ASSESSING THE MATURITY OF INTERFACE DESIGN

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SYSTEMS DESIGN IS A LEARNING PROCESS

Claim

When we design large systems, **we do group learning.**

Collaborative engineering leaves traces : **change requests** are a sign of knowledge being acquired.

Group learning can be **quantified**.

OUTLINE

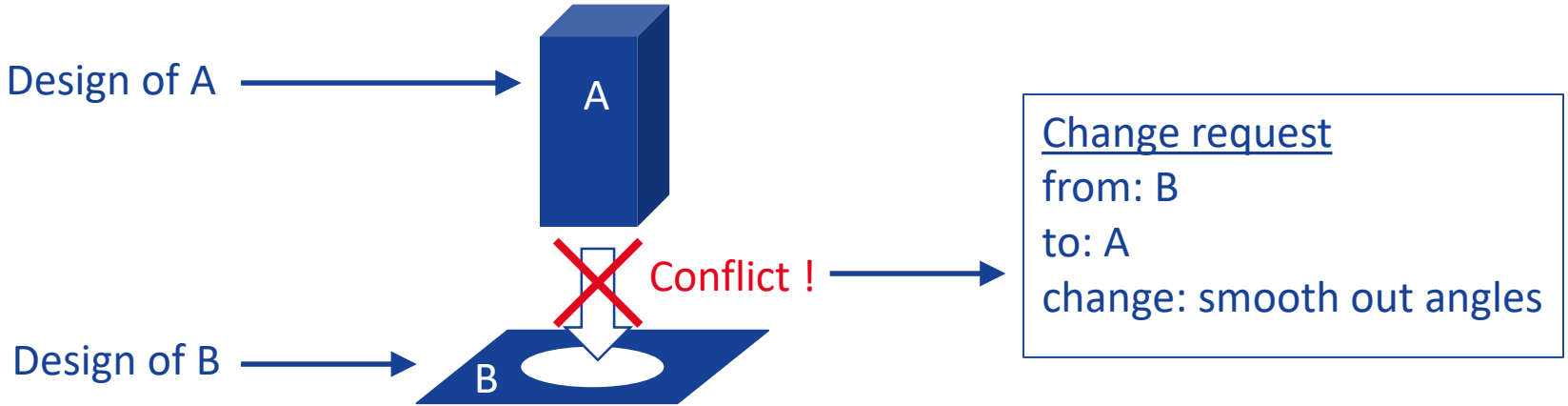
SYSTEMS DESIGN IS A LEARNING PROCESS

MEASURING INTERFACE MATURITY

EXAMPLES

