Innovation Model™

BIG Picture™

Understanding innovation management at a glance
Planning innovation management holistically, strategically and cyclically
Implementing innovation management precisely and efficiently

DI Dr. Hans Lercher  |  Degree Programme Innovation Management  |  FH CAMPUS 02 Graz  |  hans.lercher@campus02.at
Zusammenfassung

Viele Unternehmen haben die Bedeutung von Innovation klar erkannt und innovieren, um sich gegen den Wettbewerb durchzusetzen oder die Position zu halten. Die existierenden Innovationsmodelle verankern Innovationsmanagement jedoch nicht so tief im Unternehmen und in der Unternehmensstrategie, wie es für wirkungsvolles, unternehmerisches Agieren und das Ausschöpfen aller Innovationsfelder nötig wäre. Außerdem lassen sie oft an Realorientierung vermissen und decken nur Teile des Innovationsprozesses ab.

Das Innovationsmodell BIG Picture™ ist ein ganzheitliches, strategieorientiertes, zyklisches Modell, das als “Innovationsmotor” vor allem in kleinen und mittleren Unternehmen gut eingesetzt werden kann. Es macht das komplexe Thema Innovationsmanagement mit seiner Strategieeinbindung, den möglichen Innovationsklassen von inkrementell bis hin zu radikal, den operativen Prozessen und Entscheidungsschritten quasi auf einen Blick begreifbar. Entwickelt nach den qualitätssichernden Prinzipien der Design Science basiert BIG Picture™ auf jahrelangen praktischen Erfahrungen mit Innovationsvorhaben in Unternehmen und der wissenschaftlichen Analyse der existierenden Innovationsmodelle.

BIG Picture™ begleitet Unternehmen pragmatisch und effizient durch die Innovationsarbeit, indem es in einer Darstellung für Arbeitsphasen Aufgaben, Dokumentationen, Termine, Zuständigkeiten, Entscheidungskriterien und Entscheidungspunkte definiert und koordiniert.
Abstract

Innovation is an omnipresent topic nowadays. Many companies and organisations have become aware of the need to innovate in order to stay competitive. The existing innovation models, however, do not anchor innovation management as deeply in the company strategy as would be needed to enable effective entrepreneurial action and to exploit the potential of all fields of innovation. Besides, these models are often out of touch with reality and cover the innovation process only partially.

The innovation model BIG Picture™ is a holistic, strategy-oriented and cyclical model, which serves as an innovation motor and is especially suitable for small and medium-sized businesses. It facilitates understanding of innovation, which is otherwise often perceived as complex, and yet it does not omit necessary topics such as strategy integration, innovation classes (from incremental to radical), operational processes and decision points. It was developed in accordance with the principles of design science and is based on our experiences with innovation consulting in practice as well as our research on existing innovation models.

BIG Picture™ guides companies pragmatically and efficiently through all stages of their innovation work by defining and coordinating workflow, documentation, timings, responsibilities, decision criteria and decision points.
About the author

Dr. Lercher’s first degree was in engineering management for telematics. With his doctoral thesis he began his involvement with the subject of innovation management and he now has more than 20 years of experience in the field. He works as a researcher and teacher at several third-level institutions in Europe. He designed the Innovation Management degree programme at CAMPUS 02 University of Applied Sciences in Graz, and has been head of this programme since its inception. For many years, Dr. Lercher has been a consultant to companies and entrepreneurs across Europe, and he is a sought-after speaker and lecturer on the topic. As an entrepreneur he has founded four companies. His subjects of interest are business model innovations, system- and process design, strategy development, innovation generation, coaching for managers and innovation training.

Preface by Dr. Hans Lercher

I hope that in the future everyone in Europe, especially our children, will be able to maintain the prosperity we have enjoyed until now. This is what makes me passionately enthusiastic about the subject of innovation. I believe it is one of the most important survival factors for our economy. Many studies prove that companies that approach and manage innovation professionally do in fact grow more quickly and more sustainably and are more profitable. Supporting companies in this area is therefore something close to my heart.

I have been working on the subject of innovation and the processes that are necessary to support innovation for years. Yet the accounts I read in the literature never quite satisfied me; I always felt there was something missing. The strategic aspect and the need for ongoing, cyclical innovation efforts were not really dealt with, and some practical issues of implementation were not fully addressed. The BIG Picture™ model presented here is intended to help companies handle the topic of innovation holistically and to lead them to (new) innovation successes. Our experience and feedback thus far paint a very positive picture. Companies and people responsible for innovations find that BIG Picture™ is a powerful tool for upgrading their innovation management. I hope you will also benefit from it and welcome your feedback regarding your experience with BIG Picture™. I wish you the best of success!

Dr. Hans Lercher - hans.lercher@campus02.at
The handbook and the BIG Picture™ model were put through multiple rounds of reviewing and practical testing. I would like to thank the following colleagues for their help:

Isabell Anger, Carlo Bagnoli, Mark Cowan, Brüne Cremer, Susanne Ebner-Benedikt, Heidrun Girz, Bernd Graller, Christian Gülpen, Gerald Hackl, Katrin Hundhausen, Martin Karner, Wolfgang Knöbl, Börge Kummert, Dennis Lotter, Philipp Mirilauntas, Jörg Niebelschütz, Frank Piller, Roman Pendl, Thomas Rath, Andreas Rehklau, Volker Schulz, Thomas Spann, Michael Terler.

Any mistakes and omissions are my own.

BIG Picture™

BIG Picture™ is a trademark of DI Dr. Hans Lercher. The texts, the model and the figures are protected by copyright. Use of BIG Picture™ purely for internal company use and in scientific research is permitted, provided the author's name and the name BIG Picture™ are clearly indicated in all documents. Any other unauthorised duplication or dissemination in any form whatsoever is prohibited and will be prosecuted according to criminal and civil law.

A note on terms

In this handbook, the term ‘product’ is used for any kind of thing produced by a company and offered to its customers, whether it is a physical product, a process or a service. We also make no distinction in the handbook between the types of innovation (product innovation, process innovation, etc.), because BIG Picture™ is universally applicable.

Principle of equality

To aid readability there are no gender-neutral formulations in this publication. It is hereby however explicitly stated that the masculine form used is to be considered for both sexes. We have made every effort to use gender-inclusive language and it is certainly our intention that the whole text should be interpreted in this sense.
# 01 Introduction

*BIG Picture™ advances thinking on innovation*  
10

*Analysis of existing innovation models*  
14

*Implications for BIG Picture™*  
16

# 02 The Model

*BIG Picture™ at a glance*  
24

*The phases of BIG Picture™*  
28  
- Information gathering  
  28  
- Innovation strategy  
  34  
- Ideation and first evaluation  
  36  
- The three paths of implementation  
  40  
- Green path: Incremental Innovations  
  42  
- Yellow path: Progressive innovations  
  44  
- Red path: Radical innovations  
  48  
- Market launch and controlling  
  50  
- BIG Picture™ as a cycle  
  51

# 03 Using BIG Picture™

*An example of BIG Picture™ in practice*  
54

# 04 Conclusion & Perspectives

*BIG Picture™ as a holistic innovation motor*  
60

*Design science as seal of quality for BIG Picture™*  
64

*Overview of eight relevant innovation models*  
66

*References*  
69
Research is the transformation of money into knowledge; innovation is the transformation of knowledge into money.

