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## Drivers of the Lifecycle – the Example of the German Insurance Industry

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## 1 Introduction

Lifecycles have been accepted widely as a matter of fact in business. Existing literature focuses on their theoretical implications for product managers and corporate strategists. There are major shortcomings of the research in that field concerning the populations covered (if at all, mostly hardware) and the theoretical as well as empirical analysis of the drivers of the lifecycles in the various industries.

Based on the research of *Menhart et al.* (2003), we chose a population of service organizations to analyze the drivers of the lifecycle. We will develop a concept for an insurance specific industry life cycle with a non-typical maturation and degeneration phase, and discuss to what extent the concept of *Maslow's* pyramid of needs can have explanatory power regarding the pattern of density dynamics.

## 2 Historical development of the German insurance market

The global insurance industry experienced a significant growth in the 20<sup>th</sup> century. The number of insurance companies increased from about 1.300 in the year 1900 to more than 14.000 at the end of the last century. The German insurance market of the year 1999 comprises approximately 2.000 companies.<sup>1</sup> It was not before the founding of the first joint-stock insurance companies in Germany at the beginning of the 19<sup>th</sup> century that the insurance industry started to grow into a significant economic sector. The idea of insurance gained further acceptance within the society when the era of liberalism led to the founding of several private insurance companies.<sup>2</sup> the "final breakthrough" for the German insurance industry came with the first social legislation in the year 1881. The introduction of a public medical insurance in 1883, a public accident insurance in 1884 and a sort of public pension insurance in 1889 did not imply a substitution of private by public insurance institutions, but helped to further spread the idea of insurance within the society, a development of which the private insurance industry profited significantly.<sup>3</sup> The industrialization and the development

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<sup>1</sup> *Bundesaufsichtsamt für das Versicherungswesen* (2000, p. 8).

<sup>2</sup> *Schieren* (1990, p. 21).

<sup>3</sup> *Borscheid* (1990, p. 12).

of new technologies also led to new needs of insurance, such as the classes of machine/technology or car insurance. At the same time, the government forced the employers to protect their employees against accidents at work, leading to the introduction of the accident insurance. As the potential claims in case of accidents caused by new technologies reached sums not experienced before by the owners of machinery such as railways etc., the personal liability insurance became increasingly important.

The First World War caused a first major crisis of the German insurance industry. The total international business of the reinsurance and the transport insurance collapsed. The life and accident insurance companies first invested major parts of their capital into the so-called "Kriegsanleihen", war bonds issued by the government. Moreover, they had to pay enormous sums due to war casualties, which had been excluded from the insurance contracts before the war, but finally were reintroduced due to public pressure.<sup>4</sup>

Those companies surviving the war were hit by the next fundamental exogenous shock, the period of inflation in the twenties. At the beginning of this decade, the insurance market experienced a boom caused by the enormous surplus money created during the inflation. Many new insurance companies arose and even firms from the manufacturing industry decided to found own banks and insurance companies. However, only few of them were able to overcome the final devaluation of the money. Thus, this period experienced the most dramatic consolidation in the history of the German insurance industry.

The third fundamental exogenous shock in the first half of the 20<sup>th</sup> century was, of course, the regime of the National Socialists respectively the Second World War. In the thirties, the government tried to centralize the insurance market and forced lots of small companies to merge. The Second World War deleted not only the capital reserves of the insurance companies, but also their administrations. The medical and life insurance companies again had to pay enormous sums and the car insurance industry completely collapsed due to the destruction of the public infrastructure. The total insurance market of the Eastern regions was withdrawn after 1945, so that lots of insurance companies moved to the west.

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<sup>4</sup> *Wandel* (1998, p. 63f.).

However, just as the whole German economy, the insurance industry soon recovered from this catastrophe and experienced a period of steady and continuous growth after 1950. While the development of this sector was significantly influenced by fundamental exogenous shocks in the first half of the 20<sup>th</sup> century, in the last 50 years only two events need to be mentioned in this respect, the German reunification in 1990 and the deregulation of the European insurance market in 1994. The effects of both of these exogenous changes are not comparable to the effects of the crises before the Second World War. The German reunification more or less only led to a single increase in the insurance volume of Germany, which was almost totally captured by the major existing players in the market. The European deregulation was first believed to motivate international companies to enter the German insurance market. However, the major effect in the reality was the beginning of a price war between the existing companies, as the insurance offerings no longer had to be approved by the public authorities.

Moreover, the 20<sup>th</sup> century, in general, and the last 50 years, in particular, did not experience the same amount of fundamental product innovations as the 19<sup>th</sup> century. The major trends of this last epoch of the insurance industry were the diversification of the product portfolios of existing companies as well as the introduction of product modifications such as the combination of several classes of insurance in one contract, or the adjustment of the insurance premiums to the individual needs of the customers.

### **3 Product innovations in the insurance industry**

Before we can lay the theoretical base for the analysis of the historical development of the German insurance market and the role of product innovations in the evolution of this industry, we first want to define, what is the product created by an insurance company, and discuss the different forms of innovation in this sector.<sup>5</sup> In the existing literature, there is more or less general agreement that the insurance industry belongs to the service sector.<sup>6</sup> However, there is not so much consent on how the product of an insurance company can be defined.<sup>7</sup>

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<sup>5</sup> See also *Menhart et al.* (2003).

<sup>6</sup> *Farny* (1971), *Haller* (1982) or *Vielreicher* (1995).

<sup>7</sup> *Farny* (1979), *Müller* (1981).

