Playing Seriously with Science Strategy

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PLAYING SERIOUSLY WITH SCIENCE STRATEGY

Imagination and play are often described as key ingredients in the process of scientific discovery. Yet these ingredients are rarely apparent when scientists meet to discuss strategic issues, such as planning new projects. François Grey and Johan Roos describe how the process of playing seriously with LEGO bricks has helped a variety of researchers, students and science managers to tackle a range of strategic challenges over the last few years, with some eye-opening results.

Philosopher Robert Crease wrote in these pages last year[1] that " [physics] uses imagination and play to disclose new truths about nature". Yet when was the last time you participated in a meeting at the lab that was imaginative and playful? For many, the concept sounds like an oxymoron. Strategic meetings in research laboratories, where new projects are planned, are often dreary affairs, where one person drones on while others twiddle their thumbs or, more commonly these days, surreptitiously answer emails on their laptops.

If it is any consolation, the situation is fairly similar outside the lab, in the world of business. Yet it needn't be that way. Everyone knows that great ideas are concocted at the oddest of times in the oddest of places – over a coffee in the cafeteria or a beer in the pub. Anecdotal explanations abound – it may be the freedom of thought associated with a more relaxed atmosphere or the buzz of caffeine or alcohol. What is for sure is that sitting stiffly around a table staring at a stale agenda rarely gets the creative juices flowing.

So what can be done to change this? In the 1990s, one of the authors, together with a colleague, was inspired by LEGO's recognized role as a universal communication tool, the role of the hand for cognition[2], as well as the importance of play in children's learning[3]. They began experimenting with a facilitated process they called "serious play". This was used in the boardroom of several companies to stimulate strategic thinking, with considerable success. [4] Partly as a result, the Imagination Lab Foundation was created in 2000, as a non-profit research organization devoted primarily to research on how changes in the way organizational issues like strategy are discussed (the "mode"), and in the communication tools used in these discussions (the "media") can have a positive impact on the way organisations cope with new challenges.

In a typical serious play session, participants start with a few warm-up exercises to learn how to stimulate different types of imagination, by using three-dimensional LEGO constructions as metaphors for their real world. The serious play process results in constructions of how individuals perceive their entire organization, and ultimately, of how a particular strategic challenge should be dealt with. The act of building and describing these metaphors often sheds light on what other people around the table are thinking, in ways that simple verbal

communication often miss. The process of construction – which inevitably includes an element of competition - also inspires each individual to come up with new ideas, and in the process colourful bricks and figures take on new, amusing and often very insightful associations. Participants are often taken aback by how a familiar issue is seen in new light, or how new ideas are literally handcrafted by participants.

The use of LEGO materials in meetings may, at first glance, resemble yet another management fad. Yet feedback from a wide range of participants indicates that the exercise is more relevant to the mindset of the typical researcher than other strategic tools touted by management experts. Firstly, this is because the serious play process involves building structures, a process which experimental scientists, in particular, are immediately drawn to. Secondly, the sessions we have run with scientists really did lead to some profound “aha’s” in situations where multidisciplinary groups were trying to work together, but did not understand each other’s technical jargon – or even each other’s motivations.

What serious play has taught us so far

Together, the authors and supportive colleagues have tested out the serious play process in a number of situations relating to strategy, or strategic projects, in scientific research settings. While we are far from having enough data for a statistical study, we can begin to draw some conclusions from our anecdotal evidence.

An early effort by us, in 2001, brought together scientists working in the fields of nanotechnology, virtual reality and Grid technology. The scientists came to the table interested in investigating possibilities for a research project spanning these fields, but with limited knowledge of each others’ fields. The serious play process helped the scientists clear up a number of important issues from the start. Benefits reported included a better technical dialogue than achieved by sequential powerpoint presentations. But also, crucially, the participants generally gained deeper insight into the different agendas of the other people around the table. Some of the participants, it transpired, were motivated by developing new research tools, others by the potential of industrial spinoff, and still others by educational potential of the proposed project. Revealing these differences through serious play had a positive impact on the ability of the group as a whole to develop a common strategy that satisfied all interests.

In a follow-up meeting a few months later (without the serious play this time), the most promising ideas stimulated by the first meeting were further discussed and prioritised. Many of the shared constructions remained fresh in the participants’ heads. Indeed, phrases such as “remember the big red brick” became a code for those involved in the discussion, summarizing particular strategic challenges the participants had foreseen (in this case, the challenge of funding a multilateral transatlantic collaboration). As a result of these strategic discussions, a project

was launched a year after the first meeting, and has resulted in a computer programme called openlogbook[5], now in beta-phase testing, which allows multiple streams of data from an experiment to be annotated and stored – with Grid technology if necessary – and easily retrieved for subsequent analysis.

