

Building the next  
generation of apps  
on AI-driven platforms



As organizations embark on digital transformation journeys and apply new ways of interactions, such as conversational, and cognitive interfaces, machine learning, etc., there is a growing need to develop working prototypes and build systems, rapidly.

A Smart Apps Platform (AI-driven software development platform) reimagines the software development lifecycle by helping to identify patterns and automation of tasks, across the software's lifecycle. It enables building of working prototypes and digital innovations that augment and blend well with existing processes. The platform helps to rapidly develop smart

applications that are intelligent, adaptive, and understand the users and their environment. It provides the flexibility, agility and industrialization required to churn out modern applications consistently and quickly. Configurable dashboards help to derive deep insights into the developmental process.

Smart apps platforms help to drive the adoption of new systems that align with new business models quickly, and assist in developing applications and prototypes faster. By leveraging AI, the framework identifies patterns, helps with autosuggestions, reviews, self-healing, etc. (See Figure 1).

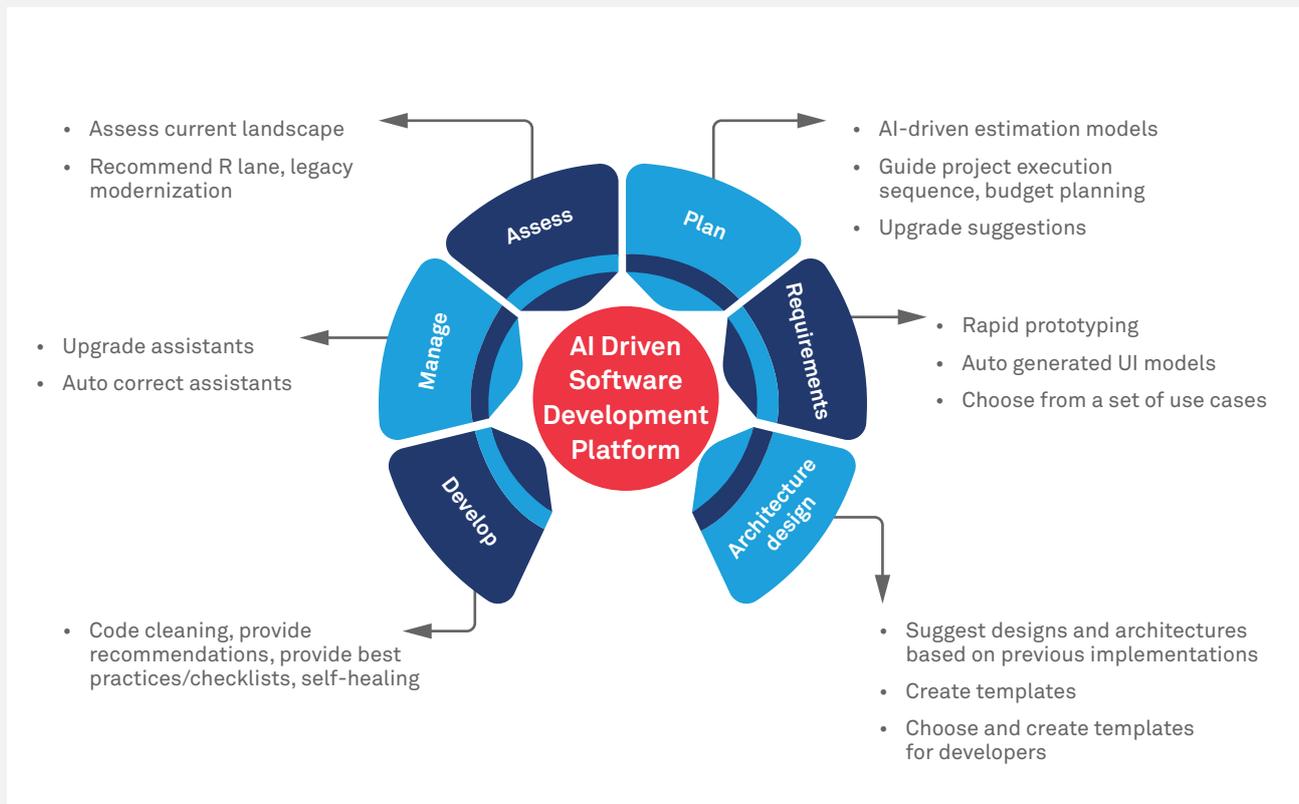


Figure 1: Smart apps platform

### AI in planning:

- AI driven estimation models: Estimation models can be trained to be more accurate based on information collected from previous project execution experiences
- Planning of execution: An AI assistant trained on past development experience, coupled with business-driving factors, will help the project management and business stakeholders take the right decisions, like project execution sequence, budget planning, etc
- Upgrade: Tools will suggest upgrades

### AI in requirements specification:

- AI driven knowledge base of related requirements, and how they can address a specific requirement, can help to accelerate development of working prototypes.
- Some amount of automation can be built into the UI generation process. For e.g.: We can have auto-generated UI models for common domain use cases which can be used as a base
