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Expert Systems as Applied to Future Space Transportation Syst

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SUMMARY AND CONCLUSIONS

Future space transportation system programs must utilize cost reduction tools and techniques in order to become viable entities in the prevailing political and economic environments. Expert system and knowledge based technology can provide this opportunity for significant cost savings. Current active programs may achieve some limited cost benefits via piecemeal applications to identifiable worthwhile targets. But, the real value of the technology lies in the inclusion of its principles in the initial requirements definition phase for the target program and application of these principles throughout the program life cycle. Therefore, it is clear that accommodation of this kind of usage which encompasses the application of technology using sound engineering principles requires the development of tools to accommodate implementation. This means that expert system life cycle standards similar to MIL-STD 2167 are required, various expert system architectures must be developed, e.g., distributed and hybrid distributed systems, large and complex expert systems must easily integrate and interface with procedural language systems such as Ada, and tools that automate the process of knowledge base rule generation from domain experts must be developed to simplify the knowledge acquisition process. Development of these tools and capabilities is realizable within the capabilities of existing technologies. In the current environment of intensive development effort in pursuit of these tools and capabilities, it is reasonable to assume expert system technology will be in a condition suitable to support development of the next generation of space transportation system elements.