In another instance, a new form of industrial partnership was discussed with a broad cross-section of people in a research organization, from the director level to a humble Ph.D. student. It became clear that there was a big generation gap in the organization, with younger people seeing this as an opportunity to inject a new dynamism into the organizational culture, and the more senior participants seeing it more as part of a return to a tradition of strong industrial partnerships that had been promoted in the past. The serious play session helped reconcile both points of view, clarifying what was really new about the type of partnership proposed. The people developing the industrial partnership retained a number of good ideas for the development of the partnership that were, quite literally, placed on the table by the participants, and these went on to influence the form that the industrial partnership would take.

Both “sides” in this discussion went away with a better understanding of the others’ experience and aspirations. As a passing incident, it is worth noting how a senior manager was openly taken aback by a construction of the organization made by a Ph.D. student, which appeared far more hierarchical than his own construction. This was definitely an eye-opener for him and others in the room. It is questionable whether, in verbal discussion, the Ph.D. student would have had the courage and the ability to express this opinion quite so colourfully.

The LEGO medium is not a panacea, and not all strategic discussions using serious play mode are equally productive. This was made clear in one case, in which the same strategic issue was treated first by senior members of the organization, then in a separate session by undergraduate students working on the project. The contrast was clear: the students were much more imaginative in their constructions and more open in the ensuing discussion than the more senior stakeholders. Presumably, issues of budget, territory and natural competition are bound to affect the behaviour of long-term stakeholders more than short-term students.

Also, we found that while some senior science managers have come away very enthusiastic from the serious play sessions, immediately wanting to implement the technique elsewhere in their organisation, others have been relatively unimpressed. Clearly, there is an element of personal taste and outlook involved. In one case, a session planned for a multi-organisational collaboration had to be cancelled due to the refusal of a key player to take part. This was at least in part prompted by the knowledge that serious play would be used. However, even such setbacks can, in their own way, be revealing about the strategic challenges facing a research project.

What does this mean for science strategy?

A classical view of strategy from the business world is that top-management formulates it and the rest of us execute it. Although many business leaders try to move away from this mindset, it remains common practice. Strategy work is often heavily biased towards rational, analytic thinking in which leadership teams analyze and assess the situation and outline a plan to achieve competitive advantages. In other words, strategy is in most cases about developing a plan. Although this approach remains mainstream, the academic literature on strategy is evolving new paradigms. This reflects changes in the real world, where managers are increasingly realizing that sticking to pre-formulated plans and annual strategic reviews is too restrictive and inflexible. Smart execution requires rapidly adapting a plan to changing circumstances, essentially extending strategic thinking throughout the organisation. Extending this line of thought to the research arena, this means that project leaders, department heads and even Ph.D students are increasingly expected to both seize fleeting opportunities and take corrective actions on the spot, which often means deviating from the plan. This kind of adaptive behaviour requires managerial mindsets and skills often at odds with the traditions of academia and established research organizations.

Our experience suggests that serious play creates the conditions for scientists and science managers alike to be more imaginative and playful about serious matters in ways conventional strategy discussions do not, and in the process be more perceptive and effective in developing robust strategies. More specifically, the lesson of serious play is that the medium matters. PowerPoint slides can only capture and express a limited part of what we mean, no matter how many clip art objects they contain. Purely verbal discussion of strategic issues has its limitations, too. When constructing what we think and perceive with our hands in three-dimensions, and in real-time, we discover new channels for communication that reveal different aspects of strategic problems and stimulate new solutions.

Again quoting Robert Crease, " [o]nly misguided simple pictures of science as a purely logical process relegate humour to the exterior of the scientific enterprise". By playing with LEGO bricks, however silly it may seem at first, we let go of purely rational thinking and prepare our mind for the inevitable consequence of complexity – the serendipitous surprises to which science owes so much. Isn't that precisely what both scientific and managerial enterprises should encourage?

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[1] Robert Crease,Physics World December 2003 p14-15.
[2] Penfield, Wilder, and T. Rasmussen, *The Cerebral Cortex of Man: A Clinical Study of Localization of Function.* New York: Macmillan (1957).
[3] Piaget, Jean, *Biology and Knowledge* Chicago; University of Chicago Press (1971).

[5] see wikihip.cern.ch under open lab for Nanotechnology (other reference to come)