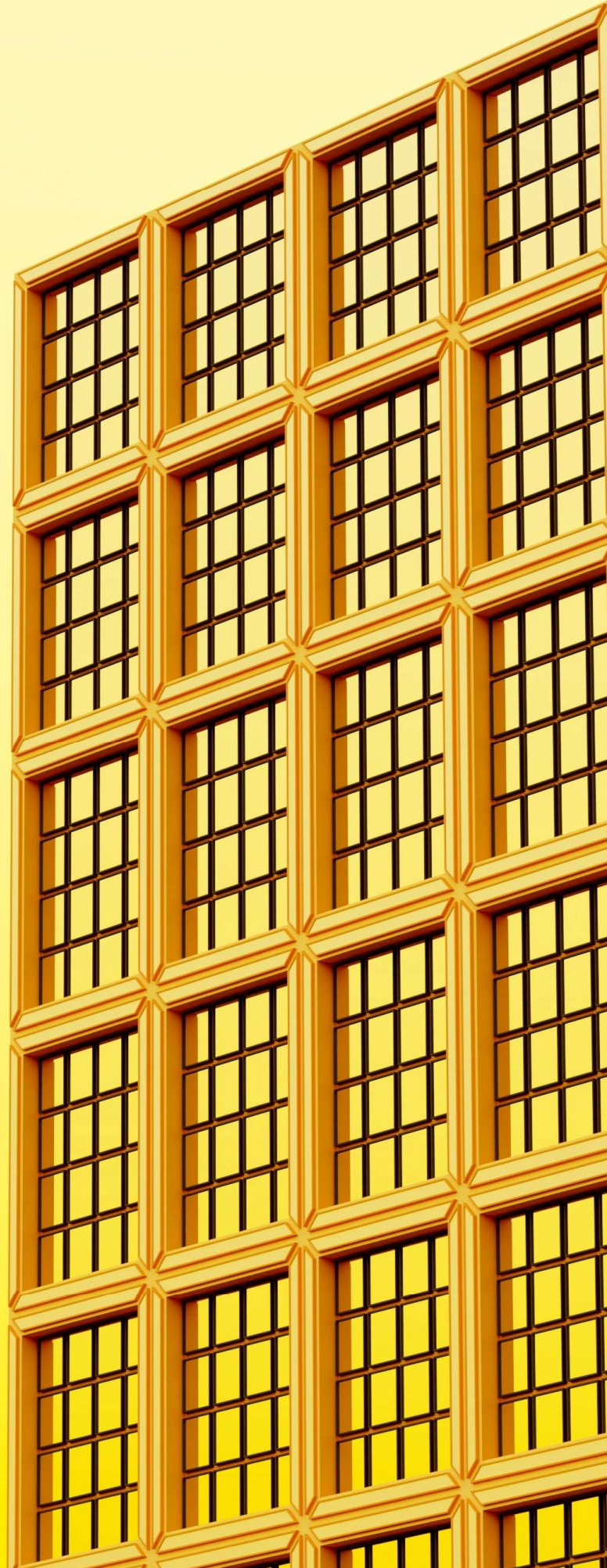


{Philosophers in data}

by Wouter Trappers



What are the parallels between philosophy and data?

Philosophy and data seem two completely disparate fields. Philosophy works with all possible types of input, while in analytics we are limited to the data relevant to our business.

A first similarity is **the kind of questions they try to answer.**

- Both fields have the goal of saying something about **what exists** in the world and the way we can **acquire knowledge** about this. In technical terms this means both are dealing with *ontology* and *epistemology*.
- Both fields must deal with the question how we could use this knowledge about our world or business to craft **better lives** for ourselves and each other. In other words, answering *ethical* questions.
- Both fields use certain **argumentation strategies** to make our points clear **and the way we present** our findings can enhance or detract how persuasive our arguments come across. Both use *logic* and *aesthetics* to achieve their goal.

Looking for links between two vastly different fields of study can teach you one thing or another and entice some self-reflection.

Are you self-reflective?

Happy reading!

