Hitachi Digital Services

ITPi Framework and Learning Paths

Learning and Development
Talent Enablement

Building Skills for the Future – I, T& Pi Framework

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1 **I** is one expert skill

2 **T** is one expert skill & one fundamental skill

3 **Pi** is two expert skills & one fundamental skill

	I →	T →	Pi - π
Java Full Stack	• Core Java • Microservices/ Spring • Basic Database Skills	• Basic React/ Angular	• AWS Application Services
SAP	• ABAP/Basis	• Module Configuration Skill	• Functional Domain skill
Data Engineer	• Data Integration Engineer	• Machine Learning Skill	• Data Visualization skill

* Sample journey

I, T, Pi Framework

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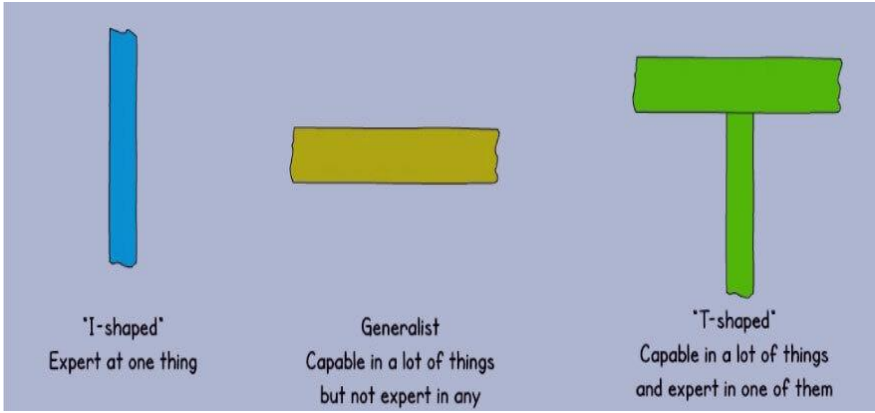
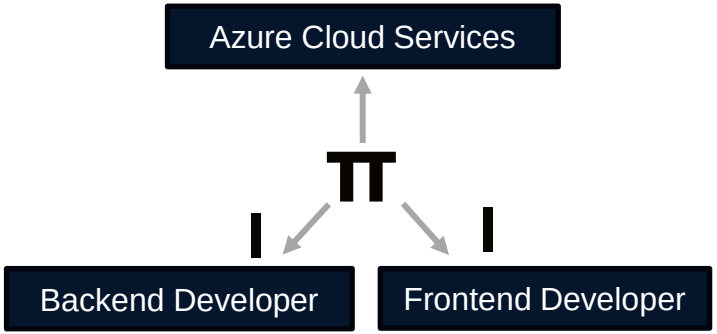
1. **I-Shaped Skills (The Past)**:
    1. In the past, having **deep expertise** in a single domain was highly valued. People would specialize in one area and build their careers around it.
2. **T-Shaped Skills (The Transition)**:
    1. As the world evolved, organizations realized that a broader understanding of multiple areas was essential. This led to the concept of **“T-shaped”** skills.
    2. The “T” represents **deep knowledge in one area** (the vertical bar) combined with **some understanding of other domains** (the horizontal bar).
3. **Pi-Shaped Skills (The Future)**:
    1. Now, we’re moving toward the **“Pi-shaped”** knowledge profile.
    2. Imagine the Greek letter **π (pi)**: It has **two legs**. Similarly, individuals need to have **deep expertise in at least two areas** while also having a **broad understanding** of various other domains.
    3. This multifaceted approach allows for greater adaptability and versatility.



.NET Backend Developer to .NET Frontend Developer



40 Cloud and Data Roles

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	Cloud & Apps
1	Java Backend Developer
2	.NET Backend Developer
3	NodeJS Backend Developer
4	Frontend/UI Developer
5	AWS Cloud Services
6	Azure Cloud Services
7	AWS Cloud Infra Engineer
8	AWS Cloud Infra Migrations
9	AWS Cloud Infra Designer
10	Azure Cloud Infra Engineer
11	Azure Cloud Infra Migrations
12	Azure Cloud Infra Designer

	HARC
1	Cloud Engineers
2	SRE
3	HARC SRE
4	Application Security Analyst
5	DevSecOps Analyst
6	SOC Analyst
7	Data Security Analyst
8	GRC Analyst
9	Vulnerability Management Analyst
10	Data Privacy Analyst
11	

	Testing
1	QA Engineer
2	Functional Automation Engineer
3	NFR Automation Engineer
4	Test Engineer
5	Penetration Test Engineer
6	Performance Test Engineer
7	Automated Test Engineer

	Data
1	Data Engineer
2	ML Engineers
3	Data Governance Lead
4	Data Governance Lead
5	Data Modeller
6	Data Scientist

	DevOps
1	DevOps Engineers
2	AWS DevOps
3	Azure DevOps

ITPi Timelines

Purpose:

To strengthen our internal Talent Supply Chain for efficient workforce planning particularly in the roles and skills on high demand by building a fungible role-based Skills Matrix.

Approach:

- **Identify 1,2, 3, 4 skills that are fungible**
- **Focus on Developers and Engineers**
- **Employees in the NCG, P1, P2 and P3 levels**
- **Assess Outcomes**

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01 February 24

- Identify **Critical Roles** based on demand - current and in pipeline with capability leaders
- Identify **Fungible Skills** for each critical role for the experience levels by Practice.
- Identify the right Code Assessment platform
- *In parallel,* meet with HiNext team of Hitachi Ltd, to explore the possibility of skill system on the roles and Fungible Skills in **HiNext Skills Cloud.**

02 March 24

- **Review the Roles and Fungible Skills by level** with NS Kumar, Practice Leaders, and RMG
- **Roll out employee skill self-assessment** (India) on the Fungible Skills relevant to their current role.
- Finalized Codility as the assessment platform and initiate the purchase

03 April 24

- Meet with the practice leaders to show the results of the employee skill self-assessment and **validate the assessment.**
- **Creation of ITPi Learning Framework - Design** based on the Roles and Skills identified
- *In parallel,* **Identify training content for each fungible skill** to build FY 24 annual training plan.
- Codility Training for SMEs & L&D

04 May 24

- **Review of the ITPi Learning Model and Paths**
- Work with **Percipio Team to define and design learning solutions** for each fungible skills.
- **Creation of HiNext Skill Cloud** to capture Roles and Skill levels of HiDS employees using HiNext tool.

05 June 24 onwards

- **Roll out of ITPi learning model** to global HiDS
- **Finalize the FY 24 annual training plan** to build Fungible Skills.
- Execution of the Training Plan.
- **Launch of HiNext Skill Cloud** to capture employee roles and skill levels.
- **Monthly dashboard to NS Kumar, Capability Leaders, Practice Leaders, and RMG**

Guidelines and Action Required for Employees

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Guidelines for this FY –

- (I) In your current Competency - If you are at Level 1 (0-3 yrs exp), achieve for Level 2 and stretch for Level 3.
- (T) In new Competency Area – select a new competency area and achieve for Level 2 proficiency and stretch for level 3 to broaden your knowledge.
- (π) Time permitting add a third Competency Area to gain broader knowledge.

