

Automation to Autonomy; What is the Path to Certification?

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Autonomy vs Automation

Automation - the execution of a pre-defined task, performed without human assistance.

Autonomy - performance under significant uncertainties within an environment.



Certifying Complex Software

Software is **malleable** and requires updates.

No **global standard** for certifying software exists.

Existing standards are often **not mandated**.

Existing standards overlook **safety critical system** requirements.

What about DO-178B?

Levels of autonomy vary for different systems.

Not all autonomous systems are learning systems.

Certification of adaptive and dynamic systems.



Considerations for Certifying Software

An **overconfidence** in software.

Confusing **reliability** with **safety**.

A means of **self-checking** and **correcting** errors.

Protection against software errors.

Management of **data**.



Summary

Autonomy is a **spectrum**.

Complex software can be **adaptive** and **dynamic**.

Certification requires an **understanding** of **complex software**.