Albrecht (1992, p.4) sees the insurance product as a transfer of information and conditional payments from the insurance company to the customer and, at the same time, a transfer of risks and a monetary premium vice versa, as shown in the following figure:

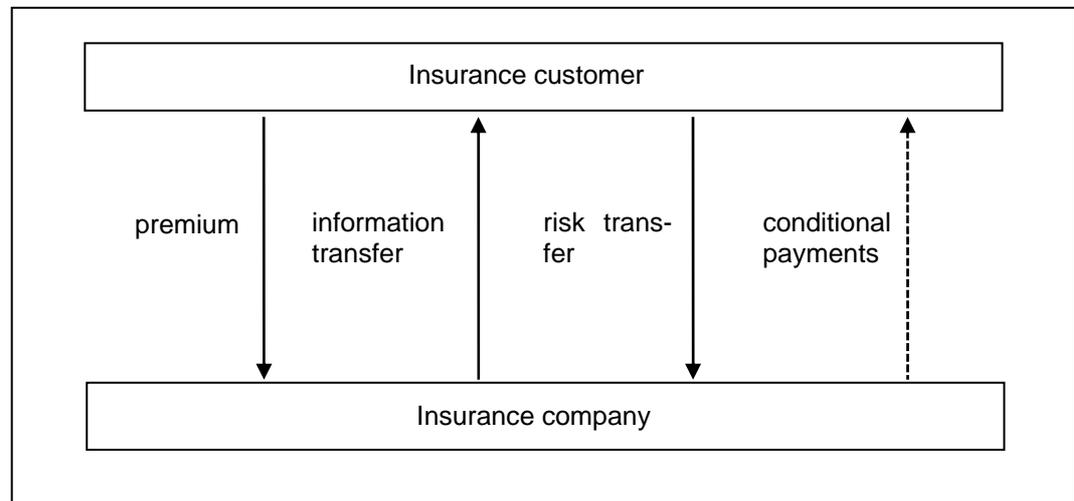


Figure 1: Insurance as transfer of risk and information<sup>8</sup>

The insurance company sells specific information regarding the insured object to the customer. The information consists of the *guarantee to pay a monetary equivalent for the object insured in case a defined event (accident, fire, etc.) occurs*. The customer pays a certain premium and transfers the risk of having a monetary disadvantage due to potential damage to the insurance company.

In order to define the different forms of innovation in the insurance industry, we differentiate between the subject and the object dimension of the product innovation.<sup>9</sup> In the subject dimension, the degree of newness is regarded from the perspective of the customer. If the product is new to the market, it is called *market novelty*. In case an insurance company introduces a product that has

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<sup>8</sup> See Albrecht (1992).

<sup>9</sup> Widmer (1986).

not been in its product portfolio before, but already existed on the market we call it *internal novelty*.<sup>10</sup>

Service goods are immaterial.<sup>11</sup> The customers cannot test the quality of the good to be purchased in advance. Thus, a certain degree of confidence is required in the product to be bought from the service company. This is especially true for insurance products. The product sold by the insurance company is the *guarantee to pay a monetary equivalent for the object insured in case a defined event (accident, fire, etc.) occurs*. This guarantee is not only immaterial, but the customer can only experience the quality of the product if the insured event actually happens. Therefore, the product has also a very abstract nature. Above all, in case of product innovations, the reputation and the image of the insurance company are essential factors for the success of the product. This is why customers often tend to buy insurance bundles from one company rather than several insurance contracts from different suppliers.<sup>12</sup>

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<sup>10</sup> In the object dimension of an innovation, the degree of newness of an insurance product is measured from the perspective of the company offering it. We will follow the methodology of *Vielreicher* (1995) to differentiate between *product innovations* and *product modifications*. In his model, an insurance product can only be called innovative, if it creates a new "field of insurance". A field of insurance consists of certain risk factors (e.g. negligence or fire-raising), insured objects (e.g. houses or cars) and forms of incidents (fire or accidents). A innovative field of insurance is created, when one of those elements is changed completely or if parts of those elements are extracted and offered as an independent product. All other changes in the composition of the field of insurance are considered to be product modifications. As the insurance industry is part of the service sector, one of the specific characteristics of the output produced is the difficulty to differentiate between the product and the process component of the good: "*The first analytical problem raised by services is the relatively fuzzy and unstable nature of their product. Indeed a service is a process, a sequence of operations, a formula, a protocol, a mode of organization. It is difficult, in many cases, to locate the boundaries of a service in the same way as those of a good can be fixed.*" (*Gallouij*, 2002, p. xv). Services such as those offered by insurance companies are products as well as processes, as they are produced and consumed at the same time. Service companies cannot produce their output in advance and store it in order to sell it in the future. Similarly, customers of service companies cannot buy the goods and store it for later consumption. Therefore, the process of production is an essential part of the product itself. That is why the customers need to participate in the production process. Each service product has a unique nature. It is produced according to the individual needs and problems of the customer. Customer interaction also plays a crucial role in the sales of service products. *Muth* (1988, p. 1586) claims that 80% of people buying a financial product such as an insurance contract insist on having a personal consultation with a representative of the respective company in advance.

<sup>11</sup> *Hipp* (2000, p. 19f.) *Gallouij* (2002, p. xv).

<sup>12</sup> Especially if the insurances purchased concern the basis of one's livelihood (e.g. life insurance, fire insurance etc.), people often stick to the supplier they have trusted before in other classes of insurance.

