Co-create

Co-operate

Co-execute

Advise

Move

Manage

Build

Discover

Envision

Learn

Culture

Develop

Operate

Reason

IBM **Garage Method** for Cloud

Field Guide

IBM.

Download the current version of the
IBM Garage Method for Cloud Field
Guide

https://ibm.biz/garage-method-cloud-field-guide

$\downarrow$

Transform to innovate and scale

Cloud is more than a set of technologies. You can't separate using cloud technology from the organizational, cultural, and process transformation needed to use those technologies to drive desired business outcomes.

TRANSFORM YOUR BUSINESS AT SCALE

To meet that challenge, a prescriptive approach is needed, based on industry best practices and IBM® experience in cloud and transformation, to guide you through the changes needed to best take advantage of the cloud. That is what we provide in the IBM Garage Method for Cloud.

What's inside?

This field guide provides a high-level overview of the IBM Garage Method for Cloud.

LEARN IT
A summary of the method's concepts

GET STARTED
Tips to engage with the practices and workflows

What's your goal?

It starts with a business opportunity and your desired outcomes. Then you need to identify the technology and processes to deliver with speed, agility, and scale.

WE CAN HELP!

Adopt best practices. To evolve from waterfall to continuous delivery and become agile along the way, you must combine industry-proven best practices with your own experience and knowledge, and then run at scale.

Implement proven workflows. Combine practices that work together to achieve an outcome.

Shift the culture. Adopting new technologies like cloud and getting the most out of them is complex, but worthwhile. Accelerate delivery and adopt iterative development to reduce time to value. Focus on shifting the culture and mindset of your organization.

⊕ **Learn more**

Check out the IBM **Garage Method for Cloud.**
https://ibm.biz/garage-method-for-cloud
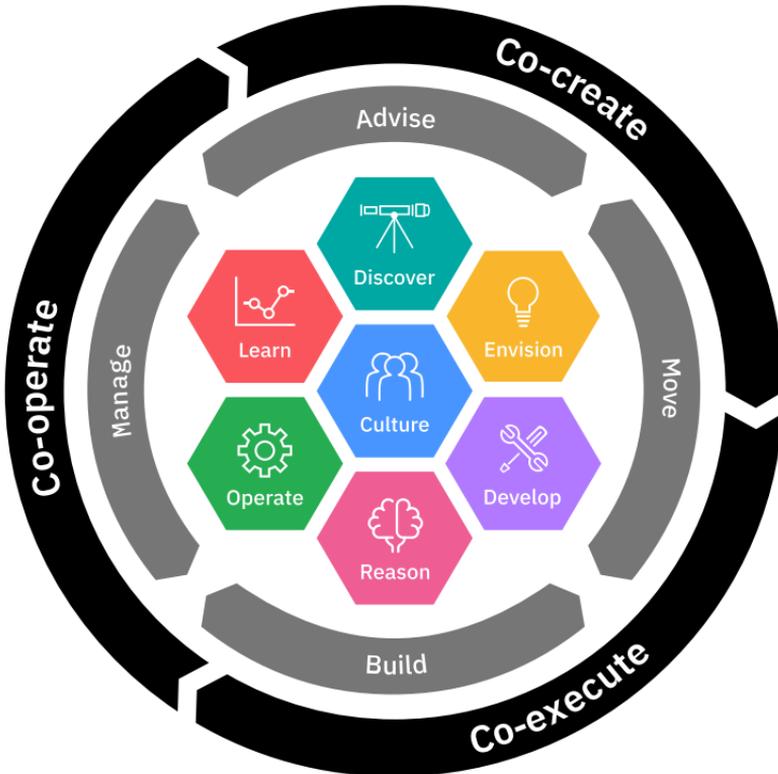
IBM provides the IBM Garage Method for Cloud, a prescriptive approach based on industry best practices and IBM experience in cloud transformation. The method guides you through the changes and tools needed to take advantage of the cloud.

IBM Garage Method for Cloud

The themes, workflows, and practices cover the entire software delivery lifecycle from inception through operations, including capturing and responding to customer feedback and market changes.

Themes. Achieve your cloud transformation goals by following prescriptive pathways: Advise, Build, Move, and Manage.

Workflows and outcomes. Workflows arrange the practices used from start to finish to satisfy an overall objective. Each workflow includes a prescriptive set of practices used to meet your desired business outcome.

Activities and practices. Define an overall business goal and describe activities that you and your team can implement to reach that goal. The practice collections are: Culture, Discover, Envision, Develop, Reason, Operate, and Learn.

