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Daniel Neyland

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Futures work: Liliana Doganova (2024) *Discounting the future: The ascendancy of a political technology* (Zone Books)

Daniel Neyland 

Abstract

This paper utilizes Liliana Doganova's book (*Discounting the future: The ascendancy of a political technology*, 2024, Zone Books) to explore the provocations science and technology studies scholars have generated by engaging with futures politics. This includes politics of inclusion and exclusion, value composition, embodied constraints and efforts to challenge taken-for-granted future pathways. These politics and their extensions are then considered through Doganova's work. The paper concludes with an exploration of the conflicting political and temporal domains of valuation built into discounted cash flow formulas.

Keywords: futures; discounting; politics; time; science and technology studies.

Daniel Neyland, Bristol Digital Futures Institute, University of Bristol, Bristol, United Kingdom.
E-mail: daniel.neyland@bristol.ac.uk

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Introduction

In this paper, I use the occasion of the publication of Liliana Doganova's book – *Discounting the future: The ascendancy of a political technology* (Zone Books, 2024) – as an opportunity to reconsider various streams of work which can trace their roots back to science and technology studies (STS) and have engaged in one way or another with futures. Developing over the last 20 years, much of this futures work has an economic and, more specifically, market-based focus. Hence, we find studies of (amongst other things): new technology innovations, prototypes and demonstrations (Akrich, 1992; Collins, 1988; Suchman *et al.*, 2002); futures trading and financial futures (MacKenzie, 2022; Maurer, 2002); and futures methods, prospecting and expectations (Brown & Michael, 2003; Pollock & Williams, 2010; Wilkie & Michael, 2009). The paper begins with a consideration of STS futures work and its attendant politics. I then engage in more depth with Doganova's book to consider the ways futures politics characteristic of previous STS research are extended. I conclude with a consideration of future directions.

STS futures

STS work on futures to which Doganova's *Discounting the future* contributes, can be organized into four broad themes, each suggesting their own combination of politics and the economic. First, the future of technology itself is central to the whole STS project – at least since science studies as a field was augmented by the 'turn to technology' (Woolgar, 1991). A strong commitment has been maintained to counter an over-simplified form of determinism (for a discussion, see MacKenzie & Wajcman, 1999), through which the future effects of a technology can simply be 'read-off' from the material form. Although somewhat sloganistic, the mantra that 'things could be otherwise' retains a strong presence in STS scholars' work (see for example Mol, 2024), providing a methodological imperative that underpins much work in the field: if things could be otherwise, how can one account for the way things seem to be?

The default option for addressing this question has been detailed and up-close empirical studies of the specificities of a variety of technologies and their associated humans. Initially, this might seem to challenge the possibility of studying things that are yet to be. Instead, field-sites where the future is brought into being in the present have been prominent. For example, work in this vein has produced studies of the future of a broad number of domains, from education (Dix, 2019), to genes (Horst, 2005), to soil futures (de la Bellacasa, 2015). The STS inflection in this work has involved a long-standing focus on the sociomaterial features of the future in question, alongside a sceptical orientation toward how that future is or might be accomplished. Woolgar's (1985) initial consideration of the move by science studies scholars to engage with technology was focused on artificial intelligence (AI) futures

and their marketing. His suggestion was that the rhetoric of progress toward a positive AI future required ‘continual definition and redefinition’ (Woolgar, 1985, p. 565) of central concepts like intelligence, expertise, problems and solutions to maintain the research enterprise.¹ ‘The promise of future achievement hinges on the flexibility which makes redefinition possible’ (Woolgar, 1985, p. 565). These early STS discussions of technology open up a specific kind of politics around redefinition. Early STS work suggest this politics of redefinition needs to include STS itself and what is permitted or omitted, included or excluded, from the argumentative structure of the account of technology put forward by scholars (for reflections on this, see Woolgar & Cooper, 1999). One could say that this politics of definition, inclusion and exclusion has since been a continual feature of STS accounts of technology and their futures.