As service goods such as insurance products are immaterial, it is generally easy for competitors to imitate product innovations.<sup>13</sup> However, while competitors can copy specific product characteristics quickly, it is far more difficult to reach the same level of reputation and customer acceptance first movers in the insurance market have.<sup>14</sup>

Another typical market characteristic of the insurance industry the companies have to keep in mind in the generation of product innovation is the *insurance-specific risk*. It stands for the fatal risk of an insurance company, that payments to be made due to the occurrence of insured events exceed the sum of the premium income and the capital reserves of the companies.<sup>15</sup> The *insurance-specific risk* comprises two elements, the risk that, by pure chance, the number of insured events is higher than the expected number, and the risk that the calculations of the probability of expected events by the insurance company are wrong.<sup>16</sup> As for product innovations, the insurance companies, in general, only have limited experience in the specific estimations. Therefore the *insurance-specific risk* is especially high for innovative product offerings.<sup>17</sup>

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<sup>13</sup> "The vector of service characteristics ... is linked to possible functional imitation by all actual or potential competitors (including clients). The service characteristics are indeed highly visible and 'volatile', which makes them easy to imitate. The most convincing examples are to be found in financial and personal insurance services. The specifications of an insurance policy or of a financial product are in the public domain. They are object of firms' marketing and advertising policies (advertising leaflets etc.)." (Gallouij, 2002, p. 128).

<sup>14</sup> Kubli (1988, p. 87) assumes, that it takes approximately 6 months for a competitor to copy an innovative insurance product. According to Vielreicher (1995, p. 26) it can take more than 5 years for an imitator to gain the level of customer confidence needed to succeed in a new insurance class.

<sup>15</sup> Albrecht (1992).

<sup>16</sup> See also Menhart et al. (2003).

<sup>17</sup> Pearson (1997, S. 242) further differentiates between the *technical uncertainty* describing the uncertainty of the insurance companies regarding the optimal product offering and the *market uncertainty* as a lack of knowledge whether the innovative product will be accepted on the market. In either case, the insurance company can reduce the total insurance-specific risk by diversifying its product portfolio and, hence, spreading the risk over more fields of insurance.

#### 4 Industry life cycles in the insurance market

Biological lifecycles describe the development processes of an individual from birth to death.<sup>18</sup> Economic life cycle concepts assume, that in analogy to biological organisms, economic systems also experience typical phases of development in their evolution.<sup>19</sup> In the economic literature, life cycle concepts were used to explain the development patterns of single products, organizations<sup>20</sup>, technologies<sup>21</sup> and whole industries. In the standard model of the life cycle concept, specific characteristics of the unit of analysis such as sales volume, turnover or number of competitors first increase to a maximum, then decrease significantly and finally reach a level of stability, or they are discontinued completely.

In the industry life cycle concept, the unit of analysis is either the sales volume of an industry<sup>22</sup> or the number of competitors in the market.<sup>23</sup> If the development of the sales volume is analyzed, the industry life cycle is the sum of the life cycles of product generations and single products in the respective industry, as is shown in the following figure.

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<sup>18</sup> See also *Menhart et al.* (2003).

<sup>19</sup> *Cathomen* (1996).

<sup>20</sup> *Höft* (1992).

<sup>21</sup> *Perez/Soete* (1988).

<sup>22</sup> *Höft* (1992).

<sup>23</sup> *Klepper/Graddy* (1990) and *Klepper/Simons* (1997).

