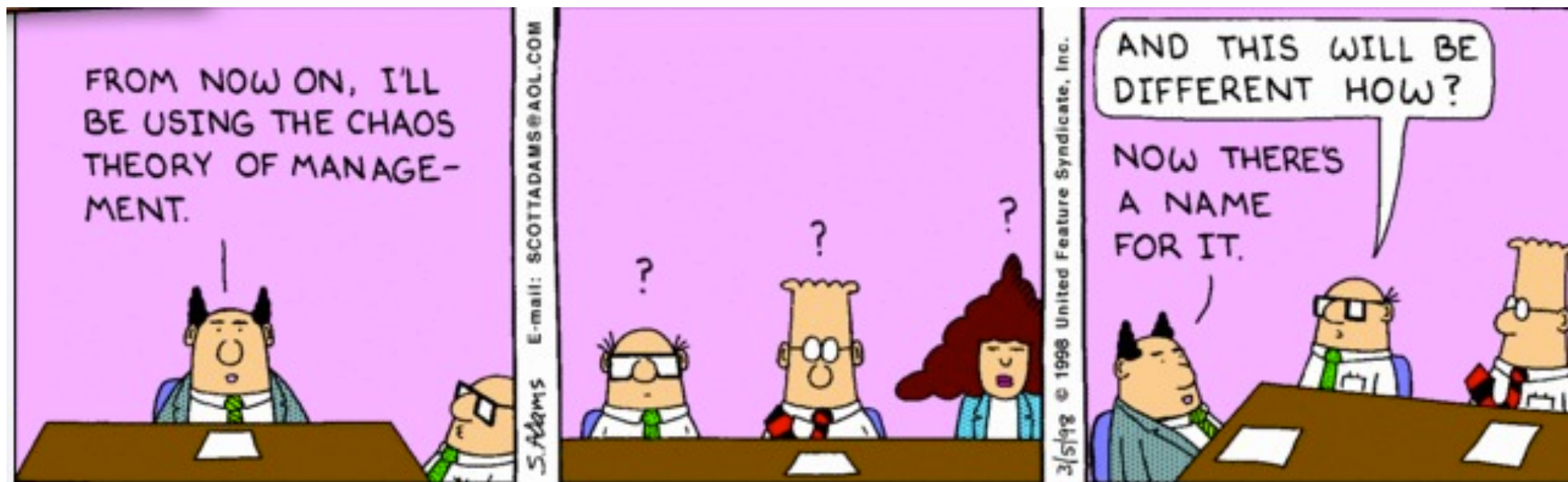


Navigating Chaos

a holistic approach to product development

Olve Maudal, TSBU, Cisco Systems Norway



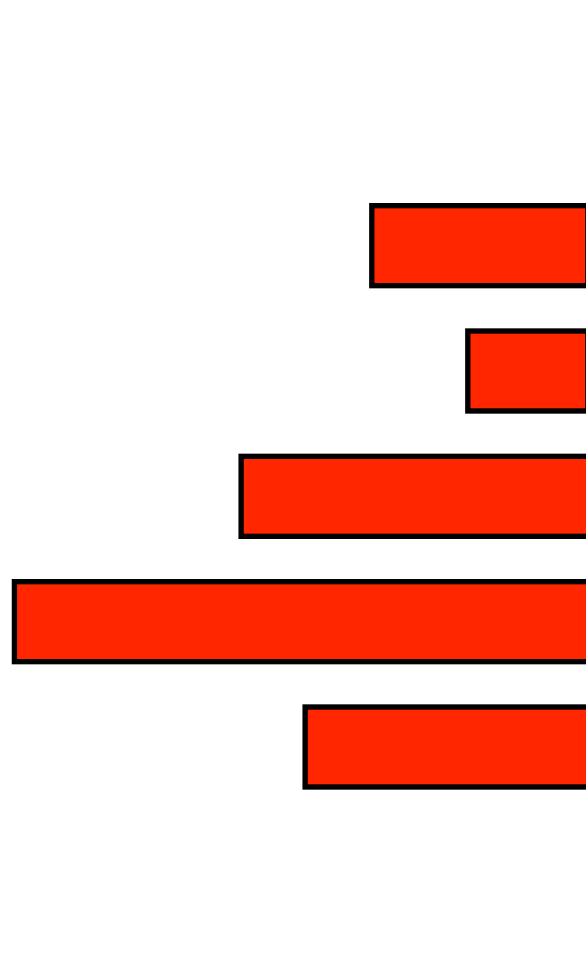
<http://dilbert.com/strips/comic/1998-03-05/>

The key to effective product development is to prepare for the unexpected and be willing to deal with it when it happens. In this presentation we will use examples from developing telepresence products and solutions to show why it is better to respond to change over following a plan, why collaboration is better than contract negotiations, and why following principles is better than implementing procedures. Effective and successful product development is all about being exceptionally good at navigating the unknown.

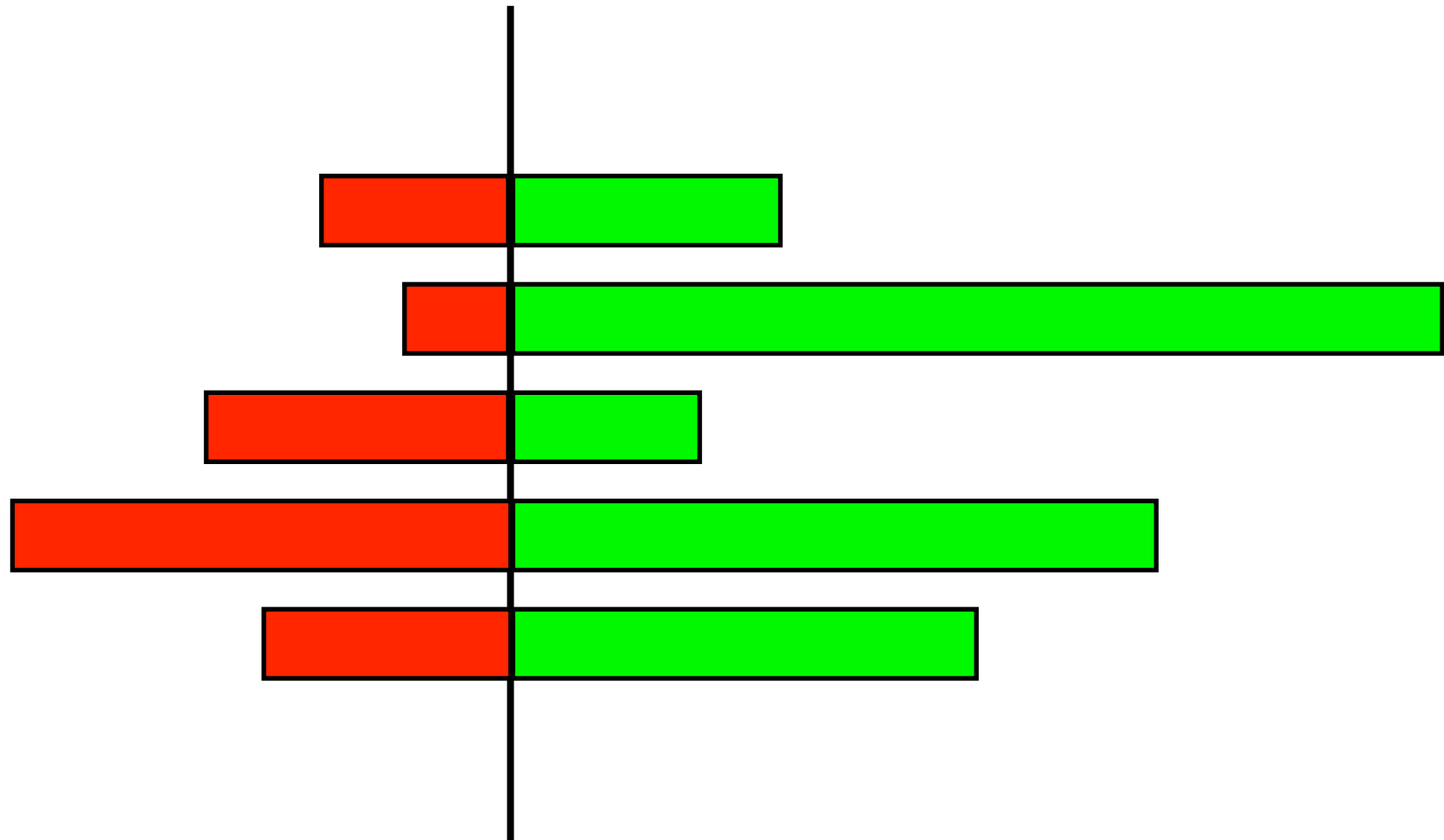
A 60 minute keynote incl Q&A, Agile@Cisco, July 27, 2011

Some thoughts about systems thinking

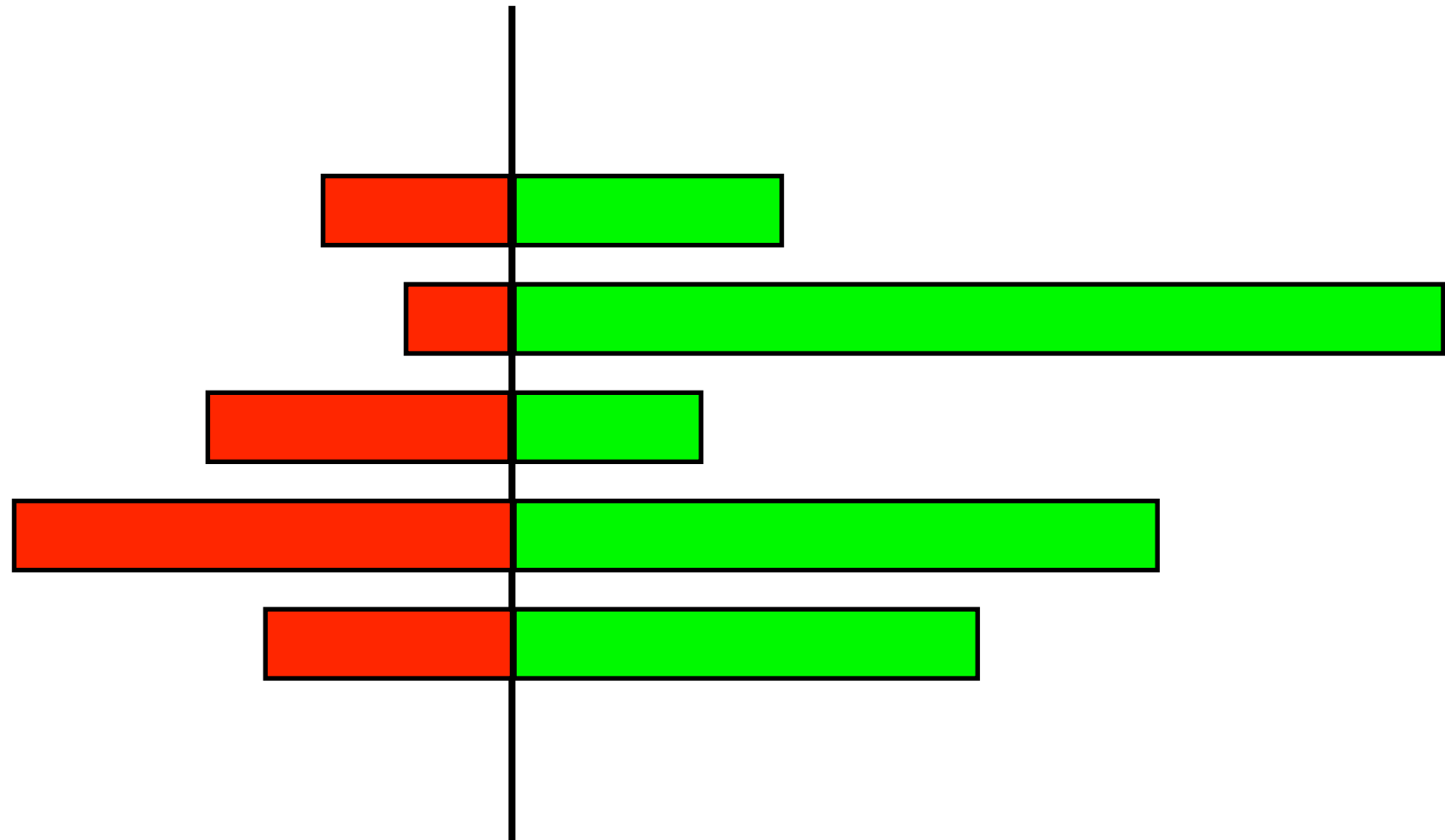
everything has a negative component ...



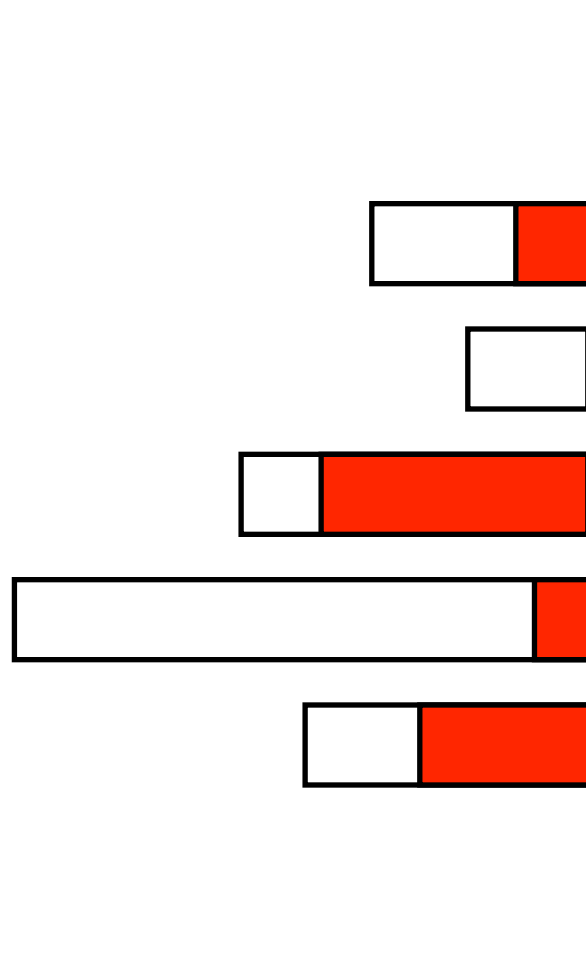
... as well as a positive component



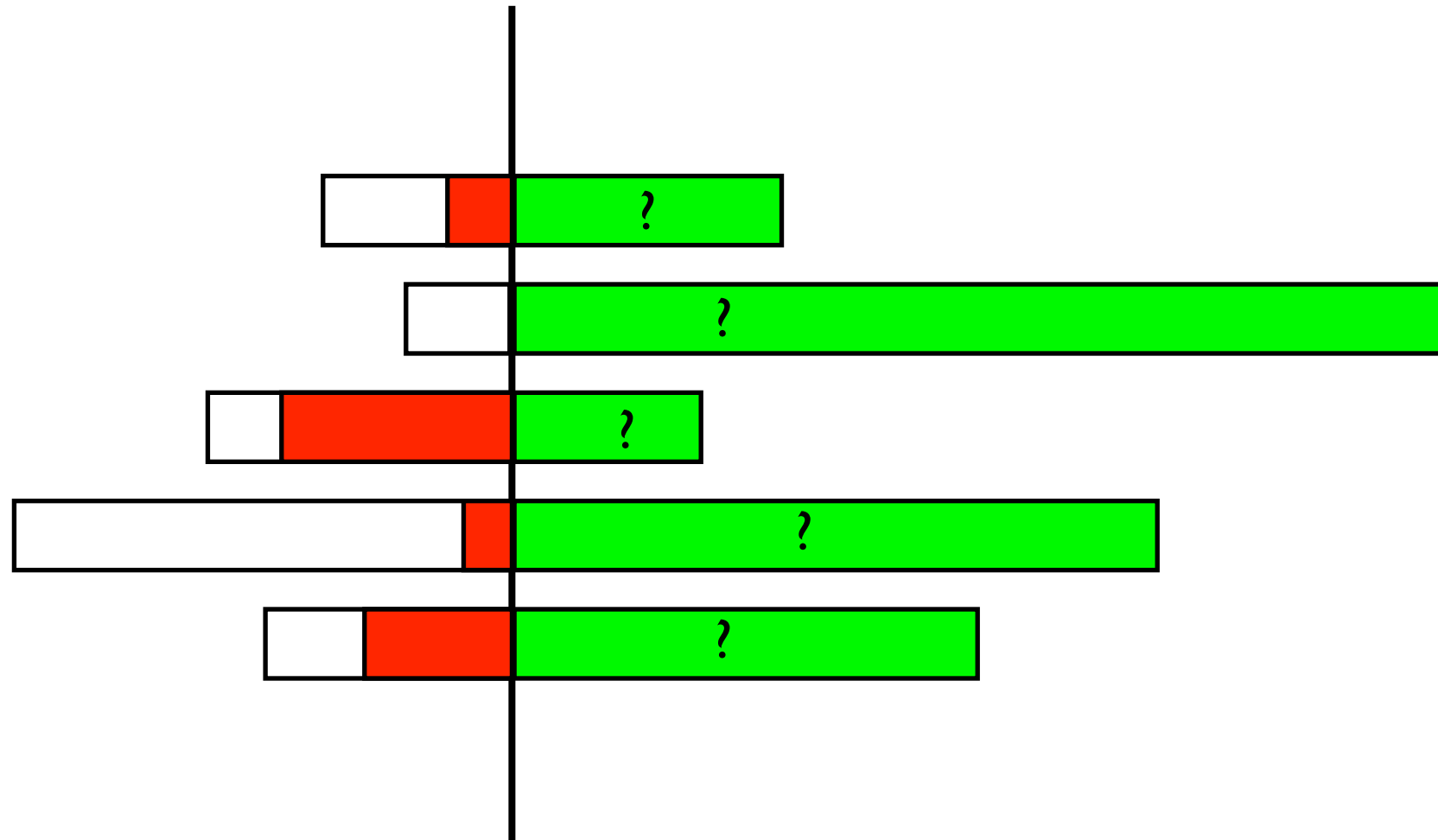
so if you want to improve something...



