

# Can Systems Engineering be Agile? Development Lifecycles for Systems, Hardware, and Software

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**Abstract.** Agile development is alluring because of the promise of shorter cycle times and improved customer satisfaction. Some characteristics of software development and systems (and hardware) development are identified as key differentiators in selecting traditional, plan-driven vs. agile development. Additional underlying or root reasons are identified to substantiate these differences. These include gated vs. serialized processes, comprehensive vs. incremental system design, independent vs. dependent fabrication, up-front definition vs. continuous validation, and finish-to-start vs. finish-to-finish planning and execution. Some additional programmatic and technical criteria are identified for selecting traditional, plan-driven SE vs. agile methods. The two methods do not appear to be reconcilable when developmental hardware is involved.