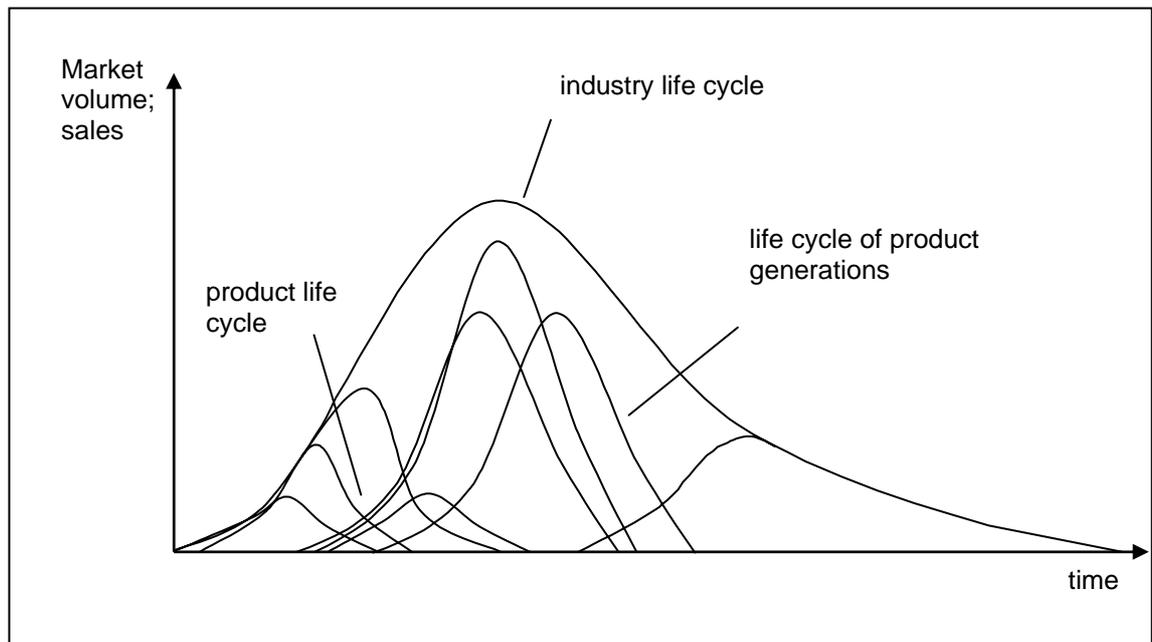


Figure 2: Product life cycles and industry life cycle<sup>24</sup>

Similar to the industry life cycle model based on the sales volume of the products, the model regarding the development of the number of companies in the market also assumes an inverted U-shaped pattern.<sup>25</sup> After an increase in the number of competitors to a maximum due to high entry rates, the number of market exits exceeds the entries.<sup>26</sup> Thus, the population density is reduced through a shakeout process and finally stabilizes at a lower level.<sup>27</sup> While there is general consent in the existing literature regarding the general pattern of the industry life cycle, its interpretations, especially regarding the massive market shakeout after the maximum differ significantly.<sup>28</sup> In general, the different concepts assume, that there is a shift in the innovative activities from product innovations in the beginning of the life cycle to process innovations in the latter phases, which forces companies not capable to adapt the innovations to leave the market.<sup>29</sup>

However, the existing studies analyzing industry life cycles exclusively focus on the consumer goods or the manufacturing industry, while the service sector is neglected completely. Only on the level of product life cycles, a few attempts were made to integrate the specific characteristics of the service industry into

<sup>24</sup> Ford/Ryan (1981, p. 120).

<sup>25</sup> Gort/Klepper (1982).

<sup>26</sup> See also Menhart et al. (2003).

<sup>27</sup> Klepper (1997).

<sup>28</sup> Jovanovic/MacDonald (1994), Klepper (1996) or Utterback/Suárez (1993).

<sup>29</sup> Abernathy/Utterback (1978) and Utterback/Abernathy (1975).

the life cycle concepts<sup>30</sup> The reason for the strong bias of life cycle studies towards the manufacturing industry may lie in the fact that products in these sectors show relatively high death and innovation rates, so that product life cycles can be identified easily. In contrast to most goods in the manufacturing sector, the motivation for the purchase of an insurance product is based on the long-term need for precautions against essential risks in one's livelihood. *Farny/Kirsch* (1987) therefore claim basic insurance classes such as life or fire insurance to be "immortal products".

Another difficulty in modeling the product life cycle in the insurance industry is caused by the specific characteristics of the demand for insurance products.<sup>31</sup> Their life cycles overlap with external factors such as the density of the population, the number of potential risks to be insured or the insurance specific legislation. Besides, as the customer buys many insurance products in bundles, it is hard to identify single product life cycles. Considering this reasoning, *Vielreicher* (1993) assumes that the product life cycle of an insurance product shows an atypical pattern, as can be seen in the following figure:

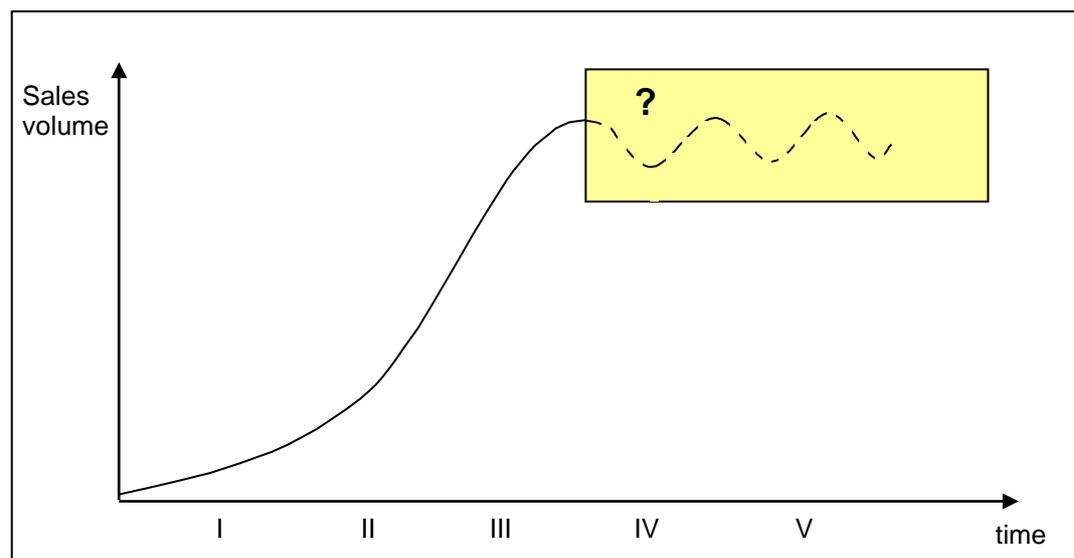


Figure 3: Life cycle of an insurance product

In the first three phases, the insurance life cycle is similar to the standard model. After the product introduction, the sales volume increases to a maximum. In the maturation and degeneration phase of the life cycle however, the shape cannot be determined ex ante. The sales volume may decline as in the stan-

<sup>30</sup> *Barras* (1986a) or *Barras* (1986b).

