Advocating energy efficiency with a proverbial approach

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Abstract
Energy efficiency has proven to be a hard sell. We have all the good arguments about economy and environment but in spite of this still have a huge potential that is not exploited. Partly we are to blame ourselves because we have appealed to an economic sense that we have assumed to be the overarching reason for people to act. People, however, have a very simplified way to react on a proposition. Research in behavioural economics show that we at first use a fast and automatic thinking, which is based on experience. This fast approach is the first instance to accept or reject new ideas. Since energy efficiency and its implications seldom have been experienced our arguments don't pass the first hurdle.

The human mind is built to think in terms of narratives, stories. They create a framework for our motivation. Maybe we could bypass the first mind-test by appealing to other experiences than our own and do so by using really engrained knowledge such as laid down in proverbs, folklore and literature. Thereby either hope for an "aha"-experience of the fast thinking or for its remit of the issue to the slow and analytical thinking.

Depending on the biases people may have in their mind when they are searching for data and arguments we may have to design such a "proverbial approach" accordingly. The bias may have to do with representativeness or availability of data, but also to what we compare (anchor) data to or even with how strong our ties are to the object for the change (endowment).

Another and related issue is that our arguments and even physical design of energy efficient installations leaves many users blank. We do not understand them and then how can we desire and use them?

Finally we may have to put ourselves in the shoes of the users/buyers. What is on their mind? It might be something completely different from the unique features we argue in our USP (Unique Selling Proposition) of energy efficiency. We may have to figure out what would be the UBR (Unique Buying Reason).

Prologue
If it is true that we (humans) are inclined to jump to the wrong conclusions because we are thinking too fast then there might be a chance to correct ourselves by thinking even faster! Our fast thinking is based on our use of experiences and hearsay with which we are able to form a first opinion. An opinion that we normally, if we find it reasonable, stick to without considering to ask our own analytical mind for a second thought on the issues. But there is another basis for fast(er) thinking if we can make use of other experiences, such that are part of our cultural heritage and coined in phrases to which we are already familiar. In proverbs, folklore, quotes, traditions, bedtime stories, songs and other pieces of knowledge that you have learnt to believe even before you had any experiences of your own.

In this paper "proverb" is used for the entire range of means that could facilitate communication between people that share the cultural traditions. The "proverbs" in the boxes are only examples and must necessarily be changed according to circumstances.

Introduction

RATIONAL BUT FOOLISH?

The economic man is dead. (If he ever existed.) Yet this figure is often used as the norm for our behaviour. "Money (the wallet) rules" many people say. "Greed works" say those who have seen Gordon Gecko, alias Michael Douglas, in the movie "Wall Street".[1] These phrases are quite often heard either when confronting local managers why they have not achieved more in their premises or when confronting policy makers why the incentives and guidelines are so few. Their retort has an air of excuse that says that the profitability of the efficiency measures is too small.

Hence we go on and design financial incentives for people and companies to be energy efficient in hope that they will do whatever needed if (and only if) it is profitable to do so. We are assuming that seeking and maximising profit is the general rule. "The Social Responsibility of Business is to Increase its Profits" said no one less than Milton Friedman.

And we have surely tried! We have for so many years tried to advocate energy efficiency with sheer simplistic economic argumentation. We have told energy users and politicians that: "It is a win-win, it is no regrets, It is an (economic) no-brainer." The result has however not been very impressive. We still have a huge energy efficiency potential out there. Good money is wasted paying for energy that does not provide the sufficient services (light, heat, motive power). Our arguments probably reach the brains of those who listen to us, but not their wallets to show up in investments. Could it be that they are not the economic men we assume them to be?

Criticism against the theories of rational choice is not new. The economic man has also been called "The rational fool" (Sen 1977). Amartya Sen argued that individuals were guided also by other considerations than (economic) self-interest and that rational choice theory does not address the role of an individual's sense of morals or ethics in decision-making. His critique aims more to show that humans are more complex human beings that, when they calculate, not only takes their own well-being into the consideration but are able to think both forward in time and wider in scope, being more inclusive.

That would however not necessarily exclude rational calculations even if they would be far more complicated and run the risk of missing essential issues.

HUMAN AND IGNORANT?

Behavioural economics teach us that the problem lies in the way we, as humans, are thinking. We are simply not hardwired to be purely economic.

There are several variations of explanations of how we have two modes of thinking when we approach a problem to make a decision. One says that the systems are either **Experiential** (Holistic, Affective, Associationistic, Use vibes from past experiences, Encodes reality in images, metaphors and narratives, Oriented towards immediate action, Experiencing is believing) or **Rational** (Analytic, Logical, Consciously appraising events, Encodes in abstract symbols, words and numbers, Oriented towards delayed action, Requires justification), (Slovic et. al 2002*)*. "One of the characteristics of the experiential system is its affective basis. Although analysis is certainly important in some decision-making circumstances, reliance on affect and emotion is a quicker, easier, and more efficient way to navigate in a complex, uncertain, and sometimes dangerous world."

