In this paper we start from examining the resource-based view (RBV), a widely accepted conceptual framework, and query its applicability in the very near future. Our initial point is that the notion of resources is automatically associated with the scarcity of resources; therefore RBV cannot serve as an appropriate framework in an era in which we have the abundance of the most important resource knowledge. This new era changes the conditions significantly, resulting in the loss of validity of the previously established framework. We cannot offer yet a comprehensive framework to replace RBV. What we try to achieve in this paper is to observe some prospective characteristics, some of which we can, at least partially, explain, others we cannot explain yet. In some instances we can only identify the problem, such as that we cannot possibly know what the ‘right knowledge’ will be in the near future. As it is all about learning, we bring together many different perspectives about learning in a transdisciplinary manner, in order to start identifying and clarifying reference points, which will characterize the new conceptual framework that we and many others will work on developing in the next few years.

**Keywords**
quasi-algorithmic process, resource-based view, knowledge-based view, passionate learner

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**1. Abundance of Knowledge in the F-Era**

The search term "sustainable development" gives us 276 million (only 51.3 million without " ") hits in Google. We will not pretend that we can understand how the search engines produce these hits – what we can certainly see is that many people talk about these. We are always suspicious to find such salient popularity. In fact, what we suspect is that there may be no definition at all of the concept we were searching for. Therefore we examined several definitions, and on this basis we now suspect that there is something wrong with the premises.

An often used starting point, for instance in strategy, is the resource based view (RBV). RBV is a very successful conceptual framework, however, there is one potential problem we see when RBV is used for investigating knowledge-intensive phenomena, such as personal and organisational learning, the performance of knowledge workers, and so forth: the notion of resources is automatically associated with that of scarce resources. We believe that with regards to most resources, no one knows how scarce they are – but this is not where we intend to make a point. As we live in the "knowledge economy" and in the "knowledge society", we are primarily interested in knowledge. We are not sure whether knowledge is a resource, but we certainly know that it is not scarce.

Some ten years ago we started to talk about the beginnings of the F-Era. Then we noted that it is important that ‘F’ comes after ‘E’, symbolising that the F-Era supersedes the E-Era. We emphasized that ‘F’ stands for ‘free’, as in freedom, and not for the zero price tag. We have been exploring a variety of dimensions of freedom as it is relevant for learning, such as the freedom of the learner and of the teacher, and thus started to use the term F-Learning. Soon we realised that ‘F’ also stands for ‘flexibility’, which we found very relevant for online learning. Most recently, we decided that we need to add another meaning to ‘F’- Facebook. We are on the threshold of the F(acebook)-Era.

Of course, Facebook is already present in our lives, and already had a significant effect on how we socialise. We can see the beginnings of a new Facebook-philosophy, although we cannot quite formulate it yet. However, we can learn about the Facebook-philosophy through examining its effect on our social life – and we need to acknowledge that there was no significant impact on businesses yet. Of course, it is not impossible to find isolated success-stories, but these are exceptions rather than
a rule. Furthermore, the success stories actually still cannot tell us much about the effect of Facebook-philosophy on business. In this paper we are not interested in whether Starbucks has 37 or 38 million likes on its Facebook page or whether this has any significance or why it is important for them. We are not even questioning how they have nearly 38 million likes with under 20 million page views or what this signifies. Here and now, we are interested in how the Facebook-culture affects our learning. The Guardians of the old premises are resisting, at least for now, but in our estimation not for long. Whether we like it or not, the F(acebook)-Era has already started and it is changing not only how we learn but also what we learn.

“When we use Facebook, we attract new friends or form closer bonds with old ones. When we send a tweet through Twitter, we gain new followers. When we write a blog post, we get comments from readers or links from other bloggers. The Net’s interactivity gives us powerful new tools for finding information, expressing ourselves, and conversing with others. It also turns us into lab rats constantly pressing levers to get tiny pellets of social or intellectual nourishment” (Carr, 2010, p. 42). We do not see the problem of scarcity anywhere around. We continue to learn, just as before. But in different ways than before.