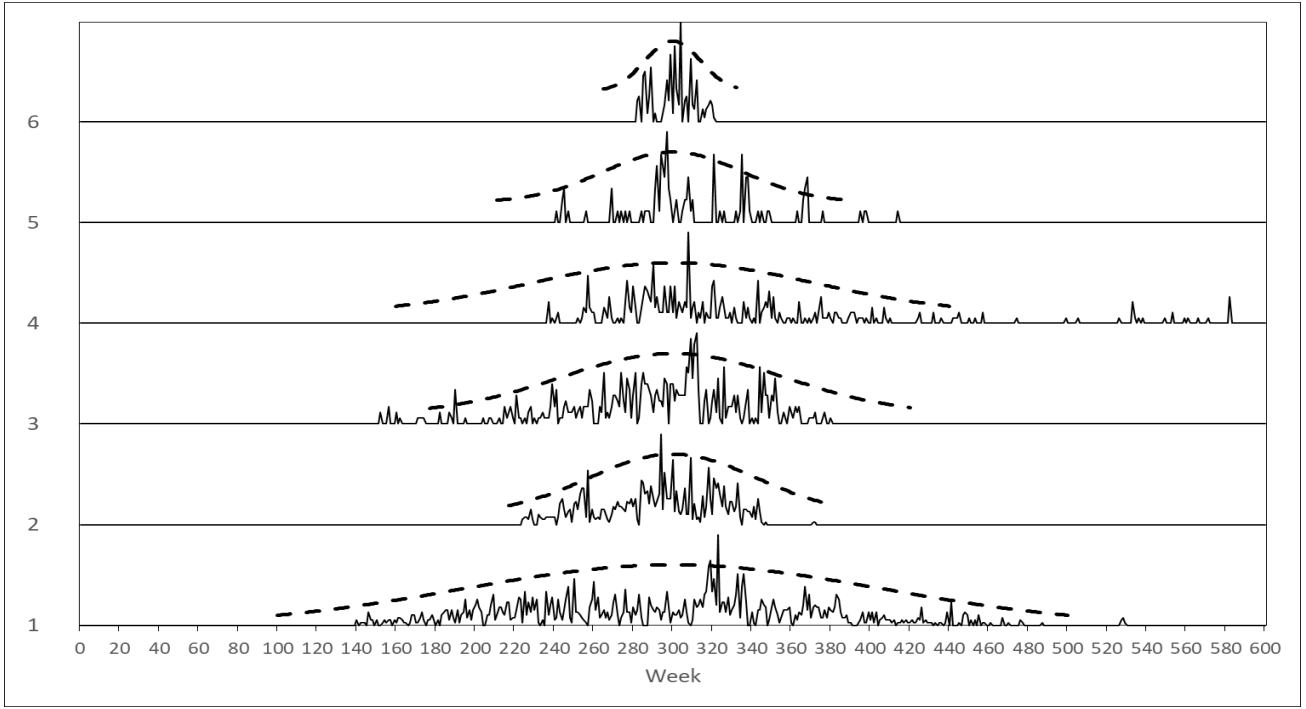
SYSTEMS DESIGN IS A LEARNING PROCESS

Design change requests are issued when technical decisions being made conflict with decisions made earlier.



SYSTEMS DESIGN IS A LEARNING PROCESS

Large quantities of changes might be needed to complete the design.



MEASURING INTERFACE MATURITY

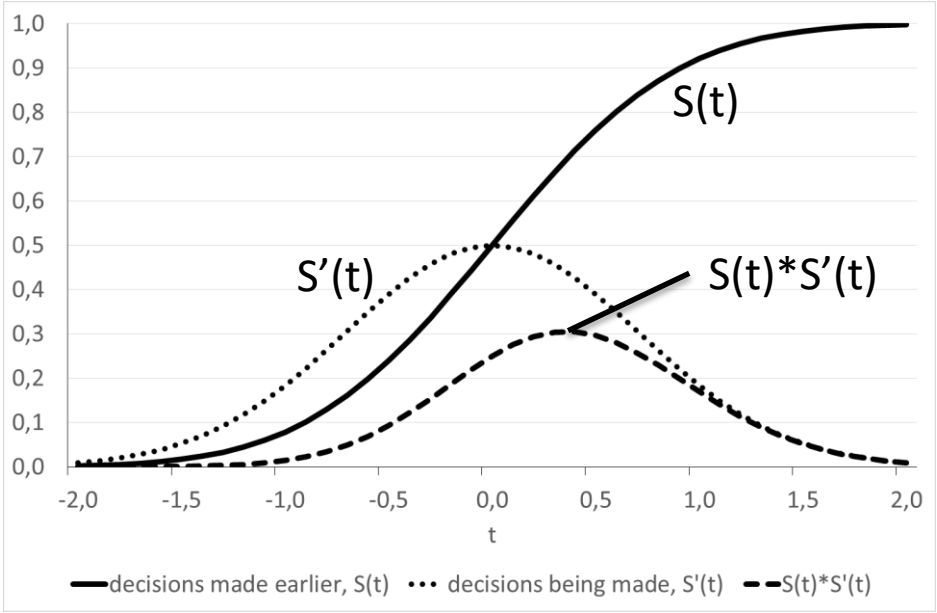
« Design change requests are issued when technical decisions being made conflict with decisions made earlier.”