<sup>31</sup> See also *Menhart et al.* (2003).

dard model, it may as well show further increases or remain stable. The reasons for this atypical pattern lie in the specific characteristics of the demand for insurance products. Firstly, an insurance product life cycle basically consists of two life cycles, one for the new insurance contracts sold and one for the premium income generated by the existing contracts. Thus, an insurance product can still generate volume, although the insurance companies may not even offer it anymore. On top of that, the "immortality" of certain insurance lines such as life or fire insurance prevents the product to finally die out after the maturation phase.<sup>32</sup> Innovative insurance classes mainly supplement the existing products, but they do not substitute them.<sup>33</sup>

As it is not possible to clearly determine the shape of a single life cycle of an insurance product in the maturation and degeneration phase, the pattern of an industry life cycle consisting of the sum of all individual product life cycles cannot be determined either. However, a possible explanation of its development can be derived from the specific income elasticity of the demand for insurance products on an aggregate level. In the existing literature, there have been only limited, but controversial discussions regarding the income elasticity of the demand for insurances. *Koeniger* (2001) claims in his analysis of the UK car industry that higher income leads to lower demand for car insurances, as high-income households can afford to pay for potential repair costs more easily. *Eisenhauer/Halek* (1999) as well as *Banerjee/Newman* (1991) identify a positive relationship between the income level of a household and its risk aversion. *Geiger* (1992) analyzes the demand for personal liability, accident, legal costs, and household insurances in Germany. Following his results, there is a positive effect of household income on the insurance density in the population.<sup>34</sup>

A different approach to the demand for insurance products is based on *Maslow's* theory of human motivation, according to which there is a hierarchy of needs observable in the goods consumed by the people.<sup>35</sup>

It is quite obvious that the demand for basic insurance products is assumed to be part of the second level of *Maslow's* hierarchy, the need for safety. The his-

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<sup>32</sup> In the history of the German insurance market, only a few exotic insurance lines such as the "rain insurance" or the "riot insurance" died out in the evolution of the industry. See *Borscheid* (1990).

<sup>33</sup> See also *Menhart et al.* (2003).

<sup>34</sup> See also *Menhart et al.* (2003).

<sup>35</sup> *Maslow* (1977).

tory of the German insurance sector yields several examples supporting this hypothesis. In the early years of the insurance industry, in the middle of the 19<sup>th</sup> century, the purchase of insurance was a privilege of the upper class. However, once the industrialization raised the living standard of major parts of the population, insurances became popular for lower classes as well. On the other hand, immediately after the Second World War, the priority of the population was to satisfy the basic physiological needs. Only after the economy recovered and the basic needs were fulfilled in the beginning of the fifties, the insurance industry experienced a significant upturn.<sup>36</sup>

While the physiological needs of the population can be regarded as being more or less satisfied after the 1950s, this is not necessarily the case for the need for safety. In the last 50 years, almost all classes of insurance in Germany experienced significant growth rates. On the other hand, *Geiger* (1992) identified that even at the beginning of the nineties 40% of the private households in West Germany did not have a life insurance and 70% in the Eastern parts did not have an accident insurance.<sup>37</sup>

Moreover, the concept of the *Maslow's* pyramid of needs also helps to explain the further growth of the insurance population after the economic upturn in the fifties and sixties. Once the second level of needs is satisfied, people seek for new goals such as the need for esteem and self-actualization.<sup>38</sup> If the people nevertheless do not want to neglect the safety requirements of the second level of needs, they might demand additional insurance coverage. Hence, the life cycles of goods satisfying the higher level of needs should also affect the life cycles of the respective insurance products.<sup>39</sup>

The development of new needs in the population along *Maslow's* hierarchy does not only induce further growth in the existing insurance classes, it also leads to the generation of innovative insurance products. Classes such as the insurance of journeys, of domestic animals, of art or musical instruments do not

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<sup>36</sup> *Borscheid* (1990) or *Surminsky* (2000).

<sup>37</sup> See also *Menhart et al.* (2003).

<sup>38</sup> *Maslow* (1977, p. 85ff).

<sup>39</sup> A car insurance company will for example profit from an increase in national income, if this leads to a higher number of families having two cars. Thus, the life cycles of consumer goods of higher levels in the hierarchy are connected to the life cycles of the respective insurance products.

satisfy the need for safety regarding essential risks in one's livelihood. They give additional protection in the fulfillment of higher levels of *Maslow's* hierarchy. All in all, we have two sources for the derivation of an insurance specific Industry life cycle, the pattern of the product life cycle in the insurance industry and the specific characteristics of the demand for insurance according to *Maslow's* model.<sup>40</sup> Combining those two approaches leads to an industry life cycle, as shown in the following figure.

