

**WIPO-CDG/INN/DE/01/5**

**ORIGINAL:** English

**DATE:** June 2001



CARL DUISBERG  
GESELLSCHAFT e.V.



WORLD INTELLECTUAL  
PROPERTY ORGANIZATION

## **WORKSHOP ON INNOVATION SUPPORT SERVICES AND THEIR MANAGEMENT**

organized by  
the World Intellectual Property Organization (WIPO)  
and  
the Carl Duisberg Gesellschaft (CDG)  
in cooperation with  
the German Patent and Trademark Office (GPTO),  
the Aachen Corporation for Innovation and Technology Transfer (AGIT)  
and  
the European Patent Office (EPO)

**Munich, Nuremberg, Aachen (Germany), June 12 to 22, 2001**

LEGAL FRAMEWORK OF THE RELATIONSHIP BETWEEN EMPLOYED  
INVENTORS AND EMPLOYERS - INCENTIVE SYSTEMS  
ENCOURAGING CREATIVITY

*Document prepared by Mr. Bernhard Villinger, Patent Attorney,  
Alcatel, Stuttgart, Germany*

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## 1. WHERE IS IT RULED?

National laws rule this legal field at different places and with large differences in intensity. Some examples which illustrate this are:

Patent law  
(e.g. Gr. Britain, France)

Work / Contract law  
(Switzerland)

Special law  
(Germany, Norway)

No law at all  
(USA)

The German law on inventions of employees is by far the most explicit one. This does not mean that it should be copied as a model for new laws. You will see that in practice there are many problems with this German law, and presently there are requests and proposals for modification.

### International Conventions

(CPU, Art. 2)      (PCT, Art. 4, 22)      (EPC, Art. 60)

The international conventions and treaties (Paris Union, Patent Cooperation Treaty and European Patent Convention) refer to this legal field mostly for national laws. Since the national laws are not at all harmonized, this means directly that the international conventions are of no help to solve problems in international relationships. More than 80% of the patent applications in industrialized countries originate from employee inventors and on the basis of granted patents the percentage is more than 90%. Thus, one cannot neglect the problems. A good solution for encouraging employee inventions will have many benefits for a country and its industrial companies.

## 2. WHAT IS TO BE RULED?

- Definitions.
- Rights and obligations of employee inventor.
- Rights and obligations of employer.
- Compensation?
- Dispute resolution.
- Medal with two faces:
  - work result aspect: no extra assignment,  
no extra compensation;
  - monopoly aspect: assignment by law /by contract / by claiming,  
extra compensation.

Since this legal field is situated just at the interface between patent law and work law (the reason why it is placed sometimes here and sometimes there), a set of own definitions is necessary to avoid misinterpretations by the application of a one-sided understanding. The basic definition relates to what shall be considered a so-called “Service Invention” to be a subject of all the provisions of the law. The main aspects to be ruled are rights and obligations in the relationship between the employer and the employee inventor, whereas for

the relationship to third parties one can apply the rules of the general patent law. Mostly one has the freedom to express a right of the employer similarly as an inverted obligation of the employee inventor, and vice versa an obligation of the employer as a claim of the employee inventor.

One of the main differences between pertinent national laws is the question: If a specific right relating to an employee invention is assigned by law or by contract to the employer, is there any compensation necessary and how much? Since this is a material question, disputes are foreseeable. Where a pertinent law does exist, mostly you will find also some specific rules for the dispute resolution.

There have been big fights between legal experts if the “monopoly principle” or the “extra service principle” shall be applied. This automatically leads to different solutions for the question of compensation. However, I recommend that the subject be considered as a medal with two faces. One cannot separate these two faces or neglect one side, then we would no longer have a medal. There is a work result aspect and there is a monopoly aspect, we have to look from both sides. From a practical point of view a reasonable compensation is obviously the best way to increase inventiveness.

### 3. WHAT IS PRACTICE?

- Small employer: (1 employee only) Does not know about, uses the invention, never files a patent application, does not pay inventors compensation
- The inventor: Does not claim anything (rights or compensation)
  
- Medium employer: Does what he likes, files a patent application exceptionally and in home country only (only if he uses the invention), + gives some incentive
- The inventors: Accepts compensation like other bonuses
  
- Large employers: Follow home law, try to observe foreign minimum requirement, + pay under own incentive system (or try to follow German RL)
- The inventors: Are interested since a high value for company and inventor become known

(all depends on country and type of industry)

The practice of employers and employee inventors depends largely from the size of the enterprise. Large enterprises in many countries pay compensation under own incentive plans without any obligation by local law to pay inventors compensation. Medium enterprises file and maintain sometimes patent applications without having any benefit and then pay also inventors compensation, because they believe otherwise they would not be entitled to use the invention. In the worst case, the words “invention” and “patent” do not say anything to the employer or employee inventor.

