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Literature Review on Software Development Models

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Methodologies in Software Development

V-Model and Its Variants

The traditional V-Model follows a sequential software development process, emphasizing validation and verification at each stage. Its primary limitation is rigidity, which has led to the emergence of variations:

- **W-Model**: Enhances testing by integrating it earlier in the process, creating a parallel development-test cycle.
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Comparative Analysis of Models:

Model	Key Features	Advantages	Disadvantages
V-Model Variants	Sequential testing phases with variations (W-Model, Sawtooth, Sharktooth)	Structured approach, improved client involvement	Rigid structure, resource-intensive
Agile Model	Iterative and incremental development, customer collaboration	Flexibility, rapid delivery, enhanced user satisfaction	High workload, potential for scope creep
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Conclusion and Future Directions:

Each software development model presents unique advantages and challenges:

- **V-Model Variants** improve testing structures but require resource-heavy planning.
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Future Research Directions:

- Enhancing the adaptability of the V-Model for dynamic project environments.
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The continuous evolution of software development methodologies ensures that new hybrid models will emerge, further bridging gaps between structured development and adaptability.

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