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GROUND RULES FOR THE 21ST CENTURY
Chapter 11

GET THE BALL ROLLING

In a world in which everything and everyone are connected and interacting ever closer we will increasingly experience situations that challenge our notion of the boundary between one's own and the community's interests. *Transparency, participation, co-responsibility* have become keywords. As we have seen in the previous two chapters, in many situations there's hardly a choice, because if you do not have access to community resources, you simply cannot perform relative to those who engage in cooperation. In practice this means that you need to listen to others and invite them to participate in shaping your project, and that you share knowledge with others. Cooperation is the source of development and growth. But while it is getting both easier and more necessary to connect to others, there are still real risks to openness, as well. This puts us in a dilemma. In this chapter we will take a look at some of the factors we have to balance, and some of the mechanisms and methods we can use to evaluate whether we dare choose openness.

The four benefits of cooperation

We can start out by noting that *on average*, you are often best off by seeking to cooperate. All through the biological evolution we can see linkage in larger and larger clusters. Those who join forces will tend to outperform those who try to fend for themselves. This effect has driven the biological evolution from individual cells in the direction of larger and more complex organisms - just as it has influenced social developments, such as the organizing of coops or workers' unions. You achieve something extra through interaction. And if you don't team up with others, you risk being overtaken by those who do. As we will be making our living from increasing complex and rapidly changing services we will experience that in many situations you simply cannot deliver the necessary solution without extensive cooperation.

In his book *Origins of wealth*, Eric Beinhocker, an analyst at McKinsey Global Institute, lists four reasons why collaboration can bring benefits:

- The division of labor. In a group, the task can be divided, so each participant focuses on what he does best. In that way, the performance of the task becomes more efficient and of higher quality.
- Diversity. It is not always that we ourselves have everything it takes to solve a problem. Conversely, we may have something that others could use for their task. When several people cooperate, they have access to a larger and more diverse pool of resources.
- Economies of scale. Once we have invented or developed a process there is no need for others to develop it again. We can share the same tools. If we connect in networks, the potential value of the interaction will increase for all, each time new participants are added.
- Spreading the risk. We can all run into problems at some point, but when you can enlist the help of the community the bumps can be smoothed out over time.

<u>The risk of loss is real</u>

All in all there are many convincing arguments for collaboration and sharing. It's tempting to conclude that we simply must work collectively in all the situations where it's possible to do so. But it's not quite that easy.
It would be naive to conclude that you should blindly all you have. Because you can still get fooled; you can make a bad deal or be cheated and betrayed by those you thought you could trust.
It would be nice to have a way to balance the risk of loss with the potential to win - and that's exactly the problem that the research discipline called *game theory* concerns itself with. The idea is to try to calculate mathematically, what are the best strategies to survive within a given set of rules.
Like complexity theory, game theory doesn't attempt to give clear and certain answers; rather it's a framework to assess probabilities and chance, and to understand the interaction between many players and different strategies.

Prisoner's dilemma
One of the central models used in game theory is the *prisoner's dilemma:* a stylized example that exposes some of the factors that can determine if a player is likely to suffer a loss or win a prize. The model is a tale of two prisoners and the strategies they may choose to avoid punishment - but the mechanisms of the prisoner's dilemma can be transferred to many other types of dilemmas about choosing whether to cooperate or not.

The story goes like this: Two men are arrested for a serious crime that they apparently have both taken part in. None of them confesses, and the prosecutor has difficulty in finding sufficient evidence to get them convicted for anything other than a minor misdemeanor, that would result in a sentence of one years imprisonment to each.
The two men are isolated, so they can not agree on a common explanation, and the prosecutor exploits this when he offers each of them a deal:
"If you confess your crime, you will go free, and it is only your partner that gets the sentence of five years imprisonment for the crime. On the other hand, if your partner confesses and you do not confess, then you'll get five years in prison, and he goes free. If you both confess, the penalty is three years for each of you. Think about it. "

When you think about it, the obvious choice for each of the prisoners is to confess. At best, you go free entirely and your partner pays the full price. The worst that can happen is that you will share the punishment because the partner also confesses.
So it is likely that both choose to confess. This means, however that the two prisoners end up getting a harsher punishment combined than if only one of them was convicted. If they both kept quiet, they could even get away with just one year's imprisonment each. The problem, of course, is that they can't communicate and agree on a common strategy, and therefore they must very carefully consider how much they trust each other.
Prisoner's dilemma is a classic illustration of a situation we know from countless other contexts: that participants would have the highest benefit if they could figure out how to cooperate. But this requires that they trust each other enough to run the risk of the others' betrayal.

