TOWARDS A SCIENCE OF IDEAS

AN INQUIRY INTO THE EMERGENCE, EVOLUTION AND EXPANSION OF IDEAS AND THEIR TRANSLATION INTO ACTION

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Introduction

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When did our ancestor primates become 'homo sapiens'? What was the defining moment? This study builds on the hypothesis that 'ideas' have been crucial for the development of humankind over the past 100,000 years. Creativity, imagination, and the ability to explore, probe and prove alternative possibilities were a 'winning formula' in the alleged 'competition' with other living beings. For the next 100 years, this ability to explore alternative possibilities may be crucial for the more sustainable development of humanity, now hopefully in harmony with other living beings.

Ideas rule our world, so it seems. They give rise to countries and their governments. Religions are born from ideas. Arts and sciences thrive on ideas. Big companies organize research and development as well as rapid prototyping processes to develop ideas for new products and new services. Ideas also occur at the level of individual life. Planning activities for today, the upcoming week, or the rest of my life comes down to developing ideas. Shall I or shall I not apply for this job position? Shall we move to another part of the city, or stay here? Without ideas also any form of human culture at large would become impossible - analysing culture primarily comes down to analysing its ideas, and ideas make this culture intelligible.

Reflections on ideas and their nature is often associated with Plato, but in our age, the writings of Thomas Jefferson, the third President of the United States, might have more significance. Jefferson's plea for the free spread of ideas around the globe is especially relevant in the current debate on patent laws:

> (…) it is the action of the thinking power called an idea, which an individual may exclusively possess as long as he keeps it to himself; but the moment it is divulged, it forces itself into the possession of every one, and the receiver cannot dispossess himself of it. Its peculiar character, too,

> is that no one possesses the less, because every other possesses the whole of it. He who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me. That ideas should freely spread from one to another over the globe, for the moral and mutual instruction of man, and improvement of his condition, seems to have been peculiarly and benevolently designed by nature, when she made them, like fire, expansible over all space, without lessening their density in any point, and like the air in which we breathe, move, and have our physical being, incapable of confinement or exclusive appropriation. (Jefferson 2009, 381)

What is an idea, and where do they come from?

The word 'idea' is originally Greek. Plato coined it to designate eternal entities supposedly at the root of the visible world. Cognate with the Greek verb for 'seeing', Platonic 'ideas' remarkably refer to entities which cannot be seen, at least not with the naked eye. If 'seeing' applies at all, it will instead come down to reaching profound 'insight'. In Plato, approaching the 'ideas' corresponds to advancing insight or in-depth knowledge. Such insight is concomitant with abandoning the visible world of change, history, particularity etc. As for Plato, the concept of *idea* (or *eidos*, in Aristotle) started its march through the history of Western thinking. Its meaning changed throughout this history. Our current use of 'idea' primarily draws on the Enlightenment (an idea as 'a concept in the mind') and the Romantic period, where 'ideas' were increasingly seen as *individual* or *particular* insights. Yet many great thinkers had their own concept of 'idea', which makes any discourse about ideas today confusing as well as fascinating.

The meaning of the words: 'idea', 'discovery', 'invention' and 'innovation' may be almost similar in daily speech, but it is good to mark the differences. About ideas we come to speak later. By 'discovery' we mean recognizing something *that already exists* for the first time, that nobody has found before. Discoveries involve gaining knowledge about something that was previously unknown or unseen. So electricity was a *discovery,* i.e. recognition of an already existing phenomenon. We understand 'invention' as the outcome of the act of creating something new with one's own ideas. Most of the time it is treated as referring to a new technical thing, but it can also refer to a musical composition, or any other product of the imagination. The light bulb was an *invention* – it was not an already existing phenomenon. Discoveries and inventions are both specific types of the genus 'ideas'.

By 'innovation' we mean the practical implementation of idea that results in the introduction of new goods or services or significant improvement in existing ones. One can distinguish between creativity on the one hand as the

ability to produce novel and useful ideas, and innovation, on the other hand, as the successful implementation of creative ideas within an organization or within society in general.

This book is an attempt to summarize the different views and conceptions of ideas from various disciplinary perspectives. Rather than taking the notion of 'ideas' for granted and reflecting on their generation or utilization, this book aims to improve our understanding of ideas as ideas. In doing so, it wants to bring together perspectives from various disciplines without claiming a final view or definition. And yet, a study of the variety of perspectives on ideas attempts to show some general patterns which are insightful.