Today the Internet is overwhelming us with immense amounts of interesting bits and pieces of knowledge. But in spite of all the efforts, it is impossible to develop a taxonomy for these bits and pieces of knowledge. And even if someone succeeded developing a taxonomy today, it would be outdated tomorrow. With exponential growth of available knowledge, any perspective taxonomy can only have ephemeral validity. It is up to the person surfing on the Internet, browsing the available knowledge, to create a perceptual framework, a conception, valid only here and now, and filter the available knowledge, otherwise they will have in their minds the same sort of confusion and disorder as what we find on the Internet. But, of course, the surfers do not care about a valid taxonomy, they simply want knowledge that is of interest to them here and now and is valid here and now. The question is what to take from whom, and how to become mindful of the appropriateness (valid here and now for a particular purpose) of the new knowledge.

Observing decision takers we will see that free creation of knowledge and free flow of knowledge confuse decision takers. Do we really need an abundance of alternatives to take a decision? In business schools it is (over)emphasized that we need to consider all the alternatives and then choose the best one. Only analysts and information systems vendors look forward to this: they hope to sell faster computers and improved methods of data analysis (see the bid data buzzword recently) – based on the premise that this would make it possible to consider and calculate all possibilities.

Here and now, we resist the temptation to engage in a discussion about whether everything can be calculated, we have done this many times before. Of course, it is also not possible to consider all the alternatives (from all the relevant aspects). The only ‘excuse’, business education accepts for not considering all the alternatives, is that we do not have sufficient time for that. Time certainly is a scarce resource. If we knew exactly what we wanted, and what we wanted was available, we would not need abundance of alternatives. However, decision making is a learning process. Perhaps if we are doubtful, the abundance of alternatives may help forming our expectations. Faster methods and computers cannot help with this. Recently in business ‘mandatory’ somehow became fashionable. Undeniably, this is more convenient for decision making: ones actually taking the decision whether to support what is convenient for decision making: ones actually taking the decision whether to support what is mandatory or to rebel. Consequently, wisdom is replaced with obedience.

An organisation is a community of human beings and not a collection of human resources. Resources are things; they do not mind if they are not needed anymore. We are humans and human beings we do mind very much. We certainly can manage resources. Which is exactly why human beings should not be managed. Such vocabulary is humiliating. To label human beings ‘human resources’ or ‘human capital’ is perhaps even worse. And as we also want them to use their connections to the benefit of the organisation, we use the term ‘social capital’ as well – the possible associations can be feudalistic at best. Massive layoffs became commonplace since this vocabulary is used. It is easy to discard your resources and throw them away. Most still find it more difficult to get rid of human beings.

Some organisations are under the pressure of bankruptcy and have no choice, but more often the case is that they are only less profitable than what the analysts predicted (Villeret, 2009). It is a simple solution: fire few people and you have already saved substantial amount of money and by doing

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1 https://www.facebook.com/Starbucks
so improved the profitability. In the process you will probably ruin the company, but who cares... The profitability that kills the corporation (Mintzberg, 2007).

For most resources nobody knows how scarce they are. Since we live in a 'knowledge economy' and 'knowledge society' we are most interested in the wide problem area of shallow knowledge. Soon, both on the supply side as well as on the demand side we will find shallow knowledge and we need to be ready for that. The two of the greatest threats to the current view of the world are obviously the 'impact of the highly improbable', what Taleb (2007) calls the 'unimaginable' and the 'impact of the Internet on our brains', which Carr (2010) describes through the notion of 'Shallows'.

Similarly, we are not sure that knowledge is a resource, but we can, at least temporarily, work for this concept. Sustainable development depends on the extent of 'passionate amateurs' liking the new knowledge. The premise of the era of knowledge abundance seems to be that the individual (as in member of species) of the knowledge/innovation-evolution becomes a passionate amateur. The viability of the new knowledge/innovation will significantly impact the sustainability of the organisation. Consequently, the problem of sustainability today can be defined with the following: We don't know how many fans our innovation – our new knowledge – will have.

2. Learning in the Era of Abundance of Free Shallow Knowledge

In her book introducing a fresh look at decisions, Iyengar (2010) tells the story of how her parents’ marriage began with the two grandmothers sitting down for a cup of tea and agreeing that the families are getting along well and their grandchildren should get married. Her parents saw each other for the first time on their wedding day. Comparing arranged marriages with those who enter into marriage based on the 'love at first sight', she says: "Is it possible that love marriages start out hot and grow cold, while arranged marriages start cold and grow hot… or at least warm? This would make sense, wouldn’t it?".

