Trust as Foundation of DevOps

Dirk Lehmann, SAP
February 12, 2020

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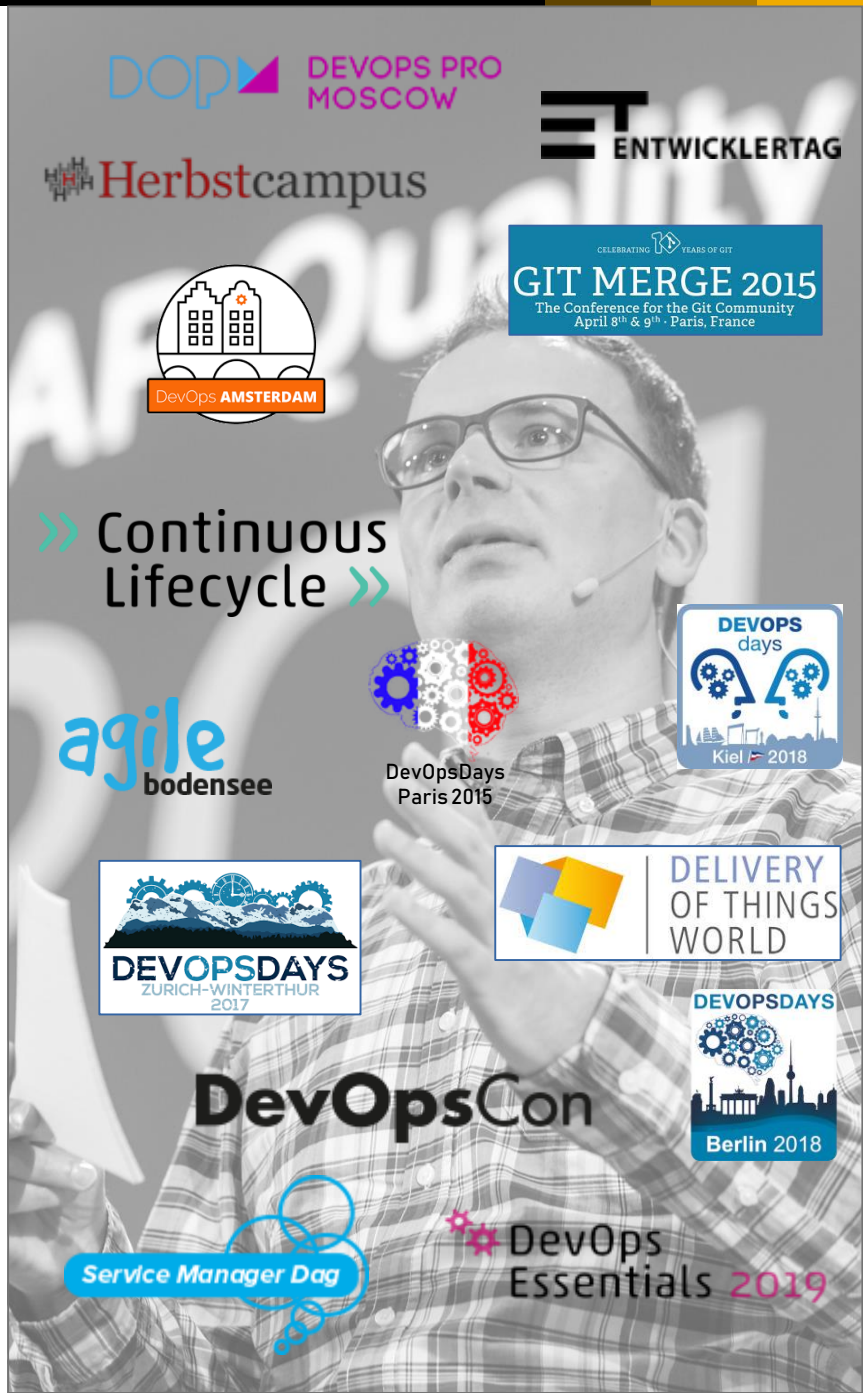
About me

- **With SAP since 2001**
- **Implemented the first daily delivery process at SAP (2014) with twogo**
- **Co-Organizer DevOpsDays Zurich**
  https://devopsdays.ch
- **Conference speaker**
  https://doergn.github.io/
- **@doergn**



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There is no Canonical Definition of DevOps

“a cross-disciplinary community of practice dedicated to the study of building, evolving and operating rapidly-changing resilient systems at scale.”

Jez Humble

“DevOps is... an umbrella concept that refers to anything that smoothes out the interaction between development and operations.”

Damon Edwards

“DevOps is a cultural and professional movement.
The best way to describe devops is in terms of patterns and anti-patterns.”

Adam Jacobs

“the emerging professional movement that advocates a collaborative working relationship between Development and IT Operations, resulting in the fast flow of planned work (i.e., high deploy rates), while simultaneously increasing the reliability, stability, resilience and security of the production environment.”

Gene Kim

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Development + Operations = DevOps

That was easy!

- **The term DevOps is bad. Really bad. Like really really bad!**
  - **It started as “Agile Operations”, turned into DevOps and at the time everyone realized it was a terrible mistake the term was already established.**
- **What about…**
  - **Security?** → ***DevSecOps?***
  - **Business?** → ***DevBizOps?***
  - **Quality?** → ***DevQOps?***
  - **UA?** → ***DevUAOps?***
  - **…**

Don‘t try to create a new bad term. Let‘s live with one bad term: DevOps

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A “pretty good” definition

“DevOps: A culture where people, regardless of title or background, work together to imagine, develop, deploy and operate a system.”

Ken Mugrage, Thoughtworks

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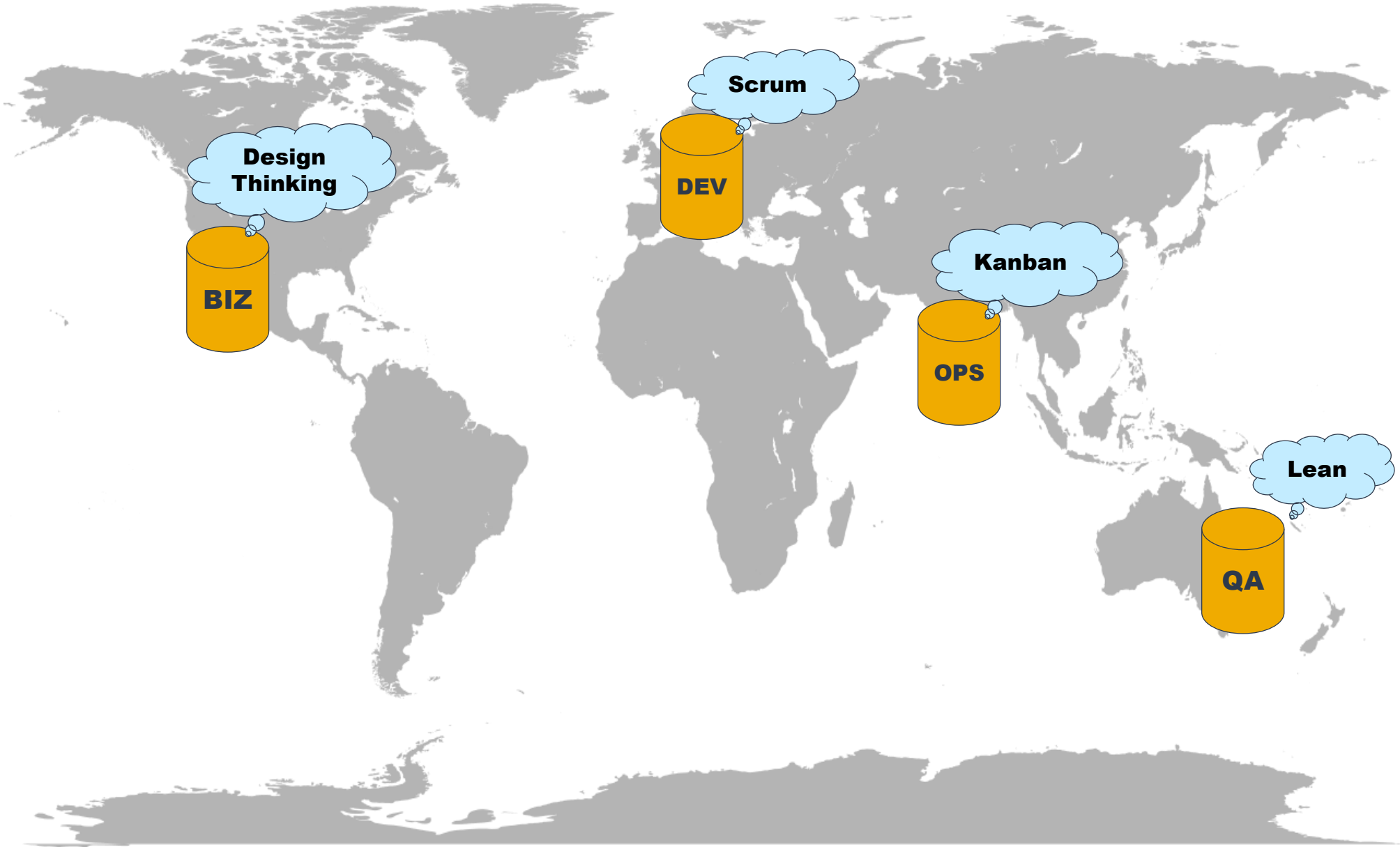