The following scheme gives a general, albeit vastly simplified, outline of the notion of 'idea' and its history (Table i.1).

Table i.1. Four perspectives on ideas.

	Broad	Novel
Individual	A. Concept in the mind, daily thoughts, individual ideas (Locke).	B. New solutions, relatively new concepts, seen as a solution for a particular problem.
Collective	C. Eternal ideas, innate, abstract, archetypical collective conceptions (Plato).	D. Potentiality, the adjacent possible, novel ideas arise from a semi-collective field where one can 'tune in'.

We have just mentioned the Platonic conception of ideas (C) and the definition of ideas as concepts in individual mind (A). More recent accounts often define ideas in terms of their novelty. Ideas are nowadays seen as new solutions aiming to solve a particular problem. An 'idea' is a solution to a puzzle, e.g., the puzzle of unpredictable gravity, unexpected psychological reactions, or problematic behaviour of financial markets (see quadrant B). At the same time, there are also views claiming that ideas arise from a semi-collective field of potentiality, the adjacent possible (D). New inventions or discoveries often occur around the same time at different places. The invention of book print is one of the famous examples of this so-called synchronicity. People may say afterwards: 'The time was right for it'.

Therefore, a discussion of the nature of ideas – "what is an idea?" – is closely related to the question about the incipience of ideas: "Where do ideas come from?". As a matter of fact, the word 'incipience' is cognate with the Latin *capere*, which means 'to take'. The incipience of an idea may either be the moment when an idea *is* seized by, or *seizes*, a subject of agency, since it is not clear what exactly happens at its moment of incipience. Ideas rise, but where? Inside or outside the mind of those coming up with them? Are ideas found, founded, or invented?

Big ideas

All scientific disciplines have their iconic ideas and discoveries. Thomas Kuhn introduced the term 'paradigm shift' for the solution of mysterious phenomena. Paradigm shifts, he said, tend to be realised by individuals or even loners who deviate from common 'knowledge': Keppler, Newton, Einstein, Heisenberg, etc. In the humanities, interpreting cultural artefacts may follow general, epochal standards; breakthroughs are only reached by a radical renewal of such standards. Romantic hermeneutics, for example, started exploring the creator's inner life instead of merely applying the old rules of allegory or typology. To cite another example, Marx was one of the first to study the economy as a result of a historical evolution, human belief systems and societal patterns. C.G. Jung assumed the existence of a collective unconscious. Next to the natural sciences and the humanities, we can distinguish applied sciences: applied physics, applied mathematics, applied economics; architectural science; engineering (e.g., automotive, biological, biochemical, chemical); business administration, etc. Actually, in the applied sciences, especially today, we see a turn toward *socialisation* of idea generation: it is increasingly seen as a group process rather than as an individual achievement. Insofar as applied sciences take a goal for granted (e.g., maximisation of gain, creation of reliable buildings and infrastructure, production of antidotes, etc.), one can only expect that *any* form of idea generation will be promoted by individuals or by groups or even networks. Applied sciences take an essential place in this book since their practices fuels any form of reflection on ideas, their nature, and generation conditions.

In addition to the above-mentioned 'big ideas,' scientific insights grow day by day through the vast multitude of ideas about new hypotheses, new methods, or connections. Some scholars state that most discoveries and inventions are now made at universities in an environment where information and ideas flow relatively freely. Steve Johnson collected 200 'big ideas' – discoveries and inventions – from the last centuries. In most of the cases, these big ideas appeared to be a co-production of several researchers instead of being a result of a heroic individual. And in most cases, 'making money' and capitalizing the invention was not a leading motive in the development of the idea (Johnson 2010, 218-231). This is in line with the research of Mariana Mazzucato who concluded on the basis of historical evidence that innovation is an outcome of a massive collective effort. Major breakthrough innovations are often based on public funding by governments or universities. At the same time, it is undeniable that major innovations are also developed in the research and development departments of big companies like Google, Unilever, IBM or Siemens and in numerous starting companies on solar energy, biometrics or artificial intelligence.