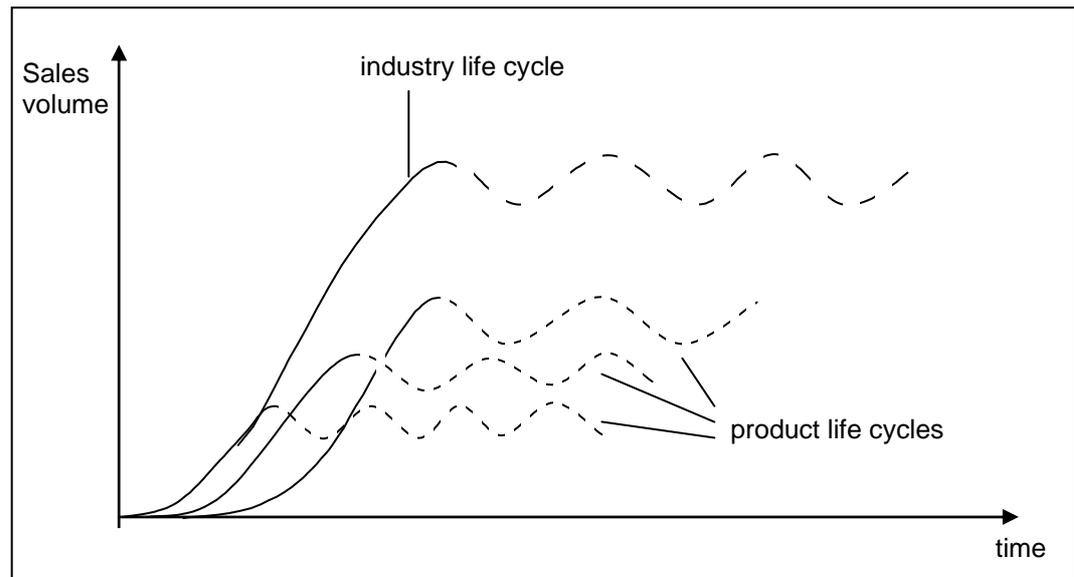


Figure 4: Product and industry life cycles in the insurance industry

Similar to the standard model, the industry life cycle of the insurance sector starts with the introduction of the first product innovation. As more and more supplementary insurance classes are added, the industry life cycle (measuring the total sales volume) increases to a maximum. However, since the shape of the life cycle cannot be determined for neither of the individual products, it is also impossible to see *ex ante*, how the aggregated industry life cycle will develop once a certain maximum is reached. Considering our theses regarding the specific characteristics of the demand for insurances in *Maslow's* model, we claim, that in this atypical maturation or degeneration phase, the shape of the industry life cycle will be determined by the general economic development.

<sup>40</sup> See also *Menhart et al.* (2003).

## 5 Empirical evidence

In most of the empirical studies based on the organizational ecology theory, the criterion for the definition of an organizational population is the organizational output produced.<sup>41</sup> Following this approach we will concentrate on casualty & property insurance companies.<sup>42</sup> We will further neglect the many small local insurance companies only active in some regions of Germany.<sup>43</sup> The preferable empirical way to study the development dynamics of a population is to analyze its whole evolution starting at the beginning of the industry. However, due to the limited data availability only few studies have actually comprised whole life cycles.<sup>44</sup>

A complete picture of the evolution of the German insurance industry can only be drawn by extending the time period under investigation as far as to the 16<sup>th</sup> century.<sup>45</sup> Obviously, it is impossible to gather company specific data covering five centuries. Moreover, the development of this sector in the first half of the 20<sup>th</sup> century was significantly influenced by fundamental exogenous shocks such as the two World Wars and the period of hyperinflation in the 1920s. In the comments on the historical development of innovation activities in the German insurance market, we have also learned that the vast majority of fundamental market innovations were generated between 1850 and 1900, whereas the innovation activities in the time after the World War II were dominated by product modifications and internal product innovations. Hence, we will limit our analysis to the time after 1950.<sup>46</sup> All in all, the database for our empirical tests consists of the life histories of 264 casualty & property insurance companies between 1950

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<sup>41</sup> *Barron et al.* (1994), *Hannan et al.* (1995), *Messallam* (1998) or *Swaminathan* (1995).

<sup>42</sup> Other classes of insurance such as life and health insurance as well as the complete sector of reinsurance companies are excluded of the analysis despite accounting for approximately 70 percent of the total premium income generated. However, the products offered in those four classes are either fundamentally different from each other (a life insurance company offering capital investment products can hardly be compared with a company selling products in the area of fire or car insurance) or are significantly influenced by the development of public institutions (the evolution dynamics of the private health insurance market fundamentally depends on the development of the public health insurance agencies).

<sup>43</sup> Although this will potentially lead to a loss of information as these thousands of small companies may interact with the population of the non-local players via processes of diffuse competition, this restriction still seems reasonable due to their marginal economic importance.

<sup>44</sup> Exceptions are represented by the studies of the evolution of the telephone industry from the 19<sup>th</sup> century on in various states in the USA by *Barnett* (1990) and *Barnett/Carroll* (1987) or the empirical investigations on the population of automobile producers in the USA by *Klepper* (1997) and *Klepper/Simons* (1997).

<sup>45</sup> See the historical overview of the evolution of the German insurance market.

<sup>46</sup> See also *Menhart et al.* (2003).

and 1998 and comprises 8.369 data sets.<sup>47</sup> For each of the companies and all the years we have information on the year and the kind of founding and disbanding, organizational changes, the complete product portfolio of the insurance company and the premium income per year and per class of insurance.<sup>48</sup>

The specification of the endogenous variable in the analysis is based on the definition of the internal product innovation in chapter **Fehler! Verweisquelle konnte nicht gefunden werden.** An insurance company generates an internal product innovation, when it creates a new class of insurance respectively separates an existing insurance area form a class it has already offered before. In the data set analyzed, the population members had the possibility to diversify their product portfolio to the classes of personal liability, car, accident, fire, burglary/theft, glass, storm/hailstorm, machine/ technology, nuclear sites, aviation, transport, credit/loan, animal, legal cost and other insurances.

To test for the relationship of economic development and the innovation dynamics we will measure the effect of the growth rates of premium income on the number of product innovations. At first sight, the national income would be the perfect determinant to test the relevance of our assumptions based on Maslow's pyramid of needs. However, the premium income and the national income show a correlation of  $r^2 = 0,97$ . Moreover, choosing the premium income as exogenous variable additionally allows to control for capacity constraints in the development of the market (*Wiedenmayer, 1992*).

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<sup>47</sup> See also *Menhart et al. (2003)*.

<sup>48</sup> See also *Menhart et al. (2003)*.

## 6 Findings & Conclusion

Figure 5 shows the development of the population density in the German casualty & property insurance market between 1870 and 1998.