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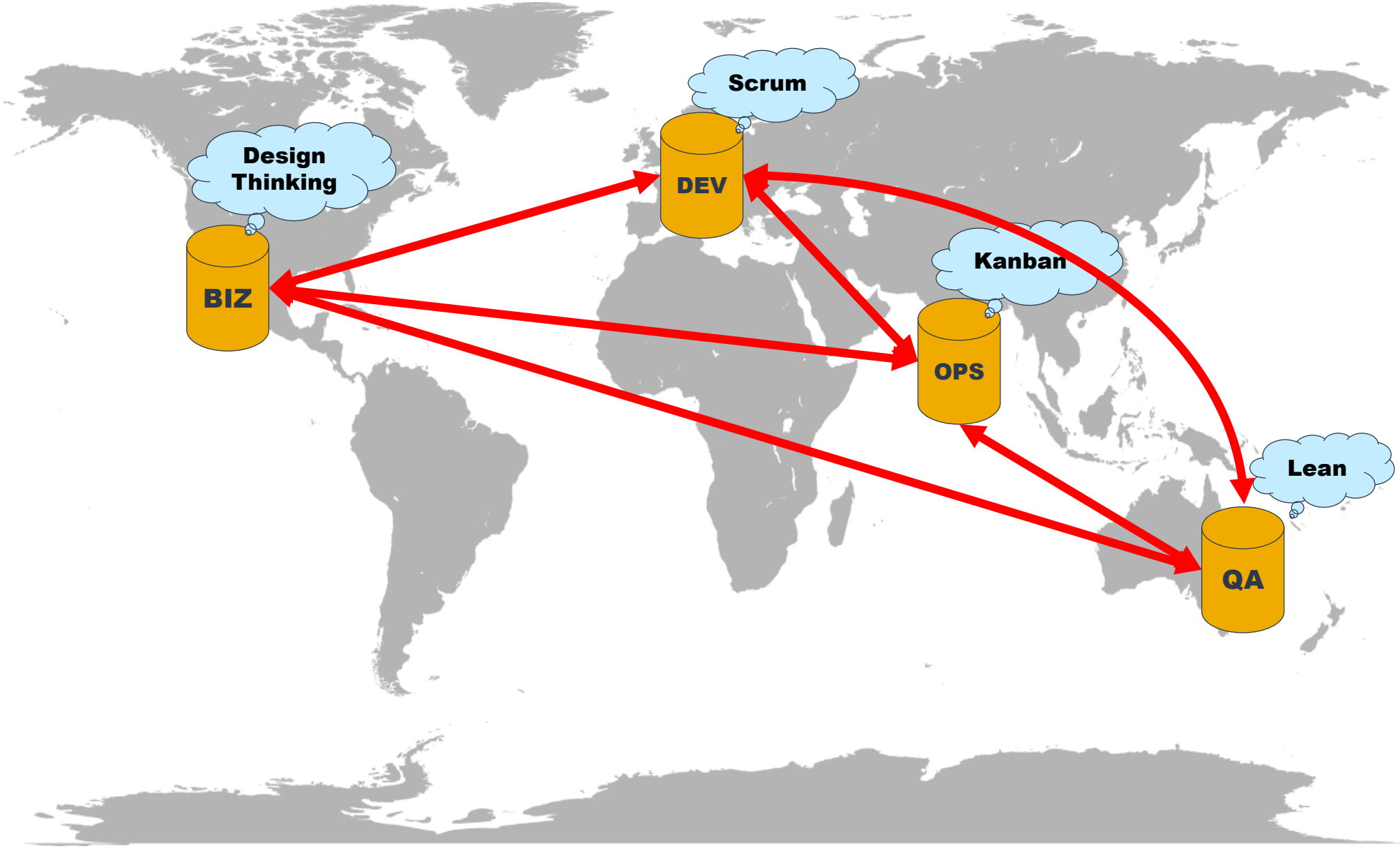

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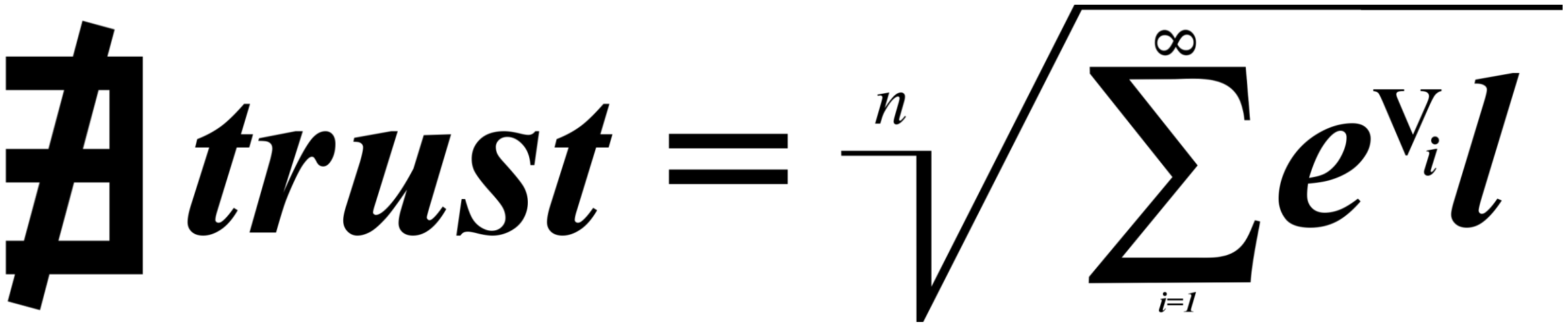

$$\nexists\, trust = \sqrt[n]{\sum_{i=1}^{\infty} e^{V_i} l}$$

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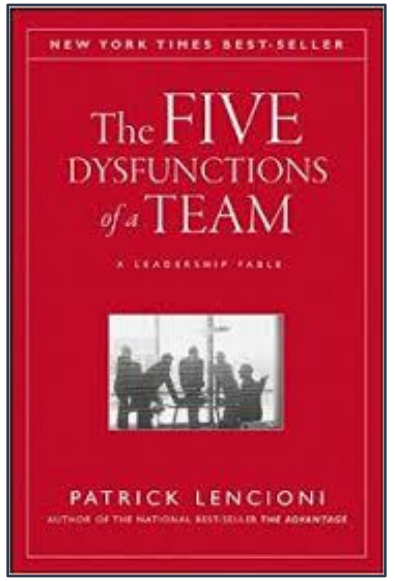

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Trust (emotion)

From Wikipedia, the free encyclopedia

For other types of trust, see Trust (disambiguation).

In a social context, **trust** has several connotations.[1] Definitions of trust[2][3] typically refer to a situation characterized by the following aspects: One party (trustor) is willing to rely on the actions of another party (trustee); the situation is directed to the future. In addition, the trustor (voluntarily or forcedly) abandons control over the actions performed by the trustee. As a consequence, the trustor is uncertain about the outcome of the other's actions; they can only develop and evaluate expectations. The uncertainty involves the risk of failure or harm to the trustor if the trustee will not behave as desired. Vladimir Ilych Lenin expressed this idea with the sentence "Trust is good, control is better".[4]

Trust can be attributed to relationships between people. It can be demonstrated that humans have a natural disposition to trust and to judge trustworthiness that can be traced to the neurobiological structure and activity of a human brain. Some studies indicate that trust can be altered e.g. by the application of oxytocin.[5]

Conceptually, trust is also attributable to relationships within and between social groups (history, families, friends, communities, organisations, companies, nations, etc.). It is a popular approach to frame the dynamics of inter-group and intra-group interactions in terms of trust.[6] The trust formations of people towards different actors in society has been shaped into a generic model of trust with three levels of application, i.e. Macro, Micro, and Meso.[7]

When it comes to the relationship between people and technology, the attribution of trust is a matter of dispute. The intentional stance[8] demonstrates that trust can be validly attributed to human relationships with complex technologies. However, rational reflection leads to the rejection of an ability to trust technological artefacts.[9]

One of the key current challenges in the social sciences is to re-think how the rapid progress of technology has impacted constructs such as trust. This is specifically true for information technology that dramatically alters causation in social systems.[10]

In the social sciences, the subtleties of trust are a subject of ongoing research. In sociology and psychology the degree to which one party trusts another is a measure of belief in the honesty, fairness, or benevolence of another party. The term "confidence" is more appropriate for a belief in the competence of the other party. Based on the most recent research[*citation needed*], a failure in trust may be forgiven more easily if it is interpreted as a failure of competence rather than a lack of benevolence or honesty. In economics, trust is often conceptualized as reliability in transactions. In all cases trust is a heuristic decision rule, allowing the human to deal with complexities that would require unrealistic effort in rational reasoning.

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Emotions

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V · T · E

Trust: The Artist's Daughters on the Way to School, 1851 Gustav Adolph Hennig painting.

Sociology [edit]

When it comes to trust, sociology is concerned with the position and role of trust in social systems. Interest in trust has grown significantly since the early eighties, from the early works of Luhmann,[11] Barber [12] and Giddens[13] (see [14] for a more detailed overview). This growth of interest in trust has been stimulated by on-going changes in society, characterised as late modernity and post-modernity.

Trust is one of several social constructs, an element of the social reality.[15] It does not exist outside of our vision of the other. This image can be real or imaginary, but it is this one which permits the creation of the Trust.[16] Other constructs, frequently discussed together with trust, are: control, confidence, risk, meaning and power. Trust is naturally attributable to relationships between social actors, both individuals and groups (social systems). Because trust is a social construct, it is valid to discuss whether trust can be trusted (e.g.[17]), i.e. whether social trust operates as expected.

Society needs trust because it increasingly finds itself operating at the edge between confidence in what is known from everyday experience, and contingency of new possibilities. Without trust, all contingent possibilities should be always considered, leading to a paralysis of inaction.[18] Trust can be seen as a bet on one of contingent futures, the one that may deliver benefits. Once the bet is decided (i.e. trust is granted), the trustor suspends his or her disbelief, and the possibility of a negative course of action is not considered at all. Because of it, trust acts as a reductor of social complexity, allowing for actions that are otherwise too complex to be considered (or even impossible to consider at all); specifically for cooperation.[19] Sociology tends to focus on two distinct views: the macro view of social systems, and a micro view of individual social actors (where it borders with social psychology). Similarly, views on trust follow this dichotomy. Therefore, on one side the systemic role of trust can be discussed, with a certain disregard to the psychological complexity underpinning individual trust. The behavioural approach to trust is usually assumed [20] while actions of social actors are measurable, leading to statistical modelling of trust. This systemic approach can be contrasted [21] with studies on social actors and their decision-making process, in anticipation that understanding of such a process will explain (and allow to model) the emergence of trust.

Sociology acknowledges that the contingency of the future creates dependency between social actors, and specifically that the trustor becomes dependent on the trustee. Trust is seen as one of the possible methods to resolve such a dependency, being an attractive alternative to control.[22] Trust is specifically valuable if the trustee is much more powerful than the trustor, yet the trustor is under social obligation to support the trustee.[23]

Modern information technologies not only facilitated the transition towards post-modern society, but they also challenged traditional views on trust. Empirical studies [24] confirms the new approach to the traditional question regarding whether technology artefacts can be attributed with trust. Trust is not attributable to artefacts, but it is a representation of trust in social

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Trust – Definition

„The state of readiness for unguarded interaction with someone or something.“

„A construct of Trust“ 1993 – Dr. Duane C. Tway Jr.

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Trust – Definition

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- **The capacity for trusting**
- **The perception of competence**
- **The perception of intentions**

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How to measure trust?

confidence
respect
trust = speed
faith
hope

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How to measure trust?