In their chapters, some authors touch on the moral aspect of ideas. An underlying assumption of the book seems to be that ideas are inherently good things and serve human progress. Some of the definitions as formulated by authors explicitly contain such a moral dimension. But what about 'bad ideas'? What about ideas that are wrong but have been prominent, widely adopted, and dangerous or ruinous? Think of eugenics, slavery, imperialism, capital punishment, to mention only a few. It is important to recognize the moral dimension of ideas. An idea is not a neutral fact, it is often inherently a normative answer to a certain problem. There are several ideas on how to deal with mass migration, varying from opening western countries and welcoming immigrants to closing the borders and implementing push-backs. These are competing ideas with underlying moral choices. And sometimes it is not so clear if an idea can be qualified as a moral good or bad idea. When the guillotine was invented, this was at least partly done with humanitarian intentions, to execute the death penalty in a fast and relatively painless way. So was the guillotine a good or a bad idea? Reflecting on the moral dimension is an important task in the further development of a science of ideas.

About this book

This inchoate 'brainstorm' in the introduction of this book already highlights some highly relevant issues that will be discussed. It will soon appear that the authors use various definitions as to what an idea is. This partly transforms the quest of this book into a predicament. And yet, pursuing this quest did not necessarily lead the authors astray. Whatever the 'essence' of an idea (is there any?), ideas work. They are operative, and that is what inspired the research of every single author. Could it be that exploring the effects, the efficacy, or efficiency of ideas contributes to their essence? Could it be that the mystery of the nature of ideas is unravelled in proportion to highlighting what they do or can do?

Granted, even without writing a book on them, ideas will incessantly come up. They have always done so and probably will continue to do so in the future. Where problems occur, ideas show up. Ideas are subsequent to problems, albeit that this subsequence is not linear and untrammelled. That does not mean that an idea is *always* a reaction to a problem. There are also ideas and inventions that arise and then go looking for problems to solve, or applications that might turn into a profit. A famous example of 'an idea without a problem' is the mobile phone. In the early nineties, there were lots of interviews with people about the question if they wanted a mobile phone. The general reaction was: 'No, why should I, I don't need one, we already have a phone at home and there are lots of public phone boots'. Twenty years later, mobile phones are ubiquitous.

We argue that studying into the alleged 'nature' of ideas can be illuminating at least in the following sense:

- Studying ideas from various perspectives and disciplines will contribute to developing and spreading theoretical insights on ideas.
- Studying the emergence, evolution and expansion of ideas will deliver more empirical insights and data on ideas. It may lead to increasing practical insights about how ideas work and the circumstances under which they thrive and accelerate the answers they are said to bring.
- Studying ideas may enhance awareness of *context*; ideas can highlight the interrelatedness of objects and the role of human interaction in the creation and diffusion of ideas. Studying ideas will give more insight in how they become accepted by peers or clients, or the general public.
- Studying ideas may be beneficial for scholars and students as a study of ideas and their nature could brighten their minds and open it up for new possibilities.

This book is destined to at least three categories of readers who are interested in 'ideas': 1) practitioners, i.e., those who operate in between science and practice and translate ideas into new concepts or products; 2) specialists in the variety of disciplinary fields like innovation studies, organization studies, management, sociology, psychology who do research on ideas and innovation, or are interested in ideas as such; 3) epistemologists or philosophers who are involved in the study of the history of ideas. At this moment, it is mainly a kaleidoscopic volume with perspectives from various disciplines and individual research snapshots. At the same time, it has the potential – or at least the ambition – to develop in time into a textbook or handbook on a science of ideas.

About the chapters

While ideas have been significant for the progress of humanity, until now, there has hardly been any focus on ideas as such. During the last centuries, some attempts have been made to create a theory of ideas based on a different perspective. Guido Enthoven summarizes these efforts in his chapter 'Towards a science of ideas'. Destutt de Tracy (1754-1836) was the first to coin the term 'idéologie' as an open 'science of ideas'. His theory of ideology focuses on four human faculties as determining factors for the development of ideas. The TRIZ theory, developed by Altshuller (1926-1998), states that every invention is based on one or more of fourty principles. Finally, Patrick Gunkel (1947-2017) argues in his work on 'ideonomy' that the study of ideas is a 'mother discipline' for all other sciences since each discipline has to develop and refine ideas in its own field of study. The sequence of chapters of this book is based on a tentative research plan to establish a science of ideas. In this research agenda, the definition, origin and

classification of ideas will be investigated first, followed by chapters on the evolution and development of ideas. Lastly, the acceptance and legitimacy and the realization and valorization of ideas will be discussed in this book.

