

# Introduction to the Minitrack on Strategy, Information, Technology, Economics, and Society (SITES)

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## Mini-Track Introduction: Strategy, Information, Technology, Economics and Society (SITES)

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Much of the economic insight gained over the past several hundred years was derived under the basic premise that individuals (also referred to as *economic agents*) are self-interested and take actions, which—at least subjectively—maximize utility, subject to the constraints implied by any agent’s limited means and/or bounded rationality, as well as by the environment he (or she) lives in. Indeed, even today, in a substantially more complex society and economy, constrained maximization of goal achievement under uncertainty remains a strong predictor and explanatory force for the actual behavior of economic agents. Yet agents’ choices are quite sensitive to the information available to them, unless they “choose” to be selectively ignorant. The contributions contained in the 2021 edition of our longstanding SITES mini-track illustrate insights derived under the classical premise of self-interest, in the context of a “new economy,” where information—its generation, control, and strategic use—presents a key asset. The selection of research papers cluster within four main themes: rent-seeking, collective perception and action, incomplete information, and communication. Each of the four topics features three papers dedicated to one of these themes, now examined in turn.

### 1. Rent-Seeking

As pointed out initially, for most practical purposes it is safe to assume that economic agents are self-interested. As Tullock [1] pointed out, they therefore constantly engage in behavior that aims at extracting excess returns from others, the so-called *rents*. Secondary activities which are undertaken to enable this rent extraction are referred to as *rent-seeking*. While this may perhaps sound over-technical and schoolmasterly for a light introduction to a mini-track, what appears interesting is that rent-seeking activities are costly, and that agents are willing to spend—at least collectively—as much on getting rents as these rents themselves are worth. This is precisely Posner’s *rent dissipation postulate* [2], which essentially implies that in a competitive setting agents are willing to burn the rents that they stand to gain, thus preventing others and themselves(!) from actually getting them. With this in mind, the first session, on *Rent-Seeking—Private Data, Innovation, and Ransomware*, opens with “Is

Data Ownership Empowerment Welfare-Enhancing?” by Shilei Li and Juan Feng. Online platforms may be able to earn rents from consumer data, such as through aggregation or resale, and they need to provide incentives and compensation to get the data, quite likely in the presence of other firms competing for the attention and loyalty of the same customer base. Next up is “Collaborative Innovation (or Not?!) When Product Performance is Critical,” by Thomas A. Weber. Here rent-seeking occurs through an innovation race between different firms. It turns out that if instead of competing they collaborate at the innovation stage, then—quite unsurprisingly—under the rent dissipation postulate—the investment in innovation actually decreases, thus resulting generically in lower-quality products than without the horizontal research collaboration. The final presentation, on “Should We Outlaw Ransomware Payments?” by Debabrata Dey and Atanu Lahiri, looks at illegal rent extraction by ransomware producers, examining the merits of regulatory interventions which would restrict the transfer of rents to illegal elements by altogether disallowing ransom payments.

### 2. Collective Perception and Action

In a society where physical displacement of individuals is limited (e.g., due to pandemics or by the mere fact that purchases are more comfortable online than in a brick-and-mortar store), high-quality information is of the essence. This also applies to the delegation of activities. We mention the latter specially, for the second session, on *Collective Perception and Action—Crowdsourcing, Contests, and Start-up Finance*, starts by looking at the well-known delegation problem between investors and managers of a firm, here in the particularly intermediated setting of crowdfunding. Michael Wessel, Rob Gleasure, and Robert J. Kauffman discuss “Creators and Backers in Rewards-Based Crowdfunding: Will Incentive Misalignment Affect Kickstarter’s Sustainability?” They show that managing the incentive misalignment between investors and innovators in crowdfunding platforms is a fundamentally dynamic process, which stands to benefit greatly from endogenously-generated public information that has a “normalizing” function, producing better common knowledge and thus more trustful behavior on all

sides. The disclosure of social information related to project outcomes is examined in “Does Exposure to Shared Solutions Lead to Better Outcomes? An Empirical Investigation in Online Crowdsourcing Contests” by Jingbo Hou, Pei-Yu Chen and Bin Gu. A crowdsourcing platform (or rather a firm participating on one side) can use the competitive rent-seeking concept productively to its advantage by eliciting ideas and innovation (on the other side of the platform) via crowdsourcing contests. Just as disclosure of patents can have a stimulating and quality-enhancing effect on innovation in a society, the sharing of solutions with other participants on the platform can have positive externalities, resulting in higher-quality innovative output down the line. The last paper, “A Scaling Perspective on AI Start-ups,” by Matthias Schulte-Althoff, Daniel Fürstenau and Gene Moo Lee, is concerned with the shallowness of collective perception and the consequences of hype. Their empirical work finds evidence for the fact that start-up firms in *artificial intelligence* (AI) may benefit from thematic-hype externalities with superlinear funding (as a function of company size), whereas—quite in contrast—AI revenue growth proves to be merely sublinear, just as in an average service business. This calls to mind the classic insight by John Maynard Keynes that the valuation of firms is like a beauty contest where investors collectively agree on which firm should show promise [3, Ch. 12], at times irrespective of its fundamentals.

