SUSTAINABLE SOCIO-TECHNICAL SYSTEMS

EINAR W. HØST

BUILDING LONG-LIVING CYBORGS

EINAR W. HØST

HOW ANIMATE THE DEAD AND LIVE TO TELL THE TALE

EINAR W. HØST

ME

THE PASSING OF TIME

THINGS HAPPEN

SOMETIMES THOSE THINGS AFFECT OUR SOFTWARE

SOME BAD NEWS

ALL PROGRAMS ARE DEAD

DEAD MEANS
NOT CAPABLE OF
RESPONDING TO CHANGE

SOME GOODISH NEWS

WE CAN ANIMATE OUR DEAD

PEOPLE CAN MAKE PROGRAMS RESPOND TO CHANGE

RESPONDING TO CHANGE

DETECT THE CHANGE

ASSESS CHANGE IMPACT

IDENTIFY THE GAP

DECIDE HOW TO CLOSE THE GAP

TRADE-OFFS

DECISION

CLOSE THE GAP

DONE

?

CONSTRAINTS

TIME

MONEY

INSIGHT

SKILL

INERTIA

IMPERFECTIONS

RESIDUES

REMAINING WORK

PARTIALLY CLOSED GAPS

INCURRED ASSUMPTIONS

LOST DEGREES OF FREEDOM

LESS AGILE
IN THE FACE OF FUTURE CHANGES

ACCUMULATED IMPERFECTIONS

« TECHNICAL DEBT »

THE INEVITABLE BYPRODUCT OF **CHANGE** AND **INERTIA**

IS CHANGE A CONSTANT?

AMOUNTS OF CHANGE

CHANGE SURFACE

SOURCES OF CHANGE

ESSENTIAL VS ACCIDENTAL

CAPACITY FOR CHANGE

CHANGES THAT AFFECT THE PROGRAM

REQUIREMENTS

DOMAIN CHANGES

TECHNOLOGY

ICEBERG APPLICATIONS

EVERY DEPENDENCY IS
A SUBSCRIPTION TO
A STREAM OF CHANGES

ALL CHANGES TO DEPENDENCIES ARE ACCIDENTAL

WHAT'S THE PERCENTAGE OF TIME SPENT ON ESSENTIAL CHANGES?

CAPACITY FOR CHANGE

CHANGES THAT AFFECT THE PEOPLE

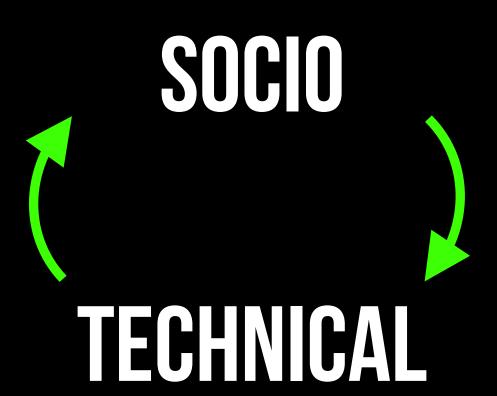# TEAM CHANGES

FUNDING IS CUT

INCREASED PRESSURE
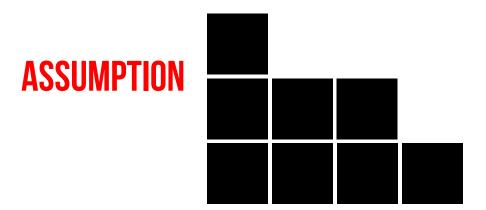
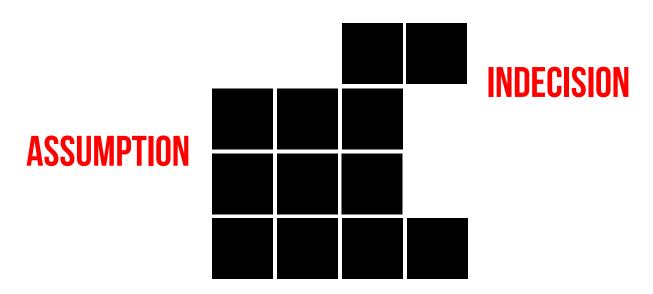# TRUST LOSS