⊕ **Learn more**

Check out the IBM Garage Method for Cloud.
https://ibm.biz/garage-method-for-cloud

Themes

workflows

Activities

Practices

Outcomes
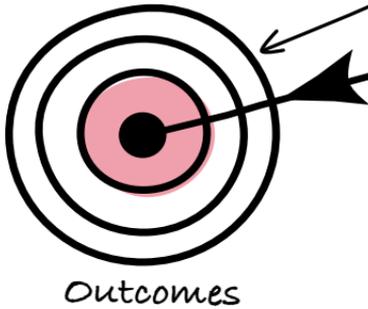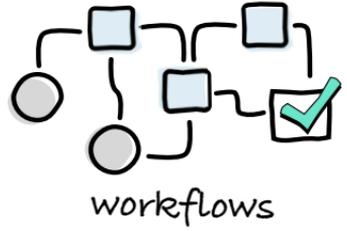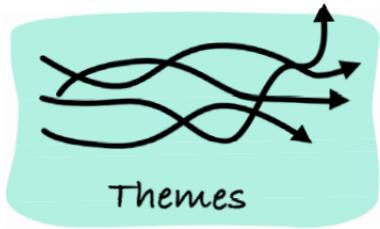
A prescriptive approach from start to finish.

Themes

IBM Garage Method for Cloud has several themes that are entry points focused on your goals. Select the theme that is most closely aligned with your business goals.

THEMES ARE THE ENTRY POINTS

Advise. Determine how to achieve your business goals. Drive innovation through successful hybrid cloud adoption including, technology modernization, rationalization, remediation, and migration to cloud.

Build. Create cloud native applications. Follow an Enterprise Design Thinking approach for development to build applications using polyglot microservices as well as monolithic architectures.

Move. Migrate your legacy applications to the cloud. Consolidate or decommission applications, interfaces, and infrastructure that are no longer needed due to mergers or technology modernization.

Manage. Build a highly available infrastructure that ensures your solution is always available and meets your needs. Smoothly transition and effectively manage your application portfolio to improve efficiency and agility.

⊕ **Learn more**

Check out the IBM **Garage Method for Cloud.**
https://ibm.biz/garage-method-for-cloud

Advise

Manage

Move

Build

Discover

Learn

Envision

Culture

Operate

Develop

Reason

Theme

Theme

Theme

Theme
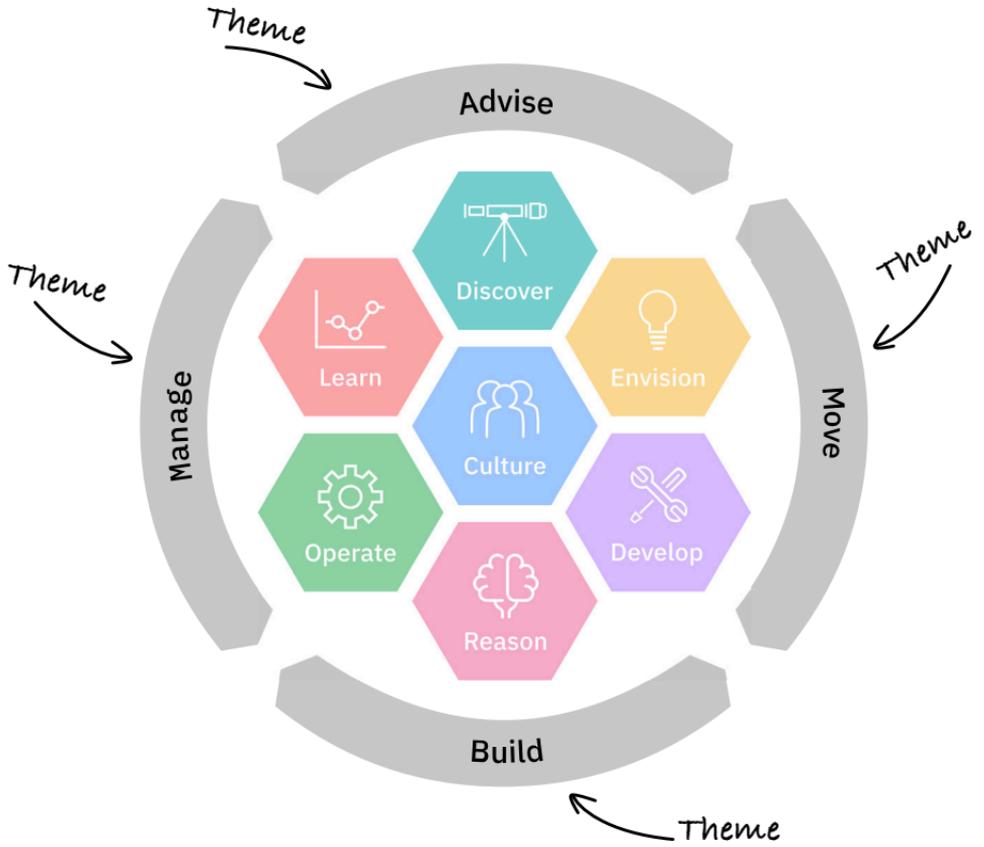
Focus on your goals and pick your path.

Advise

Drive innovation through successful cloud adoption. Adopt cloud strategies and architectures, examine your portfolio, design your operating model, and execute cloud-based merger and acquisition approaches. This results in a holistic transformation that achieves tangible business benefits.

PLAN YOUR CLOUD ADOPTION

Build your modernization roadmap. Design the roadmap to modernize IT with cloud and build the business benefits case for transformation across the application portfolio and enterprise architecture.