We find it more difficult to master orientation in abundance than in scarcity. Lindstrom (2009) anticipates that the 'brands of recession' will survive after the crisis is over. If that is going to be the case it means that, once again, we are back to avoiding decisions in order to return to a narrow range of alternatives – to be associated with limited resources – where we find orientation to be easier. Will this everlasting 'come back’ finally stop just now?

Innovations – new knowledge – of the future are increasingly allowing consumers to add values that they desire and/or that they are able to add. This is the ‘non finito’ principle introduced to the innovation literature by May (2009) using the Renaissance sculpting technique as a metaphor. "Traditional approaches to business will collapse, and companies will have to develop innovative solutions. That will happen only when executives recognize a simple truth: Sustainability=Innovation" (Nidumolu, et al. 2009).

In order to achieve sustainable innovation we need to give up reliability. Many find giving up reliability hard. It is interpreted as giving up stability, giving up security. Some organisations publicly admit that reliability is the only thing they are interested in. Other tacitly behave the same way. Thus they deny themselves to be innovative. All the efforts of such organisations are directed towards maintaining the status quo, so that tomorrow would look like yesterday as they dread change. Futile endeavour to be sure. Moreover, such organisations are then surprised, even shocked, when someone shows up with a partially domesticated black swan. There are also organisations - ostriches that consciously act as if nothing is changing and nothing is going to change – although they know that this is not true – and consequently they work in ways that is completely incompatible with reality. (Baracskai, Velencei, 2011) In such organisations decision takers, dazed by reliability, create a culture of development projects for outcomes with little to no risk. According to Martin (2009) unreasonably many top managers have backgrounds in finance and thus they are keen on precisely calculating the future. For being innovative we have to give up reliability.

Those who intend to engage in preparing complex business decisions in the F-Èra must accept chaos. If we aspire to a perfect model of chaotic business situations, the model would be immensely complicated, unsolvable, and experimenting on it would be as expensive and slow as in doing it in reality. Such accuracy and precision is neither required nor possible. Anyway good statisticians will now explain that the very nature of chaos is such that the deviation is in the same order of magnitude as the expected result (as opposed to stochastic processes where the deviations are at least one order of magnitude smaller). This means that the results of calculations based on chaos-models would be often be
meaningless, such as profit of 150 ± 200 million. The dilemma of the business decision taker in F-Era thus remains: Do we "want to be broadly right rather than precisely wrong?" (Taleb, 2007). Those looking for precision want to avoid taking decision.

Innovation less and less means new products or new high-tech production processes. Innovating business processes is more promising. The essence of innovation will be: the creation of new added value (Dörfler, 2010b; Dörfler et al., 2010). An excellent example of this new approach is "how a culinary idea is born and transformed into a new culinary value" (Stierand & Lynch, 2008) as shown on Figure 1.

![Figure 1](image)

In the era of abundance of knowledge and opportunities, adding value will be the focus of validation. Have the supporters of free knowledge sharing learned yet how to validate (new) knowledge (Baracskai, 2008)? In our context of F-Era learning, the learning process is actually the validation of a heap of shallow knowledge. We have inherited the idea of validation from the experimental sciences in positivistic framework. First of all we need to escape from positivism. Of course, some elements can be saved, because some conditions are meaningful in the non-positivistic world as well.

One of these is the concept of internal consistency which we consider necessary condition for our conception of loosely-structured validation. The idea of internal consistency is closely related to the notion of generalisation, which refers to the applying some knowledge beyond the domain in which this knowledge is acquired – i.e. generalisation is an attempt to extend the domain of validity. The concept of validation that we propose here is different from all other approaches to validation: We suggest validating a ‘quasi-abductive big picture’ within the context of a single instance. This means that we conceptualise our approach to validation as looking into a phenomenon on the basis of a single organization or a single user, through a more or less tacit reasoning (not completely tacit, as there will be some discussion about it), not being interested in in the details of innovation but in the holistic picture of what it may become, and such validation only applies here and now… (Baracskai et al, 2011).