#### 4. RIGHTS + OBLIGATIONS IN GERMAN LAW

The main rights and obligations under German law are as follows:

- Obligation to notify each invention;
- Requirement to claim the title of a “Service Invention”;
- Claim for limited rights (forget it, not practicable);
- Filing obligation (for Germany);
- Employer option to file abroad;
- Obligation to re-assign before dropping;
- Certain right to keep confidential (subject to ... );
- Employer obligations terminate after “full” comp.;
- Certain options under “Free Inventions”;
- Compensation obligations (incl. for own use);
- Arbitration rules.

There is an obligation by law, for each employee inventor, to notify any invention to the employer. However, the employer may also acquire the title in an invention if he receives the necessary information on the invention by chance without such notification. By law there is a possibility to claim only limited rights, but this theory implies big disadvantages for the employer. In practice the employer has nearly always to claim the rights in the invention unlimited.

The law provides an obligation for the employer to file at least a patent application in Germany, there are very few exceptions, like release by full prior compensation, treatment as a trade secret with loosing the argument of being not patentable, and assignment of ownership in the invention to a third party with immediate compensation for such contractual evaluation.

The employer has an option to file abroad, the inventor may file in other countries. This outdated principle is in many situations not acceptable for the international relationships of the employer, the employer can only overcome the situation by extra compensation. According to statistics there are only very few patents owned by employee inventors. The latter applies also for the home territory in spite of a general obligation by law to offer reassignment of a patent to the employee inventor before dropping of a patent.

In fact it would be surprising if the inventor could have easily benefits from an own patent where the employer gives up because of costs, risks or other disadvantages. However, an inventor who left the company with a reassigned patent can sometimes disturb the business.

The options under “Free Inventions” are mostly of no value. If all the conditions of the law are met, then the employer and the employee inventor will anyway reach agreement without an option by law.

The complicated compensation rules will be explained below.

## 5. COMPENSATION UNDER GERMAN LAW + RL

- Law says in principle “a share of monopoly benefit”;
- Guideline (RL 1) says “only guidance”;
- “Erfindungswert” E (= invention value) ( ... k EURO):
  - share in royalty income from licensee (~ 3% ... 6%);
  - share in income for assignment (~ 3% ... 6%);
  - share in “store value” (patent > 8 year) (~ 100 EURO);
  - “license analogy” for own use (~ 0.1% ... 0.2% of sales)
- “Anteilsfaktor” A (= employee factor) (0.01 .. 0.99)
  - in practice: for a manager A ~ 0.10
  - for an engineer A ~ 0.15
  - for a door keeper A ~ 0.20
- some parameters with > 100% uncertainty;
- some parameters with < 1% exact;
- compensation  $V = A \times E$ .

The basic principle sounds reasonable and a guideline is necessary, however, in practice the Courts treat the Guidelines as an iron law and most of the compensation has to be paid without any benefit for the employer. This results from the fact that the real monopoly benefits like royalty income apply only exceptionally. The license analogy for own use by the employer has been installed as a complementary fiction. There was an assumption of such monopoly benefit for each and any use of the invention by the employer. The reality is different: there is no royalty income and own use by the employer only without monopoly benefit.

The complexity of the compensation calculation is created by the fact of many parameters and by the fact that some of them have to be accepted with more than 100% uncertainty, others have to be shown with more than 1% accuracy. This leads automatically to disputes, except the employer uses a much simpler own incentive system and pays always lump sums of factor 2 or 3 compared to what was intended by law.

The final formula - Compensation  $V = \text{Employee factor } A \times \text{Invention value } E$ , sounds simple and reasonable, but the difficulties are based in the estimation of factors A and E. More details are presented under Sections 14 and 15.

## 6. PROBLEMS WITH LEGAL ASPECTS IN GERMAN LAW

- Complicated procedures.
- Provisions not appropriate for competition in worldwide markets.
- Misinterpretation of what a patent legally is.
- Jurisdiction made it even worse.
- Filing obligation is nonsense.
- There are no common legal requirements for large industries and a local craftsman.
- In some cases the employer is in a less favorable situation than the competitor.