Define your cloud adoption vision. Define your end-to-end vision for adopting cloud, enabling business objectives, and transforming the IT organization.

Define your DevOps strategy. Understand the cultural impacts of cloud adoption on your organization. Build a roadmap to leverage new engineering practices.

**Plan for cloud transformation for mergers & acquisitions.** Accelerate successful mergers and acquisitions by leveraging the cloud.

⊕ **Learn more**

Check out the IBM **Garage Method for Cloud.**
https://ibm.biz/garage-method-for-cloud-advise

Organizational dynamics
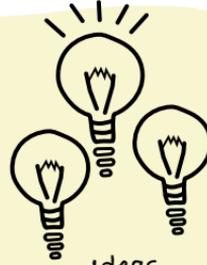
Ideas

Business results

Current IT

Competitive landscape

Your cloud adoption roadmap

Understand your business goal and set a course to achieve your desired outcome.

Build

Create end-to-end solutions following the IBM Garage Method for Cloud, using best practices like Enterprise Design Thinking, agile development, Lean Startup, and iterative development. Development teams follow DevOps practices to rapidly deliver innovative solutions and user experiences. To deliver a minimum viable product (MVP), teams need to understand the user and identify the highest priority items.

ACCELERATE TIME-TO-MARKET

Design for your user. Use Enterprise Design Thinking to bring together a series of traditional design techniques, such as personas, empathy maps, as-is scenarios, design ideation, to-be scenarios, wireframe sketches, hypothesis-driven design, and minimum viable product (MVP) definition. Then, mix in hills, sponsor users and playbacks to align your team.

Develop. Adopt DevOps development practices to help your team collaborate and produce high-quality code that you can confidently deliver to production.

Deliver. Ensure a repeatable, automated, continuous delivery process that results in a production ready app.

⊕ **Learn more**

Check out the IBM **Garage Method for Cloud.**
https://ibm.biz/garage-method-for-cloud-build

Develop production ready
apps using the Method

**Adopt best practices and tools to ensure
repeatable delivery to production.**

Move

Many organizations still have legacy applications that have complex interdependencies, inflexible architectures, redundancy, and out-of-date technology. Modernizing for cloud can help your organization achieve greater efficiency, agility, stability, and innovation.

APPLICATION MODERNIZATION IS INEVITABLE

Modernize where it matters. Set your goals to enable growth, improve customer experience, reduce costs, and speed delivery. Assess your application workloads then migrate and remediate your applications and data. Don't forget to modernize the way your team works.

Simplify and streamline. Size and complexity constrain change. Reduce size through rationalization, consolidation, and decommissioning. Reduce complexity through standardization and decoupling of interdependencies.

Deliver results early and often. Big bang modernization efforts are risky. Break large initiatives into smaller projects with measurable impact. Accelerate value, deliver frequently, and reduce risk.
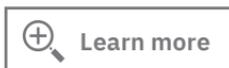
$\oplus$ **Learn more**

Check out the IBM Garage Method for Cloud.
https://ibm.biz/garage-method-for-cloud-move

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Migrate

Expose via
APIs

Microservices
apps

Refactor

Containerize
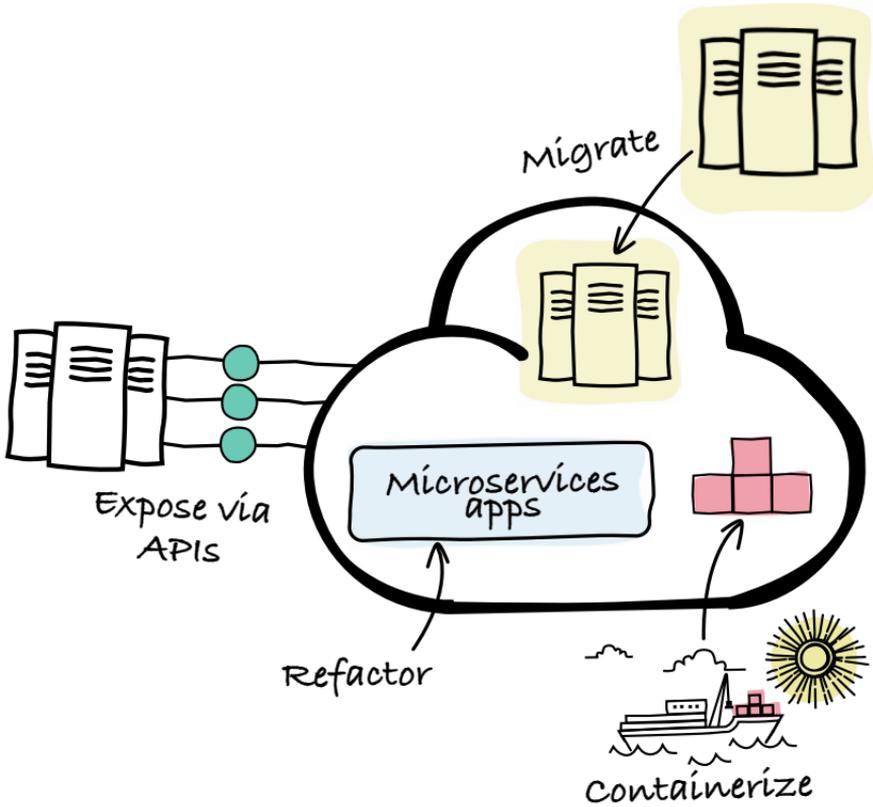
Achieve greater efficiency, agility, stability, and innovation.