Daniel Kahneman and Richard Thaler also in their work show that we basically have two ways of thinking. They call one fast and automatic and builds on the experience we have gained in life. The other is slow and reflecting and activates our analytical mind. And more important, that we hesitate to use the analytical thinking unless necessary. There is a sort of hierarchy between the two ways and the fast one guards (prevents) the reflecting from being used in vain.

So if we want persuade (incentivise) people for energy efficiency measures we need to activate their automatic and fast system. Either for this guardian of their mind to make the economic choice by reflex or to make this fast system to ask their analytical and slow system for help to make a better decision. We simply need to frame the propositions to customers in a way that enables them to understand (or catch them by surprise)

Since the fast system works on old information (experience) we may also be able to unlock it with such. We all carry a lot of common knowledge in the format of proverbs told to us as rules of thumb. We further carry a cultural heritage from literature, folklore and quotes. We may use such cultural information as keys to open up and/or circumvent that fast thinking. If this doesn't work we may use it as a comfort for ourselves when in despair over why energy efficiency is such a hard sell.

Another or a supporting opportunity is to redesign situations where people make their choices. Richard Thaler and Cass Sunstein shows that we need, what they call "Choice architecture", to nudge customers in the more sensible direction (Thaler and Sunstein 2008).

This paper is trying to reconcile scientifically observed pitfalls of fast thinking with a "proverbial"[2] environment in order to see if we can find a ground to improve our selling of the rational energy efficiency.

UNCERTAINTY IS NORMAL

Energy efficiency mostly requires investments where there are several alternatives. You could to do one thing or another, you could buy A instead of B – or – buy A or abstain from all change. This makes the procedure to decide seemingly simple. I should buy A if it is cheaper than B.

This would have been simple if the outcome would have been certain, but energy efficiency is different and normally has a degree of uncertainty. If I buy the thing that should reduce my use of energy the properties of this thing might not be fully defined and even when they are the comparison creates uncertainty. How much would I have used the product that was replaced?

1. Full quote: "Greed, for lack of a better word, is good. Greed is right. Greed works. Greed clarifies, cuts through, and captures, the essence of the evolutionary spirit. Greed, in all of its forms; greed for life, for money, for love, knowledge, has marked the upward surge of mankind and greed, you mark my words, will not only save Teldar Paper, but that other malfunctioning corporation called the U.S.A."

2. Proverb is here used in a wide sense and also incudes other quotes from literature, tales, sayings, plays, jokes etc. All such ways of communication that has a fast track between people because they have heard it, recognise it and do not require further explanations. Such are of course different between traditions, countries and generations.

Contents Keywords Authors

What will the price of energy be in the future? What are the features of the product that I buy. Does it have other implications for my situation except saving energy – would it create a better or a worse situation? Any decision to invest to improve energy efficiency has a degree of uncertainty.

A complicating issue is the choice of calculation method. What does economic really mean? Most would say that least cost is economic and also intuitively associate it with total cost over life-time, but in reality the decision criteria are often simplified and (short) pay-back times are referred to. The motivation for using the simplified methods could reflect general cautiousness in economic endeavours, but is probably more about delegation of power in companies. You don't want the lower levels in the hierarchy to make spending decisions that could adventure the balance sheet.

Most studies on potentials today work with Life Cycle Cost (LCC) rather than trying to figure out what length of pay-back time or value if rate of return an actor might have. So how could we make this an issue also for the everyday company decisions?

Proverbial approach: It is well known for our ancestors that buying too cheap in the end turn could in the end turn out to be more expensive:

– ***Cheapest is dearest*** and

– ***A good bargain is a pick-pocket***.

… the old proverbs say. People knew that quality pays in the end. For them it might rather have been an issue of financing that they could not afford to buy what would have been the more beneficial choice. An old Swedish proverb says that:

– ***When it rains manna from heaven, the poor one does not have a spoon***.

So we may fail both because of uncertainty and lack of (carelessness with?) calculation. It might be therefore we still after so many years of analysing and showing huge numbers for the potential to save energy, this is still not realized. We are hesitating in the face of uncertainty.

Proverbial approach: Or with the words of Shakespeare (from Hamlet act 3 scene 1):

The undiscover'd country, from whose bourn
No traveller returns, – puzzles the will,
And makes us rather bear those ills we have
Thus conscience does make cowards of us all
And thus the native hue of resolution
Is sicklied o'er with the pale cast of thought,[3]
And enterprises of great pith and moment
With this regard their currents turn away,
And lose the name of action.

3. German: So macht Bewußtsein Feige aus uns allen; Der angebornen Farbe der Entschließung.
French: Ainsi la conscience fait de nous tous des lâches ; ainsi les couleurs natives de la resolution blêmissent sous les pâles reflets de la pensée.

Animal Spirits

John Maynard Keynes is said to have been in doubt that actors are rational people who engage in transactions as if guided "by an invisible hand". He rather thought that much economic activity is governed by "animal spirits" and that people are not always rational in pursuit of their economic interest (Akerlof and Shiller. 2009 p. ix). Akerlof and Shiller lists five aspects on animal spirits that are of importance to explain why we deviate from pure rationality. These aspects are Confidence, Fairness, Corruption, Money illusion and Stories.