Is it a single incident or will the interaction continue?
Prisoner's dilemma can be settled in two different versions:
- In one version the game runs only once, and therefore the parties are best off by

trying to make the most of the situation for themselves. If you are never going interact again you can, in principle, be indifferent to what your choices mean for the other players.
- In the second version – called the *iterated* game – the interaction continues for several rounds. This changes things significantly. When the play is continued, it becomes in the players' interest to find a pattern of interaction that over time will give both parties the best result. Therefore, it is worth running some initial risk in order to get the cooperation going.

In a continued game, the players have the opportunity to study each other's strategy. Through their actions they have the opportunity to indicate their willingness to cooperate - for example by refraining from defecting. In a continued interaction a player can better accept losing a little compared to what the others gain in some rounds, because it's clear that over time the cooperation strategy will yield the most.

What happens if one chooses *not* to cooperate? In the prisoner's dilemma a player can choose to defect, and if he is really lucky, the other player will even be so naive that he chooses not to say anything. In that case the first prisoner will go entirely free, while the other receives the full penalty. On the hand, the guy who defects should probably not count on cooperation from his buddy, if they ever meet in the same situation again.
Thinking only of oneself is a short-term solution, because if the game continues, but the parties fail to cooperate, they both miss the solution that in the long run would provide the best outcome for both parties.

Difference between the specific and the aggregate level
The reflections in prisoner's dilemma are as timely as ever. Looking forward, we will become more connected, more mutually dependent, and we will interact with many more. We will sell and consume services and engage in relationships where the user and producer are working on ongoing adjustments.

Increasingly, we are playing a continued game where there can be advantages in creating long-term plus sum games and win-win situations.

We will find ourselves in more and more situations - as individuals and as businesses - where we must plan our strategy in relation to people whose motives, whims, and strategies we do not quite know.
It's possible that in the long run and on average it would be smarter to cooperate and be open, but in the specific situation there is nonetheless a risk that you could be cheated and exploited by those you open yourself up to. Similarly, in a specific situation, there may be an obvious benefit to defecting and acting selfishly towards others.

Prisoner's dilemma is just that: *a dilemma*. You have the opportunity to achieve gains through community, but you risk losing in the attempt to achieve the shared benefits if the counterpart does not cooperate.

The danger of sacrifice for the community
A typical situation in which a company must consider whether it is playing a plus sum game or a zero sum game is when choosing technical standards. As a hypothetical

example, we can take a manufacturer of vacuum cleaners. The manufacturer can choose to design the cleaner so it can only use the bags, which the manufacturer produces. Or the manufacturer may choose to enter into a partnership with a group of other producers of vacuum cleaner to develop a standard bag that suits all the participants' machines.
This would enable the manufacturer to also sell its bags to the other manufacturers customers, but conversely, the others might sell their bags to the manufacturer's vacuum cleaners. The result will probably be that the person offering the best quality relative to the price will sell the most bags.
By using the common standard the manufacturer runs the risk of losing sales to the partners. But it may still be advantageous to use a common standard, because the total sales of both vacuum cleaners and bags might go up, because customers will prefer to buy a model that uses a common standard rather than being tied to a single manufacturer of bags. The manufacturers that join the standard do so in the hope that together they can win market share from those who stick to themselves.
The very same consideration applies to all sorts of other standards, ranging from plugs and screws to formats for storing data.

Foreign trade agreements are another example of this kind of balance. When a group of countries agree to open their markets to each other, it means that the competition between the industries of those countries becomes more direct. Without tariff walls to protect them an expensive or mediocre manufacturer risks being outcompeted by more efficient producers in other countries. But hopefully this results in lower prices for consumers and a growing trade so that the overall economy grows so much that most players end up better off.