	I	T	Pi/ π
Java Full Stack Developer	Core Java Microservices/ Spring Basic Database Skills	ReactJS/ AngularJS	AWS Foundations
Data Engineer	Data Integration Engineer	Machine Learning Skills	Data Visualization Skills

#	Action	Timeline	Responsibility
1	Decide based on your current role, expertise and business demand	In the week of June 10th	Developer/ Engineers
2	Consult with your Reporting Manger, Project Manager, and CoP Leader for identifying your I,T and Pi/ **π** for Fy 24 Learning Plan	By June 21st	Developer/ Engineers
3	Mention the Skill identified in your Development Goals on HiNext	By June 21st	Developer/ Engineers
4	You are required to build expertise in two Competency Sets at a minimum of Level 2 and time permitting pick a third competency set for broader knowledge.	By November 2024	Developer/ Engineers

Cloud Learning Paths

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Java Full Stack Developer Learning Path

Java Backend Developer to AWS Java Full Stack Developer

Learning Path from I to T to Pi

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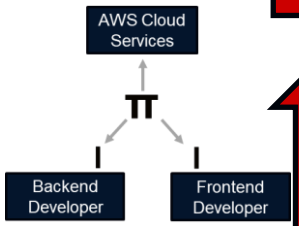

Move Towards "*T*" Skills

Move Towards "*Pi/* π" Skills

EXPERTISE

	Java Backend Developer (I)	Frontend/UI Developer (T)	AWS Cloud Services (Pi)
Level-3	• Design Patterns • Integration Patterns • CI/CD tools (Jenkins) • Java / Docker Containers	• Micro Frontends • Design Patterns	• AWS Amplify • AWS Glue • AWS DevOps and Monitoring
Level-2	• Asynchronous Communication • NoSQL Databases	• React / Unit Testing • State Management Tools • Responsive • Material UI	• AWS ECS, EKS • AWS Load Balancers • AWS Serverless – 1, 2, 3
Level-1	• Java • Spring/ Hibernate • Unit Testing • Database (SQL, PLSQL) • MicroServices • REST API	• Java Script • HTML • JQuery • ReactJs / Angular JS • Typescript	• AWS Foundational • AWS IAM • AWS VPC • AWS Storage Services • AWS EC2 / RDS • Docker

Frontend/UI Developer to AWS Java Full Stack Developer

Learning Path from I to T to Pi

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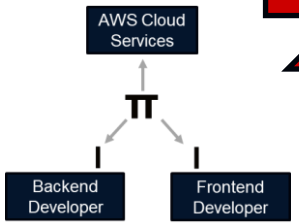

Move Towards "*T*" Skills

Move Towards "*Pi*/ π" Skills

EXPERTISE

	Frontend/UI Developer (I)	Java Backend Developer (T)	AWS Cloud Services (Pi)
Level-3	• Micro Frontends • Design Patterns	• Design Patterns • Integration Patterns • CI/CD tools (Jenkins) • Java / Docker Containers	• AWS Amplify • AWS Glue • AWS DevOps and Monitoring
Level-2	• React / Unit Testing • State Management Tools • Responsive • Material UI	• Asynchronous Communication • NoSQL Databases	• AWS ECS, EKS • AWS Load Balancers • AWS Serverless – 1, 2, 3
Level-1	• Java Script • HTML • JQuery • ReactJs / Angular JS • Typescript	• Java • Spring/ Hibernate • Unit Testing • Database (SQL, PLSQL) • MicroServices • REST API	• AWS Foundational • AWS IAM • AWS VPC • AWS Storage Services • AWS EC2 / RDS • Docker

Frontend/UI Developer to AWS NodeJS Full Stack Developer

Learning Path from I to T to Pi

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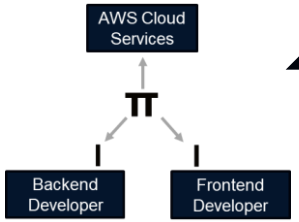

Move Towards "*T*" Skills

Move Towards "*Pi*/ π" Skills

EXPERTISE

	Frontend/UI Developer — I	NodeJS Backend Developer — T	AWS Cloud Services — Pi
Level-3	• Micro Frontends • Design Patterns	• Design Patterns • Integration Patterns • CI/CD tools (Jenkins) • Containers	• AWS Amplify • AWS Glue • AWS DevOps and Monitoring
Level-2	• React / Unit Testing • State Management Tools • Responsive • Material UI	• Asynchronous Communication • NoSQL Databases	• AWS ECS, EKS • AWS Load Balancers • AWS Serverless – 1, 2, 3
Level-1	• Java Script • HTML • JQuery • ReactJs / Angular JS • Typescript	• NodeJS • Typescript • Unit Testing • NoSQL • GraphQL • MicroServices • REST API	• AWS Foundational • AWS IAM • AWS VPC • AWS Storage Services • AWS EC2 / RDS • Docker

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.Net Full Stack Developer Learning Path

.NET Backend Developer to Azure .Net Full Stack Developer

Learning Path from I to T to π

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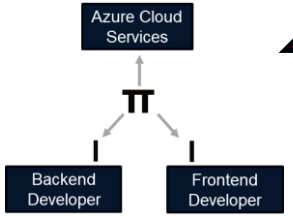

Move Towards "*T*" Skills

Move Towards "*Pi/* π" Skills

EXPERTISE

	.NET Backend Developer — I	UI Developer — T	Azure Cloud Services — Pi/ π
Level-3	• Design Patterns • Integration Patterns • CI/CD tools (Azure DevOps)	• Micro Frontends • Design Patterns	• Azure Datafactory • Azure DevOps
Level-2	• Asynchronous Communication • NoSQL Databases • Graph API	• React / Unit Testing • State Management Tools • Responsive • Material UI	• Azure ECS • Azure EKS • Azure Load Balancers • Azure Serverless - 1, 2, 3, 4
Level-1	• .NET ASP • .NET Core • NUNIT • MSSQL Database • Micro Services • REST API	• Java Script • HTML • JQuery • ReactJs / Angular JS • Typescript	• Azure Foundational • Azure IAM • Azure VPC • Azure Storage Services • Azure EC2/RDS • Docker

.NET Backend Developer to Azure .Net Full Stack Developer

Learning Path from I to T to π

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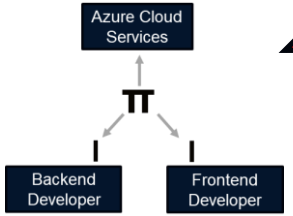

Move Towards "*T*" Skills

Move Towards "*Pi/* π" Skills

EXPERTISE

	UI Developer **I**	.NET Backend Developer **T**	Azure Cloud Services **Pi/ π**
Level-3	• Micro Frontends • Design Patterns	• Design Patterns • Integration Patterns • CI/CD tools (Azure DevOps)	• Azure Datafactory • Azure DevOps
Level-2	• React / Unit Testing • State Management Tools • Responsive • Material UI	• Asynchronous Communication • NoSQL Databases • Graph API	• Azure ECS • Azure EKS • Azure Load Balancers • Azure Serverless - 1, 2, 3, 4
Level-1	• Java Script • HTML • JQuery • ReactJs / Angular JS • Typescript	• .NET ASP • .NET Core • NUNIT • MSSQL Database • Micro Services • REST API	• Azure Foundational • Azure IAM • Azure VPC • Azure Storage Services • Azure Compute/RDS • Docker

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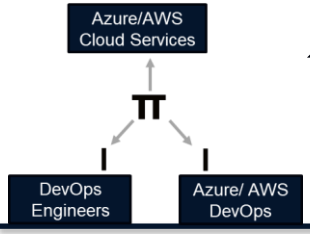
DevOps Engineer Learning Path

DevOps Engineer to Multi-Cloud DevOps Engineer

Learning Path from I to T to Pi

Hitachi Digital Services



Move Towards "*T*" Skills

Move Towards "*Pi/* π" Skills

EXPERTISE

	DevOps Engineers	I	AWS DevOps	T	Azure DevOps	Pi
Level-3	• Ansible/ Chef/ Puppet • Cost Optimization		• AWS Cloud Based Monitoring • SRE		• Azure Cloud Based Monitoring • Azure SRE	
Level-2	• Kubernetes • Monitoring Tools • IAC (Terraform, Cloudformation) • Security best practices		• AWS Kubernetes • AWS Serverless		• Azure Kubernetes • Azure Serverless	
Level-1	• Linux • Scripting • Jenkins • Github • Docker • Sonarqube/ Code Quality • Artifactory		• AWS Infra • AWS VPC • AWS Storage • AWS DevOps • AWS Database		• Azure Infra • Azure VPC • Azure Storage • Azure DevOps • Azure Database	

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AWS Cloud Infra Engineer Learning Path

AWS Cloud Infra Engineer to AWS Cloud Infra Designer

Learning Path from I to T to Pi

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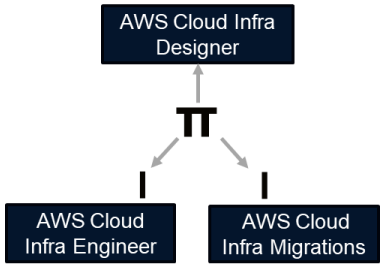