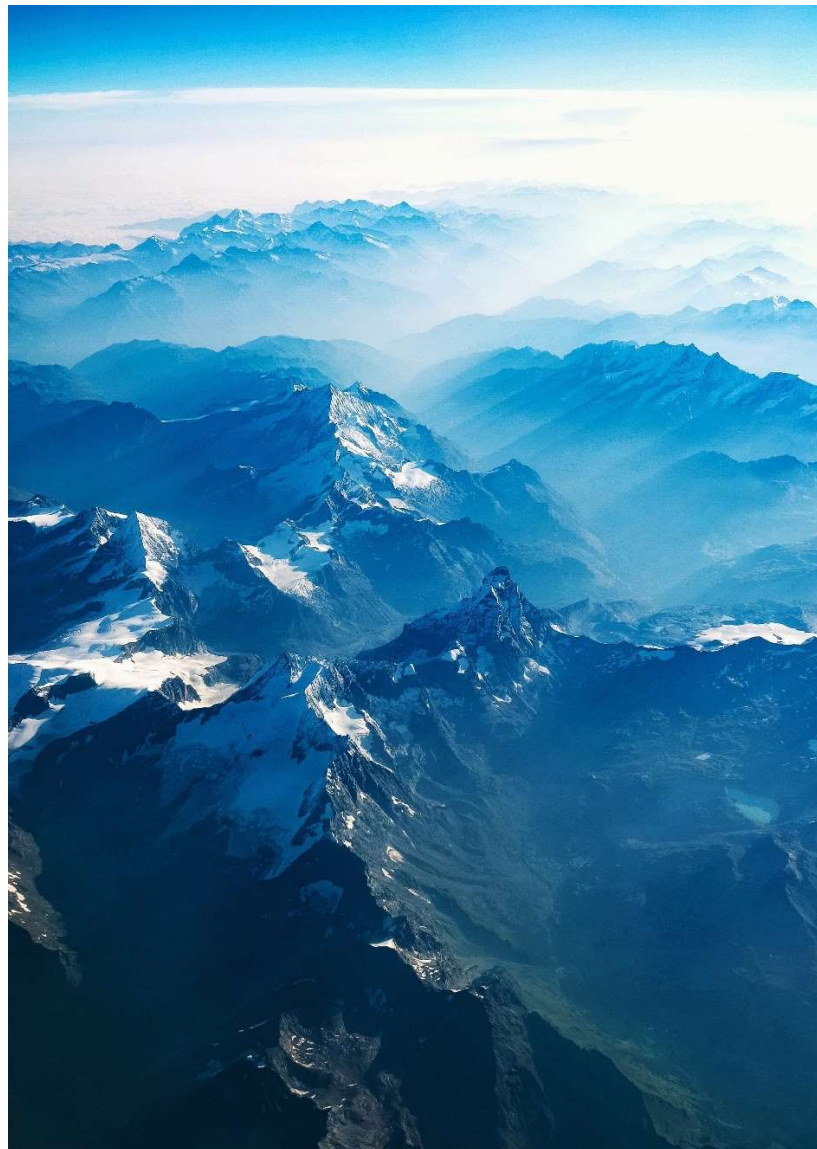
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Philosophers in data

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Plato vs Aristoteles - Top-down vs bottom-up approach

We can imagine Plato and Aristotle discussing the ideal architecture for their data infrastructure.

Plato proclaims the existence of an ideal world behind our perception, where we recognize things because our soul remembers them, coming from this ideal world itself.

Aristotle claims we recognize something because we derive common traits in different but similar objects in the world. A top-down vs a bottom-up approach to cognition that we can apply to data projects as well.

Top-down means senior management deciding on a strategy and implementing processes, systems and KPI's to follow up on this strategy. Advantage is to have a clear direction and to go fast, disadvantage is that change is difficult and without proper explanation can entice a lot of resistance in the organization.

Bottom-up means running workshops with people on the front lines of the business. With the people servicing the customers directly and asking for their input to the strategy and relevant KPI's. Advantage is to create buy-in, disadvantage is that this takes time, and it might prove difficult to find consensus between the different people involved in the workshops to land on a clear overarching strategy.

In implementing a data strategy, we need the right **balance** between the two approaches to try and have the advantages of both, mitigating the disadvantages as much as possible.

What are the advantages and disadvantages of top-down and bottom-up approaches that you have seen in your organization?

If you had to choose one, would you choose bottom-up or top-down?



Immanuel Kant - The observer is central

When looking at the data field with philosophy in mind, there are few insights that can be projected from philosophy to data. For example, when we look at Immanuel Kant's theory of knowledge.