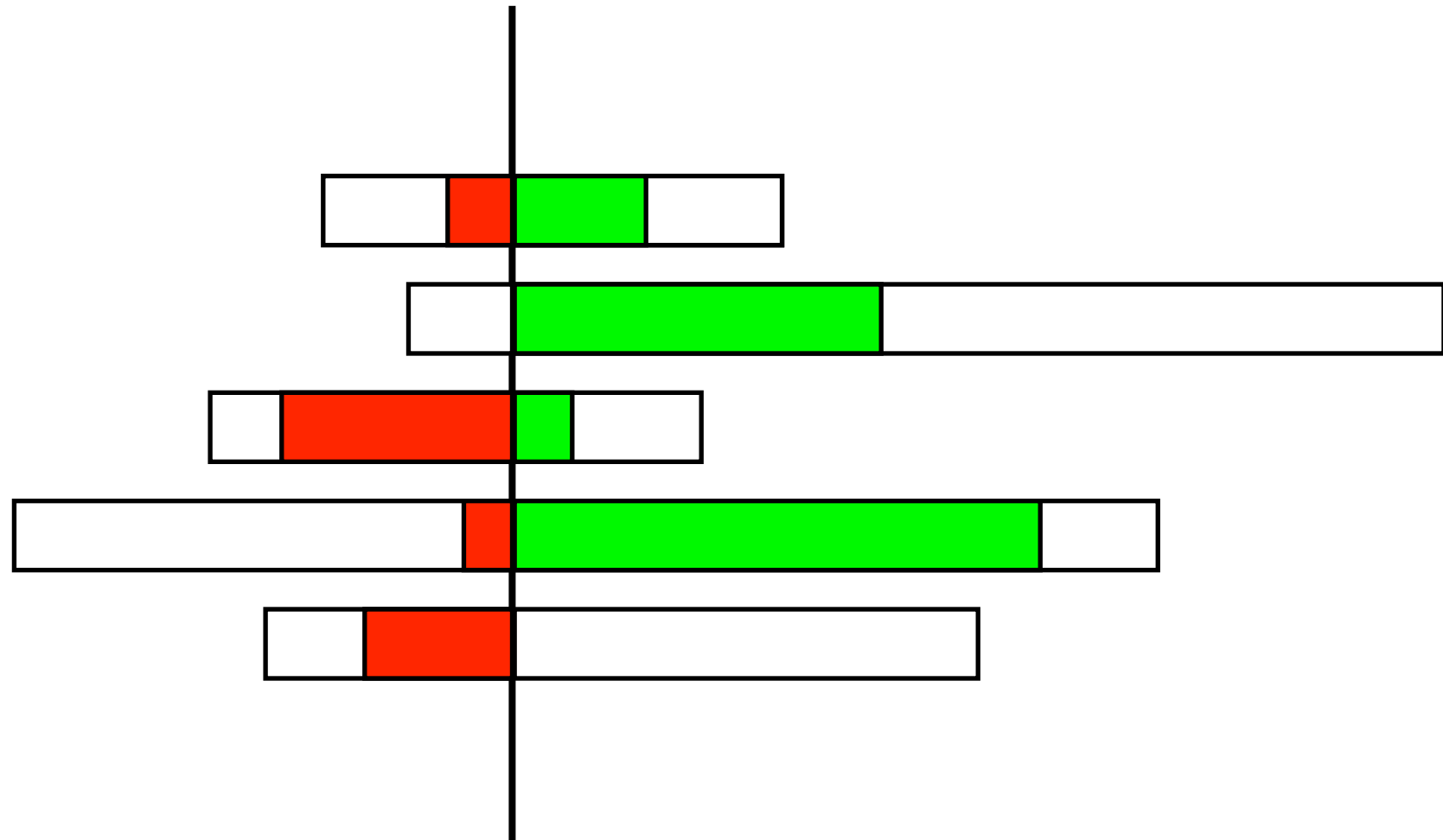
... do **not** try to fix the negative stuff ...



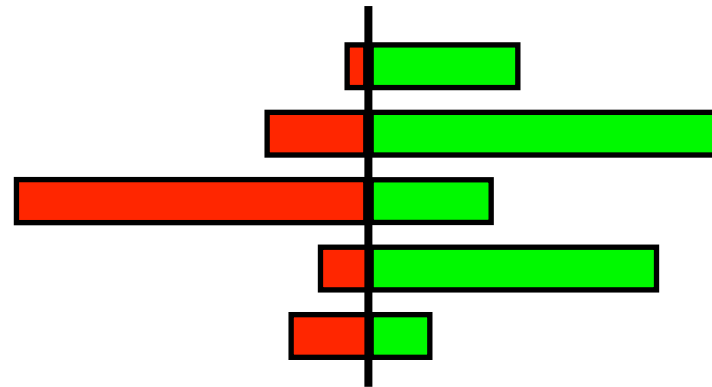
... without considering how it will affect the positive component



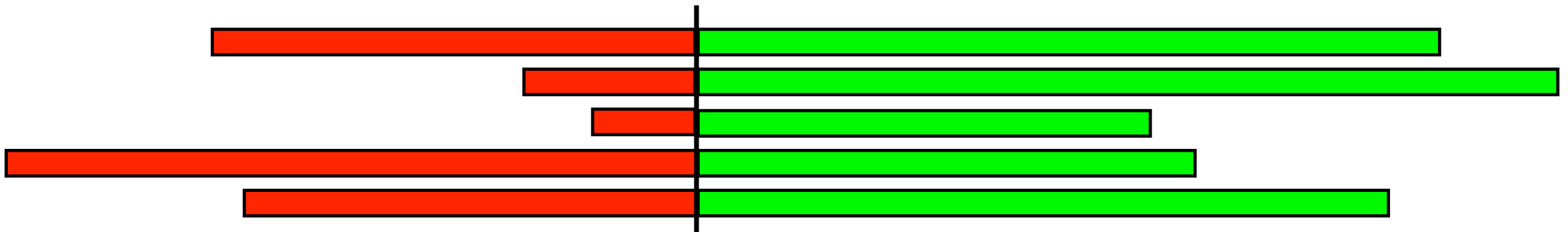
because you might end up by reducing the positive component by even more



good organizations often have a profile like this



great organizations usually have profiles that look like this



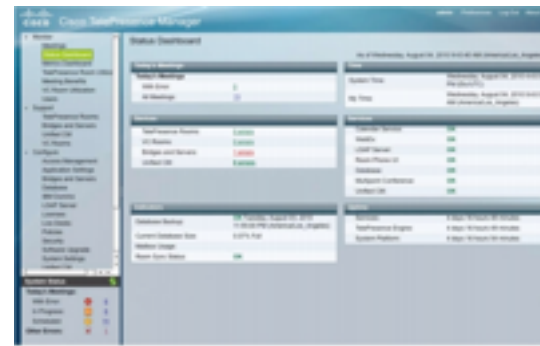
“Managing your problems can only make you good, whereas building your opportunities is the only way to become great.” (Good to Great, Collins, 2001)