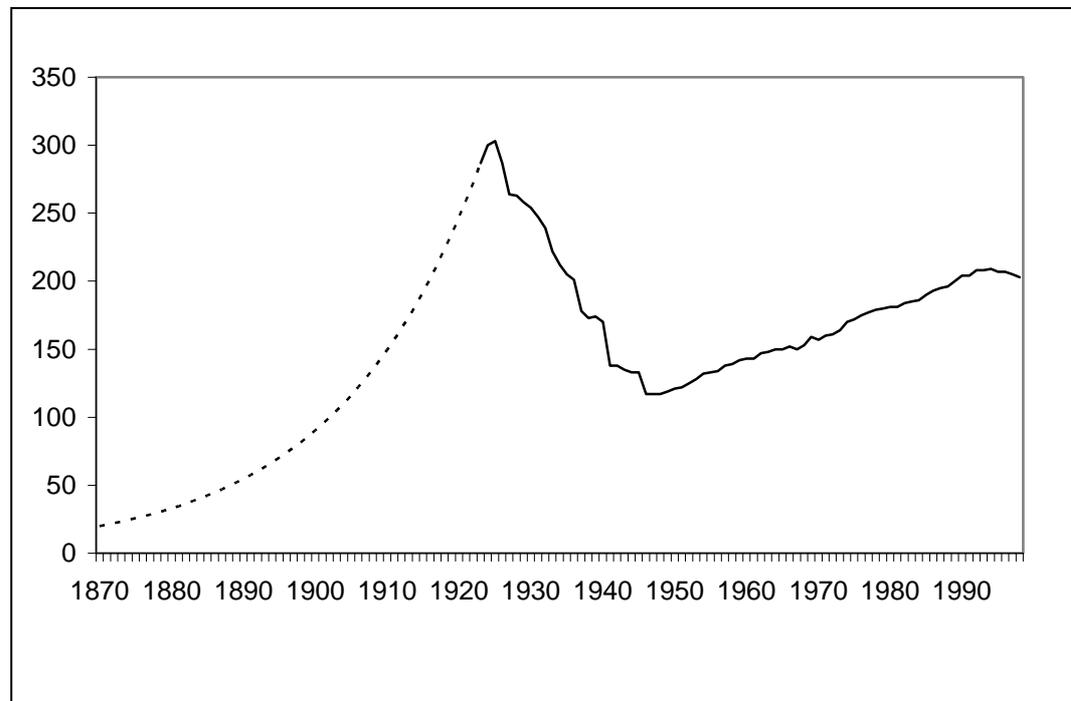


Figure 5: Population density of German casualty & property insurance companies<sup>49</sup>

The number of insurance companies in Germany increased significantly between 1870 and the mid-twenties, before it was heavily reduced during a market shakeout between 1926 and 1949. From 1950 to the mid-nineties, the population showed a continuous density growth. However, we have to take into account that the pattern of the population density until the year 1923 in Figure 5 is only estimated, not based on actual values. To the knowledge of the authors, there is no consistent documentation of the population entries and exits for the time period before.<sup>50</sup> Despite this restriction, we can find several indicators in the history of the German service sector and the insurance industry supporting the estimated pattern of the population density before 1923.<sup>51</sup> The tertiary sector globally gained importance in the 2<sup>nd</sup> half of the 19<sup>th</sup> century.<sup>52</sup> This

<sup>49</sup> The figure only shows casualty & property insurance companies active in all parts of Germany. Small local population members are not included.

<sup>50</sup> The key source for this analysis, *Neumanns "Jahrbuch für das Versicherungswesen im Deutschen Reiche"* goes back to the year 1903, but only catches parts of the whole classes of insurance in the casualty & property business.

<sup>51</sup> However, it is very likely, that the steady increase of the population density shown in Figure 5 was interrupted during and immediately after the First World War.

<sup>52</sup> *Fourastié* (1969).

phenomenon also holds true for the economic dynamics in Germany between 1870 and 1925.

Besides, the industrial revolution generated new objects to be insured and the social legislation by Bismarck in the year 1870 supported the distribution of the insurance idea in Germany. At the same time, several new classes of insurance arose and the idea of a profit-oriented insurance industry was finally established and accepted within the economy and the society. Hence, the pattern of the population density between 1870 and 1923 as shown in Figure 5 seems plausible.

In accordance to the standard model of the industry life cycle, a shakeout period began immediately after the density maximum was reached in the year 1925 with 303 insurance companies, which steadily reduced the number of organizations to 117 in 1948. However, we have to take into account, that this development was significantly influenced by fundamental exogenous political and economic shocks. The hyperinflation in Germany in the 1920s first caused an increase in founding in the insurance industry, but soon led to a wave of mergers and disbanding. Political decisions to centralize the insurance industry by the NS-regime, the economic collapse of Germany in the Second World War and the loss of the East German areas further intensified the market consolidation. Nevertheless, we can also find indicators for the evolution of a mature market in alignment with the predictions of the industry life cycle. In accordance with *Abernathy/Utterback (1978)* assuming that the first half of the industry life cycle is dominated by product innovations while in mature and degenerated markets process innovations are more important, in the time between 1870 and 1930 the Germany insurance industry generated most of the fundamental product innovations which still play a major role today. In the time after, the insurance market was characterized by product modifications and process refinements respectively extensions of the product portfolios.

Having in mind these considerations and remembering the long history of the German insurance industry, it seems valid to claim that the period between 1950 and 1998 can be seen as a phase of maturation and degeneration in the insurance specific industry life cycle. In contrast to the pattern of the standard model, the number of market participants after 1950 did not decline, but rose continuously until the mid-nineties.