It is quite easy to find in our own experience that we, in order to act, must feel **confidence**. We must perceive that the exchange/transaction we are about to make should be **fair** and that we do not risk to be victims (or supporters) of **corruption**. The **money illusion**, the fact that money value changes over time, always make us jump to conclusions since we have difficulties in aligning the money value from different times. Finally we need a **story** to make the proposal we are considering relevant in our own life. Then of course all these aspects are intertwined.

Stories are also important for our confidence in a nation a company or an institution with whom we interact. "The human mind is built to think in terms of narratives … stories and storytelling are fundamental to human knowledge. People's memories of essential facts are indexed in the brain around stories" (Akerlof and Shiller 2009. p. 51).

Stories are by nature specific and should be. There is always an element that makes it difficult to generalize. If we want to persuade people to undertake something that is not natural for them we have to find a story that is relevant for them. But there could be elements that are common to man and has been a part of their up-bringing. Such common knowledge is a way for us all to connect with the tradition of the society in which we live. These common elements might be captured in literature, folklore and proverbs. Could those quotes be used to advocate energy efficiency and serve as a part of the storytelling?

It should be possible to use such a common base for communication either to circumvent the experiential thinking or to stop it from jumping to conclusions since: "… reliance on affect and emotion is a quicker, easier, and more efficient way to navigate in a complex, uncertain, and sometimes dangerous world" (Slovic et al. 2002).

Thinking fast and slow

In his book "Thinking fast and slow" Nobel Prize laureate Daniel Kahneman elaborates in greater detail how we think and also uses the two-systems approach. He explains that we have two systems to approach and think about how to solve a problem. One fast, intuitive and emotional and one slow deliberative and logical.

The fast system "operates automatically and quickly, with little or no effort". The slow system "allocates attention to the effortful mental activities that demand it, including complex computations." In giving examples of what the systems do Kahneman says that the slow system is required i.e. to "compare two washing machines for overall value".

The fast system is the one we use to observe and act upon what happens. This system has "models of familiar situations" and it calls upon the slow system when needed. The fast system generates suggestions for the slow system and if the slow sys-

Contents Keywords Authors

tem endorses the suggestions "intuition turns into belief and impulses turn into voluntary actions" (Kahneman. 2011. p. 24).

The fast system is actually what we train and educate to enable us to live comfortably and not run into complex considerations in all turns of life. It is about pattern recognition and this, in turn, is what upbringing is about. Our parents and grandparents tell us with all sorts of means including proverbs how we can understand the mysterious world. Our education gives us stories and songs that enable us to confront unfamiliar situations. So we can train our fast system a bit.

The fast system however "has biases, systematic errors that it is prone to make under specific circumstances. It has "little understanding of logic and statistics" (Kahneman. 2011. p. 25).

It seems quite obvious that we should not entrust the fast system to make choices about energy efficiency, but "trick" it either to leave such thinking to the slow system that has the capacity to do the job or, if possible, find a way to circumvent the biases. But how can we deal with that that the fast system has an idea – a suggestion – that the slow system has a tendency to accept? We must find a way of persuasion.

And of course we should not fool ourselves to assume that the slow system already has the control when it comes to these issues even if the conventional wisdom, neoclassical economy and its ombudsman, the famous phantom, the economic man, says so.

Proverbial approach: Part of the tradition to transfer knowledge between people and generations is by quotes from famous persons. Sometimes they are genuine but sometimes it can be suspected that they are made up. In any case when we see a good point in a word of wisdom ascribed to famous person it could be used. In this case to underline that it could be worth thinking twice, for example:

– To succeed, jump as quickly at opportunities as you do at conclusions. Benjamin Franklin

– Life is the art of drawing sufficient conclusions from insufficient premises. Samuel Butler

– People do not like to think. If one thinks, one must reach conclusions. Conclusions are not always pleasant.
Helen Keller

The prospect theory[4]

Prospect theory is a behavioural economic theory that describes decisions between alternatives that involve risk, where the probabilities of outcomes are known. The theory says that people make decisions based on the potential value of losses and gains rather than the final outcome, and that people evaluate these losses and gains using heuristics[5]. The model is descriptive: it tries to model real-life choices, rather than optimal decisions.

This theory departs from the tradition that assumes the rationality of economic agents and is developed by Daniel Kahneman and Amos Tversky. The theory might be mostly known by its explanation that, when we are confronted with a choice (a prospect), we are not evaluating it in terms of utility and money-value but transform it mentally depending on if we perceive the prospect to be a gain or a loss.

Losses have a higher value than the gains in the eyes of most people, see Figure 1[6]. This has a dramatic consequence for how an energy efficiency prospect should be presented (framed) to a customer. Instead of presenting a gain of a certain amount it should be presented as an avoiding a loss of the same amount, since Lv > Gv, i.e. the customer has a higher subjective value for the loss than for the gain!