Dr. Alfred Oberholz
01 Introduction
01 Introduction

*BIG Picture™ advances thinking on innovation*

Innovation has become a keyword that is present in many fields of business, no longer only in technological sectors. Rightly so, because, especially in the western world, innovation in services, marketing, applications and business models has become equally as important and relevant as conventional innovation in products and processes. The vast majority of companies want to be associated with this trend and make explicit efforts to present themselves and their work as innovative. By emphasizing innovation they aim to distinguish themselves from their competitors; but to actually achieve this, it takes more than mere ideas, selection processes and project management.

This complexity is reflected in the diversity of conceptual approaches to innovation processes and innovation management, whether theoretical or practical in origin. The established approaches focus on different stages and problems of the innovation process: some at the early stage of gathering and selection of ideas, others at the later stages of implementation, starting production and launching products on the market. However, these approaches and models are often idealised processes which may work well in a seminar room and on paper, but are not easy for real companies to translate into practice.

When we do look at actual practice, we can quite clearly identify three characteristic perspectives on the topic of innovation that significantly impact success:
PERSPECTIVE 1

Innovation as a project

If singular instances of innovation are considered as projects, then there is usually an identifiable internal or external trigger, for instance a problem experienced by a client. The innovation project is a limited-term, autonomous activity outside of ordinary operations that is to be solved by a project manager (usually as an add-on). In the worst-case scenario, ‘innovation’ is regarded reactively as something ‘we hope won’t be needed again for a few years’. Innovation done in this way rarely becomes an integral, deliberate part of the business process or even of strategic planning.

PERSPECTIVE 2

Innovation as a process in its own right

If innovation is treated as a process in its own right, it is usually designed in a linear manner with a beginning and an end, and this presumes the existence of process managers who coordinate (and usually motivate) different departments and push processes and projects along. These process managers are accountable for the functioning of the process and try to establish it as well as possible. The process models described in the literature usually start with the ‘idea’ or the identification of problems. In reality, though, projects that are managed in this way often turn out to lack strategic orientation – especially if top management is not committed to innovation and fails to provide clear strategic input.

PERSPECTIVE 3

Innovation as a holistic approach

If seen as a holistic and integrated approach, innovation is effectively the company philosophy. The danger of this idealistic approach is that high ideals may not be effectively translated down to the departmental or individual levels, may not be formulated practically enough and thus become difficult to implement. Experience shows that companies rarely succeed in linking the basic strategic orientation effectively to the operative implementation of innovation projects. Also, this perspective is insufficiently represented in existing process models.
None of the abovementioned approaches is fundamentally wrong. All of these approaches are feasible, and, depending on the character of the company and on its needs, all of them can be good. But what is missing is the vision of the whole that is able to identify entrepreneurial gaps, make space for strategic development, define innovation projects, embed innovation into the operation of the company as a whole, and return to the beginning of the cycle once a product has been launched. Especially for medium-sized to large enterprises, focussing on just one of the above approaches is unproductive and limits innovation potential.

The BIG Picture™ innovation model was developed in the light of the gaps and weaknesses in existing theories, and based on observations and experience from real business practice. The model does not view innovation as a linear process with fixed starting points and endpoints, but instead as a holistic, strategic and cyclical master plan for companies that are attempting to use innovation to achieve a competitive advantage. BIG Picture™ is represented as a cycle. The cycle is driven by observations of the market and technology and the identification of trends; it also receives inputs from product status, company strategy, ‘flight levels’ and company vision. At the same time, BIG Picture™ is specific and pragmatic and guides companies through all stages of preparation and decision-making in innovation work – including several exit options depending on the innovation project.

This handbook presents BIG Picture™ as a framework and innovation motor for companies, developed in response to the need for a holistic treatment and to lessons learned from successful applications of the model.
“Plans are nothing, planning is everything.”

-Dwight D. Eisenhower
Analysis of existing innovation models

*Major innovation models do not adequately address strategic depth, real business practice and process boundaries.*

The need for an innovation model that takes a holistic view of all the innovation activities in a company was identified by analysing 24 existing models of innovation selected from the literature and business practice. An overview of eight of these models can be found on p.66. These are the most comprehensive and original models – well-established fundamental paradigms which have been used as starting points for many variants.

The comparison of these eight concepts shows that the individual innovation process models differ significantly from each other, but also that they have important aspects – and especially weaknesses – in common:

**Strategic vacuum**
What is missing from almost all the models analysed is an emphasis on well-reasoned work on the strategic direction of the organization as preparation for innovation. The models take as their starting point the existence of ‘the idea’ or at the earliest the gathering of ideas – but not the working-out of possible strategies for innovations. One exception is the work of Pleschak et al., who included a step of this kind in their model.

**Ideal state**
The process models are based on an ideal state as the starting point for innovation projects. In practice, these models are then usually adapted to the circumstances and individual steps are for instance omitted, skipped or substituted.
Similarities of the models through the stages of the innovation process:

**Early-phase focus**
The models of Thom, Brockhoff, Witt and Pleschak/Sabisch focus on the early phase. They concentrate on the process of defining a space in which to search for ideas, and the subsequent stage of finding and selecting ideas.

**Parallel phases**
Parallel phases occur in the models of Witt, Pleschak/Sabisch, Koen and in the next-generation stage-gate model of Cooper. These models have non-linear process concepts that enable a more adaptable approach.

**Exit options**
Explicit exit options after each phase are described in the approaches of Brockhoff, Witt, and in Cooper’s classic stage-gate model. This means that at different stages within the process analyses are done to assess the idea’s purpose and profitability. The innovation project can be abandoned at any of these points.

**Results**
The models of Brockhoff, Witt, and Pleschak/Sabisch all include consideration of results.
Implications for BIG Picture™ from academia and practice

*BIG Picture™ has roots in academic research and innovation consultancy, which supplied several implications for a new innovation model*

**Pragmatic response to circumstances in the organization**

Developing an innovation model for practical application in businesses requires more than a well-tested theoretical base. It also has to take account of the needs of businesses in the real world.

BIG Picture™ demonstrates this pragmatic response to practice, for example by providing answers for all phases of an innovation project with regard to tasks, documentation, deadlines, responsibilities and decision points. It thus guides the company efficiently through the innovation project.