Move Towards "*T*" Skills

Move Towards "*Pi*/ π" Skills

AWS Cloud Infra Engineer	I	AWS Cloud Infra Migrations	T	AWS Cloud Infra Designer	Pi
• Cloud foundations • Networking/ VPC/ IAM • Cloud Formation Automation • AWS Services (Storage, Compute) • Terraform		• Landing zone setup • AWS Monitoring (Xray, Cloudwatch) • AWS Security Services & Security best practices • High availability and scalability • Kubernetes • AWS DevOps tools set		• AWS Architecture and Design • AWS Well Architected Framework • Migration strategies • AWS Kubernetes Services • AWS SRE	

EXPERTISE

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Azure Cloud Infra Engineer Learning Path

Azure Cloud Infra Engineer to Azure Cloud Infra Designer

Learning Path from I to T to Pi

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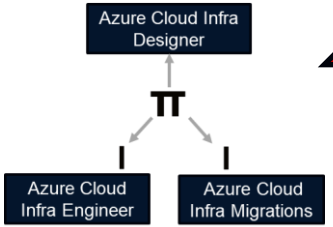

Move Towards "*T*" Skills

Move Towards "*Pi/* π" Skills

EXPERTISE

Azure Cloud Infra Engineer	I	Azure Cloud Infra Migrations	T	Azure Cloud Infra Designer	Pi
• Azure Cloud Foundations • IAM • Azure Storage Services • Azure CLI • Azure Resource Manager • Terraform • Azure Networking		• Azure Monitoring (Xray, Cloudwatch • Azure Application Services • Security, governance, and administration		• Azure Services Architecture and Design • Cost Optimization Techniques • Azure well architected framework	

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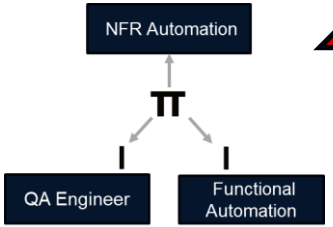
QA Engineer Learning Path

QA Engineer to NFR Automation Engineer

Learning Path from I to T to Pi

Hitachi Digital Services



EXPERTISE

"I"

QA Engineer

- Manual Testing
- Test Case Design
- Test Execution
- Defect Tracking
- Test Management tools
- Exposure to Automation
- Status Reporting
- Software Testing certification like ISTQB or CSTE

Move Towards "T" Skills

Functional Automation

- Automation Testing (Selenium, Appium, Tosca)
- Build Framework
- CI/CD integration with automation
- Database Testing
- API Testing
- Test Planning & Test Strategy
- Experience with cloud platforms and services (e.g., AWS, Azure, Google Cloud).

Move Towards "*Pi*/ π" Skills

NFR Automation

- Performance Testing (JMeter / LoadRunner)
- Security Testing

Test Engineer to Performance Test Engineer

Learning Path from I to T to Pi

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"I"

Move Towards "Pi/ π" Skills

Choose anyone "Pi" out of the "T" skills

Move Towards "T" Skills

EXPERTISE

	Test Engineer	Performance Test Engineer	Automated Test Engineer
Level-3	• Test proposal • Test estimation	• Performance Testing Proposal • Estimation for Performance Test	• Automated Testing Proposal • Estimation for Automated Testing
Level-2	• Mobile testing • Database testing: SQL and Oracle PLSQL • Quality Evaluation Report • Test approach - Test plan	• K6 Framework • Build Performance Test framework - K6	• Build Automation Framework • BDD - Automated Testing • Cypress Automation • Jenkins CI/CD
Level-1 (Foundation Track)	• Testing process • Design Test case • Test Execution and Report • Bug Report • API Testing • SQL querry skill	• Non-Functional Testing Fundamental (Load Testing, Performance Testing, Stress Testing…) • Jmeter - Backend and FrontEnd Performance	• Frontend Automation Fundamental • Backend Automation Fundamental • Selenium • Appium Automation • Karate API Automation • Github

Test Engineer to Automated Test Engineer

Learning Path from I to T to Pi

Hitachi Digital Services

"I"

Move Towards "Pi/ π" Skills

Choose anyone "Pi" out of the "T" skills

Move Towards "T" Skills

EXPERTISE

	Test Engineer	Automated Test Engineer	Performance Test Engineer
Level-3	• Test proposal • Test estimation	• Automated Testing Proposal • Estimation for Automated Testing	• Performance Testing Proposal • Estimation for Performance Test
Level-2	• Mobile testing • Database testing: SQL and Oracle PLSQL • Quality Evaluation Report • Test approach - Test plan	• Build Automation Framework • BDD - Automated Testing • Cypress Automation • Jenkins CI/CD	• K6 Framework • Build Performance Test framework - K6
Level-1 (Foundation Track)	• Testing process • Design Test case • Test Execution and Report • Bug Report • API Testing • SQL querry skill	• Frontend Automation Fundamental • Backend Automation Fundamental • Selenium • Appium Automation • Karate API Automation • Github	• Non-Functional Testing Fundamental (Load Testing, Performance Testing, Stress Testing…) • Jmeter - Backend and FrontEnd Performance

Penetration Test Engineer to Test Engineer (VDC only)

Learning Path from I to T to Pi

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Move Towards *"T"* Skills

EXPERTISE

	Penetration Test Engineer — I	Test Engineer — T & Pi
Level-3	• Hand-on Cloud Security Professional (CCSP)	• Test proposal • Test estimation
Level-2	• Vulnerability Assessment Report • API Security • Hand-on CompTIA PenTest+	• Mobile testing • Database testing: SQL and Oracle PLSQL • Quality Evaluation Report • Test approach - Test plan
Level-1	• OWASP Top Ten • General Cyber Security • Basic Network Administrator • Testing process • Requirement Analysis • Design Test case, Execution and bug report • Hand-on Burp Suite Practitioner (BSCP)	• Testing process • Design Test case • Test Execution and Report • Bug Report • API Testing • SQL querry skill

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Mobile Developer Learning Path

Mobile Native Developer

Learning Path from I to T to Pi

Hitachi Digital Services

"I"

Move Towards "Pi/ π" Skills — *Choose anyone "Pi" out of the "T" skills*

Move Towards "T" Skills

EXPERTISE

	Mobile Native Developer	Mobile Hybrid Developer	MR/VR Developer
Level-3	• Advanced Android Development • Advanced iOS/macOS Development • Performance • Design patterns	• Advanced React Native/Ionic Development • Advanced Flutter • Development Performance • Design patterns	• Advanced MR and VR Development • MR with Azure Digital Twins and Unity
Level-2	• Android App Development • iOS/macOS App Development • API Integration	• React Native/Ionic App Development • Flutter App Development • API Integration	• MR and VR App Development • API Integration
Level-1 (Foundation Track)	• Android Programming Fundamentals • iOS/macOS Programming Fundamentals • Basic UI/UX • Design Principles • Debugging and Troubleshooting • Git Version Control • Unit Testing	• React Native/Ionic Fundamentals • Flutter Fundamentals • Basic UI/UX Design • Principles • Debugging and Troubleshooting • Git Version Control • Unit Testing	• MR and VR Fundamentals • Unity Fundamentals • Debugging and Troubleshooting • Git Version Control

Mobile Hybrid Developer

Learning Path from I to T to Pi

Hitachi Digital Services

"I"

Move Towards "Pi/ π" Skills

Choose anyone "Pi" out of the "T" skills

Move Towards "T" Skills

EXPERTISE

	Mobile Hybrid Developer	Mobile Native Developer	MR/VR Developer
Level-3	• Advanced Android Development • Advanced • iOS/macOS Development • Performance • Design patterns	• Advanced Android Development • Advanced • iOS/macOS Development • Performance • Design patterns	• Advanced MR and VR Development • MR with Azure Digital Twins and Unity
Level-2	• Android App Development • iOS/macOS App Development • API Integration	• Android App Development • iOS/macOS App Development • API Integration	• MR and VR App Development • API Integration
Level-1 (Foundation Track)	• Android Programming Fundamentals • iOS/macOS Programming Fundamentals • Basic UI/UX • Design Principles • Debugging and Troubleshooting • Git Version Control • Unit Testing	• Android Programming Fundamentals • iOS/macOS Programming Fundamentals • Basic UI/UX • Design Principles • Debugging and Troubleshooting • Git Version Control • Unit Testing	• MR and VR Fundamentals • Unity Fundamentals • Debugging and Troubleshooting • Git Version Control