Proverbial approach: A useful way to at least consider the issue could be by quoting a tennis-player who probably had the experience:

– Whoever said, "It's not whether you win or lose that counts," probably lost. Martina Navratilova

Another aspect is that losses and gains have to be treated differently when we try to learn from them.

– The most important thing in life is not to capitalize on your gains. Any fool can do that. The really important thing is to profit from your losses. That requires intelligence; and it makes the difference between a man of sense and a fool.
William Bolitho

The prospect theory further shows that we assume the risk of the prospect differently depending on the likelihood for the outcome. With low likelihood we have a tendency to overestimate the outcome and likewise underestimate when the probabilities are high.

Proverbial approach: This knowledge may not be popular but obviously known among journalists:

– The 50-50-90 rule: Anytime you have a 50-50 chance of getting something right, there's a 90 % probability you'll get it wrong. Andy Rooney

Econs and Humans

The two illustrations from the prospect theory above primarily serve to show that the normative hope for rationality in making decisions under uncertainty is vain. Richard Thaler and Cass Sunstein argue that the economically rational man is a creature that only lives in textbooks. Such a person, they say, would have to be equipped with the calculation ability of Albert Einstein, a memory of a mainframe computer and the willpower of Mahatma Gandhi. They call such persons Econs. The rest of us, who are less gifted, are Humans (Thaler and Sunstein. 2008).

Nevertheless the concept of the economic man, the Econ, is useful because it allows us to imagine how much we are spoiling and wasting being the humans we are and how much we

4. Several of the short descriptions of issues related to the prospect theory and of cognitive biases are taken from Wikipedia and somewhat edited.

5. Simplified rules (of thumb).

6. Adapted from http://choo.fis.utoronto.ca/fis/courses/LIS2149/HeuristicsFIS2149.pdf.

Contents Keywords Authors

could have saved being more rational. "The Efficient World Scenario results in a more efficient allocation of resources, boosting cumulative economic output through 2035 by $18 trillion – equivalent to the current size of the economies of the United States, Canada, Mexico and Chile combined. GDP gains in 2035 are greatest in India (3.0 %), China (2.1 %), the United States (1.7 %) and OECD Europe (1.1 %). Additional investment of $11.8 trillion in more efficient end-use technologies is needed, but is more than offset by a $17.5 trillion reduction in fuel expenditures and $5.9 trillion lower supply-side investment" (IEA WEO. 2012 chapter 10).

It is obvious that if the Econ had been around he/she would have saved the world enormous resources and allowed a higher and more well distributed welfare globally. The losers according to the IEA calculation would have been the countries whose economies are based on fossil fuels.

But in the absence of the mythological figure, the Econ, and having to rely on the Human we have to act differently. In particular we have to take into account the human behaviour and the fact that our thinking is not only fast and prone to jump to conclusions, but also biased since our experience-based thinking is not trained to deal with e.g. probabilities. The good news is that there is a pattern in the biases!

Proverbial approach: Recognising the Humans might be known since long:

> ***– But while they prate of economic laws, men and women are starving. We must lay hold of the fact that economic laws are not made by nature. They are made by human beings.*** Franklin D. Roosevelt

And to make us Humans a bit less hasty in our attitude we may think of the 59th Street Bridge Song:

> ***– Slow down, you move too fast; You got to make the morning last; Just kicking down the cobble stones; Looking for fun and feelin' groovy.*** Simon and Garfunkel

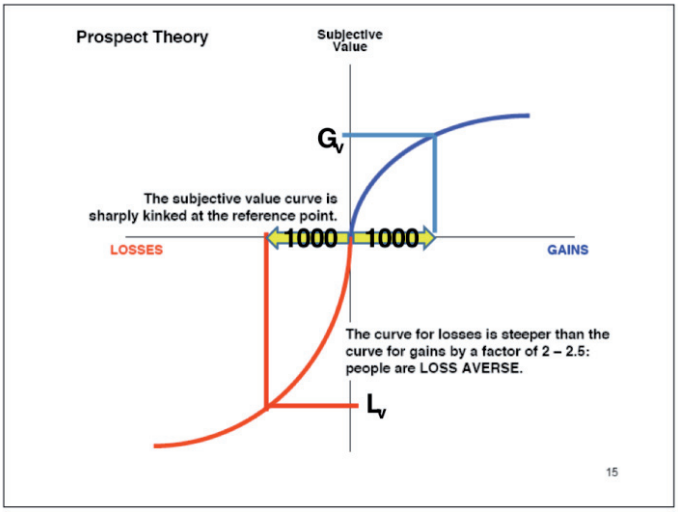

Figure 1: Subjective values of gains and losses. The subjective value attached to a loss Lv is higher than that of a gain Gv for the same amount of money.