Before developing a science of ideas it is important to study renowned philosophers 'works. According to Plato, ideas exist independently from the thinking subject. An idea is an eternal essence in a plurality of entities. Descartes searched for a foundation of the possibility of certainty. He was aware that our minds and senses could provide us with false conceptions and perceptions. Therefore, Descartes was constantly questioning thoughts for their certainty. He differentiated ideas into three categories: factitious, adventitious and innate. Locke, on the other hand, found that ideas come exclusively from experience. He stated that an idea is not a physical object but a representation of objects in the mind. Berkeley argued that objects are immaterial. They are mere ideas or collections of ideas in our minds. Hence, ideas are our understanding of what reality is. In their chapter 'Aspects of ideas' Kathrin Bouvot and Gianluigi Segalerba conclude that these interpretations differ based on the environment one lives in. Each interpretation of the concept of 'idea' draws on the available knowledge at the time and one's beliefs. As a result, the definition and interpretation of what an idea is alter over time.

In recent decades, the definitions and interpretations given to ideas have become more solution-oriented. In his chapter, 'What is an idea? Between synchronicity and opacity', Rico Sneller states that an idea can be seen as a concept, a thought or an act to overcome an impasse. From this definition, generating ideas is a way for the world to move forward. While generating ideas, the generator's structure of subjectivity is affected, enabling them to look forward to the future, past a given impasse. As an idea allows for people to 'foresee' a future past the current predicament, ideas and idea-generation require some preconditions. Firstly, ideas should be viewed as configurations that comprise both subject and object. Secondly, idea-generators should have a vast understanding of current developments in the world, which is powered by interaction. Lastly, there should be a certain extent of opacity in ideas. This opacity is the result of an idea generator's own inscrutable views on things.

As the interpretation of ideas is subject to multiple explanations, so is the view on where ideas come from. In his chapter 'Plato's hunt for an idea: Socratic dialogue and idea formation,' Jos Kessels states that looking at ideas from a Platonic perspective, they translate themselves into a concept that exists in the mind. An idea is an insight that leads to an outlook. As a result, an idea brings order to thoughts. It causes people to see many different things as a whole. On this Platonic view, ideas can only be created if they are hunted for. This hunting for ideas is done via the Socratic dialogue, in which dialogue and critical thinking are used to draw out ideas and underlying presuppositions. Since

having a dialogue is necessary for the hunting process, an idea is created by interaction and thinking. It is something that can be created by a group. Kessels states that hunting for ideas individually is virtually impossible, as dialogue must be constantly triggered to think further.

The Platonic view on ideas is seen as a traditional perspective on ideas. From this angle, ideas are conceptual entities with boundaries and a clearly defined essence. In his chapter, 'What are ideas made of? On ideas as socio-material, relational and dynamic beings,' Seweryn Rudnicki states that there is another perspective from which to approach ideas can be seen: 'translation'. This perspective helps redefine ideas. From this view, an idea is not a concept nor a mental entity. Instead, it appears in the course of a particular practice and is never entirely isolated from it. Ideas should be seen as relational concepts. The translation perspective has a different take on the role that tools and technologies play in idea generation. From the traditional perspective, tools and technologies are merely used to simplify the ideation process. The translation perspective sees tools and technologies as a medium to constitute ideas and endow them with different action possibilities. Using this approach, ideas can equally be seen as socio-material objects. From the translation perspective, there is no starting- or endpoint. Instead, there is only the process of constituting and re-constituting through a series of translations, which is an infinite process.

Seeing idea generation as an infinite process helps when defining ideas as a solution to overcome a problem. According to Laurens Landeweerd in his chapter 'Ideas in science and art: Creativity and Imagination,' a critical part of studying ideas is understanding the context in which ideas emerge. They are directed at something, and as such, they are intentional. Therefore, a study of ideas without their context and focus remains empty. Meanwhile, any definition of an idea also depends on its context. In science, an idea is associated with correctness, while in the field of art, it is related to novelty and creativity. Yet Landeweerd states that for overcoming impasses, creativity and imagination are crucial in both the scientific context and the field of the arts. Creativity helps a person see beyond a given problem and thus, plays an integral part in both science and arts.