**Strategic integration of innovation activities**

A central demand that was placed on the BIG Picture™ innovation model, which grew holistically out of academic and practical experience, is that innovation management and company strategy had to be mutually embedded: Innovation management must have a strategic component and, vice versa, innovation must be an integral part of the company strategy.
Innovation as a cycle

What clearly sets the BIG Picture™ innovation model apart from the other models analysed is that in our analysis, innovation is a holistic, cyclical activity that has no beginning and no end. Innovation, in the sense of ‘making new’, is a fundamental way of thinking, an attitude, a paradigm, which is the basis of business activity and is therefore inherent in it. This resembles entrepreneurial activity itself, which also does not have a beginning and an end but is continuous. After one innovation is before the next innovation, which is why the abovementioned linear approaches fall short.

Hence, the representations of linear processes which have a starting point and at a certain point also have an end are not really suitable for sustainable innovation and its management within companies. The initiation of the process must be followed by the logical return of the cycle to the starting point so that a next turn of the cycle can begin. In this way, innovation never ends!

As soon as the new product or service has been launched, its actual life cycle begins; it passes from the innovation process into life-cycle management or product management. The new invention becomes a ‘regular’ product which is continuously analysed and monitored as part of the organisation’s product range, in order to detect potential innovation gaps. It loses its special status as an innovation, making space for the next innovation project.
We have identified the following factors as critical to success in different phases of the innovation cycle:

**EARLY PHASE:**
*Identifying the need for innovation*
Practice shows that innovation projects rarely emerge from purposeful strategic planning. More often, innovation projects are triggered by individual ideas, problems, or merely the desire to somehow ‘be innovative’ or ‘deliver something new to the market’. But it does not make sense to embark on innovation projects without first knowing of company-specific innovation gaps (or making special efforts to discover them) and connecting the initiatives with the company strategy. Innovation gaps can be identified by regularly comparing results from market research, technology observation, trend monitoring, the analysis of an organisation’s own products/technologies/services with the company strategy.

**STRATEGY AND IDEA PHASE:**
*Innovation strategy development and idea generation*
Strategy development stands on two pillars: identified innovation gaps and the company strategy, which determines the direction and targets. Fitting these together leads to the content of the innovation strategy, including for example decisions about the type and category of innovations, scheduling, budget, targets and resources needed. To prepare the way for a later, more concrete specification of the innovation projects, the innovation strategy should already include strategic ideas for market launch and marketing. Strategy development has to specify the space within which ideas, and then innovations, are to be generated. For the specific process of generating ideas, different companies in different circumstances with different goals will need quite different methods, so that it
is not appropriate to specify any one narrow model for this phase here. Experience shows that at this stage many idea-generating processes run simultaneously in different departments and with many themes – and so the model leaves space for this to happen.

**IMPLEMENTATION PHASE:**
*From ideas to innovations*

At the implementation stage the ideas that have survived initial assessment and selection are further developed towards marketable innovations. The approaches, risk assessments, assignment of personnel, departments to be involved, schedule and content framework outlined at this stage will depend on how profoundly and with what level of risk the innovation will affect the company, the market, the industry, the business processes or the business model, and also on how much effort it will take to implement.
Innovation categories

In practice, different innovation categories become evident, characterized by different project sizes, amounts of work to be done, risks and effects. The literature does not always distinguish precisely between the terms; sometimes different terms are used interchangeably (incremental and radical, but also continuous and discontinuous, as well as adaptive and original). This handbook is based on the following definitions, which are to be considered from the perspective of the company.

Incremental innovation is understood to be an adaptation of existing products or services to achieve increased utility for companies or customers without any deep changes and thus with manageable levels of risk and uncertainty. Depending on the field of innovation (products, services, processes, applications, marketing or business models), it may be possible to achieve quite large effects on the market with a minimum of effort by making small, easily manageable changes, for instance by using different components. Incremental innovations are similar to product updates and often serve to prolong the life cycle of an existing product. This innovation category does not fundamentally change the logic of the product or the industry and largely makes use of things and ideas that are known to customers and producers.
Progressive innovations involve massive change with high risk. They generally involve a company entering unknown territory, for example involving new production techniques or materials, completely new marketing concepts, entry into entirely new and unfamiliar markets, approaching new target groups, or entry into a new field of business. This category of innovation involves a great deal of uncertainty and risk for a company, and definitely calls for quite different tactics and methods than incremental innovations.

Radical innovations are a special case, and imply a complete and transformative change for the company, and often for the market or the industry. Nothing is left as it was, and this innovation is uncharted territory for a business in every respect. In other words, this type of innovation greatly exceeds even the definition of radical innovation. This type of innovation involves extreme risks and from the company's perspective, it is difficult or impossible to plan because its dimensions are such that the company will not be able to handle the change with its existing structures.
It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change.

Charles Darwin; Englischer Naturforscher
BIG Picture™ at a glance

In this section we describe the BIG Picture™ innovation model in detail. We begin with a bird’s-eye view of the whole and introduce the BIG Picture™ as a cyclical innovation motor.

The following diagram means more for the work with BIG Picture™ than just an illustration of an innovation concept: The figure is the crystallisation of BIG Picture™ and, in the truest sense of the word, shows all the essential components and processes at a glance:

- The embedding of innovation activities into company strategy, with the two essential determinants flight level and company vision
- The identification of innovation gaps and their relevant information sources
- The four innovation categories with the correspondingly harmonised processes
- The phases of the innovation process including the work phases and decision points

The work phases or ‘stages’ are shown by circles and the critical decision points of “gates” are marked by diamonds. The gates are points in the process where there is an option to abandon specific innovation projects. As milestones, they imply decisions as to whether and how the innovation project is to proceed. Several overlaid symbols indicate that these steps may be taken in parallel by different departments at different times, occasions and in regard to different themes.
Figure 1: BIG Picture™ at a glance
BIG Picture™ is divided into phases which each combine individual stages (work packages) and gates (decision points) into logical sequences. They are:

**Black path**
- Information gathering
- Strategy definition
- Ideation and initial evaluation

**Red path: radical innovations**
Projects with numerous stages and gates and full involvement of the company’s top management in decisions

**Green path: incremental innovations**
Small projects with few stages and gates and usually without participation of the company’s top management in decisions

**Blue path: Disruptive innovations**
We have not made a model for this type of innovation, because it follows its own rules and by definition is difficult to plan.