Alongside the future of technology, a second focus for STS work has been the future as topic/resource. Here the techniques through which futures are generated have been subject to scrutiny. Hence, prototyping as a sociomaterial mediator of different times and work orientations (Suchman *et al.*, 2002), for example, has helped push along workplace studies. In much the same way, work on promissory organizations (Pollock & Williams, 2010), and the sociology of expectations (Brown & Michael, 2003; Wilkie & Michael, 2009), have generated their own prominence and been central in further STS work.² The entanglement of studies of future-oriented practices in various forms and the future development of STS is witnessable in Akrich’s (1992) research into innovation (also with Callon and Latour [Akrich *et al.*, 2002a, 2002b parts I and II]) that played a significant part in the development of actor-network theory.

A different set of techniques has been the focus of related STS inspired studies of financial futures. MacKenzie’s (2022) work on futures trading on Chicago’s futures exchanges, for example, looks at the changing value and values built into ‘spoofing’.³ Maurer’s (2002) earlier work engaged with critiques of derivatives that argued that these financial forms create unreliable future anticipations of value. These critiques, Maurer (2002) suggested, rely on the idea that derivatives lack referentiality – a clear reference to which they can point toward in establishing their value. Maurer (2002) held that practices of referentiality establish the terms on which things exist; referentiality brings things into being. In this way, questions of accuracy miss the mark and such critiques of derivatives as unreliable future projections can only be sustained by overlooking the techniques that bring derivatives into being. These techniques require study to make sense of the specific futures that derivatives accomplish. Alongside the politics of definition, inclusion and exclusion foregrounded by the first theme of work, by studying the specific practices of future making (from studies of expectations to work on financial futures), this second theme of work thus makes apparent, up close and in detail, the way future values are composed.

A third focus for STS work has been on histories of futures. For example, Asdal (2012) looks to early twentieth-century debates on animals for

contemporary relevance, Cochoy and Soutjis (2020) explore archived promotional material for anticipated price display technologies, Brown (2003) includes biopasts in a study of hyped futures, Delfonti and Frey (2021) and Jungnickel *et al.* (2024) both look to patents as a basis for oscillating between pasts and futures and Reichmann (2013) looks at the challenges of using past data to forecast economic futures. Taken together, a common motif running through these works is the way in which the relationship between past and future enables and constrains. Jungnickel (2023), for example, shows that by studying clothing patents, we can explore how futures posited by new clothing designs were articulated as a means to free women's bodies and were also simultaneously involved in building new constraints. The mundane yet pervasive pocket, for example, and its absence in some garments, provides a means to illustrate a kind of politics through which the history of future embodied constraints is made visible.

Fourth, methods for generating or shaping (alternative or even better) futures have provided an albeit significantly varied focal point for STS work. Miller (2023) for example, takes on design futures. From a starting point that sociotechnical systems could be otherwise, Miller (2023) asserts that: 'It's one thing to be good at making technology. It's a very different thing to be good at designing, building, generating, maintaining, repairing and inhabiting technological societies' (p. 187). It follows that STS might play a part in designing or experimenting with different futures, giving rise to the emergence of a number of new institutes in the last few years with a sociotechnical design brief.⁴ Such design thinking⁵ sits alongside work on, for example, speculative fiction that draws on existing literary genres (such as sci-fi and cli-fi; Truman, 2022) to pose new questions of future directions, collaborative work on sensing that re-positions knowledge production around future collective concerns (Gabrys, 2019), and public reporting that seeks to challenge and redirect existing relations of tech innovation (see, for example, The Institute for Technology in the Public Interest, Bug Reports). These developments suggest the very nascent emergence of a set of counter points to common futures narratives which seek to work both in and beyond academia simultaneously to challenge the path dependencies of contemporary modes of innovation. It is too early to assess the likelihood of these endeavours bringing into being new epistemic counter-capitalisms in the field of futures. Nonetheless, there appears to be a coalescing of activities around futures methods as political interventions.

Discounting the future

Drawing this work on futures together, we can note politics of inclusion and exclusion, value composition, embodied constraints and efforts to challenge taken-for-granted future pathways. In this way, futures and an ever-emerging politics are entwined. Liliana Doganova's new book, *Discounting the future*,

takes its place among these future-oriented works, building on many of the themes we have already encountered and also posing new questions about the politics of futures work.