TelePresence Technology Group

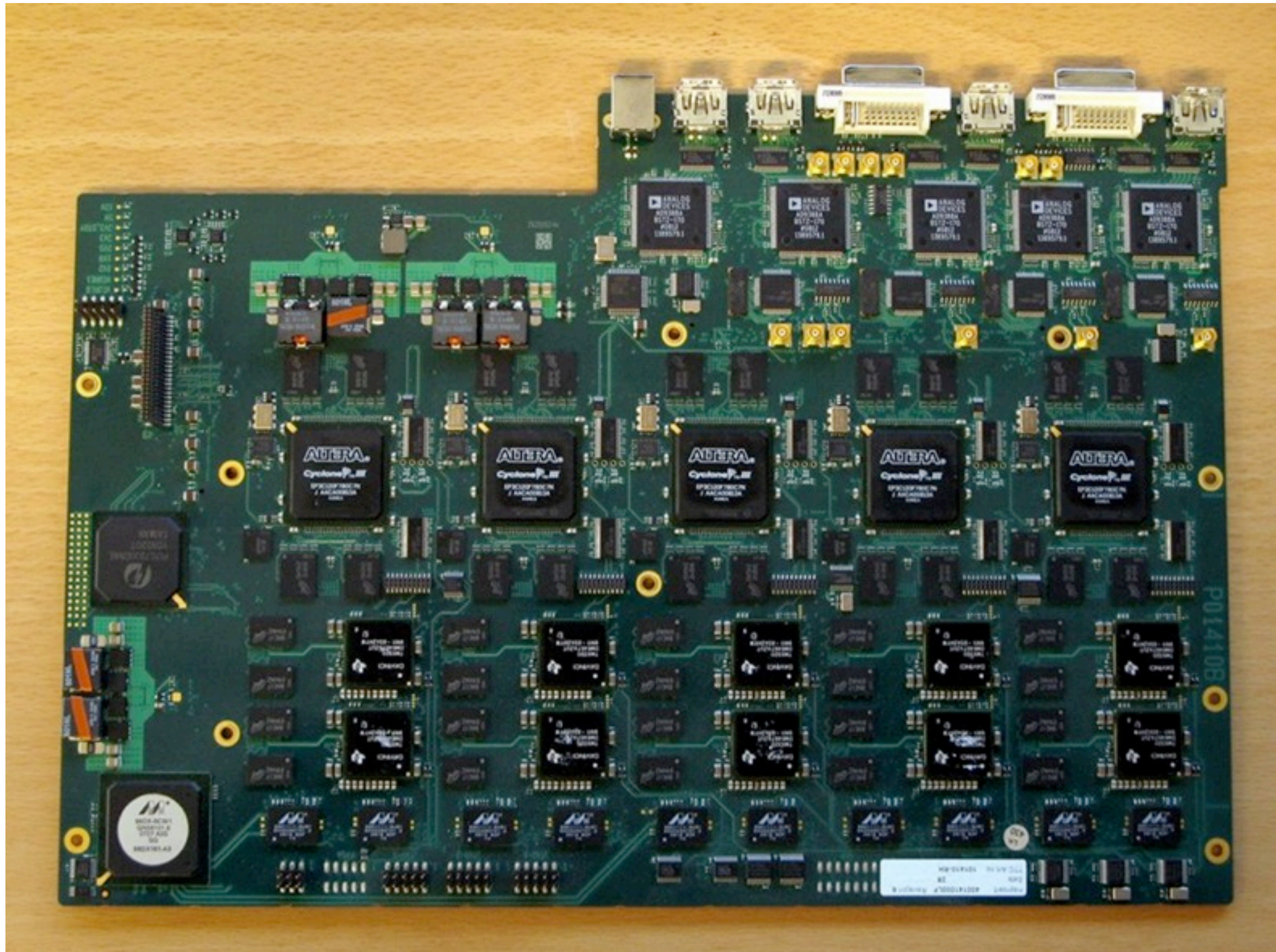
Cisco Systems Norway



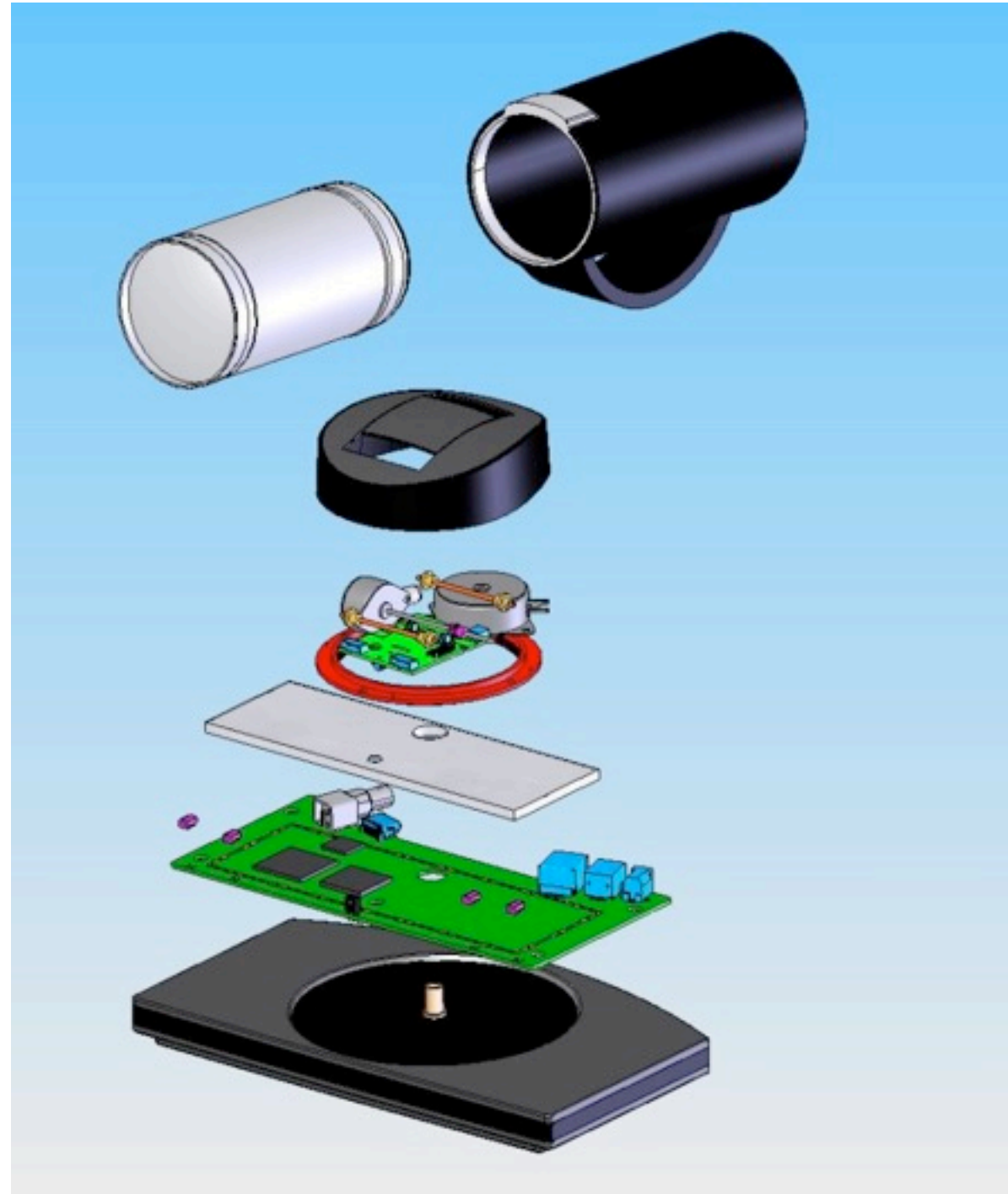
Telepresence systems and solutions



Electronics / Hardware



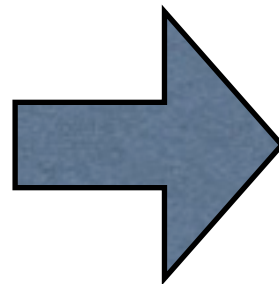
Mechanics



Industrial Design



1993



2011

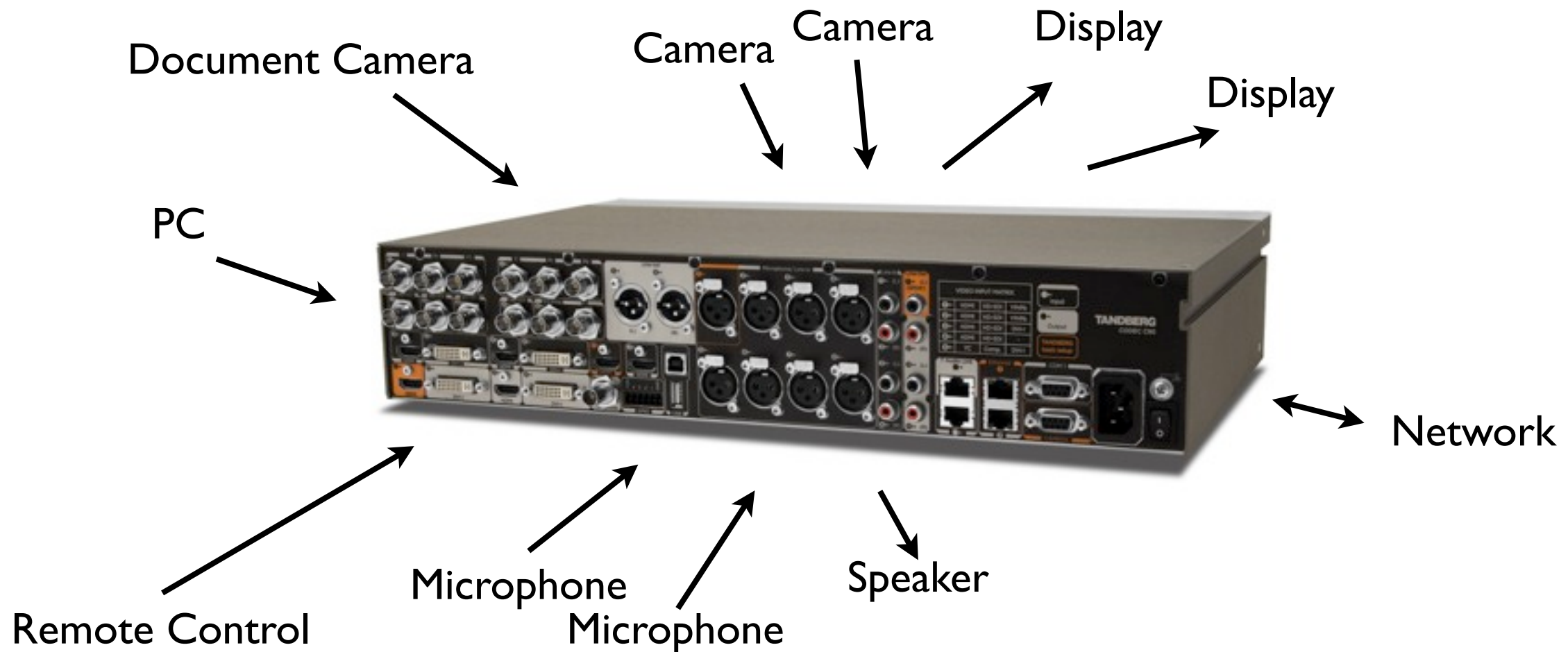
Software Development



Example of a Product

Cisco TelePresence Codec C90





C90 Features:

- realtime H.264 encoding/decoding
- full HD 1080p30, (4+4) concurrent streams
- 12 high definition video sources
- 8 high quality audio sources
- support for many-to-many communication
- Interoperability through H323 and SIP
- API for integration and remote control

Cisco TelePresence Codec C90



- Developed at Lysaker
- Started spring 2007
- First HW prototype arrived summer 2008
- Released late 2008 (~20 months of development)
- 2-3 people working with mechanics/design
- 4-5 people working with electronics/hardware
- 5-6 people working with FPGA development
- 40-50 people working with software development
- 4-5 test developers
- 1 person working with approvals



Our Development Process

Development Process?

~~Development Process?~~

Development Practices in the Saturn project

- Continuous planning
- Always attack high risks first
- Heavy focus on effective feedback mechanisms
- Visualization of actual status throughout project
- Teams: GUI, App, Protocol, Video, Audio, FPGA, Platform, QA, Support
- Parallel development
- Iterations and time-boxing
- Daily 15 minute morning assembly of elders
- Weekly rendezvous meetings
- Early and many prototypes

Observations from TTG, Cisco Systems Norway

as a software engineer joining the organization...

at first you might get this impression...

at first you might get this impression...

- No documentation

at first you might get this impression...

- No documentation
- No routines

at first you might get this impression...

- No documentation
- No routines
- Fooling around

at first you might get this impression...

- No documentation
- No routines
- Fooling around
- Not following plans

at first you might get this impression...

- No documentation
- No routines
- Fooling around
- Not following plans
- Decision are postponed

at first you might get this impression...

- No documentation
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- Nobody decides

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- Nobody decides
- Little respect for management

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 - People are not working hard
- People communicate

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- Focus on important stuff

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- Little modularization
- Lack of precision
- Sloppiness
- People are not working hard
- People communicate
- Focus on important stuff
- Embedded slack

but then you start to notice...

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- People are not working hard
- People communicate
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- Embedded slack
- Continuous planning

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- People communicate
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- Embedded slack
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- Effective decisions
- Autonomous organisation
- Respect for the doers

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- No integration period
- Spectacular products

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- Focus on important stuff
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- Continuous planning
- Effective decisions
- Autonomous organisation
- Respect for the doers
- No integration period
- Spectacular products
- Fast deliveries

but then you start to notice...

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- Autonomous organisation
- Respect for the doers
- No integration period
- Spectacular products
- Fast deliveries
- Sustainable pace

... and while you still see the "negative" stuff, you will start to appreciate the "positive" stuff more.

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Agile?

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Agile?

Scrum?

Observations from TTG, Cisco Systems Norway

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Agile?

Scrum?

Lean?

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- Autonomous organisation
- Respect for the doers
- No integration period
- Spectacular products
- Fast deliveries
- Sustainable pace

Agile?

Scrum?

Lean?

Deming?