**Yellow path: progressive innovations**
Projects with several stages and gates and selective involvement of the company’s top management in decisions

**Turquoise path: market launch and controlling of innovation projects and the overall process**
The evaluation and implementation steps of the BIG Picture™ model uses the logic of Cooper’s revised, more flexible Stage-Gate Model® and benefits from its strengths:

- Qualitative improvement of process implementation
- Increased focus and better prioritisation
- Parallel, rapid process execution
- Use of interdepartmental teams
- Explicit integration of market orientation and market evaluation
- Detailed information gathering and projections in the preparatory phases
- Creation of service offerings with competitive advantages

In contrast to Cooper’s model, BIG Picture™ does without the fixed sequence of five stages and five gates, and instead uses sequences of work steps and decision steps designed to suit each innovation category. The three typical paths which the innovating company may choose (apart from disruptive innovations), follow Cooper’s revised versions of the model: Stage Gate Xpress, Lite and Full Stage Gate. The intention behind these paths is to offer processes with less administrative effort for small-scale innovation projects, so that such innovations can be implemented as simply as possible.
The phases of BIG Picture™

*Description of the BIG Picture™ phases in more detail.*

**Information gathering**

This phase is made up of the procedures that precede the development of an innovation strategy. Its output is one or more concretely specified innovation gap(s). Innovation gaps describe an arguable need for action in the area of innovation.

The sources that are analysed and linked in order to identify the innovation gap are external, in the form of intelligence on technology and markets, and internal, in the form of targets from the company strategy and the life-cycle status of the company’s products. This survey of information sources is similar to the PESTEL analysis.

In the area of technology intelligence, for example, the following aspects could be selected for analysis:

- *Evaluation of opportunities, risks and effects of new technologies, materials, patents, processes, applications and methods*
- *Substitution technologies and substitution products*
- *Standards or regulations that will be relevant in future*
- *etc.*
In the process of gathering market intelligence, signals from the following areas may be relevant:

- Future, new or changed customer requirements and needs
- Activities of competitors
- Development of regional markets or market niches
- The legal environment
- Market trends
- New potential applications
- New marketing and sales opportunities
Analyses and assessments of technology and market intelligence are done by inside or outside experts in the relevant fields.

Company vision, flight level and company strategy are the elements which require a large input from the company’s top management. In the first step, the formulation of the company vision defines the orientation and overall direction the company pursues. The leadership needs to formulate a coherent answer to the question ‘Where do we want to go as a company?’ Any amendments of this vision are likely to already imply an innovation gap.

The flight level, which is derived in the next step, sets out the company’s necessary overall understanding of its own performance in the market. The flight-level analogy helps a company understand its potential business activities in the market and answers the question “Which innovation projects are feasible for us?” The flight level thus defines the available innovation space and the available strategic room for manoeuvre.

A practical example illustrates the significance of the flight level for innovation potential:
A manufacturer of latex gloves for medical applications operating at a low flight level, and therefore with a narrow understanding of its role in the market, can define itself as “we produce latex gloves for our customers”. This is essentially correct, yet as a corporate mindset it constrains the space for innovations. Under this definition, the company will only consider innovations which
1. are produced by itself,
2. are made of latex, and
3. can be used as gloves.

The playing field determined by this flight level is thus rather limited and will probably lead mostly to incremental innovations. But if the same company defines its flight level as ‘we protect our customers’ hands’, a whole new playing field opens up and with it, a much greater space for potential innovations.
In this way, the boundaries of a company's strategic and innovation spaces emerge from this overall collective understanding of its own mission and activities. Real-world experience tells us that some companies have not yet discussed or defined their flight level. Against this background, BIG Picture™ was designed so that the innovation team can have this discussion or definition process even within the innovation strategy or at the level of individual products.

From the company vision and the flight level flows the development of the company strategy, which produces strategic inputs such as the strategic thrust, playing field, target system, time plan, budget, measures and key performance indicators – all of which can provide valuable indications of where the innovation gaps lie. Since the horizon for the company strategy is at least the medium term, it is intended to remain unchanged for some time and it is generally sufficient to inspect it annually, or at even longer intervals, for innovation potentials. However, the cycles in which strategy is revised may be longer or shorter in different companies and sectors.

Another inside information source is the life-cycle management of the products and services. This activity produces expert analyses of the status of individual products, services and technologies within their life cycles. An essential part of this work is reviewing relevant opportunities and risks as well as potential next steps, such as changes to the product or product phase-outs. Although product life cycles in practice rarely follow the textbook patterns, and comprehensive life-cycle management is not very common (particularly in small and medium-sized companies), it is still absolutely feasible to do meaningful evaluations of the status of products, services or technologies within the life cycle, and these can be critical to this work step.

Regular analysis, discussion and juxtaposition of information from outside and inside the company allow relevant innovation gaps to be discovered. From experience, holding annual meetings on this topic seems to be a sensible rule of thumb. One way of doing this is to set up an 'innovation gap team' to collect inputs, analyse them and draw conclusions, identify potential innovation gaps, and then evaluate and select the most relevant ones.
In this last step a specially developed portfolio analysis has proved its usefulness. This is a method for prioritising innovation gaps based on how high their potential is and how feasible or how difficult they will be to implement. Innovation gaps that map to the top right quadrant of the diagram in Fig. 3 should definitely be addressed because they offer high potential combined with easy attainability. Those in the top left quadrant have to be regarded selectively, as their high potential can only be realised with a large effort.
The innovation gaps that have been identified and selected in the portfolio analysis now need to be sketched out in more detail resulting in clear and actionable descriptions of their essential features. The reasons for their selection are formulated, e.g. regarding their effect on the company’s future in terms of targets, risks, alternatives, existing norms, relevant customer needs or trends; in effect, a USP is formulated for each one. Finally, the innovation’s feasibility is assessed. In practice, it has worked well to combine the identification of the innovation gaps with the input presentations needed in the preceding steps in the form of one- or two-day workshops.

The next step in defining the strategy should occur three to four weeks later, leaving enough time for the innovation gaps to be presented and discussed in the departments. This was highly beneficial in the first practical applications of BIG Picture™: The input from the departments improves the quality and validity of the results, and sometimes even additional innovation gaps are discovered at this stage.

One problem that has become evident in the information-gathering process is how to correctly interpret weak signals from market and technology intelligence and use them in making selection decisions. For this crucial activity, BIG Picture™ recommends involving experts who have a strong strategic vision, long experience in their field and who can think beyond the limits of their own discipline.
**Innovation strategy**

Once the relevant innovation gaps for the company have been agreed, the next phase is dedicated to developing an appropriate innovation strategy. An essential part of the strategy is the definition of search fields or focus areas. The company commits itself and its resources to working on these fields, to the exclusion of others that would be conceivable within the innovation gap.

