

ROTTERDAM SCHOOL OF MANAGEMENT
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THE PARTNERSHIPS RESOURCE CENTRE



wicked problems
PLAZA

**Principles and Practices for
Effective Multi-Stakeholder Dialogue**

The Partnerships Resource Centre (PrC) is a specialist research centre at Rotterdam School of Management, Erasmus University. The PrC envisions a more sustainable and inclusive world in which business, civil society and governments each play an important role to create collaborative and inclusive solutions for complex societal issues. We connect scientifically sound research and practitioner experience of cross-sector partnerships to aid sustainable and inclusive development. For more information about the Partnerships Resource Centre at Rotterdam School of Management, Erasmus University, visit www.rsm.nl/prc or contact us at +31 10 408 1126.

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Wicked Problems Plaza

**Principles and Practices for
Effective Multi-Stakeholder Dialogue**

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Preface: an era of grand challenges

The challenge: An increasingly interconnected world is faced with a lengthy list of ‘grand challenges’ including poverty, access to water, climate change and financial crises. At the same time, the world is faced with unprecedented opportunities: technological innovations are reaching all corners of the world. So, systemic crises and global opportunities appear at the same time. Both the complexity and the interdependence of the global system have clearly increased. Similarly, there is increased uncertainty on the course developments will take and the kind of solutions that need to be developed. Society is confronted with ‘wicked problems’ – issues that are difficult to define and can be assessed as either problems or opportunities. The world faces many of these wicked problems, but it is also more than ever able to address them. That is the basic paradox of today. As Guillén and Ontiveros (2016) put it in their popular and thought-provoking textbook *Global Turning Points*: ‘welcome to the 21st century!’¹

This 21st century uncertainty has influenced the societal discourse in two opposite ways. In many countries, a negative, discourse based on (a fear of) the unknown prevails, with simple ‘solutions’ based on short-term self-interest. The likelihood of the success of this approach, is not very high, considering the complexity of many of the world’s problems. At the same time, a much more positive discourse has also materialised. In September 2015, the world community agreed to define an agenda for the period until 2030 with 17 interrelated *Global Goals* to enhance sustainable development. These Global Goals are the result of a three-year multiple-stakeholder engagement process based on long-term common interests. Each of the Global Goals not only defines a lofty ambition, but also addresses a combination of interrelated challenges. This ambition has been criticised for being too complex and even naïve; but the Global Goals can also be considered as a draft roadmap that needs to be further developed and fine-tuned by the stakeholders themselves. A similar way of thinking can be applied when we look at society’s grand challenges in terms of wicked problems. Wicked problems cannot be solved, they actually resist definition. For these problems, there are no single or

simple solutions available. Wicked problems need to be channelled through multi-stakeholder processes or partnerships. No single actor is able to solve the issue on his/her own. The best one can do is to define more or less adequate pathways to address the wicked problem.

There is evidence that many processes of multi-stakeholder engagement do not really deliver the intended results or address the actual problem.² Multiple reasons exist: there can be a limited fit of the partnership with the problem, a limited understanding of the challenge or not enough creativity in the chosen aims of the partnership. The vital question for addressing wicked problems thus becomes: How can we create conditions for multi-stakeholder dialogues in which coalitions and partnerships can be constructed that can deal with the wickedness of the problems and the opportunities that they entail?

The approach: Enter the Wicked Problems Plaza (WPP). This is a novel and structured way of facilitating dialogue between stakeholders from different backgrounds. In order to come up with creative – but nevertheless realistic – ideas, approaches to wicked problems need to address their complexity and preferably also pay attention to unintended and indirect effects.

The WPP aims to get the ‘system into the room’ – that is, involve all relevant stakeholders. It creates a structured way of facilitating collaborative methods for dealing with wicked problems. The WPP aims to enable participants to address wicked problems in a systematic, but also creative, manner. Such an approach also requires a physical space in which diverse perspectives come together.

The WPP is aimed at providing a safe environment in which participants are taken on a journey – from abstract problems to collaborative solutions. It is based on years of experience in research and practice in partnership formation and stakeholder engagement processes. It aims to create the preconditions for novel, creative, but also realistic, outcomes for today’s grand challenges. The theory behind the WPP combines insights from a variety of disciplines such as game and negotiation theory, political economics, urban planning, design thinking, decision-making theory, public goods theory, welfare economics, governance literature, chaos and systems theory, and stakeholder theory.³



This booklet: elaborates on four basic dimensions of the WPP approach:

1. WHY focus on wicked problems?
2. WHAT principles should be taken into account?
3. WHERE does it happen in the WPP?
4. HOW can it be made to work?

This booklet presents the theoretical background, the basic outline of the method, practical tips and suggested readings. It provides illustrations from different sessions organised in the 2015–2016 period. By doing so, we hope to offer the reader some insights into the method as well as ideas on how to make use of the WPP in their field of interest.

WHY?

Why focus on wicked problems?

'Everything should be made as simple as possible, but not simpler.'

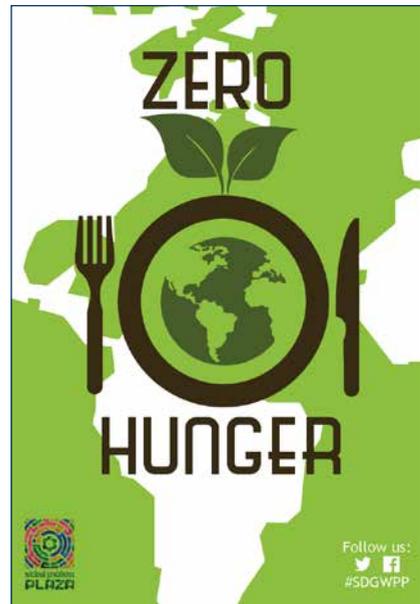
Albert Einstein⁴

'Wicked problems: some problems are so complex that you have to be highly intelligent and well informed just to be undecided about them.'

Laurence Peter⁵

There are simple problems and complex problems. Simple problems are (relatively) easy to solve; complex problems resist solving and often require other ways of thinking. But there are also 'wicked problems.' Wicked problems even resist defining. They require other ways of thinking, but also need the involvement of a variety of interested parties to work on solutions. Most of today's (remaining) problems of sustainable development – hunger (Figure 1), poverty, health, ecological degradation, education – are in fact wicked. They are interrelated and materialise at the interface between public and private interests. Consequently, they are not easy to address, let alone solve. Wicked problems often require large systems change⁶; otherwise, they would have been tackled already by firms, governments or civil society organisations on an individual basis.

Figure 1: Zero hunger – a Sustainable Development Goal



The original thinkers behind the wicked problem idea – urban planning scientists Horst Rittel and Malvin Webber⁷ – already argued in 1973 that we increasingly live in a time in which most problems cannot be solved by planners. They recognised that technical solutions for complex (societal) problems could lead to even greater problems. Since then, many others have followed through on this theme⁸ by arguing that wicked problems require leadership, other ways of diagnosis and other ways of thinking – perhaps even other types of science and research.⁹ Wicked problems represent those issues in life that will constantly recur. They are wicked not because they are themselves ethically deplorable, but because they are beyond complexity, they are vicious (like a circle), tricky (like a leprechaun) or even aggressive. Rittel and Webber called for awareness of these kinds of problems and urged stakeholders to come up with collective ways of dealing with wicked problems. Their call is now more relevant than ever. This chapter explains why. It explains also why we do not talk about wicked solutions and that there are degrees of wickedness.

Box 1: The WPP in action [1]: Plastic waste or plastic fantastic?

The first full-day Wicked Problems Plaza (WPP) was organised around plastic waste in Nepal. For this session, stakeholders from the plastics industry, retailers that package in plastics, industrial engineers working with plastics as well as stakeholders from the government, NGOs and companies that work in Nepal were invited. The day started with each participant introducing themselves, including their ‘take’ on the wicked problem of the day. WPP participants were asked to bring an object/metaphor to the Plaza that symbolises the wicked problem for them. In this way, people introduce themselves by telling personal stories instead of function profiles. Most group members had not met one another yet and quickly learned about one another through these stories.

Some of the participants told the others how they hated how plastic waste was destroying Nepal’s nature and landscape. Others spoke of their quest towards finding the ultimate alternative for plastic that would be biodegradable. Again others spoke of their worries about behavioural implications of waste; why do we consume and waste so much? Then, an engineer took a brave step and explained about a product that he made, intended for the Nepali market, but that contained some plastic. He told about his search for alternatives but also his conclusion that plastic was the ultimate product; it was perfect for this

design. Even though he was the first one to confess to being ‘pro-plastic,’ he also made the public aware that the problem could not be simplified by finding a wrongdoer and by saying that plastic is inherently bad. The engineer’s story made them think again: How can we help this engineer make a product of which he is proud? Within the first hour of the session therefore, the problem became less moral and more wicked, less local and more global and systemic. The day continued on the basis of the re-adjusted – and more realistic – frame.

What makes a problem wicked?

Defining characteristics of wicked problems can be summarised in ten points¹⁰:

1. **Symptomatic:** Every wicked problem can be considered to be a symptom of another wicked problem; wicked problems are systemic problems;
2. **Interrelated:** The problem cannot be understood in isolation; wicked problems are linked to other (wicked) problems; this makes information on them often incomplete and/or contradictory;
3. **Continuous:** They have no stopping rule; there is always a better solution possible; timing is important, especially when a wicked problem is encountered in a sudden crisis;
4. **No moral or optimal solution:** There are no right or wrong solutions; there is no optimal or final and correct solution, only better or worse approaches. With wicked problems, the determination of solution quality is not necessarily objective;
5. **Denial:** Psychological barriers to addressing the problem are often considerable; uncertainty about the consequences of (in)actions can make actors deny that the problem is their responsibility to act upon;
6. **Unique:** Every wicked problem is relatively novel, therefore unique, and strongly context dependent;
7. **Understanding:** One’s understanding of a wicked problem determines the way one can resolve the problem. Multiple explanations and resolutions are always possible;
8. **Ultimate test:** There is no ultimate test of a solution for a wicked problem;
9. **Approaches:** Are manifold; there are no solutions, only approaches;
10. **Responsibilities:** There are always multiple stakeholders involved who have diverging interests in, and different explanations for, the appearance of the problem. Stakeholders are often part of the problem as well as part of the solution and thus have different responsibilities.

Box 2: The WPP in action [2]: Boat migrants

In 2015, three WPP sessions were organised that addressed the wicked problem of boat migrants. The reason for this was the increased number of refugees arriving in Europe, who travelled by boat from crisis countries such as Syria and Eritrea. The refugees faced a horrendous sea voyage – many died – but this did not deter them from fleeing their respective countries. Many people did not know how to react to this. Who was responsible for solving this problem? Should we welcome the refugees in Europe, or stop them from entering our countries? And how should we react to those citizens that instantly offered help as volunteers, while facing citizens who protested strongly against the arrival of refugees in their town. The WPP session addressed these issues by building awareness of the ten interrelated characteristics of the problem:

1. **Symptomatic:** Boat migrants are a symptom of other wicked problems: countries in civil war, international borders, non-governmental aid systems;
2. **Interrelated:** The problem of Syria is related to Western consumption patterns, amongst other things;
3. **Continuous:** If we do not act upon the problem now, it will become even more wicked;
4. **No moral or optimal solution:** There is no way to tell what the optimal solution to the problem would be;
5. **Denial:** It might be attractive for actors to deny responsibility because the symptoms of the problem exist in different countries;
6. **Unique:** The current refugee crisis is very different from earlier ones;
7. **Understanding:** The country of origin will understand the problem and its resolution differently than for instance possible host countries;
8. **Ultimate test:** If this problem is resolved by stopping refugees from landing on European shores, refugees might opt for even worse routes, making the problem even more wicked;
9. **Approaches:** An abundance of scenarios exists, but not all are properly explored;
10. **Responsibilities:** It is not really clear who is responsible, i.e. who is part of the problem and who is part of the solution.