For Doganova (2024), discounting provides a key means to grasp futures in the present to give us the chance to act. She suggests that ‘Discounting is a way of determining the value of something in order to set its price. To do so, discounting looks at the future: it contemplates the flows of costs and revenues that the thing being valued is likely to generate over its lifetime and translates the value of these future costs and revenues in the present by applying to them a “discount rate”’ (Doganova, 2024, p. 33). The discount rate reflects the risk that the future value may not be fully achieved. In this way, a heavier discount rate might be applied to a future outcome that is more distant in time and thus might be said to represent a more significant risk. Placing a value on the future outcome enables investors to decide if the likely return is worth pursuing, or in other situations, may enable policymakers to decide if the cost of an intervention is worth pursuing.

What is especially notable, then, is the arrow of time is reversed in comparison to the studies of technology development we considered above. Instead of a move from present to future, discounting focuses on a move from future to present. In place of a consideration of increasing value – with investments made now leading to greater benefit in the future – we have decreasing value via discounting that reflects distances in time and levels of uncertainty that the future in focus can or will be accomplished. In a similar manner to Maurer’s (2002) work on futures that we considered above, Doganova suggests that contemporary critiques of discounting are based on claims that it is unable to accurately calculate, provides unreliable projections of the future, and is open to manipulation and abuse. She posits a need to move away from the criticism that discounting has uncertain foundations because the future is itself uncertain or because there is no rational way to conjure the future. Instead, we need to address why discounting does work and what work it does. We can thus move away from thinking the future is uncertain to consider ‘when and how uncertainty is mobilized and by whom, what form it takes, and what effects it produces’ (Doganova, 2024, p. 171).

Drawing on the biopharmaceutical industry, Doganova suggests that uncertainty becomes a responsibility taken on by investors and a risk they take on to be rewarded through profit. In this approach, uncertainty is capitalized, but uncertainty needs to be mobilized in the first place by the investors such that it can be capitalized. Rather than view uncertainty as a basis for critique, we need to look closely at how uncertainty becomes a focus for action. In another example, Doganova draws on the extractive industries as early adopters of discounted cash flow (DCF) formulas. DCF has operated as a basis to dematerialize mines, for example, into future flows owned by investors. In this sense, investors don’t want to own fossil fuels in the traditional sense of holding those stocks. Instead, a ‘defining characteristic of discounting lies in its ability to translate a problem of ownership into a

problem of valuation' (Doganova, 2024, p. 249). DCF allows for future uncertainty to be incorporated into the value placed on a future flow. This, in effect, reduces the specificity of fossil fuels and their uncertainties at least to the extent that the formula can be modified to take these uncertainties into account and then show how the present value of the fossil fuels compares to other entities given the same treatment.⁶

The uncertainty critique only holds if we assume that discounting ought to be assessed on its ability to discern the future with accuracy. Doganova (2024) suggests this is not always the case. Discounting is less focused on the precise forms of what the future will comprise and is more interested in valuation. Rather than an attempt at fulsome prediction, discounting asks how distant is the future and what worth should it be accorded? This not only shapes how we perceive the future, but sets some grounds for the present. As Doganova suggests: 'I have not been interested in whether discounting represents truthfully or usefully the future and the value of things, but in what it does when it is mobilized' (p. 258).

By looking at how discounting opens opportunities to act in the present towards the future, especially for investors, attention is shifted away from a tendency to otherwise reduce discounting to a straightforward, technical process. Instead, discounting is recognized to introduce a politics of its own: 'the future is a political domain – that is, a domain over which actors struggle to acquire the capacity to act' (Doganova, 2024, p. 19). By opening up this question – who and what has a capacity to act on the future – Doganova's study of discounting introduces specific forms of politics which extend those which have preoccupied STS futures work to date. At the centre of questions around formulas for discounting which enable a value to be placed in the present on a future activity, is a concern for who or what gets to speak on behalf of futures, presents and pasts. As Doganova (2024) puts it:

Discounting deserves our scrutiny ... because its mundaneness hides significant consequences for how we have come to conceive of the future and because its technical aspects hide fundamental political questions about the capacity of certain actors and the incapacity of others to picture the future and act on it. (p. 8)