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trust = speed

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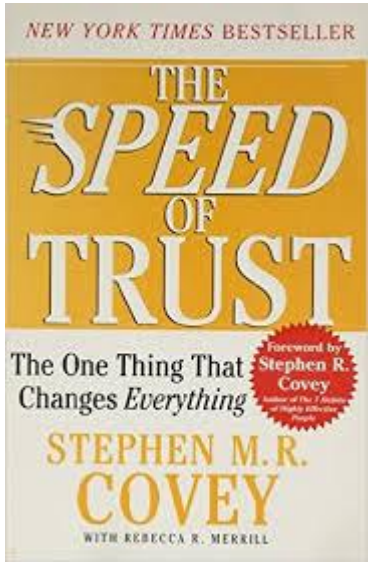

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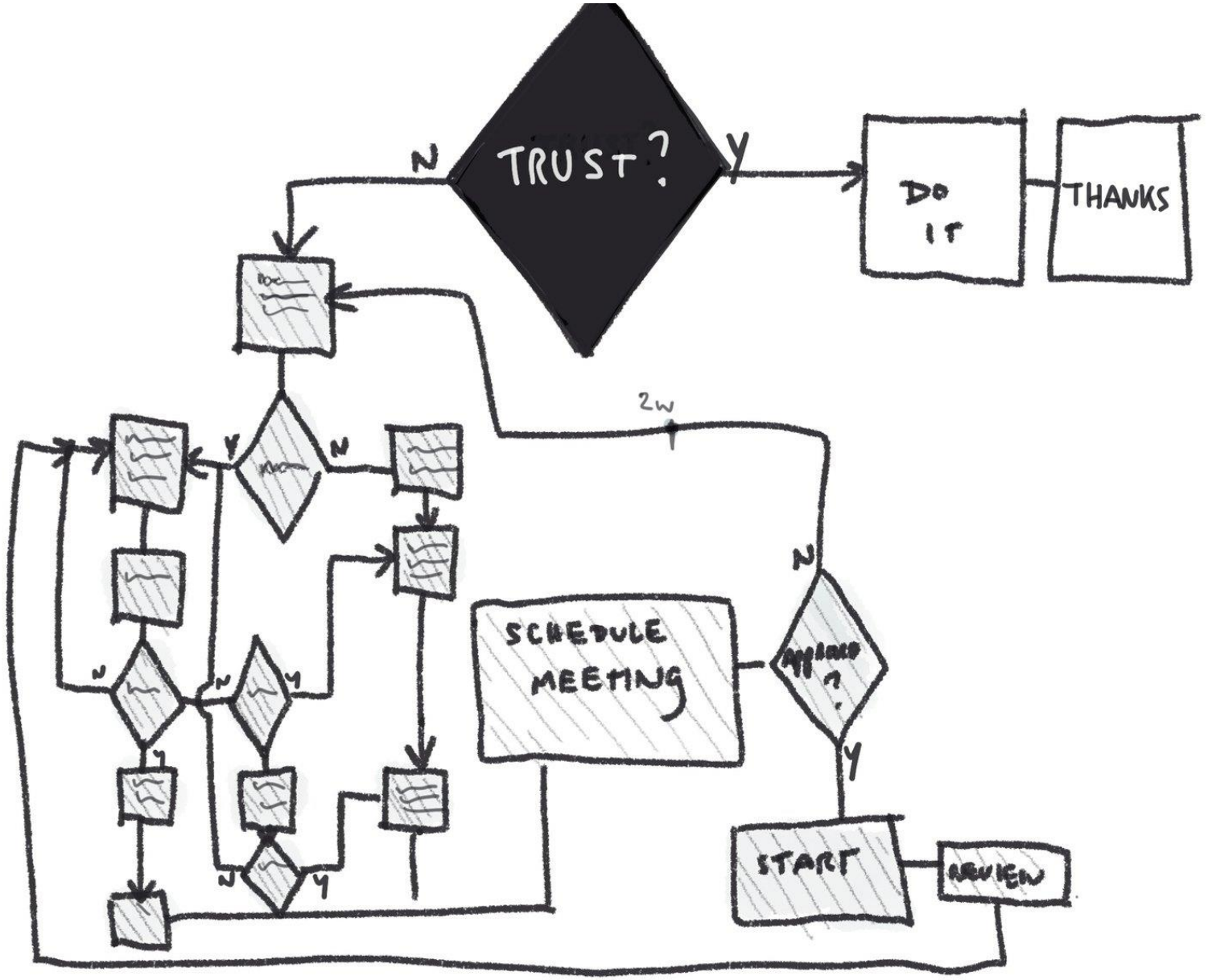

Courtesy of John Cutler (@johncutlefish)

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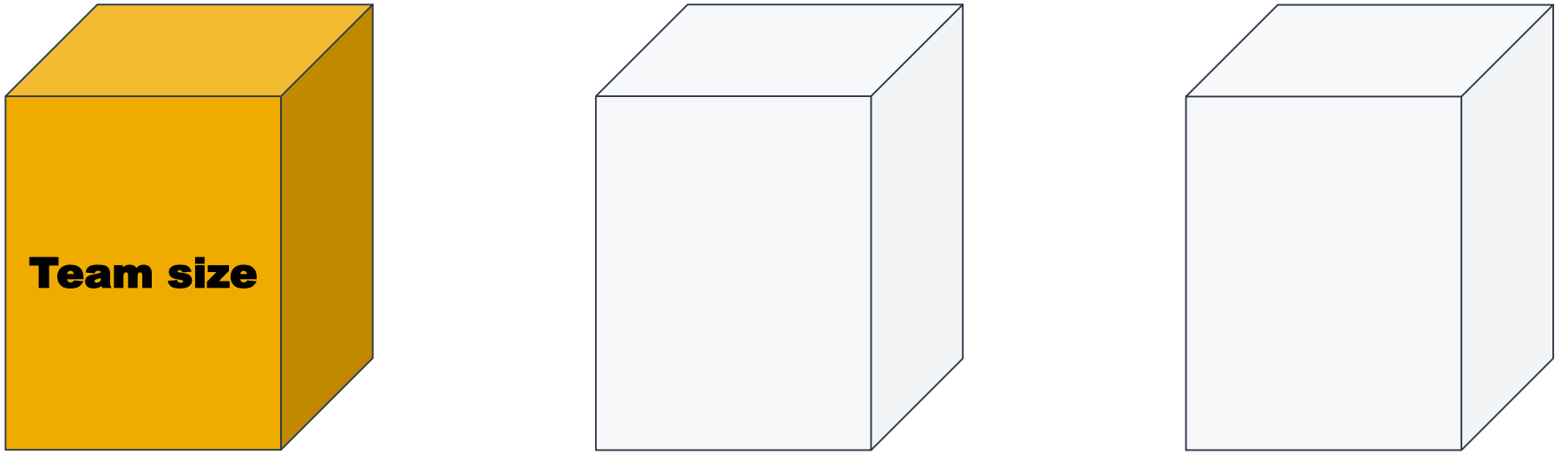
How to build trust?



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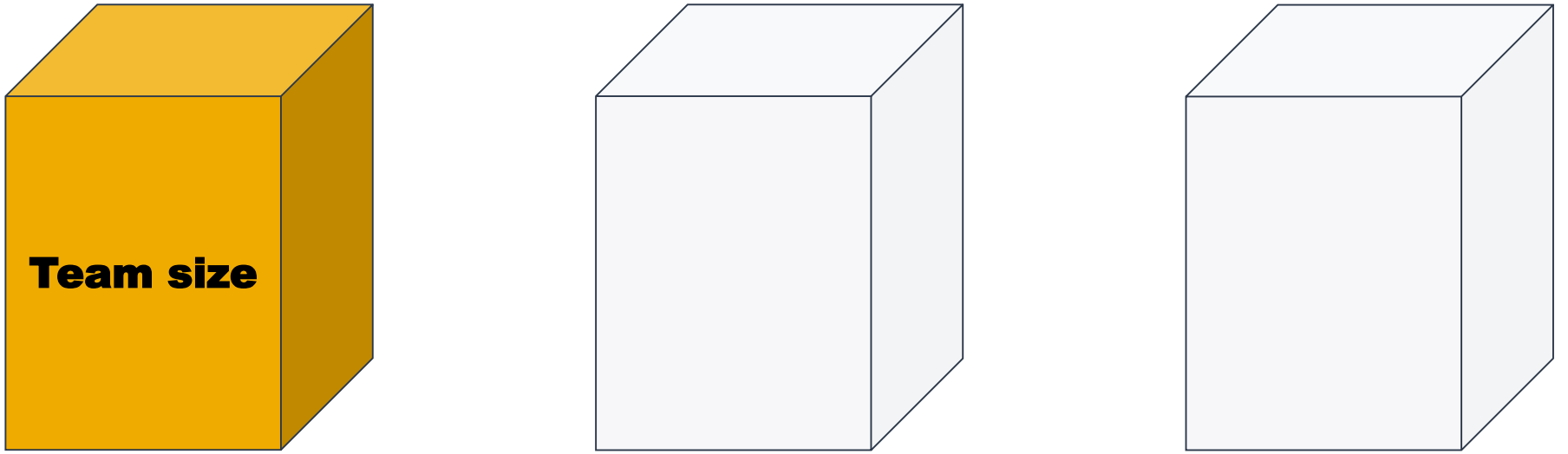
How to ~~build~~ foster trust?



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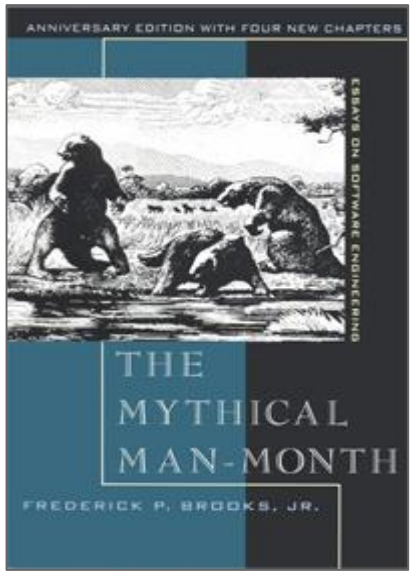
Team size has a direct impact on team communication

“Adding manpower to a late software project makes it later.”