Copyrighted Material

"Toyota is as much a state of
mind as it is a car company."
-USA TODAY

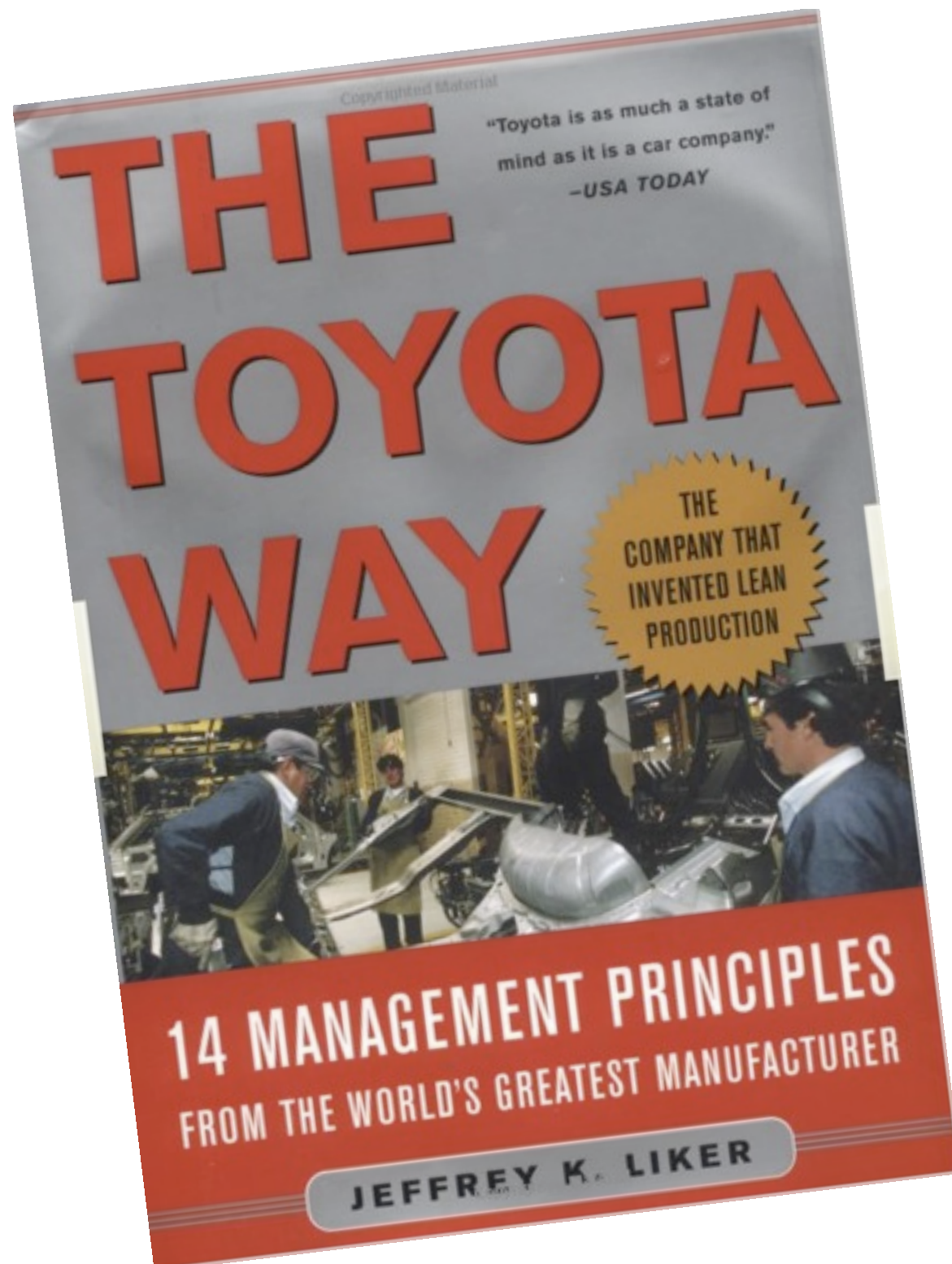
THE TOYOTA WAY

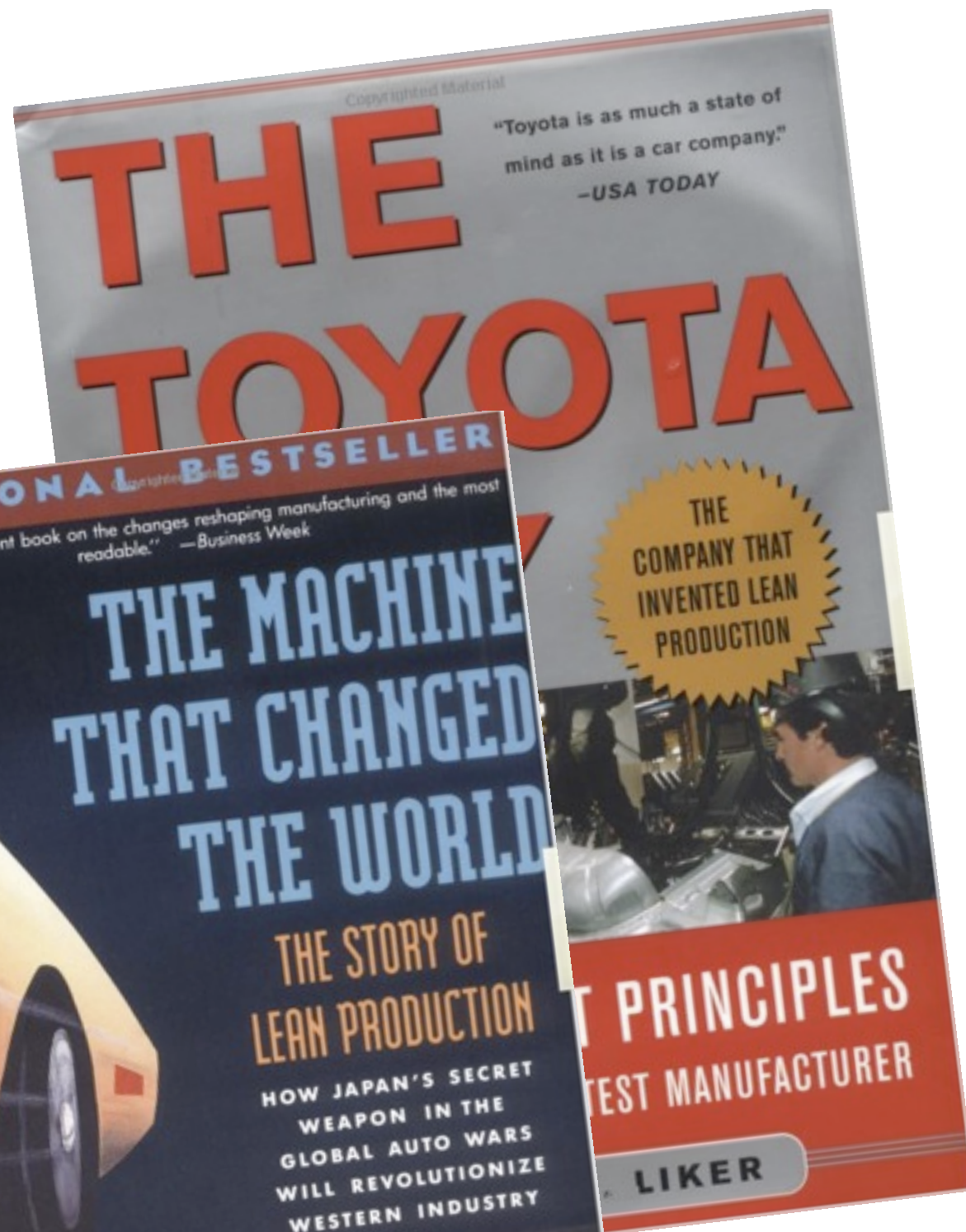
THE
COMPANY THAT
INVENTED LEAN
PRODUCTION

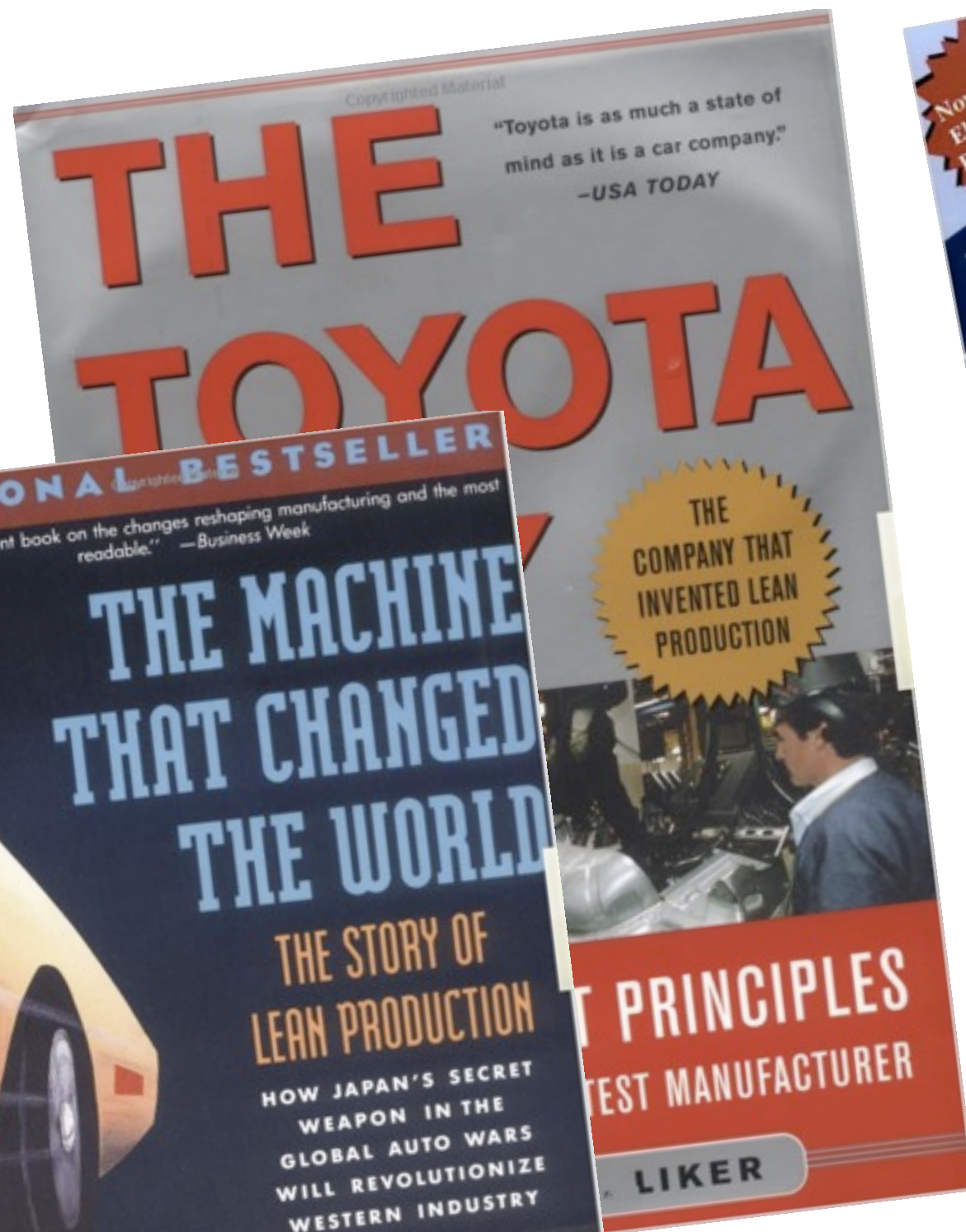


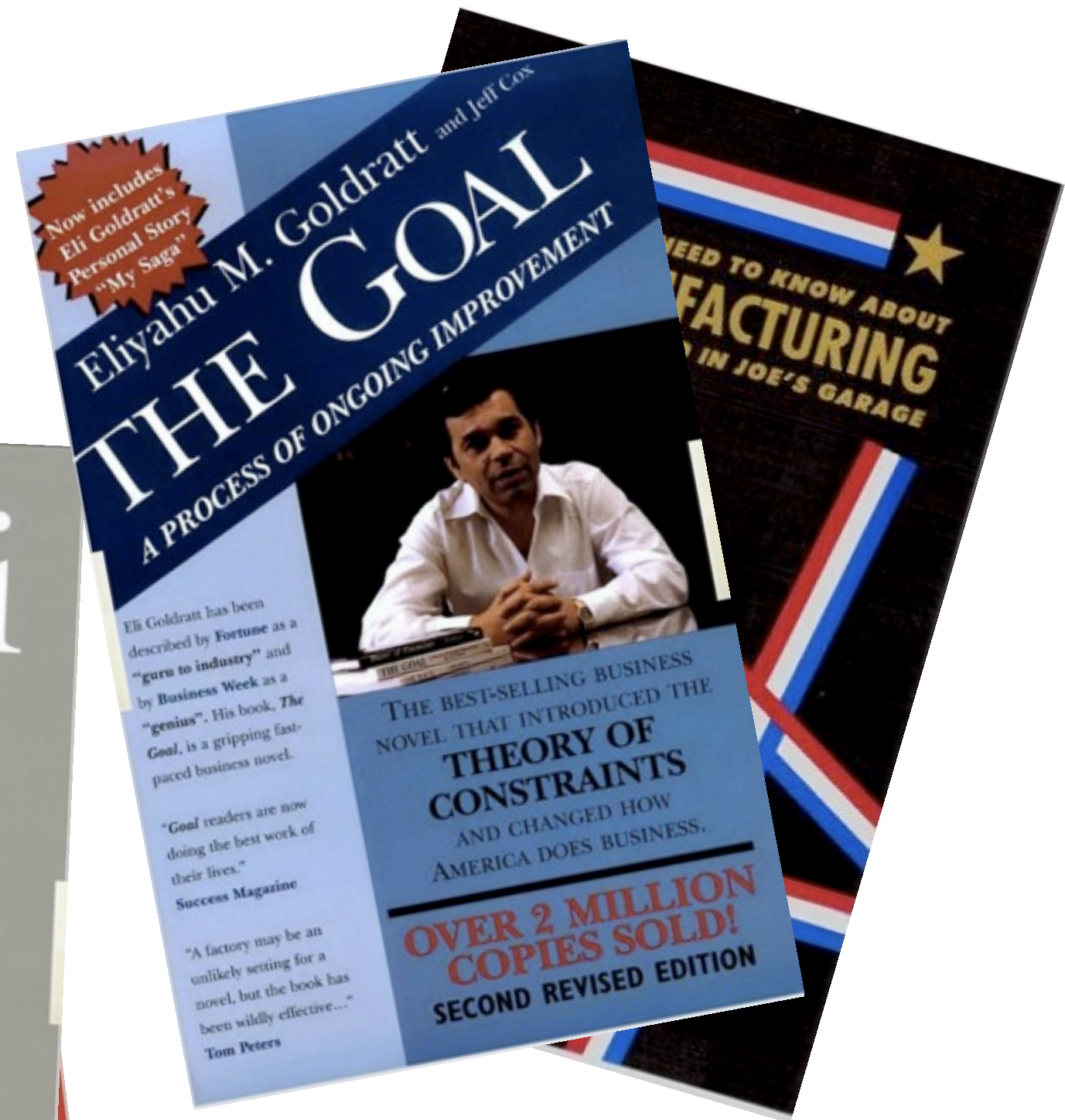
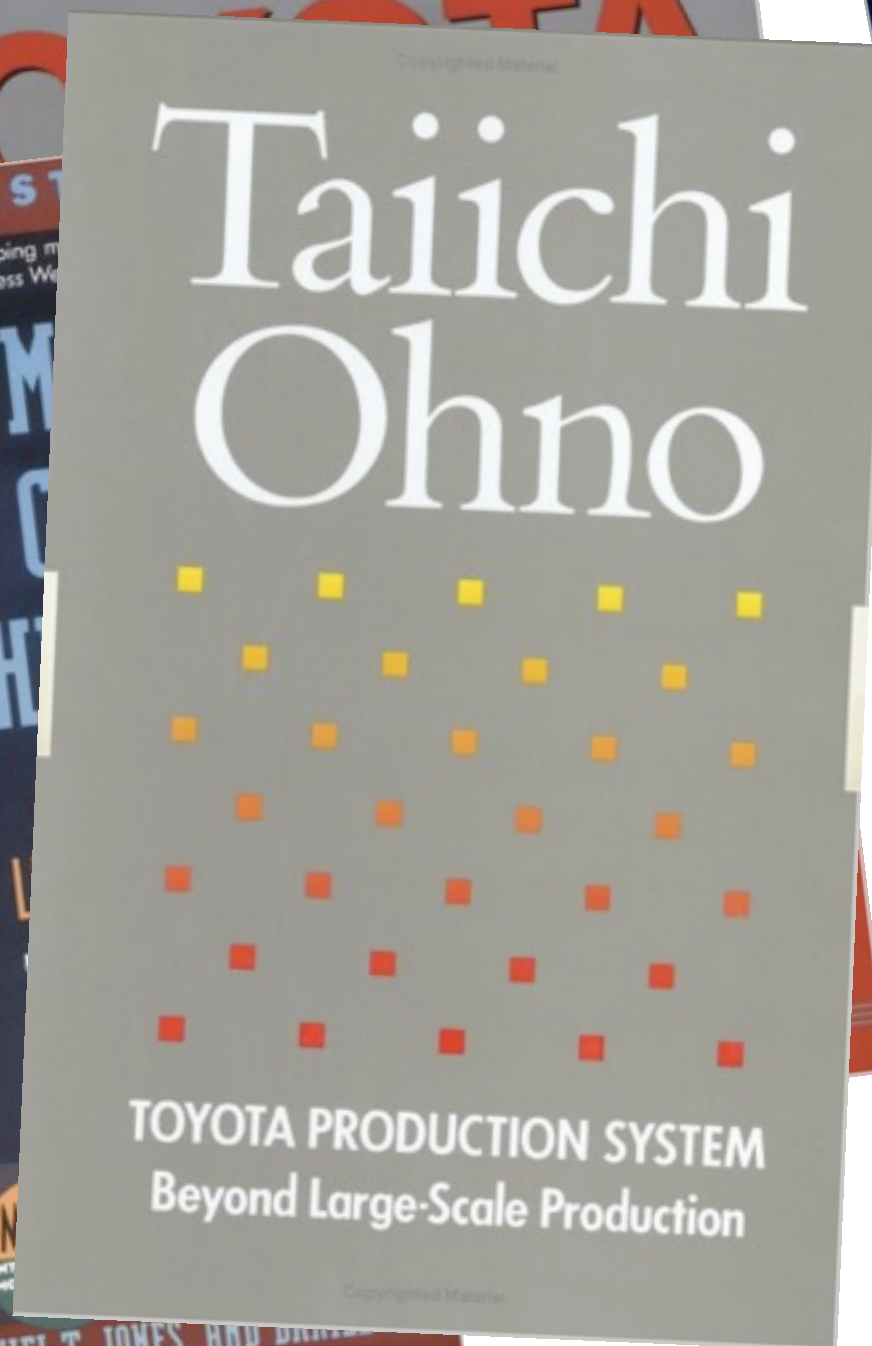
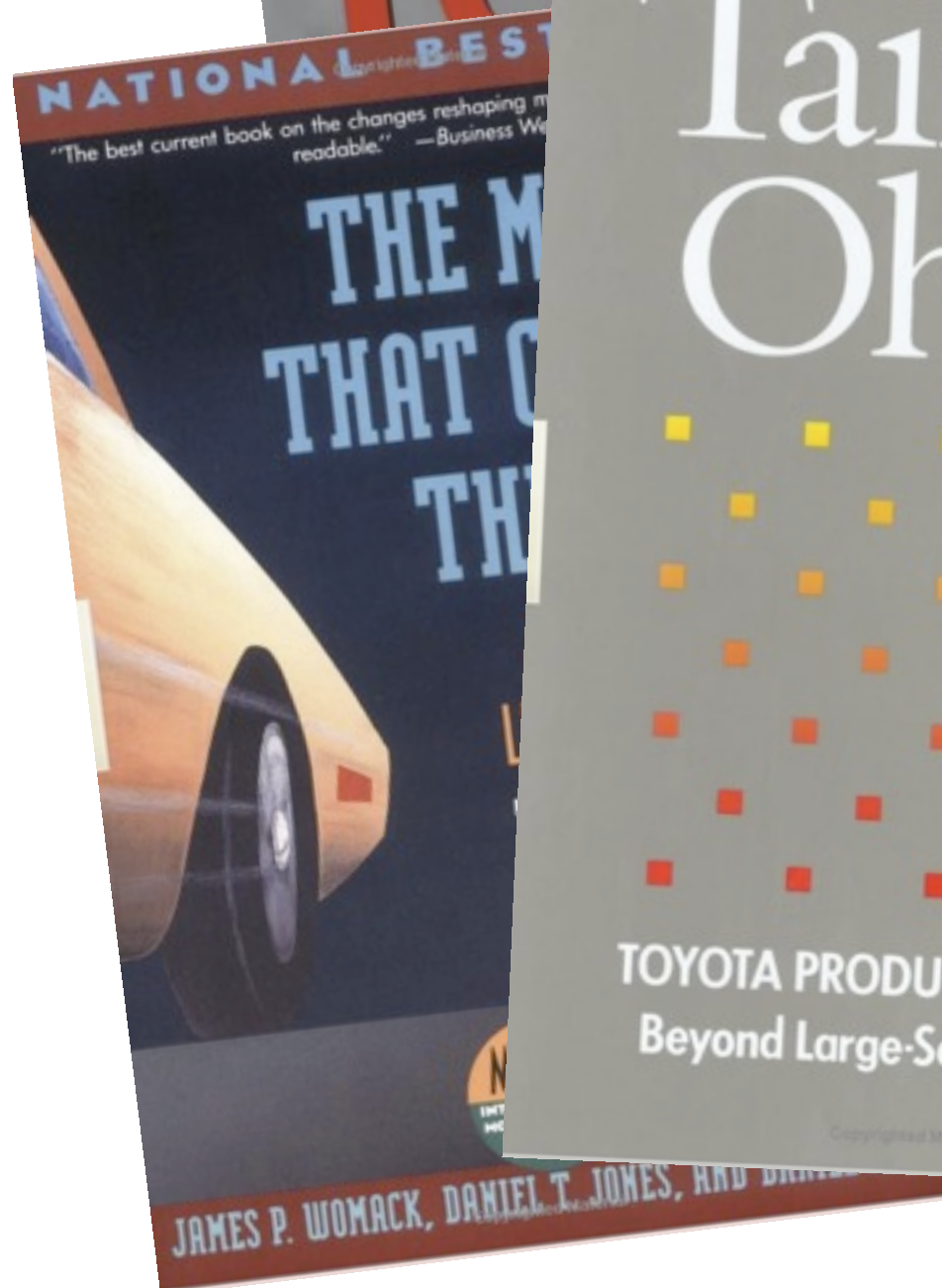
14 MANAGEMENT PRINCIPLES
FROM THE WORLD'S GREATEST MANUFACTURER