Plus sum and zero sum games at the same time
It is an important point that cooperation does not necessarily give equal benefits to all participants. As the examples above show, collaboration may mean that the benefits for the majority can come at the expense of a minority of players. Therefore, the players that agree to cooperate can in fact be competing intensely with each other to make the most of the cooperation.
In his book *Non Zero*, Robert Wright gives an example of how we are often playing a plus sum game and a zero sum game at the same time: If I buy a car, then the trade is a plus sum game for both the seller and me: For me, the car is worth more than the money I pay for it. Otherwise, I wouldn’t buy it. However, the seller would rather have the money. Both parties therefore believe that they get more out of the deal than they had before.
But inside this plus sum game is a zero sum game. Perhaps I am willing to give as much as € 25.000, and the seller is willing to go as low as €20.000. There is an overlap between the highest price I would pay and the lowest price the seller will sell at - and within that range, one party's gain is equal to the other's losses.
Overall it is a plus sum games. But when we are negotiating the final price it is a zero sum game. Thus, reality is a messy mix of cooperation and competition.

Free riders undermine the common benefit
Many of the collaborations we enter are not just between two people but an interaction between a large number of players who often never meet each other face to face. These larger communities are vulnerable of being abused by people who exploit the benefits that the community makes available to its members - without

contributing something in return. Within game theory they are called *free riders*. People who cherry-pick, move on when they have taken what they want and who leave it to others to pick up the pieces. We know from all the contexts in which people cooperate to solve a common task, that if one or some of the participants don't do their fair share of work, but just enjoy what others have created, it is highly demoralizing. You lose the desire to work hard for the community when you can see that there are others who just exploit it.
The welfare state is an example. We all benefit from good roads, from being treated at the hospital, having our children educated, and the police to assist us if we get into trouble. But some are very busy figuring out how they can avoid paying their share of the taxes.

Too many free riders can make the joint project fall apart, leaving each to find their own solution.

Tit for tat

There are many ways in which cooperations can fail. We have touched on a number of the fundamental uncertainties:
- You lose control of the direction the project evolves
- You do not get as much out of the plus sum game as the other participants
- You are exploited by participants who just take without giving something back.

And yet, here and in previous chapters, we have established that it is generally an advantage, if not a necessity, to cooperate.
One can argue persuasively for openness. But in the specific situation each of us will try to avoid a loss, and if you are not quite certain of the outcome, it may seem prudent to hold on to your assets, maintain control and not venture into some risky interaction and sharing.

The big question is whether one could find a good general strategy to handle this dilemma. The evidence suggests that the best bet for such a strategy is the "Tit for Tat" strategy.
In a study of the prisoner's dilemma, made in the early 1980-ies, the American professor of political science Robert Axelrod invited researchers worldwide to submit their suggestions for the best strategy for the two prisoners to follow. The submitted strategies were encoded as programs that were run in a computer simulation, in which all strategies got to compete against each other over thousands of rounds.
The strategy that won the contest, proved to be one of the simplest: it is called "Tit for Tat". It is easily described:
Start by cooperating, and then reciprocate what the other party did in the previous move: If he cooperates, then continue to cooperate. If he does not cooperate, then strike back - but only for one round. Then you try a cooperative move again.

One can draw some very instructive conclusions from Tit for Tat's success:
- When the interaction is continued, there is generally greater benefits from cooperating than from competing
- If you want to establish cooperation, you must take the initiative by making a positive move - even if it entails a risk that the other party will use this to make a selfish score.

- One must be ready to strike back if the other party tries to cheat
- One should be quick to forgive
- One should be aware that your counterparts in the game are assessing whether they will cooperate by looking at your previous moves.

Working together to achieve benefits - not for moral reasons

Now, some 30 years after Axelrod's simulations, countless game theorists and philosophers have yet to come up with a theory that's better at describing the dilemma that we face in real life when we ponder whether we should dare to cooperate with other people.

The tit for tat strategy suggests an important game rule for a future closely integrated society: We should adjust the behavior which most of us tend to start from. Instead of a reflex-like closing off to strangers and instead of holding on tight to what you have, one should be more willing to open up and take the chance of cooperating and sharing.

It is worth pointing out that the prisoner's dilemma is not about moral, it's a matter of what provides the greatest benefit to the players over time. It is not for the sake of others that we must cooperate - it is because you realize that you yourself end up with a higher return by having a productive interaction with others.

The key word is confidence

Although the benefits may be obvious, cooperation does not happen automatically. That's why the first step in the Tit for Tat strategy is just that: to take the first step - *get the ball rolling*. We know the situation from courtship. In the beginning you are in doubt, you think the other feels the same way, but you are not quite sure, so you hold back a bit on the signals you are sending. But at one time or another one of the parties has to make a move if ever there is going to be a relationship. Even if making the move carries the risk of a painful rejection.