- Fred Brooks, 1975



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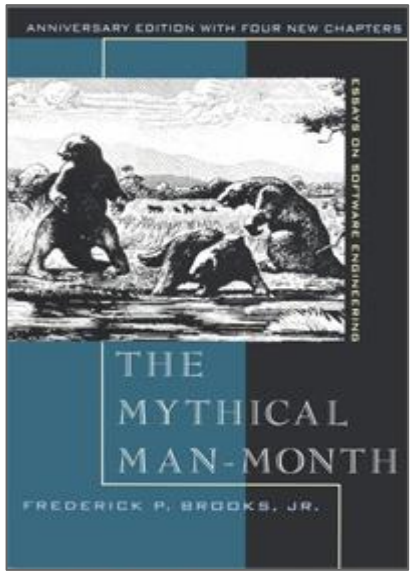
Intercommunication formula: n(n-1)/2



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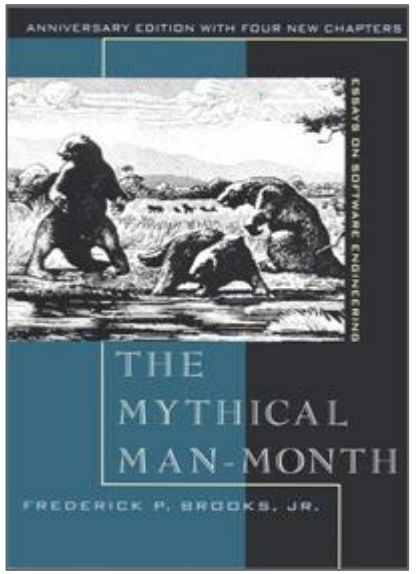
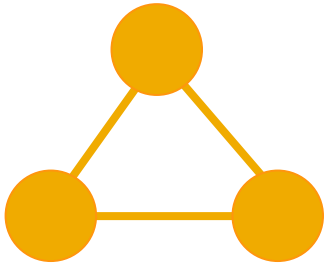


Intercommunication formula: n(n-1)/2

3 Persons
3 Connections



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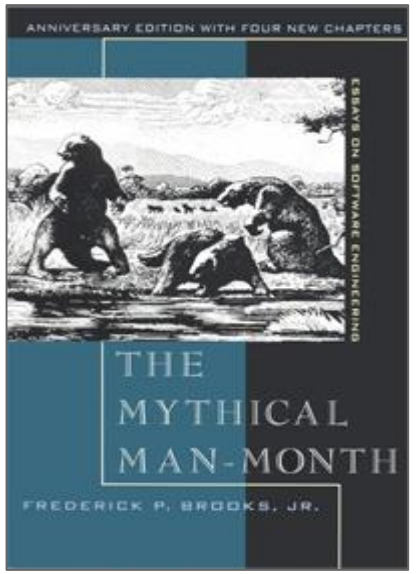
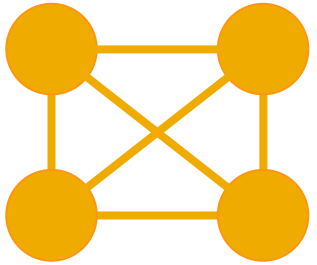


Intercommunication formula: n(n-1)/2

4 Persons
6 Connections



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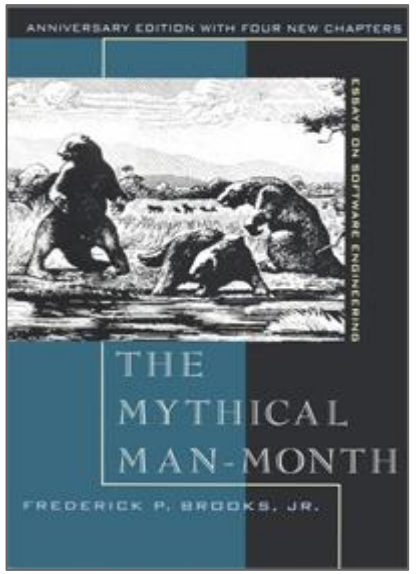
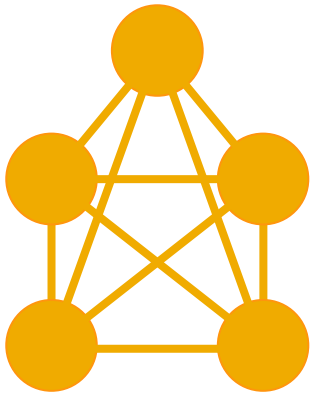


Intercommunication formula: n(n-1)/2

5 Persons
10 Connections



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How many social relationships can you maintain?

Dunbar's number

“...is a suggested cognitive limit to the number of people with whom one can maintain stable social relationships”

WIKIPEDIA
The Free Encyclopedia

Source:
https://en.wikipedia.org/wiki/Dunbar%27s_number

Robin Dunbar
Anthropologist and evolutionary psychologist

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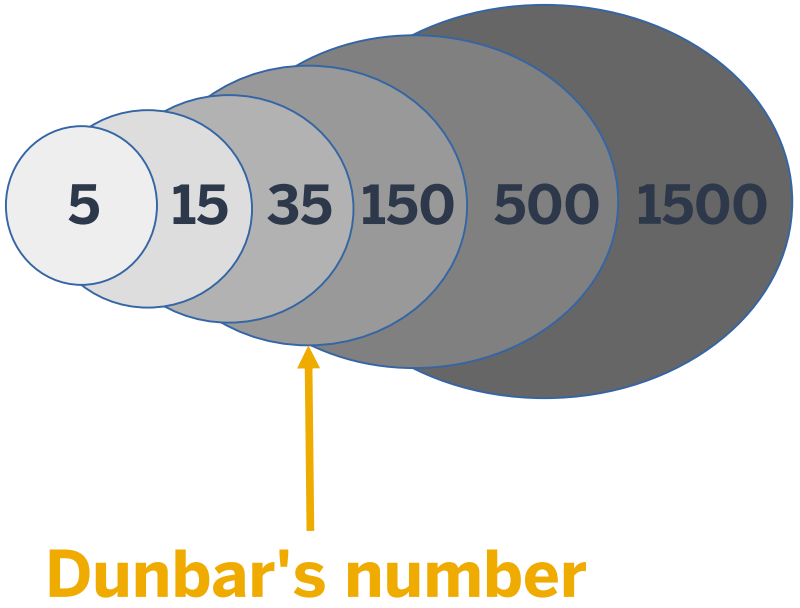

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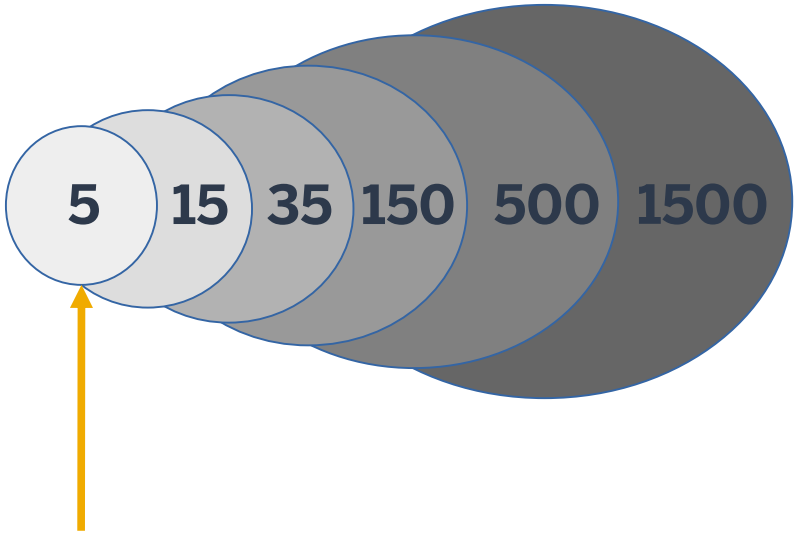

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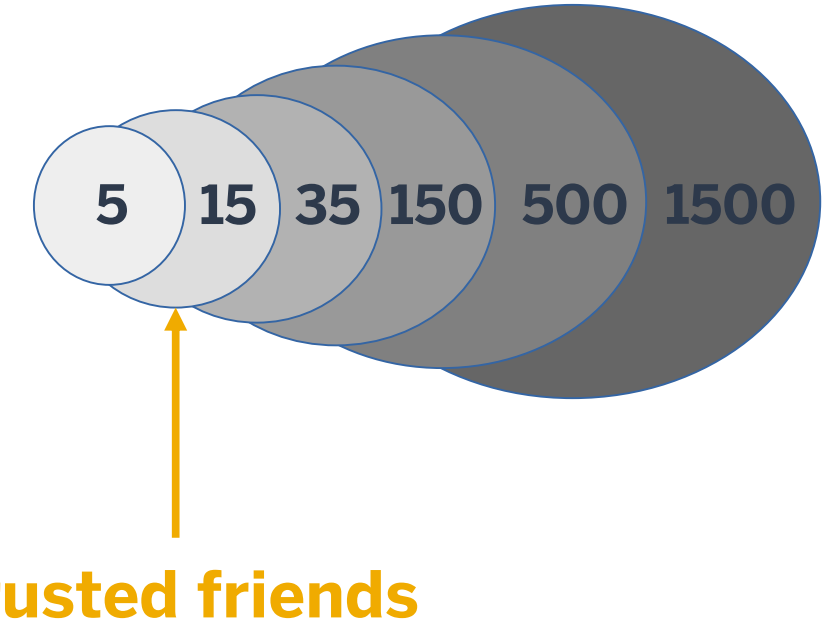

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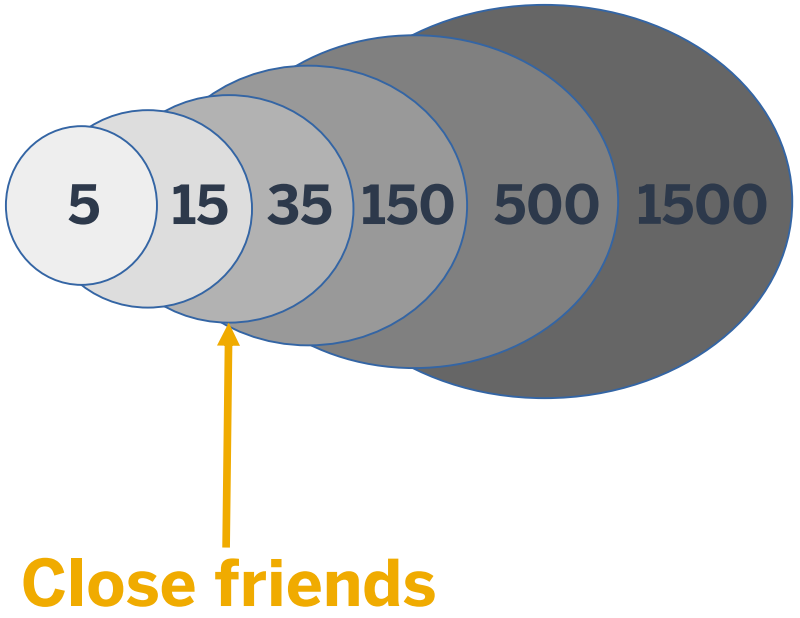