MOTIVATION LOSS
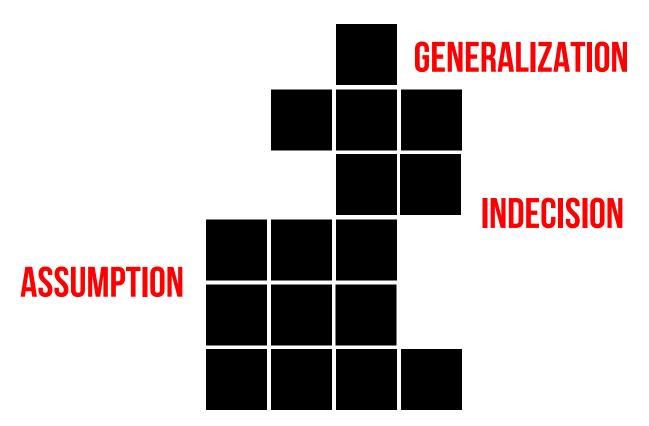
KNOWLEDGE LOSS

INCREASED AUTONOMY

CLARIFIED INTENT
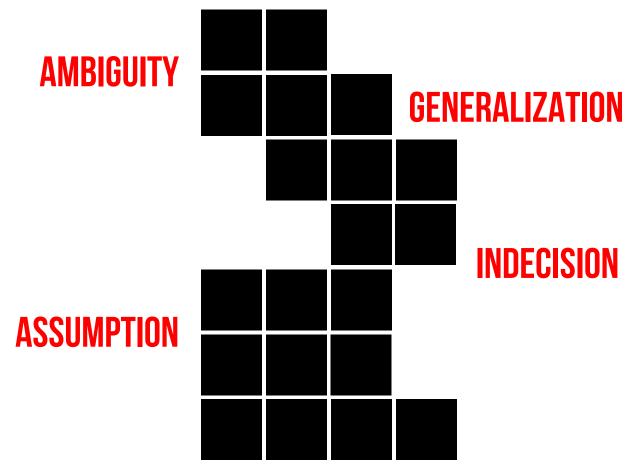
SOFTWARE DEVELOPMENT IS LIKE TETRIS

ASSUMPTION

ASSUMPTION

INDECISION

GENERALIZATION

INDECISION

ASSUMPTION

AMBIGUITY

GENERALIZATION

INDECISION

ASSUMPTION

MISUNDERSTANDING

AMBIGUITY

GENERALIZATION

INDECISION

ASSUMPTION

CONFLICT

MISUNDERSTANDING

AMBIGUITY

GENERALIZATION

INDECISION

ASSUMPTION

CONFLICT

MISUNDERSTANDING

AMBIGUITY

GENERALIZATION

INDECISION

ASSUMPTION

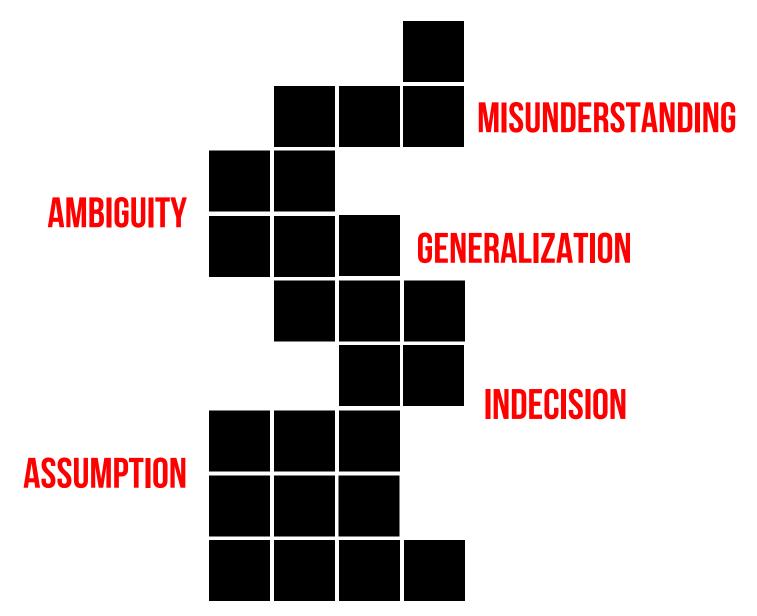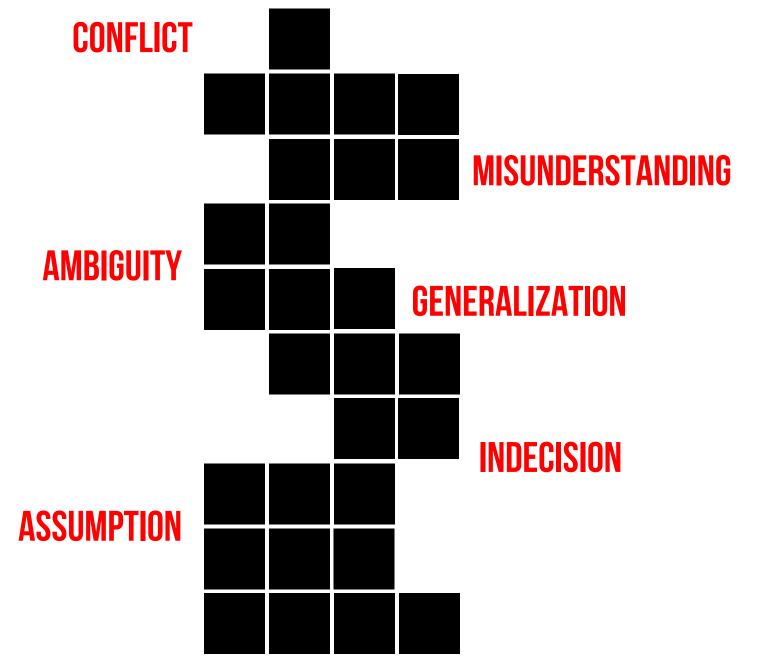**GAME OVER**

CAN WE SLOW IT DOWN?

HOW TO PLAY WELL

PRACTICES

DEVOPS

CONTINUOUS INTEGRATION

AUTOMATED TESTING

OBSERVABILITY-DRIVEN

