

Backcasting the future of sustainability

If you fail to plan, you plan to fail!

It was not so long ago that the catch-cry of business was planning. As the adage goes: *if you fail to plan, you plan to fail*. As a high achiever, this compelled me, several years ago, to become the best planner possible and resulted in me completing a postgraduate course in business planning. Combined with my background in high order mathematics and management science, it taught me a lot about forecasting – statistics, extrapolations – resource allocations, solving complex problems with multiple constraints and so forth. Needless to say, it was a worthwhile experience. Later I combined this with a master degree in technology management and then an MBA.

Forecasting the future based on past trends can be quite nifty. My '*predictive*' powers were good and – at the time – secured me a regular column in a major newspaper. With increases in computing power, now we can see these applied to many aspects of life: forecasting the weather (including tides and other natural events) and population. In fact, there are whole businesses that are based around the power of statistics – extrapolating past trends to identify likely future outcomes: insurance, gaming (casino, races) and stock market systems to name a few.

But what if the trends themselves are unpredictable? What if the trends are not trending? What do we do then? In some cases, we know the past and even know where we like to be at in the future and are just unsure how to get there. Extrapolating past trends to identify the future course of actions does not work in these circumstances. We need a better plan, a method for planning under uncertain circumstances.

Enter backcasting, a technique complementary to forecasting. Backcasting is a planning methodology that is most helpful when problems at hand are complex and when present trends are part of the problem. It is particularly useful in handling complex issues involving multiple trade-offs in a reliable, systematic and

coordinated way. It takes a holistic, **systems thinking** approach to solve these complex issues by often addressing what are known as difficult to resolve **systemic or wicked problems**. Backcasting works best when non-overlapping **first principles** are employed.

Let us look at how this applies to a subject close to my heart: Industrial Ecology which aims to analyze the societal industrial metabolism from a sustainability perspective. These involve complex inter-dependent natural and human-made systems which function to maintain the livelihood of the planet we live on (Earth). Individual humans (consumers) and in groups (a.k.a. business, governments, institutions etc) are primarily its caretaker. What is clear is that there is no sustainable business in an unsustainable world.

Viewing the future by mirroring the past have not produced the desired outcome. Whilst there have been incremental improvements towards sustainability (i.e. increase in renewables or decrease in fossil fuels, increase in recycling/decrease in waste), these have been far too little. Knowing where we are at and where we ought to be, means that a radical transformation or leap forward is what is required by humankind.

Again, backcasting comes to the rescue. Backcasting is a methodology for planning under these uncertain circumstances. By projecting the target and working backward to where we are at, we can set milestones which are '*designed*' to achieve the desired outcome. It moves our thinking away from the somewhat minor '*incremental*', to the major '*radical*' leaps in technology, leadership, and mindset **necessary** to achieve success. It is imperative that we are constantly moving towards our goal because as the saying goes: *if you stay still, you are falling behind!*

Although the future cannot be foreseen, its principles can. Thus, to harvest most benefit from backcasting, a **framework** including a set of non-overlapping first-order '*Principles for sustainability*' and '*conditions*' for the whole ecosystem must be established (see figure). It is important that these first-order principles and conditions address the outcome (sustainability) and not the transition (sustainable development) and thus reduce the risk of jumping from one **wicked problem** to another.

This approach encourages the use of systematic tools for [assessment](#), valuation,

categorization and gives priority to strategies for investments that are technically and ecologically flexible platforms, initially targeting the '*low hanging fruit*'. This creates a strategy for systematic sustainable development that makes sense also from a business point of view, not only for the **common good**. We are already witnessing severe environmental problems and business setbacks are inevitable unless companies dedicate themselves to meeting the basic conditions necessary for the sustainable development of our society.

A clear and stringent **framework** is helpful (see the Framework for Strategic Sustainable Development: FSSD), even if it does not immediately lead you to very concrete consequences regarding figures and measures. A flourishing enterprise is a strongly sustainable enterprise i.e. built on the FSSD and thus able to use the backcasting technique in becoming thrivable. Its **business model** augments its strategy. Conversely so, the lack of very precise figures does not justify ill-defined frameworks. It is essential for groups of people (e.g: Business) to have a shared mental framework of principles if they want to function as an effective team. Backcasting provides this framework and set of systems conditions, providing the means to formulate holistic solutions to difficult **wicked problems** facing humankind.