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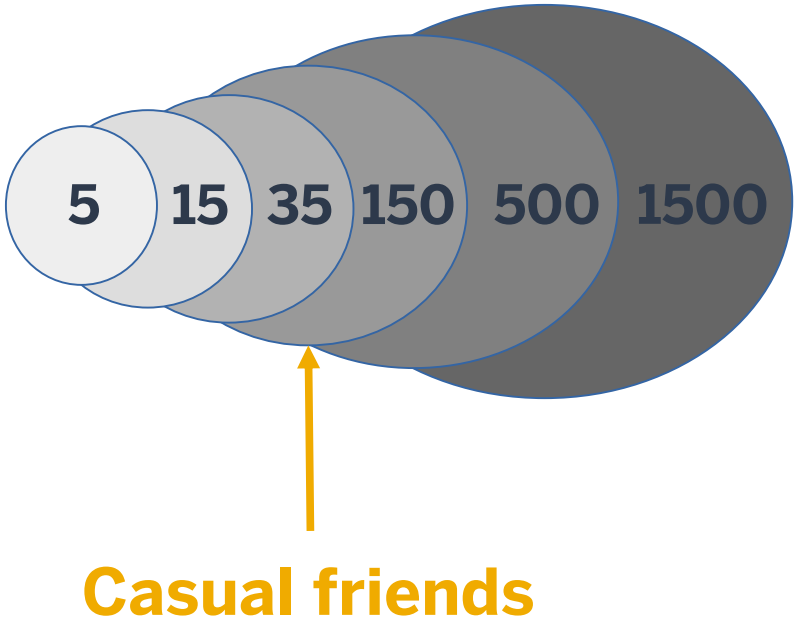

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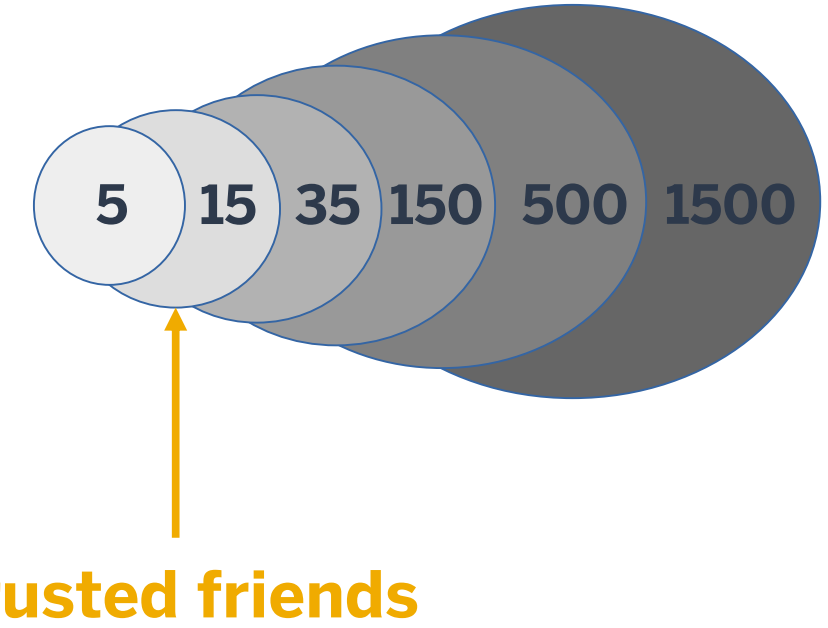

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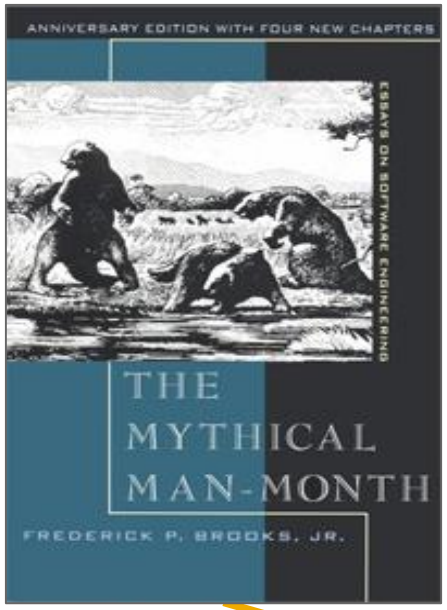
What I'm trying to say is...Team size matters!



If you don't have a trusted relationship with every member of your team, your team is probably too big

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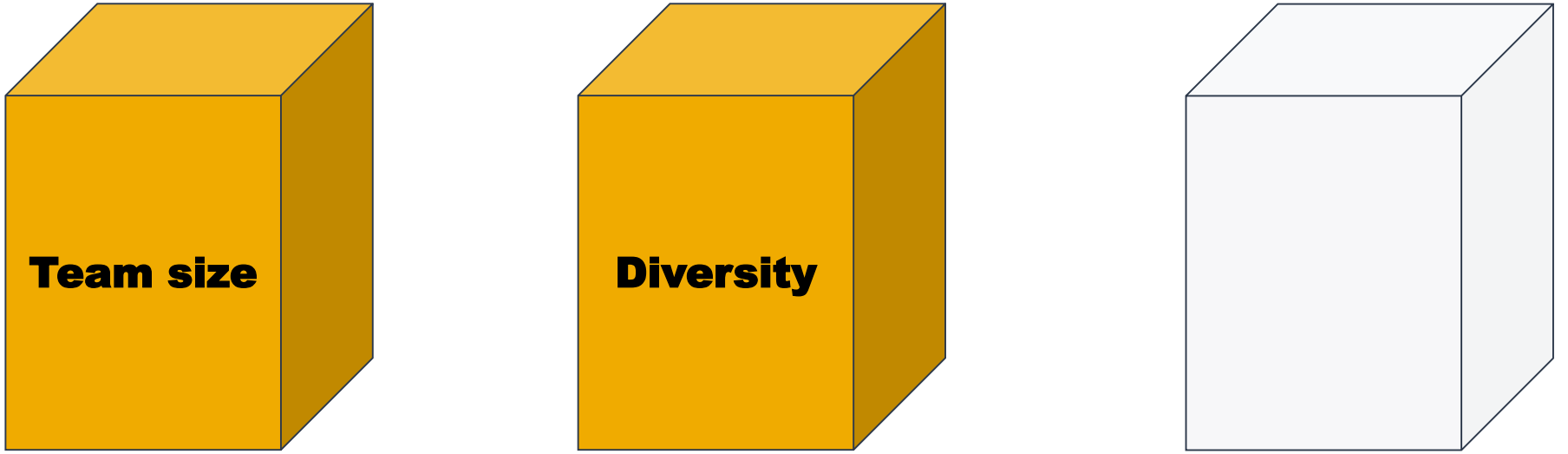
How to foster trust?



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Foster personal interactions

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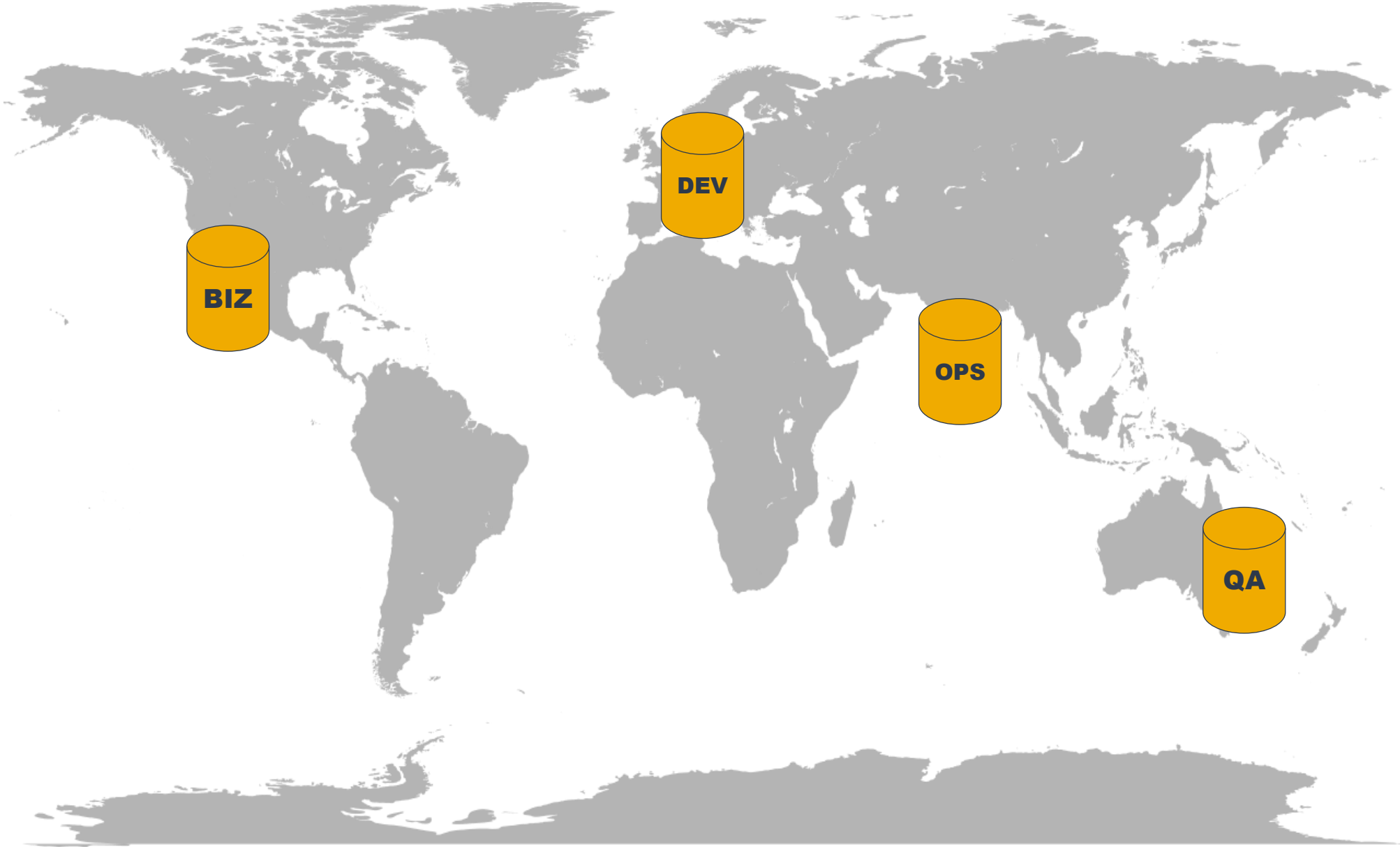