Many procedures of the law have been installed to allow own actions by the inventor in case the employee inventor would be more interested to take risks and to invest his own funds

in the exploitation of his invention. However, in practice the possibilities are not used in 99% of the cases. In fact, in most cases the inventor has no realistic chance and would lose the invested private funds. By fulfilling useless procedures the actual requirements of the employer will be considered with less care.

The law should have been adapted to the amendments in patent laws, worldwide markets and competition, industrial environments, new technologies and similar aspects. The German law has not been adapted in 50 years.

It seems to me that there was a basic misinterpretation of what a patent legally is, when the law has been drafted. A patent does not grant a positive right to use. It should be considered as a right to forbid use by third parties or to consent to such use. Such misinterpretation was widely made in patent literature and can only lead to false consequences in the employee invention law.

The filing obligation is not reasonable. From facts we know that worldwide less than 50% of created inventions are considered to be worthwhile for filing a patent application. This does not mean that the other 50% are legally not patentable. However, there is no chance for getting the benefit from filing all, if we consider the high costs for establishing a reasonable protection in an appropriate selection of countries.

The business relationships for large industries and for a local craftsman are totally different. Thus, I believe it is not appropriate to apply the same strong legal rules without giving much room for individual agreement between employer and employee inventor.

One extreme is the "limited claim" for a service invention. The inventor must be made to file an own patent application in such case if the employer uses the invention. The compensation from the employer can be reduced or totally lost if the patent protection is not granted and maintained in full scope. As a consequence the inventor does not file the patent application, the employer has to pay full compensation for the maximum term of a never existing patent, and each competitor of the employer is free to use such invention without any compensation!

## 7. PROBLEMS WITH COMPENSATION RULES IN GERMAN RL

- Calculation costs higher than compensation.
- 100% justness is not possible.
- High compensation for own use is not justified.
- Net factor  $N_f$  is missing in license analogy.
- References to "usual," "average," .... do not help; there are no "usual" royalty rates in licenses.
- Early compensation can only be based on lump sums, estimations and setting of parameters by law.

In an example the administration costs for providing the information as it was requested from the Courts resulted in more than DM150,000 in a dispute about an inventor's compensation of about DM100,000.

When some parameters have to be estimated with 100% uncertainty, the product with other parameters of 1% accuracy will nevertheless be unjust up to 100%. Thus, the higher administration effort is not justified.

The high compensation for own use (license analogy) is not justified because it is based on a fiction which is mostly not realistic. Further, the Net factor is missing in the license analogy whereas it is applied in the compensation from royalty income.

The references in the German RL to “usual” or “average” values (56 times in the RL) of pertinent parameters in license agreements do not help since the license agreements are not published and every expert does know that such parameters are negotiated case by case and are agreed in a wide range of factor 50 to 100.

A specific wrong assumption in the German compensation rules can be described as follows:

- If a patent owner has 100% market share, the patent is no longer of high value because the competitors have other problems, however the inventor compensation reaches its maximum for 100% market share;
- If the patent owner has 50% market share, there is probably also a balance of patents which means lower monopoly benefit;
- If a patent owner has less than 30% market share, he can best attack competitors who have a large market share. The inventors compensation should reach its maximum here.

## 8. PROBLEMS WITH DISHARMONIZED LEGAL ASPECTS

- Discrepancy to harmonization level in patent law.
- Problems for exploitation of community patents.
- Competition distortions between enterprises.
- Flexibility of employees requires harmonization.
- Cooperation between companies of different countries.
- Exploitation of joint inventions.
- Commitments under EU funded projects.
- International private law?

The national patent laws and international treaties on patents have been harmonized to a high degree. The national and international work law is lacking behind in harmonization. Why not continuing with the harmonization at the interface between patent law and work law?

If community patents are created the countrywide different allocation of rights to the employer or employee inventor, as it is foreseen in several laws on employee inventions, results in legal problems. There will be only one patent as a legal instrument and one cannot derive conflicting rights for different countries!

There are presently some competition distortions in the EU since some competitors have to observe restrictions by local law on employee inventions whereas other competitors are completely free.



The flexibility of employees is increasing. It is impossible to await from an employee inventor to know the basic legal requirements for his inventions in more than 20 countries if such requirements are different from country to country. The only possible consequence will be a loss of rights for both, the employer as well as the inventor. The favored third parties will be competitors from outside the EU.