Further elements of the strategy include:

- Positioning of the company in relation to innovation (derived from the company strategy)
- Innovation targets (derived from the company strategy where applicable)
- Specification of resources
- Activities, clear responsibilities and schedules
- If possible, overall roadmaps

Practical experience has shown that the innovation strategy is best developed in a one- or two-day workshop with the relevant departments, usually R&D and product management. The output of this strategy development is an innovation strategy paper that summarises the content described above and prepares the presentation of the innovation strategy to top management. We recommend doing this in the form of a strategy approval meeting. There, the strategy is exposed to critical appraisal, which can be used to further refine it, and it can also be officially approved. In doing this, the company leadership becomes committed to it and to allocating the needed resources.

In practice, the strategy paper is usually a very important statement, not only for the people responsible for innovation but for the purpose of strengthening the status of innovation in the company and for ensuring the constructive involvement of other parts of the company.
Figure 4: Phase definition: innovation strategy
Ideation and first evaluation

Once the innovation strategy is finalised and the search fields or focus areas are defined, the next phase is about finding ideas in these spaces and evaluating them. Often, this phase is handled by working on multiple search fields and topics across different departments in an interdisciplinary manner. This is operationally practicable if the persons responsible in the individual departments are given clearly defined goals for the process of gathering and filtering ideas. What has proven very helpful for steering the process towards positive results is ensuring that the innovation strategy paper contains a roadmap and that unambiguous target criteria and guidelines for the innovation activities of the people responsible in all departments are agreed on.

The endpoint of this phase is the initial assignment of ideas from the different search fields to the paths for incremental, progressive or radical innovations, in accordance with the results of the evaluation and selection steps. The spectrum of contributors to the idea-finding process can include persons in leadership positions of responsibility in the company, other groups of employees, and also mixed groups of people from the company and from outside (e.g. customers, suppliers or other stakeholders) in a co-creation approach.

When using a co-creation method, we recommend the recently developed Open Innovation Approach, characterized by ‘problem broadcasting instead of solution seeking’. This means treating everyone as a potential source of ideas and using platforms such as ninesigma.com or also specially organized innovation contests. The ideas emerging from these activities should be fed into the same initial screening process as the ideas from the in-house idea finding process and/or the regular collection of suggestions for improvements.

A good deal of literature is available on different creativity methods and idea-generating processes. The important thing is to select methods that are appropriate to the type of innovation intended, the people who will be involved as potential idea creators and the needs of the company.
Figure 5: Ideation and first evaluation
An introduction to a variety of creativity methods can be found, for example, in the Innovation Handbook of the Degree Programme Innovation Management at FH Campus 02.

The first evaluation of the ideas is the first important decision point in BIG Picture™. This decision should be made on the basis of a previously compiled, clear, but pragmatic and not too complicated set of criteria. In the simplest form, the two criteria 'innovation potential' and 'effort/cost to implement' can be used again to generate a portfolio. The resulting classes of ideas can be seen as corresponding approximately to the innovation categories: for example, the 'top ideas' with low cost of implementation and high potential can be handled as incremental innovations and the 'possible ideas' (high cost of implementation and high potential) can be classified as progressive or radical innovations. The assignment of the ideas to innovation categories – and therefore to one of the three paths in the process – can also be supported by additional considerations of the project size or the risk level.

Figure 6: Portfolio for first evaluation of ideas
While the preparatory activities of information gathering and strategy development are only done at regular intervals at the level of the whole company (BIG Picture™ recommends once annually for most companies and sectors), the timing of the ideation phase is for individual managers to decide and does not have to adhere to any fixed number of idea-finding sessions or periods. Only the results count. The stacked symbols in the diagrams indicate that this phase can be carried on in parallel in many departments, in order to cover the search fields successfully.

Some of the innovation ideas from these parallel rounds of idea-finding will have the following characteristics: They represent incremental innovations, but cannot be implemented within the team or department that generated them, or belong to a different area of competence, but have potential for the company. This subset of ideas can be handled best by a central ideas hub, one form of which could be a cross-departmental innovation manager. This manager can collect such ideas, have them screened for potential for the whole company, and then delegate their implementation to relevant departments. Especially in this phase of the process, the role and responsibility of an ideas hub can be key to the whole innovation process.

If the first evaluation reveals that the innovation project exceeds the definition of an incremental innovation, i.e. that it should not be implemented along the green path, then it makes sense to carry out a ‘scoping’ step to develop a more detailed concept. This leads to a more precise and detailed analysis and plan of the project, and this concept can then be re-evaluated. The next step is then the first application of Cooper’s stage-gate concept: here it must be decided whether, after detailed examination, the idea still has potential for the company; and also whether it belongs on the path of progressive innovation or the path of radical innovation – or whether it could even be a disruptive innovation.
The three paths of implementation

The goal of all three different innovation paths is the optimal conversion of potentially interesting innovation ideas into marketable offerings – with a reasonable level of risk.

The number of gates and stages is designed to correspond to the risk level of each path, firstly to keep the risk under control, and secondly to keep the loss due to failure or abandonment within limits. Especially for managers in the real world, it is important to emphasize that in each path, defined decision points offer the chance to stop the innovation project, as specified in the stage-gate model. For example, if a test is failed, then the decision can be taken not to bring the innovation to market.

These decision points minimize the risk of an innovation project but at the same time they leave the process open enough to try out unconventional ideas in a protected space before going to market. The more radical the idea, the more of these stop/go decision gates are built into the path. At the end, each path leads to the market launch of the product, the technology or the service.

We already introduced the differences between the three innovation categories ‘incremental’, ‘progressive’ and ‘radical’. Now we will examine what this classification means for the implementation of innovation projects. As we already said, we will not consider disruptive innovations. The blue path is difficult to plan because it will significantly change the nature of a company, a sector or a whole market.

Disruptive innovations also greatly exceed the competence and resources of the company and therefore can only be tackled in a bigger context, for example by involving the parent company of a group.
"If you don't have any gold in the ground, you have to take care of the gold in people's heads."

*Sigmar Gabriel*
Incremental innovations are continuous small adjustments which do not fundamentally change the market or the company, but nonetheless create increased value for the company and its customers. Incremental innovations usually fit within the field of competence of single departments, and can be accommodated alongside the department’s ordinary activities without the need for much fuss or elaborate processes. These cases should be handled pragmatically. Experienced practical experts should not be made to feel overburdened with ‘bureaucracy’ for every little idea.

These innovations take place within the scope of the company’s existing areas of expertise or closely related fields, and in markets that the company is familiar with or are close to those the company knows. The goals that can be reached on this path are deeper market penetration or a moderate expansion of the market or the product range.

The path of incremental innovations is usually implemented as a small project in which top management does not directly participate, apart from the initial decision to give the go-ahead for the development or the market launch. The latter decision point is followed immediately by the market launch.
Figure 7: Path of incremental innovations
Progressive innovations mean that the company is breaking new ground, certainly in terms of markets but possibly also in terms of technologies, products or services. New markets may be opened up for example by launching a new way to use a product, or existing markets can be served with newly developed products or technologies. Such innovation projects are substantially larger and involve significantly more risk than incremental innovations, but are still of manageable size. This type of innovation therefore cannot be accommodated within ordinary business.