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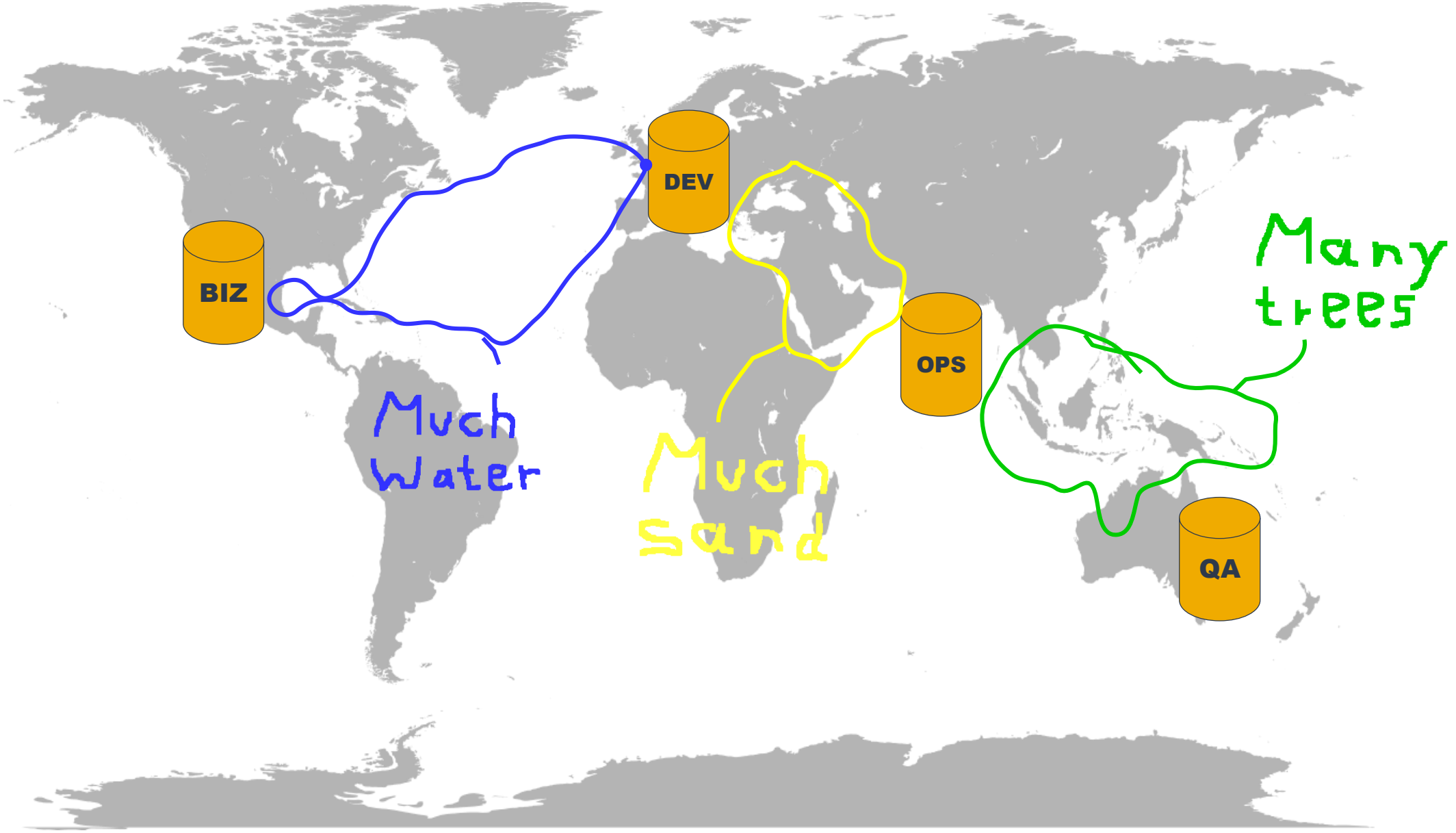

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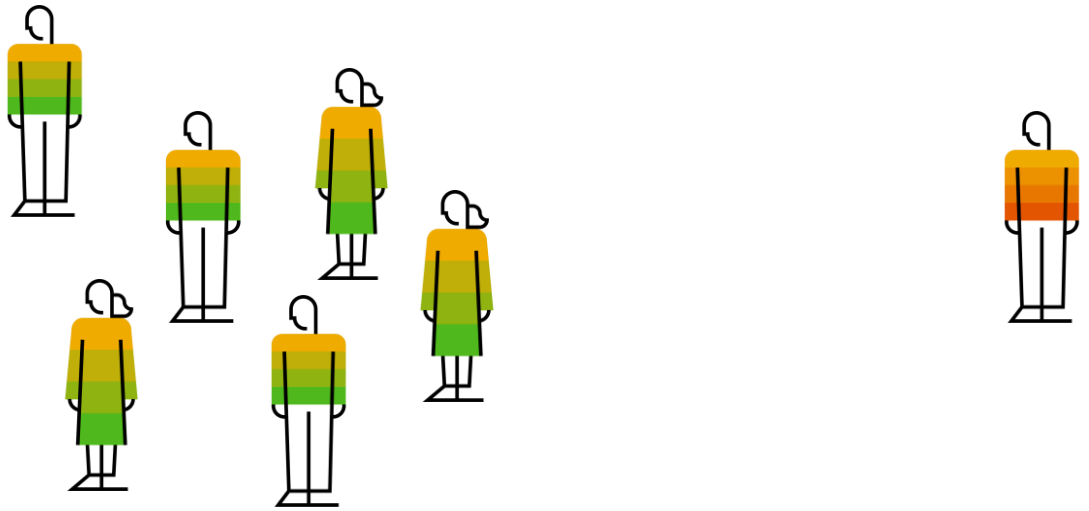
Groups

„...simple categorization into groups seems to be sufficient reason for people to dispense valued rewards in ways that favor in-group members over those who are 'different'"

- Social Identity and Intergroup Behavior, 1974

Henri Tajfel

Social psychologist



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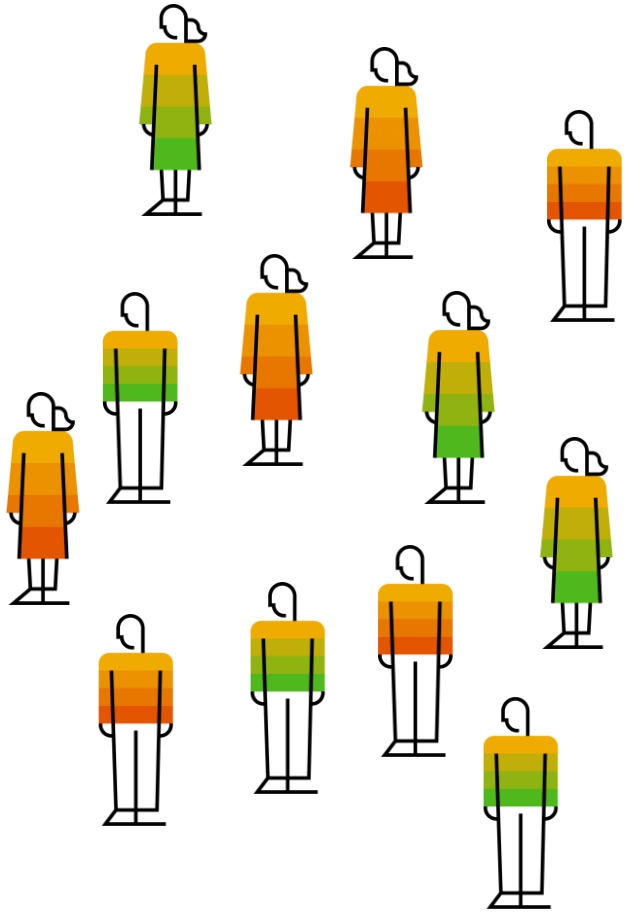
Minimal Group Paradigm

Make a choice

a) **The ingroup and outgroup get 100€ each**

b) **The ingroup gets 60€ and the outgroup gets 40€**



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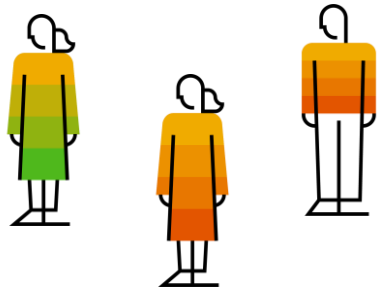
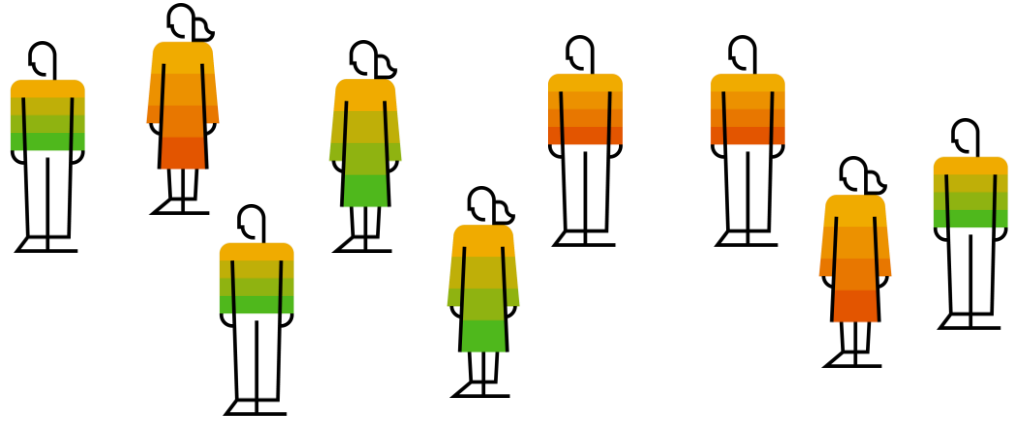
Minimal Group Paradigm