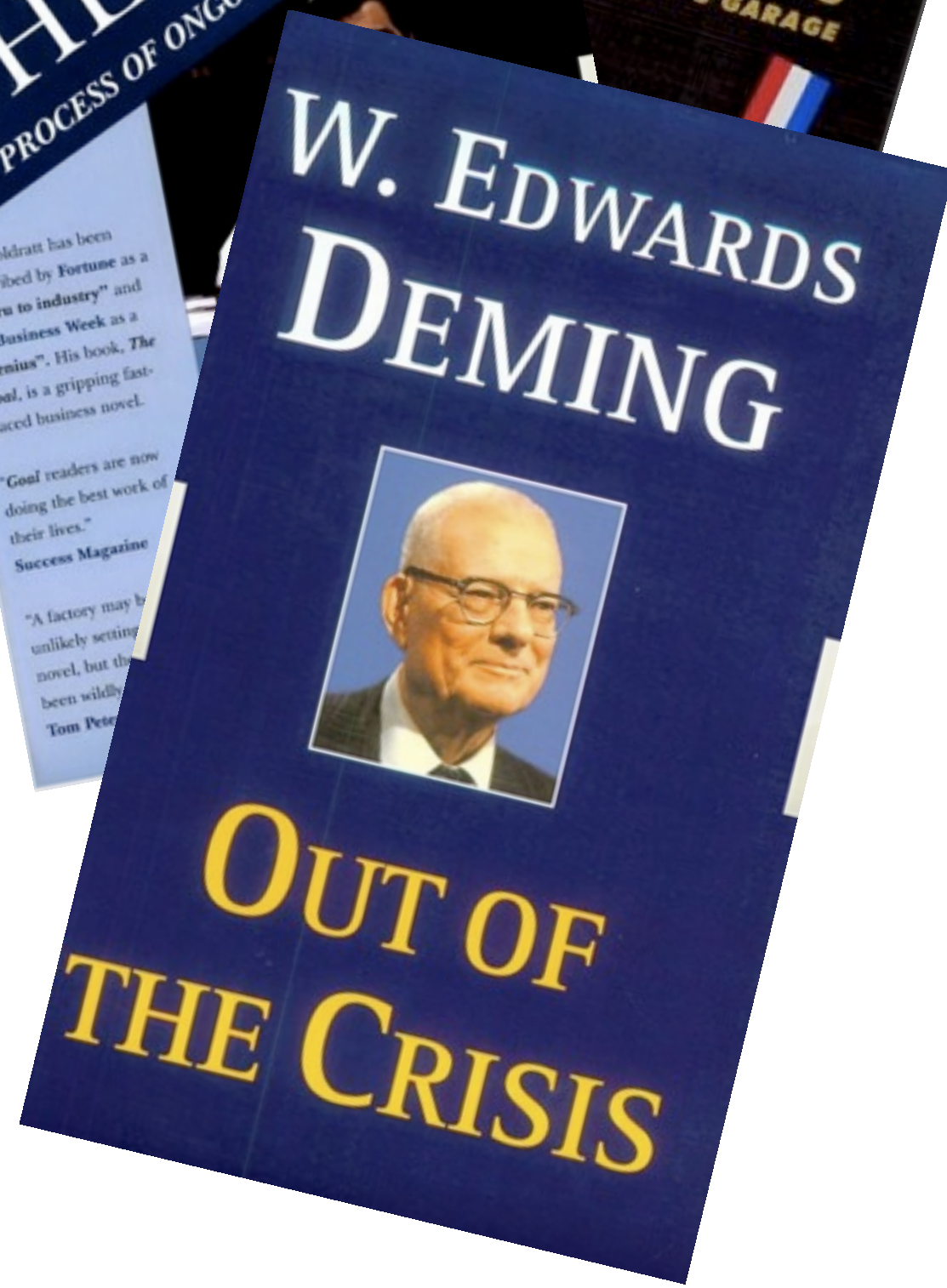
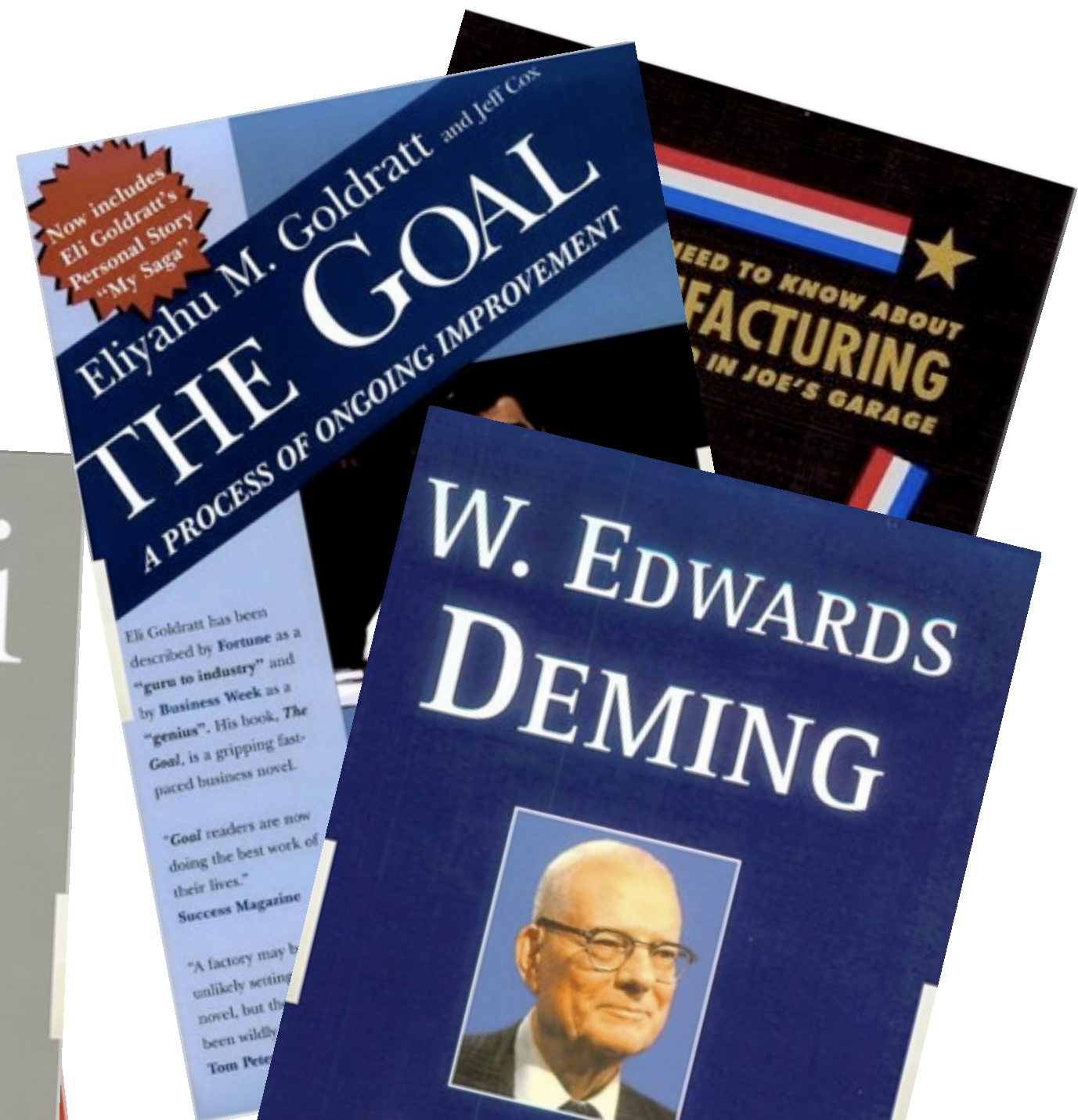
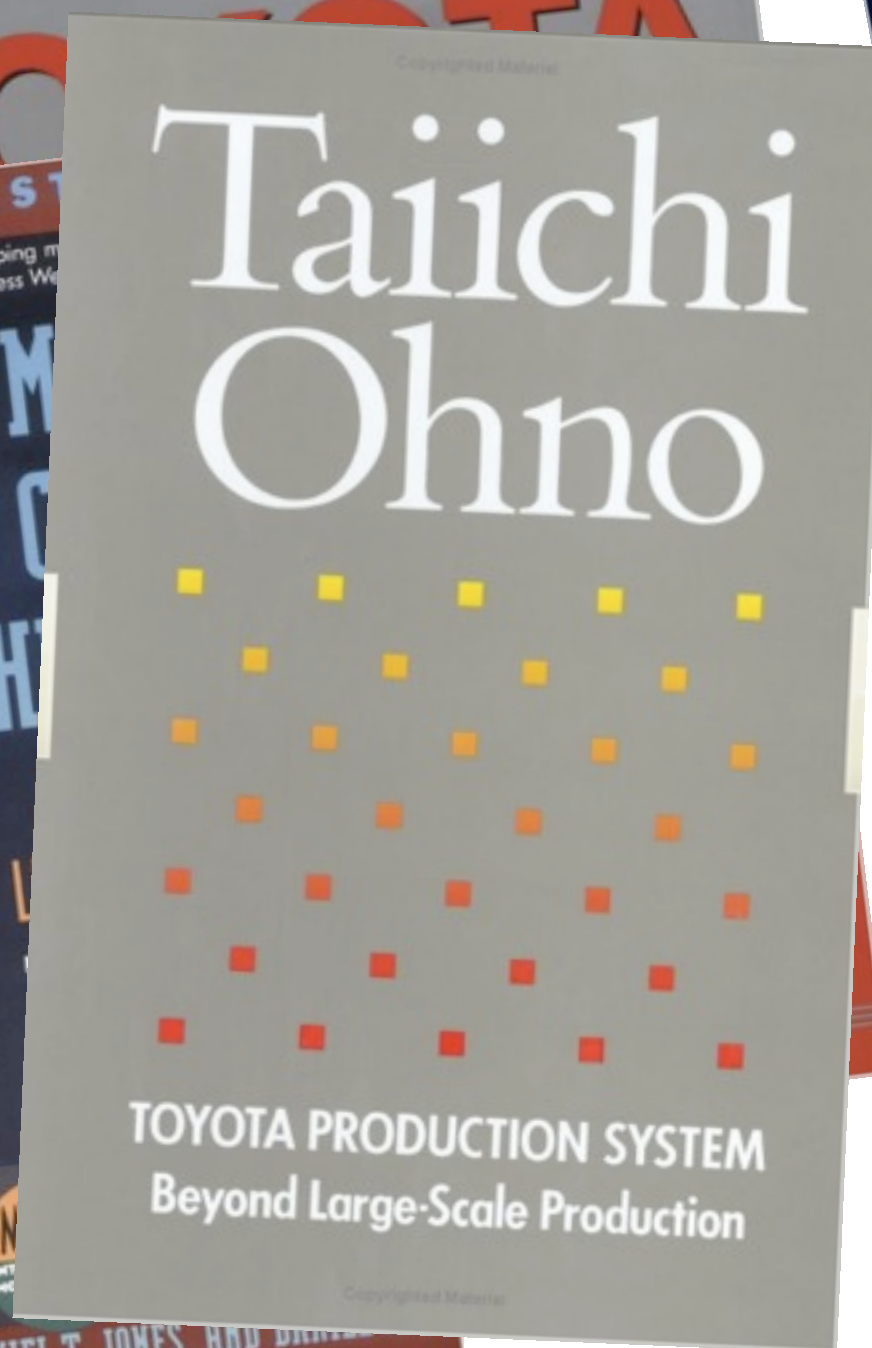
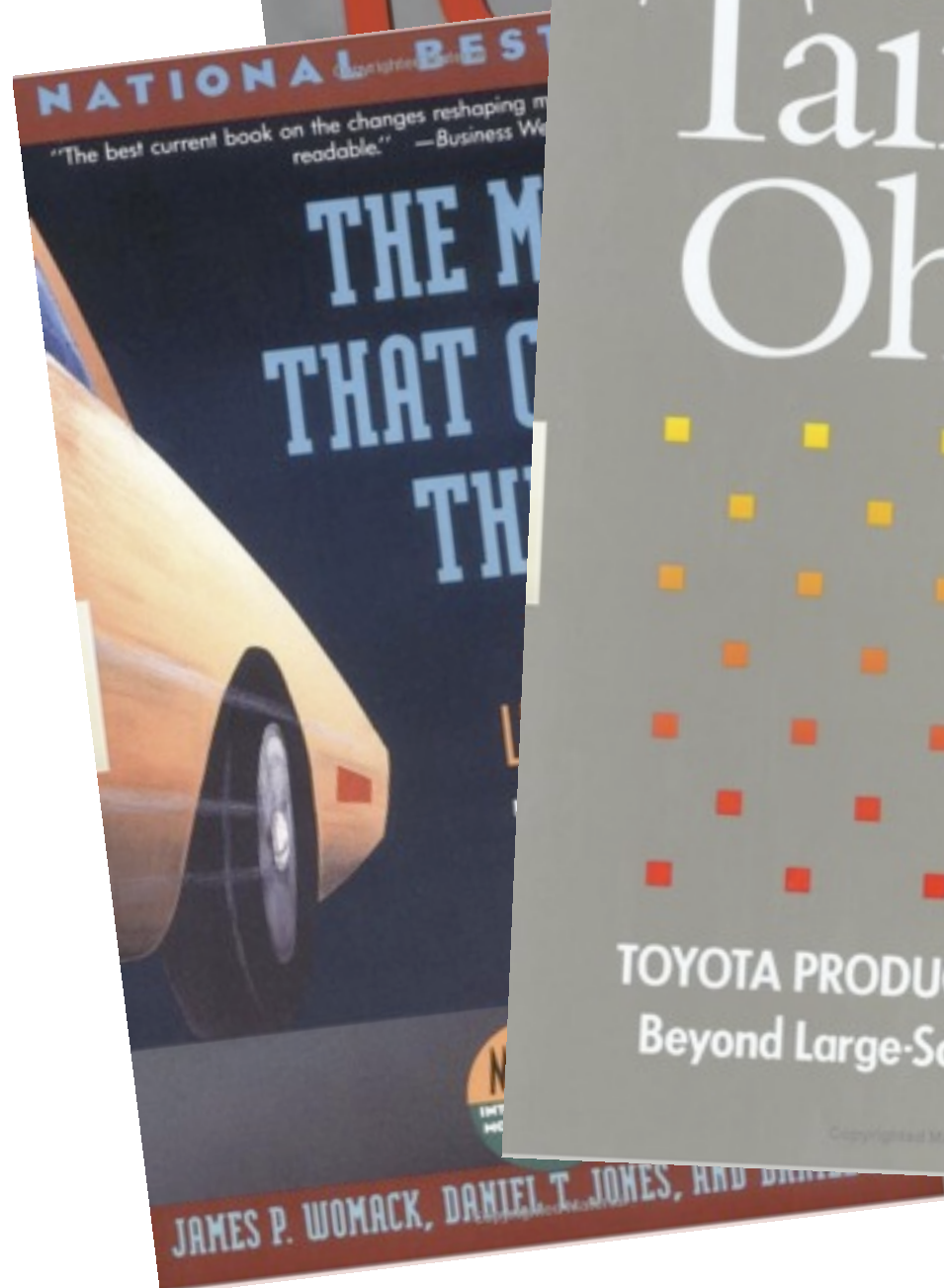
JEFFREY K. LIKER