Manage

Smoothly transition and effectively manage your application portfolio to improve efficiency and agility as you move to a hybrid cloud platform. Site reliability engineering (SRE) teams are responsible for the availability, latency, performance, efficiency, change management, monitoring, emergency response, and capacity planning of their services.

HARNESS & MANAGE THE POWER OF CLOUD

Build a highly available infrastructure. Ensure your app is always available and meets your client's needs.

Build to manage. Achieve a more mature operational level and faster velocity by implementing a set of practices to instrument the application and provide manageability aspects as you deliver to production.

Service management and operations. Continuously monitor application status and performance. Automate operations tasks to reduce operational costs and help teams meet service level agreement (SLA) targets. Build automation that enables high availability and resiliency while reducing the cost of the supporting infrastructure and the necessary resources to manage apps in production.

⊕ **Learn more**

Check out the IBM **Garage Method for Cloud.**
https://ibm.biz/garage-method-for-cloud-manage

Manage to meet your SLA targets.
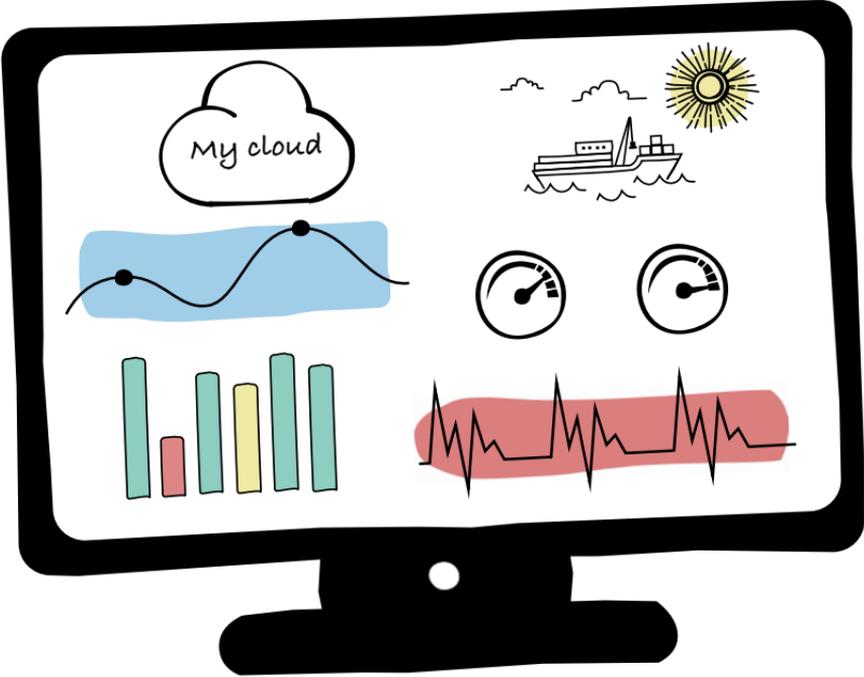
From the start, build operations into your platform and applications.
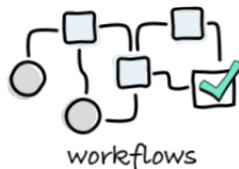
Workflows

Workflows deliver a client outcome and are comprised of activities and practices. Some practices are pervasive throughout the workflow, while others are sequential. Each workflow describes how to implement specific practices to achieve your desired outcome.

GO WITH THE FLOW

Meet your goals. Outcomes can range from delivering an MVP, migrating a legacy app, understanding how to follow an agile practice, or managing applications in the cloud, and eveything in between.

Sequential practices. A set of practices generally performed in order, sequential practices often include an iterative or recursive aspect and drive toward key outcomes.

Change the way you work. Pervasive practices are practices that your team will return to over and over throughout the workflow. These practices often provide guidance for transforming how your team approaches their work, helping you achieve greater efficiency and quality.

⊕ **Learn more**

Check out the IBM **Garage Method for Cloud.**
https://ibm.biz/garage-method-for-cloud

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Example workflow for the Build theme

Personas
As-is scenarios
Empathy maps
Inception
Playbacks
Minimum viable product
To-be scenarios

Get to know your user

Define and design your MVP

Sponser users
A/B testing

Autonomous squads

Pair programming

Hypothesis driven development

Test driven development

Continuous learning to drive business decisions

Code using self-directing squads with rank ordered backlog

Dark launch
High availability
Feature toggles

Automated delivery
Test automation

Multiple stages
Small batches

Production system

Continuous delivery pipeline

Continuous integration

Automated monitoring
Automated operations

Outcome: Build an MVP.