Make a choice

a) **The ingroup and outgroup get 100€ each**



b) **The ingroup gets 60€ and the outgroup gets 40€**



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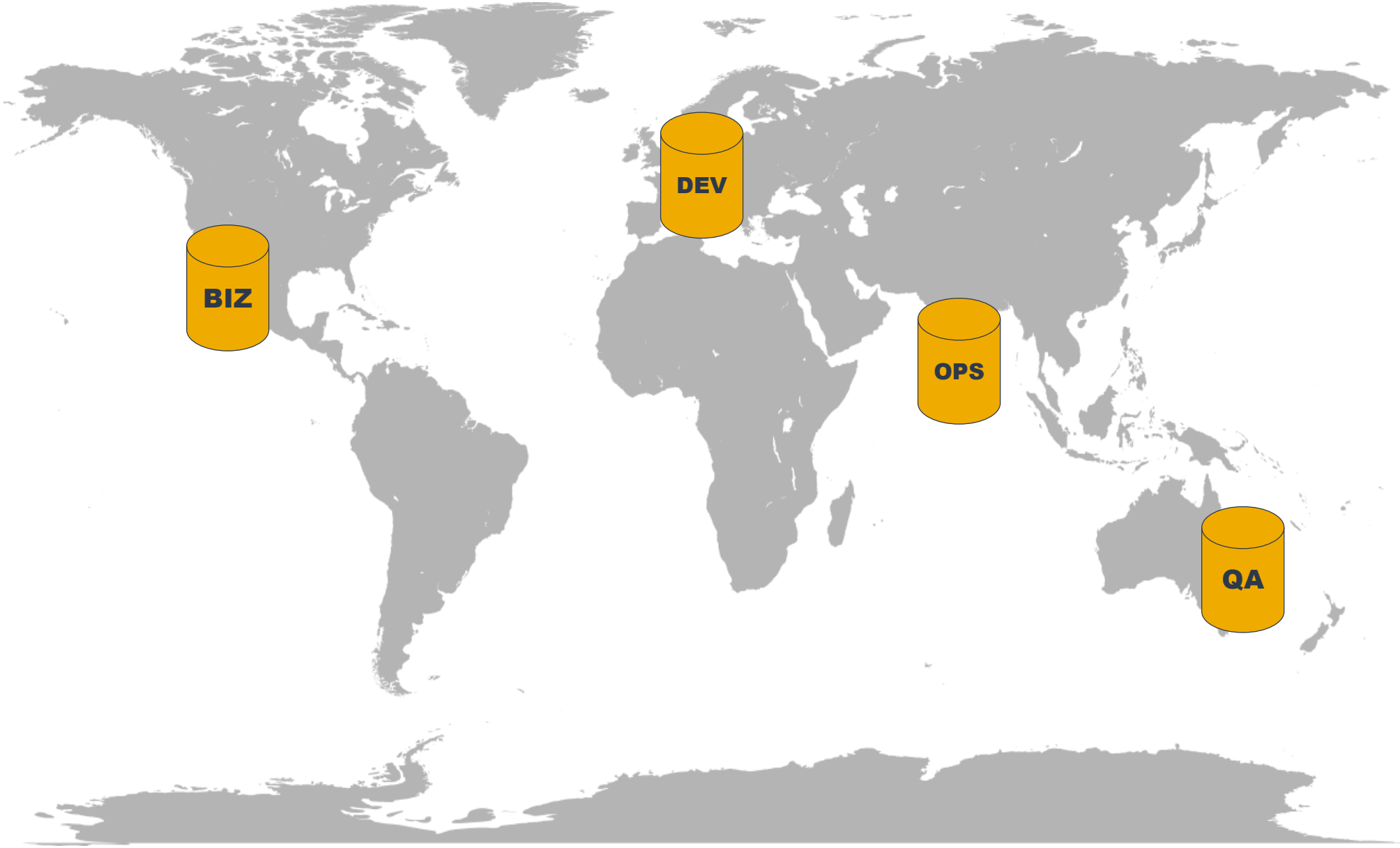

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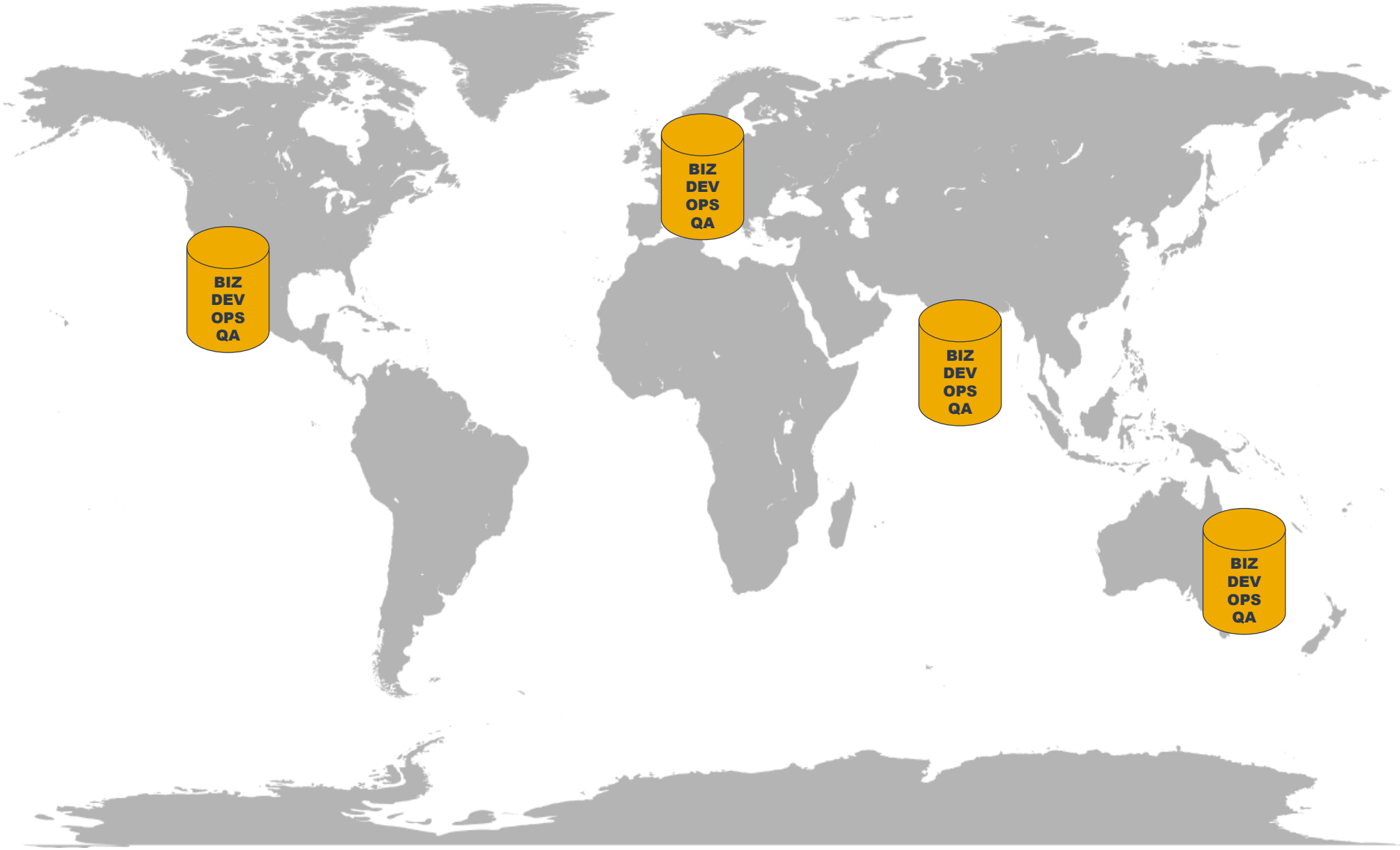

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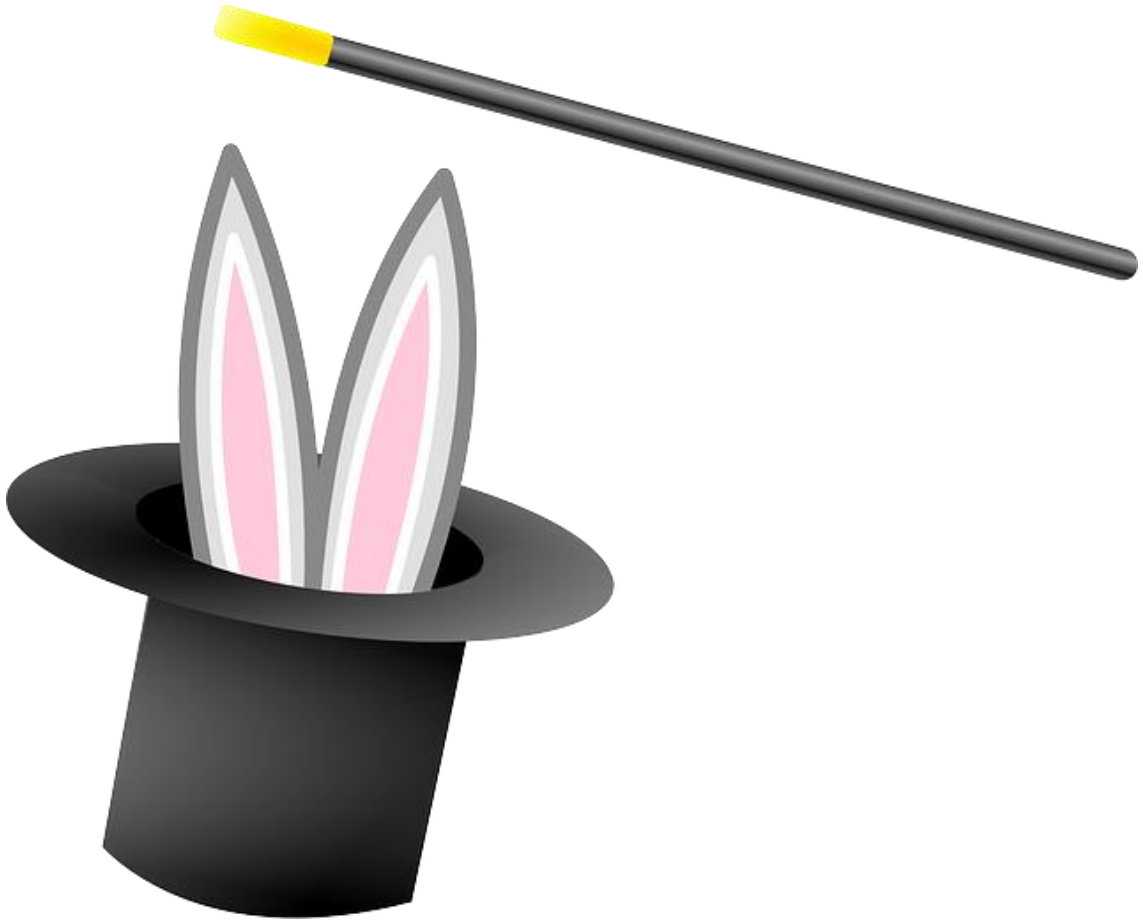
Time for some magic…