Tame problems

A 'tame problem' on the other hand is one for which more traditional linear thinking and decision making is sufficient to produce a workable solution in an acceptable timeframe. A tame problem:

- Has a well-defined and stable problem statement (very often on a technical level)
- Has a definite stopping point, when the solution is reached (which solves the problem)
- Has a solution that can be evaluated as right or wrong
- Belongs to a class of similar problems that can be solved in the similar way (and for which scientific knowledge in a more traditional sense is applicable)
- Has solutions that can be easily tried and abandoned (making it easier to evaluate and monitor progress during implementation)
- Comes with a limited set of alternative solutions (making it relatively easy to define what works best).

So, for example, putting a man on the moon was a problem that originally looked extremely wicked and daunting. However, in the end, it contained surprisingly many tame elements. The problem definition – putting a man on the moon and returning him safely – did not change over time. There was a clear stopping point (successfully putting the man on the moon), and the various solutions that were experimented with could be clearly evaluated as having succeeded or failed. Most of the problems were technical and could be addressed through accumulated and established knowledge in other scientific areas, and these alternatives were not too diverse to create a very complex selection environment. It is clear that the objective of putting a man on the moon could not have been reached one century earlier, in particular because of insufficient technological progress. It has also become clear that putting a man on the moon did not solve related and much more wicked problems that the approach was also intended to address: the rivalry with the Soviet Union, American economic decline and leadership, changes in technology or any of the other problems of the US economy, including inequality and the like. Consequently, the ambition withered away later on in the programme. The more *societal* and the less *technical* a challenge is, the greater its potential to be considered as wicked.

'Can you think of something worse than a wicked problem? Yes, it is perfectly possible: it is a wicked solution.'

Bardi

Why not wicked solutions?

Can we solve wicked problems? The originators of the wicked problems theory are clear about this. They argue that ‘social problems are never solved. At best they are resolved – over and over again.’¹¹ As such, what most approaches accomplish are only partial solutions that deceive people that the problem is solved while ‘the beast [the wicked problem, that is] is still as wicked as ever.’¹² Bardi goes even further: ‘in a complex system, there are neither problems, nor solutions. There is only change and adaptation.’¹³

When faced with difficult challenges, people often react very quickly with solutions instead of asking clarifying questions about the problem. Consequently, stakeholders easily get stuck on a certain solution and no longer see any alternatives. Even worse, they defend ‘their’ solution and try to form a coalition for a certain solution. This does not help group-problem-solving processes.¹⁴ This does not, however, imply that, ultimately, wicked problems cannot be effectively addressed. Wicked problems can be reframed as ‘wicked opportunities.’¹⁵ According to Paul Polman, the CEO of Unilever, wicked problems can become opportunities with the right type of leadership that stimulates people and organisations to work together on the challenge.¹⁶ Frank Spencer is just as optimistic and contends that ‘the more complex our world, the bigger our canvas becomes on which to paint an unlimited amount of transformational and aspirational ideas.’ He calls for a rise in wicked organisations, wicked innovators and wicked entrepreneurs in order to flourish in an ‘era of Wicked Opportunities.’¹⁷ These authors and corporate leaders provide some examples of how to deal with wicked opportunities, but their approach is largely prescriptive, without much concrete advice on how to actually transform a wicked problem into an opportunity.

Are some problems more wicked than others?

Not all problems are equally wicked. There are various degrees of wickedness, depending on a number of characteristics. First, the general degree of wickedness can be assessed on the basis of how the problem scores on each of the ten general characteristics (see Table 1). By intuitively counting the scores for these characteristics, a first impression of the degree of wickedness can be created.

Table 1: Scoring basic characteristics to assess degree of wickedness

Basic characteristic	Degree of wickedness depends on...	Score
1. Symptomatic	the number of other wicked problems to which the problem is related	Low High []---[]---[]---[]---[]
2. Interrelated	the availability of reliable information on all dimensions of (interrelated) problems	Low High []---[]---[]---[]---[]
3. Continuous	the speed with which the problem has to be addressed (immediate crisis situation versus systemic crisis for instance)	Low High []---[]---[]---[]---[]
4. No moral or optimal solution	the number of (moral) solutions with which the issue is confronted	Low High []---[]---[]---[]---[]
5. Denial	the clarity of the consequences of not addressing the problem	Low High []---[]---[]---[]---[]
6. Unique	whether this problem is really unique and context matters	No Yes []---[]---[]---[]---[]
7. Understanding	the number of competing explanations	Low High []---[]---[]---[]---[]
8. Ultimate test	the ability of researchers to come up with approximations of tests	Limited Great []---[]---[]---[]---[]
9. Approaches	the ability of stakeholders to be open to different approaches (tolerance for ambiguity in approaches)	Low High []---[]---[]---[]---[]
10. Responsibilities	the willingness of stakeholders that are part of the problem to become part of the solution	Low High []---[]---[]---[]---[]

The second assessment of wickedness adds more specific content to the equation. Wicked problems always materialise at the level of societies – beyond the grasp of individual organisations. At this level, different societal actors interact and create problems or are not able (or willing) to come up with solutions. In scientific literature, taking stock of a problem from various angles is called *triangulation*.¹⁸ Considering the most important societal dimensions of a problem requires *societal triangulation*, in which the wickedness of the problem can be related to the behaviour and interests of the most important societal stakeholders that surround the issue (Figure 2).¹⁹ At societal level, identifiable groups of actors become

stakeholders, have vested interests, adopt ideologies and create institutions that define the context in which problems become more or less wicked. It is common to distinguish between three societal sectors: state (governments), markets (firms), civil society (citizens). The better each of these sectors functions, the more balanced a society becomes and the more easily wicked problems can be addressed.²⁰ These three sectors each deliver/supply/produce particular complementary goods and services and thereby add value to society.²¹ Markets produce private value, civil society social value, and governments organise the provision of sufficient public goods. A balanced society includes well-functioning sectors that complement one another. If any these sectors do not function properly however, societal problems become more wicked. Specific sources of societal wickedness are threefold: failure, lack of responsibility and risk.

Figure 2: Societal triangulation

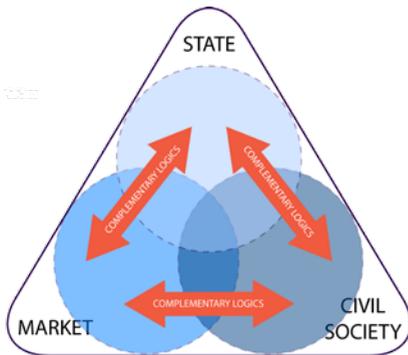
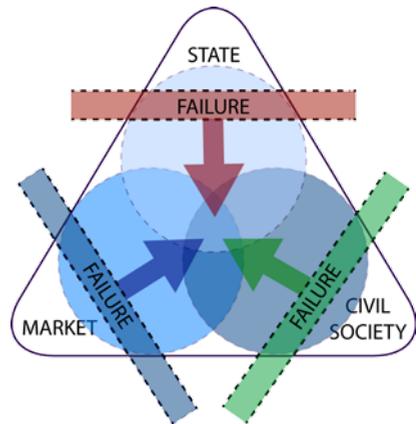


Figure 3: Sectoral failure



[a] FAILURE: The first layer of societal wickedness finds its source in the sectors themselves (Figure 3). It is the failure of each sector to efficiently deliver its primary value to society. Firms, for instance, do not supply goods or services to the existing market, although they should be perfectly capable of doing this (viz. pharmaceutical firms not delivering medicine to sick people because these sick people do not have enough buying power). All cartel agreements among companies also belong to this category. Civil society organisations (CSOs) may not adequately organise citizens

around a theme and thus provide a poorly managed club good. This happens for instance if the leader of a CSO follows his own agenda. Corrupt governments limit the ability of the state to develop proper laws. Problems of failure become particularly wicked when parties involved do not address them adequately. They become wicked for the other parties in society. The wickedness of these problems relates primarily to the inability or unwillingness of the primary stakeholders involved to coordinate their activities with others in the same sector and restore trust in the public perception of this sector. The wickedness of the problem is largely intra-sectoral.

[b] RESPONSIBILITY: The second layer of societal wickedness is more difficult to address. It relates to the unwillingness of a sector to extend its influence beyond its primary stakeholders (Figure 4). Firms can extend their positive influence on society by targeting latent societal demands and needs (for instance, products for poor people). CSOs can take up responsibilities beyond their own community. This can take the shape of *social enterprises* or an engagement in advocacy action in which CSOs challenge other parties to take up their responsibilities. For states, extending their responsibility makes them engage, for instance, in *facilitating* or *endorsing* activities. This can be done through subsidies or other indirect measures through which states influence society. The wickedness of these problems often relates to the actions of other sectors to take up responsibilities. A particularly wicked

Figure 4: Failure and responsibility

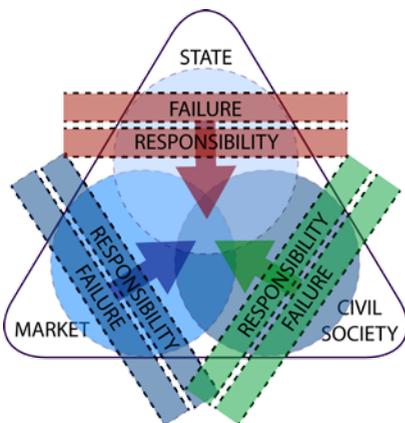
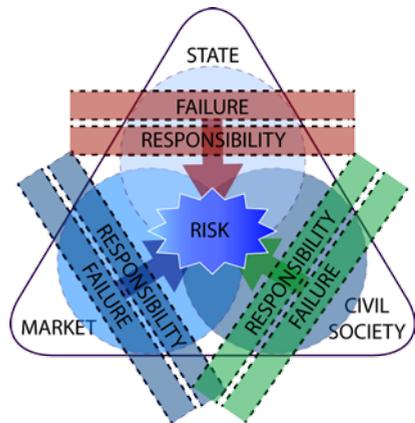


Figure 5: Failure, responsibility and risk



dimension appears, however, when actors take over the primary responsibilities of other actors. We call this *crowding out*. For instance, when citizens or governments clean up the waste produced by companies, they provide a perverse incentive for companies not to take responsibility themselves (related to their fiduciary duty).

