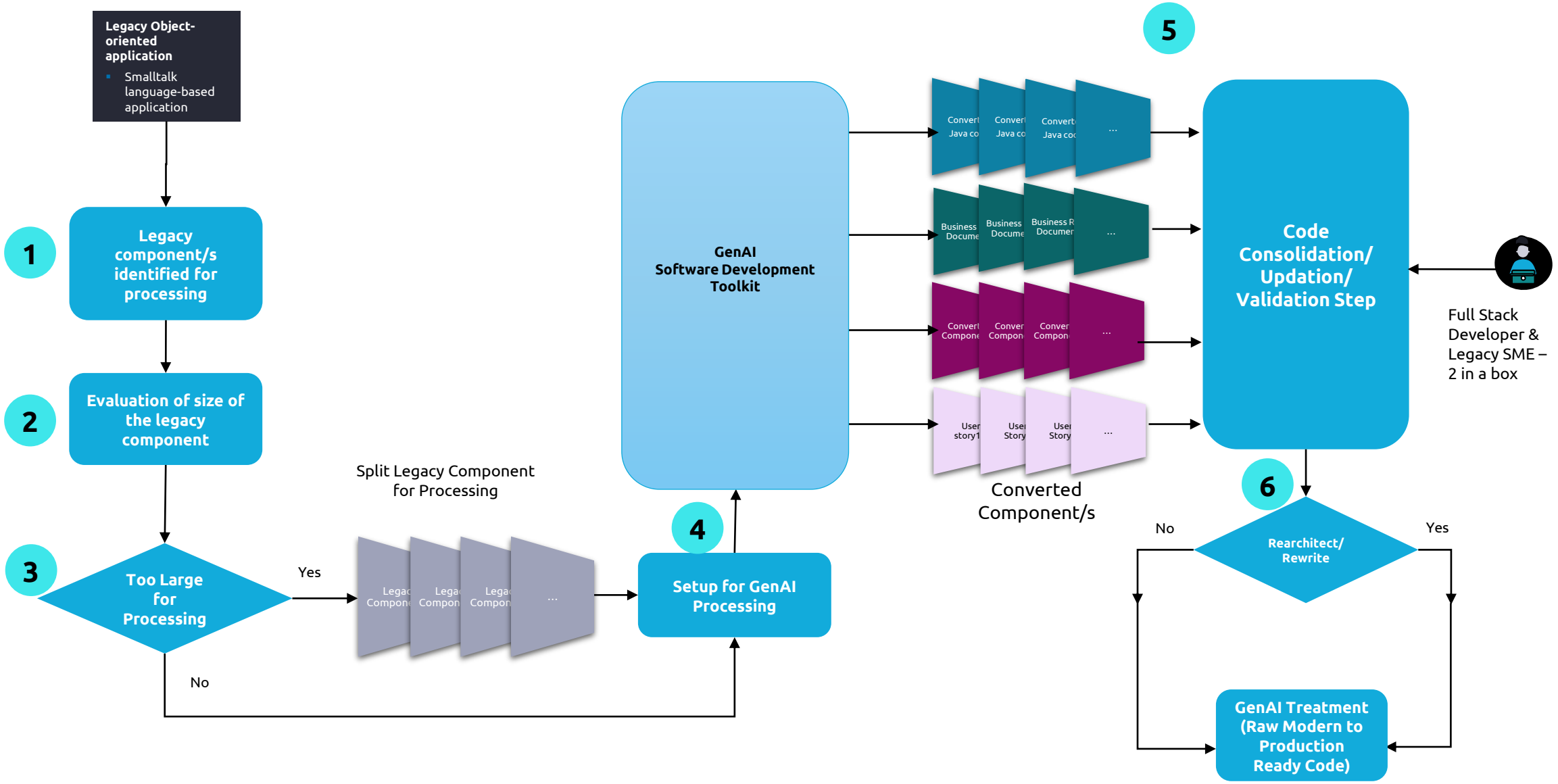
Our GenAI driven Cloud Native Generation of BRD, Code doc, User Story and target state spring boot app conversion for legacy programming languages



Capgemini's GenAI based Smalltalk code BRD, code documentation, user story generation and converting to target state Spring boot application experimentation outcomes right from our hands-on labs and PoCs

Code Category	No. of Files Processed	BRD, Code documentation, user story generation and migrating to target state boot app of Smalltalk code		Efficacy of the generated BRD, Code documentation, user story and code generation		Expected Efficiency Gains	
		Conversion %	Observations	Efficacy %	Observations	Efficiency Gain %	Observations
Smalltalk Programs	14	65%	• Modules with extensive business logic showed high conversion rate of levels up to 65% • Modules with good amount of Pseudo code Commented for future enhancement showed an 60% conversion rate • Modules with Smalltalk code calling common library functions/utilities showed an 65% conversion rate, with appropriate reference to git hub repositories of dependent libraries	75%	• Generated BRD, code documentation and user story had higher accuracy with certain exceptions(Ex. Code suggestions of how code reuse can happen with common functions). Conversion efficacy was also impacted due to Java specific coding optimization not applied on the generated Code documentation	60-65%	• Benefits found in leveraging BRD and code documentation as it provides ~65% acceleration and standardization for developers • Business logic (documentation) pseudo code extracted enables the developer to accelerate the development