Decisions made earlier: S(t) = $\frac{1+\mathrm{erf}(t)}{2}$

Decisions being made: S’(t) = $\frac{e^{-x^2}}{2}$

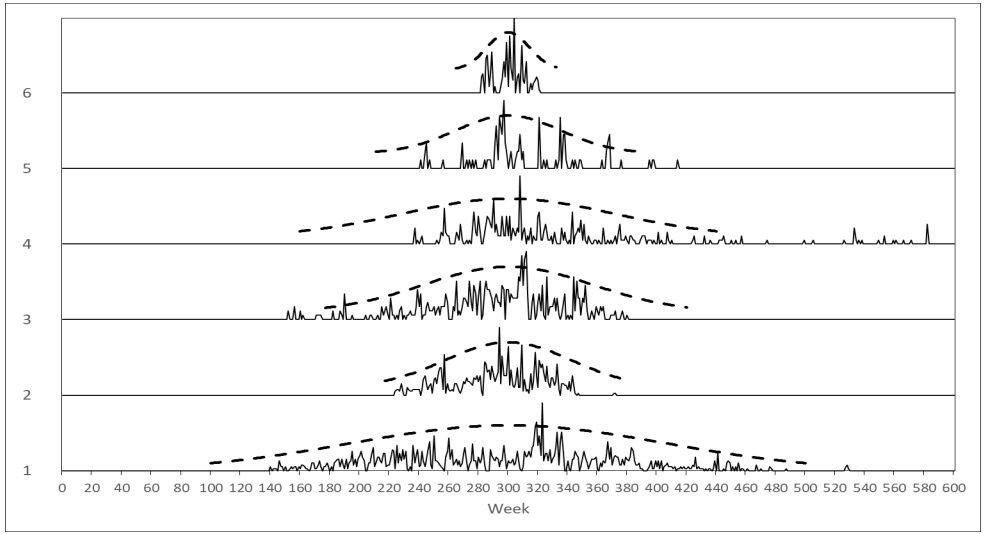
Change requests Generation Index:

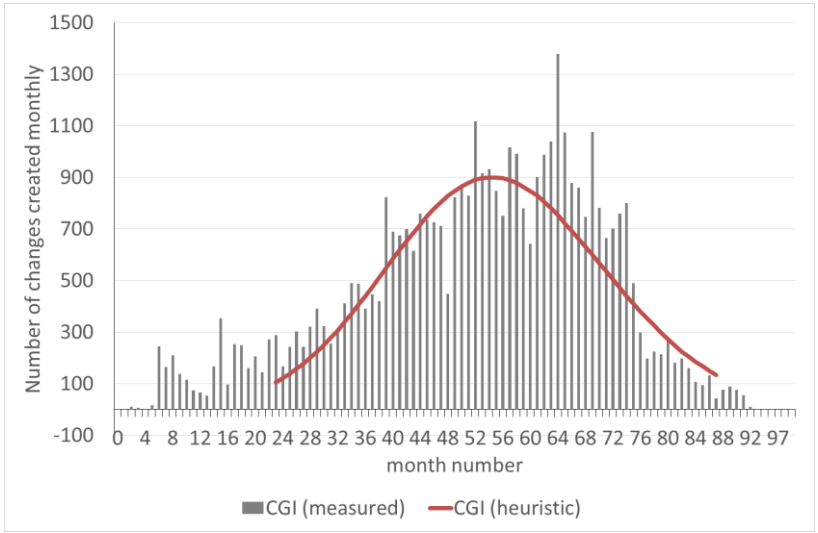
$$CGI(t) = S(t) * S'(t)$$



MEASURING INTERFACE MATURITY

The shape of the CGI recalls that of actual project data.