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Great teams are heterogeneous

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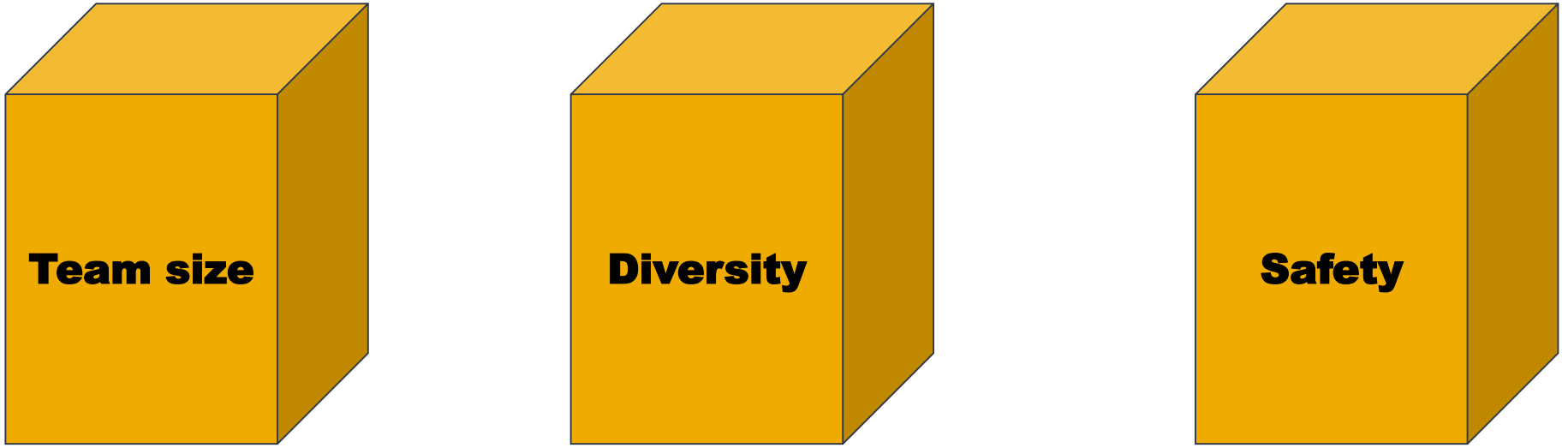
How to foster trust?



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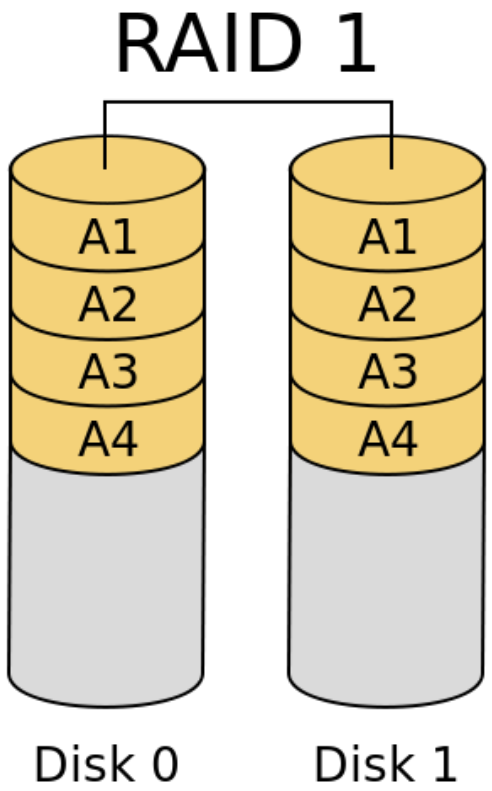
Failure tolerance or failure culture?



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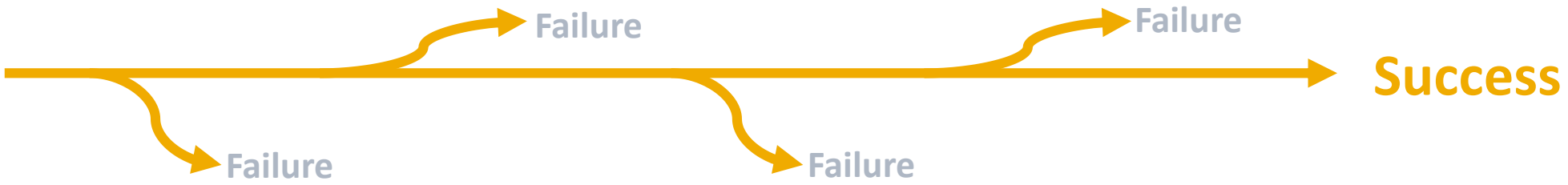
Success

What most people think:



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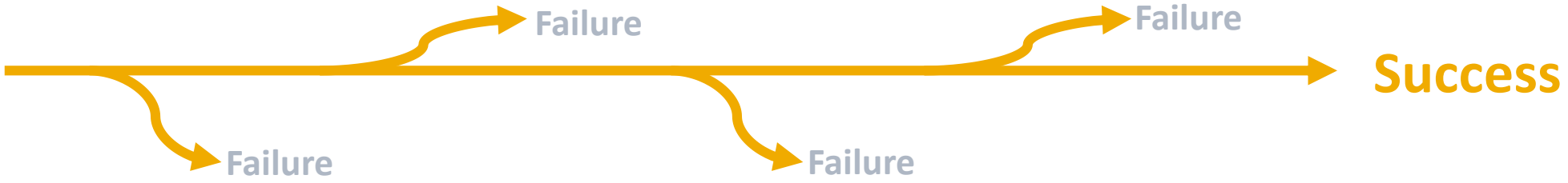
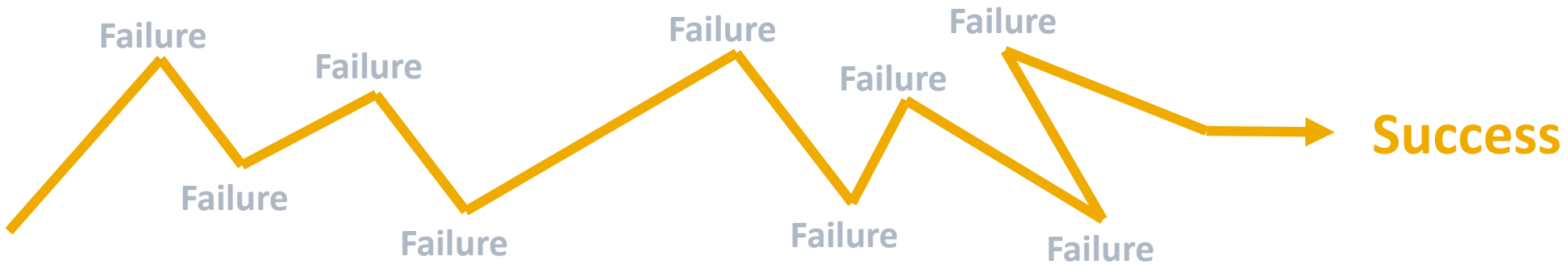
Success

What most people think:



How success really works:



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Failure culture!

Thomas J. Watson

IBM CEO (until 1956)

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Psychological Safety

"...Google's data indicated that psychological safety, more than anything else, was critical to making a team work."

"...to feel 'psychologically safe', we must [...] share the things that scare us without fear of recriminations."

Source: https://www.nytimes.com/2016/02/28/magazine/what-google-learned-from-its-quest-to-build-the-perfect-team.html?smid=tw-share

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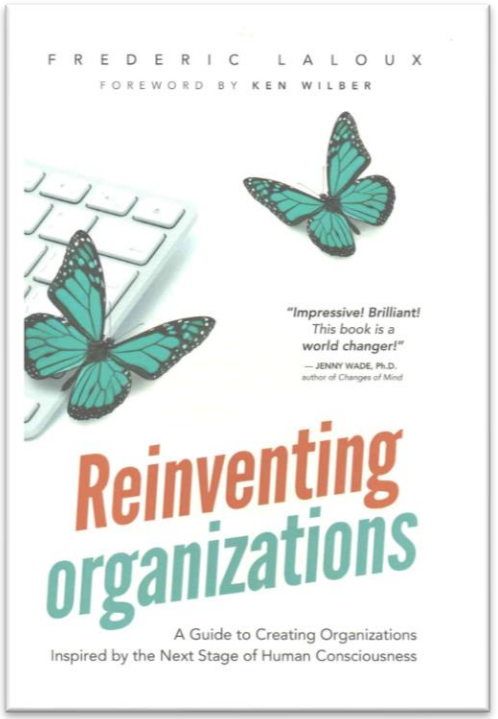
No.1 DevOps Failure Reason – Missing Leadership Support

“…an organization cannot evolve beyond its leadership’s stage of development.”



Frédéric Laloux

Consultant, Coach, Author

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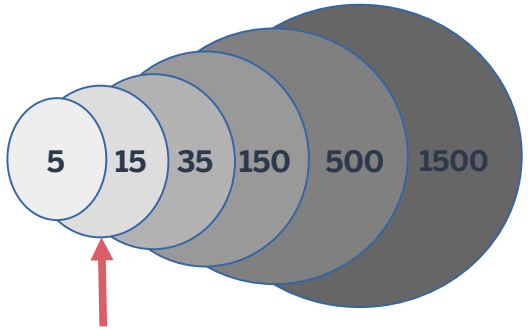
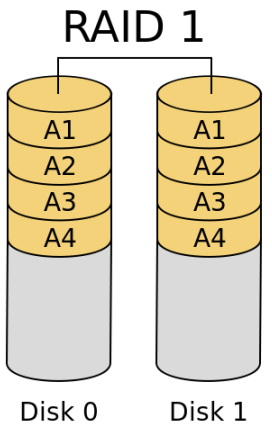
How to foster trust?





Team size

Diversity

Safety

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Thank you

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dirk.lehmann@sap.com

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