



- Multi-channel vs. single channel
- Diversify offerings/Additional services
- Change/Evolvability/Flexibility
 - "These things are changing so fast it's invention in the hands of the owner." (Hansen et al., 2007)







"As an evolving program is continually changed, its complexity, reflecting deteriorating structure, increases unless work is done to maintain or reduce it."

Proceedings of the IEEE, vol. 68, nr. 9, september 1980, pp. 1068.

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frameworks, even paradigms !

We are currently reaching the point where these theoretical principles can be applied at a new level, resulting in large-scale, flexible IS!

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"expect families of routines to be constructed on *rational principles* so that families fit together as **building blocks.** In short, [the user] should be able safely to regard components as black boxes."

McIlroy, *Mass Produced Software Components*, 1968 NATO Conference on Software Engineering, Garmisch, Germany.

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• Good design=

Low coupling and high cohesion!

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- Impact N → Combinatorial Effect !
- Resulting in:
 - Clear Principles on Right and Wrong
 - Systematic application by reusing Patterns







- Action Version Transparency
 - Theorem 3: "Action entities that are called by other action entities, need to exhibit version transparency."
- Separation of States
 - Theorem 4: "The calling of an action entity by another action entity needs to exhibit state keeping."

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- Every element is described by a design pattern, guaranteeing its stability. This results in *proven* evolvability.
- Information Systems are composed of Elements (~Mc Ilroy), and every element builds on other elements.
- Every design pattern is executable, and can be expanded automatically.

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