### 3. Incomplete Information

The third session shifts our focus to *Incomplete Information*—Signals, Options, and Ignorance, in three settings which are quite different from one another. The first paper, by Abhishek Kathuria, Terence Saldanha, Mariana Andrade Rojas, Sunil Mithas and Hyeyoung Hah on “Inferring Supplier Quality in the Gig Economy: The Effectiveness of Signals in Freelance Job Markets,” is an empirical study of labor market signaling. In a market with asymmetric information, agents are trying to send costly signals (e.g., education) to “prove” that their skills are sufficiently high to be hired. The authors find that signals such as skill and achievement do actually help with matching at an online job platform, at least when jobs require commitment (i.e., take sufficiently long to complete) and/or cultural distance is large. This may perhaps imply that a small cultural distance can be somewhat of a substitute for a lack of information about a person’s skill level.

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<sup>1</sup> “What information consumes is rather obvious: it consumes the attention of its recipients. Hence a wealth of in-

formation is especially important when investments under uncertainty are irreversible. Just as credible signals are particularly useful for long (and thus less reversible) jobs, quality information is important in industries where investments are large, such as in real estate. Eric K. Clemons and Stina Teilmann-Lock’s work on “Fundamentals for the Design of Products for a Circular Economy: Examples from Software Engineering to Motivate Efficient and Ethical Design of Physical Products” examines the real-option value of modularity and flexibility; see also [4]. The well-known equivalence of flexibility and information, as established by Weisbrod [5], implies a substantial value of flexibility whenever information about the critical unknown facts is desirable. The session closes with a paper by Jan Fell, Galit Shmueli, Travis Greene, Jyun-Cheng Wang, and Soumya Ray on “Seeing Humans in the Data: Ethical Blind Spots of Taiwan Academic Researchers in the Era of Behavioral Big Data.” This turns our view toward human resistance to information, when deemed unnecessary (by them), inconvenient, or simply in excess. The authors find that mandatory ethics training (assuming information is actually imparted in such a session) may not help with removing ethical blind spots, thus in effect highlighting the existence of a chosen ignorance, perhaps somewhat due to Herbert Simon’s insight that attention is in fact a scarce resource,<sup>1</sup> resulting more recently in a *theory of rational inattention* [7].

### 4. Communication

When information is available for human consumption, it needs to be communicated—through words, signals, and actions. And this year’s SITES mini-track therefore concludes with a session on *Communication*—Service, Meta-Feedback, and Content Morphing. The first paper, on “Chronic Complainers or Increased Awareness? The Dynamics of Social Media Customer Service,” by Shujing Sun, Yang Gao and Huaxia Rui, finds that the provision of service to some signals its availability to others, so that—perhaps somewhat counterintuitively—offering service help leads to an increased demand for service. Naturally, the authors also find that this demand eventually decreases when the quality of the service is sufficiently high. The second paper, by Warut Khern-am-nuai and Yinan Yu, is entitled “Are Review Helpfulness Score and Review Unhelpfulness Score Two Sides of the Same Coin or Different Coins?” It shows, just as Tversky and Kahneman [8] demonstrated for gains versus losses, that framing matters in communication.

*formation creates a poverty of attention, and a need to allocate that attention efficiently among the overabundance of information sources that might consume it” [6, pp. 40/41].*

Here the authors show that respondents to helpfulness and unhelpfulness scores differ systematically, a fact that does not surprise us much—as it is rooted in our asymmetric perception of positive versus negative feedback, driven by evolution. The sensitivity to negative stimuli – a *negativity effect* [9] – is substantially larger than human perceptiveness of positive signals. In a modern context, the latter may be reinforced by the ubiquitous “social sugar-coating” of one’s actual feelings, leading to an excess of positive messaging. The final contribution is by Kelvin King, Bin Wang and Diego Escobari on the “Effects of Sentiments on the Morphing of Falsehoods and Correction Messages on Social Media.” Here the authors examine the influence of personal feelings on the cosine-distance of messages as they get re-communicated on social media. One could think of this phenomenon as the addition of “social noise” on social media. This would naturally limit the capacity of information transmission on the inexpensive social channel to a corresponding *social Shannon capacity*; see [10] for the classical notion.

## 5. Concluding Thoughts

What shall the reader take away from the authors’ contributions and our rather meandering thoughts, which we applied rather loosely as if by some “sticky tape” (in this “mini-track introduction”) ...? We would like to think that the sum is larger than its parts. Collectively, the authors shed light, from different angles and recesses, onto the agents’ self-interest, which is in itself colored by imperfections. That is, the agents themselves are only imperfectly self-interested, leading to a social component of interactions that might be viewed as an element of bounded rationality (in the form of a constraint in the utility-maximization problem) when trying to continue to hang on to the classical paradigm of self-interest. Or, it may simply indicate that individuals are not all driven by adversarial self-interest, but also by a mutual “selves”-interest in the face of societal challenges, such as pandemics, overpopulation, and the (all too obvious) environmen-

tal degradation. These external constraints, as they become increasingly binding, are starting to align behavior, so that individuals are seemingly beginning to deviate from the neoclassical paradigm (at least when focusing on only a portion of their purview). For example, what explains the concern about sustainability that people “suddenly” exhibit—their participation in crowdsourcing, micro-finance, or social feedback mechanisms? It is perhaps a shared awareness that life on our planet is limited and that the common external constraints imply the need for greater harmonization in the socialization of behavior, ideally greased by ubiquitous information transparency.

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