[c] RISK: The third layer of societal wickedness, risk, is the most difficult to address (Figure 5). It represents that part of the societal set-up that requires the participation of all actors in society – but not all actors feel responsible. This is the case for almost all climate issues, including the plastic soup in the middle of the ocean where no government rules. It is also the case for most economic growth topics where common action beyond individual responsibilities is needed to install a minimum level of social, economic and ecological regulation. Collective action should provide *common goods* that go beyond private, public or social goods. Such a level of wickedness creates also the risk that involved parties will refuse to take action, because they find the risk too high to tackle it on their own. Consequently, they wait and see. It is not easy to define a right approach to common-good issues and therefore also not easy to develop straightforward strategies. Certainly, this cannot be done by one party alone; it has to be in partnership with other actors. These problems are often labelled *tragedy of the commons*, which requires innovative governance and partnering arrangements.²² Tragedy-of-the-commons problems are also defined as ‘super-wicked.’²³

Depending on the nature of the societal wickedness, the problem can be reframed as a wicked opportunity for individual parties (failure), bilateral parties (responsibilities) and trilateral parties (risks). The WPP formula is based on acknowledging the specific nature of, in particular, the core of the triangle for which multiple stakeholders are necessary to define the problem and work on collaborative solutions. The more each of these layers of wickedness appears at the same time, the more systemic a problem is.

Box 3: The WPP in action [3]: Assessing the wickedness of the Sustainable Development Goals

To illustrate the societal triangulation approach, a number of informants were asked to assess the wickedness of each of the Sustainable Development Goals (SDGs). This resulted in a first exploratory overview of the possible nature of each SDG by looking at the contribution to the problem that each societal sphere is creating through failure in its primary role, gaps in its responsibilities and/or insufficient risk-taking. We asked for instance: To what extent can poverty (SDG1) be attributed to market failure, civic failure or government failure? Informants concluded that firms do not necessarily fail in addressing the issue of poverty (because it is not their primary duty to help poor people that are not active on markets). They concluded that governments (through adequate labour laws or minimum wages) and civil society (by including poor people in their communities) can do much more with their core activities. On the other hand, the informants also argued that firms can adopt more responsibilities and take more risk (creating new business venues) by targeting poor people as a market, through which they can address poverty if they enhance poor people's buying power for basic commodities. Governments and CSOs are less able to take risks but can support companies in their attempt to address that part of the poverty challenge. Hunger and food security (SDG2) portrays an interesting failure of the market and civil society: there is sufficient production – so no government intervention needed – but a flawed distribution and a wasteful use of food. The clear failure of the food market needs to be addressed by firms and consumers (if possible). Interventions by governments in the primary process of food production often create greater (wicked) problems. Government intervention for the sake of food safety (a public health issue) and to address other wicked problems such as obesity is much more logical. Tragedy-of-the-commons challenges were primarily seen as relating to ecological and nature issues (SDGs 13, 14, 15), in which most societal sectors are hesitant to take up responsibilities and share risks.

Conclusion: What should one take into account when addressing wicked problems?

Wicked problems are cross-sectoral and universal, and therefore require change that systematically involves stakeholders from every part of organised society: from profit, non-profit, public and private organisations. Some problems are more wicked than others, depending on the characteristics of the problem itself, but also on the societal actors involved. Moreover, addressing wicked problems requires cooperation with other stakeholders, because their involvement is important not only for helping define the problem, but also for defining and implementing solutions. The more wicked a problem is, the more it requires higher levels of awareness, higher ambitions to solve it and smarter approaches that involve combinations of (1) rational thinking (head) and (2) pragmatic handling (hands) and ambitions (heart).²⁴ When properly addressed in the right environment, wicked problems can turn into wicked opportunities. Wicked problems require a safe space. The WPP aims to provide that – in the next chapter, we address the main principles of the WPP.



WHAT?

What principles should be taken into account?

'There is always an easy solution to every human problem – neat, plausible, and wrong.'

Henry Louis Mencken²⁵

'Part of the art of dealing with wicked problems is the art of not knowing too early which type of solution to apply.'

Rittel and Webber²⁶

'The best path to addressing wicked problems is that collaborative, dialogic, and inherently democratic process which brings the relevant actors together in dialogue.'

Sandra Waddock²⁷

Almost all studies on effectively addressing wicked problems conclude that participatory processes are vital.²⁸ Relevant stakeholders should be engaged in collective sense-making, but how to actually organise a successful approach towards different degrees of wickedness is less obvious. Do participants need to address the whole problem or can they focus on a part of the problem? Which stakeholders should be present? In what type of conversation should they engage? How should various forms of uncertainty be dealt with, and what type of decision making needs to be achieved in a wicked problems session in order to be effective? The effectiveness of multi-stakeholder interactions depends on at least two factors: (1) the collaborative nature of the encounter and (2) the kind of stakeholders represented. In this chapter, we propose eight principles for effective stakeholder engagement. These principles apply not only to the process, but also to the content of the wicked problem: what dimensions of a wicked problem should be taken into account? We have designed the WPP on the basis of these principles.

Principle #1: Adopt systemic and collaborative approaches

Complex problems need sophisticated approaches. If wicked problems were easy, they would have already been solved. Take the plastic waste problem in Nepal as an example (WPP 9 April 2015, Box 1). For this problem, it originally seemed that a technological and/or organisational solution would be needed. Nepal would just need a very good waste management and recycling industry. In the conversation however, it became clear that there were already good recycling companies active in Nepal, but they had to compete with public and NGO initiatives that did similar activities on a non-profit basis. Instead of collaborating, those initiatives all worked in their own region, leaving some regions full of waste. A super-wicked problem appeared for which societal and institutional solutions had to be sought instead of technological or organisational solutions.

‘No new technological solutions are needed to address this problem.’

Director of a company participating in WPP Plastic Waste in Nepal, Box 1

Wicked problems never develop in a vacuum and are thus connected not only to other problems, but also to their results. Every problem interacts with other problems and is therefore part of a system of interrelated problems.²⁹ Systemic problems inevitably need systemic approaches. A systemic view allows us to focus on our collective failure, and at the same time, on our collective potential to collaborate effectively.³⁰

The literature on wicked problems suggests that, as difficult as it seems, the best path to addressing wicked problems is through collaborative, dialogic and inherently democratic processes that bring the relevant actors together in dialogue. Grappling with wicked problems necessitates collaborative rather than unilateral approaches.³¹

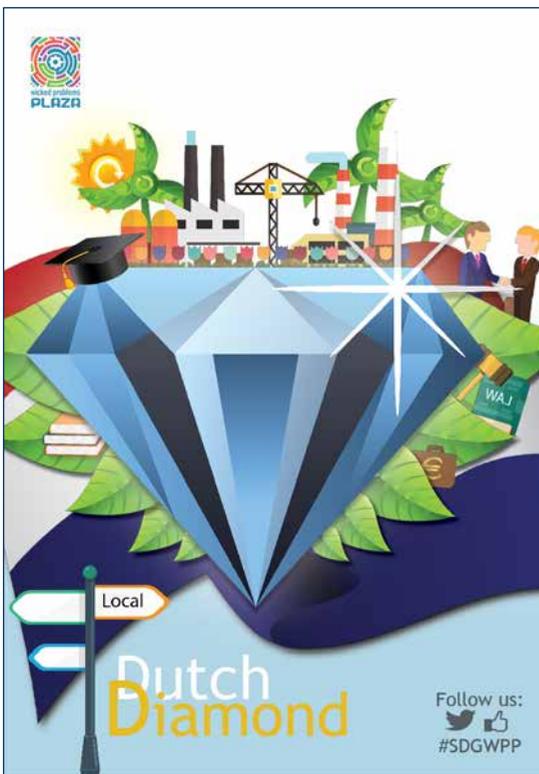
Principle #2: Getting the whole system into the room

Changing the effectiveness of a system requires getting *the whole system into the room*.³² It means that as many different, relevant stakeholder groups as possible should be brought into the dialogue with the intention of bringing the maximum number of perspectives to bear on the problem. Theory supports the proposition that greater stakeholder diversity in general leads to superior group outcomes.³³ Diversity is not necessarily the leading influence on out-of-the-box outcomes,

but balanced representation is. This means that it is not a maximum mix of stakeholders that is of importance; rather, a good selection of the right stakeholders is essential.³⁴ Moreover, skilled facilitation is needed to give the represented stakeholders equal voice in the dialogue.

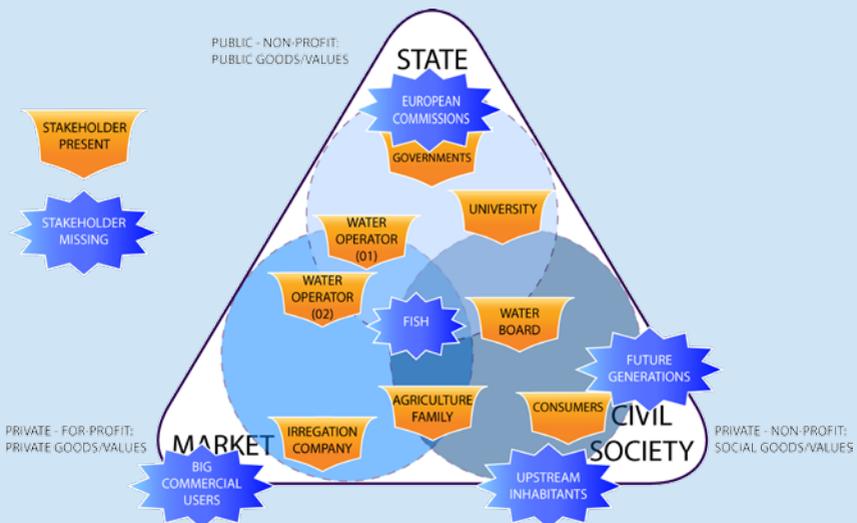
Wicked problems and their resolutions are socially defined.³⁵ Getting the system into the room therefore also implies getting different worldviews and opinions into the room (Figure 6); this can enrich the analysis and – provided it is properly organised – provide a basis for more out-of-the-box thinking. Getting the whole system into the room does not mean everyone will or has to agree, but it does mean that participants have to find some areas of common interest.

Figure 6: Dutch diamond: companies, NGOs, government agencies, knowledge institutions and financial institutions.



Box 4: The WPP in action [4]: Stakeholder mapping – who is ‘in the room’

Master’s students simulated a WPP session on the issue of water pollution around the Rhine river in Europe (flowing through Switzerland, Germany and the Netherlands). In the first round of the deliberations, the participants made a stakeholder map on the basis of two questions: (1) Who is present and in what corner of the societal triangle can they be positioned? (2) Who is not present and would this make a difference in the deliberations?



From this overview, it became clear that a number of key stakeholders were not represented. The group defined the following missing groups that might have different interests than the stakeholders present:

- Some of the citizens living upstream of the river
- Companies that were intense users of water (and thus might have conflicting interests)
- The fish
- Future generations of people living near the river
- The European Commission.

In addition, a number of stakeholders did not really adequately define their primary position in society. For instance, water operator companies defined themselves as private companies, whereas most of them were owned by regional or local authorities; they were semi-public non-profit companies. Citizens defined themselves as consumers, but in a very narrow sense (water drinkers, but not as beneficiaries of the natural environment). Governments defined themselves as subsidy providers, but not as potential partners of other stakeholders.

