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SCIENCE DYNAMICS REVIEW®

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ČASOPIS PRO ROZVOJ SYSTÉMOVÉ VZDĚLANOSTI

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Science Dynamics Masterclass

It has been a long time since the first Czech edition of the bestseller The Balanced Scorecard was published with the subtitle "Translating strategy into action."

In the thirteenth issue of our magazine, we will reflect on the fruit that the book, written by an professor emeritus of accounting at Harvard, has borne and taken away over the past twenty years ...

The Balanced Scorecard contro tutti

-Mark Susta-*

Abstract: A year ago, I was approached by a sweet Michaela from an organization with which we once worked closely to check if I would write an article about my encounters with the fruits of the labor of Mr. Bookkeeper, who was about to come to be awarded something by the academic swamp of the Prague-Zizkov district. Who knows what or who finally threw the pitchfork into the ceremony, perhaps FauCo7, perhaps another element. Short story long: "Not only the Queen of Sheeba but also Kaplan stayed at home due to global madness caused by a massive need to sell large quantities of pharmaceutical products..." and therefore the laudatio below is for you, my students and supporters.

Don't be afraid, I'm not going to talk about the escapades of the unfortunate Fantozzi [1], his beautiful wife or even more beautiful daughter. I am thinking of a quite different bookkeeper, a man whom, unlike Paolo Villagio, I know personally, and for a significant part of my life I have dealt with the results and consequences of his actions. Not full-time, but nevertheless in a number of companies, state and public organizations and, unfortunately, also in several *dis*organizations. Although the original concept was created in Analog Devices in 1987, the final product we know from the first book differs from it in many ways [2]. Among other things, the AD concept lacked a financial perspective, a fact that, as we well know, makes the bookkeepers angry. The first book by the Mr. Bookkeeper brought a lot of good. It also stimulated interest in the strategy in areas in which it had been mentioned only marginally or not at all until then, and in addition it used to be the exclusive domain of top management. Almost overnight, the strategy for the implementation of the Balanced Scorecard (BSC) began to be discussed not only at all levels of management, but also in the workshops and offices of ordinary employees. When I translated the book twenty years ago, I asked the editor-in-chief about the number of copies of the first Czech edition. He replied without hesitation: "Two thousand copies, because so many people in the Czech Republic can read..." If you object that four other editions of the same number of copies convict the editor-in-chief of an error in judgement, you are wrong. The other eight thousand people had never read the book. All human action has two groups of consequences. Expected, primary reasons for action, without exception accompanied or followed by **unexpected** or **unintended** consequences [3]. The desired consequence was undoubtedly the work on "translating strategy into action," as we read in the subtitle of the first book. An unintended, albeit delayed, consequence was the **devaluation** of the term "strategy," which began to be used in a context to which it never belonged, and will never belong. "Politically, my man, think politically" has been replaced by the phrase "Strategically, think strategically" as a requirement for workshop workers [4]. It is certainly good if everyone in the organization has an idea of the strategy that their source of bread applies. This does not change the fact that strategic decisions remain the task of **top management**. In some companies, BSC has become a method by which management "gets rid" of strategic worries in a way that it has mastered best. ... continued on page 3 ...

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** Balanced Scorecard, Czech edition, Management Press, 5th edition 2007, Prague. Translated by: me, Proverbs Corp.