- We can choose from a pre-defined set of use cases that address a specific innovation area or challenge

**AI in architecture/design:** The framework will suggest alternate designs and architectures based on previous implementations, which will help guide the architect to take the right decisions. The framework will help choose and create templates for developers.

**AI in code generation:** Code snippets can be generated, based on requirements and needs, and integrated into the code. Code can be added as a binary reference or as a snippet that is embedded into the code where required to fulfil the functionality.

- Code can be cleaned for sustainability and endurance, periodically
- Developer assistants can help the developer by giving recommendations and providing best practices/checklists
- Data model creation can help in auto creation of data models for UI models
- Upgrade assistants can help by suggesting any upgrades of the underlying software

- Code as templates: Software code can be made available as templates with the coding standards of the project chosen by the architect with the non-functional requirements added. Reusable code can be made available in a global repository. Suggested elements for code reuse can be recognized based on patterns identified
- Self-healing code assistants can go through code corrections and apply them on other pieces of code before a new build starts. Logs can be analyzed to flag errors and suggest ways to fix the errors
- Review assistant: self heal/auto correct assistant, debugging assistant

**AI in deployment and release:** Upgrade assistants, auto correct assistants help to ease the deployment process.



## Rapid development of applications with smart apps platform

Smart apps platform enables building next gen architectures, automation of code generation, reviews, deployment, refactoring, and code compliance; and is driven by AI driven digital knowledge framework and other accelerators.

It includes features like citizen development-a bot-based development for integration, UI, etc., frameworks for modernization, microservices, migration, and cloud journeys (See Figure 2).