Kant had the insight to not start from the objects in the world to examine how an observer gains knowledge about them, but the other way around.

He started from the way our human perception works and thus defines the way we see the world. The way our brain and senses work determine what colors we see, what sounds we hear, and even that we perceive things as having a certain position at a certain point in time.

In data this translates to the way we interpret data in different ways depending on our position and role in an organization - certainly in a political organization. If we loosely extrapolate from Kant's work and look a bit broader than just business, it also means we perceive the world differently if we have different gender or socio-economic background.

This makes you think about your own background and biases that always play a role in certain decisions, even so - or probably even more - if we are not aware of it.

What biases are you subject to?

Martin Heidegger – Learn the language

Heidegger had a very specific jargon in his philosophy, introducing a lot of neologisms like Dasein and defining words to have a very specific meaning Uneigentlichkeit. By doing this Heidegger stresses the fact there has been too little attention in philosophy for certain topics (Sein), and at the same time our everyday language does not suffice to get close enough to the actual core of things.

In business this translates in learning to speak the language of the different people you talk to. This might differ significantly between the C-suite or middle management, between sales or IT, or between a developer and a project manager. The better you understand their jargon and background, the better you can explain things and get on the same page when decisions must be taken.

Just like a building or a software solution, a philosophical argument also has an architecture. You start by laying strong foundations to be able to solve the challenge you are facing. In a building these are the concrete pillars in the ground, in software this is the selection and setup of infrastructure, language and frameworks and in philosophy we have key concepts and axioms that you take as starting point.

Then you need different rooms in your building with different properties to provide the functions you are looking for: a kitchen, a bathroom, a sitting room, ... In software these are the different objects and design patterns. In philosophy you have different aspects of the argument, often addressing past theories and problems that predecessors raised around the philosophical question you are exploring.

In a building you have doors and hallways to go from one room to the other. In software you have interfaces and connections. And in philosophy you have key concepts to link the different aspects of your argument together. By defining these central terms in a very specific way, they allow you to pivot in different directions, creating new ways of looking at things and better questions to ask of your topic.

What other similarities or differences do you see? What are the key concepts that are very specific to your business?

Wittgenstein - Logic vs storytelling

Wittgenstein wrote his *Tractatus Logico-Philosophicus* in a very structured and rather peculiar style. In a collection of 525 numbered statements deals with the relationship between language and reality and aims to define the limits of science. A prominent view set out in the *Tractatus* is the picture theory, sometimes called the picture theory of language. The picture theory is a proposed explanation of the capacity of language and thought to represent the world.

Many put Wittgenstein in the logical positivist tradition - like his fellow Austrians of the *Wiener Kreis* - who adhere to a theory of knowledge that asserts that only statements verifiable through direct observation or logical proof are meaningful in terms of conveying truth value, information, or factual content.

But if we look at Wittgenstein's last statement in the *Tractatus*: "Whereof one cannot speak, thereof one must be silent." and many argue this is the central point of this work, this will put him more in the mystical tradition. After this work, Wittgenstein left philosophy altogether for years, convinced he had said everything there was to say.

Many years later in his *Philosophische Untersuchungen* Wittgenstein employed a completely different style, writing more in aphorisms, which he calls language-games. A central feature of language-games is that language is used in context and that language cannot be understood outside of its context.

Without pretending to be able to explain the two different approaches in detail in a LinkedIn post, an analogy in business is this: the pure logical and numbers driven way to approach your business will always fall short, you need to complement it with emotion and storytelling to drive decisions in a certain context.

Are you more a logical or more a storytelling person?

Whitehead - The only constant is change, but how to model for this view on reality.

Even though we experience our world and ourselves as continuously changing, Western metaphysics has long been obsessed with describing reality as an assembly of static individuals.

Process philosophy is based on the premise that being is dynamic and that the dynamic nature of being should be the primary focus of our philosophical account of reality and our place within it. Alfred North Whitehead is an important 20th century philosopher who did an important contribution to process metaphysics.

If we admit that the basic entities of our world are processes, we can generate better philosophical descriptions of all the kinds of entities and relationships we are committed to when we reason about our world in common sense and in science: from quantum entanglement to consciousness, from computation to feelings, from things to institutions.

And also of companies and how to use data to follow up where they are going. In software this translates in the way you handle data in your applications. In other words, do you use a predefined relational model, or flexible data storage like event sourcing?