MR/VR Developer

Learning Path from I to T to Pi

Hitachi Digital Services

"I"

Move Towards "Pi/ π" Skills

Choose anyone "Pi" out of the "T" skills

Move Towards "T" Skills

EXPERTISE

	MR/VR Developer	Mobile Hybrid Developer	Mobile Native Developer
Level-3	• Advanced MR and VR Development • MR with Azure Digital Twins and Unity	• Advanced React Native/Ionic Development • Advanced Flutter • Development Performance • Design patterns	• Advanced Android Development • Advanced iOS/macOS Development • Performance • Design patterns
Level-2	• MR and VR App Development • API Integration	• React Native/Ionic App Development • Flutter App Development • API Integration	• Android App Development • iOS/macOS App Development • API Integration
Level-1 (Foundation Track)	• MR and VR Fundamentals • Unity Fundamentals • Debugging and Troubleshooting • Git Version Control	• React Native/Ionic Fundamentals • Flutter Fundamentals • Basic UI/UX Design • Design Principles • Debugging and Troubleshooting • Git Version Control • Unit Testing	• Android Programming Fundamentals • iOS/macOS Programming Fundamentals • Basic UI/UX • Design Principles • Debugging and Troubleshooting • Git Version Control • Unit Testing

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HARC Engineer Learning Path

Cloud Engineer to HARC SRE

Learning Path from I to T to Pi

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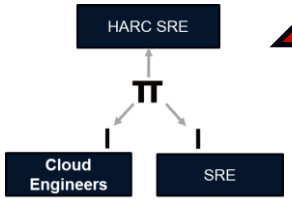


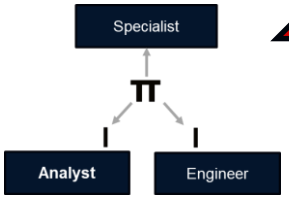
EXPERTISE

	"I"	Move Towards "T" Skills	Move Towards "Pi/ π" Skills
	Cloud Engineers	SRE	HARC SRE
Level-3	• Serverless Architectures • Automation, CI/CD • Journey to CloudOps Engineer • Java OOPs • AWS DevOps Engineer	• Cloud Cost optimization • Application Security • Database Core Concepts • Performance Tuning • Application Design Patterns • Resiliency, Chaos Engineering	• Specialization on multiple clouds • HARC Methodologies • GenAI – Multi Cloud • AI Transformation
Level-2	• Kubernetes • Cloud Ops • Core DevOps Skills • IAC (Terraform, Cloud formation) • Tools - Ansible, Chef, Puppet	• Performance Engineering • Well architected framework • Basics of Cloud Security • Cloud FinOps • Data Essentials • Microservices Architecture	• Expand the specialization to multiple cloud technologies • Azure Architecture • CloudOps - Multi Cloud • HARC Associate Program • Prompt Engineering
Level-1	• Cloud Practitioner • Linux / Windows OS Virtualization, VMware • Scripting (Python, Powershell, Perl, etc) • DevOps, Jenkins, Github, Artifactory	• Performance Engineering Basics • AWS Cloud • Data Management • Enterprise Architecture • SRE Principles	• Expand the specialization to multiple cloud technologies • SRE Google books • Azure Cloud Fundamentals • Introduction to GenAI

Application Security Analyst to Specialist

Learning Path from I to T to Pi

Hitachi Digital Services



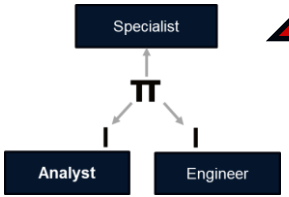
EXPERTISE

	"I" Analyst	Move Towards "T" Skills Engineer	Move Towards "Pi/ π" Skills Specialist
Level-3	• Tool specialization - OWASP, Burp Suite, Nessus, SIEM tools • Penetration Testing, SAST/DAST	• Secure SDLC • Threat Modeling, Incident Response • DevSecOps security principles • Cloud Security best practices	• Specialization in multiple security tools, Multi-cloud security consulting • Multi-cloud CloudOps • Integrating Network and Security Components
Level-2	• Cyber security, Web Application Firewalls, Endpoint Security Tools • Scripting (Python, Bash) • Security Core Concepts	• Identity and Access Management • Network Security • Basics of Cloud Security	• Advanced serverless and container security, Cross-cloud security consulting • Designing multi-cloud security frameworks
Level-1	• Basic Cloud Security Tools • Basic Cryptography • Securing Linux, Windows Security	• Cloud Security Concepts • Security Engineering • Understanding of Common Security Standards and Protocols • Secure Coding Practices	• Advanced application security in hybrid environments • Multi-cloud security architecture design

DevSecOps Analyst to Specialist

Learning Path from I to T to Pi

Hitachi Digital Services



EXPERTISE

	"I" Analyst	Move Towards "T" Skills → Engineer	Move Towards "Pi/ π" Skills → Specialist
Level-3	• Tool specialization: OWASP, SonarQube, Checkmarx, Twistlock, Jenkins • Automation, CI/CD pipelines • Container Security	• Secure SDLC, Threat Modeling, Application Security, Incident Response • Cloud Security Best Practices, Identity and Access Management (IAM)	• Specialization in multiple security and DevOps tools, Multi-cloud security integration and consulting • Advanced DevSecOps practices across multiple clouds • Designing and implementing secure multi-cloud DevOps pipelines
Level-2	• Kubernetes Security • Scripting (Python, Bash, etc.) • Cloud Security Best Practices • Basics of Cloud Security	• Cloud Security Architecture, Serverless Security • Compliance and Governance (e.g., GDPR, PCI DSS) • Secure Coding Practices, DevSecOps culture and practices	• Advanced techniques in securing serverless and containerized applications • Cross-cloud security consulting • Designing multi-cloud security frameworks and ensuring compliance
Level-1	• Basic Security Tools • Basic Linux/Windows Security • Scripting (Python, Bash, etc.)	• Understanding Common Security Standards and Protocols • Secure Coding Practices • Continuous Monitoring and Incident Response	• Advanced application security in hybrid environments • Building and managing comprehensive security programs across different environments • Multi-cloud security architecture design and implementation

SOC Analyst to Specialist

Learning Path from I to T to Pi

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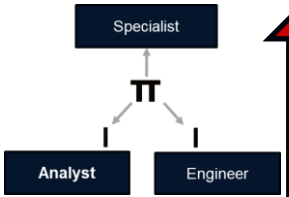

EXPERTISE

	"I" Analyst	Move Towards "T" Skills → Engineer	Move Towards "Pi/ π" Skills → Specialist
Level-3	• Tool Specialization: SIEM (Splunk, QRadar), EDR, IDS/IPS • Log Analysis, Alert Tuning • Network and Endpoint Security	• Incident Response, Threat Intelligence, Forensics • Vulnerability Management, SOC Automation • Threat Hunting, Security Orchestration	• Specialization in multiple SIEM and security tools, Multi-cloud SOC integration and consulting • Advanced SOC practices across multiple clouds • Designing and implementing multi-cloud SOC operations
Level-2	• Threat Detection Tools • Scripting (Python, Bash, PowerShell, etc.) • SIEM Management and Optimization	• Security Monitoring Architecture, Cloud Security Best Practices • Incident Handling and Escalation Procedures • Compliance and Governance (e.g., GDPR, PCI DSS)	• Advanced techniques in threat detection and response in multi-cloud environments • Cross-cloud threat intelligence and response consulting • Designing multi-cloud security operations frameworks and ensuring compliance
Level-1	• Basic Security Monitoring Tools • Basic Linux/Windows Security • Scripting (Python, Bash, etc.)	• Understanding Common Security Standards and Protocols • Threat Intelligence Basics • Continuous Monitoring and Incident Response	• Advanced SOC operations in hybrid environments • Building and managing comprehensive SOC programs across different environments • Multi-cloud SOC architecture design and implementation