In his chapter 'Ideas as interactors and replicators,' Łukasz Jonak says that the development of ideas can be seen as a combination of Tarde's replication approach and Kauffman's interaction approach to society. In Tarde's approach, imitation is a process in which inventions, or ideas, are transmitted between like-minded people. As such, the more people appreciate an idea, the more it is transmitted or replicated. Hence, the faster it travels through a social environment. Due to this, social relationships develop and the social world is formed. Kauffman's interaction approach views ideas as if they were autocatalytic sets of chemical compounds. From this perspective, ideas result from the interaction of old ideas,

catalysed by the existence of other innovations, which can either lead to the reproduction of ideas or the creation of more complex new ideas.

Throughout history, humans have been capable of creating 'imaginary realities' (to use Harrari's expression) with the intentions to overcome impasses and find solutions to problems. As Han van der Meer and Willemijn Brouwer state in their chapter 'A short history of deliberate creativity' idea generation may be perceived as an intentionally shaped process leading to the emergence of new ideas. It is known as 'deliberate creativity' and the authors give a brief yet comprehensive account of multiple approaches that have been developed within this field over recent decades.

Idea generation, while in many aspects a deliberate process, has also been a subject of many influences. Among the factors that impact creativity as the ability to come up with new ideas, the cultural ones play a great role. According to Seweryn Rudnicki and Piotr Prokopowicz in their chapter 'Cultures and innovations: How Cultural Factors Affect the Emergence of Ideas,' culture is one such factor that can be used to predict the creative 'output' produced within a society or an organisation. For instance, using Hofstede's cultural dimensions model, the level of innovation in a country can be predicted based on the national culture. Likewise, the organizational culture can be used to predict the level of creativity within an organization. At the same time, creativity has become an essential aspect of contemporary capitalism, as companies' growth and survival depend on finding new ideas for products, services, and improvements. Consequently, while creativity has previously been seen as divinity or individual genius, with the help of this shift in capitalism, it is now rather seen as a part of organizational life, something that can be managed, regulated and stimulated.

Yet culture is only one of the factors that may influence creativity. In his chapter, 'Where are ideas created? From creative spaces to landscapes of creation', Jacek Gądecki explores the role of spatial factors. On the office level, managers are looking for ways to maximise productivity and creativity in the office space and it is believed as possible by altering the layout of the office to increase interaction and by establishing different kinds of creative spaces. On a higher level, urban planners are seeking ways to increase creativity in innovation districts. On this level, creativity can be enhanced by grouping different businesses together to reduce space between them. In these innovation districts, space is reduced by physically placing companies near each other, allowing firms to interact easily, leading to landscapes of innovation. Corporations, freelancers and city planners follow this theory to maximize innovation between firms.

In his chapter 'Idea creation in a post-pandemic world,' Łukasz Afeltowicz looks at how the recent COVID pandemic forced us to work and think differently.

Working remotely has caused lower interaction levels. This raises the question as to whether traditional teamwork is still effective when conducted virtually. The answer might lay in prediction markets, where an alternative to the teamwork we have known for decades has been used for a long time. These markets leverage the wisdom of crowds to predict, for instance, election results and geopolitical events. The wisdom of crowds leverages the knowledge of individuals to come to the best possible outcomes. This might be useful for idea generation in a post-pandemic world.

In the past decades, a new practice to evoke ideas has proceeded. In his chapter 'Towards a Parapsychic Generation of Ideas,' Alexandre Zavlavsky argues that parapsychism can be used to generate ideas. When looked at from a Platonic perspective, parapsychism is not rational. That is because ideas are based on knowledge. Parapsychism, or divination as Plato called it, has been qualified as irrational by Plato since being a non-acknowledged true opinion. Therefore, it is beyond justification and, consequently, irrational. Interest in parapsychism resurrected in the late nineteenth century. Genuine parapsychic people were subject to testing in séances and laboratories. In the late twentieth century, a new study of conscientiology has shown that parapsychism can be consciously experienced. As a result, the main argument disqualifying it as irrational falls apart. Furthermore, practitioners of conscientiology learn to sharpen their parapsychic perceptions, making the experiences sensible and intelligible. Parapsychic idea generation can be seen as a new way to enrich generation of ideas.