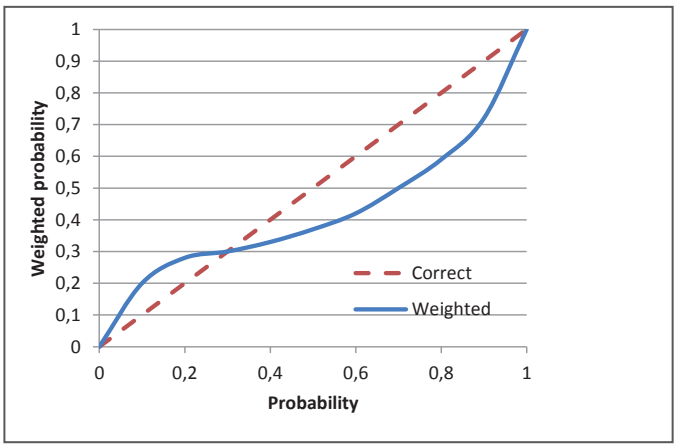

Figure 2. Weighting of probabilities.

AVOIDING THE WRONG TURNS

Our method to think fast (and sometimes wrong) is to make use simplified rules, heuristics. "A heuristic is a mental shortcut that allows people to solve problems and make judgments quickly and efficiently. These rule-of-thumb strategies shorten decision-making time and allow people to function without constantly stopping to think about the next course of action. While heuristics are helpful in many situations, they can also lead to biases."[7]

This is a fairly accurate description of the fast thinking. Kahneman points at this way of treating information as a part of evolution. If we were not trained and have developed a way to recognise dangers very quickly we would not have survived. He gives an example in an interview: "If I encounter something many times, and it hasn't eaten me yet, then I'm safe. Familiarity is a safety signal."[8] We train our children in this art even if the dangers are different today. But some of these short-cuts may lead wrong and are biased. In order for the short-cuts to be useful, and not only fast, we must find a way to recognise and deal with the biases.

Decisions regarding energy efficiency have to consider the probability of the outcome, since there are unknown factors in terms of technical performance, and the value of the outcome, since energy prices and sometimes also operation costs are not easy to predict. There are also unknowns about the benefit of the undertaking, other than those related to energy only, e.g. productivity, comfort etc.

The data that can be gathered and put into a calculation should therefore be looked upon critically. Are they representative, from what source are they and are they just estimates of some sort? But also how do the receiver of the data treat the material, does he/she have any way of understanding unfamiliar data and is there any risk for a "mental accounting" that biases the economic calculation?

The following "typology" follows Tversky and Kahneman but is here only used to give an idea of the variety and magnitude

7. http://psychology.about.com/od/hindex/g/heuristic.htm

8. http://www.spiegel.de/international/zeitgeist/interview-with-daniel-kahneman-on-the-pitfalls-of-intuition-and-memory-a-834407.html

Contents Keywords Authors

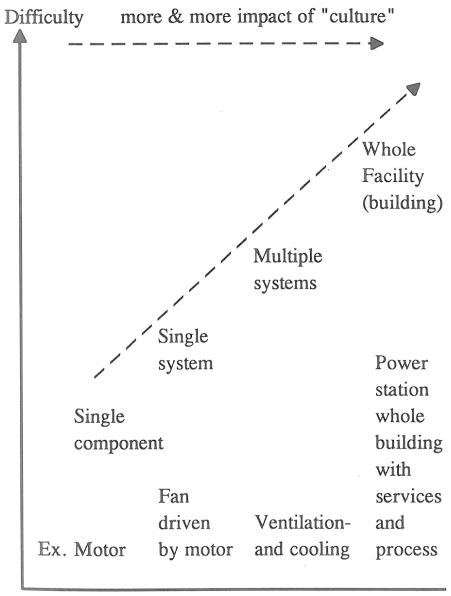

Figure 3. The complexity ladder. It is judged to be much easier to work with single components, or single systems, than with complicated systems, or whole building facilities, especially when different climatic conditions and cultural factors may have a large influence on the project.

of the issue. It is however also an attempt to see if we can find some "proverbial" argument that could "un-bias" the heuristic.

Proverbial approach: Well, it is not (yet) a proverb, but it might be so in the future since we are living in societies that shove us with polls of all sorts. Unfortunately these polls are often in media presented as predictions about what will happen, so we should take heed from this:

– ***We must become more comfortable with probability and uncertainty.*** Nate Silver[9]

Representativeness

Considering an investment you have to find some information that could be applicable for the case you have at hand. But how well does available data resemble the actual situation? When we are talking about energy efficiency you would need to know what impact the suggested measure would have. Will you really save X kWh, will the benefits be high enough, will the costs not be higher than Y? Could there be other factors than e.g. the physical conditions that determine the outcome? There are several pitfalls of which some are (Tversky and Kahneman. 1974):

Misconception of regression

Regression toward the mean is the phenomenon that if a variable is extreme on its first measurement, it will tend to be closer to the average on a second measurement. Making a judgment based on only one observation could turn out to be utterly wrong. It could be both tempting and natural, but could also be symptom of wishful thinking rather than of actual correlation.

Assume that a claim is made that a specific technology applied in one installation has shown that it will deliver surprisingly huge (or bad) results. Regression to the mean will mean that when applied a second time it would probably show worse (or better) result.

"Best practice" could be a risky concept if based on too few examples. Complex objects with many components and many influencing variables may also make interpretation of available data more complicated, see Figure 3 (IEA DSM Programme. 2000). Measurements from a whole building are subject to climate, occupation, activity etc. which makes comparisons more difficult.