They delegated them to **subordinates**. "*Now that strategy is everyone's business ...*" it has become **no one's** business, as we used to have houses (more like ruins...) in the "socialist care" of tenants. After all, building and especially **maintaining** a mere **shared vision** is one of the most difficult disciplines of the **Learning Organization**. Here, for the first time in modern history, Senge tried to describe how [5], but his book got overrun by beloved Hutchens' Lemmings [6]! Can the **benefit** of BSC be reliably **evaluated**? The question may be more difficult than it seems. If you are active in some **exact science** (I mean really exact, **natural** and **technical** sciences, **not** so-called social disciplines), you know that **experiment** is needed to verify the functioning of something in the scientific world. An experiment that allows a comparison of at least two states - the behavior of the target system in interaction with the entity (BSC) and the alternative, succinctly speaking *oben ohne* (the BSC). This truly elementary requirement from a scientific point of view is difficult to implement in the case of the BSC methodology (and any other management approach). Why? Because any (*especially non-scientific*) methodology has a power to become a magic talisman. Do you remember the letters that needed to be resent to ten other people? The letters contained horrific stories of ignorant people and happy stories of careful senders. "*Jana threw the letter in the trash and her daughter fell off a rock. Jana took the letter out of the basket, wrote it down ten times, the daughter caught on a branch in the fall and everything turned out well!*" We like to consider ourselves **rational creatures**, most of the economic theories are based on this assumption, but both our life experience and countless psychological experiments convinces us otherwise. More than one hundred of cognitive biases exists. When asked directly, we are usually willing to admit to be affected by **priming**, or to be subject to the **Texas sharpshooter fallacy**, while the most attentive of us sometimes self-observe the **Dunning-Kruger effect** [7, 8]. Despite our intelligence and education, because classical erudition *per se* is long gone [9], we regress to various **amulets** in difficult times and accept symbols worshiped in the social group to which we want or must belong, or even create new ones. Management is definitely no exception, so some implementers have implemented what others have implemented, because there is no better way to be cool. Some set to work out of sheer enthusiasm, others out of no less sheer despair. Whatever the motivation, some projects succeeded, others did not. In what proportion? Hard to say. Who would retraumatize him or herself as a reminder of their own failure ?! And so we have statistics with validity supposedly described by Churchill ***. Well, Goebbels claimed that Churchill said that, so I don't know whether the information is from a reliable source ... Mr. Bookkeeper's methodology was implemented with the high level of enthusiasm and many ended in even higher despair. After all, the dynamics of enthusiasm, which we are so happy to present as a necessary ingredient in everything that makes sense in life, can be expressed by the primitive structure shown in Figure 1. Enthusiasm is essential for a successful **start**, but a faulty plan or methodology leads to frustration and to a rapid replacement of enthusiasm with disappointment.

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*** „I only believe in statistics that I doctored myself "

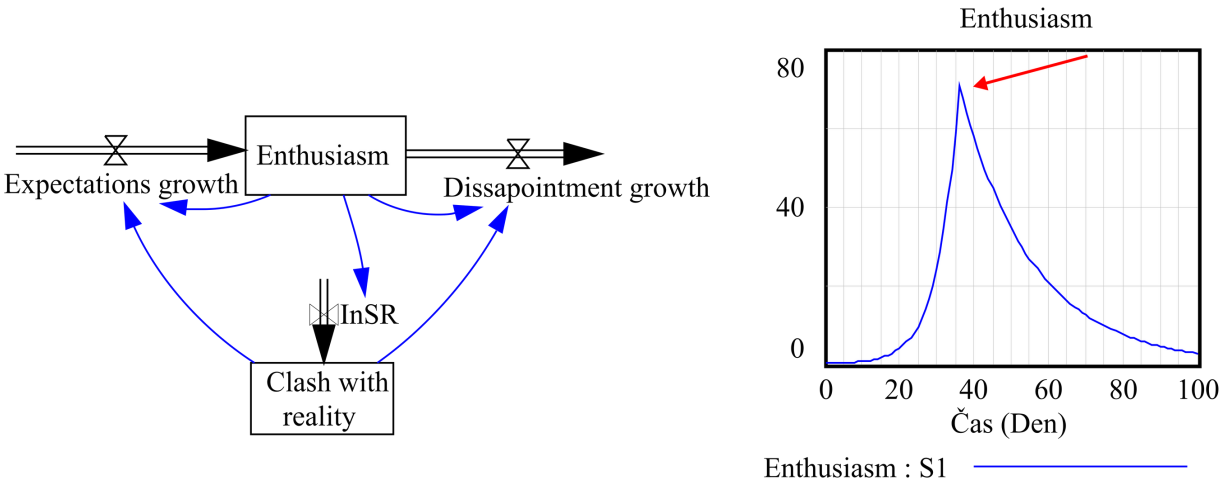

Fig.. 1 Structure of enthusiasm dynamics, including time course. The beginning of the disappointment phase is marked by a red arrow.