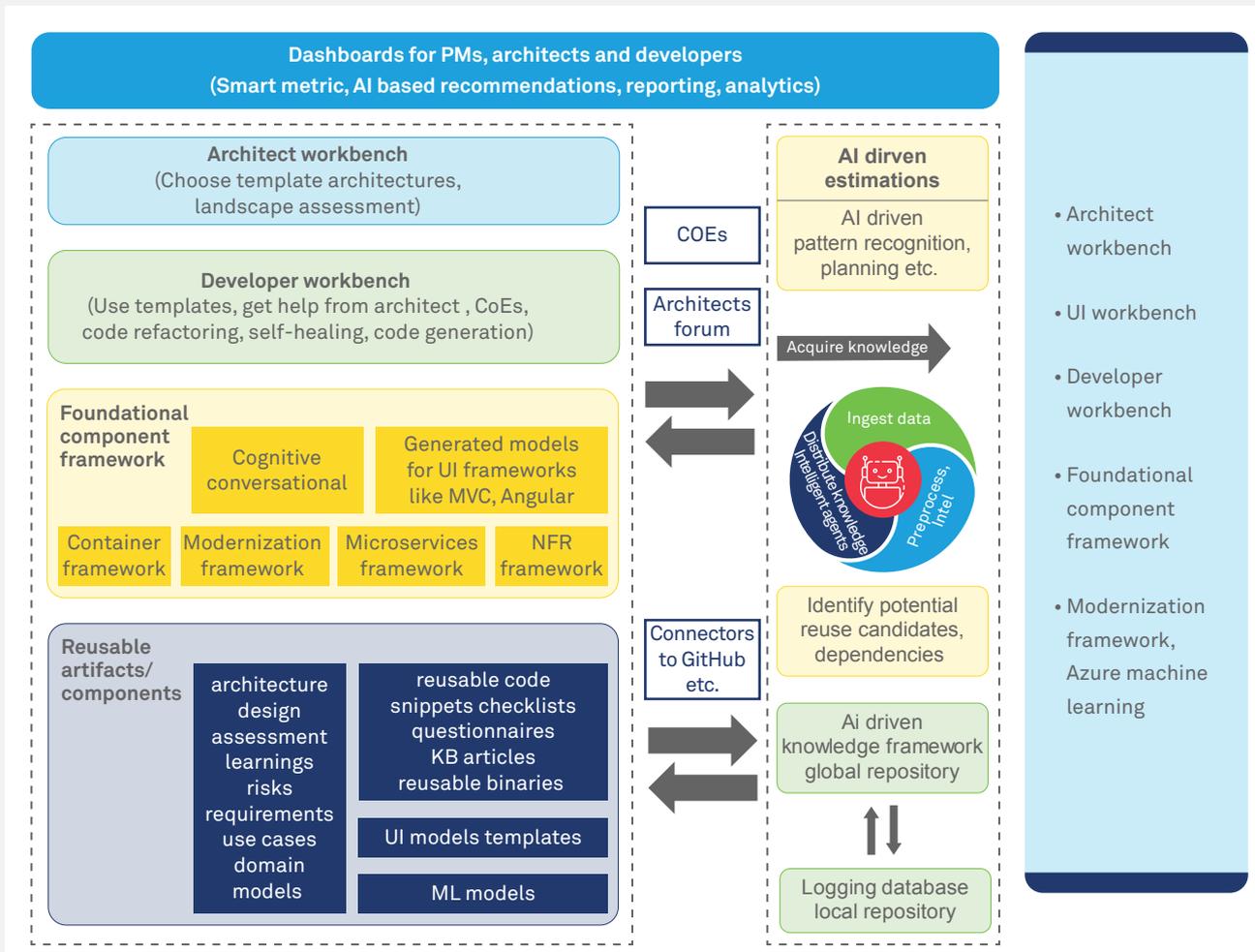


Figure 2: Smart apps platform – expanded view

- Architect workbench helps the architect choose use cases, requirements, architecture patterns and define the templates and specific work items for developers
- UI workbench helps define UI models by reusing existing or generating UI models
- Developer workbench helps the developer by providing help whenever he/she is stuck, aligning the code to standards, refactoring, suggesting reusable components and adding them, helping the developer to collaborate with architects, COE teams, etc
- Foundational component framework consists of frameworks that help build applications very fast. Container framework helps in moving code

into containers. Modernization framework helps in modernizing the code. NFR framework brings in standard NFR functionalities into all the pieces of code. Modernization framework consists of upgrade assistant, assessment assistant, UI conversion tool, upgrade frameworks, upgrade-auto suggest, etc. Microservices framework consists of frameworks for developing and running microservices, discovery, configuration templates, routing and orchestration templates etc. It also helps in citizen development - a bot-based development for integration and accelerating cloud journeys

## Digital knowledge framework – foundation for smart apps platform

Digital knowledge framework is the foundation for the AI driven software platform. The foundation framework leverages AI and Azure Cognitive Search. The knowledge base consists of architecture, design, requirements, UI models, explicit and tacit knowledge, domain knowledge, best practices, templates, checklists, code

samples and estimation models from previous project experiences as well as GitHub, etc. (See Figure 3). It consists of curated templates and code snippets, which help in the rapid development of working prototypes as well as building code.