In consecutive rounds, the participants shared their sources of failure (dilemmas), judged their willingness to take up responsibilities (investment projects for instance) and challenged one another to share risks for common projects. During these rounds, each of the participants took the interests of missing stakeholders into account. In particular, the European Commission and the fish turned out to be vital stakeholders to come up with creative solutions for a number of the wicked problems relating to waste and water treatment linked to the river. Consumers faced major conflicts with future generations of riverbank inhabitants, but these could be mitigated by the (semi-private) water boards that were able to create a compromise between local governments along the river and potential recreational users of the river. Willingness to pay for particular approaches proved a vital consideration that on the one hand limited the bandwidth of solutions (narrow interests relating to water management) and on the other hand broadened the opportunities because the river could be portrayed as a public good that provided substantial positive externalities to the surrounding inhabitants (higher land prices, more recreational facilities). A different business case could be developed with the participants. The university was asked to do a follow-up study to explore the financial and ecological sustainability of a number of the ideas that popped up in the meeting.

Principle #3: Making hands, hearts and heads work together

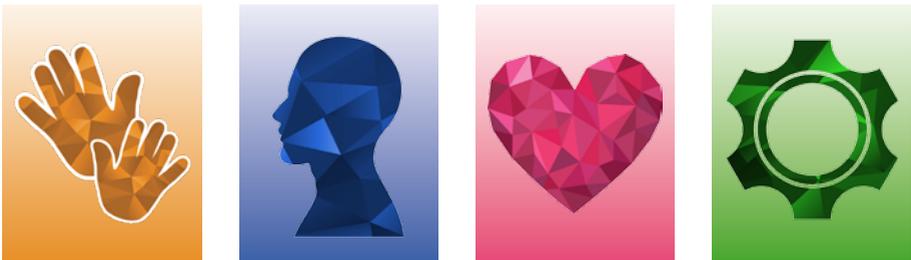
Wicked problems require a large number of decisions that need to be taken under relatively uncertain circumstances and with limited information (see chapter 1). People often tend to approach decision-making problems under uncertainty from one particular angle or paradigm.³⁶ They are motivated by an ideal, a solution, or just want to deal with the problem quickly (see chapter 4). By adopting only one of these mind-sets, people tend to focus on only one side of the problem (see principle #1).

A more holistic/systemic approach requires the adoption of various mind-sets.

Only head, without heart or hand, implies theoretical solutions without practice. Adopting only hands, without head or heart, focuses on processes and tools, without purpose and reason. Only heart, without hands or head, might be visionary but lacks substance or adequate implementation. Combinations of two of the three can turn out to be ineffective as well: (1) heart and hands combined create *reckless enthusiasm* (ideologies) – lots of vision and passion, but no implementation; (2) heads and hearts combined create *strategies without legs* – a plan, a vision, but with no action; (3) heads and hands combined create what is called *disjointed action* – a strategic plan and a roadmap, but no (common) sense of why to do this.

To really address the problem, one needs to combine all three dimensions, preferably in the form of a synthesis rather than a trade-off or compromise (see principle #6). Making hands, heart and head work productively together should be one of the guiding principles of the WPP (Figure 7). This is not easy, not least because these dimensions are regularly represented by interest groups, and this adds a negotiation dimension to the challenge of synthesising. How to deal with this reality requires another principle (#4).

Figure 7: Hands, head and heart working together



Principle #4: Move away from interest- and position-based negotiations only

Change driven or dominated by the interest of one sector is not likely to create sufficient preconditions for a sustainable resolution of a wicked problem. When sectors are brought together in a multi-stakeholder dialogue, such different interests are often a root cause of conflicting goals³⁷ and mutual distrust.

Wicked problems cannot be resolved through compromise. Debate and dialogues are a necessary part of the conversation, but do not suffice. New ways of negotiation and structured thinking are necessary. Modern thinking on negotiation has already progressed from *position-based* (PBN) to *interest-based* (IBN) negotiation practices. PBN entails focusing on the developed positions that are taken in accordance with a stakeholder's goals for the negotiation.³⁸ The outcome of such PBN can only be the realisation of one of the parties' positions; this therefore creates the problem that, if the position of one side (the winner) is adopted, the other side 'loses.' IBN aims to create more satisfactory situations by refocusing on the interests of the parties. Trade-offs and compromises can be considered as well. IBN is supposed to build a collaborative spirit and trust amongst the negotiating parties, on which basis more creative solutions can be explored.³⁹

The problem with interest-based negotiations is that they lead to compromises, but not necessarily to new and creative solutions. The WPP formula therefore should go beyond this approach by moving from interest-based to *collective-vision-based* negotiation (Box 5).⁴⁰ In a well-designed safe space, negotiation and deliberation practices can move in new and creative directions. The WPP should aim at facilitating out-of-the-box thinking, but towards clear goals, with realistic solutions, based on efficient and pragmatic models that are nevertheless based on the interests of all players involved. How these interests are defined and channelled in a constructive negotiation and deliberation process is highly context and topic dependent.

Box 5: Problem/collective-vision-based negotiations

'It starts with trying to understand the nature of the problem and the identification of involved stakeholders. In principle, there are no opponents or supporters, but problem owners and parties with diverse interests and insights. Short-term and long-term interests are made explicit. You try to come to a joint/shared problem analysis and develop a common vision, on the basis of which you design a realistic implementation trajectory. And if you are getting bogged down, joint investment in learning and knowledge exchange – in addition to a sensible dose of humour – can help tremendously.'

Hypothetical WPP facilitator

As a vision is a mental concept, its detailed articulation can be difficult, especially in interactions among partners from different sectors. It is the job of the facilitator to translate between the parties, but also to protect against the temptation to arrive too quickly at a perceived shared vision, which actually entails great differences in its exact interpretation. The strength of a dialogue around wicked problems lies not in compromising, but in the creation of novel combinations and thus in synthesising interests. Although interests can and at times therefore need to diverge, partners are still able to collaborate. Goal alignment is a necessary condition for partnerships, whereas interest alignment is not. 'All participants must agree [...] on the primary goals of the collaborative impact initiative as a whole,'⁴¹ as it unites the parties to collaborate.

A vision-based approach aims to enable a long-term partnership, whereas the IBN principles aim to reach agreement while maintaining and improving a relation as a base for the long term. Similarly, the outcomes are thus different in that collaborative vision-based negotiation aims at creating positive-sum outcomes for the negotiating parties as well as greater societal benefits. A shared vision is the motivational factor for collaboration that can achieve a transformational result and is thus most important. The same line of reasoning can be applied to compare the relative importance of a common understanding of the problem and a common understanding of the situation. An agreement on a problem-solving approach alone, however, is fragile, as it lacks a unifying reason for its selection and can thus quickly change. When it is not realistically possible to reach a common understanding on each level, it is therefore best to try to achieve understanding on a shared vision, followed by an understanding on the problem and finally on the situational context.

Principle #5: Start thinking in paradoxes, share dilemmas and enable out-of-the-box approaches

As people attempt to make sense of an increasingly ambiguous and ever-changing world, they frequently simplify reality into polarised either/or distinctions.⁴² The way one frames the problem determines the way one will be able to solve the problem. Four frames are often used when defining a problem: dilemma, trade-off, puzzle and paradox. It is therefore important to understand how to deal with these four frames in the WPP (Table 2).

Table 2: Dealing with dilemma, trade-off, puzzle and paradox in the WPP

	Dilemma	Trade-off	Puzzle	Paradox
Nature and scope problem	Causalities known; starting position known; consequences (partly) known	Causalities known; consequences partly known; preferred end goal known	Causalities known; end goal known	Multi-causal, unclear end goals
Scope solutions	Two solutions (either/or)	One optimal solution direction (and/or)	One optimal solution	Many innovative reconciliations (both/and)
Strategy	Make a choice	Find the right balance	Search for the optimum; Create a focal point	Make the best of both worlds
	Inside-the-box thinking		Out-of-the-box thinking	

In relation to solutions to a problem, these solutions can be considered as (1) a dilemma (a choice between solutions), (2) a trade-off (striking a balance between two options), (3) a puzzle (in search of an optimum) and (4) a paradox (in search of new combinations). As is clear by now, wicked problems are too complex to be dealt with in terms of puzzles, dilemmas or trade-offs – they require paradoxes.

What is a paradox?

‘If you have an apple and I have an apple and we exchange apples then you and I will still each have one apple. But if you have an idea and I have an idea and we exchange these ideas, then each of us will have two ideas.’

George Bernard Shaw⁴³

A paradox is the simultaneous existence of two inconsistent states, such as between innovation and efficiency, collaboration and competition, or new and old. Rather than compromising between the two, organisations, groups and individuals change by simultaneously holding the two states. Managing a paradox is about exploring the tension in a creative way. This is not easy, because, by their nature, people tend to favour less complex representations of reality. Paradoxes become visible when people interact with one another and encounter their ideas and perspectives. The more diverse the people and perspectives, the more elements of a wicked problem are discovered.

A WPP should stimulate paradoxical thinking through a method called synthesising.⁴⁴ In the Plaza, the participants first frame the wicked problem in dilemmas and trade-offs. The facilitator then helps them to look critically at these problem statements. Are they really either/or, or is the problem more of a paradox? How can one look at the paradox in such a way that two positive outcomes can be reached? Synthesising helps to facilitate this reframing of the dilemmas and trade-offs as a paradox in which opportunities can be found. It involves linking multiple, contradictory paradigms to generate new insights.⁴⁵



Box 6: The WPP in action [5]: Energy – vacuum between hope and fear

The Netherlands has a tradition of structured and institutionalised negotiations between diverse partners. In 2013, 40 stakeholders in the energy sector came together under the tutelage of the Social Economic Council (SER) in order to reach an agreement on reducing the negative effects of energy on the climate. This Energy Agreement was received with enthusiasm by the public; and the Dutch government called it ambitious. However, in 2015, Urgenda, a Dutch CSO took the Dutch government to court, claiming that the Dutch government was not doing enough to counter climate degradation. Urgenda especially referred to the Energy Agreement and claimed that this was not ambitious enough, specifically compared with efforts of other European countries. The Climate Case became internationally known as the first case in which a government was challenged about keeping its promises. The Climate Case was eventually won by the Dutch CSO. The Dutch government decided to appeal to a higher court, leaving a vacuum in which the energy sector was no longer sure what climate ambitions to pursue. In the meantime, two political parties drew up a climate bill, with concrete and measurable objectives to counter the

permissiveness of the current Dutch climate policy. Nevertheless, the Dutch face a vacuum between the Energy Agreement on the one hand and the not-yet-decided Climate Case on the other.

In September 2015, we held a WPP on this topic, inviting diverse stakeholders to comment on this vacuum. The venue was special and inspirational: we gathered at the beautiful Waddenzee island Terschelling where Springtij, the annual Dutch Sustainability Festival, is held.

The key question was who was to overcome this lacuna. Is it the government that should set standards and provide regulations regarding climate issues? Or should the energy sector be more ambitious and do more than regulations now require from it? What should happen now that there is a vacuum? The WPP became a 'good conversation' about this vacuum in which the stakeholders shared their dilemmas and dreams regarding the climate. This good conversation was indeed about a vacuum, but not one between power and responsibilities, rather one between hopes and fears. It was about the tensions between nightmares and dreams, between rules and freedom, between fighting one another and working together. It was about the human condition to build bridges between extremes. Hope prevailed, as we concluded that trust fills the vacuum/gap between hope and fear.

This case illustrates that the effectiveness of a WPP session depends strongly on the context in which it is organised and the participants' ability and willingness to think out-of-the-box. The results of this WPP did not lead directly to concrete points for action; however, the participants were inspired to continue their hopeful dialogue.