Proverbial approach: There are many proverbs that warn you from jumping to conclusions but most of them do not encourage to gathering better information but instead not to act at all, e.g.:

– ***Better safe than sorry,*** or

– ***It is best to be on the safe side.***

The proper actions would rather be to get more information and decide upon this so a better variation might be:

– ***Do not put to sea without a compass.***

A quote that may put a perspective on how we look at what is average can be found in the well-known Radio-show "The Prairie-home Companion" where they tell about the invented village called Lake Wobegon:

– ***Welcome to Lake Wobegon, where all the women are strong, all the men are good-looking, and all the children are above average.*** Garrison Keillor

Insensitivity to predictability

This describes the bias in which people feel comfortable making intuitive predictions. Home styling magazines shows us wonderful pictures of houses with excellent furniture, colours and flower decorations. Many of us envy them and try to imitate as well as we can, but do we ever consider if those homes are cosy or even practical for normal living. Where do I put my dirty linen in one of those houses? How representative is the picture for an actual home?

The equivalent of home styling in energy efficiency could be demonstration projects. Such projects are badly needed and the results they deliver are of great importance as links in chain of development. But since they are demonstration projects they may be misleading for two reasons. One is that they are pampered to demonstrate, and not necessarily test, what should be demonstrated. The other is that they should/could be copied by a multitude of actors for which the situation only vaguely resembles that of the demonstration.

9. Nathaniel "Nate" Silver is an American statistician famous for his predictions in US elections. He predicted an Obama win with 91% probability and at least 313 electoral votes. Obama finally got 332 electoral votes.

Contents Keywords Authors

Proverbial approach: The proverbs that come to mind and warning are:

– ***The face is no index to the heart*** or

– ***Appearances are deceptive*** or even

– ***It is not the beard that makes the philosopher***.

If those proverbs could be turning people away from action we may find something more encouraging from the more recent experiences:

– ***If life were predictable it would cease to be life, and be without flavour***. Eleanor Roosevelt

A related issue is that when companies claim that they have already undertaken all important energy efficiency measures since they are competitive and therefore always consider all costs in order to maximise their profits. They are basically claiming that they are true textbook cases and that their decision-makers are all Econs.

The fact that they are working on a competitive market is however no evidence neither that they are true models of the textbook, nor that they are paying enough attention to the complexity of energy efficiency. The truth is probably rather that both they and their competitors are equally ignorant!

Proverbial approach: A possible response to them could cast doubt over the seriousness of the argument e.g. by saying:

– ***Ask a kite for a feather and she will say she has just enough to fly with***.

Overconfidence in limited information (The illusion of validity and WYSIATI)

There is a risk of illusion of validity from the data we have. The confidence one has in the ability to predict is based on the *degree* of representativeness without considering factors that may limit predictability. Kahneman coins the phenomenon of jumping to conclusions based on limited information WYSIATI – What You See Is All There Is.

WYSIATI is not only an issue of limited validity but worse! We are able to create a story that gives us confidence that we know all we need to know based on the little information we have, i.e. what we see is enough. "It is the consistency of the information that matters for a good story, not its completeness. Indeed, you will often find that knowing little makes it easier to fit everything into a coherent pattern. … WYSIATI facilitates the achievement of coherence and of the cognitive ease that causes us to accept a statement as true" (Kahneman 2011 p. 87)

In the field of energy efficiency this bias could apply to almost anything but there might be a higher risk for demonstration projects where the entire setting is to show that an application really works and even that it might be tweaked a bit to do so. There are several traps on this road as indicated in a thesis:

> … deficiencies in contemporary demonstration projects have to be solved. This concerns the lack of incentives and interest for learning; deficiencies in the production of reliable and useful information; and the lack of institutions for information dissemination. The fact that demonstration projects are handled as special projects also impedes their influence on mainstream building. Moreover, ideals in contemporary demonstration projects often fail to address ideals and interests among actors in the building sector. (Femenias 2004)

Proverbial approach: There are many proverbs that hold us back from seeking more information:

– ***Never trouble till trouble troubles you.***

– ***Don't mend it if it is not broken***.

But also a few that tells us that at least a limited extra look is worthwhile:

– ***A stitch in time saves nine.***

– ***One hour today is worth two tomorrow***.

And a person who certainly should know that one has to be careful said:

– ***Well, I think we tried very hard not to be overconfident, because when you get overconfident, that's when something snaps up and bites you***. Neil Armstrong

Availability

The availability heuristic is a mental shortcut that occurs when people make judgments about the probability of events by the ease with which examples come to mind. If you never heard about energy efficiency and its benefits/costs how could you judge whether it is good for you? It is quite frequently that people confuse energy efficiency (doing more or the same with less) with energy shortage (freezing in the dark). Energy efficiency will allow you to save (use less energy without compromising your welfare) whereas the latter require you to give up part of your (perceived) welfare.