In any case of cooperation between companies of different countries the disharmonized law is a hindrance for negotiations, a hindrance for the prosecution of the projects, and a hindrance for the exploitation of the results.

Specifically difficult is the exploitation of joint inventions which have been created under different laws on employee inventions. The co-owners have to observe and apply different conditions in parallel for one and the same invention, and mostly they do not even understand the different legal situation as applicable in other countries.

In any case of public funding of projects the authorities request from the employers to observe and apply the “pertinent” laws on employee inventions. I assume the authorities did not recognize that in fact they do not acquire uniform rights in the results. Presently the results are subject to different legal conditions under local national law on employee inventions.

Unfortunately we cannot rely on the international private law in this respect to bring the wanted harmonization. The result under international private law is simply a loss of rights under conflicting national laws!

## 9. PROBLEMS WITH DISHARMONIZED COMPENSATION

- Disadvantages for the inventors:
  - General demotivation of inventors without compensation;
  - Specific demotivation in cooperation projects;
  - Increased demotivation in joint inventions.
- Disadvantages for the employers:
  - Different compensation obligations may require double book keeping in cooperation;
  - Competition distortions between enterprises;
  - Corporation internal worldwide incentive systems become more complex.
- Disadvantages for the public interest:
  - Unreasonable influence on flexibility and fluctuation of employee inventors;
  - Unreasonable influence for decisions on industry sites.

It is already demotivating for all employee inventors in a given country to know that inventors in other countries have a claim by law for compensation whereas they themselves do not have such a claim.

Specifically embarrassing is the situation for inventors from different countries who work in a common project and know of course of the inventions and the compensation of their colleagues. Even worse, if they are joint inventors in one and the same joint invention!

There are also disadvantages for the employer and for the public interest as listed above. Governments and EU Authorities advocate for equal treatment and reduction of unreasonable distortions in competition. However, in this legal field they maintain any possible barriers though having a clear political task to harmonize!

## 10. ATTEMPTS FOR HARMONIZATION

- 1957 Obligation under Treaty of Rome, Art. 2 + 3 (h).
- 1963 AIPPI Congress in Berlin.
- 1977 Comparison of Expert Group for 6 EC Countries.
- 1987 ILO Tripartite Meeting in Geneva on Salaried Authors and Inventors.
- 1990 Conference in Würzburg (see GRUR Int 5/1990).
- 1991 Publication of My Proposal (see DABEI 15/1991).
- 1993 (?) EU Questionnaire on Inventors Compensation.
- 1994 Publication of the "Materials ..."
- 1997 EU Hearing in Luxembourg.
- 1998 Start of Activities in the GRUR Working Group for Amending the German Law.

The problems and disadvantages of disharmonization are known since long and there have been several attempts to overcome the situation, as can be seen from the above list. All attempts have been without success so far.

Some reports of the Conferences simply recommended to stay away from further attempts since the subject matter is too complex. The 1987 ILO meeting in Geneva was too ambitious in its goal to harmonize all fields of employee rights in intellectual property in the same way.

The result of the 1997 EU hearing was to request amendments on national level as a precondition for a later international harmonization.

However, how shall such requests be successful without any indication in which direction the amendments shall be made? Each country may amend in different directions and other countries may amend just in the opposite direction. At the end we have with a large effort in amendments the same disharmonization as before, only the countries changed their position!

One positive result can be reported: the GRUR working group completed its proposal for amending the German law on employee inventions. The amendment of the pertinent compensation rules (RL) has been postponed. For sure an adaptation is necessary and I made already a proposal for that (see Section 16). Presently a Working Group of three German Ministries and two experts is preparing a draft for a new German law on employee inventions.

## 11. GOALS AND INTENDED AMENDMENTS IN GERMANY

The goals are mainly:

- Deregulation;
- Simplification of procedures;
- Clarification of rights + obligations;
- Some minor corrections;
- Adaptations to amended patent law + jurisdiction;
- Some adaptation to the law of other countries.

It is not a goal of the German industry to reduce the total inventors compensation. However, there should be only 20 paragraphs instead of presently more than 40 paragraphs, and there should be an amendment of the RL to more lump sums.

The intended amendments are:

- Allocation of title by law to employer;
- Free decision of employer on filing;
- Free decision of employer on filing abroad;
- Free decision of employer on maintaining;
- Leave out technical improvement proposals.