Data Security Analyst to Specialist

Learning Path from I to T to Pi

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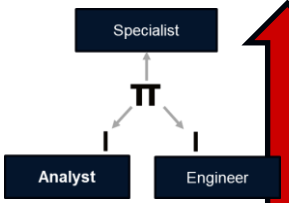

EXPERTISE

	"I" Analyst	Move Towards "T" Skills: Engineer	Move Towards "Pi/ π" Skills: Specialist
Level-3	• Tool Specialization: DLP (Data Loss Prevention), Encryption Tools, Database Security • Data Masking and Tokenization • Database Activity Monitoring (DAM)	• Data Classification and Protection, Data Governance • Data Privacy (e.g., GDPR, CCPA), Compliance and Regulatory Requirements • Data Risk Assessment, Incident Response	• Specialization in multiple data security tools, Multi-cloud data security integration and consulting • Advanced data security practices across multiple clouds • Designing and implementing multi-cloud data security frameworks
Level-2	• Data Encryption and Key Management • Scripting (Python, SQL, Bash, etc.) • Database Security Hardening	• Cloud Data Security Best Practices, Data Access Controls • Data Security Architecture, Data Breach Response • Data Security Policies and Standards	• Advanced techniques in securing data across multi-cloud environments • Cross-cloud data protection and compliance consulting • Designing multi-cloud data security strategies and ensuring compliance
Level-1	• Basic Data Security Tools • Basic Database Security • Scripting (Python, SQL, Bash, etc.)	• Understanding Common Data Security Standards and Protocols • Data Security Basics • Continuous Data Monitoring and Incident Response	• Advanced data security in hybrid environments • Building and managing comprehensive data security programs across different environments • Multi-cloud data security architecture design and implementation

GRC Analyst to Specialist

Learning Path from I to T to Pi

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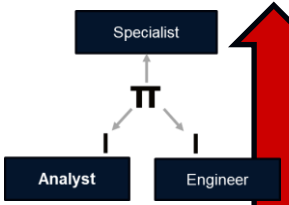

EXPERTISE

	"I" Analyst	Move Towards "T" Skills → Engineer	Move Towards "Pi/ π" Skills → Specialist
Level-3	• Tool Specialization: GRC Tools (e.g., RSA Archer, MetricStream) • Policy Development and Management • Compliance Monitoring and Reporting	• Risk Management, Compliance Management • Audit Management, Regulatory Requirements (e.g., GDPR, SOX, HIPAA) • Control Frameworks (e.g., NIST, ISO 27001)	• Specialization in multiple GRC tools, Multi-cloud GRC integration and consulting • Advanced GRC practices across multiple clouds • Designing and implementing multi-cloud GRC frameworks
Level-2	• Risk Assessment Tools and Techniques • Scripting (Python, PowerShell, etc.) • Compliance Audit Preparation	• Cloud Compliance Best Practices, Vendor Risk Management • Security Policy and Standards Development, Incident Response • Data Protection Laws and Regulations	• Advanced techniques in managing risks and compliance across multi-cloud environments • Cross-cloud GRC consulting • Designing multi-cloud GRC strategies and ensuring compliance
Level-1	• Basic GRC Tools • Basic Security Policies and Procedures • Scripting (Python, PowerShell, etc.)	• Understanding Common Governance and Compliance Standards and Protocols • Risk Management Basics • Continuous Monitoring and Incident Response	• Advanced GRC operations in hybrid environments • Building and managing comprehensive GRC programs across different environments • Multi-cloud GRC architecture design and implementation

Vulnerability Management Analyst to Specialist

Learning Path from I to T to Pi

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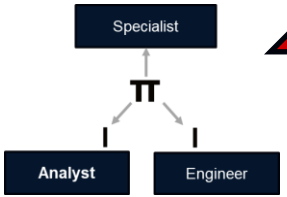

EXPERTISE

	"I" Analyst	Move Towards "T" Skills: Engineer	Move Towards "Pi/ π" Skills: Specialist
Level-3	• Tool Specialization: Nessus, Qualys, OpenVAS, Rapid7 • Patch Management, Remediation Techniques • Vulnerability Scanning and Reporting	• Vulnerability Assessment, Threat Modeling, Incident Response • Risk Management, Security Posture Assessment • Compliance and Regulatory Requirements (e.g., PCI DSS, HIPAA)	• Specialization in multiple vulnerability management tools, Multi-cloud vulnerability management integration and consulting • Advanced vulnerability management practices across multiple clouds • Multi-cloud vulnerability management frameworks
Level-2	• Network and Application Scanning • Scripting (Python, Bash, etc.) • Patch Deployment and Validation	• Cloud Vulnerability Management Best Practices, Threat and Vulnerability Analysis • Security Configuration Management, Incident Response • Vulnerability Management Policies and Standards	• Advanced techniques in managing vulnerabilities across multi-cloud environments • Cross-cloud vulnerability management consulting • Designing multi-cloud vulnerability management strategies and ensuring compliance
Level-1	• Basic Vulnerability Scanning Tools • Basic Network and Application Security • Scripting (Python, Bash, etc.)	• Understanding Common Vulnerability Management Standards and Protocols • Vulnerability Management Basics • Continuous Monitoring and Incident Response	• Advanced vulnerability management in hybrid environments • Building and managing comprehensive vulnerability management programs across different environments • Multi-cloud vulnerability management architecture design and implementation

Data Privacy Analyst to Specialist

Learning Path from I to T to Pi

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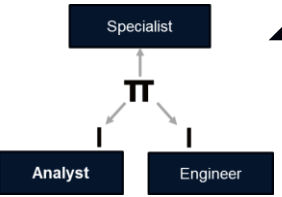

EXPERTISE

	"I" Analyst	Move Towards "T" Skills: Engineer	Move Towards "Pi/ π" Skills: Specialist
Level-3	• Tool Specialization: Data Privacy Management Tools (OneTrust, TrustArc, BigID) • Data Masking and Anonymization • Consent Management	• Data Classification and Labeling, Data Subject Rights Management • Privacy Impact Assessments (PIAs), Data Protection Impact Assessments (DPIAs) • Regulatory Compliance (e.g., GDPR, CCPA, HIPAA)	• Specialization in multiple data privacy tools, Multi-cloud data privacy integration and consulting • Advanced data privacy practices across multiple clouds • Designing and implementing multi-cloud data privacy frameworks
Level-2	• Data Encryption and Key Management • Scripting (Python, SQL, Bash, etc.) • Data Inventory and Mapping	• Cloud Data Privacy Best Practices, Data Access Controls • Data Privacy Architecture, Incident Response • Privacy Policies and Standards Development	• Advanced techniques in managing data privacy across multi-cloud environments • Cross-cloud data privacy consulting • Designing multi-cloud data privacy strategies and ensuring compliance
Level-1	• Basic Data Privacy Tools • Basic Data Security and Privacy • Scripting (Python, SQL, Bash, etc.)	• Understanding Common Data Privacy Standards and Protocols • Data Privacy Basics • Continuous Monitoring and Incident Response	• Advanced data privacy in hybrid environments • Building and managing comprehensive data privacy programs across different environments • Multi-cloud data privacy architecture design and implementation