As we hypothesized in deriving the insurance specific industry life cycle, we see a non-typical development in the maturation and degeneration phase. We claim that the development dynamics of the population of insurance companies in the maturation and degeneration phase is determined by the growth rate of national income. Following the concept of the *Maslow's* pyramid of needs an increase in national income should lead to a higher demand for safety in the society, a development of which the insurance sector can profit more than other branches. Under the assumption, that right after the Second World War the satisfaction of the basic needs of the people dominated their behavior and that only after the economic recovery in the fifties parts of the people managed to climb from the first to the second level of needs, the concept of *Maslow* does have some explanatory power regarding the development dynamics of the population of insurance companies. As we can see in Figure 6, the premium income and the GDP show a similar pattern between 1950 and 1998. However, the premium income grew stronger than the GDP. Obviously, the branch of casualty & property insurance profited to a high degree from the economic recovery in Germany after the Second World War. At the same time, we know from Figure 5 that the number of insurance companies between 1950 and 1998 grew almost continuously. All these observations support the hypothesis, that in this mature market, the economic growth and the development dynamics of the insurance population are strongly correlated.

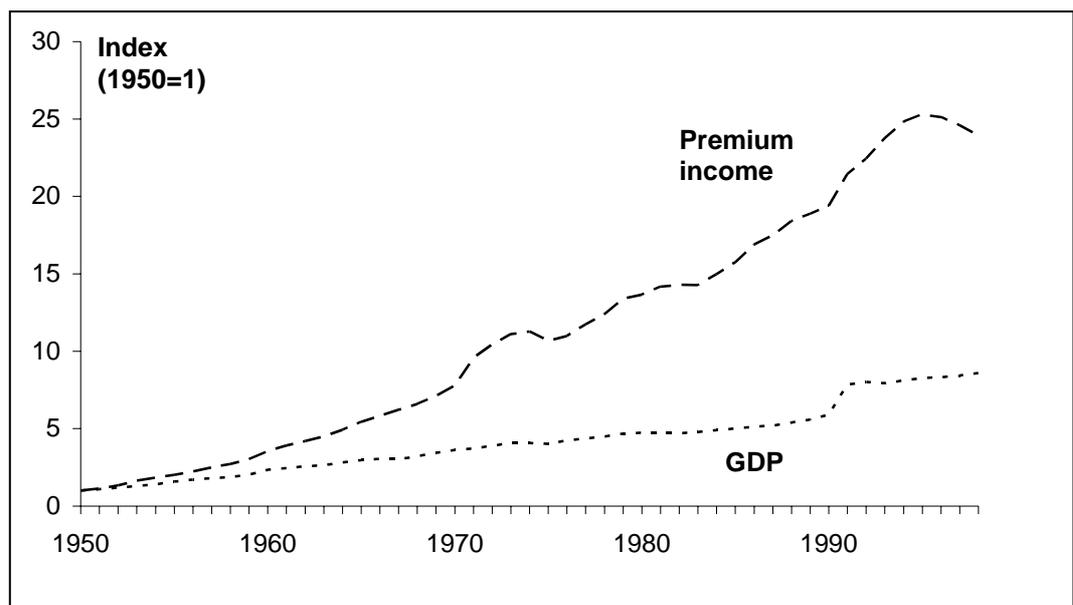


Figure 6: Index of premium income and GDP in Germany<sup>53</sup>

<sup>53</sup> Statistisches Bundesamt (2001, p. 654ff.).

Only the years after 1994 show a slight decline in population density (despite an increasing GDP). However, we have to take into account, that this period was influenced by the European deregulation in the insurance industry in 1994, which led to a price war resulting in a high number of mergers and acquisitions, which mainly affected the population of small and local companies, but also had impact on the density in our population of Germany-wide active organizations.<sup>54</sup>

To sum up, the analysis of the density development in the population of the casualty & property insurance companies in Germany yielded two major results. First, the time period between 1950 and 1998 can be regarded as a non-typical maturation and degeneration phase as assumed in the derivation of the insurance specific industry life cycle. Second, the development of the population density in those years is strongly related to the growth of the national income, as forecasted based on the concept of *Maslow's* pyramid of needs.

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<sup>54</sup> Between 1994 and 1998 companies merging consisted above others of the "DBV Deutsche Beamtenversicherungsgesellschaft", the "Winterthur Lebensversicherung AG" and the "Delfin Lebensversicherung AG" (1998), the "Itzehoer Versicherungsverein" with the "Schleswig-Holsteinische Brandgilde" (1997) or the "INTERUNFALL Internationale Unfall- und Schadenversicherungs-Gesellschaft AG" with the "Erste Allgemeine Versicherungs-AG München" (1994). Companies acquired in this period comprised the "Gerling Rechtsschutz Versicherungs-AG" (1998), the "Bruderhilfe Rechtsschutzversicherung" (1998), the "Deutsche Versicherungs-AG" (1998), the "TELLIT Direct Versicherung AG" (1998), the "Württembergische Rechtsschutzversicherung AG" (1997), the "Magdeburger Versicherung AG" (1996), the "Badenia Glasversicherungsverein a.G." (1995), the "Gebäudeversicherung Baden AG" (1995), the "Elektra Versicherungs-AG" (1994), the "Hamburger Phönix Gaedische Versicherungs-AG" (1994) and the "Skandia Sachversicherung AG" (1994).

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