Such approach to validation is certainly useful for organisations in their real-life context. As it contradicts too much of what is currently accepted as validation, we call it quasi-validation.

3. Transdisciplinary Approach to Learning

Easily accessible ‘shallow knowledge’ abundance has created the need for a new approach. Angling interesting knowledge from the infinitely wide and shallow ocean is very different from mining specific knowledge from a narrow shaft. The surfer of the shallow knowledge ocean is also very different from the miner of the narrow knowledge shaft. The latter is typically analytical and focused, while the former is typically passionate and curious, but can be easily distracted.

When we learn we build our personal knowledge (Polányi, 1962). The constructivist approach to pedagogy considers learning somewhat differently than what the term ‘constructivist’ may imply. It does not see learning to be building knowledge in a cumulative process (apart from a pyramid another good example would be a puzzle, to which new pieces are added one by one in time), but rather as seeing the same big picture as a fuzzy mess at the beginning, and during the learning process the picture becomes sharper, more elaborate, more detailed. Therefore the personal knowledge is the result of an individual construction process through lifelong learning. And this construction process and thus the whole lifelong learning, is personal.

The foundation of constructivism is the idea of the emergence of knowledge according to which knowledge is not projected from some source and, through an intermediary, received into the mind of the learner, but the construction process occurs in the head of the learner. In other words, perhaps more precisely, the construction process, i.e. learning, is nothing but restructuring the (here and now) existing prior knowledge in the mind of the learner (Dörfler, 2010a). And this process affects
the whole knowledge of the learner, which means the whole personal knowledge is being reconstructed. The notion of lifelong learning is important as it tells us that this continuous reconstruction of personal knowledge lasts all our lives. So instead of picturing the mind receiving new knowledge and adding it to the previously existing, it is better to picture personal knowledge as constantly transforming. In this transformation a crucial role is played by the (here and now) existing knowledge, by which new experiences are interpreted, ‘within’ which the processing of the new knowledge is performed, and which changes itself in this process, becoming something new all the time. Therefore personal knowledge is in continuous transition.

If we imagine the elements of knowledge to be small gears that are constructed and linked in the learning process, we will inevitably realise that there will be prior elements, and perhaps new elements as well, that cannot adapt to each other. The human mind has limited power. It can handle a limited number of elements (in the range of 100,000, see e.g. Méró, 1990) and an even more limited number of links between them (this does not mean smaller number than that of the elements, but much smaller, as in several orders of magnitude, than each element being connected with each other element). Therefore, we could say that it takes a great skill or art to portray the reality of business decision making without distorting the image while, at the same time, enabling the decision maker seeing their own ‘mindset’.

Problem areas of business decision making qualify as no man’s land. This means that such problem areas do not fall within and single discipline, they are somewhere in-between. Such problem areas are called interdisciplinary. However, tackling such interdisciplinary problems requires a transdisciplinary approach (an interdisciplinary approach cannot exist, as if there had been substantial knowledge available in-between, a new discipline would have emerged). In a transdisciplinary approach the nodes of a business problem area are associated with knowledge from different disciplines (Baracskai, Dörfler & Velencei, 2005). In a transdisciplinary approach to business problems we borrow tools, models, conceptions, etc. from various disciplines, without immersing ourselves in these disciplines.

In order to describe how ‘non-target customers’ may add value to innovation we need a new, model of learning. The same way as our approach to business problems transcends disciplines, this new model of learning needs to transcend the individual. Therefore we envisage a transpersonal learning process we call ‘knowledge sharing’. In any complex system there is a number of independent agents that have multiple interactions, and these interactions may happen in a variety of ways simultaneously (Waldrop, 1993). If we could isolate all of these agents, and if we could understand them one by one, and if we could map all of their interactions, and we could understand all the different ways in which they interact, then we would have a chance to develop an algorithm of the process that describes the functioning of the system (Minsky, 1988).

However, each of these conditions is unfulfillable in complex systems. Even if it was possible, we are not ready to believe that it would account for high-complexity transient phenomena, such as in the case of mind are intuitive judgements and intuitive insights (Dörfler, Ackermann, 2012).