Principle #6: Bring a willingness to contribute into the room

Collective-vision-based negotiations cannot be based on the present interests and positions of participants alone. Luckily, participants have more resources to offer than their knowledge and expertise, often even more than they are aware of. All participants have a different stake in the wicked problem, as well as a future stake in its resolution. During a WPP, stakeholders' interests have to be revealed. The participants discuss their willingness to contribute to a possible resolution. How do

they see their role in this process? What resources can they contribute? Table 3⁴⁶ gives an overview of possible contributions that actors can very naturally bring to the deliberations and thereby help other actors to overcome some of the barriers that prevent them from addressing the problem alone.

Table 3: Actors' potential contributions to the WPP

Actor	Contribution/role	Actor	Contribution/role
Consumers	Pay/buy	NGOs/CSOs	Investment/subsidy
Government	Regulation/subsidy	Distributors	Payment/co-creation
Suppliers	Collaboration/ competition	Knowledge institutes	Learning/monitoring
Financiers	Investment/loans	Competitors	(Pre-competitive) Collaboration

Stakeholders' potential contributions depend of course on the nature of the wicked problem. It is important to note here that citizens do have an important role and contribution; they have buying and voting power and, especially when they organise themselves in masses, they can contribute to awareness of the wicked problem. The WPP uses tools, such as a bartering game, in which participants discover what they have to offer and what their contribution means for other participants in the group.

Principle #7: Open up to biases and failure

People often deal with wickedness by framing it in binary options: black and white, pro and con, ideals versus pragmatism. This way, people tend to make sense of complex realities.⁴⁷ The most important biases to which people as well as researchers fall prey and that influence their ability to engage in constructive negotiations are⁴⁸:

- Selection bias: the effect that appears from the choice of a sample that cannot be substantiated or is not logical
- Confirmation bias: only listening to people that confirm one's own opinion
- Hindsight bias: ex-post rationalisation of one's own intentions and knowledge
- Information bias: searching for more information even when that is not needed
- Zero-risk bias: the inclination to prefer taking no risk with important problems, even when alternative options are available that can achieve substantial risk reduction.

If stakeholders can open up to these biases in conversations (for instance, by addressing them), they may be able to understand why their own preferred approach has failed. The interaction can also create room for the kind of out-of-the-box thinking that is needed to approach wicked problems effectively. Best practices are rare for wicked problems, failure is easier to detect. So, being open to failure – in relation to the wickedness of the problem – is a prerequisite for any effective approach to wicked problems.

Principle #8: Aim for coalitions of the needed instead of coalitions of the willing

To address wicked problems effectively, we need those partnerships and coalitions that have responsibility and take responsibility. In reality however, stakeholders engaging in dialogue often consist of organisations that are willing to take responsibility, regardless of whether or not they are responsible for the problem. We call these *coalitions of the willing*. What are missing are those organisations that have responsibility but do not take it. Addressing wicked problems requires the involvement of all responsible actors to form a *coalition of the needed*. The WPP should preferably aim to invite also those organisations that are not yet taking (sufficient) responsibility. They are invited to talk about their interests and dilemmas in the hope of regenerating a sense of ownership among them. Via collective-vision-based negotiation, they can then become part of a group, where some stakeholders have never talked to one another before. By carefully facilitating this process, the WPP aims to create new partnerships for dealing with the problem – so that the coalition of the needed can become a new coalition of the willing.

Conclusion: Principles for a Wicked Problems Plaza

This chapter specified eight leading principles that should guide the design and operation of a space in which wicked problems can be effectively approached. These principles provide direction to address the complex consequences of wicked problems in principle (this chapter) and in practice (the next chapter). Table 4 presents a synthesis.

Table 4: Synthesis of the WPP trajectory

From WHY....	Via WHAT...	Towards WHERE/HOW...
<p>Consequences of wicked problems (chapter 1)</p> <ul style="list-style-type: none"> ■ No single problem and no single solution ■ Not all stakeholders are involved ■ Diverging and superficial expectations ■ Knowledge gaps ■ No mitigating strategy ■ Many unintended consequences ■ Inadequate problem-solving techniques ■ Diversity of opinions ■ Causes and responsibilities are non-attributable ■ Degree of wickedness remains unclear ■ Compromises and limited out-of-the-box thinking ■ No realistic and collaborative solutions available 	<p>Principles to enable an optimal approach (chapter 2)</p> <p>#1: Adopt a systemic and collaborative approach; search for approaches, not (necessarily) solutions</p> <p>#2: Get the whole system into the room</p> <p>#3: Bring head, heart and hands together</p> <p>#4: Move away from interest- and position-based negotiations; do not stick to your position</p> <p>#5: Start thinking in paradoxes, share dilemmas and search for syntheses</p> <p>#6: Bring a willingness to contribute into the room</p> <p>#7: Open up to biases and failure; failure is an option</p> <p>#8: Aim for coalitions of the needed instead of coalitions of the willing</p> <p>#9: Create a safe space</p>	<p>Organisational requirements for a Wicked Problems Plaza</p> <ul style="list-style-type: none"> ■ Create a Wicked Problems Plaza ■ Societal triangulation: invite stakeholders from all three parts of society ■ Create spaces: interest/ equity/efficiency/ partnering space ■ Reflection: enable a sharp analysis of the wickedness of a problem; allow for failure and dilemma sharing ■ Community: create a community around the WPP ■ Safe space: create a physical box (safe space) to enable out-of-the-box thinking ■ Define constructive sequences via which wicked problems or opportunities can be approached

To make them practical, these principles require not only facilitation, but an actual space – a safe space. This adds a ninth – and arguably central – principle to our approach, and provides also the linchpin to the practical challenge a WPP should address.

WHERE?

Where does it happen in the WPP?

*'Safe space: a place where the rules guard each person's self-respect and dignity and strongly encourage everyone to respect others.'*⁴⁹

Chapter 2 concluded with nine principles for addressing wicked problems. These principles should be used in designing the WPP as a physical space. We aim to be able to organize a WPP everywhere in the world. A WPP can be facilitated in any room of a certain size. However, there are some minimum requirements as well as more optional supportive facilities that help to support the WPP process. This chapter explains how.

Creating a safe space

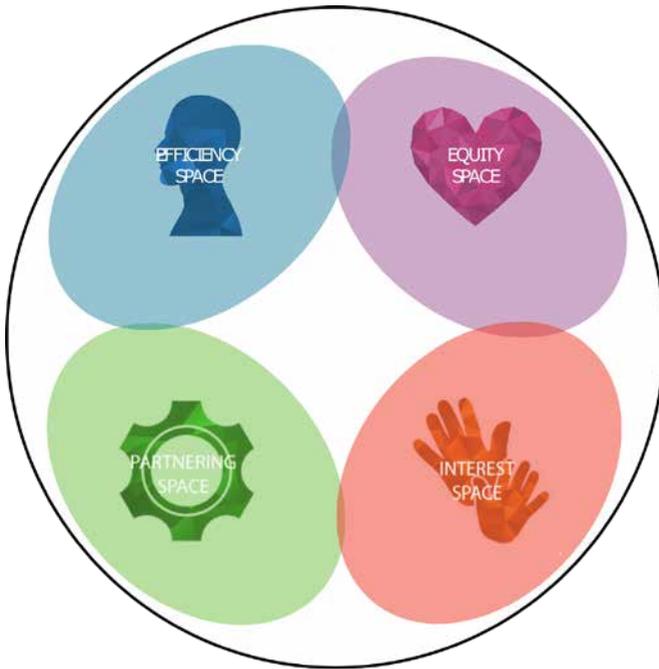
The WPP needs to be set up as a safe space. Inside, people should feel safe and comfortable, not bothered by what is going on outside of the cooker. Similarly, what is shared in the WPP will not leave the room, except when this is specifically permitted by the participants. This principle helps participants to feel safe, and this in turn encourages them to be open and honest towards the group.

Four conversation spaces

The WPP consists of four spaces through which participants can physically move (Figure 8). These four spaces represent the distinct frames and dimensions needed to effectively understand and address wicked problems:

1. **An interest or hands space;** which aims at 'getting your hands' on the problem
2. **An equity or heart space;** which is intended to define and identify the vision and ideals relating to the problem
3. **An efficiency or head space;** which is dedicated to rational considerations around efficient and best practice approaches
4. **A partnering space;** which is dedicated to syntheses and paradoxical thinking. The partnering space is aimed at stimulating participants to think out-of-the-box in support of collaborative approaches to the wicked problem.

Figure 8: The four WPP spaces



Supportive thought-pillars

The WPP spaces provide input for all sorts of thought processes. To help you condense these thoughts, six 'thought-pillars' provide additional functionality to a session. They can be real pillars - as in the original WPP design - they can be created as posters on which you stick post-its and the like. They can be used for inspirational purposes (input), in-between notes by individual participants or summaries of finalised discussions (registration of output). Each thought-pillar occupies a different and complementary function for the collective-vision-based negotiation principles around which the WPP is structured. Thought-pillars can contain graphics, notes and drawings, or can be left empty as a sign of a knowledge or experience gap.

[A] The Wicked Problems Thought-pillar lists the most important dimensions of the problem at hand. It stimulates participants to list what is known about the problem, define its degree of wickedness, list possible relationships with other wicked problems and list the kind of organisations that are working on the challenge. This information can be the result of preparatory work by the organising facilitator or the result of input by the participants. For instance, a good technique to be used on this thought-pillar is mindmapping: either of the stakeholders or of the links between this problem and other wicked problems. This information can then be used as input for the discussion, in particular for conversations in the interest space (but not exclusively).

[B] The Good Intentions Thought-pillar considers why people want to address this problem and with what ideals. The thought-pillar can for instance show the WPP participants' ambitions for the next five years. It can also list comparable ambitions of important organisations in this area as an inspiration for the participants. The Good Intentions thought-pillar can also list general principles as adopted by international organisations. It can best be used in the equity space.

[C] The Business Case Thought-pillar considers feasibility. Solutions need to be organised. The WPP considers approaches feasible if they are financially sustainable. This demands entrepreneurial approaches, which in turn require a *business case* – an argument or an example showing why a particular approach can be successfully sustained. The Business Case thought-pillar lists inspirational examples of best practices – according to participants or others. The organisational set-up (business model) of successful cases can be revealed on this thought-pillar. The business case can be based on a technological, an organisational or a societal approach, and is therefore best used in the efficiency space.



[D] The Brilliant Failures (Trade-off) Thought-pillar deals with failure. One of the guiding principles for dealing with wicked problems is that one should be able to learn from mistakes and open up to biases. Another guiding principle is that many problems are defined as trade-offs or dilemmas between equity (heart) and efficiency (head). When these tensions are not well managed, failure is the result. The Brilliant Failures thought-pillar shows good intentions going wrong or best-practice initiatives facing unintended negative consequences. According to the Institute of Brilliant Failures, the function of failures is even more glorious: ‘time and time again, history has demonstrated that our most valuable experiences are more likely to come as mistakes than as successes.’⁵⁰ This thought-pillar brings failure into the room as an in-between category of the four fundamental spaces. One approach to using this thought-pillar during sessions is to invite participants to (anonymously) share some of their own or others’ failures through post-its.