This returns us to our earlier consideration of the politics of definition and inclusion/exclusion but framed in a specific manner. To control something as mundane as the formula through which, for example, a DCF model operates, is to set the parameters through which futures enter the present. Once futures are grasped in this way and given form in the present, then multiple further actions can take place (valuation, investment, trading, regulation, see below). To be involved in defining the formula, then, is to establish (to a degree) how the uncertainties of futures are displaced by an actionable future-in-the-now. For the formula to be able to translate future uncertainties into an actionable present, requires that the basis for calculating future value, and building uncertainty into that calculation, can be rendered witnessable. DCF enables this witnessing. And we have not strayed

too far from the politics that we noted in relation to patents and the futured constraints these might impose – discounting, through specific formulas, also puts in place now, constraints on how the future is enacted.

Since its origins in forestry, which Doganova skilfully traces through the book, discounting has now progressed from a specific formula to a form of reasoning. However, the politics of discounting has persisted. Using climate concerns as an illustrative example, Doganova suggests that prior to the 2006 Stern Review, the discounted future costs of an environmental policy were often subtracted from its benefits in a rudimentary manner. The net benefit of an intervention would then often be zero or even negative due to the long timeframes involved. The more distant a future, the more stark the discounting. The Stern Review challenged this orthodoxy – the proposal was put forward that if climate policy is about future generations, then we need to bring those generations into the here and now and view climate change mitigations as an investment. The focus of discounting (that places a lower value on the future than the present and holds the focus steady on the future as the arena for action) could lead to climate inaction. Who and what speaks on behalf of who and what in setting the terms of the discounting formula, establishes or diminishes the prospects for intervention. Representing not just the future as an abstract entity, but future people, could underpin a change in the values derived through discounting. Climate interventions could now be seen as worthwhile and indeed urgent.

To emphasize these concerns further, Doganova draws on Innerarity (2012) to expand upon the temporal politics at issue. Here we are encouraged to consider the tyranny of the present, where profit over investment, short-term gains and motifs of consumption, provide an imperialism not of space but of time. The future is colonized by bringing it into the present and feeding off it parasitically. As with climate change, we have already consumed away in the present what would have been future options. A focus on preserving things challenges the tyranny of the present. This might reduce short-term profit margins in the here-and-now, but it might also benefit the future. So, imperialism could work the other way too. The future (a need for a viable planet) could colonize the present (countering short-termism through preservation). The focus of discounting on devaluing the future needs to be challenged for this shift to be presentable and achievable as an alternative pathway for action in the present on the future.

From this example of climate intervention, then, we can see that discounting becomes a form of governance. The precise terms of discounting formulas become a political arena through which settlements need to be achieved on how the future will be brought into the present to be acted on. Climate policy is not the limit of government intervention through discounting. Doganova (drawing on the work of Peter Miller, 1991) suggests that discounting has been used by governments to act on firms at a distance. Discounting has become an imposed instrument through which firms can demonstrate their responsibilities. And increasingly, discounting has also become a way for government to manage itself.

We can illustrate this movement of discounting into governance and government by going beyond Doganova's book for a moment to consider various

current struggles for the UK government. For example, since loans were introduced for higher education student fees and a decision taken that those loans would only become repayable once a graduate has achieved a certain salary threshold, the future value of the loans in the present needed to be continually adjusted. As the government looked to sell these loan books to private investors, concerns were raised by members of parliament about certain universities and the value of certain degree programmes where it appeared graduates typically progressed into lower paid jobs. What are now termed ‘low value degrees’⁷ where students earn lower future salaries, are put under pressure as the present value of loan books is undermined. A considerable discount rate needs to be applied to achieve a sale of these loan books where a high proportion of students look likely to earn below the salary threshold required to repay the loans (Milyaeva & Neyland, 2020). This is not simply a case of government borrowing the tools of industry to ensure prudent financial management – discounting helps establish the future viability of UK universities. Through Doganova’s work we can come to see how government, governance, discounting and futures are intricately intertwined.