So we have two reasons to give up the idea of exact modelling: it is impossible, and it may be useless even if it was done. However, it is not impossible to build approximate models for near-decomposable systems. (Simon, 2001) Such systems can more or less be taken apart into separate components and processes in such systems can be described in almost algorithmic ways, which is why we label them quasi-algorithmic. Learning is then a transdisciplinary, transpersonal, quasi-algorithmic process.

As an illustration, Stierand and Lynch (2008) use a similar transdisciplinary approach to explain "how a culinary idea is born and transformed into a new culinary value" in haute cuisine, using a wide range of knowledge sources of master chefs (Figure 2). What further emphasises the point is that the research approach for investigating these culinary innovations was also transdisciplinary.
4. Concluding Remarks

"Mathematicians will try to convince you that their science is useful to society by pointing out instances where it proved helpful, not those where it was a waste of time, or, worse, those numerous mathematical applications that inflicted a severe cost on society owing to the highly unempirical nature of elegant mathematical theories" (Taleb, 2007).

In 2008 we attended a presentation by James G. March "Three Eras in Theories of Choice" (March, 2008). We were always reading his books with great interest, because he seems to have the widest view of the area we have been interested in for 35 years. In the table below (Table 1) we take March’s historic overview ending with the ‘the state of the art’, and speculate where the support of business decision making goes next.

<table>
<thead>
<tr>
<th>Generation</th>
<th>Dominant approach/tool</th>
<th>Purpose/outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM 1.0</td>
<td>linear programming</td>
<td>optimisation of scarce resources</td>
</tr>
<tr>
<td>DM 1.1</td>
<td>multi-criteria ranking</td>
<td>sequence of tightly structured variants</td>
</tr>
<tr>
<td>DM 2.0</td>
<td>voting and brainstorming techniques</td>
<td>group selection of ideas</td>
</tr>
<tr>
<td>DM 2.1</td>
<td>game theory</td>
<td>conflict resolution</td>
</tr>
<tr>
<td>DM 3.0</td>
<td>rule-based systems</td>
<td>explaining logical connections</td>
</tr>
<tr>
<td>DM 3.1</td>
<td>business intelligence</td>
<td>mining in databases</td>
</tr>
<tr>
<td>DM 4.0</td>
<td>content mapping</td>
<td>filtering out waste on the internet</td>
</tr>
<tr>
<td>DM 4.1</td>
<td>machine learning</td>
<td>personalising search</td>
</tr>
<tr>
<td>DM 5.0</td>
<td>validation</td>
<td>adaptive-interactive models the user plays around with thus developing them</td>
</tr>
</tbody>
</table>

These generations in table 1 do not mean that a new generation replaces the previous one(s). Indeed, the tools of more recent generations may help improving the tools of the prior generations. Beyond that, and perhaps more importantly, they can help achieving better match between the tool and the domain of application. Certainly, some generations are very massive, they are becoming better and better in their domain of application, but sometimes they do not (want to) stop there. So we see serious validation problems. Applied operational research is still faithful to the period 1, and many operational researchers prefer to see everything as an (hard) or problem. Psychologists often continue to believe only in the generation 2. The wave of knowledge management is still fighting for a stronger role in the generation 3. Passionate amateurs are suggesting that we are at the threshold of generation 4. For now, it is difficult to assess who will fight for the validation of the easily accessible shallow knowledge. Democratisation of the tools will enable millions of passionate amateurs to become new creators of values (Anderson, 2009).

The era of lifelong learning is not coming. It has been always here. Karl Marx had predicted a democracy in which the means of production would be accessible for everyone. Today, thanks to the Internet, anyone can access the most important means of production for free – at least this is the only possible conclusion if we accept that knowledge is the most important ‘resource’. The democratisation of the means of production creates a new generation of passionate amateurs(s) who have not yet had the opportunity to promote their innovations. In this paper we made tentative observations rather than presented details of measurements. We asked more questions than how many we answered. The reason is that our intended contribution is to be one of the first ones to make the readers think about how we will acquire new knowledge tomorrow.

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What is the Difference? There was Always Lifelong Learning


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