THE SOFTWARE DOESN'T HAVE ANY QUALITY ATTRIBUTES THAT HAVE NOT BEEN VALIDATED IN PRODUCTION FAIRLY RECENTLY

CODE LEVEL

DOMAIN ORIENTATION

FOCUS ON INTERFACES

PROTECT INTERNALS

MINIMIZE DEPENDENCIES

INLINE VOLATILE DEPENDENCIES

GO BRUTALIST

AVOID SOPHISTICATION

EMBRACE CONSTRAINTS

PRESERVE OPTIONALITY

PLAN FOR DELETION

REDUCE CHANGE SURFACE

SHRINK THE ICEBERG

TEAM LEVEL

BEWARE THE ENVIRONMENT

SEEK STABILITY

AVOID CHURN

INTENT + AUTONOMY

BUILD TRUST

RETAIN AND REBUILD KNOWLEDGE

REWRITE AS ONBOARDING

CROSS-FUNCTIONAL TEAMS

SINGLE-THREADED TEAMS

FULL TEAM WORKING

SUMMARY

CHANGE IS CONSTANT
BUT THE AMOUNT OF CHANGE IS NOT

CHANGE CAPACITY IS LIMITED

CHOOSE CHANGE CAREFULLY

INVEST IN THE QUALITY OF THE WHOLE SYSTEM