#asset1

Generative AI for Smalltalk modernization

IMPACTS OF GEN AI

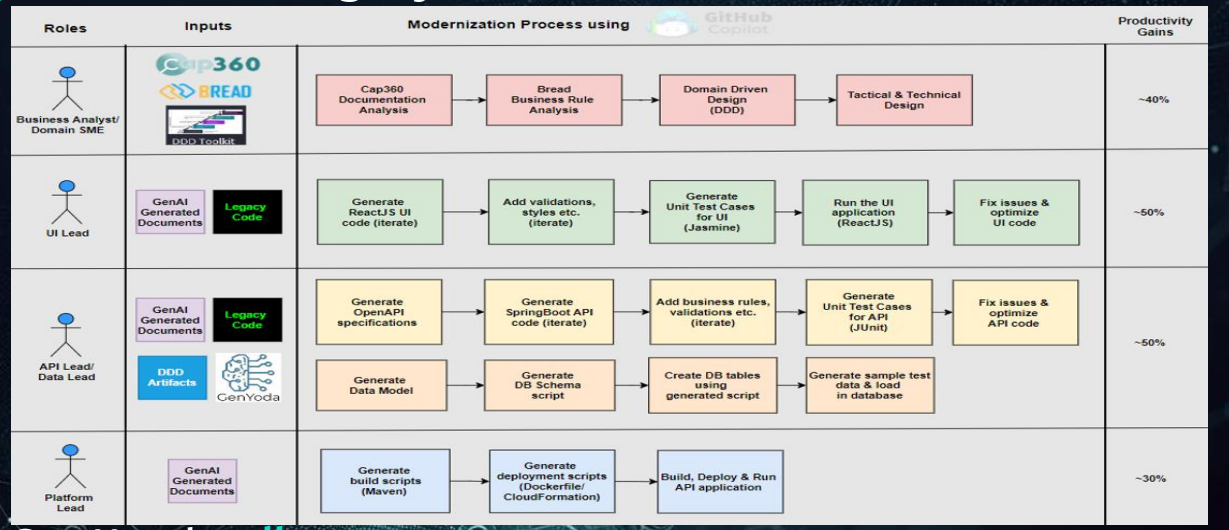
➢ Effects on the complete **product value stream**

Code Category	No. of Files Processed	BRD, Code documentation, user story generation and migrating to target state boot app of Smalltalk code		Efficacy of the generated BRD, Code documentation, user story and code generation		Expected Efficiency Gains	
		Conversion %	Observations	Efficacy %	Observations	Efficiency Gain %	Observations
Smalltalk Programs	5	65%	• Modules with extensive business logic showed high conversion rate of levels up to 65% • Modules with good amount of Pseudo code Commented for future enhancement showed an 60% conversion rate • Modules with Smalltalk code calling common library functions/utilities showed an 65% conversion rate, with appropriate reference to git hub repositories of dependent libraries	75%	• Generated BRD, code documentation and user story had higher accuracy with certain exceptions(Ex. Code suggestions of how code reuse can happen with common functions). Conversion efficacy was also impacted due to Java specific coding optimization not applied on the generated Code documentation	60-65%	• Benefits found in leveraging BRD and code documentation as it provides ~65% acceleration and standardization for developers • Business logic (documentation) pseudo code extracted enables the developer to accelerate the development

➢ Focus per **use case**

SOFTWARE DEVELOPMENT CONTEXT	ACTIVITIES	TEAM PRODUCTIVITY	SOFTWARE QUALITY	BENEFITS	RISKS & LIMITATIONS	VENDOR TOOLS (ChatGPT, Copilot can be used for generic tasks as well.)
New Software	Business Analysis & User Stories Recommendations	****	****	Improves understanding of user needs	May overlook non-functional requirements	QoQO
	UI Design	****	***	Acceleration and qualityfor assembly when using UI frameworks (Angular, React, Vue, ...)		
	Software Architecture Modeling – process, logic, data	****	****	Facilitates optimal system design	AI may not consider all business constraints	-
Software Modernization	Software Refactoring	***	***	Facilitates refactoring efforts (software design flaws, quality scores, technology upgrade, ...)	May not fully capture complex logic	Deepsource
	Reverse engineering and documentation	***	**	Simplify the analyse and understanding of complex code.	Reverse engineering on obfuscated code can help an hacker to find security breaches.	Github Copilot Chat

Mainframe legacy modernization



➢ Gen AI tools **gallery**