Data Learning Paths

Data Engineer to Data Governance Track

Learning Path from I to T to Pi

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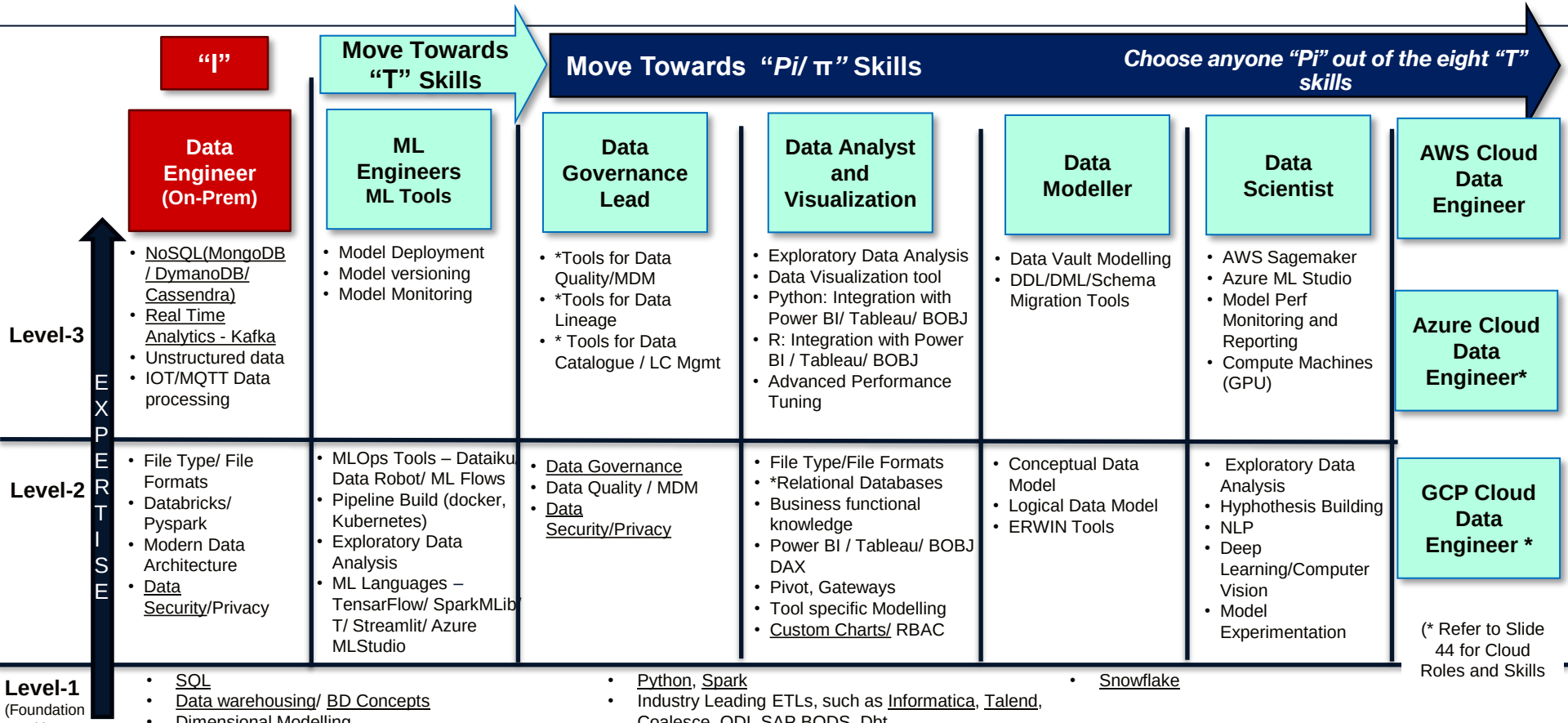
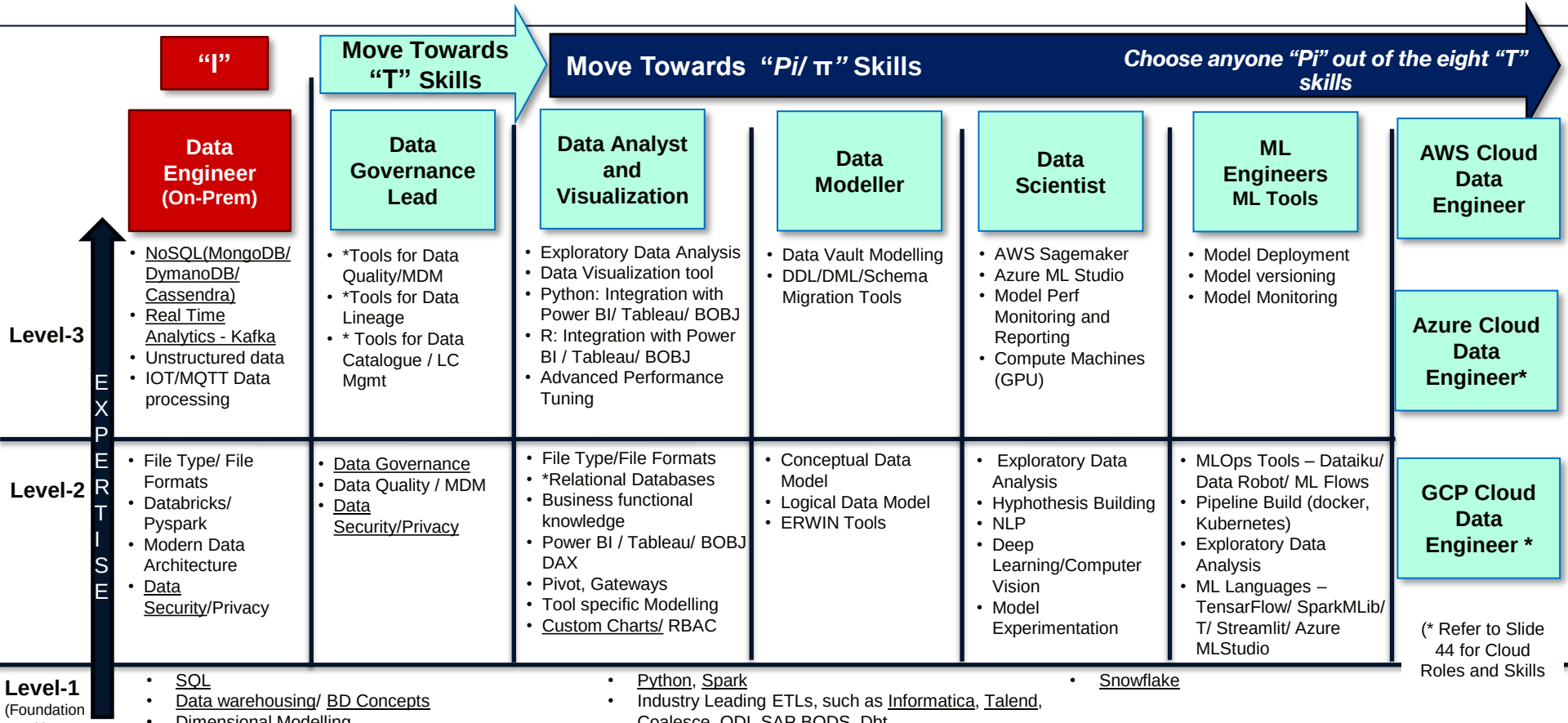