As a middle way between incremental and radical innovations, this path has to be worked out individually by the company. If an innovation project exceeds the dimensions that are defined for incremental innovations, it is put through a round of ‘scoping’ and a second evaluation to decide whether, on closer examination and with additional information, it is still worth pursuing, and if so, how. The cases that are classified as progressive innovations are usually somewhat larger in scope but do not need the full involvement of the entire top management team. From the first successful applications of the BIG Picture™ we know that it is often sufficient if top management is represented by just one person who participates in the gates of the yellow path.

The choice of what kinds of content and tools to use in the gates and the composition of the teams that decide at these points, and also the scope of the work to be done in the stages depends strongly on the size of the company, its culture and the sector it operates in, and will be defined in a company-specific version of BIG Picture™.

Since the projects on the path for progressive innovations are already somewhat larger and have a higher risk level, it makes sense to draw up a simple business case. This ‘business case light’ should however not be allowed to become too complicated, in order to avoid provoking fears of bureaucracy.
Figure 8: Paths of progressive and radical innovations
This path, therefore, must also take a pragmatic approach to practical implementation. Based on the results of the ‘business case light’, the refinement and adaptation of the offerings and a validation, the decision is made whether to proceed with the subsequent steps of preparing the innovation for sale and implementation.

The acceptance of new products, technologies and services in the company depends strongly on the level of participation of the people and departments affected by them in the development process. For this reason it is important to involve the marketing and sales departments in the process before the decision to bring the innovation to market.

How to bring individual members of the sales team into the process needs to be planned carefully. On the one hand, salespeople want to tell customers as early as possible about things that will be coming to market in the near future. This is important and is also a source of useful feedback on the planned innovations; on the other hand, it can also increase the pressure (especially if the reactions are positive) to go to market as soon as possible, and perhaps prematurely, with products that are not really ready. We should also think of potentially sensitive issues with intellectual property or trademark rights and leaking of confidential information to competitors via customers. Salespeople want innovations for their customers and often demand them forcefully. However, usually innovations are only a success with the sales department if they can be sold without any change in methods on their part. What the salespeople often wish for are products that effectively sell themselves. If the potential innovation is going to require substantial changes in the way salespeople do their job, they may be less motivated to take it on.

For this reason, the paths for progressive and radical innovations include the stage ‘Preparation for Sale and Implementation’, which is used to bring the sales department into the process and to integrate the innovation into their work, in a manner suitable to the culture and circumstances of the company. After the preparation for sale and implementation, the final decision on market launch and implementation is made.
“Every creation is a risk.”

Christian Morgenstern
Radical innovations involve large risks and often large investments; from the point of view of the company they mean quite a lot of change. Accordingly, the red path that shows the route for radical innovations in BIG Picture™ features a large number of decision gates in order to control risk and losses, and also an intensive involvement of top management, because significant changes for the company are to be expected. Because of these wide-ranging consequences it makes sense to have the whole top management team participate in the process.

For both progressive and radical innovations we recommend thinking of the gates as a kind of marshalling yard for projects, where decisions are taken at fixed, planned points in time on whether to send individual projects into the next stage. In contrast to the incremental innovations, where decisions are taken as they arise, without a fixed timetable, our recommendation for progressive and radical innovations is to create regular committees which take these decisions at scheduled times. In many companies the gates of a particular path can be bundled together and handled by the same people. In their meetings they evaluate and decide on the projects at their various stages following an agenda which incorporates the structure of the gates, and using the defined decision-making tools.

At the beginning of the red path, a business case should be prepared. In view of the greater risks, this business case should be somewhat more thorough and detailed than for progressive innovations. Based on the business case, the next gate is used to decide between starting the development, testing and validating the innovation, abandoning it, or switching it to another path. The decision in the next subsequent gate is whether to go ahead with preparation for sale and implementation. As with the yellow path, early involvement of the sales department is crucial to ensure that the sales team is motivated and sells the innovation successfully.

After the preparation for sale and implementation, the final results, numbers and documents are submitted to the decision-making committee to decide on market launch and implementation.
Figure 9: Paths of progressive and radical innovations
After a positive decision is taken in the last gate of each innovation path, the innovation is arrives at the stage ‘market launch/implementation’ and so that it will proceed to the testing of the potential innovation in the real market. This phase is operationally concluded if and when the new product is inducted into life-cycle management, that is, if it is as successful on the market as was predicted in the individual planning steps and the business case. In the long term, this rule-based innovation controlling is the foundation of a successful innovation programme.

In this step it may also be reasonable to carry out process controlling to measure the efficiency and effectiveness of BIG Picture™ as an innovation master plan, and also of its sub-processes. Topics of interest for controlling could be for example the information flows between the people with responsibilities, the assignment of staff to the individual gates or the functioning of the ideas hub.

It is also possible to evaluate specific decision-making tools and criteria from individual gates and if necessary to make adjustments to them for future use. If needed, this can amount to an overall evaluation of BIG Picture™ after every cycle, with special substantive questions and a flexible level of detail. All necessary adjustments to the timing, content, methodology, or assignment of personnel can be handled in a rule-based manner.
The market launch and the subsequent controlling are, as we already explained, the endpoint of the developed innovations on any of the innovation paths. But this is not enough: In order to close the cycle, another step comes after the successful market launch: the decision whether the new products or services should be inducted into the regular life-cycle management or not.

If the innovations are then brought into the life-cycle management, the innovation cycle is back at the beginning and is positioned to enter a new turn: In the next interval, information from the life-cycle management can be fed back into the process of identifying innovation gaps, and so space can be created for further product improvements. In this way, a new innovation based on the product developed in the previous cycles can be initiated.
You should be more afraid of missing opportunities than making mistakes!

Author unknown
An example of BIG Picture™ in practice

With two workshops and the accompanying analysis, BIG Picture™ enables an animal feed company to set up an innovation process and strategy and search fields.

BIG Picture™ has already been used many times for designing corporate innovation activities. For this purpose it is presented to a team of people in relevant positions in the company, and after some discussion a detailed concept of how it will apply to the needs, resources and abilities of the company is worked out. This step uses a worksheet as shown in Fig. 11 (filled out with a possible result). Using an anonymous and highly simplified example, we will now examine how BIG Picture™ can enable innovation projects and processes to be operated in a goal-oriented and holistic manner and how it fulfills its role as an innovation motor.