IBM Garage Method for Cloud practices

To become a disrupter, choosing how to develop software is as important as defining what to develop. The Method's practices, in conjunction with architectures, and courses are fundamental to transforming the entire product lifecycle.

Practices. Each practice defines an overall business transformation goal and presents achievable activities that you and your team can do to reach that goal.

Architectures. Architectures provide a structure that you can use to integrate cloud services into your solutions. Each architecture includes specific implementations that you can use and customize.

Courses and tutorials. Learn how to apply the methodology to your organization and streamline your architecture, design, development, and deployment processes with hands on courses and tutorials.

⊕ **Learn more**

Check out IBM's best practices.
https://ibm.biz/garage-method-for-cloud

IBM Garage Method for Cloud practices

The practices are divided into seven collections.

Culture. Transform your organization by combining business, technology, and process innovations that help you create teams that quickly learn from market experiences.

Discover. Dig deep into your problem domain, align everyone on common goals, and identify potential problems and bottlenecks.

Envision. Incrementally deliver awesome apps by using Enterprise Design Thinking and related design practices to establish a repeatable approach to rapidly deliver innovative user experiences.

Develop. Produce high-quality code that you can confidently deliver to production. Accelerate time-to-market by using continuous integration, continuous delivery, and automation to deliver in a fully tested production app.

Reason. Build a solid information architecture to enable you to turn data into knowledge. Develop analytic models using machine learning approaches. Integrate AI into solutions and into the execution of the method practices.

Operate. Ensure operational excellence with continuous application monitoring, high availability, and fast recovery practices that expedite problem identification and resolution.

Learn. Continuously experiment by testing hypotheses, using clear measurements to inform decisions, and driving findings into the backlog so that you can pivot.

Culture

Culture change? Impossible! But if you want to transform your organization and achieve your business outcomes through rapid innovation, culture change is exactly what you need. At its roots, the Method is a cultural transformation; it's all about people.

EVERYONE IN THE BOAT!

Build a diverse team. An organization might adopt efficient processes or automated tools, but to successfully innovate at scale, teams must be diverse, cross-disciplinary, and be given the freedom to pivot.

Fail fast and learn fast. Develop enough of your idea to determine whether it's useful to your customers. If a customer doesn't like the new function, you can pivot before you invest more time or resources into developing the function.

Adopt agile principles. Agile development produces software in short iterations on a continuous delivery schedule. Other agile principles include iterative development, simplicity, sustainable pace of development, and change that is based on customer feedback.

⊕ **Learn more**

Check out the IBM Garage Method for Cloud (Culture).
https://ibm.biz/garage-method-for-cloud-culture

Build trust and alignment
with better communication
and transparency.

**The business owner, designer, developer, and operations
all work together.**

Discover

To help get your team aligned, your team will need to dig deep into your problem domain, establish common goals, and identify potential problems and bottlenecks. Using the Discover practices, you can use a self-assessment to understand how well prepared you are to tackle the issues at hand.

EUREKA!

Define business objectives. Define objectives with measurable outcomes and an identified business sponsor. Identify any perceived risks and potential rewards outside the stated qualitative or quantitative measures.

Identify bottlenecks. Create value stream maps to simply and effectively identify bottlenecks in an end-to-end process flow. See changes that are critical so that the whole organization agrees on a solution.

Assess your cloud workload. Understand your organization's current environment and prioritize focus areas to enable and accelerate cloud adoption.

Recognize the value of data. Whether being proactive to make something happen or reactive to understand why something happened, you must understand the value of data to become a data-driven organization.

⊕ **Learn more**

Check out the IBM **Garage Method for Cloud** (Discover).
https://ibm.biz/garage-method-for-cloud-discover

Understand your business
opportunity.

Define business
objectives

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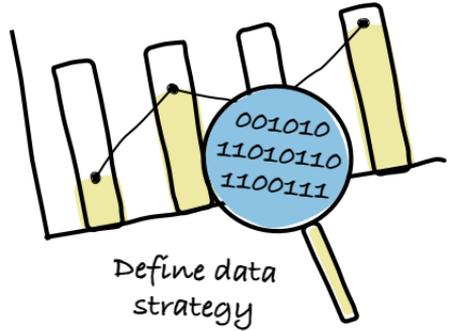
Define data
strategy

Idenitify
bottlenecks

**Make sure you have the strategy you need to achieve the
results you want.**

Envision

When you persue a new opportunity, you must conceptualize, design, refine, and prioritize features that will delight your end users. To do this effectively, you'll bring together business leaders, sales, designers, development, product management, and customers.

WOW YOUR CUSTOMERS

Use Enterprise Design Thinking. Design thinking is a powerful approach to innovation and brand differentiation that is focused on creating engaging experiences.

Define personas. Define personas that represent your target users. Gain an understanding of your user's motivations, needs, and frustrations to ensure you deliver an MVP that will delight them.

Define data strategy. Develop a data strategy that supports your business opportunity and prioritizes your technology strategy.

Define a minimum viable product. An MVP is the absolute minimum function needed for your target persona to have a delightful experience while accomplishing a goal.