- In the first case you model the objects in your software according to the standard interpretation of predicate logic in terms of static individuals with properties in a persistent storage application.
- In the second you store everything that happens in the order that it happens and figure out later what the relevant ways of aggregating and reporting are - then you write a projector to gather and display the relevant data accordingly.

Consequences of this different ontology:

- In the first case, if it turns out you didn't model your objects with the enough detail to gather the insight you need, you're basically screwed. There is no way to go back in time.
- In the second if the projector doesn't provide enough detail, you can rewrite it, because you stored all information about the events and it's simply a matter of rewriting the projector with other parameters.

NB: we are talking here about data modelling in the business applications (OLTP). In the analytical applications (OLAP) we are dependent on the way the data is stored in the databases of the business applications.

How do you model reality in your applications?

John Rawls - Veil of ignorance

John Rawls was a 20th century American moral and political philosopher in the liberal tradition. In A theory of justice where he argues for justice as fairness the veil of ignorance plays a central role. The veil shields those in power from knowledge of particular facts that they could use to favor some members of society - like themselves. It expresses a commitment to a sort of impartiality that is needed to ensure that the principles we select express our commitments to fairness and equality.

Applying this to data projects you could argue that the veil of ignorance can also in this context guard the principles of fairness and equality: if it could be you that has to execute the processes and work with the systems you design, you better make sure they are well designed.

There is a lot of work on the ethics of Artificial Intelligence, but this could be a starting point to think about an ethics of Business Intelligence.

What other valuable entry points do you see into the ethics of BI?

Martha Nussbaum - Use data to retrain your gut feeling

Sometimes I tell people that you need a data strategy when you can no longer trust your gut feeling about your business. You can feel like your initial intuition about how your organization is doing is failing. You no longer trust your gut feeling because there are too many moving parts and you cannot manage the complexity just by following your gut.

But you should not just ignore your gut feeling and dismiss it just because you cannot logically explain it. Your rational mind just isn't aware of all the observations and hunches that come together in this gut feeling. In her book *Upheaval of thoughts*, American contemporary philosopher Martha Nussbaum explores how emotions and ratio go hand in hand to come to the right decision: "Emotions involve judgements about important things. They are not just the fuel that powers the psychological mechanism of a reasoning creature, they are parts, highly complex and messy parts, of this creature's reasoning itself."

Use data to uncover why your gut feeling was no longer correct. Is it because you have taken a managing role and are too far from the execution of the core business? Or is it because the KPI's you are using are not capturing some important aspect of what's happening, creating a disconnect between the numbers and your feeling? Or are your people just stone-cold lying to you about how things are really going?

Start using data to get back on top. Not to get rid of your gut feeling but to retrain yourself to interpret the signals you're capturing about your business.

Is your gut feeling aligned with the numbers about your business?

Summary - Are you climbing the right wall?

Although philosophy and data at first sight seem very different, looking from philosophy to data can prove to be insightful and inspiring.

For example, studying philosophy provides ways to interrogate reality that we can apply in business as well. It allows us to get to the core of the matter very quickly and to see if the conclusion follows from the assumptions.

Critical minds will wonder what the return on investment of this kind of intellectual playfulness is, and why not just dive in and build stuff. A valid critique and dwelling on analysis and theorizing is never worth it. Indeed, start building and try to generate value for your business.

But don't wait too long to take a step back to validate your assumptions, to see if they are really taking you where you want to go. Otherwise, you risk investing in something that's exciting and fun to build but doesn't contribute to the bottom line.

Another trait of philosophy that is crucial when you work with data, and is closely related to the previous points, is the emphasis on asking the right questions. An answer you dig up from your data performing analytics is only valuable if it is the answer to the right question.

So, putting a bit more time in getting to the right questions is time well spent. Make sure that the effort you put in climbing the ladder is put to good use by putting the ladder against the right wall.

We are aware that some of the examples are rather superficial, but then again, we are not conducting a philosophical study, we are merely trying to inspire and provide another approach to data projects.

In practice we don't use explicit reference to philosophy in our data strategy work, but it is always present in the background when we conduct our leadership alignment sessions and during the interviews and workshops to design the data strategy roadmap.

Trying to uncover the implicit assumptions, get to the right questions and making sure the story makes sense.

I hope you enjoyed reading and let me know what you think on wouter@xudo.be!