

# INCUBATOR

**Stéphane Mingot**, Innovation Engineer at AdNovum and **Matthias Loepfe**, Head of Incubator at AdNovum

## THE ALCHEMY OF INNOVATION

Innovation arises when an emerging technology meets a deeply rooted need. The AdNovum Incubator wants to understand, model and support innovation with a three phases process so that AdNovum and its customers can continue to play their pioneering role in the future.

The wind is blowing strong from the east. Snowflakes are swirling in the sky as the airplane slowly rolls toward the runway. You've really been looking forward to this vacation! In just a few hours, you will be sitting and relaxing in the warm sun. Thanks to technology. But what is now an everyday process is the result of centuries of research. Because it was not until scientists had understood the basic mechanisms of flying - the special wing profile that gives the vehicle the necessary lift - that the "birds" actually stayed in the air.

“ *The alchemy of innovation,  
it consists of the three phases  
observe, incubate  
and convert* ”

If you look back at the social and technological development of the last few centuries, you will see that real and lasting innovation always arose when an emerging technology met a deeply rooted need. Just like the alchemists who tried to convert base metals into gold in the Middle Ages, we want to create added value by merging innovative technological capabilities and core customer needs. The AdNovum Incubator wants to understand, model and support the mechanisms of innovation with one method: the alchemy of innovation. It consists of the three phases "observe", "incubate" and "convert".

### Observe

Every day we consume a flood of information from different sources. We read the newspaper, listen to conversations on the train, surf the Internet, read e-mails, etc. We are always "on" and that gives rise to ideas. To prevent us from going crazy, our brain helps us to process this flood of information. It filters out what is unimportant or already known, and only lets what is important or challenges our current mind-set access our consciousness.

This separation of what is the same and what is different is key to being able to abstract or generalize. It is a question of immediately realizing that this animal we are seeing right now is a dog because it looks very similar to other dogs we know. However, we also notice that this dog is special in his own way.

Something very similar happens in what is referred to as deep learning. Just like in our brain, neural networks are also hierarchically organized in deep learning. Every layer represents a specific level of abstraction. The lower layers recognize patterns at a deep level of abstraction, the upper layers at a high level of abstraction. The more information that is learned or processed, the greater the quality of the abstractions. And that is also true of our brains. For everything new we learn, generalization takes place without our knowledge and provides us with a multilevel classification of what has been learned. We use this to order the information in our inner knowledge tree, referred to as a knowledge graph. Everybody has their own unique knowledge graph - their personal view of what is referred to as reality. If we want to explain something to other peo-



Matthias Loepfe and Stéphane Mingot.

**Matthias Loepfe**, Head of AdNovum Incubator since its inception in 2016, has always been fascinated by emerging technologies. After earning a degree in electrical engineering, he significantly influenced the development of AdNovum as CTO and co-owner in the pioneering years of software engineering. After the turn of the millennium, he sold his share in the company and focused on cybercrime investigation and digital forensics until his return to AdNovum.

**Stéphane Mingot** works as an Innovation Engineer at AdNovum Incubator. He earned a master's degree in civil and environmental engineering from the EPFL and supplemented his management skills with a Diploma of Advanced Study (DAS) at University of St. Gallen. For over 20 years, he has been unlocking the potential of bright ideas in various consulting and management positions, helping his clients make the most of their digital potential and innovative power.

ple, we are always trying to make them understand a part of our knowledge graph.

Innovation is about extracting ideas from observations and applying them to new areas. To do this, we primarily need to fully understand the basic idea, the basic mechanisms of a process. Only then are we able to benefit from it. That is why it is helpful to ask ourselves, for example, "What makes this topic special?" or "How does it distinguish itself from similar topics?". This triggers an automatic "matching". In other words, once we have understood the basic idea of a cool solution, we think about a problem that could also be solved using this idea. This results in a hypothesis for an innovation. You cannot make an idea and its matching happen. Sometimes the inspiration comes when you are in the shower; at other times nature may provide the decisive clue.

#### Incubate

So how does idea incubation work? In the first step where an idea has emerged in the "observe" phase, it has to be given a form as a hypothesis in a way that others can understand it. Whether the idea is viable or not can be

gauged from the response it receives. A certain momentum is generated when people like the idea and start spinning their own ideas or variants thereof. When substantial responses have been generated, we validate the idea with experiments. Is it practicable? Were the assumptions made realistic? Validation usually takes place in the form of a proof of concept or a prototype - and most effectively with an existing or potential customer in what we call the co-creation phase, where we pursue a common goal at eye level.

In the simplest case, the hypothesis is confirmed and the phase is concluded. Often the result can look promising, but the hypothesis has not yet been fully confirmed and needs to be adjusted because we have gained new insights. It is also possible to land a "lucky punch": At first sight, the experiment seems to have failed, but once we understand exactly what has happened, we discover a completely unexpected result that has great benefits. Naturally, a hypothesis might be wrong. The more courageously we pursue an idea, the more often this occurs. And this is just as important as a confirmed idea. Because a hypothesis which cannot be confirmed will nevertheless still provide valuable insights.

## Convert

Once a hypothesis has been confirmed and there are specific application possibilities, we examine whether an offering can be crafted from it. To this end, we develop a classic business case that focuses on the added value for the end user. If added value and market potential are proven, we define the organizational and financial framework conditions for successful design, implementation and marketing. A promising business case is implemented in different ways to suit the situation.

If the solution can be used as a product - while being aligned with AdNovum's strategy and offering - and can be developed in good time with our own resources, we implement it internally. A multidisciplinary agile team with members from different business and support units is re-

*“ Innovation is not a science which takes place systematically in accordance with defined principles. ”*

sponsible for product design and development as well as the marketing of the first MVP. What is crucial to success is that the team members all work together at one place and concentrate on the task at hand. And it must be said that an agile approach has proved its worth. If the solution is successful on the market, it is assigned to an existing business unit or transferred to a new business unit.

If the framework conditions for internal implementation are not met, the solution is developed externally and, if necessary, together with partners. This may involve the foundation of a separate start-up or joint venture.

Individual software development is also an option if the solution meets the needs of a customer or if the customer is interested in developing the solution themselves but needs a technology partner. This is the classic approach of AdNovum, for which various models, for example shared risks / shared revenue, are possible.

## Innovation culture and constraints

Innovation is not a science which takes place systematically in accordance with defined principles. Rather it is a mental state, a culture that needs to be cultivated to bring forth, capture and substantiate new ideas. This culture is distinguished by a number of aspects: Those involved have the time and the freedom to familiarize themselves with new topics. They can experiment as even failed experiments reveal new insights which could possibly lead to new ideas. The environment is one of trust, openness, exchange and collaboration as well as one where risk taking is allowed.

At the same time, it is important to define targets and constraints, which is effectively the validation process of an idea. Furthermore, adequate, but by no means unlimited resources should be available so that the team has to concentrate on the essential. In other words: Innovation is a balancing act between freedom and structure, individual work and teamwork, breadth and depth as well as too many and too few resources - and it is precisely these areas of tension that make innovation so incredibly exciting. ■

### AdNovum Incubator - Unlocking the potential of bright ideas

AdNovum Incubator is the innovation lab of AdNovum. As a trusted partner, we help companies unlock their digital potential. We uncover matches between clients' needs and technology trends and validate use cases in close collaboration with market players. This results in new customer experiences, solutions and business models which lead our clients to pioneering innovation.

> More about AdNovum Incubator:  
<https://www.adnovum.ch/incubator>