To take a risk you have to have trust and confidence. *Confidence* that the project can succeed. *Trust* that the other person will cooperate.

Without trust, the most rational is to only do what's the safest for you, right here and now.

But selfish behavior for short-term safety may cut off the chance of to achieve the extra benefits that collaboration might have resulted in – both for you and the other players. The financial crisis in 2008 provides a clear example of this effect. Once trust and confidence disappeared, all forms of cooperation froze. No one dared to lend to others and it took enormous guarantees from governments, before anyone would take the first risky steps that could allow economic interactions to resume.

In his book *Trust*, Francis Fukuyama identified how societies with low trust between citizens tend to solve problems through litigation. Everyone works exactly according to the letter of the law, because otherwise you risk that someone will exploit it to seek damages.

Showing confidence means just that you dare go beyond what's completely safe. You are willing to allow for some uncertainty in the relationship. In this way, trust is the oil that lubricates a process and makes things move smoothly despite small disparities. But, again: It implies a risk, and therefore trust is an extremely fragile feeling.

It is far easier to destroy trust than to build it up. A small seed of distrust spreads, and the effect is self-reinforcing, because once others stop taking chances and lose confidence in cooperation, we all end up in the same situation as the prisoner who chooses to defect on his partner for fear of ending up taking the whole punishment: We lose confidence that others will cooperate with us for the common good.

There must be fairness in cooperation

One of the preconditions for trust is that participants understand that you can't simply exploit the community. There must be fairness in the collaboration - it's tit for tat. In a plus sum game participants must think beyond their own immediate benefit, otherwise the game won't get going. Why should others join in a community where one party is only trying to grab as much for themselves as possible?

It turns out that humans have a deeply ingrained sense of what is right and fair, when we interact with each other. One of the ways this has been studied is through the "ultimatum game". In the experiment, two players must divide a sum of money - for example $100. One player will be given the responsibility of dividing the money. He is free to decide how much he wishes to offer the other player. The offer is an ultimatum. All that the other party can do is to accept or to reject it. If the receiver rejects the offer, neither party gets anything. The game runs only once, so there is no possibility to strike back and make up for a stingy offer in a later round.
If the players were strictly rational, then he who divides the money would offer his counterpart a very small amount, for example ten dollars. And the receiver would accept the offer, even though it seems unfair, because, after all, ten dollars is better than nothing.
But in practice most people offer a much more equal sharing of the money, and if an opponent is offered a very small share, they often reject the offer. This shows that people will not accept being treated manifestly unfair and that they are in fact willing to give up a win in order to punish the counterpart for their selfish behavior.
The ultimatum game has been conducted in many different cultures and in many variations, but the result is generally the same. The Dutch animal psychologist Frans de Waal has even made experiments with monkeys, and it turns out that they too are willing to reject a trade that they see as unfair, although there is a cost to defending one's pride.

In this context it is interesting to note that the inequalities in many countries today is at a historical high - and the gap is growing. In the world's largest economy, the U.S., the differences in income in 2007, were the largest since the Wall Street crash in 1928.
From WW2 until the early eighties the wealthiest one percent of the US population earned about one tenth of all the money. But since 1980 the share of the richest has gone up steeply. In 2007 the richest one percent of the population earned just less than a quarter of all the money.
The same disturbing pattern is repeated in many other countries - even in Denmark to some extent: From 2004 to 2008, wages in Denmark increased by less than 30 percent, while the dividends paid to shareholders rose by almost 400 percent.
If this trend continues, one might worry that trust and thus the basis for cooperation,

will be threatened by inequality. This could very well happen. Later, in chapter 21, we will elaborate on possible consequences of this strong tendency towards further polarization in a global, digital world.

The sense of community can be undermined not only by free riders, but also if the rewards for participating in an interaction are too un-equal. If just a few players receive virtually all the gains from the community's efforts, trust and cohesion will erode and the participants will rebel.

It is one of Denmark's biggest advantages that we have a high degree of trust and sense of community in society. If this should start to fall apart, it would lead to a great loss of prosperity and undermine one of the secrets behind the high standard of living in Denmark.