A frequent obstacle to successful implementation was the creation of **unrealistic** expectations of **immediate** success. Let's not forged that the relevant literature also contributed significantly to this mess. In particular, the **Strategic Maps** [10] have been fruitful in the sense of our talk about the tragic consequences of good intentions. How to implement BSC easily and quickly? Look in the catalog, something similar to us is sure to be found there. Sounds unbelievable? Speaking of personal experience, an unnamed organization wanted to copy a strategic map of the US Army - uniform as a uniform... Criticism of Mr. Bookkeeper's work has been and is being heard from all over the world. In the far North, based on the data collected from a banking institution, one author accuses BSC of increasing the control of top management in contradiction to the promised support of reflexive learning (whatever it is ...) and hindering the development of employee involvement at lower levels of management. The study's author even scolds the Scorecard as a "non-reflective measurement tools for everyday work, which reduces commitment and shortens the time for reflexive learning of line managers and undermines the potential for organizational learning [11]."

Before you start nodding in agreement, I would like to remind you that the movements "Our subordinate is our superior" and "The foreigner is native," also came from the North, and the countries have not yet recovered from results of these policies, and perhaps never will. Surprisingly, the wave of criticism did not miss even the Persian Gulf and the surrounding areas. The authors examined BSC from all sides and concluded that a **larger number** (which is in economic "science" probably much worse than a **smaller number**) of organizations implementing BSC either did not achieve the intended goal or encountered serious problems during implementation. According to them, the concept of BSC **does not have** a **clearly defined relationship** to **organizational performance**, goals and definitions of strategic measures do not include key stakeholders, there is a lack of definitions of key success factors necessary to identify KPIs and only four categories limit the view of the organization. In practice, the BSC focuses resources on achieving **predefined narrow goals**, which leads to underutilization of the organization's potential beyond the BSC goals, hinders internal innovation and applies one-way linear cause-and-effect relationships [12]. In the statements above the authors are definitely right.

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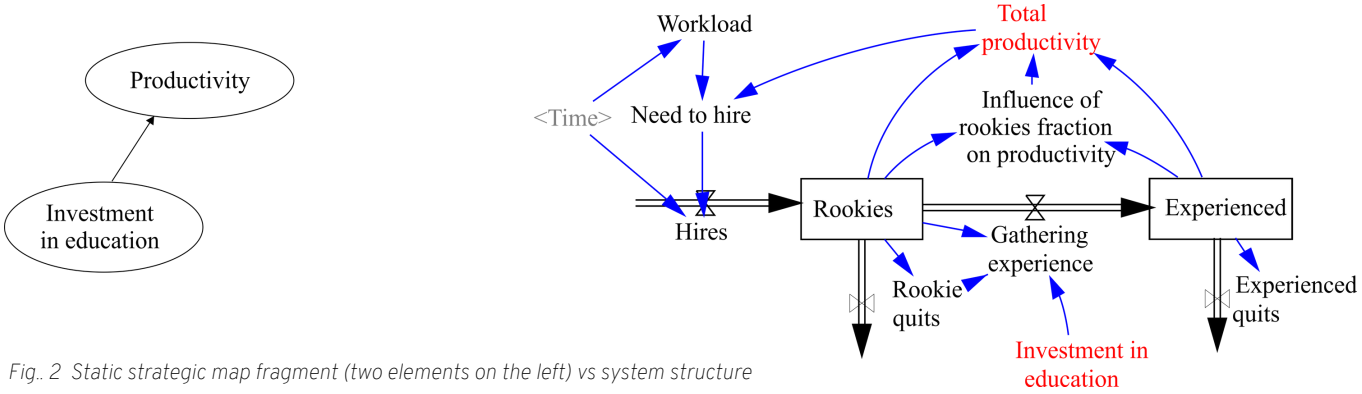

Fig.. 2 Static strategic map fragment (two elements on the left) vs system structure

