



Personal options in science careers

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Published on EuroScientist: www.euroscientist.com

Jack is learning to live with his mistakes. A thirty three year old social media junkie—working as a freelance or, in reality, as a small company—he has just blown a year of his life after taking on the wrong project. Wasting valuable career time on wrong options is a risk we all face. It is becoming commonplace in career paths with no well-established structure like social media. But it is a risk for people in research too.

Specifically, how can we learn to translate experience into better options? How could someone like Jack or you plan better? The answer lies in the way we create and manage our options. Options building is one of the crucial aspects of how we navigate the digital economy.

Most of us could do with a survival guide for the 21st century economy. That's because the digital economy is not just about new technology. Dramatic changes are taking place in how people work together, how they think about society and wealth, and the risks and options they face in employment and business. As a result, we are functioning within new structures with their own logic. We therefore need to quickly learn to adapt to them.

Take open source software, for example. Its community has grown a meritocratic structure that helps people build careers. And it has, in turn, helped the community become a powerful force in the economy. As a result, the growth of open source software code lines is phenomenal. The pace of growth exceeds that of Moore's Law, the law that says computer processing power doubles every 18 months. The pool of open-source code lines doubles about every 10 months.

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That spells a powerful presence, though a little understood one. The new cryptocurrency [BitCoin](#) is an expression of that power. Bitcoin is global. It has an underlying connected community in excess of 75,000 people and entities. And it is bigger than the conventional and alternative payments communities put together. It is so big because it is an expression of value through code.

Part of its success lies in the fact that coders are a global community. This is where there are synergies with the research community. Indeed, scientists too form a global community. This community could learn from open source, at least in terms of realising the gains of progress for its members.

In particular, scientists need to learn how to create options. To do so, we need new ways of understanding how we invest – whether the investment is time, money or energy. We also need to think carefully about the communities within which we are embedded.

Open source began as an evangelical movement and it is working out well for people who need alternative ways to do their career building. Open science could do the same for science careers but more important is the shift in mindset. Researchers need to wonder: what options are you investing in today?

People have to take more decisions but in conditions of uncertainty and increasing complexity. And their judgments will be more often wrong and often only partially right. In fact it might be that we dispense with the concept of right and wrong in our careers. Instead, we need to seek new ways to balance the impact of decisions and what we can learn from them. This prediction and feedback-based approach is in itself not intrinsically new. It has, incidentally, been the object of many scientific endeavours, sometimes referred as complex systems, and led to the development of many predictive models.

The truth is that it is inevitable in the new economic environment that we are going to be wrong more often than we might have been in the past, when handling critical career and life decisions. There is a discipline that can help – real options theory. In real options theory analysts try to replicate the put and call practices of financial traders. The objective though is to anticipate what it costs to make any decision. If you are going to embark on route A instead of route B, what are you potentially ruling yourself out of? If you can clarify this, how can you hedge against route A failing and route B being lost to you? Recognizing that your life and career is more of a market than you might wish it to be, at least gives you a start on building your career as a set of simultaneously balanced options.

I apply this principle in my own consultancy-based work, and it could apply to the way scientists manage their time and efforts as well. In my own experience, I always know I am going to do work for free. But I put a cap on that of one week a month. I allow myself to do a further week of lower paid work that offers scope for future growth. I then try to do the main job for a week and use the final week to aim for highly-paid consulting or speeches. It takes time to build options and I don't want to close them down prematurely. My pricing mechanisms allow me to manage them. And increasingly my choice is dictated by long term pay-offs. In other words, I am my own best long term investor. It feels good.

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