⊕ **Learn more**

Check out the IBM **Garage Method for Cloud** (Envision).
https://ibm.biz/garage-method-for-cloud-envision

Know your audience and meet their needs faster than your competition.

Empathy Maps

Personas / Sponser users

Ideation

Playback
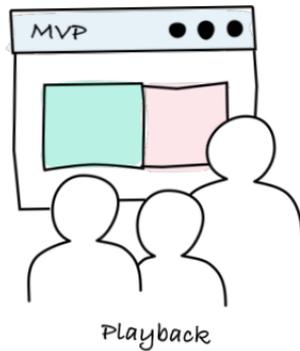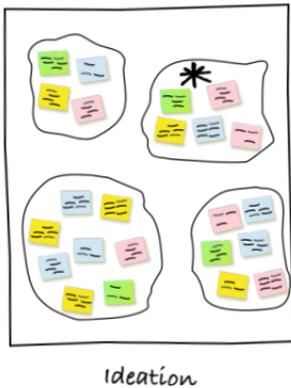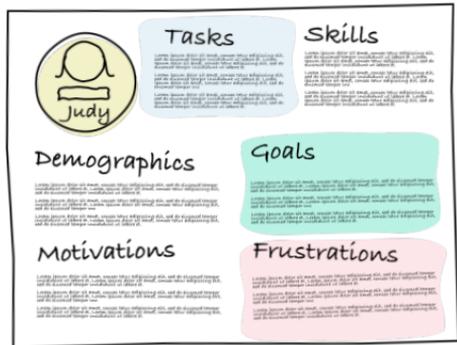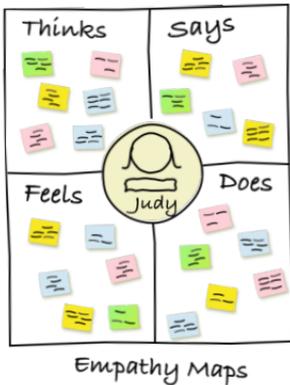
Bring together diverse stakeholders to define personas, generate ideas, and define an MVP.

Develop

Deliver new capabilities while you maintain reliability, quality, and performance. You should build and deploy your software so it can be released into production at any time.

{CODE} AND {DELIVER}

Test-driven development. Innovate high quality code faster by writing a failing test case and implementing just enough code to pass the test.

Pair programming. Program in pairs to improve productivity and software quality through the process of collaboration. Grow skills and transfer knowledge.

Deliver continuously using a pipeline. To achieve continuous delivery in a consistent and reliable way, break the delivery process into stages. The goal is for the code to progress through each step with minimal human intervention.

Automate everything. Eliminate manual steps: from the creation of the environments, to the delivery of your code into production. Automation can be incorporated into the delivery pipeline.

⊕ **Learn more**

Check out the IBM **Garage Method for Cloud** (Develop).
https://ibm.biz/garage-method-for-cloud-develop

Continuously build, test, and deploy code through an automated delivery pipeline.
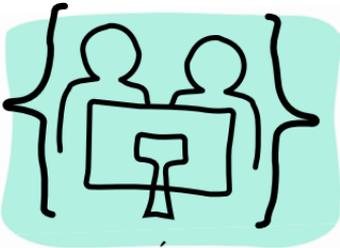
Pair programming
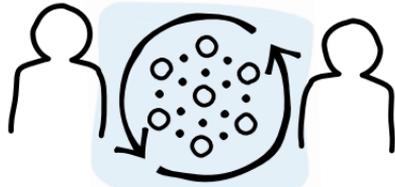
Refactor to microservices

Automated testing
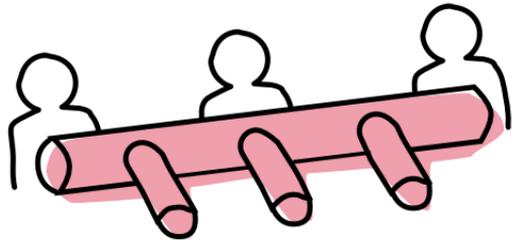
Delivery pipeline

Continuously integrate and deliver code using a pipeline to ensure a repeatable way to deliver to production.

Reason

Build a solid information architecture and extract, cleanse, and curate data to allow you to turn data into knowledge, regardless of the source of the data. Develop analytic models using machine learning approaches and train those models on your data to allow you to come to the right decisions faster. Integrate AI into solutions and also into the execution of the method practices.

TURN DATA INTO INSIGHTS

Develop a data hypothesis and intent. You may have a good business hypothesis, but to make it work in an evidence-based way, you need to describe how the data proves your hypothesis.

Identify and fit an AI model for your hypothesis. Fitting models ensures that the specifics of your application's needs are addressed.

Validate and audit your AI model. Is the answer you're getting the right answer? Use specialized tools to ensure you have confidence in the answers the AI system provides.

⊕ **Learn more**

Check out the IBM **Garage Method for Cloud** (Reason).
https://ibm.biz/garage-method-for-cloud-reason

Harness the power of AI on the cloud.