To make matters worse, Thai experts also joined the crucifixion party. The author describes the reasons why BSC fails as a concept in small and medium-sized enterprises and demonstrates from the data that BSC is not suitable for organizations that have to flexibly adapt to market changes [13]. The reasons why the key success indicators need to be derived from the system structure and not from the static diagram, which the concept calls the strategic map, are summarized in the chapter "How to manage production" in the **System Thinking Guide** [3]. But let's choose one thing from everything that is the concept blamed for and look at a specific example. As I repeat since publication of the Czech translation in 2000, the **strategic map does not** contain the elements necessary for decision-making in a **dynamic world**. It gives the impression that increasing a certain parameter in the growth perspective will lead to an **immediate** reaction throughout the chain, which will ultimately result in an increase in EBIT or another financial parameter. Figure 2 shows a fragment of a strategic map on the left. It shows very often used relationship between investment in education and productivity. On the right there is a system structure that shows the relationship between these elements in a particular company. Both parts of the picture actually show the same thing. You can argue that the only significant difference is that the image on the right is, compared to the one on the left hard to read. And you're right. The problem is that the picture on the left gives the **false impression** that pouring resources into education will immediately increase productivity. If you study the structure of the model, you will also find the variable *Influence of rookies fraction on productivity*. The meaning of the variable is obvious. If the company has a **high** proportion of **newcomers**, overall productivity **decreases** not only due to their inexperience, but also the productivity of experienced employees drops! Why? Experienced people must spend part of their working time **teaching** newcomers, or **correcting** what newcomers have done wrong, as shown in Figure 3.

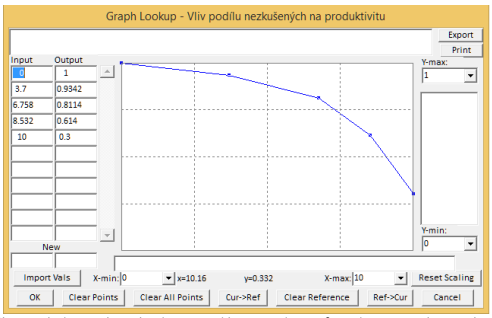

Fig. 3 The relationship between the rookies fraction and productivity

In fact, the relationship is neither **direct** nor **linear**, much less **immediate**. Figure 4 is the result of the simulation of the structure in Figure 2 (right side) after the company in question examined how quickly, after an increase in workload due to an increase in orders while increasing investment (both time and money) in education the productivity

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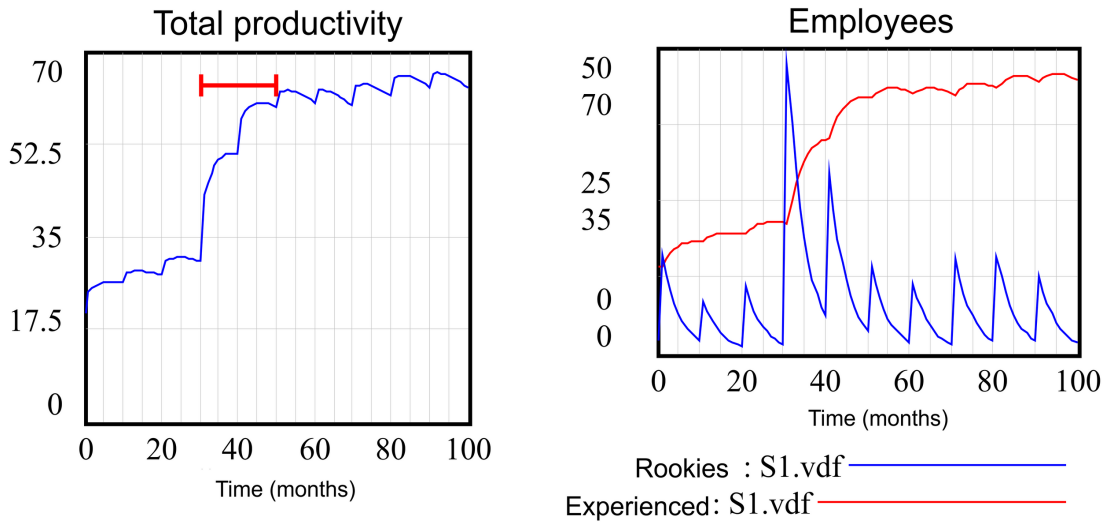

Fig. 4 Simulation of the relationship between investment in education and its impact on productivity. The Total Productivity graph shows the time required to reach the target value which the classic, static Balanced Scorecard assumes to be zero ...