[E] The Idiotic Ideas (Synthesis) Thought-pillar stimulates thinking. Another guiding principle of the WPP is to stimulate out-of-the-box, creative and synthesising thinking. This often proves very difficult, not least because it is difficult to consider the tensions between head, heart and hands as a paradox. One way of stimulating this process is by listing *idiotic ideas*. They are by definition out-of-the-box, but not necessarily feasible or desirable. This thought-pillar can help participants to become more creative. It functions as input in brainstorming processes that generally appear in the transition from the efficiency and the equity space towards the partnering space.

[F] The Collaborative Solutions Thought-pillar illustrates success. The process of engaging in collaborative and vision-based approaches requires inspiration and examples as well. The function of the Collaborative Solutions Thought-pillar is to portray creative examples, mottos and other approaches that illustrate the conditions under which collaboration can function. The thought-pillar lists possible partners with which organisations might want to align to address the problem. Another important dimension in the discussion on collaborative solutions is how to measure impact. The impact of collaborative processes is often difficult to measure with normal quantitative metrics; this explains why it is difficult to define common goals for collaborative solutions. The Collaborative Solutions Thought-pillar lists possible non-quantifiable measures of impact that can influence the discussion in the partnering space in particular.

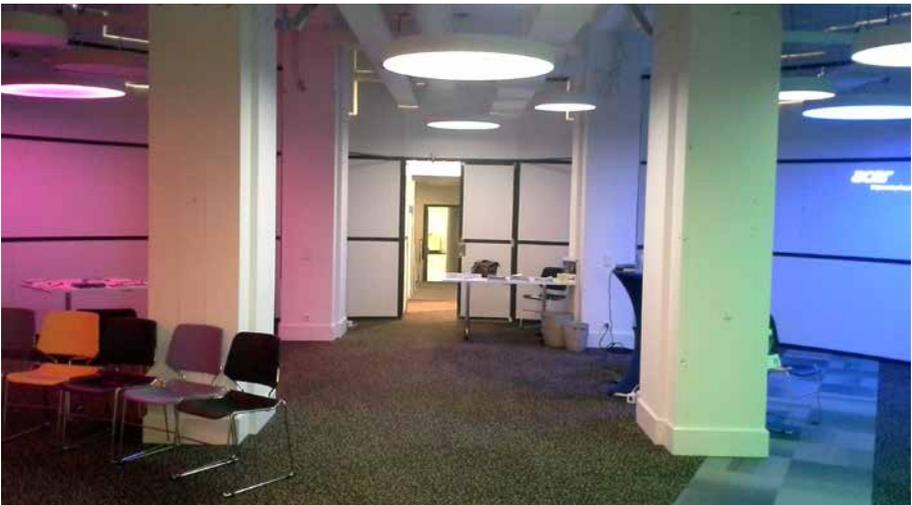




These spaces provide the physical conditions to bring head, heart and hands together in the same room. Going through these spaces is instrumental in finding novel but viable approaches to wicked problems. As explained in chapter 2, a WPP should confront these various dimensions in a constructive and structured manner to channel groups of stakeholders (get the system into the room) to search for novel directions. The WPP provides an infrastructure so participants can go through these phases in a structured, safe and inspiring way. Modern tools can be used, but are not necessary. The sequence of phases may change according to the nature of the basic proposition (chapter 4): the meeting can start from the viewpoint of a solution, a problem, an ideal or an approach. In each space, a particular type of thinking or a complementary dimension of an approach is stimulated.

The functional use of colours

It is well known that conversations, negotiations or decision-making processes are strongly influenced by the environment. Therefore, an additional supportive factor comes from the light. A different light creates a different mood and literally sheds a different light on the conversation. Therefore, in an ideal WPP set-up each space can be lit with a different colour. The basic colours are related to the basic mood needed for the specific conversations in each space, whereby purple means safety and peace, and thus relates to the equity space. Blue represents order and clarity and fits the efficiency space. Red is the colour of power and conflict, and this is



consistent with the interest space. Finally, green represents new possibilities and growth, and it is therefore the colour to go with the partnering space.⁵¹ Table 5 represents the core of the WPP formula and ties each space to a colour, metaphor, the type of questions that are addressed and the supportive thought-pillars. We now describe each of the spaces.

Table 5: Core of the WPP formula, tying spaces to colours, metaphors, questions and relevant thought-pillars

Space	Colour	Metaphor	Nature/question	Supportive thought-pillars
1. Interest	Red	Hands	What is at stake? Who is involved? Get your hands on the problem	Wicked problems
2. Equity	Purple	Heart	What is my intention/passion?	Good intentions
3. Efficiency	Blue	Head	What is rational, pragmatic and feasible? What worked?	Business cases
INTERIM SPACE	Mixed	Head vs heart	How do head and heart relate? Brilliant failures	Trade-offs and brilliant failures
	Mixed	Head, heart and hands	Brainstorming about out-of-the box solutions; idiotic ideas	Synthesis; paradoxes and idiotic ideas
4. Partnering	Green	Multiple heads, hearts and hands	What are real (out-of-the-box) approaches to (come to a synthesis for) the problem?	Collaborative solutions

The interest space

In the interest space, the participants are invited to get their hands on the problem. During this phase, participants list the most important dimensions of the wicked problem. They do so by bringing along an object that symbolises the wicked problem for them (see figure 9). In this way, they tell their personal story related to the wicked problem. After this round, the group identifies the stakeholders

Figure 9: Symbols of the wicked problem ‘post harvestlosses’ in Kenya



involved and their interests in the problem and/or solution. They thereby also discover who is in the Plaza, and who is missing (stakeholder mapping). They start to consider what stakeholders are involved in the creation of this problem and what stakeholders are needed to effectively address it. In relation to these basic dimensions, participants should consider the wickedness of the issue, whether the issue is linked to other issues and what the consequences are of not addressing the problem. This exercise should help participants to reach a common problem definition and an understanding that the problem cannot be solved by individual participants.

The equity space

In the equity space, the participants explore their own intentions, ideals and passions in relation to the problem that they would like to address, without direct reference to the practicalities involved in the issue. Here, participants can for instance be invited to relax on pillows, take a moment of silence and really listen to what others have to say (see figure 10). The facilitator or participants amongst themselves ask questions about why participants have these ideals and mind-set in relation to the wicked problem at hand. Some examples:

- What would the world look like if the wicked problem no longer existed?
- What would your ideal role be in the creation of this vision?
- What dilemmas (direct and indirect consequences) do you face when you follow your ideals?⁵²

The efficiency space

In this space, the participants identify potential practical approaches to the wicked problem at hand. It hosts brainstorming about previous solutions, good examples and brilliant failures. Why have these failed? What can we learn from failure in order to create a better fit between the proposed solution and the problem? How can new approaches become feasible and sustainable in the long run? Talking about business cases in this space stimulates participants to think in terms of economically feasible solutions to a problem (see figure 11). Adding a value proposition and a business model to this can help the group to come up with a motto and a vision. This will

Figure 10: Dreaming about a more sustainable city



lead to a coalition of the needed, with a vision that is dynamic and innovative and relates to the societal issue that the organisation wants to address.⁵³ Questions for discussion include:

- What is the nature of the proposed solution: technological, organisational or societal?
- Does this approach fit the kind of problem: simple, complex, wicked? If the approach does not fit the problem, what direct and indirect consequences can be anticipated from the introduction of this approach?
- Brilliant failures: What has been tried in the past and why did it fail?
- Business cases: What seemed successful and why?

Figure 11: Working on a businessmodel canvas for cleaner river water



Interim spaces: facilitating reflection and synthesis

In many WPP sessions, we encounter a tipping point in conversations: between relatively structured, safe and inside-the-box thinking on ideals, efficiency or interests, and out-of-the-box, creative thinking about possible solutions. Participants need to be stimulated to start thinking out-of-the-box, and this is not easy to achieve. In the WPP, two binding thought-pillars function as a pool of

creative input for moving beyond existing approaches: idiotic ideas and brilliant failures. Their function is vital for triggering imagination, can serve as a moment of reflection on the whole process and should facilitate – if the moderator and/or the participants deem it appropriate – a more structured confrontation of each of the spaces. Paradoxical thinking (principle #5) requires that in particular the outcomes of the discussion in the equity and the efficiency space are confronted with each other. They can be portrayed as a dilemma, a trade-off or a puzzle. The Brilliant Failures Thought-pillar in particular can be used to analyse why certain solutions did not adequately deal with the trade-offs involved. Depending on the sequence chosen, the interim spaces can be used as a separate step in the conversation or as an integral part of the conversation in the fourth – partnering – space.

The partnering space

The partnering space facilitates collective-vision-based negotiations. This requires brainstorming, synthesis and out-of-the-box thinking on possible approaches. Once brainstorming is undertaken, the stakeholders work together on ways of implementing solutions or on frames to further discuss the issue in future sessions and initiatives. The partnering space is intended to bring the complementary strengths of each participant together in creative and innovative directions, rather than searching for compromises, which has been the normal negotiation method. One particularly useful supporting thought-pillars in this space is the Idiotic Ideas Thought-pillar, which can feed into the brainstorming process. Partnering also implies that stakeholders remain independent of one another but share complementary competencies and keep on investing in themselves. This space consequently uses the input from all spaces, as well as from the thought-pillars (failures, idiotic ideas). An important technique that can be used before entering this space is to ask the participants to walk through the WPP and consider all the notes, ideas and inventories harvested during the WPP session. This should provide them with additional inspiration to seek common approaches to the problem. A vital question that should be asked in this space relates to the participants who want to work on joint approaches: Are you a coalition not only of the willing, but also of the needed? In the event of a gap, the approach needs to be adjusted by, for example, including other stakeholders and organising a follow-up meeting.

We have now outlined the essence of the WPP formula. In the next chapter, we propose a few techniques that can be used to create the conditions for constructive multi-stakeholder dialogue.

HOW?

How can it be made to work?

'You cannot solve a problem with the same kind of thinking that created the problem in the first place'

Albert Einstein⁵⁴

'If you want to go fast, go alone; if you want to come far, go together'

African proverb

The WPP brings stakeholders together in a specific place to discuss a wicked problem. However, bringing the right stakeholders together in the right place is not a sufficient condition to effectively address wicked problems. In order to make a multi-stakeholder dialogue successful, good facilitation with the right techniques is essential. Dialogue is not a panacea nor a practice that can suit every one or every context.

This chapter explains a number of the basic techniques that can be applied to make full use of the WPP's potential. One can use different sequences and enter the WPP in different spaces. This chapter also explains what WPP facilitation entails and what other influences impact a WPP process.

Organising the right wicked problems encounter

A typical WPP session lasts eight hours. It is important to make clear from the start that a WPP session cannot create solutions, but can raise awareness of the problem and help participants to collectively come up with novel and realistic approaches to the issue.

A WPP session can start (Figure 12) in any of the four spaces: if you (the organiser)

1. ...want to address a problem: this is the most logical sequence on which the WPP is designed. A regular WPP session starts in the morning in the interest space and ends the day in the partnering space. This is the optimal sequence for a



problem-oriented WPP; one in which a group of about 15 people work on a focused wicked problem. This involves in particular those groups of stakeholders that share a problem but do not know how to address it. The leading questions in this space then help the participants quickly to define the wickedness of the problem. This represents the start-up of a problem-driven sequence of the WPP. Participants sequentially discuss the leading questions along space 1, space 2 and space 3. When they have inventoried all relevant dimensions of these spaces (including input from information on the related thought-pillars), participants should try to confront head and heart: the results of their deliberations in spaces 2 and 3; are they facing a dilemma, a trade-off, a puzzle or something else? These stages should stimulate ideas and energy and enable the participants to finally enter the partnering space (4) and come up with approaches that effectively address the trade-off through collective visions and paradoxical thinking.

