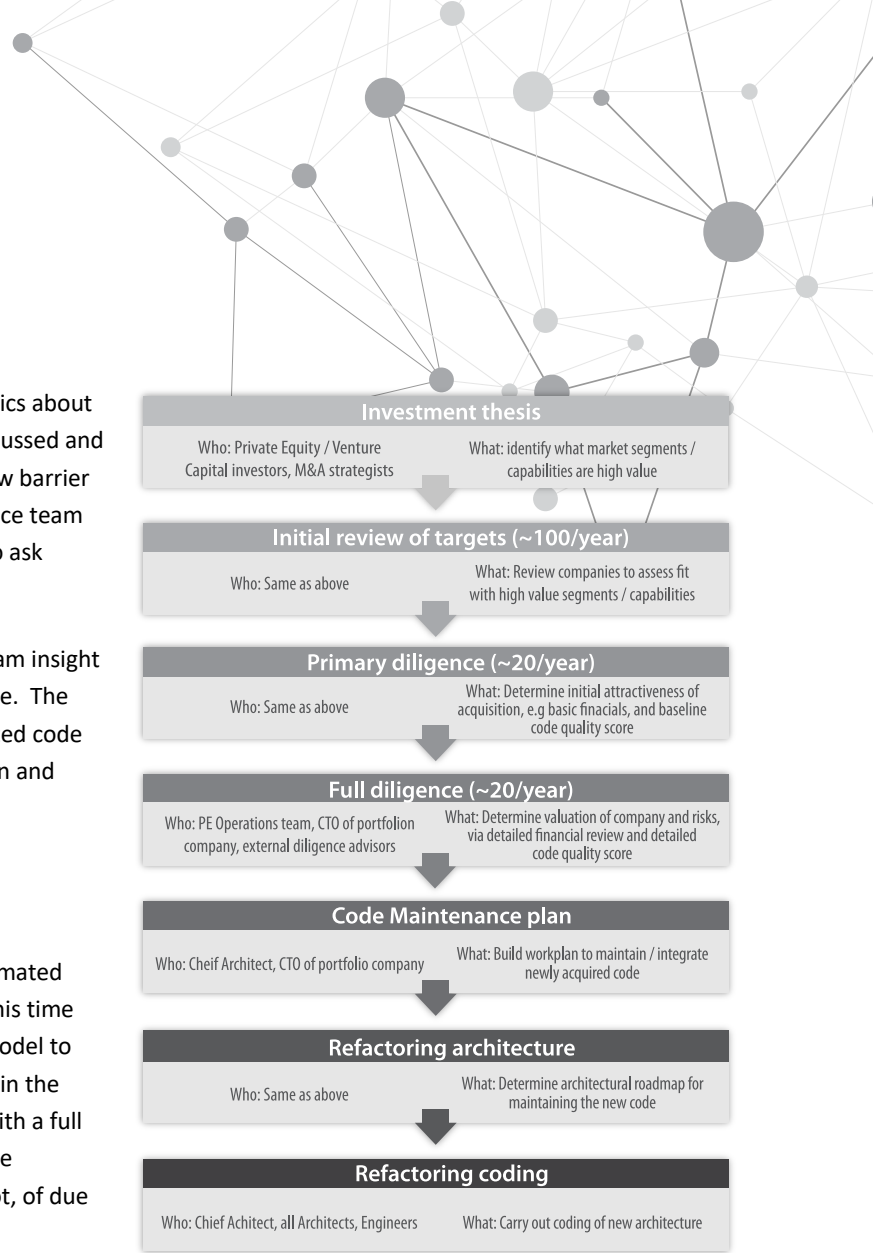# Technical Due Diligence

Sema provides Diligence teams consistent, meaningful metrics about codebases and development teams to help drive a more focussed and accurate technical due diligence process. Sema enables a low barrier for participation by target companies that allows the diligence team to go into discovery interviews highly informed and ready to ask specific, focused questions.

Sema combines architectural and line-level analytics and team insight in a single solution to create the best overview of a codebase. The Sema professional services team, working with our automated code analysis, creates a Health Check to help you gain information and context for rapid, accurate technical due diligence.
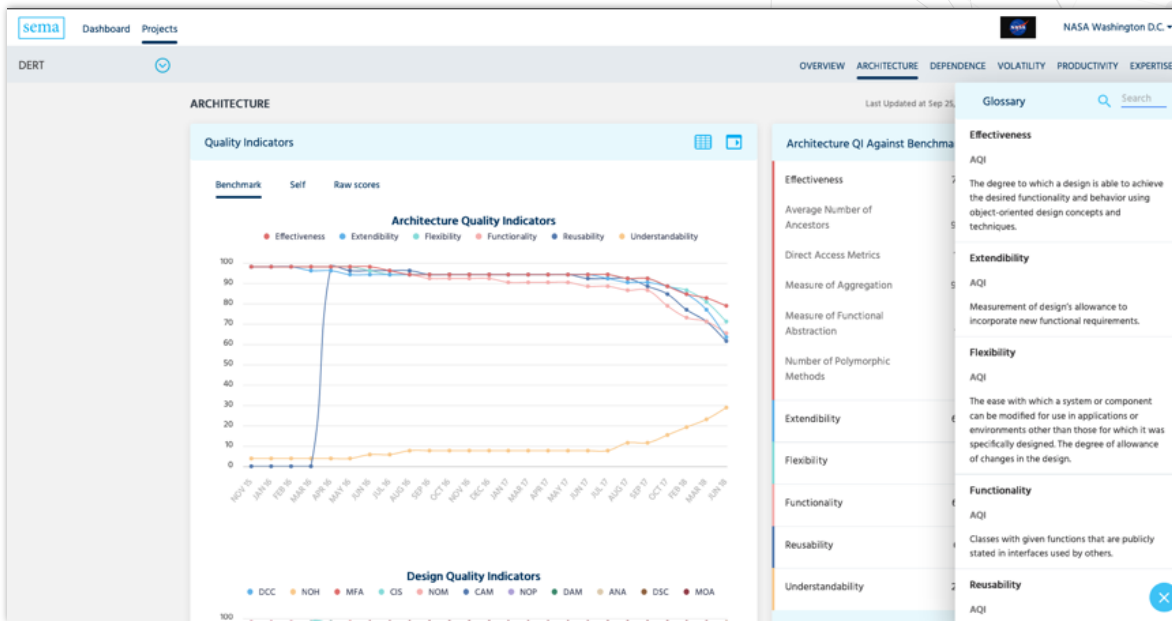
Technical Debt Calculation