reaches required level. You may think that no reasonable person would, after reading the diagram in Figure 2 (left side) expect that increase will occur **right away**. Such trust in humanity makes you a nice person, but the management of that company has consistently claimed that the increase will happen **within a month**! If you do not understand how can someone be so ignorant, please return to the right column of page 3. Notice that according to the graph in Figure 4 on the left, those months are eventually twenty! But only if they will be able to hire and fire rookies like in the blue curve in the graph on the right. Wondering what even more intensive education will do? Reaching the goal will take even **longer**. People in the classroom do not stand by the machine and therefore do not **produce**. By no means that's all that managers do not take into account when implementing strategies, but let's leave something for the next time. Make no mistake, the above **criticism** of the concept of the classic BSC and the "implementing rules" **is justified** in many cases. However. Thanks to the Mr. Bookkeeper, people became interested in strategy. They threw away the dusty documents created by **someone else** for a lot of money and started using **their own heads**. Thanks to him, **non-financial indicators** got into strategic thinking in many companies. Thanks to the often criticized perspectives, the strategy began to be considered also from the perspective of the **customer**, **processes** and **investments into the future**, to mention only some of the positives of his concept. And even if it happened to be all, we should be **forever grateful**.

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Uncle, create us a mutant!

-Aur-*

Abstract: The article follows the main topic of SDR 11 (Salvation, Ltd.) and SDR 12 (Once more for the thick-headed...) and focuses on the systems consequences of feeding substances into the organism under conditions other than those specified by the technology. Although these are theoretical considerations, the presented diagram and the simulation model results are able to explain the epidemic dynamics currently observed in many countries.

The nephews and nieces are still children, so one cannot be surprised by their boundless belief in their uncle's abilities. For those who were told that the uncle was a professor and a doctor, the statement evoked a decent dose of skepticism, as professors and doctors have been seen in displeasing action every day for the past year. On the contrary, for children who were not told anything about the uncle, as if expectations had no limits! Today's youth have been obsessed with the so-called **zombie apocalypse** for a few years, so the uncle was asked, considered by the uninformed majority to be omnipotent, to create a **mutant**, because there is only a short distance from **a mutant** to a **zombie**. Looking into the sparkling children's eyes full of joyful anticipation, he immediately rejected the primary self-preserving tactic, namely, to **deny everything** and turn the request into a joke. In the end, he decided that he would not produce **anything** himself, but explain to the kids how they can create a mutant themselves. Exactly according to the rule of prevention of the consequences of the archetype Shifting the burden [1], succinctly expressed by the rule: "Do not give them a mutant, teach them how to make it." As a bonus, he wanted to describe everything in a way even the politicians would understand, but decided not to try, scared by the rather probable scenario in which little John, Peter, Jacob, Catherine, Stephen, Vojtech, Magdalene, or perhaps Agatha or Mary would ask: "Uncle, why do you treat us as idiots?" And so he used a style and level worthy of the intelligence of those to whom he is the uncle: "Dear children. If I wanted to create a mutant, I would do it like this. Let's have two substances. The first we will call a **prophylactic**, the second a **curative**. A prophylactic is used for **prophylaxis**, in other words the **prevention**. By applying prophylactics, we prepare the organism to cope with **future** threats. Curative, from the Latin *curat*, is used to treat, i.e. manage the **ongoing attack by a hostile pathogen**. The logic of prophylactic application is shown in Figure 1.

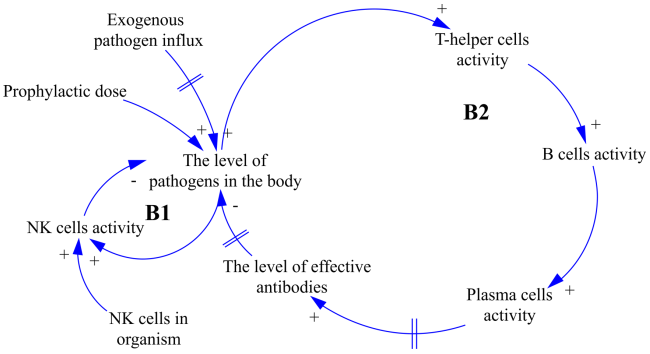

Fig. 1 Prophylaxis dynamics

The causal loop diagram shows that the level of pathogen specific products in otherwise pahtogen-free organism increases after the dose of prophylactic vaccine. Whether it is complete RNA or mRNA alone does not matter in this context.