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AI modeling

AI training

Machine learning
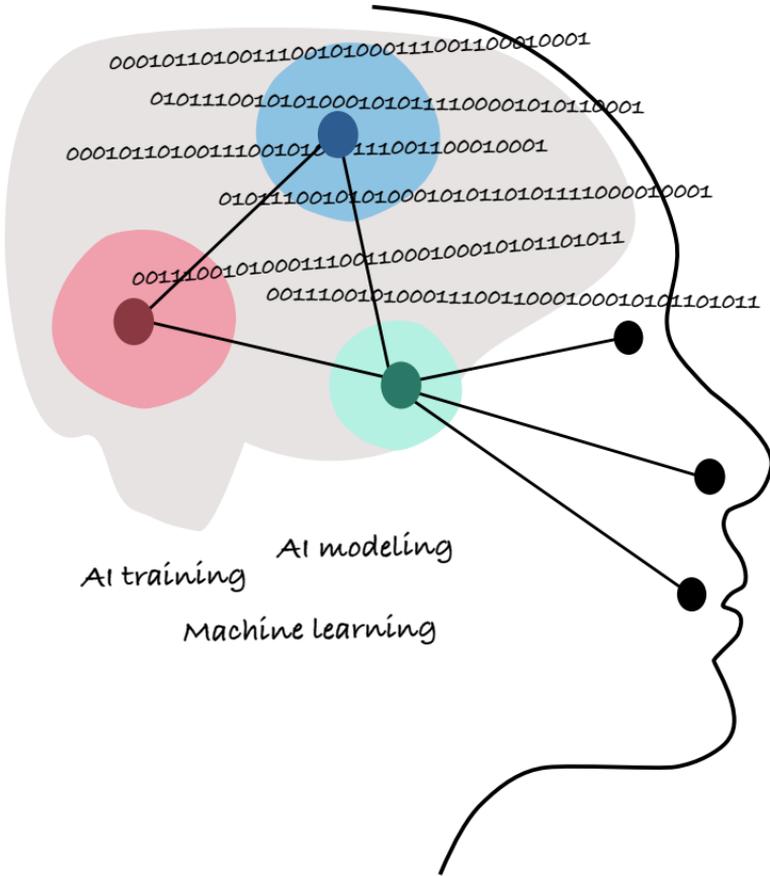
Integrate AI into your business.

Operate

Problems occur all the time, but your users should never know. The key is to prepare for problems in advance and then monitor and detect problems when they occur. Use automated monitoring and fast-recovery practices to ensure that your app is continuously available and your users are never impacted.

DON'T FORGET THE OPS IN DEVOPS

Automate monitoring. Ensure that your application is available to your customers when they need it.

Enable fast recovery. Develop a strategy to ensure continuous availability and non-disruptive change.

Be resilient. Test for the unexpected. Know how your application responds when someone pulls the plug.

Adopt SRE. Automation enables you to reduce costs and focus your highly skilled staff on high value tasks.

Build a high availability infrastructure. Deploy to multiple data centers with the ability to instantly failover if a problem occurs.

⊕ **Learn more**

Check out IBM **Garage Method for Cloud** (Operate).
https://ibm.biz/garage-method-for-cloud-operate

Manage your applications to a high degree of quality and meet your SLAs.

Incident

Automated monitoring detects an incident

Incident management system sends notifications

Automated recovery

On-call engineer

Team

Analytics
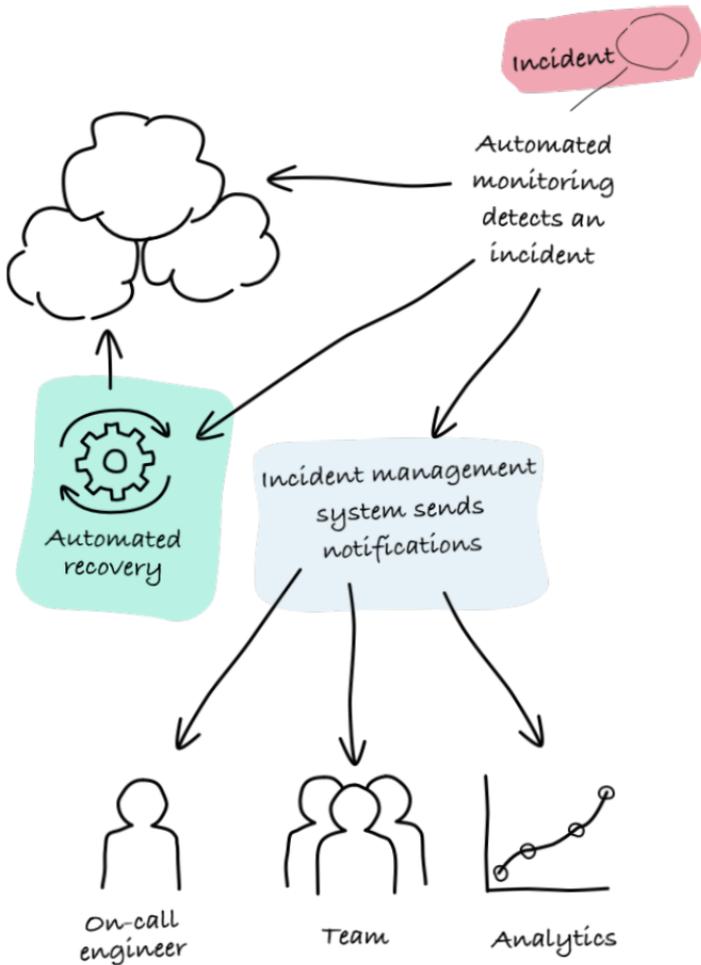
Automated tools monitor the application and notify the team when a problem occurs.