If you can build trust, there are large potential gains. Individual solutions are typically more expensive than solutions we can create and share together. The U.S. health system can serve as an example. Americans' average life expectancy is 78.1 years, slightly lower than in Denmark. Danes live 78.3 years on average. But the American system of private health insurance, coupled with the fact that doctors need to take out very expensive insurance against lawsuits, makes health care much more expensive than the largely state-run system, we know from Europe. According to the OECD, in 2008, Americans paid 15.2 percent of their GDP to health care. In Denmark we paid 9.3 percent of GDP. In dollars and cents this amounts to almost 3.500 dollars less per person annually.

We act more responsibly in the shadow of the future

As we have seen, the big difference between a prisoner's dilemma that is played just once, and the version that continues over several rounds, is that in the continuing game you can observe the counterpart's behavior and include the observations in your strategic considerations. When players know that they can be held accountable for their actions later, most will tend to behave less selfishly in relation to the other participants. Robert Axelrod, who conducted the simulations that showed the strength of the Tit for Tat strategy, says that players in a continued game are acting in "the shadow of the future."

Following the Tit for Tat strategy you must first show your willingness to cooperate. Then you must reciprocate the counterparts' actions. If the other player defects, you must strike back in equal measure. Retaliation is crucial because if no one is willing to fight back, your opponents do not have to worry about the consequences of their actions.

If you want other people's trust, it is important to have a good reputation. You should be able to show others that you are trustworthy. Similarly, it is a precondition for the emergence of trust and cooperation that the community has ways to identify those who do not contribute positively.

It can be hard enough to gauge people that you are dealing with face to face, but in a global digital network the interaction is extremely abstract, and therefore it is essential that the system can provide transparency, reputation and trust. E-commerce illustrates this. On the Internet we have a global marketplace that in principle can lead to a very

productive exchange of resources. But it requires a high degree of trust to transfer money or send goods out into cyberspace to someone you do not know who is. That's why we see that many online stores put a lot of efforts into their reputation systems, typically by inviting customers to submit their assessment of the store or the person they have traded with. On sites like Amazon, eBay or Pricerunner, which aggregate a lot of different sellers, you can typically see a number of stars or some other indication of how many clients have been satisfied with each provider. Especially eBay has been very aware that trust is a prerequisite for commerce over the Internet. To enable an online auction, where millions of suppliers and vendors dare trade at a distance, eBay has developed simple and manageable ways to make the seller and his reputation visible. To strengthen the feeling of confidence, eBay has also been running big advertising campaigns under the slogan "The power of all of us" where the theme has been stories of people who find joy in helping each other, although they did not know each other beforehand.

The ubiquity of digital technology will make the world much more transparent. Our actions will be recorded in ever-finer detail, and others will be able to see them and assess whether they think we are worth cooperating with. Later, in Chapter 18 which covers responsibility and accountability, we will elaborate on the implications of anonymity and privacy, but for now we can observe that it is necessary that each player is visible and can held accountable - for better or worse - for his or her actions in order for the global interaction to work.

<u>We must learn to take the initiative - despite uncertainty</u>
The confidence building measures will always be a little behind, because we have an ingrained tendency to constantly explore and seek out new, unknown territories for potential gains. We cannot get around the dilemma between trust and risk in the future - quite the contrary.

In the network age, we will become much closer connected and we will have a higher degree of interdependence.
Therefore it will be a core competence in the 21 century to have the courage and confidence to act, despite the fact that one cannot be absolutely sure of the outcome.

Someone must take the first step, and by taking it you may be lucky to open a string of rewarding collaborations and growth. But it takes courage, maybe even a certain defiant naiveté to throw yourself into it and get the ball rolling. You must *choose* to believe in others, *choose* to trust that it will work out well.
We probably cannot learn to like to take chances, but we can learn to be more confident about the chances we take, because we understand the mechanisms of the games we play better.

Altogether, there are essentially three circumstances which require that we in future must dare to show more faith in uncertainty than we might naturally tend to:
- First: The tit for tat strategy implies that you have to take a chance and make a positive move to get a collaboration started.
- Second: When dealing with complex systems, you generally have to act on an assessment of probabilities and risks - rather than certainties. One simply cannot predict what will happen.

- Third: It is risky *not* to take chances. It's natural to try to minimize risks by sticking to the familiar. But the circumstances around us are constantly changing, and we risk getting completely out of touch with reality if we don't continually adapt through experimentation and innovation.

We will take a closer look at the art of handling uncertainty in the next section of the book.