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Cells "infected" with the vaccine express pathogen proteins and trigger a feedback loop labeled B2. T-cells activate B-cells, from which plasma cells are formed and antibodies are produced proportionally. In order for the system to be effective, it is necessary to activate the NK (natural killer) cells in the B1 loop with a **delay** that will allow a **sufficiently efficient course of antibody production** in the B2 loop. This, more or less effectively, is aided by **memory cells**, not shown in the diagram. If the processes are successful and *Exogenous influx of the pathogen* occurs, **pre-existing** antibodies prevent the spread of infection in the immune organism. Everything is described in higher detail in SDR 11 [3]. But this is true for a "**pure**" organism. Now let's look at the situation in Figure 2, in which most of the world can theoretically be.

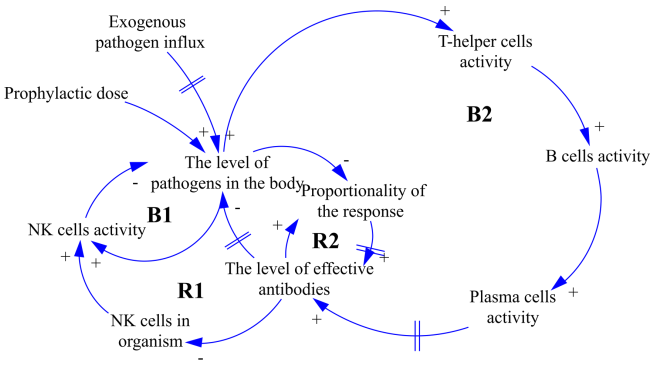

Fig. 2 CLD administration of prophylaxis during ongoing infection

A situation in which a prophylactic is applied to an organism that **is infected or still attacked** by a pathogen from which the prophylactic should protect. Loop B2 remains, but positive loops R1 and R2 are added. The specific "production program" in loop B2 produces antibodies with **limited capacity** (too intensive production would endanger the organism) and the resulting **specific** antibodies **replace** the universal NK cells in response to a given pathogen, as indicated by loop R1. This is advantageous in terms of the speed and specificity of the reaction, but very disadvantageous if the organism attacks a **mutated** or completely different pathogen. The higher the pathogen load, the more antibodies are needed to control the infection. The *Proportionality of response* variable expresses whether the response of the immune system is **optimal** or **sub-optimal**. It will be optimal **only** if the *Exogenous pathogen influx* appears **after the formation of antibodies**. If both processes take place **simultaneously**, the charge reduces the value of *Proportionality* and the antibodies formed are not sufficient to balance it. The resulting response will then be **sub-optimal** and this has a number of consequences. The **effectiveness** of the immune system **decreases**. In the diagram, this is expressed as loop R2. The higher the *Proportionality of the response*, the higher the level (or here the effectiveness) of antibodies. From a system point of view, it is important that R1 and R2 are **positive feedback loops** and thus sources of potential system **instability**. If any of the positive feedback loops gain **dominance** in the system, the consequences for the organism need no further comment. Another consequence of the sub-optimal response is shown in Figure 3. **Lice**, slightly sprinkled with DDT, will shake off the insufficient amount of powder, and according to the motto "what doesn't kill me, it strengthens me" will become **more resistant** in the next round.