The problem with this is that people can be "tricked" to make judgements in either way. In an experiment Tversky and Kahneman presented participants with four lists of names: two lists with the names of 19 famous women and 20 less famous men, and two lists with the names of 19 famous men and 20 less famous women. The first group was asked to recall as many names as possible and the second group was asked to estimate which class of names was more frequent: famous or less famous. The famous names were most easily recalled compared to the less famous names, and despite the fact that the less famous names were more frequent, the majority of the participants incorrectly judged that the famous names occurred more often (Tversky and Kahneman, 1973).

Proverbial approach: Everyone who has ever searched in an archive or even an encyclopaedia has had the experience that all of a sudden there is an object, a letter, an issue, an article that we recall or have looked for or want to find out more about, but till we do it has been:

– ***Out of sight – out of mind***

Adjustment and Anchoring

Anchoring is a cognitive bias that describes the common human tendency to rely too heavily on the first piece of information offered (the "anchor") when making decisions. During decision making, anchoring occurs when individuals use an initial piece of information to make subsequent judgments. Once an anchor is set, other judgments are made by adjusting away from that anchor, and there is a bias toward interpreting other information around the anchor. For example, the initial price offered for a used car sets the standard for the rest of the negotiations, so that prices lower than the initial price seem more reasonable even if they are still higher than what the car is really worth.

Just as with the Availability bias above this effect can be used to "trick people" into making judgements, right or wrong. In a study by Dan Ariely, an audience is first asked to write the last two digits of their social security number and consider whether they would pay this number of dollars for items whose value they did not know, such as wine, chocolate and computer equipment. They were then asked to bid for these items, with the result that the audience members with higher two-digit numbers would submit bids that were between 60 % and 120 % higher than those with the lower social security numbers, which had become their anchor.[10]

Proverbial approach: This may be the case that proverbs warn more frequently about. Didn't you granny say:

– When a blind leads a blind both shall fall into the ditch

… to warn you?

Proverbial approach: Since we are living in a constantly changing world it is of no surprise that there is tons of folkloristic knowledge about changes. First about the phenomenon of losses which with open-eyed cynicism tells about the nature of endowments:

– A son can bear with equanimity the loss of his father, but the loss of his inheritance may drive him to despair. Niccolo Machiavelli

… and then a bit more analytical and motivational for the trade of changers:

– All changes, even the most longed for, have their melancholy; for what we leave behind us is a part of ourselves; we must die to one life before we can enter another. Anatole France

In proverbs some of the top-ten quotes tell us to be careful and avoid changes as long as we can:

– Bird in the hand is worth two in the bush or

– Better the devil you know (than the devil you don't know).

Then some more modern and more applicable for the trade of ours:

– Change will not come if we wait for some other person or some other time. We are the ones we've been waiting for. We are the change that we seek. Barack Obama

– You must be the change you wish to see in the world. Mahatma Gandhi

Endowment – Status quo bias

The endowment effect means that people value a good more once their property right to it has been established. This can also be derived directly from the curves in figure 1 showing mental accounting of losses and gains. Once you own the item, foregoing it feels like a loss, and humans are loss-averse. Giving up something that is mine is a pure loss and thus valued higher than if I would have to acquire the same object in a trade.

In the field of energy efficiency the endowment effect might be very valid since the argument often is that existing constructions should be changed. In some cases this may be a change of significance e.g. when a building should be insulated and change its appearance. But also in more subtle ways when e.g. incandescent light bulbs with their warm and cosy light are exchanged for CFLs with cold slow-starting glow. In particular when these new light-bulbs are fitted into the chandelier inherited from granny. The owner feels a loss of aesthetics.

We may have to think about that arguing for energy efficiency is an uphill struggle already from the beginning.

CHOICE ARCHITECTURE – FRAMING THE OFFERS

Arguing for energy efficiency is arguing for "improving decisions about health, wealth and happiness" which is the subtitle to the book Nudge (Thaler and Sunstein. 2008). There they recapitulate the basics of behavioural economics and the risks for hasty and biased decisions and lands in a concept they call "choice architecture". Prospects should be framed in a way that enables an educated choice and avoids making unnecessary (stupid?) mistakes unless we wilfully want to do so. They call it "libertarian paternalism" and a way "to influence choices in a way that will make choosers better off, as judged by themselves".

Several ways of presenting choices and the way that presentation affects outcomes are explored in Nudge. The book proposes that default outcomes of a situation can be arranged to be the outcome desired by the person or organization presenting the choice. According to the authors this is an underused method. For example a greater supply of transplant organs could be created by a system of presumed consent followed by an opt-out process rather than opt-in. Another principle suggested is laying out various outcomes of a decision in a way that is easy for the person that should make the choice to understand. The offers are framed.