Now that we understand more about the definition of ideas and how ideas are developed, it is possible to look at ideas 'underlying patterns and tools. When ideas are defined as innovative solutions to problems, the underlying mechanisms can be explored. Altshuller's TRIZ theory stated that all innovations could be reduced to several principles, yet this theory focuses on product innovation. This raises the question as to whether social innovations have similar underlying principles as well. In his chapter 'How do ideas change the world? Patterns in Social Innovation,' Guido Enthoven states that it is indeed possible to identify the underlying mechanisms of social innovations. For example, the underlying mechanism for the internet is 'connecting', the tool for the metric system is 'standardizing', and the tool for human rights is 'securing'. These mechanisms are not singular; social innovations can have multiple underlying mechanisms. The more underlying mechanisms an innovation has, the bigger the potential for the innovation.

Besides investigating the underlying mechanisms, it is possible to analyse the distribution patterns of ideas. According to Birgit Helene Jevnaker and Johan Olaisen, in their chapter 'Travelling leadership ideas as a business virus infection,' the spread of ideas in the corporate world can be viewed from two distinct

perspectives. Firstly, the travelling idea. This viewpoint states that virtually identical management ideas crop up globally, more or less simultaneously in similar organizations. In this theory, the distribution of ideas is conceived as analogical to the spread of viruses and multiple analytical benefits of this metaphor are explored, including the explanation of the support or resistance to new ideas, or the way in which the change the underlying mechanism of an organisation.

The influence of the law on ideas is investigated by Rudi Holzhauer and Sander Gellaerts in their chapter 'Ideas and the Law'. When looking at ideas from a legal perspective, it is very difficult to handle an idea as an abstract entity – the law needs a tangible reality to govern. Ideas are often intangible and abstract, meaning that they are 'free' from a legal perspective. However, there are certain areas where the law can intervene with ideas. The freedom of speech and the freedom to hold, pursue and express ideas are considered fundamental human rights. It is the expression of these ideas, however, where the law can intervene. For example, in most countries, a call to use violence is prohibited, and some countries have severe penalties on blasphemy. A second area where the law can intervene is in the protection of ideas. In practice, this is considered intellectual property. In this area, IP provides certain thresholds which should be met before an idea can be legally protected. In both regions, the law constantly balances interests: the representation, or creator of the idea, and the society, or the general interest. This balancing is a dynamic process, as can be seen in the recent debate on IP on vaccines against corona, whereby the research partly was funded by public money.

A final step in developing a science of ideas is comprehending how ideas are realized and valorized. In her chapter 'The impact of ideas on bodily processes. Lessons from mantra techniques', Tatjana Kochetkova looks at the relationship between ideas and reality from a more religious perspective. According to mantra techniques, the idea is only a concept in the human mind. It reflects a mental image or a concept. According to the dualistic enlightenment paradigm, there is no direct connection between the idea as a concept in the mind and the external reality. Therefore, a mantra is seen as superstition. However, by using mantra techniques, it is possible to use visualization of sacred images and the recitation of mantras to participate in the divine creative power and impact external reality or oneself. By using a mantra, ideas are turned from representations of reality into tools to create, destroy or alter reality. Thus, ideas are the starting point of changing reality.

Looking at the realization of ideas from a different perspective, new materialism can be used to help realize and evaluate ideas, as stated by Jurgen van der Heijden in his chapter 'New materialism and climate change adaptation'. New-materialism is a modern field of inquiry in which it is critical for ideas to be based on the

integration of well-known phenomena. New materialism combines known phenomena, e.g. agriculture and solar panels, to create new phenomena, e.g. agrivoltaics. To do so, it is crucial to interact with each other constantly. New materialism aims to reach a point of intra-action in which phenomena function in multiple ways. For instance, a lake can be used as a recreational area, water purification area, and natural park. A critical part of this is understanding how multiple ideas can be realized in a relatively simple solution or by creating various purposes for products and waste. The development of ideas that comply with this view is crucial in the valorization process. As climate change adaptation is becoming more and more important, the practice of intra-action and integration when developing new ideas and realities is increasing importance in the realization process of ideas.

Finally, why a 'science' of ideas? Why is it urgent to write a book about ideas? What makes it even necessary? There are several books and publications about 'the history of ideas', and considerable literature about creativity and idea generation in psychology and management sciences. Relatively few are those attempts that try to focus on ideas as such; we name and honour the overviews of and reflections of authors like Russell, Whitehead, Lovelock, Boas, Durant, Johnson and Watson. But until now there are few empirical data, there's not a grounded theory, nor a shared body of knowledge.