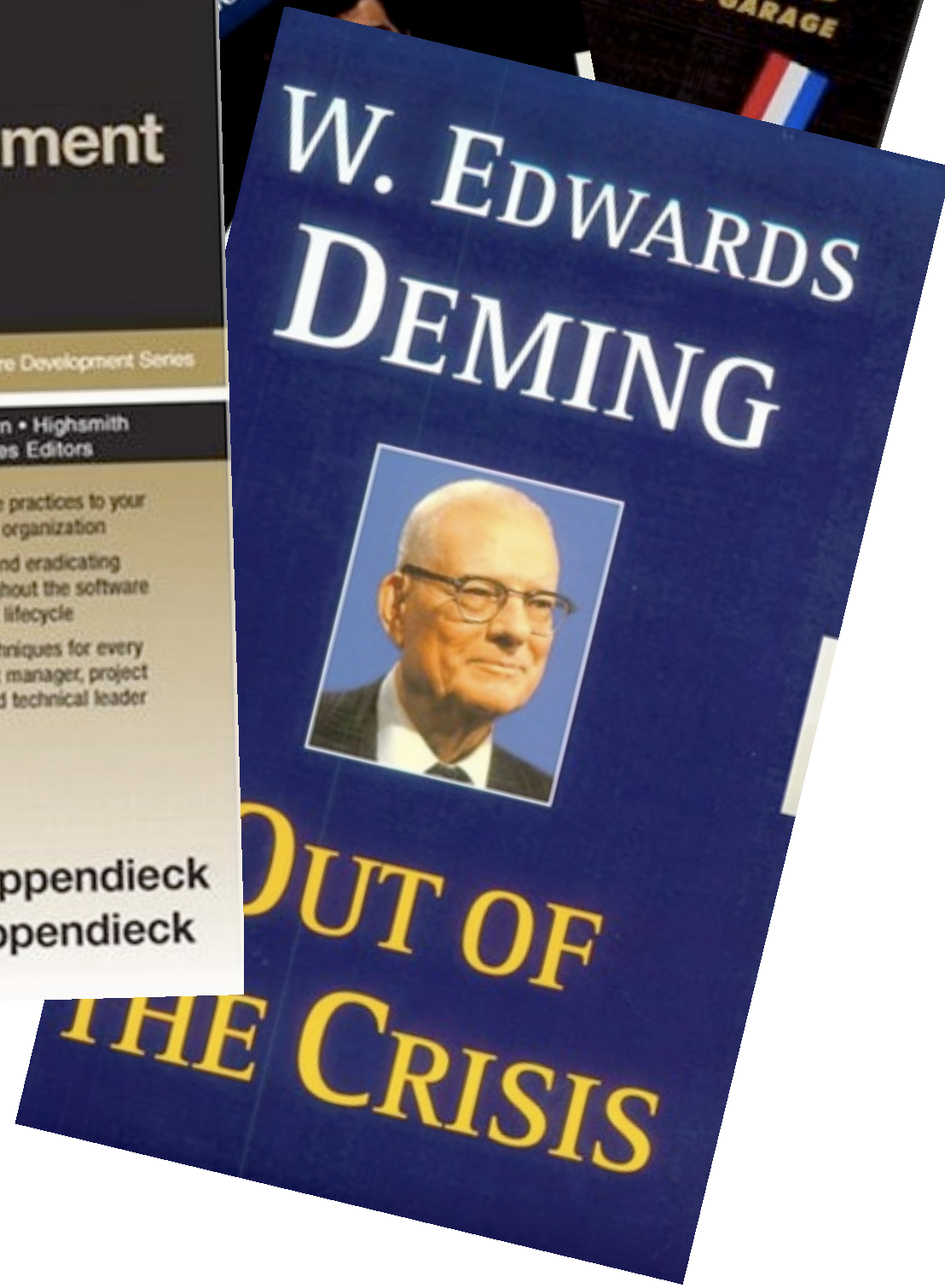
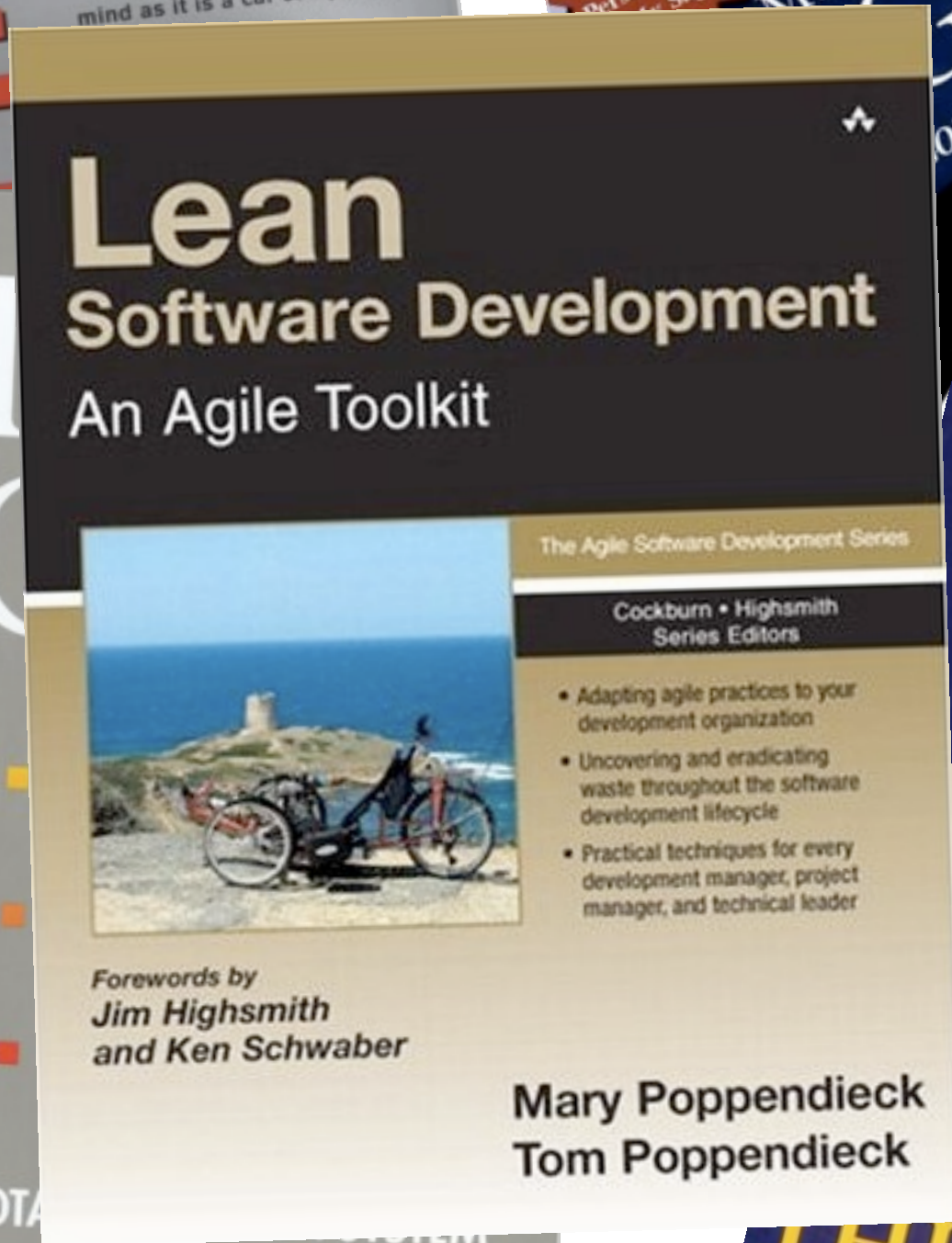
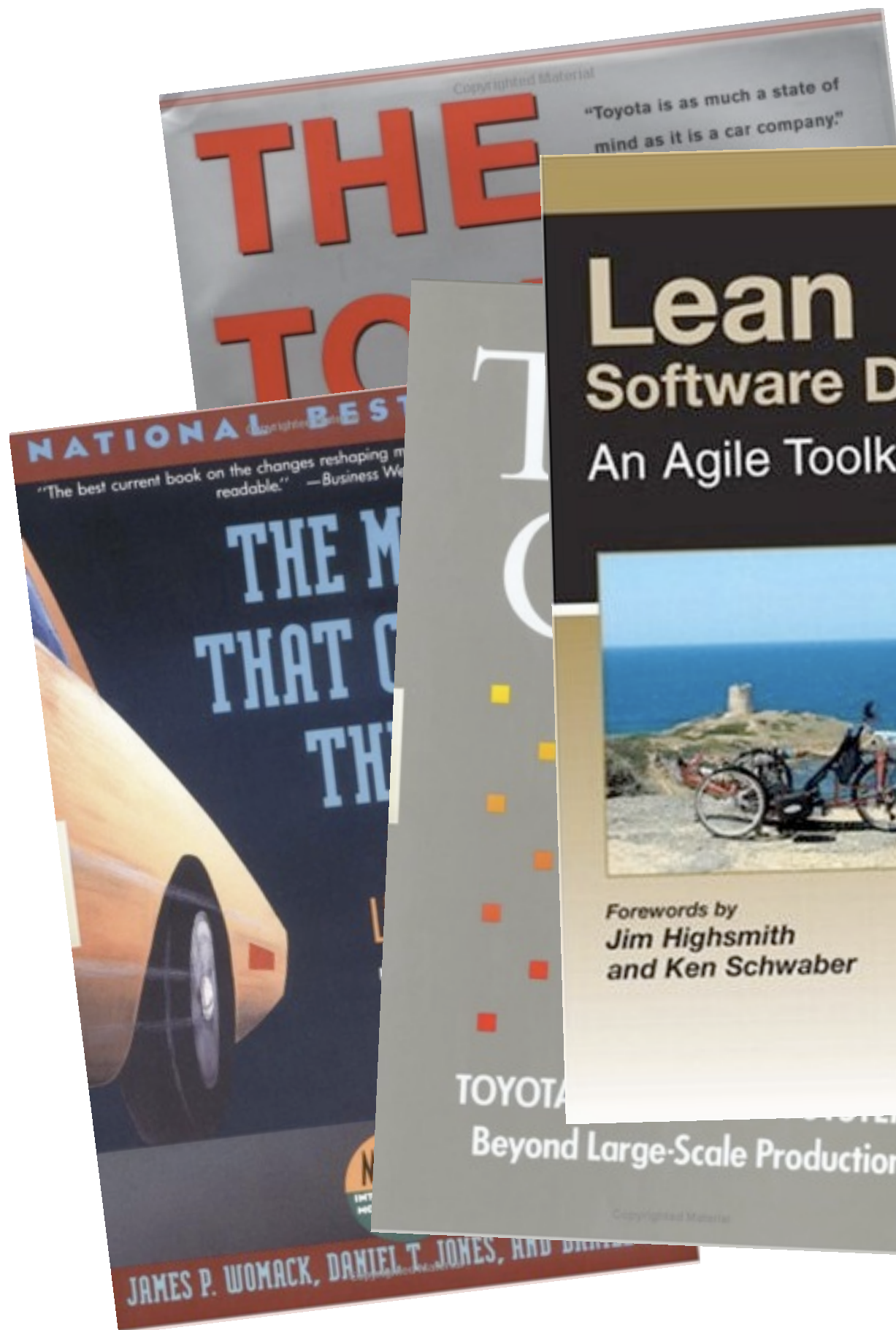


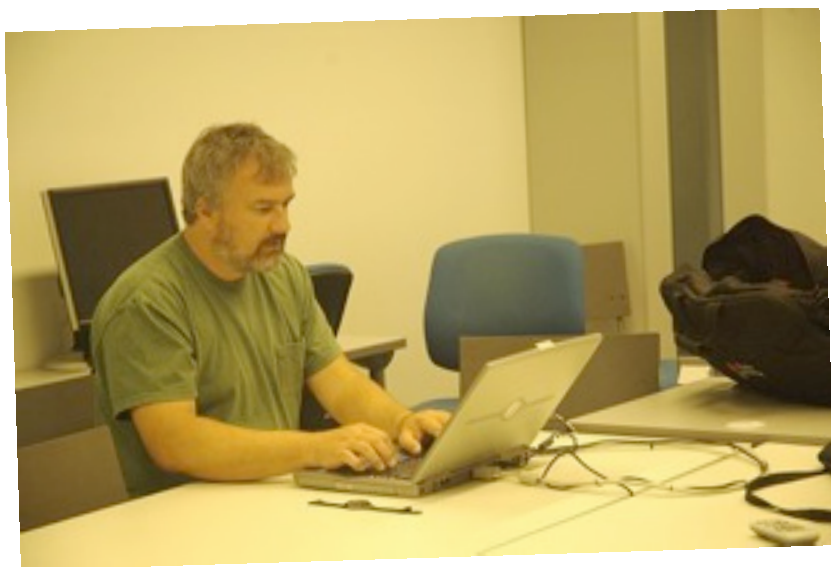












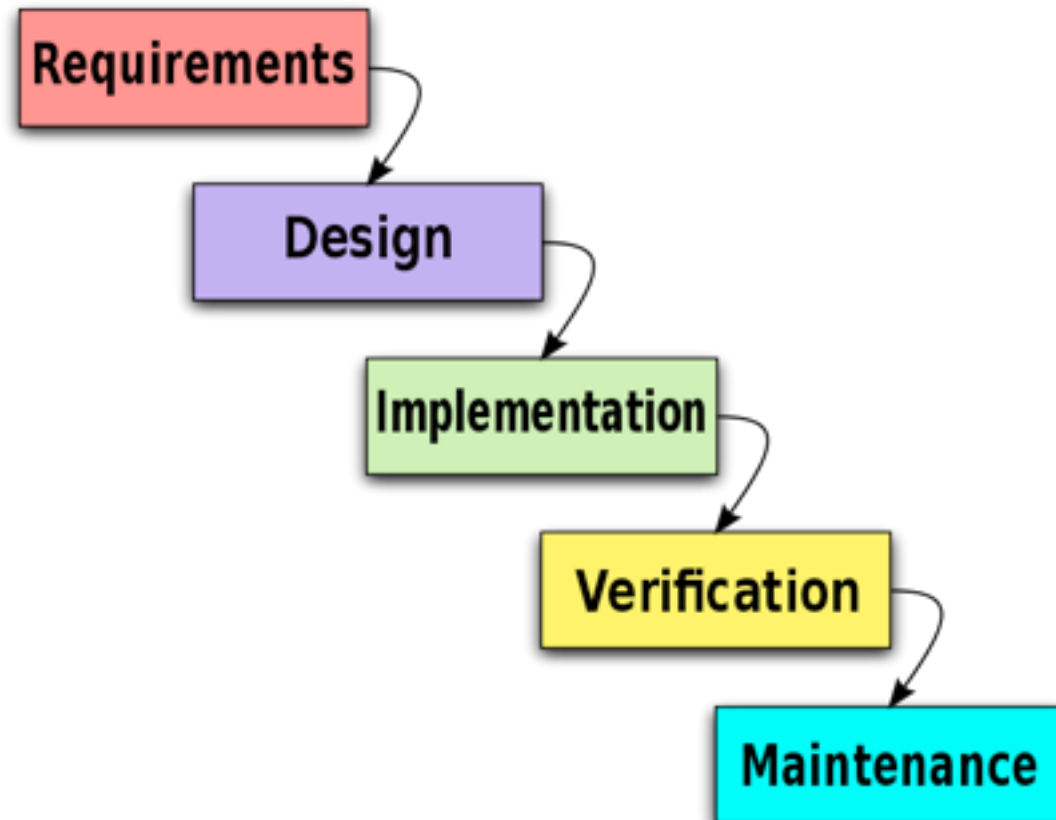
“I have been working with software development groups all around the world, and you are way ahead of most.”

(a consultant visiting our R&D department)

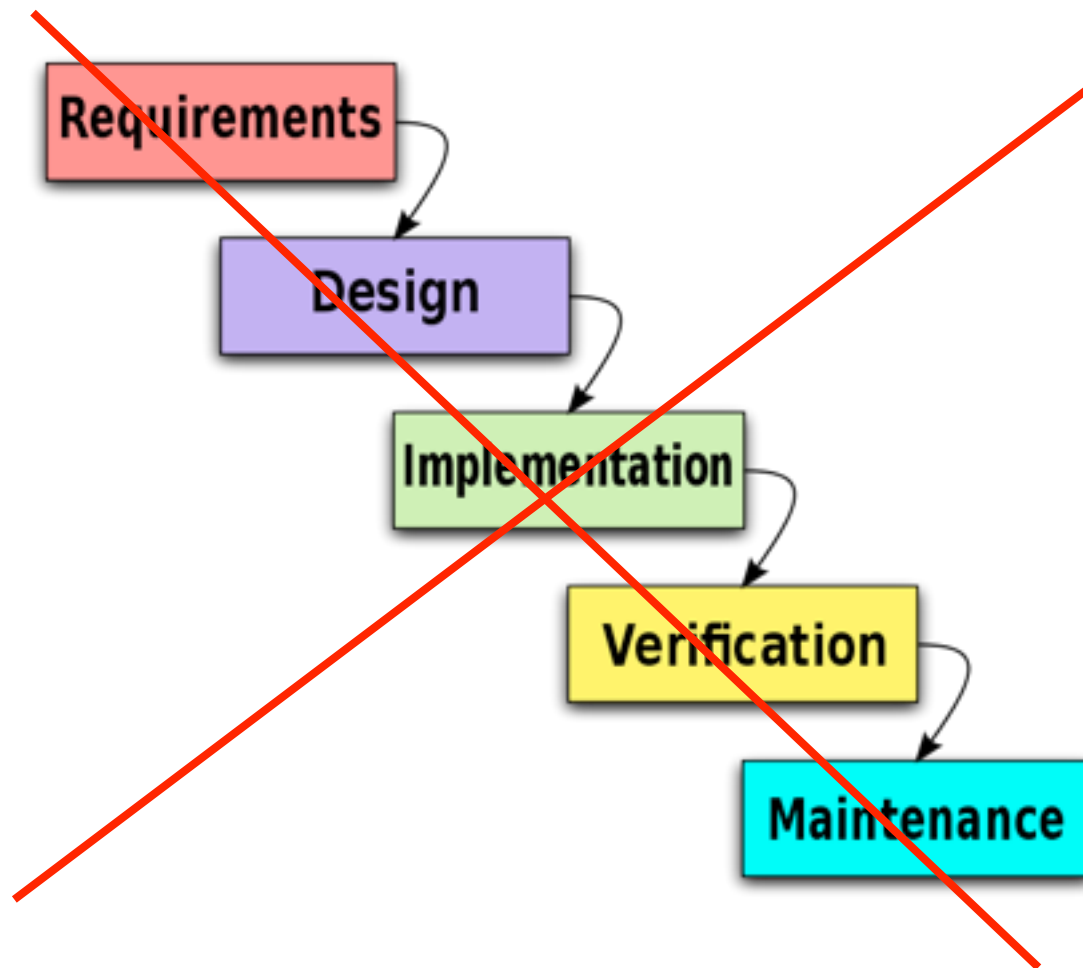
Development Principles

Let the project and teams own their methodology

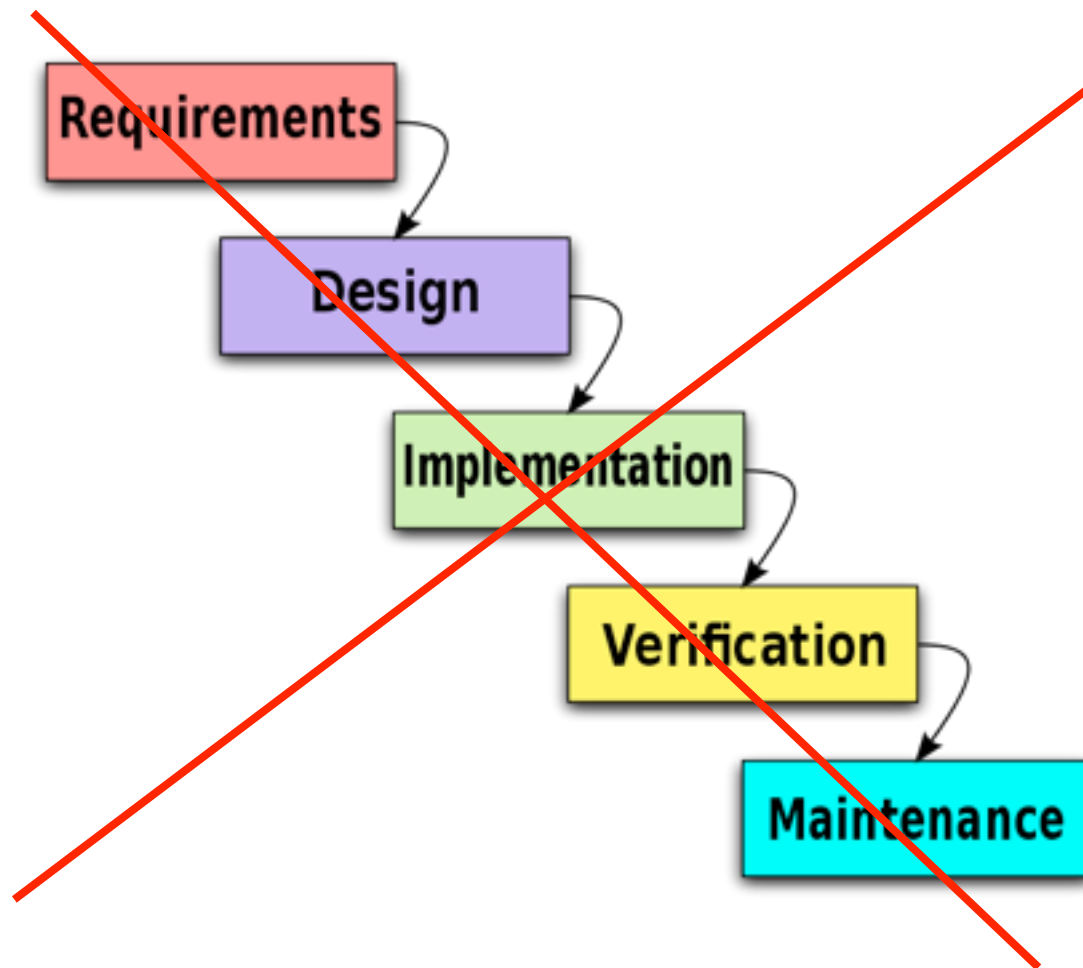
Let the project and teams own their methodology