Learn

Continuously gain new insights from your customers' interaction with your application and the metrics you collect to drive business decisions. Use lessons learned to continuously improve how your team works.

LEARN SOMETHING NEW EVERYDAY

Hold playbacks. Throughout the development cycle, hold regular playbacks to gather feedback and keep the team in sync.

Drive development with hypotheses. Developing hypotheses and testing them throughout the evolution of an application is key to delighting your customers. Continuously experiment to deliver the right solution. Experiments have clear metrics that either validate your hypothesis or require you to pivot and try something new.

Use analytics tools. Continue to experiment and learn from your users based on real-time data.

Adapt your technology roadmap. Based on what you learn, regularly adjust and refine your technology roadmap.

⊕ **Learn more**

Check out the IBM **Garage Method for Cloud** (Learn).
https://ibm.biz/garage-method-for-cloud-learn

Hypothesis: Adding Cross References
Will Increase Monthly Page Views

Cross References
Added

Page
views

Jan   Feb   Mar   Apr   May   Jun
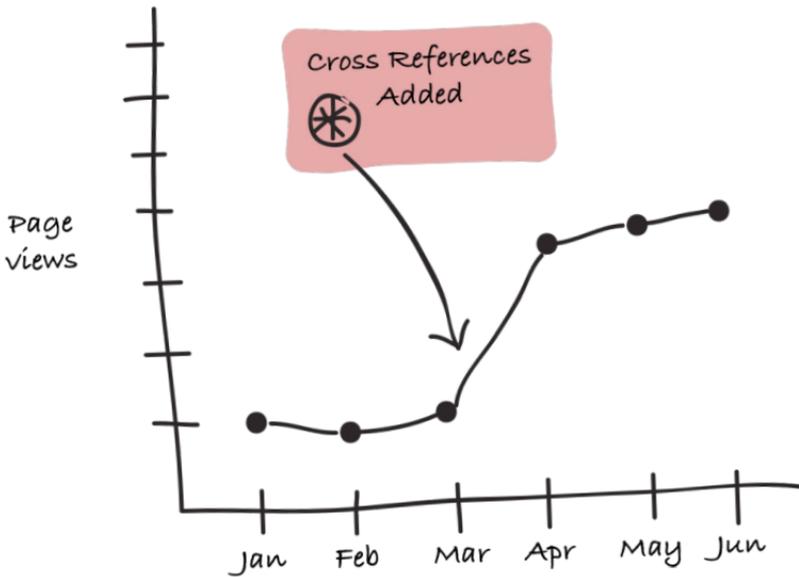
Use real-time data and analytics to test your hypothesis and influence your next MVP.

Expert help is available

IBM experts can guide you to identify the right opportunity, align your stakeholders with all the right goals, model your outcome on the right architecture, and build the right solution.

WE CAN DO IT WITH YOU. WE CAN DO IT FOR YOU.

IBM Garage. Work side-by-side with IBM experts to identify new business innovations. Prove ideas in first-of-a-kind MVPs, using emerging technologies, and quickly learn, iterate, and scale.

IBM Cloud Garage. Worldwide innovation spaces with the DNA of a startup and deep expertise on IBM Cloud, multicloud, and hybrid cloud. At Cloud Garages, companies both large and small are empowered to create engaging applications.

IBM Services. Achieve your strategic goals with the help of IBM business, cloud, and technology experts from around the world. Our experts have broad and deep knowledge regarding legacy technologies, emerging technologies, and how to leverage them.

IBM experts are ready to help you acheive your goals.

Notes:

Contact the IBM Garage to get help

https://www.ibm.com/services/garage

Visit one of the world wide
IBM Cloud Garage locations

ibm.biz/what-is-cloud-garage

More IBM services!!!

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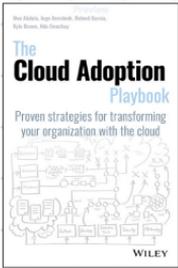
"The Cloud Adoption Playbook",
available on amazon.com

ibm.biz/cloud-adoption-playbook
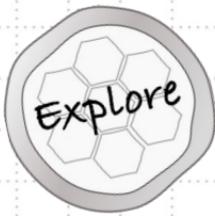
Take the course: Explore the Method, and get a badge!!!

ibm.biz/explore-method-course

Visit the architecture center!!

https://www.ibm.com/cloud/garage/
architectures

Notices

IBM **GARAGE METHOD** FOR CLOUD

Co-create

Co-operate

Co-execute

Advise

Manage

Move

Build

Discover

Envision

Learn

Culture

Operate

Develop

Reason