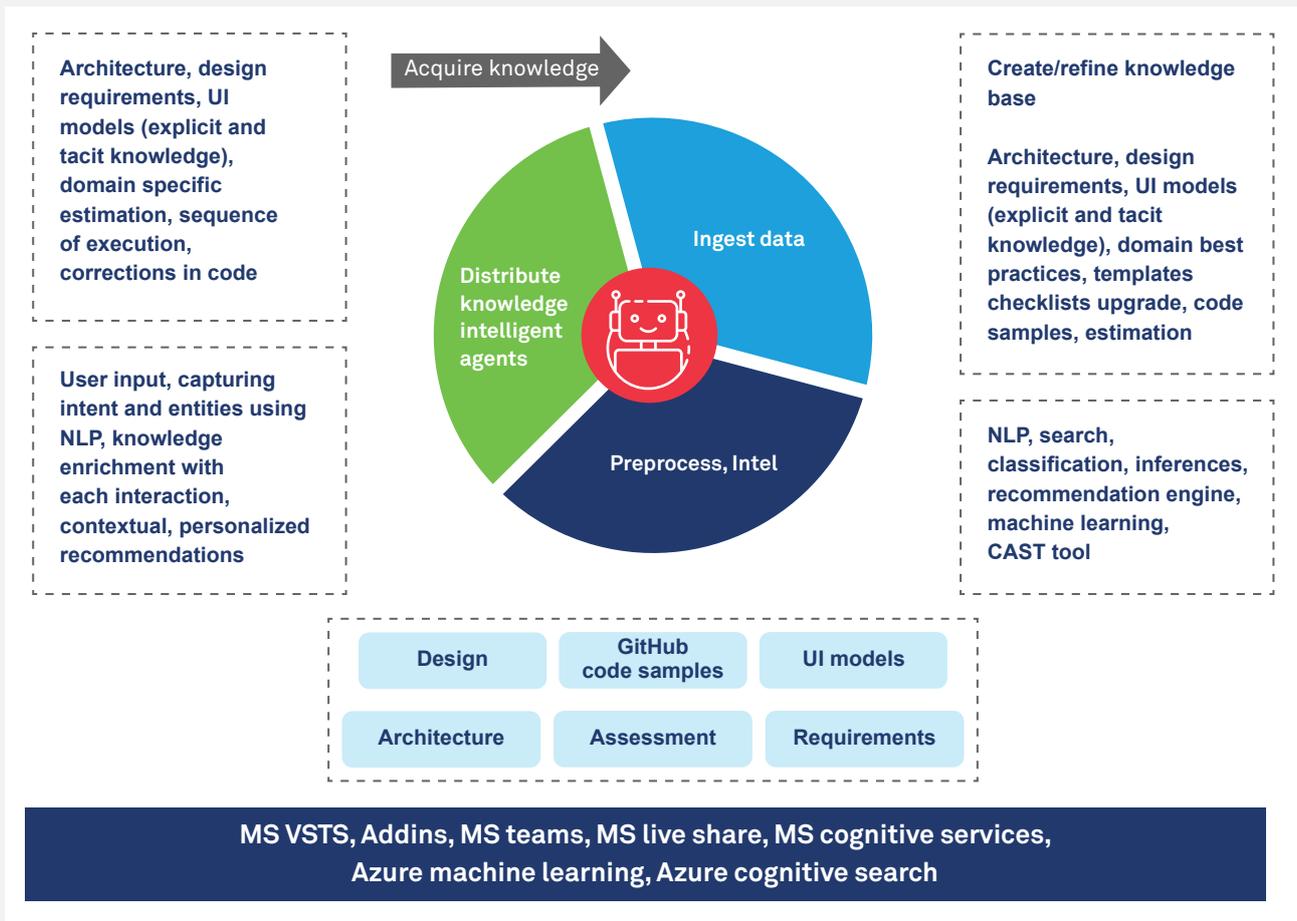


Figure 3: Digital knowledge framework

## Going digital

A smart apps platform helps rapid smart applications development. Smart applications connect people, things and businesses intelligently to deliver rich, adaptive, personalized, immersive, contextual experiences to users over any number of interfaces that include mobile, web, among others. These applications leverage

artificial intelligence and incorporate intelligent features such as emotion and sentiment detection, vision and speech recognition, language understanding, knowledge, and search to help organizations in their digital transformation journey.

## About the authors

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