There will not be a need to claim the ownership of a service invention, as it had to be done in 99% of the cases. There may be a requirement for a lump sum payment for the assignment by law. If the employer exceptionally (in the remaining 1% of cases) wants to escape this requirement, he may assign the ownership to the employee inventor or may negotiate a different solution.

According to the existing law the employer contributes as an average 85% to the creation of a service invention. Thus, the employer shall have the free decision on filing a patent application, on keeping confidential or publishing without protection, he alone has to bear the risks, expenses and consequences of each way.

Foreign filing and maintenance of patent applications shall follow the companies needs without any conflicts between company and inventor or third party interests in different countries. There will not be an obligation by law for a re-assignment of a patent to an employee inventor, but for sure it will remain possible by agreement.

The provisions on “qualified” technical improvement proposals shall be left out in this law since these provisions have extremely seldom been applied, are a totally different subject matter and may be transferred to a regulation on company level. There is never a full monopoly benefit.

What shall be maintained is the arbitration procedure.

## 12. EXAMPLE OF A REALIZED INCENTIVE SYSTEM

According to the fact of missing appropriate international laws many company individual incentive systems have been implied to increase inventiveness. One of them shall be described as an example:

There is a very early incentive (300 €) for each disclosure of an invention (within 2 months after claiming the rights).

There is a second incentive (700 €) paid on filing of the first patent application or when the decision on keeping confidential is made (should be < 6 months).

There is a third incentive (2 k€) paid on the first grant of an examined patent (unfortunately this happens mostly not < 3 years).

If there are co-inventors, any of the incentives is increased by the factor of 1.5 and then this amount is shared by the co-inventors.

The main amount is available when the patentability has been confirmed by the first patent office. This is in line with the start of the right to forbid use by infringers and with the licensing value increasing drastically at this time. An early use by the employer is not considered as a reason for higher compensation.

The system provides also extra payments for extraordinary values.

Another specific of this system is an incentive for information on non-licensed use by third parties (infringements).

## 13. OTHER CRITERIA OF INCENTIVE SYSTEMS

- Lump sum payments per inventor.
- Sharing of benefits on notification of an infringer.
- Extra awards by the CEO.
- Extra budget for the inventor.
- Share of the royalty income.

The lump sum may be a one-time payment of 2.5 k€ to each inventor, which means for the employer exactly a multiplication of the expense in case of co-inventorship. This implies a certain invitation to nominate more inventors.

For notification of an infringer the recipient of the incentive may not be the inventor.

A special ceremony with the CEO is highly appreciated by the inventors. It expresses active interest of the board of management in patents.

An extra budget and time for an inventor can have a feed back effect for the company because the inventor becomes free to think on new technical ideas without being bound to many administrative burdens.

In Germany (and some other countries) a share in royalty income is a requirement by the official compensation rules (RL), roughly 4% of royalty income.

## 14. COMPENSATION UNDER RL FROM ROYALTY INCOME

<u>Definition</u>	<u>Range</u>	<u>Example</u>
• $V = Nf \times L \times M \times A$		
- $Nf =$ Net factor Licensee's net sales royalty rate	(1/8 ... 3/4)	1/4 10 Mio Euro 1.5%
- $L =$ Royalty income		150 kEURO
- $M =$ Inventorship share	(1 ... 0.1)	0.5
- $A =$ Employee share	(0.01 ... 0.99)	0.16
• $V =$ Compensation for this inventor: $V = 1/4 \times 150 \text{ kEURO} \times 0.5 \times 0.16$		<u><math>V = 3 \text{ kEURO}</math></u>

(if  $Nf = 1/3 \rightarrow V = 4 \text{ kEURO}$ , if  $Nf = 2/3 \rightarrow V = 8 \text{ kEURO}$ ).

This is a simple equation with four factors. There is no need to explain much. The parameters Net factor  $Nf$ , Inventorship share  $M$  and Employee share  $A$  can give rise for disputes, but at least the Royalty income  $L$  should be out of question.

More questionable is the application of this formula to cross license agreements or cases with compensation other than royalties from the licensee.

The royalty income can simply be replaced by a selling price in case an invention or a patent is sold to a third party (not to be mixed up with selling the product which makes use of the patented invention!).