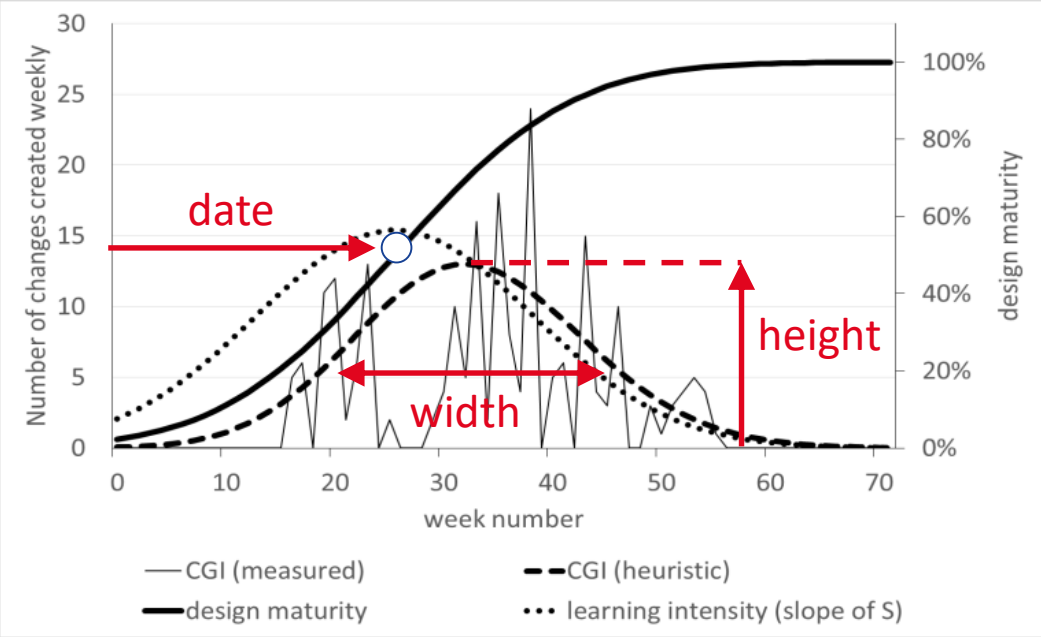


after Giffin (2007)

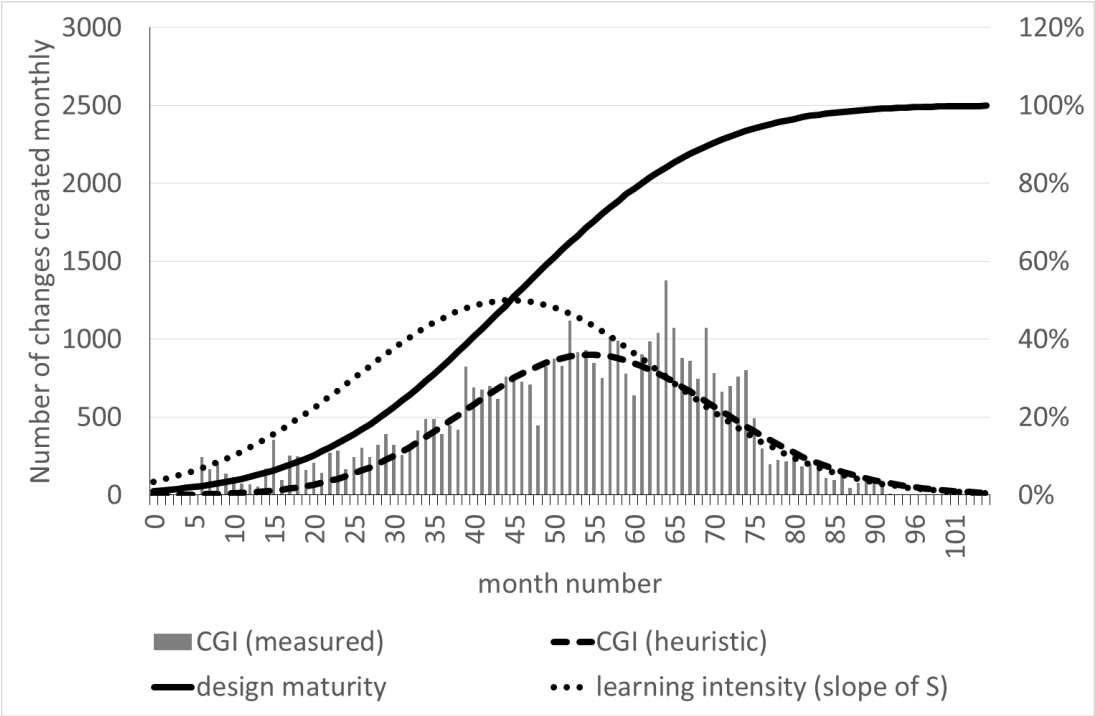
MEASURING INTERFACE MATURITY

CGI(t) has 3 parameters:

- Date
- Width
- Height



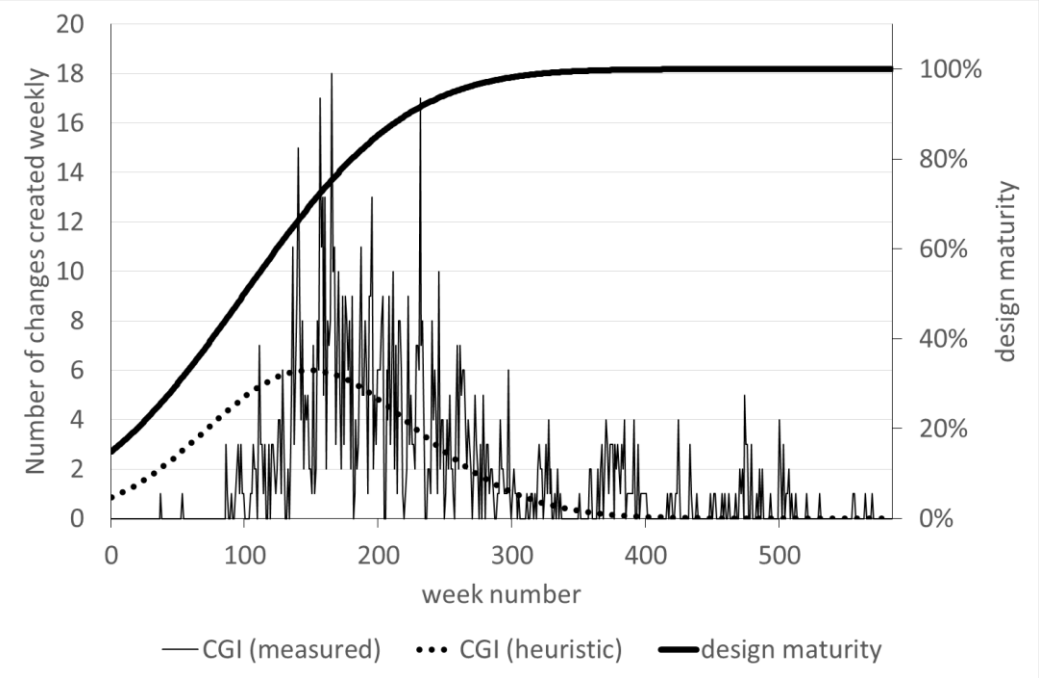
EXAMPLES



after Giffin (2007)