2. ...have an ideal: this sequence starts with an ethical approach to a problem. A participant proposes an ethical solution to an issue but does not know how to implement it. The leading questions in this space help the participants to figure out whether they share the same ideals, are aware of the consequences and

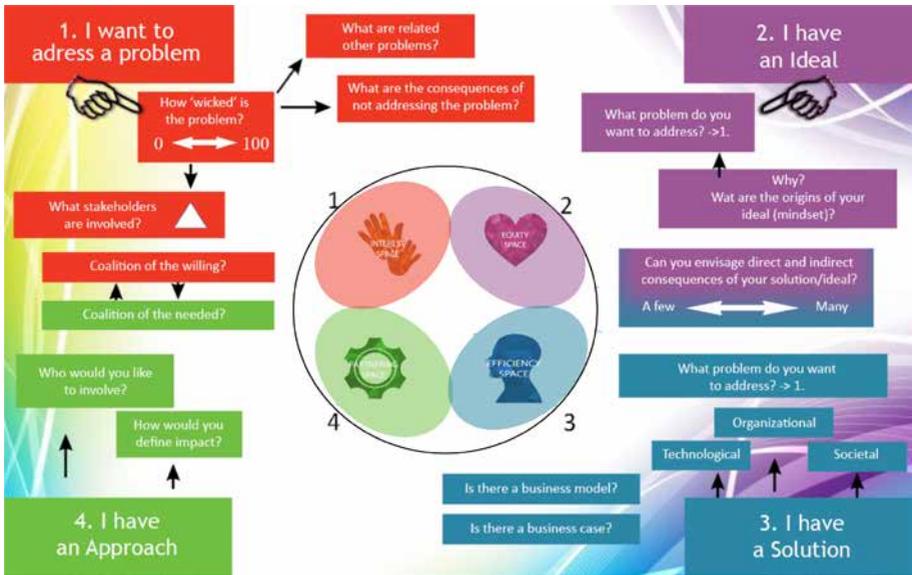


Figure 12: Possible starting points for a WPP

understand how their ideals can contribute to the problem at hand. A WPP is never solved by only ideals, so it is likely that the participants will conclude that the problem is more complex. The next step is to move to space 1, where they will ask one another leading questions about interests, relevant stakeholders and the wickedness of the problem. Specifying the problem in its most basic characteristics (and consequences) then makes it possible for the participants to move to the efficiency space where they can consider whether there are examples of business cases that have tried to solve the issue in an efficient manner. Now, they can feed this information back into their original discussion on ideals, make it practical and move on to the partnering space (4).

3. ...have a solution: this sequence often starts with a technical or a company/organisation-driven approach to a particular problem. In this space, participants become informed on the nature of the business model and the business case. They will engage in critical reflection on these. One way to approach this is to consider whether the business case is actually there and the proposed model therefore financially feasible and sustainable. A real wicked problem is, however, never addressed by only technological and/or organisational approaches. So, it is likely

that this stage will show that there are perhaps unintended consequences and other dimensions to the problem that require further scrutiny. The participants then move into space 1. After this, they will follow the problem-driven cycles 1, 2, 3 (reformulating the conditions for an upgraded business case for the problem) and finally 4.

4. ...have an approach: this sequence starts with an existing partnership or with parties that have the clear ambition to join forces: a coalition of the willing. The leading questions in this space relate to critical considerations of the actual impact of the partnership and possible unintended consequences. If the start-up discussion in this space results in doubts on the effectiveness of the partnership, the parties will have to go back to the drawing board of their partnership and thus move into space 1. They will in particular consider whether their coalition and the problem fit, and to what extent there is a misalignment between their coalition and the coalition of the needed that is required to effectively address the wicked problem. The parties have to reconsider their organisation, their ideals, in short their intervention logic (and so-called Theory of Change). Participants will use the WPP in the same sequence from here on as in scenario 1.

The WPP can be flexible in timing. The regular version consists of eight hours on one day, but the same WPP session can also be organised in four 2-hour sessions. Short sessions are very unlikely to adequately tackle the wicked problem at hand. Organising an extended version is then one of the options. This includes some homework in between the sessions, for example prototyping an idea or studying a specific area of wickedness. On the other hand, we also offer 'teasers' that give a group a sense of the wickedness of a problem with which they are dealing, after which they discuss with whom and how they should discover how to deal with that wicked problem.

The sequence can also be adapted to cultural preferences (Box 7).

Box 7: The WPP in action [6]: Post-harvest losses in Kenya: starting with equity in the interest space

In Kenya, we invited a group to talk about post-harvest losses in the value chain of roots and tubers (a.o. potatoes). This group was facilitated by two keen facilitators with lots of experience with multi-stakeholder dialogues in Kenya. We talked through the methodology and discussed cultural differences between Dutch participants and Kenyan participants. They told us that, in Kenya, people are storytellers, always using their heart and personality in their dialogues. We therefore adapted their script to start in the equity space, but using a method from the interest space. The group sat in a circle, discussing a metaphor that described their perspective on the wicked problem. However, instead of identifying elements of the problem, like we do in Dutch settings, here the group only listened carefully to one another, giving time for stories to develop. This helped the group to then move on to define the problem afterwards.



It should be made clear that this is work-in-progress. We are constantly developing new ideas, trying out new versions and combinations together with our co-organisers, and seeing how these turn out. Readers are welcome to offer their feedback and ideas and be involved in this process.

Is there an optimal group size?

A WPP session should bring the system into the room. This requires in any case that representatives from the three sides of society are present (state, market and civil society, see chapter 1). This helps triangulation processes in the room. It is better if more than one representative of each side is present, because sectors often do not have coherent interests. The group size furthermore depends on the wickedness of the issue: the more wicked it is, the bigger the group divergence needed to help address the many sides of the problem. Our experiences with the WPP show that groups of 15–20 participants maximum are optimal. Bigger groups defy the constructive logic of the WPP. Smaller groups tend to limit the options and the creativity in the room. The maximum group size implies that some stakeholders might not be represented. One way of addressing this deficiency is by asking participants to take up different roles. Particularly helpful roles in WPP sessions include:

- Future generations: which are always forgotten in regular stakeholder meetings because they do not yet exist
- The environment: both nature and animals
- Indirectly affected stakeholders: in both a positive and a negative sense

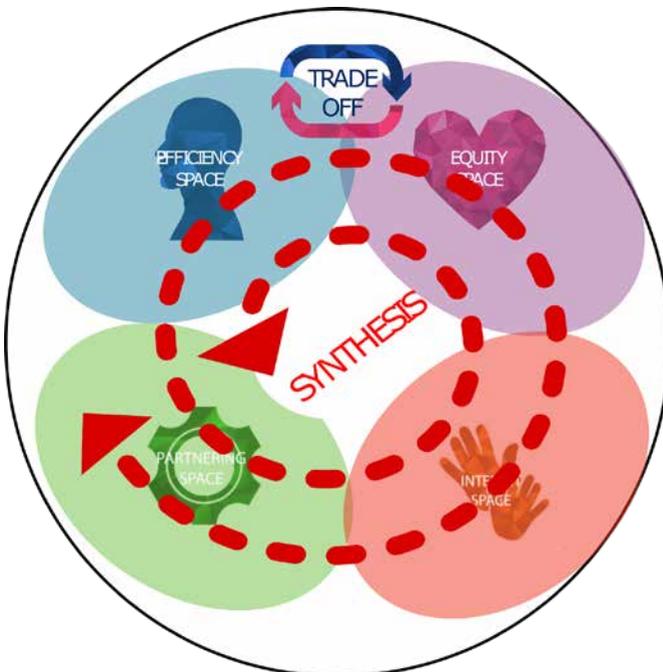
Thinking in paradoxes: how can that be made to work?

The experience of the WPP shows that it is relatively easy to get participants to discuss dilemmas, interests, cases and ideals (in spaces 1, 2 and 3). However, it proves particularly difficult to move from these spaces to the partnering space. This is understandable, because out-of-the-box thinking as well as thinking in paradoxes is not easy. A particularly useful technique in space 4 is to have a break and ask participants to walk around the WPP and first take in all the information and all the impressions that have been accumulated in the session.

At this stage, the function of *structured brainstorming* becomes quite important. Structured brainstorming is aimed at stimulating paradoxical and synthesising thinking (one of the most important principles of the WPP formula). This technique ensures that key words are inventoried from each space and confronted with one another to provide participants with the challenge of how to consider these dimensions as a paradox rather than as a trade-off.

The WPP therefore helps participants define and juxtapose different dimensions of thinking around problems *in a structured way*. The original WPP was not by accident designed as a brainstorming box (or pressure cooker) with relatively strict rules and steps relating to the four different spaces. These steps are based on three dimensions: (1) the trade-off between the efficiency and equity dimensions of the issue at hand and (2) an honest assessment of what a sub-optimal compromise between these two dimensions entails, which (3) creates the format (and willingness) through which new out-of-the-box solutions can be sought that are more than a compromise. In this process, equity and efficiency can be presented as the two extremes of the thinking process. This approach is also known as *dialectical reasoning*: arguments are juxtaposed as **thesis** and **anti-thesis**, and the challenge is to create a **synthesis** (Figure 13). A synthesis is not a lazy compromise, such as the famous win-win idea. Smarter reasoning is required.⁵⁵ The WPP provides a safe but also a structured space for this type of dialectical and constructive argumentation.

Figure 13: Creating synthesis



This dialectical process can start in any corner of the Plaza (see Figure 10). If participants are idealistic, the *equity space* [2] represents their thesis – their starting position – and the *efficiency space* the logical (perhaps also ideological) anti-thesis. If participants are pragmatic, the *efficiency space* represents their thesis [3] and the *equity space* their anti-thesis. Some people refer to this as their personal or organisational ‘allergy,’⁵⁶ which negatively influences any kind of thinking about themselves, their ‘opponent’ or the problem at hand. Most people choose in-between positions, but juxtaposing these two dimensions defines the most relevant dimensions of a problem that have to be accommodated. If actors have searched, or are searching, for a compromise, they enter the *interest space* [3]. The poor nature of the compromise defines the wickedness of most problems. To search for a synthesis, we have to enter the *partnering space*.

Dialectical thinking represents an intricate, but nevertheless structured, process of out-of-the-box and creative thinking. It is important that the basic dimensions of the problem are taken into account as much as possible in order to understand what the direction of the solution should be and also what the nature of the problem actually is: a weak compromise does not really help solve the issue that created the wicked problem.⁵⁷

By defining these dimensions (and discussing them and taking them into serious consideration), the WPP enables synthesising through paradoxical thinking. Can we move from position-based thinking (which represents the trade-off between heart and head, between equity and efficiency) via interest-based thinking (hands) to reach collective-vision-based thinking (finding new and innovative combinations of the previous dimensions)?

Box 8: The WPP in action [7]: Support, safety and solidarity: dilemmas or paradoxes?