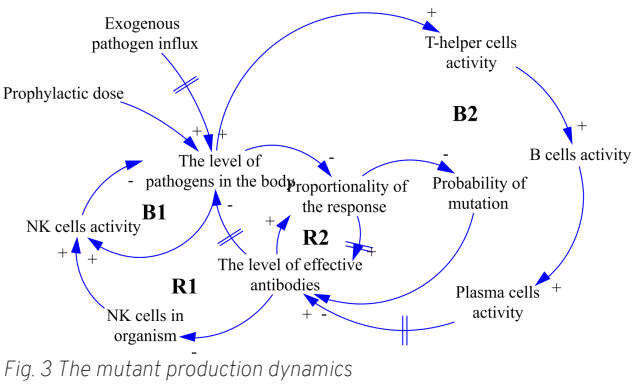

Fig. 3 The mutant production dynamics

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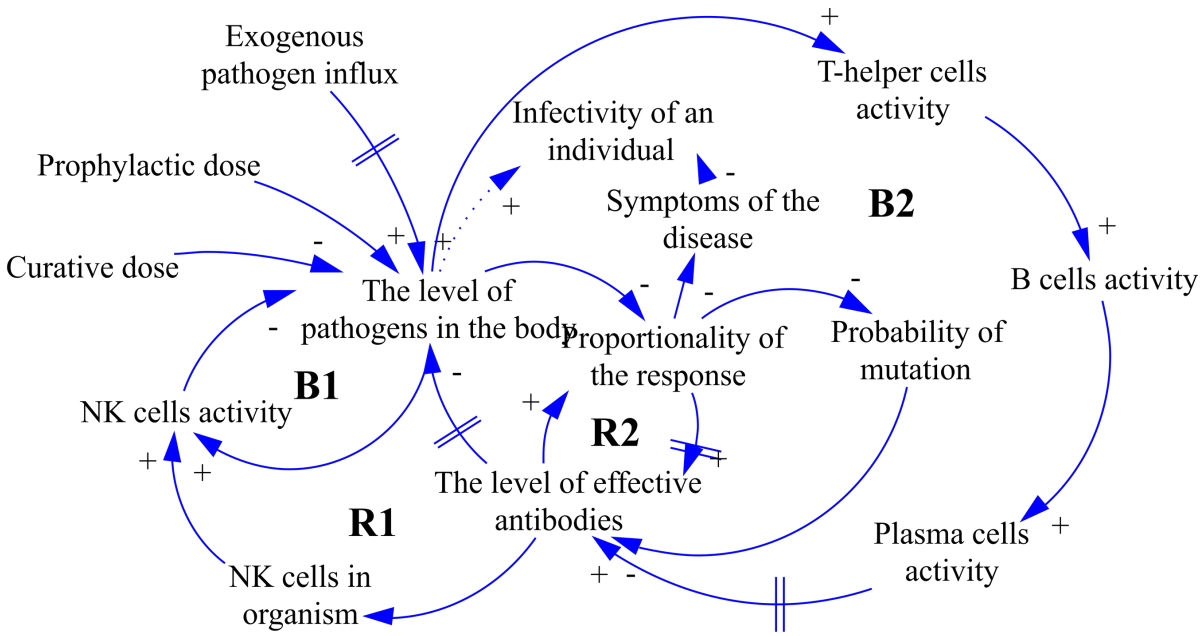

Fig. 4 Complete CLD with the mutant production process and the theoretical consequences of prophylactic administration during ongoing infection

Pathogens will mutate. The greater the *Probability of mutation*, the **more distant** is the immune system's response from the **optimum**. The loop R3 (positive again) expresses the relationship between *Proportionality of response* and *Probability of mutation*. The more likely the mutation is, the lower the level of effective antibodies will be. According to the diagram, this means that there will be enough active NK cells in the organism, but this **only** applies if the previous pathological conditions or the **activity of prophylactics** in this field did not cause genocide. A potential way out of this pickle is to minimize the effect of ongoing infection by **administering prophylactics and curatives simultaneously**. Most participants, however, concisely claim that there are no curatives available... Well then you need to prepare for the above explained, strictly theoretical implications of the applied policy. The last consideration concerns another possible (not certain) systemic consequence of the above and is shown in Figure 4. The higher the load of pathogens in the organism, the higher the **virulence**. If all goes well, the organism responds optimally to the prophylactic, but, if currently infected or ill, its infectivity will from the epidemiological perspective **increase** because, although still infectious, it will stop exhibiting symptoms of the disease. You may argue that infectivity can be easily detected by tests. In this case, please complete your education. You can start here for example [4] and continue here [5-8]. You have a complete diagram, create a model and verify or reject the conclusions of our mental simulation. Do you kids finally get it? ”

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