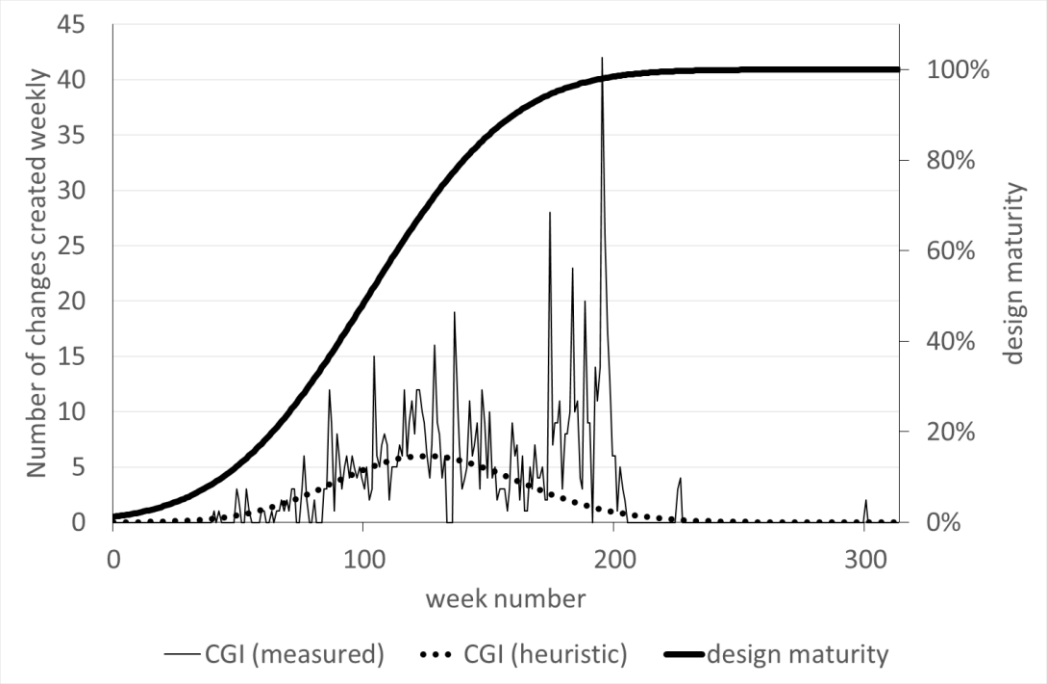
EXAMPLES

The « perfect » project



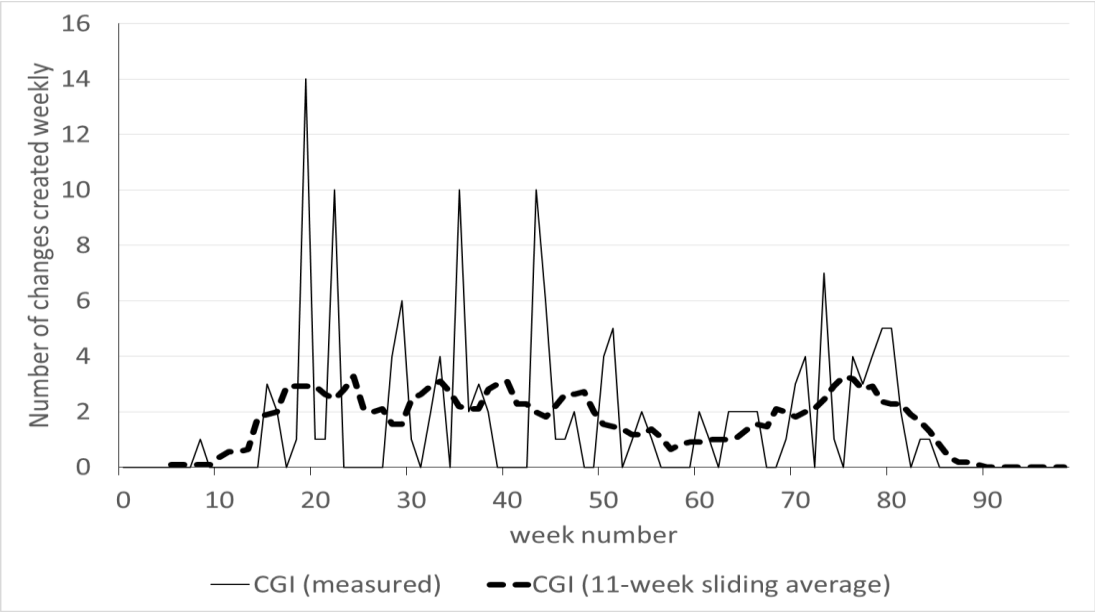
EXAMPLES

The « technical debt » project



EXAMPLES

The « flat » (never ending) project



DISCUSSION

Could the CGI benefit the management of large engineering projects ?

How well does it apply to other industries ?

Could the CGI be used to manage the contribution of several design teams within one project ?

…

Thank you
for your attention

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