In our present day society there seems to be no lack of ideas. Ideas are everywhere and new developments take place almost autonomously. But this might be part of the problem. The process of idea generation and transformation in concrete practices seems a huge widespread random process, mainly driven by market forces. If we continue this way, we'll be probably be confronted with increasing dynamics, increasing instabilities and extremes.

Our ambition in this book is to try to offer some conceptual foundations and inspirations for thinking about ideas as separate objects of study and to do it in a way rooted not in common sense, general wisdom, artistic expression, or journalism, but rather on the existing studies and perspectives in different scientific disciplines. We aimed for developing and refining concepts, finding theoretical angles, summarizing or questioning the existing scholarship, gathering empirical data – all of which may be treated as the essential elements of scientific endeavour. We are of the contention that 'science of ideas' has its own, distinct object of study that may be examined with the scientific (however broadly understood) apparatus. A scientific approach can lead to more empirical data, more theoretical insights, the development of specific methods and the emergence of dedicated learning communities. It can shed special searchlights on ideas, their origin, pathways and destinations.

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Biographies

Łukasz Afeltowicz (AGH University of Science and Technology) is a philosophically trained social researcher. He obtained his PhD at the Nicolaus Copernicus University in Toruń in the area of philosophy of science. There he also defended his habilitation in sociology. For years, he was interested in science and technology studies and cognitive sciences. His latest research project focused on emerging infectious diseases. He is currently trying to combine STS with participatory action research and environmental sociology. Currently associated with AGH University of Science and Technology, Kraków.

Han Bakker (1958) studied anthropology and art and was a teacher, researcher and advisor on creative thinking. He wrote "Creatief Denken" (1998), various articles and developed creative thinking tools. His PhD "Idea management: unravelling creative processes in three professional organizations" (2010) was an attempt to describe and understand the relationships between creative processes and organizational culture. Currently, he is working as an independent artist and organized two exhibitions, "Panoplia" (2018) and "Zarathustra in the Netherlands and beyond" (2020). He was the founder of Bureau DenkWerk and Yew Magazeeen.

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Willemijn Brouwer (1982) studied Industrial Design Engineering at the Delft University of Technology and holds a Master's degree in Strategic Product Design. Her special interest and expertise are in creativity and the organization of creativity. She facilitated many creative processes as an independent consultant. She lectures the theory of creativity at Industrial Design Engineering at Delft University of Technology.

Guido Enthoven (1962) graduated in Law at the University of Leiden. His PhD was an investigation on information between government and parliament (University of Tilburg, 2011). He is the author of around 100 articles about interaction, innovation, democracy and information in journals, magazines and newspapers. Guido Enthoven started together with friends in 1991 the National Ideas Line. Shortly thereafter, he founded the Institute for Social Innovation (IMI). As the director of IMI he advises dozens of ministries and municipalities on dialogues, participation and innovation. At IFKAD 2018, he held a keynote 'Towards a Science of Ideas', and he wrote a (Dutch) historical novel on this topic.

Jacek Gądecki (AGH University of Science and Technology) is a sociologist and anthropologist, particularly interested in the ethnography of office spaces, studies of innovation districts and smart cities.

Sander Gellaerts studied law at Erasmus University in Rotterdam, where he worked as a lecturer and researcher in the field of intellectual property rights. He received his doctorate from the Tilburg Institute for Law, Technology, and Society. He has shared his ideas in many forms: through presentations, as a course instructor, as an author of several textbooks on IP law, IT law, as e-learning and IT consultant, as a creator of informational websites, virtual companies and as a business coach. The virtual company Sanderteg brings many of his research and teaching interests together. The Dutch textbook "Van idee naar IE" (From Idea to IP) and "Zorgvuldig ICT gebruik" (Duty of care when using ICT) might give you an idea.

Jurgen van der Heijden spent the first trimester of his working life at the law faculty of the University of Amsterdam, and the second at AT Osborne, a private consultancy active in spatial development. At the start of his third trimester, Jurgen is director of a new initiative from and for communities of active citizens in the Netherlands. Together they develop an academy for community power, the Ella Vogelaar Academy. His writing regards integration as a peaceful alternative to competition, and grassroots initiatives as good examples of integration.