Our example case involves a small supplier for the international animal feed industry, which, thanks to BIG Picture™, was able to identify a big innovation search field and set up a well-defined and professionally designed innovation strategy management. This was possible in large part because BIG Picture™ presented the topic and process of innovation in a way that was clearly understandable, comprehensive, and operationally practicable.

The company’s vision of itself is as a world-wide leading supplier of animal feed with a focus on pigs, cattle and poultry. In the project, the company’s flight level was defined as follows: ‘To be the world’s leading supplier of animal feed that provides maximum support for the animals’ health.’ This definition naturally led to the question of whether the company could serve other stock animals besides pigs, cattle and poultry. And so the company chose fish in aquaculture as a strategic target area.

An innovation gap was also rapidly identified in that (obviously) the company did not have a suitable existing product for fish and also that a product could not be easily created by adapting existing products. In further discussions, the idea was refined by deciding to focus on a particular species of edible fish which was currently undergoing a boom. As a search field, the company decided to research the physiological utilization of food by this fish species, in order to develop a suitable feed by the year 20xx.
INNOVATION THE BIG PICTURE

ZEITPLAN

TEILNEHMER

START

INNOVATIONSLÜCKE

Innovationsstrategie & Suchfelder

- Terminologie 1 Monat vor
- Strategiefreigabe, ABFRAGE
- ABKLÄREN DER LÜCKE IN DEN ABTEILUNGEN
- TEAMS!!

- Arbeitspaket
- Entscheidung

- Implementierung
- Progressive Innovation
- Radikale Innovation
- Disruptive Innovation

Figure 11: BIG Picture™ worksheet for working with companies – example from a manufacturing company (format approx. 2.5m × 1.5m)
The identification of the innovation gaps together with screening, analysis and evaluation of the inputs from technology and market surveillance, the corporate vision and flight level took just short of two days. The people involved included the head of marketing, all the product managers, a member of top management, the head of R&D and the company’s innovation manager.

After the meeting on innovation gaps, the next work phase was the development of the innovation strategy, again done by the outside consultants together with the company team members. This phase was also completed within two days. The innovation strategy was written down as a two-page statement and in this form it was shared externally with selected customers.

Here is an anonymized, abridged summary of the strategy statement:

**POSITIONING:** Product innovation leader, XX % of sales from new products, innovation supports worldwide market leadership and strengthens the brand

**INNOVATION GOALS:** Focus areas/search fields are the basis of research to be done by XX and XX, gathering of know-how by XX, and new application technologies XX and XX

**IMPLEMENTATION OF THE GOALS:** By opening the innovation process widely, involving outside partners, more attention to and development of global intellectual property rights in the strategically important areas XX and XX

**BUDGET:** XX % of sales for innovation, and of that XX % for pure basis research

**DETAILED TIMETABLE** and **ROADMAP for the development of new products by 20XX**
In the first phase, BIG Picture™ was defined exactly and adapted to fit the company. The result looked similar to Fig. 11 and was created in a two-day workshop. The individual paths were defined as follows: Incremental innovations will be implemented by the process managers in the departments in many simultaneous cycles (project volume up to XX,000 EUR); progressive innovations require the participation of the COO (project volume up to XX,000 EUR); and radical innovations can only be done with approval by the whole top management team at regular intervals (project volume up to XX,000 EUR).

It was also agreed that the phases of information gathering and strategy development were to be repeated annually, in order to enable changes to the strategy as necessary. The timing of these activities was aligned with the planning cycles of the ‘normal’ company strategy. The bundled decision/gates meetings with the whole top management would be held every two months.

The inputs from technology and market surveillance and flight level took just under two days. The people involved included the head of marketing, all the product managers, a member of top management, the head of R&D and the company’s innovation manager.
Smoking heads create more wealth than smoking chimneys.

Roland Stimpel
04 Conclusions & Perspectives

BIG Picture™ as a holistic innovation motor: BIG Picture™ offers companies the best of both worlds - a state-of-the-art model and practical pragmatism, a transparent overview of the whole innovation process and detailed support for implementation.

The innovation model BIG Picture™ enables companies to take a holistic, cyclical approach to their innovation efforts. The model is based on both theoretical principles and experience in practical innovation consulting in typical mid-sized enterprises in all kinds of sectors from classical manufacturing to media.

These real-world results prompted us to include points that academic models had overlooked:

- Discussion and definition of innovation gaps as the starting point of strategy work and the innovation process
- The innovation process is seen as a repeating cycle.
- The commitment to the innovation strategy statement proved to be essential for success of the innovation work.
- In the course of iterative improvement of the model, the importance of involving the sales department was recognized by adding a dedicated process step.
- The path of disruptive innovations was added, after many discussions, as an open path without predefined stages and gates, in order to ensure the completeness of the model.
What does BIG Picture™ mean for future discussions on the subject of innovation in companies?

The close alignment to the real practice of business is more important than ever and this means that interdisciplinary research in this field is essential. Communication science, social network analysis, management and corporate culture all contribute to making a company innovative. Innovation implies organisational and commercial changes that do not always find the immediate and unconditional acceptance of internal and external stakeholders. The innovation manager is a change agent surrounded by a complex of wishes, expectations and needs. Future research will need to concentrate on giving him or her new tools to facilitate this work.

The further development of BIG Picture™ will focus on expanding the set of pragmatic and practicable tools that are available for the individual process steps, and on a concrete definition of criteria for evaluation of innovation projects and their assignment to the different paths. First assessments have revealed that for mid-sized companies, a simple approach using portfolio analysis is the best choice. However, the demands placed on the evaluation methods grow in proportion to the complexity of the company. It is too early to judge how suitable BIG Picture™ will be for large concerns; as yet, no trials have been performed in companies of this scale.

What has emerged as a sensitive and potentially problematic aspect of BIG Picture™ is the selection and assignment of teams, responsibilities and decision-makers. In many companies it is a major challenge for employees to find themselves suddenly thrust into the role of decision-makers and being responsible for processes, when they are used to being only suppliers of information.
Now they have to analyse and evaluate information, produce arguments and justifications for decisions and take responsibility for these judgement calls. The work with BIG Picture™ shows that the subject of innovation needs to be prepared in a comprehensive and empathetic top-down manner in order to overcome these barriers. Innovation has to be sold within the company. Also, fear of increasing bureaucracy through such a project, especially with larger projects, must be taken seriously and countered through pragmatism.

What have become evident in the practical work with BIG Picture™ are the holistic bird’s-eye view (which gave rise to the name), the exception-
“Whoever does today what he already did yesterday, will be tomorrow what he already is today.”