Conclusion

Futures of different kinds have had a persistent presence in STS work since its inception. Doganova’s new book adds to this work, posing new questions and pushing the field in new directions through an up close and detailed study of discounting. Moving away from any counter assumption that discounting is merely a matter of straightforward formulas, Doganova shows how forests in the nineteenth century provided a point of origin for calculating future value. Faced with the challenge of how to calculate value not represented by current market price but by something the trees will grow into, inspired the birth of discounting. The book traces how, through the twentieth century, discounting became a tool – DCF – that helped shape investment decisions. But the forest also remained a focus for discounting, becoming a laboratory for economists to experiment with futures and discounting, but also for government to experiment with governance. As we have seen, discounting has become much more than a formula for translating the abstract and uncertain future into the present. As discounting provides a basis for acting on the future in the present, a politics of discounting has emerged. As Donganova (2024) suggests, the ‘present and the future are not only alternate temporalities of valuation, but also conflicting political domains’ (p. 86).

Doganova’s text allows us to engage with these politics of futures and presents in different ways and through different motifs of STS work. For example, we can return to the work of Akrich (1992) to explore the movement between the world inscribed in the object and the world described by its displacement. Except now we are urged to look to the world inscribed into DCF and the world that is (in the present) and is to be (in the future) described by its displacement. Grasping these displacements through discounting provides the means to act on the present and

somewhat grasp or even shape the future. Yet the politics of discounting is not absented here: who and what gets to describe and displace on behalf of who and what remains a key question. How uncertainty is managed remains contested. The present becomes blurred by future projections and the future projections do not work on the basis of accuracy, but on the basis of translating the future into a manageable entity – a value to be worked on.

Where does Doganova's work sit in relation to our previous themes noted in STS futures work of definition, inclusion and exclusion, value composition, embodied constraints and designerly efforts to challenge taken for granted future pathways? As we saw with the example of climate interventions, discounting is not a neutral tool. Who gets to set the formula, how the formula is configured, and the futures this makes available to act on, need to be considered.⁸ This is not a particularly inclusive or democratic process. The future to be acted on now is made visible in specific forms, particular kinds of value (and risk) are inscribed into both the future and the distinct paths of intervention that could be taken (providing a backdrop to discussions of matters like costs and benefits). The outcomes of specific discounting formulas are thus a set of constraints within which action takes place.

But what of political action and intervention? We can trace out the politics of discounting and we can make apparent the limitations and difficulties of participation in discounting processes. Through Doganova's work, we can see that via discounting, questions of what should be done become questions of is it worth it? This opens up the political terrain where challenges need to be made. If discounting is to remain as a key means for bringing the future into the present to be acted on, thereby retaining its centrality as a logic of governance, then we need to shape discussions of what values are to be inscribed into discounting in order to shape what future displacements are described. In order to take part in futures work, we need to be fully informed of how futures work.

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Notes

1 Woolgar reports on a popular quote among 1980s AI researchers that 'if it's useful, it isn't AI' (1985, p. 565).

2 Including in this journal. See for example, Hansen and Souleles (2023).

- 3 Spoofing in financial trading involves bidding with the intent to cancel the bid before an exchange is completed.
- 4 In the United Kingdom alone, there are Digital Futures Institutes in Bristol, KCL, Suffolk, Aston and Brunel universities, plus the Edinburgh Futures Institute, Keele Digital Society Institute, and Manchester Digital Futures initiative, among other similar activities.
- 5 For a different kind of example that draws together STS work with Foucauldian-inspired studies of governance in questions of design, see Koo (2024).
- 6 Doganova (2024) writes of commensuration in discounting that ‘transforms different temporalities into a common moment’ (p. 45), but we can also see a more straightforward form of commensuration at work here with DCF rendering different assets more or less equivalent, to be assessed through the same formula.
- 7 See for example: <https://www.gov.uk/government/news/crackdown-on-rip-off-university-degrees> [Accessed 1 August 2024].
- 8 For further discussion of politics, calculation and metrological regimes, see Barry (2002).

ORCID

Daniel Neyland  <http://orcid.org/0000-0003-3764-9674>

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Daniel Neyland is a professor at the University of Bristol and co-directs the Bristol Digital Futures Institute. His research focuses on issues of governance, accountability and ethics in forms of science, technology and organization. He draws on ideas from ethnomethodology, and science and technology studies, and his research is ethnographic in orientation.