Choice Architecture as outlined in Nudge has a broad remit, from personal decision making, to medical options, to social policy. In the book they have gathered their advice and principles for choice architects:

10. http://danariely.com/the-books/excerpted-from-chapter-1-%E2%80%93-the-truth-about-relativity/

Contents Keywords Authors

- i**N**centives (who uses/choses-pays/profits); which partly is about the well-known problem of split incentives but also about cost-perspectives and pricing. What is the real cost of a change of light-bulbs when the pricing of electricity has several parts (fixed and operating) and when the bills are sent by both the distribution company and the energy supplier? And when calculating the environmental impact should it be marginal impact or average? There are many experiments trying to visualise changes in behaviour and use of energy on meters, displays, internet etc.
- **U**nderstand mapping (Choices related to welfare); Illustrate consequences so it can be correctly interpreted by the user. This should apply also in a micro-perspective and in design of equipment. We are surrounded with equipment that gives us at best enigmatic information about their function. For instance what does changing of the thermostat yield in terms of temperature (and money). How do I turn off and change the temperature in the tap-water in a hotel?
- **D**efault (Opt-in or opt-out); We have gradually learnt to make energy efficiency the default option and one example is that the computer screen-saver should be installed already when unpacking it. You have to opt-out if you don't want it instead of opting-in. Sensors to control lighting is another example where we are more and more in public spacing finding that the light depends on presence on the premises.
- **G**ive feedback (Understand function); Equipment that uses energy can signal to its user what happens. Plug-out signs or warning lamps can suggest to the user that the equipment want to be unplugged or leave stand-by when not in use
- **E**xpect errors (Foolproof); The only sure thing about complex equipment is that if there is a chance to make something wrong sooner or later someone will do so. A classic example is that a credit-card can be inserted in four ways and that we need a pictorial advice to make it right. For energy efficiency this is a thorny issue. In most of public spaces it is impossible to switch of the light or the AC when leaving!
- **S**tructure complex choices (Filtering); Models and features should be easy to understand. In Europe the labelling of buildings and equipment are commendable cases.

Application of these **NUDGES** principles may be of good use to frame the offers that people face and help to avoid mistakes regardless of their thinking fast or slow.

Proverbial approach:

– ***There are three constants in life … change, choice and principles.*** Stephen Covey

USP VS UBR

The traditional model for marketing and selling has been to define the Unique Selling Proposition, or USP. Lately there has been more emphasis on UBR, the Unique Buying Reason, i.e. the customers perspective.

"USP is a: 'real or perceived benefit of a good or service that differentiates it from the competing brands and gives its buyer a logical reason to prefer it over other brands. USP is often a critical component of a promotional theme around which an advertising campaign is built.' … Where the top-down approach gives power to the producer to literally flood the market with its merchandise and over exemplify the positives of its product, the bottom-up approach encourages the producer to understand the benefits of the product for its consumers and build a relationship with its consumers. A unique buying reason is a logical evolution from USP …

The consumer has gained a great amount of power in the marketing process. Hence an USP approach would be too outdated and ineffective to be implemented in a consumer oriented system" (Zaidi 2011–2012).

For energy efficiency the change often brings more positive attributes to the user than lower energy bills only, we call them Non-Energy Benefits, NEB. Those can be substantial and even overwhelm the energy-related profits in the calculation. But nevertheless seldom accounted for (Willoughby et.al. 2011).

It seems reasonable that if it is difficult to approach the users and get their attention for the message that energy efficiency gives them economical benefit, which is a pure USP message, it would be more sensible to turn to the UBR. Trying to find out what there is on the customers mind that can be packaged and delivered with our product – energy efficiency.

Proverbial approach:

– ***Art is making something out of nothing and selling it.*** Frank Zappa

– ***Many a man thinks he is buying pleasure, when he is really selling himself to it.*** Benjamin Franklin

Conclusion

After having tried to sell energy efficiency as a win-win product based on its economic merit for almost half a century it is astonishing to see that the potential for further improvements is still so huge. Technological development could hardly explain that we have harvested all the old potential and that what we now see in the calculations is all new. We must have missed something in our ambitions to sell. The economic advantages only do not seem to be enough to gain the sufficient market attention.

Recent economic research has also made it evident that when we argue the merits of energy efficiency we have to be more attentive to the user/customer/buyer. How they react to the arguments we provide. What counts and what doesn't.

Firstly we have to consider the way people think and in particular that any proposition made is first wetted by their automatic and fast thinking. This is based on their experiences in life and they do not activate their analytical mind to consider e.g. economy and other features unless they are "programmed" to do so. We could either try to re-programme this automatic response to immediately accept energy efficiency as good. Or we could make this automatic system doubtful enough to go and ask the slow analytical thinking. To forward complicated matters to a higher instance of the brain. For this we may have to use arguments based on existing knowledge as phrased in

Contents Keywords Authors

e.g. proverbs, literature, quotes, aphorisms etc. as a key to the mindlock.

Secondly we have to redesign our propositions also physically by use of "Choice Architecture". To make energy efficiency easy to install and use.

Thirdly we have to be more attentive to what counts in the world of the user and not overflow them with our Unique Selling Propositions (USP) but try to figure out how energy efficiency can be "smuggled" in by understanding their Unique Buying Reason (UBR).

Finally we have to remember that for every proverb and other witty argument we may have there is an equal but opposite that we may have to riposte.

Proverbial approach:

– ***Almost every wise saying has an opposite one, no less wise, to balance it***. George Santayana

– ***Better a witty fool than a foolish wit***. William Shakespeare

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