Leonardo da Vinci
Design science as seal of quality for BIG Picture™ - A methodological digression

*Design Science is a quality assurance method aimed at developing concepts for practical application in a way that is theoretically sound. In developing the BIG Picture™ innovation model, care was taken to comply with the seven principles of design science.*

**Principle 1 Design as an artefact**
BIG Picture™ addresses a significant problem in companies: how to implement innovation in a commercially successful way and how to establish the necessary linkage to the company’s strategic vision. Our innovation model is therefore an artefact, which can be used as a hard copy in innovation workshops and also in computerized form. In this way, the knowledge of the innovation strategy and its organizational application can be recorded for knowledge-management purposes and can be made available to the relevant stakeholders.

**Principle 2 Problem relevance**
Problem relevance is confirmed by the analysis of previously existing innovation models and by testing them in practice. We found that they were mostly too one-sided and that they failed to take the whole company into account. They exhibited insufficient strategic integration and assignment of resources, inappropriate composition of the work teams, weak acceptance of innovation management and finally yielded suboptimal results of innovation projects in companies.

**Principle 3 Design evaluation**
Evaluation of BIG Picture™ is done through critical monitoring of applicability (i.e. of the process) and rigorous evaluation of the innovation project in the company environment (i.e. the results). The development of BIG Picture™ as described in this handbook was an agile process in which the innovation model was continuously evaluated and improved in many case studies with companies.
**Principle 4 - Research contributions**
The development of BIG Picture™ represents an approach to innovation that is very close to real business practice and therefore is a source of relevant knowledge from the real world for the attention of research on innovation management. Looked at the other way round, the elements of BIG Picture™ are based on existing research results and its use can be considered as an evaluation of them.

**Principle 5 - Research rigor**
The development of BIG Picture™ involved detailed analyses of existing innovation models and also critical testing of BIG Picture™ for specific innovation projects in companies, which is the most reasonable method for such a practice-related topic. The results of the ongoing iterations of BIG Picture™ have been systematically documented.

**Principle 6 - Design as a search process**
The continuous improvement of BIG Picture™ arises naturally from confrontation with the changing needs and circumstances in companies.

**Principle 7 - Research Communication**
This handbook, in which we present BIG Picture™ for the first time, fulfils the principle that research results should be communicated to the expert community. It is planned to publish the results of the work with BIG Picture™ in the form of case studies and books, in order to highlight its strengths and its potentials for improvement.
Overview of eight relevant innovation models

The following table summarizes the results of the analysis of the most comprehensive and original innovation models. The analysis focussed on idea creation as an essential part of the early phase and implementation of ideas as an essential part of the later phase of innovation; however the exact distinction between idea creation and implementation is often difficult and must remain somewhat fuzzy. Alongside this qualitative analysis we also performed a quantitative analysis by scoring the models for complexity of the model, adaptability to different company contexts, ease of comprehension, innovation categories (incremental/semi-incremental or progressive, radical), push v. pull, practical application, theoretical foundation, and advantages and disadvantages.

<table>
<thead>
<tr>
<th>Model</th>
<th>Idea generation</th>
<th>Idea implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model of Geschka [Geschka 1989]</td>
<td>A preliminary phase is defined to include everything from the initiation of the innovation process up to the start of the project work (implementation of the idea). If the planning of the innovation is given a central position, then according to Geschka the preliminary phase should be given more attention.</td>
<td>Here, Geschka describes a 4-phase model which is called the innovation project:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Planning and conception</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Product and process development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Setting-up of production</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Market launch</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geschka distinguishes between the innovation project (4 phases) and the innovation process (preliminary phase + 4 phases)</td>
</tr>
<tr>
<td>Model of Koen et al. [Koen et al. 2001]</td>
<td>This model concentrates heavily on the early phase.</td>
<td>Technologies and new products are developed from the concept selected in the early phase.</td>
</tr>
<tr>
<td></td>
<td><em>Idea gathering:</em> Definition of concept; idea generation and enrichment; identification of opportunities; selection of concepts</td>
<td></td>
</tr>
<tr>
<td>Model</td>
<td>Idea generation</td>
<td>Idea implementation</td>
</tr>
<tr>
<td>-------</td>
<td>----------------</td>
<td>---------------------</td>
</tr>
</tbody>
</table>
| **Model of Brockhoff**  
[Brockhoff 1999] | Brockhoff’s phase model allows for an exit after every phase. This model is not an exactly sequenced workflow but shows the work steps and the activities as well as the results. | Implementation of ideas is described by Brockhoff as investment, production, marketing. The result can be success or failure. A successful result is followed by the introduction of a new product to the market or a new process to production. |
| **Model of Pleschak / Sabisch / Ebert**  
[Pleschak et al. 1992] | Shows the work processes within the individual steps and the corresponding results.  
**Idea creation:**  
- Construction of problems, insights, analyses and strategies  
- Idea generation, evaluation, selection  
- Project and programme planning and profitability calculations; research and development technology transfer | The presentation is an idealised process. In the real company, phases run parallel to each other.  
**Idea implementation:**  
- Production development/launch;  
- Market launch |
| **‘Next generation’ stage-gate model**  
[Cooper 2008] | Difference to classic stage-gate: The model is divided into three sub-processes after idea generation. | The implementation of ideas is individually planned in each of the three sub-processes. After the generation and preselection of ideas come the following steps:  
- Full Stage-Gate (new and large innovation projects)  
- Stage-Gate Xpress (projects with calculable risk)  
- Stage Gate Lite (for small changes)  
This next generation makes more efficient use of resources, because a stage-gate process can be defined for each type of innovation. |
### Model of Witt [Witt 1996]

Witt's model has clearly demarcated phases. Idea creation:

- Definition of the search field
- Idea generation
- Rough product concept
- Initial selection with suitability analysis
- Secondary selection with profitability analysis

Of interest are the two analysis steps in the idea-gathering phase.

Also noteworthy is the parallelization of the technical development and development of the marketing process. Both flow into the execution of market tests and market launch.

Witt indicates that no phase is optional, after every phase a decision whether to continue the process or not must be made.

### Classic stage-gate model [Cooper 1983 [1], und [2], 1990]

This model describes a 4-step model, in later versions a 5-step model, in which a decision whether or not to continue the process (gate) is taken after every phase.

**Idea generation:**

- Definition of concept
- Product development and testing
- Market assessment

**Implementation of ideas:**

- Production launch
- Market launch

A disadvantage of this model is that it has a highly sequential structure.
References

A. R. Hevner, et al.:
“Design science in information systems research.”


Cooper, R. G. (1983-1):


“Best practices in the idea-to-launch process and its Governance.”

Cooper, Robert G.:
“Perspective: The Stage Gate® Idea to Launch Process—Update, What’s New, and NexGen Systems*,”

Cooper, Robert G.
“Stage-gate systems: a new tool for managing new products.”
Business horizons 33.3 (1990): 44-54.

Ebert, G./ Pleschak, F./ Sabisch, H.:

Freeman, C. (1992)