Boat migrants are an urgent wicked problem, as explained in chapter 1 (Box 2). One of our WPP groups focused on welcoming refugees in local towns. Even on a local level, responsibilities are not clear and solutions alter by municipality. In this session, we looked at the interests of five stakeholders: the local mayor, the local newspaper, the refugee, the local NGO that helps refugees and a neighbour. When making the list, we found that many of the interests of these stakeholders were similar: almost all stakeholders were interested in safety, solidarity, clarity and (political) support. Their dilemmas were in a similar way related to those interests, such as safety vs solidarity and support vs solidarity. We explicitly asked them to name dilemmas and to put them in a 'versus' form. However, on further discussion, those dilemmas were not really dilemmas or trade-offs. They concluded that more of one criterion would lead to more of the other, i.e. more safety would lead to more solidarity and vice versa. Instead of being real contradictions – thesis and anti-thesis – they seemed to be paradoxes: apparent contradictions.

The role of the facilitator

In a WPP, participants have to be guided through the four different spaces. Special techniques, such as collective-vision-based negotiation and synthesising, require specific skills on the part of the hosts. Moreover, hosts in a WPP perform different roles during the process. One role is that of facilitator: guiding and enabling the group process without too much interference. A second is the role of broker: guiding stakeholders towards the possible development of a partnership. As mediator, the host may help to overcome prejudices and (earlier) conflicts between participants and the negotiator, and to share resources. Finally, a devil's advocate challenges the participants to think differently and avoid group-think. All these roles can be assumed by the facilitator in one person. However, additional persons can be added to the WPP team to perform these roles. Special attention needs to be paid to the role of resource person: an invited expert who has knowledge on the specific wicked issue discussed and is supposed to have no interests or agenda. Table 6 specifies the roles.

Table 6: Roles that have to be performed in a WPP session

	Facilitator	Broker and coach	Mediator and negotiator	Resource person	Devil's advocate
Role	Simplifying, enabling a partnering process	Facilitates (the development of) the partnership	Dispute resolution and supports in the sharing of resources	Adds expert knowledge on the theme	Takes the role of the opposition
When	The facilitator is there only during a session	The broker is there for an appointed time period, before, during and after the session	Until the dispute is resolved	When extra knowledge is needed	When group-think takes over and diversity of opinions is threatened
During a WPP	Leading the group through the spaces, guarding the methodology, helping the group to do the tasks	Building a partnership, building trust in the partnering space	Helping participants to overcome their own positions and interests in the process	Represents unbiased knowledge, does not participate as a stakeholder with interests	Asks critical questions and represents missing stakeholders
Frame	Puzzles	Paradoxes	Trade-offs and dilemmas	None	Dilemmas
Negotiation technique	Compromise	Collective-vision-based negotiation	Position- and Interest-based negotiations	N/a	Position-based negotiation

Supportive techniques

The WPP provides room for using many techniques that are increasingly applied throughout the world, in particular for multiple-stakeholder dialogues. Such techniques entail for instance compassionate communication, brokering and back casting. The main techniques that inspired us for the WPP are Partnership brokering,⁵⁸ Appreciative Inquiry⁵⁹ and Art of Hosting.⁶⁰

What did the WPP bring you today?

In every WPP, we end the dialogue with the question ‘What did the WPP bring you today?’ Some of the participants then tell others what they have learned. Others say what they are going to do differently from now on. There are, however, also

people who say that they are just tired and cannot yet determine what the usefulness of this session was for them. In 2016, we started to document the answers to these questions in a colourful way. Because the participants write their answers on colourful pieces of paper, they end the WPP with confetti. The diversity of the answers is reflected in the different colours. Some of them can explain their answers to the group; others leave it as it is. A representative selection of answers is given below.

'I realise now that, in order to achieve anything, we have to work together. You need to get to know one another and feel free to speak your mind. Today, we did some of that, but I would have liked to get to know the others even better.'



'Today, we stretched the definition of collaboration.'

'This problem is too big and too abstract.'

'Keep focusing on finding new coalitions.'

'Reflecting on a subject in my daily work from other perspectives broadened my horizon.'

Conclusion and disclaimer

This booklet presented the principles and methodology of the Wicked Problems Plaza (WPP) for effective multi-stakeholder dialogue to address wicked problems. The main characteristics of wicked problems were discussed, as well as how the WPP is supposed to deal with them. Nine WPP principles were outlined and related to the physical design of the WPP. Finally, we have tried to share what is going on in the facilitated dialogues within the different spaces of the WPP.

It is important to note that the WPP concept is a work-in-progress. Both on the scientific and on the practical level, we are constantly revising and adapting the formula, based on new insights, feedback from participants and new ideas that emerge within the team. A number of the ideas presented here that relate to the mechanisms underlying the WPP formula are based on reviews of the literature and have not yet been fully tested empirically. In the next few years, we aim to conduct such studies to help further improve the formula and gain more insight into the essence of multiple-stakeholder dialogues.



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Endnotes

For full references, see Bibliography

- ¹ Guillén and Ontiveros, *Global Turning Points*.
- ² For an overview of this argument: see Pattberg and Widerberg, 'Transnational multistakeholder partnerships.'
- ³ A full account and elaboration of the scientific background of the Wicked Problems Plaza is under preparation and will be published by Routledge in the course of 2016–2017.
- ⁴ https://en.wikiquote.org/wiki/Albert_Einstein
- ⁵ https://en.wikiquote.org/wiki/Laurence_J._Peter
- ⁶ Waddock and others, 'The complexity of wicked problems.'
- ⁷ Rittel and Webber, 'Dilemmas in a general theory.'
- ⁸ Xiang, 'Working with wicked problems.'
- ⁹ Grint, 'Wicked problems.'
- ¹⁰ This list is a compilation of the original ten characteristics listed by Rittel and Webber, 'Dilemmas in a general theory,' but with serious modifications on the basis of a close reading of recent literature.
- ¹¹ Rittel and Webber, 'Dilemmas in a general theory,' p.160.
- ¹² Churchman, 'Wicked Problems', p.B-142.
- ¹³ Bardi, 'Wicked problems.'
- ¹⁴ De Haan and de Heer, *Solving Complex Problems*.
- ¹⁵ Eggers and Muoio, *Business Ecosystems*.

- ¹⁶ Paul Polman, in Eggers and Muoio, *Business Ecosystems*.
- ¹⁷ Spencer, 'Turning wicked problems.'
- ¹⁸ Van Tulder, *Partnering Skills*.
- ¹⁹ This approach is a combination of institutional and welfare economics and very often applied in the partnering literature. See Van Tulder with Van der Zwart, *International Business-Society Management* for a basic elaboration and Waddock and others, 'The complexity of wicked problems' for a more applied elaboration relating to leadership challenges.
- ²⁰ See Mintzberg, *Rebalancing Society*.
- ²¹ For a general overview of this literature, see Van Tulder with Van der Zwart, *International Business-Society Management*; for an applied perspective on sustainable development, see Van Tulder and Pfisterer, 'Creating partnering space.'
- ²² See e.g. Hardin, 'The tragedy of the commons.'
- ²³ Levin and others, 'Overcoming the tragedy.'
- ²⁴ Van Tulder, *Education of the Heart*.
- ²⁵ Mencken, 'The divine afflatus', p. 443.
- ²⁶ Rittel and Weber, 'Dilemmas in a general theory,' p.164.
- ²⁷ Waddock, 'More than coping,' p. 128.
- ²⁸ See e.g. Waddock, 'More than coping'; Marshak, 'Reflections on wicked problems'; van Bueren and others, 'Dealing with wicked problems'; Head and Alford, 'Wicked problems.'
- ²⁹ Ackoff. *Redesigning the Future*, p.21.
- ³⁰ Conklin, *Dialogue Mapping*, p.37.
- ³¹ Waddock, 'More than coping,' p.130.
- ³² See for instance Axelrod 'Getting everyone involved'; Weisbord, *Productive Workplaces*.

- ³³ Bunker and Alban, *Large Group Interventions*.
- ³⁴ Worley and others, *Large Group Interventions*.
- ³⁵ Roberts, 'Wicked problems.'
- ³⁶ For an elaboration of this and a link to learning theory, see van Tulder, *Education of the Heart*.
- ³⁷ Stadtler and Probst, 'How broker organizations.'
- ³⁸ The famous Harvard Negotiation Project is the clearest protagonist of this thinking and the book written by Fisher and Ury (*Getting to Yes!*) its clearest elaboration.
- ³⁹ Katz and Pattarini, 'Interest-based negotiation.'
- ⁴⁰ See van Tulder and Kahlen, 'What do partnership brokers?' for an elaboration. For their article, the literature on brokering was reviewed and interviews were conducted with brokers. Some of these interviewed brokers mentioned applying vision-based techniques in their work with partnerships.
- ⁴¹ Kania and Kramer, 'Social impact,' p.39.
- ⁴² Lewis, 'Exploring paradox.'
- ⁴³ https://en.wikiquote.org/wiki/Talk:George_Bernard_Shaw
- ⁴⁴ Synthesising is the process of creating new things by making combinations. The triad, thesis, anti-thesis and synthesis, was part of the Hegelian dialectical method.
- ⁴⁵ van Tulder, *Education of the Heart* rf. to Lewis and Grimes, *Metatriangulation*.
- ⁴⁶ Inspired by van Tulder and Pfisterer, 'Creating partnering space.'
- ⁴⁷ Lewis, 'Exploring paradox.'
- ⁴⁸ For Dutch readers, a nice overview of biases is given by Weusten, *Helder Denken*.
- ⁴⁹ https://en.wikipedia.org/wiki/Advocates_for_Youth
- ⁵⁰ <http://www.thnk.org/2010/08/institute-of-brilliant-failures/>

- ⁵¹ Colours and their effects on moods are documented by many researchers. We used van Marrewijk's Cubrix model (van Marrewijk, *De Cubrix*) as a source of inspiration.
- ⁵² For more information, see van Tulder, *Education of the Heart*.
- ⁵³ For more information, see van Tulder and others, *Managing the Transition*.
- ⁵⁴ https://en.wikiquote.org/wiki/Talk:Albert_Einstein
- ⁵⁵ Nobel Laureate Daniel Kahneman, *Thinking, Fast and Slow*, uses the phrase 'lazy thinking' when referring to the way people reframe questions in order to search for feasible answers. Rarely are these answers.
- ⁵⁶ Ofman, Core Qualities.
- ⁵⁷ Van Tulder, *Education of the Heart*, presents the further logic of this approach – also related to different 'thinking hats.'
- ⁵⁸ Partnership brokering. For more information see <http://www.partnershipbrokers.org/> or Tennyson, *The Brokering Guidebook*.
- ⁵⁹ Appreciative Inquiry. For a course in the Netherlands, see <http://orgpanoptics.nl/ai100leergang/> or read Cooperrider and others, *The Appreciative Inquiry Handbook*.
- ⁶⁰ Art of Hosting; learn more about Art of Hosting via <http://www.artofhosting.org/>

The Partnerships Resource Centre

Postal address

P.O. Box 1738

3000 DR Rotterdam

The Netherlands

Tel. +31 10 408 1126

Email prc@rsm.nl

Visiting address

Mandeville Building

Burgemeester Oudlaan 50

3062 PA Rotterdam,

The Netherlands

www.rsm.nl/prc

**THE PARTNERSHIPS
RESOURCE CENTRE**

ROTTERDAM SCHOOL OF MANAGEMENT
ERASMUS UNIVERSITY



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