Data Engineer to Data Governance Track

Learning Path from I to T to Pi

Hitachi Digital Services



Data Engineer to Data Governance Track

Learning Path from I to T to Pi

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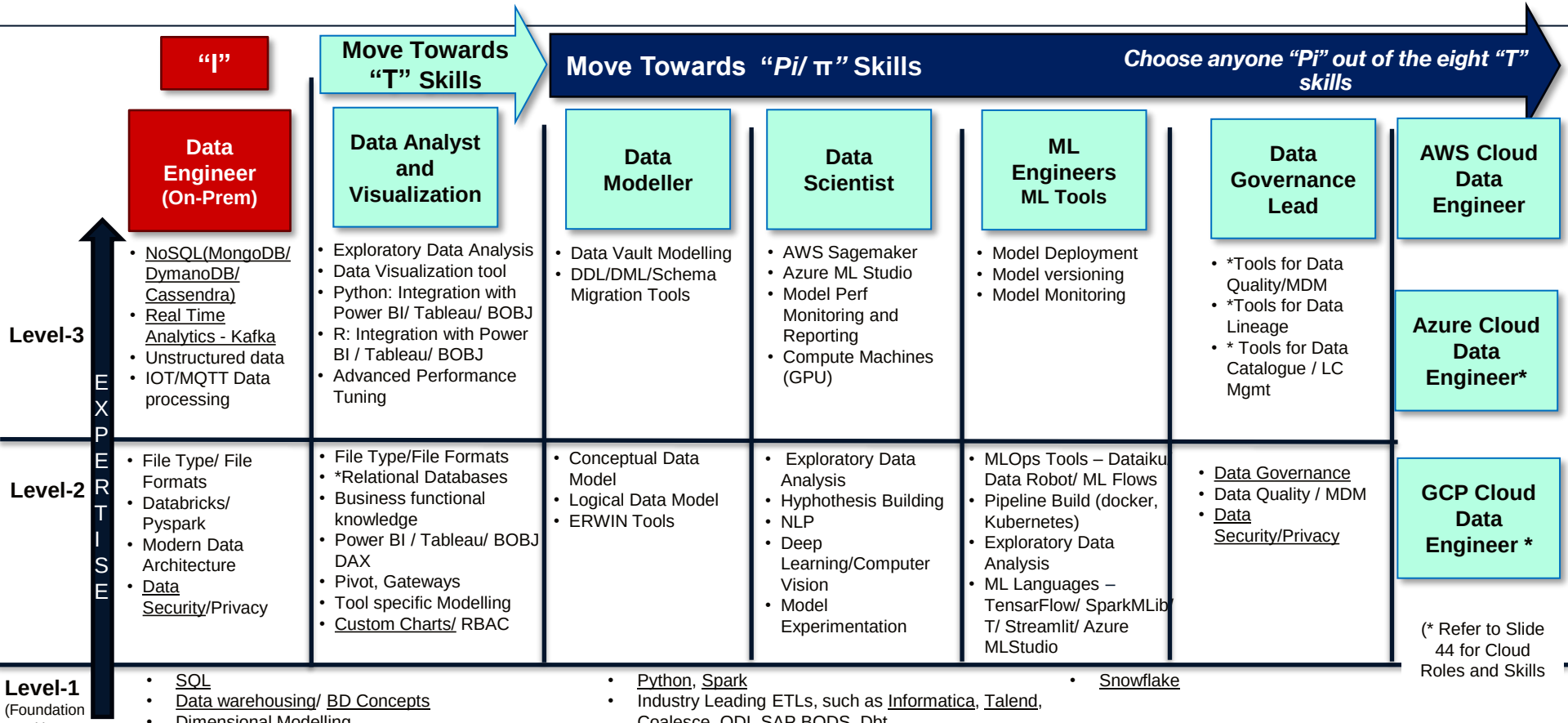

Data Engineer to Data Governance Track

Learning Path from I to T to Pi

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"I" — **Move Towards "T" Skills** — **Move Towards "Pi/ π" Skills** — *Choose anyone "Pi" out of the eight "T" skills*

EXPERTISE

	Data Engineer (On-Prem)	Data Modeller	Data Scientist	ML Engineers ML Tools	Data Governance Lead	Data Analyst and Visualization	AWS Cloud Data Engineer
Level-3	• NoSQL(MongoDB/ DymanoDB/ Cassendra) • Real Time Analytics - Kafka • Unstructured data • IOT/MQTT Data processing	• Data Vault Modelling • DDL/DML/Schema Migration Tools	• AWS Sagemaker • Azure ML Studio • Model Perf Monitoring and Reporting • Compute Machines (GPU)	• Model Deployment • Model versioning • Model Monitoring	• *Tools for Data Quality/MDM • *Tools for Data Lineage • * Tools for Data Catalogue / LC Mgmt	• Exploratory Data Analysis • Data Visualization tool • Python: Integration with Power BI/ Tableau/ BOBJ • R: Integration with Power BI / Tableau/ BOBJ • Advanced Performance Tuning	**Azure Cloud Data Engineer***
Level-2	• File Type/ File Formats • Databricks/ Pyspark • Modern Data Architecture • Data Security /Privacy	• Conceptual Data Model • Logical Data Model • ERWIN Tools	• Exploratory Data Analysis • Hyphothesis Building • NLP • Deep Learning/Computer Vision • Model Experimentation	• MLOps Tools – Dataiku/ Data Robot/ ML Flows • Pipeline Build (docker, Kubernetes) • Exploratory Data Analysis • ML Languages – TensarFlow/ SparkMLib/ T/ Streamlit/ Azure MLStudio	• Data Governance • Data Quality / MDM • Data Security/Privacy	• File Type/File Formats • *Relational Databases • Business functional knowledge • Power BI / Tableau/ BOBJ DAX • Pivot, Gateways • Tool specific Modelling • Custom Charts/ RBAC	**GCP Cloud Data Engineer ***
Level-1 (Foundation Track)	• SQL • Data warehousing/ BD Concepts • Dimensional Modelling	• Python, Spark • Industry Leading ETLs, such as Informatica, Talend, Coalesce, ODI, SAP BODS, Dbt				• Snowflake	

(* Refer to Slide 44 for Cloud Roles and Skills

Data Engineer to Data Governance Track

Learning Path from I to T to Pi

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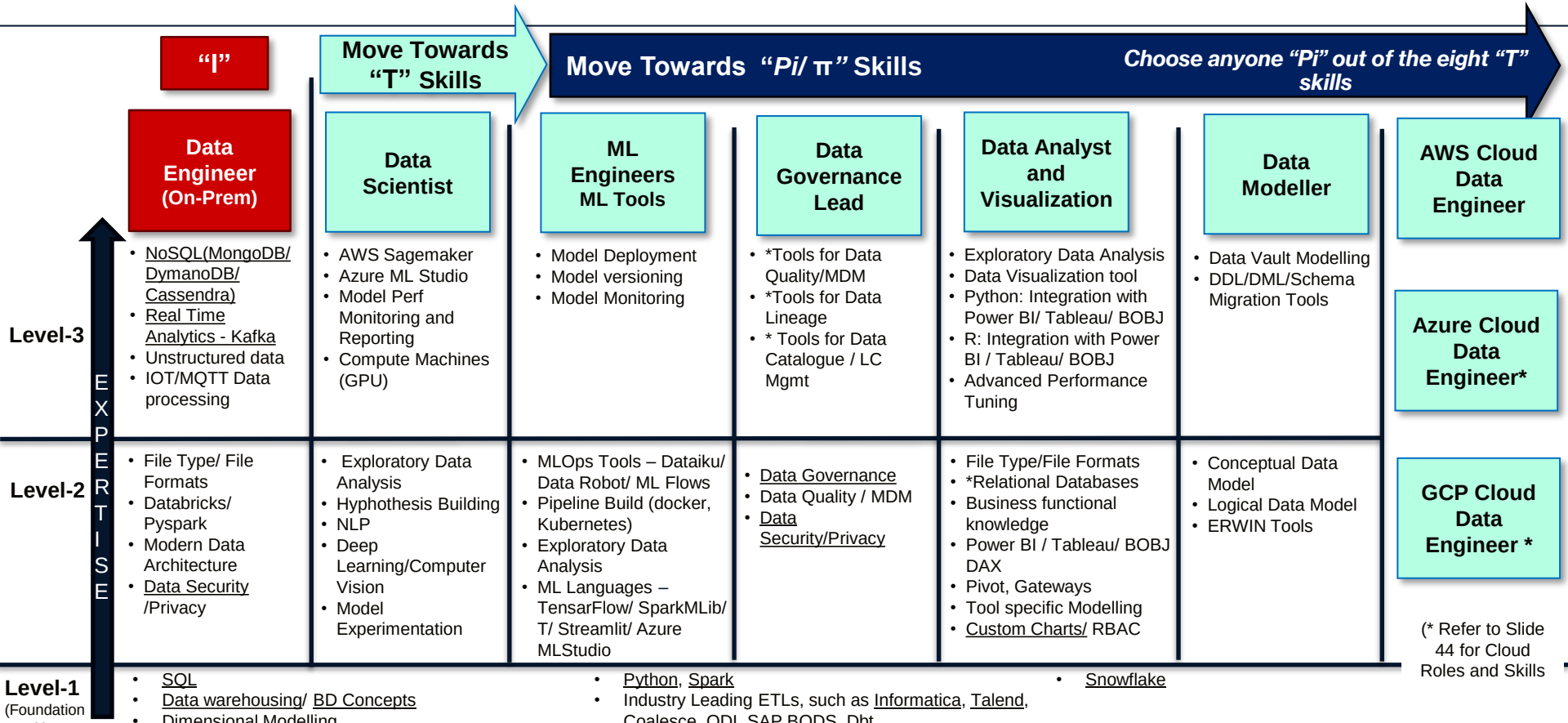