Rudi Holzhauer was a senior law lecturer at the Erasmus University Rotterdam for more than 30 years, specializing in IP. Some ten years, he was a deputy judge in the "patent chamber" of the District Court in The Hague. Doctorate in law and economics (1997). A Cambridge LLM and a Dutch master's degree in philosophy. Rudi Holzhauer developed an interest in intellectual property from economic analyses. Focusing on IP rationales and welfare perspectives. It made him quite critical. The virtual company Sanderteg brings many of his IP research and teaching interests together. The Dutch textbook "Van idee naar IE" (From Idea to IP) says (and explains) it all.

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Raoul Jorissen earned his Master's degree in Strategic Management from the Rotterdam School of Management, Erasmus University Rotterdam, where he previously earned a Bachelor's degree in Business Administration. For his bachelor thesis, he investigated the degree to which economies of agglomeration influence market attractiveness for corporate locations. For his master thesis, he researched climate change adaptation strategies used in the corporate world.

Jos Kessels (1948) studied law and philosophy and initially worked as a musician, journalist and philosophy teacher. After a dissertation on the Socratic method, he started working as a philosopher in organisations and institutions until he said goodbye to university altogether. He has led dialogues and training with managers in different sectors of society for over 30 years: healthcare, government, police, education, banking. In addition, he wrote books and specialized in the theory of ideas and the practice of the Socratic inquiry. Over time he developed several philosophical tools, such as the hourglass model, the poetic argument, the concept of free space and the Eidoskoop or glass bead game.

Dr **Tatjana Kochetkova** completed her PhD in philosophical anthropology at Nijmegen University, Netherlands. Her dissertation was dedicated to the dynamics of the human condition in Vladimir Solovyov, as compared to the human condition as viewed by Friedrich Nietzsche, Martin Heidegger, and Ludwig Binswanger. She is the author of several books and a series of articles on applied ethics, and the philosophy of man and technology. Recently, she published, together with Rico Sneller and Nelleke Canters, a book *The Plurality of the Arts of Living* (Garant, Belgium, 2018). Her research is focusing on philosophical anthropology, environmental philosophy, and spirituality. She focuses on a new vision of the human being as a result of the technological convergence (NBIC technologies). This includes the current transformation of the human condition and its implications.

Laurens Landeweerd (1976) studied philosophy at the University of Amsterdam and Culture and Science at Maastricht University. Between 2002 and 2008, he wrote his PhD thesis on personal identity, whilst working on several European projects. Between 2007 and 2014, he worked for TUDelft's section of Biotechnology and Society. Since 2010 he has been a lecturer and researcher at Radboud University's Institute for Science in Society. Since 2016, he also works for the interdisciplinary bachelor iArts at HogeSchool Zuyd's Faculty of Art. Landeweerd uses an applied metaphysics approach to study the underlying ontological suppositions in both science and art.

Han van der Meer (1952) was educated as Chemical Engineer and Master of Business Engineering. In 1979 he founded Van der Meer & van Tilburg, management consultants for innovation and growth, specialised in Smaller and Medium-Sized Companies and Start-Ups. In 1985 he started as a part-time professor of innovation management at the University of Twente, shifting in 2006 to the University of Delft. Since 2007 Han is professor and chair in innovative entrepreneurship at Saxion University for applied sciences. He wrote over eighty articles on (open) innovation and creativity and nine books on the same topics.

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Gianluigi Segalerba was born in Genoa, Italy, on 24 June 1967. He graduated in Philosophy at the University of Pisa in 1991 and obtained his PhD in Philosophy at the University of Pisa in 1998. He was visiting scholar at the Universities of Tübingen, of Berne, of Vienna. He taught at the Institute of Philosophy of the University of Vienna. His first publication was *Note su Ousia* (Pisa 2001). He was then co-editor of the volume *Substantia – Sic et Non* (Frankfurt on the Main 2008), and he is the author of the book *Semantik und Ontologie: Drei Studien zu Aristoteles* (Berne 2013). Gianluigi Segalerba currently lives and works in Vienna.

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Alexandre Zaslavsky has a PhD in Education (UFRGS) and teaches Philosophy at the Federal Institute of Paraná (IFPR), Brazil. He has been studying conscientiology for more than two decades, with a special interest in its epistemological and methodological foundations. He is currently chief editor of the journal Interparadigmas (www.interparadigmas.org.br), of which he was also a founder.

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