## 15. COMPENSATION UNDER RL FOR USE BY THE EMPLOYER

(License Analogy)

<u>Definition</u>	<u>Range</u>	<u>Example</u>
• $V = U \times W \times l \times (1-e) \times K \times M \times A$		
- $U =$ Sales of employer		20 Mio EURO
- $W =$ Value share Reference value	(1 ... 0.1)	0.5 $B = U \times W$ 10 Mio EURO
- $l =$ royalty rate	(0.1% ... 10%)	1.5%
- $(1-e) =$ graduation factor	(1 ... 0.2)	1
- $K =$ Complex share	(1 ... 0.1)	1
- $M =$ Inventorship share	(1 ... 0.1)	0.5
- $A =$ Employee share	(0.01 ... 0.99)	0.16

- $V = \text{Compensation for this inventor:}$   
 $V = 10 \text{ Mio EURO} \times 0.015 \times 1 \times 1 \times 0.5 \times 0.16$   

$$\underline{V = 12 \text{ kEURO}}$$
  
 (if  $N_f = 1/2 \quad \rightarrow \quad V = 6 \text{ kEURO,}$   
 if  $N_f = 2/3 \quad \rightarrow \quad V = 8 \text{ kEURO.}$

The alternatives indicated for the Net factor  $N_f$  show how simple it would be to reach the same inventors compensation for the same sales by a licensee and by the employer. Presently, the large difference between 3 kEURO and 12 kEURO is difficult to explain since the other parameters are identical in the example.

#### 16. PROPOSAL FOR EARLY COMPENSATION UNDER NEW RL

- Lump sum for assignment by law (200 ... 300 EURO)
- Early final compensation by estimation of sales combining own use and royalty income + ....
- Average parameters fixed by law:  
 $K = 1 \dots 0.1, e = 0 \dots 0.8, l = 1.5\%, R = 1/2, N_f = 2/3$
- Average employee factor by law  $A = 1/6$  for all, optional  $A = 1/8$  for manager,  $A = 1/4$  for door keeper
- Co-inventor share  $M (= 1 \dots 0.1)$  remains individual

<u>Sales</u>	<u>[Mio EUR]</u>	<u>K</u>	<u>(1-e)</u>	<u>l[%]</u>	<u>...</u>	<u>Nf</u>	<u>A</u>	<u>V [k EUR]</u>
0 ...	... 0.3	1	1	1.5		2/3	1/6	0.3
0.3 ..	.. 0.6	0.9	1	1.5		2/3	1/6	0.6
0.6 ..	.. 1.7	0.8	0.95	1.5		2/3	1/6	1.2
1.7 ..	.. 5.2	0.7	0.85	1.5		2/3	1/6	2.4
5.2 ..	.. 16	0.6	0.75	1.5		2/3	1/6	5
16 ..	.. 58	0.5	0.65	1.5		2/3	1/6	10
58 ..	.. 210	0.4	0.55	1.5		2/3	1/6	20
210 ..	.. 970	0.3	0.45	1.5		2/3	1/6	40
970 ..	.. 5,850	0.2	0.35	1.5		2/3	1/6	80
5,850	>>	0.1	0.25	1.5		2/3	1/6	160

The lump sum for the assignment by law to the employer has a legal background. The constitution may not allow a legally valid assignment by law without a certain compensation, similar as in the USA.

All parameters in the above table are a constant or at least fixed by law. This fact shall reduce disputes about reasonable parameters. The only exception is the co-inventor share  $M$ . This factor may follow facts case by case though in practice the co-inventors mostly agree on

equal share values in view of missing guidelines for estimating individual share values. In no case this must be a dispute between employer and employee inventor.

In each line of the table a range of sales volumes is defined by columns 1 and 2. The given upper limit value shall always be part of this line. For any value within these limits the compensation in the last right hand column shall be paid. In case of co-inventorship this lump sum will be split accordingly.

The estimation of realistic sales volumes would for sure result in heavy disputes between employer and employee inventor since all realistic types of use in 10.5 years by the employer and licensees (or other parties) shall be covered. However, a specific (new?) method is foreseen to reach agreement: Once a settlement is reached in this estimation of volumes, the pertinent lump sum compensation shall immediately be paid and shall be final, except the actual range of use would later on reach at least the next but one range of volumes.

Thus, a settlement on a relative optimistic market assumption in favor of the employee inventor results automatically in a highly decreasing chance to get later on a further compensation for unexpected higher volumes since the next range of volumes is already settled by the first payment.

On the other side, a settlement on a pessimistic market assumption in favor of the employer results in a higher chance to get later on a further compensation since the actual volumes reach a value even higher than the initial estimation by the employee inventor.

This method of reaching settlement may also be helpful in other procedures of arbitration.

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