AWS, Azure, GCP Cloud Engineer roles and skills

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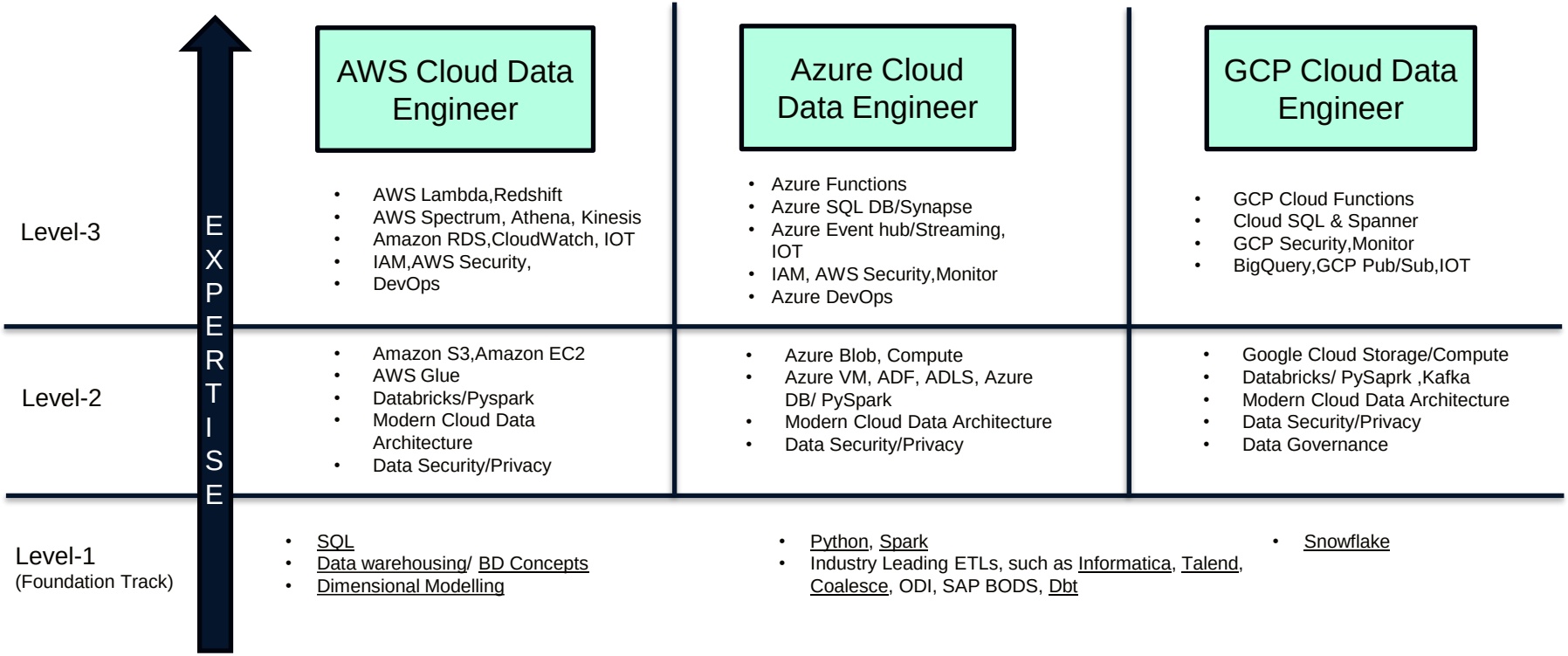

Next Steps

Next Steps

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- VDC, PDC, EMEA, Leads to provide employee details in the email sent on 6th June.
- India self-assessment data will be mapped and employees will receive information from L&D on Role based learning paths
- Learning to commence in Q1 and to be completed by Q2.

	Cloud & Apps
1	Java Backend Developer
2	.NET Backend Developer
3	NodeJS Backend Developer
4	Frontend/UI Developer
5	AWS Cloud Services
6	Azure Cloud Services
7	AWS Cloud Infra Engineer
8	AWS Cloud Infra Migrations
9	AWS Cloud Infra Designer
10	Azure Cloud Infra Engineer
11	Azure Cloud Infra Migrations
12	Azure Cloud Infra Designer

	HARC
1	Cloud Engineers
2	SRE
3	HARC SRE
4	Application Security Analyst
5	DevSecOps Analyst
6	SOC Analyst
7	Data Security Analyst
8	GRC Analyst
9	Vulnerability Management Analyst
10	Data Privacy Analyst
11	

	Testing
1	QA Engineer
2	Functional Automation Engineer
3	NFR Automation Engineer
4	Test Engineer
5	Penetration Test Engineer
6	Performance Test Engineer
7	Automated Test Engineer

	Data
1	Data Engineer
2	ML Engineers
3	Data Governance Lead
4	Data Governance Lead
5	Data Modeller
6	Data Scientist

	DevOps
1	DevOps Engineers
2	AWS DevOps
3	Azure DevOps

Guidelines and Action Required for Employees

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Guidelines for this FY –

- (I) In your current Competency - If you are at Level 1 (0-3 yrs exp), achieve for Level 2 and stretch for Level 3.
- (T) In new Competency Area – select a new competency area and achieve for Level 2 proficiency and stretch for level 3 to broaden your knowledge.
- (π) Time permitting add a third Competency Area to gain broader knowledge.

	I	T	Pi/ π
Java Full Stack Developer	Core Java Microservices/ Spring Basic Database Skills	ReactJS/ AngularJS	AWS Foundations
Data Engineer	Data Integration Engineer	Machine Learning Skills	Data Visualization Skills

#	Action	Timeline	Responsibility
1	Decide based on your current role, expertise and business demand	In the week of June 10th	Developer/ Engineers
2	Consult with your Reporting Manger, Project Manager, and CoP Leader for identifying your I,T and Pi/ **π** for Fy 24 Learning Plan	By June 21st	Developer/ Engineers
3	Mention the Skill identified in your Development Goals on HiNext	By June 21st	Developer/ Engineers
4	You are required to build expertise in two Competency Sets at a minimum of Level 2 and time permitting pick a third competency set for broader knowledge.	By November 2024	Developer/ Engineers

Capability Leaders and SMEs for employee guidance

Hitachi Digital Services

Sub Practice	Americas (vertical leads)	APAC	EMEA and PDC	IDC	VDC
Cloud/ Apps	Aneesh Basheer Shriram Narayanan Manoj Jajoo Srinivas Tadepalli	Vien Quan Nguyen	Andrew Twigg and Paulo Valerio	Sridhar Katla Full Stack Java: Kiran Arshakota, UI Developers: Kiran Arshakota Full Stack .Net: Sumod Sethumadhavan AWS Cloud Engineers: Satish Khodke Azure Cloud Engineers: Aditya Kumar Gupta DevOps Engineers: Deepak Kollangode Seshamani SRE: Nagesh BS, Kishor Sonaiya RunOps/CloudOps: Praveen Prasanna FinOps: Himanshu Dubey Performance Engineering, Observability: Madhan Viswanath HCAP: Ramesh Lakshmipathy Security Services: Narendra Kolhe, Mohammmed Yasreeb Hussain	Cloud & Data Leaders Hong Duc Nguyen C&D LL Nguyen Dinh Le Hoang CoE Leaders: Dung Minh Dang Quy Thanh Nguyen Cloud & DevOps: Hung Quang Tong Fullstack & Mobile: Tho Nguyen Anh Vo Anh Huu Le
Data			Paulo Valerio	Senthil Ramachandran, and Suresh Babu	Phi Van Tran
Testing	-	-	-	Prasanth Gorti	Hue Dieu Mach
HARC	Marimuthu Muthusamy	-	-	Saradhi Nallani Chakravarthy	Than Tan Nguyen Quan Pham

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Thank You