Our technical debt calculator automatically provides an estimated labor cost required to bring the codebase up to standard. This time and cost estimate can be directly integrated into the deal model to yield a more accurate estimate of both asset valuation and, in the event of an acquisition, integration cost. When combined with a full diligence on targets that advance to that stage, technical due diligence will become a strong point, rather than a blind spot, of due diligence for software-centric targets.
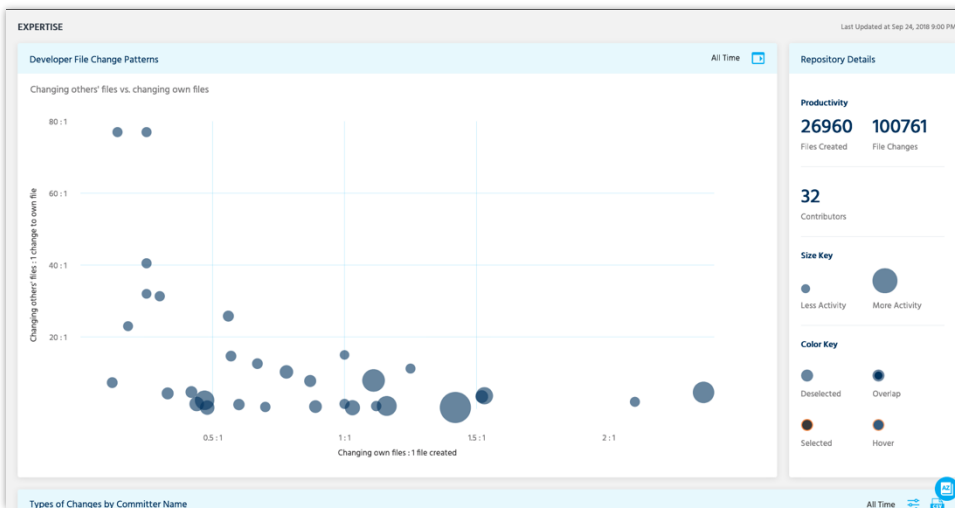
Investment thesis

| Who: Private Equity / Venture Capital investors, M&A strategists | What: identify what market segments / capabilities are high value |

Initial review of targets (~100/year)

| Who: Same as above | What: Review companies to assess fit with high value segments / capabilities |

Primary diligence (~20/year)

| Who: Same as above | What: Determine initial attractiveness of acquisition, e.g basic financials, and baseline code quality score |

Full diligence (~20/year)

| Who: PE Operations team, CTO of portfolion company, external diligence advisors | What: Determine valuation of company and risks, via detailed financial review and detailed code quality score |

Code Maintenance plan

| Who: Chief Architect, CTO of portfolio company | What: Build workplan to maintain / integrate newly acquired code |

Refactoring architecture

| Who: Same as above | What: Determine architectural roadmap for maintaining the new code |

Refactoring coding

| Who: Chief Achitect, all Architects, Engineers | What: Carry out coding of new architecture |

Technical Debt and Cost Estimation

Project	Repository A	Repository B	Total
Total Tech Debt Days	256.73	284.33	518.1125
Project Tech Debt	$128,365	$142,165	$270,530
$/LoC	$1.65	$2.52	$2.01
Sum Total Tech Debt	$ 270,530		
Average of #/LoC			
Project Tech Debt	128365	142165	259056.25

Code Quality Insights

Financial diligence teams use a combination of interviews and access to reports and data. Technical due diligence teams interview the development team but lack the tools to evaluate the codebase of potential acquisitions. Sema's Architectural and Design Quality Indicator, combined with a roll-up of line-level warnings, provide potent insights into the extendibility, understandability and potential bug levels in a codebase. And understanding how the code quality had changed over the lifetime of the project, helps the deal team see how the project has evolved over time, or was changed rapidly in anticipation of sale.

Team Strategy Tools

Understand the strengths and weaknesses of the current development team, and use insight into developer expertise to identify who the deal team should interview, and to form initial post-acquisition strategies.