Let the project and teams own their methodology



Let the project and teams own their methodology

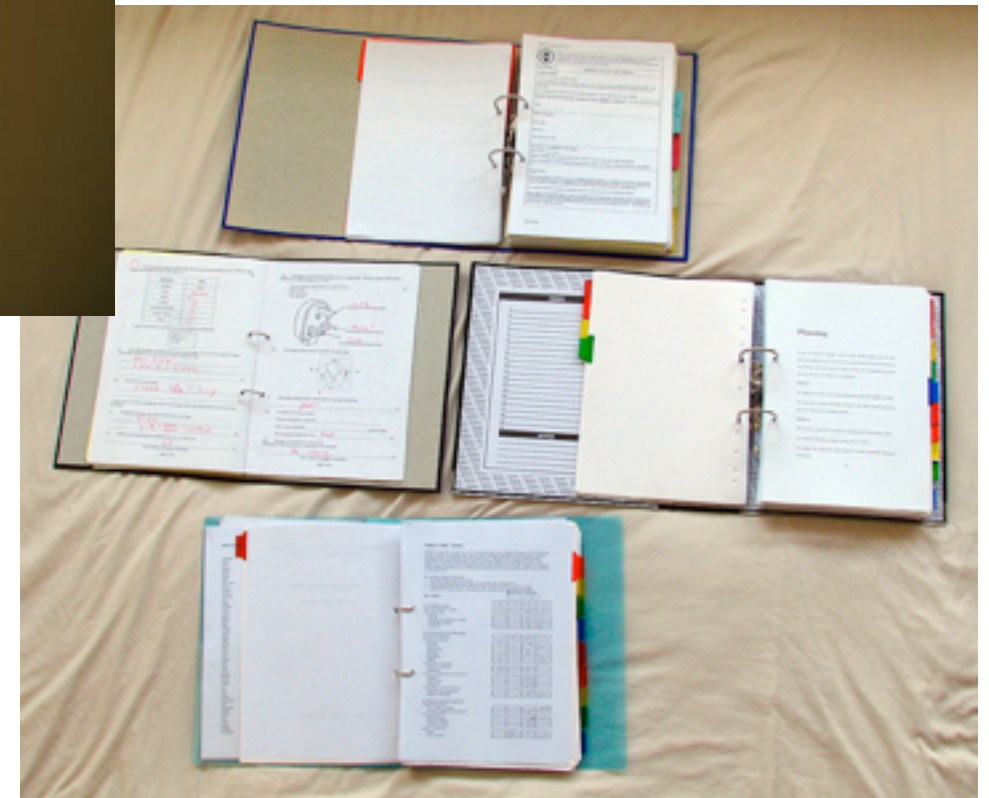


Focus on communication, don't rely on documentation

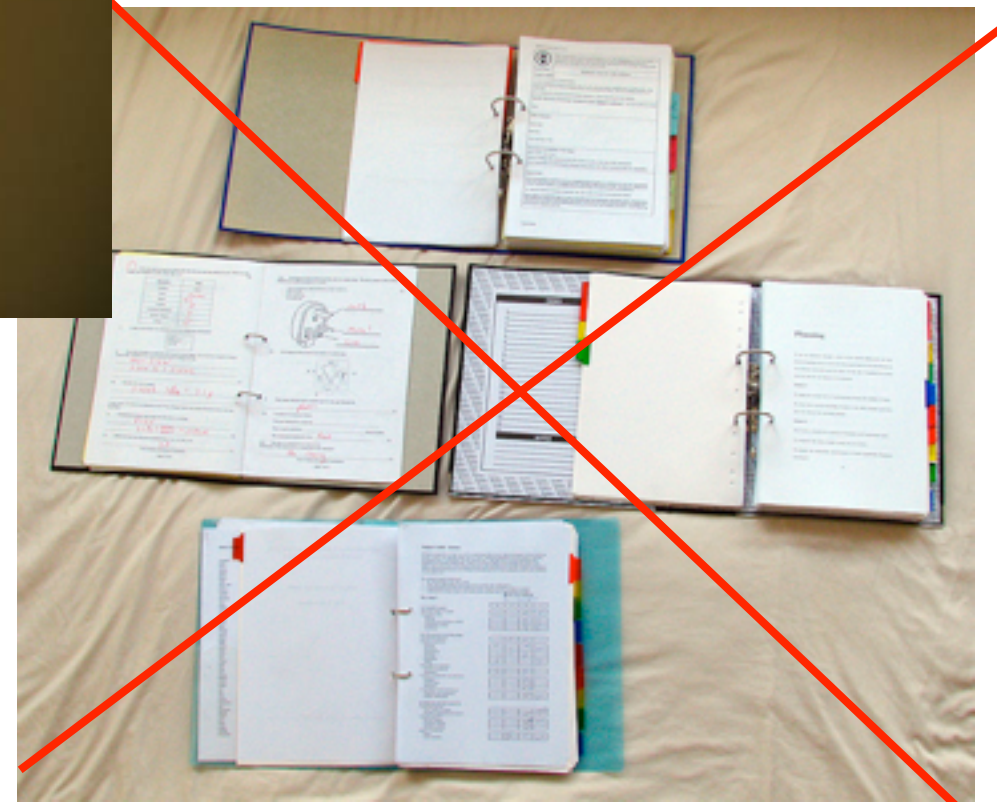
Focus on communication, don't rely on documentation



Focus on communication, don't rely on documentation



Focus on communication, don't rely on documentation



Treat engineers as professionals, not as resources

Treat engineers as professionals, not as resources



Treat engineers as professionals, not as resources



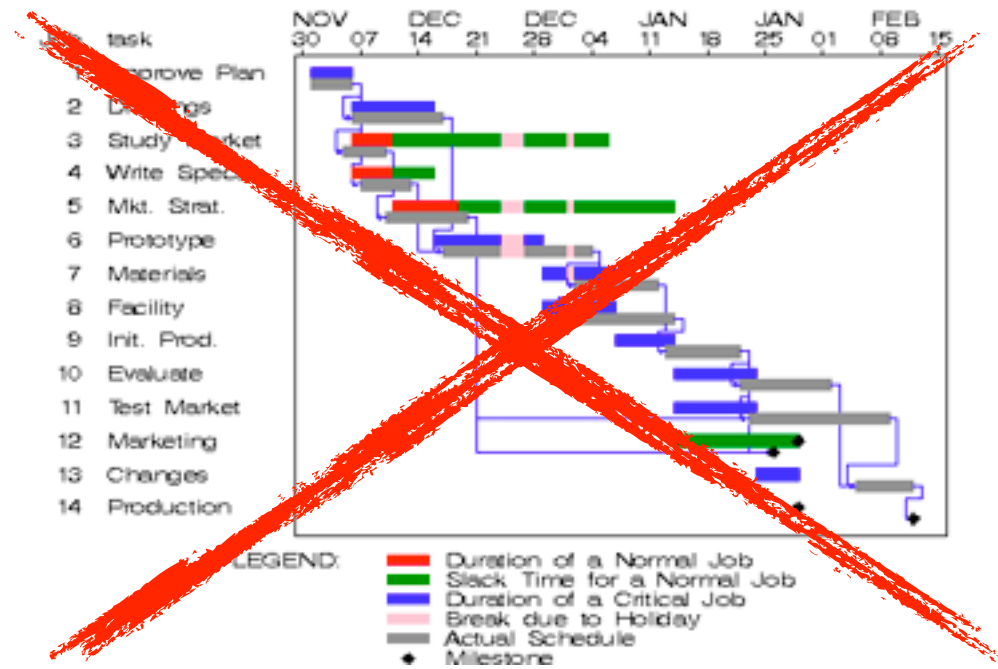
Slack is essential!

Slack is essential!

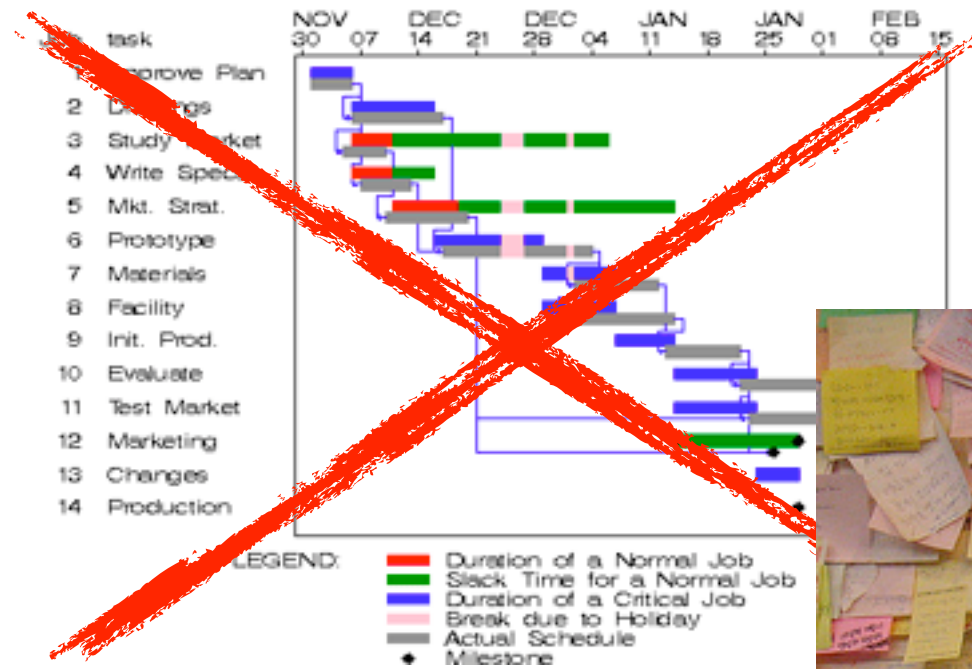


"Plans are nothing, planning is everything"

"Plans are nothing, planning is everything"



"Plans are nothing, planning is everything"



