> <div>Soft-6</div>																											
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