Focus on the whole product

Focus on the whole product



Focus on the whole product



Encourage failure

Encourage failure

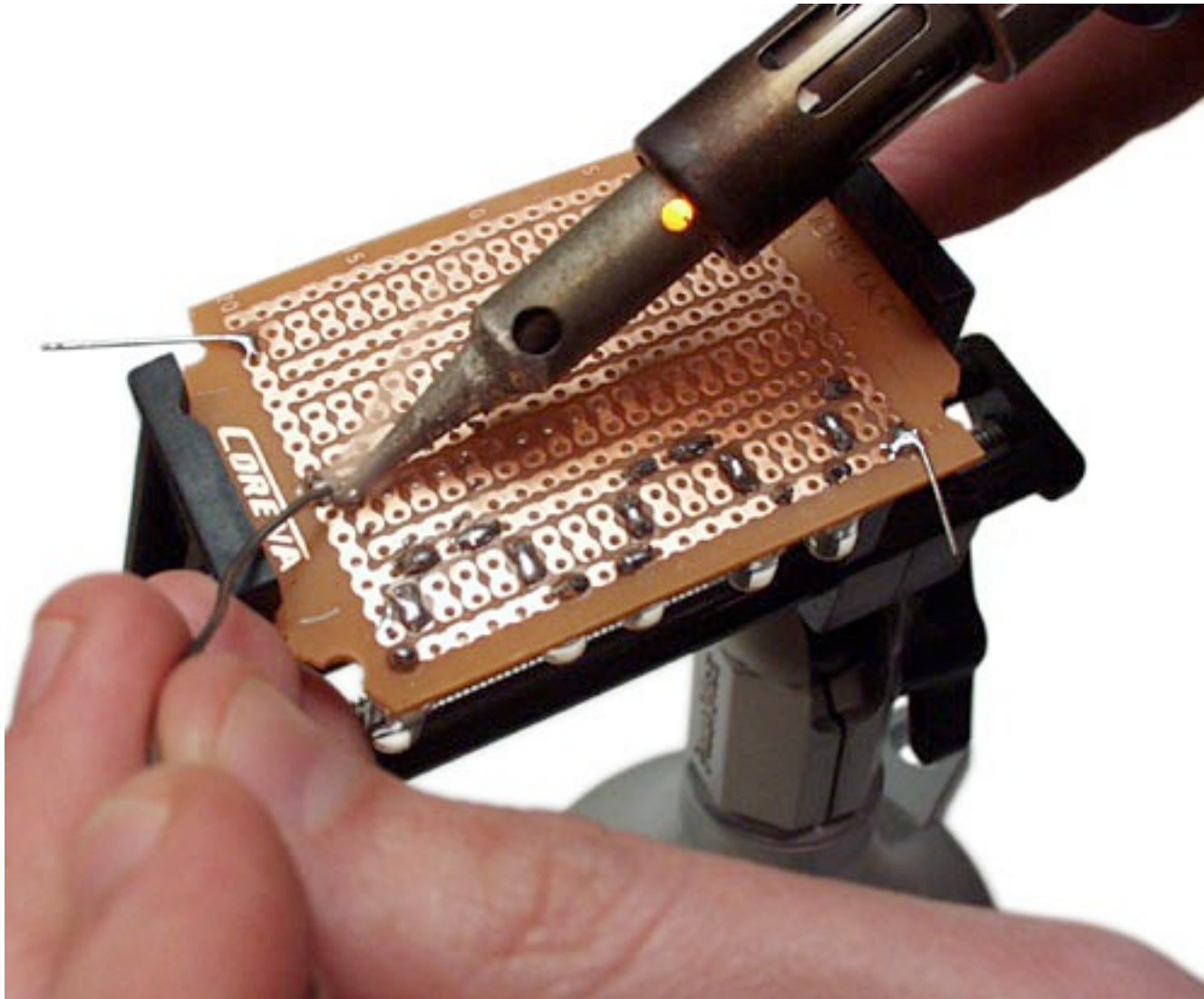


Encourage failure

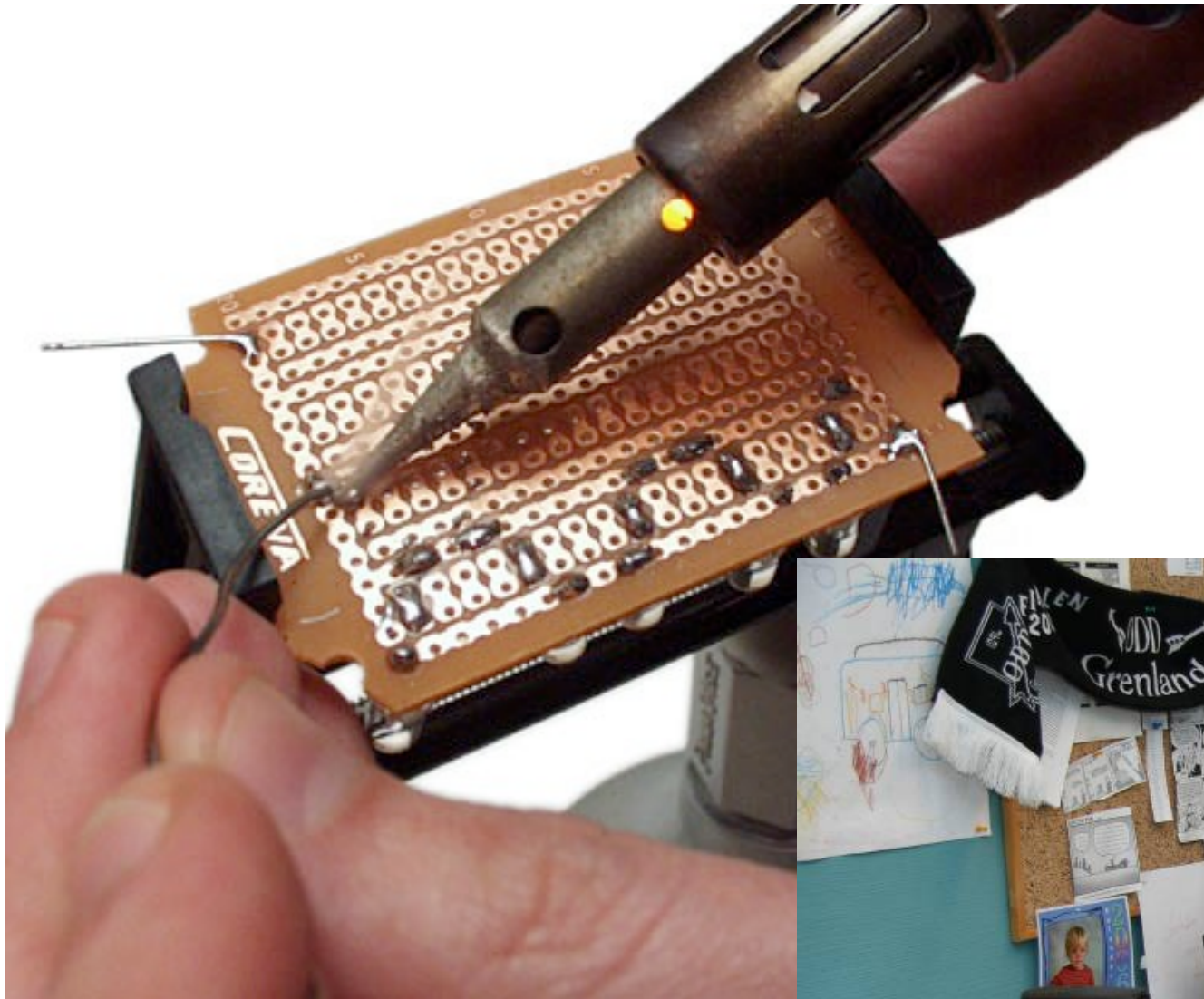


Respect the doers and create an autonomous organization

Respect the doers and create an autonomous organization



Respect the doers and create an autonomous organization



Look for communication skills when hiring

Look for communication skills when hiring



Aim for approximately right rather than accurately wrong

Aim for approximately right rather than accurately wrong



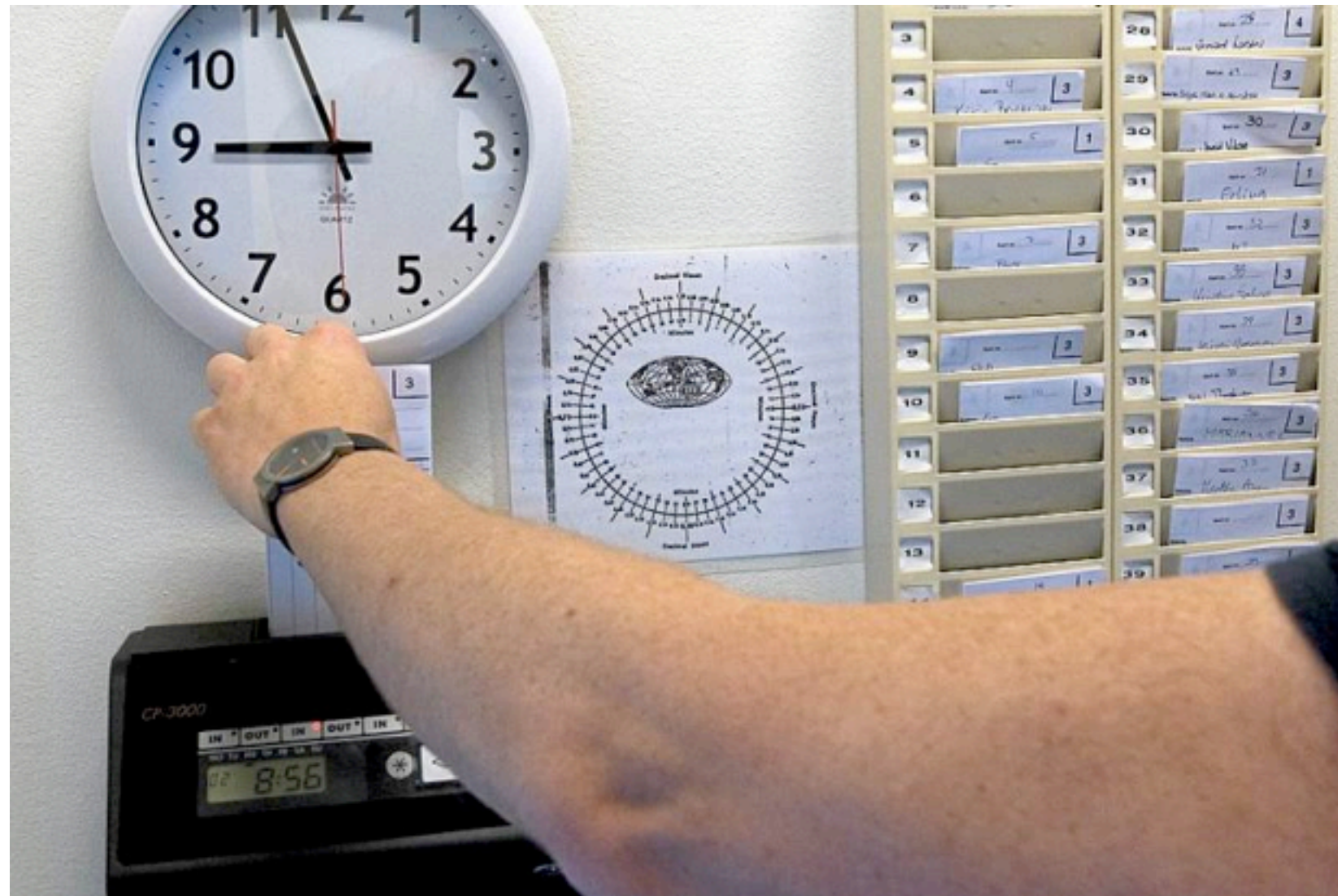
Release early and release often

Release early and release often

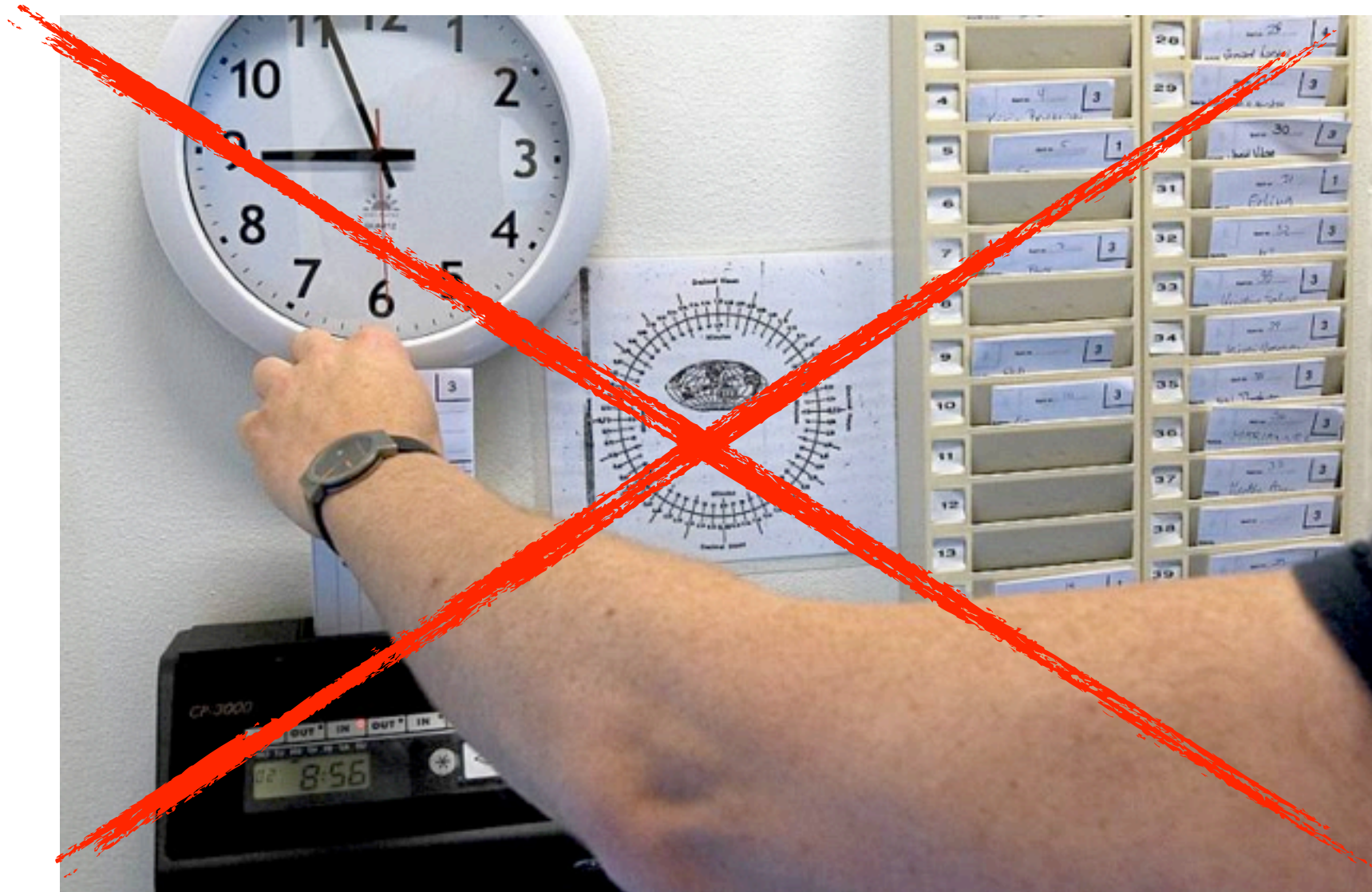


Trust your employees!

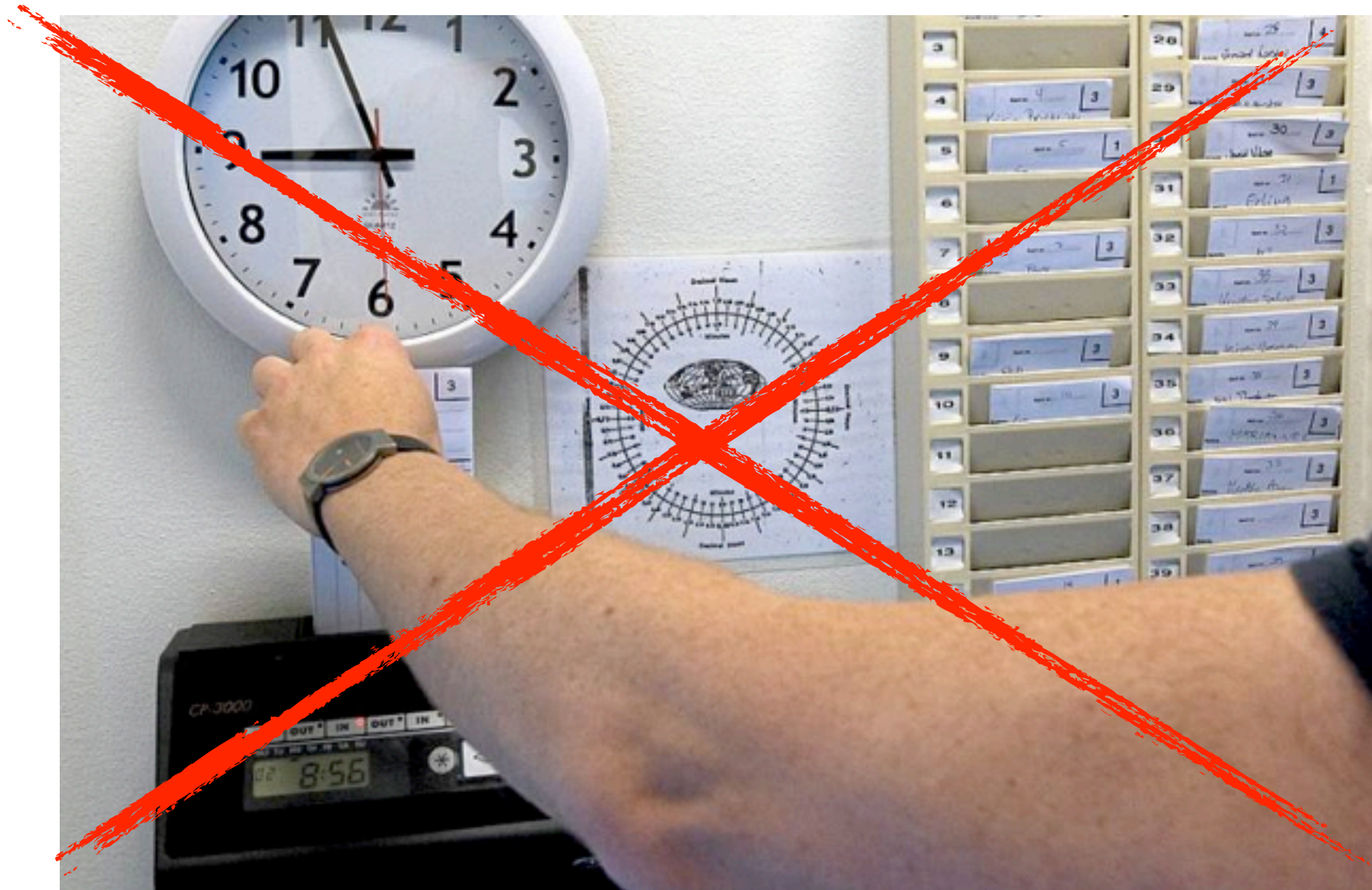
Trust your employees!



Trust your employees!



Trust your employees!



"What we don't do is treat our employees like they're all, you know, criminals,"

(Jenn Mann, SAS Institute)

Principles for effective product development

- Let the project and teams own their methodology
- Focus on communication, don't rely on documentation
- Treat engineers as professionals, not as resources
- Slack is essential
- "Plans are nothing, planning is everything"
- Focus on the whole product
- Encourage failures
- Respect the doers and create an autonomous organization
- Look for communication skills when hiring
- Aim for approximately right, rather than accurately wrong
- Release early and release often
- Trust your employees

Navigating Chaos



Few software projects are like running on a paved road where you can see the ...



... goal in the end of the road.

Most projects are more like...



extreme orienteering



with a group of people



in the dark

③ \longleftrightarrow

⑤ cross to the other side
and go slightly left.
there is a quarter
then all restaurant/tapas
place - FULL OF ENGLISH
? AMERICANS so be
carefull go to the right
places





About Agile Product Development



(Video 5:36)

http://www.pvv.org/~oma/Snorre_CiscoAgile2011.mov

!



Manifesto for Agile Software Development

We are uncovering better ways of developing software by doing it and helping others do it.
Through this work we have come to value:

Individuals and interactions over processes and tools
Working software over comprehensive documentation
Customer collaboration over contract negotiation
Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

Kent Beck
Mike Beedle
Arie van Bennekum
Alistair Cockburn
Ward Cunningham
Martin Fowler

James Grenning
Jim Highsmith
Andrew Hunt
Ron Jeffries
Jon Kern
Brian Marick

Robert C. Martin
Steve Mellor
Ken Schwaber
Jeff Sutherland
Dave Thomas