6 Research and Study on Patent Specifications for the Next Generation

Thanks to recent major technical innovation, a number of new and state-of-the-art technologies have become available to flourish high-tech industries, thus resulting in rapid expansion of the technological areas to be covered by proprietary right. Recent years have seen great advances in communications such as digital-data-based picture and sound media as exemplified by CAD, CG and digital video, making it possible to offer various means of communications.

On the other hand, patent specifications have dealt with inventions and patents in the form of a written description and plain views printed in black ink on white paper, making it difficult to express things which are very sophisticated in terms of mechanisms and actions or items such as molecules characterized by three-dimensional structures.

In view of the above, we have evaluated an optimal expression of patent specifications for the next generation as well as identifying problems to be solved in obtaining this optimal expression, together with preparation of an example of next-generation specifications by the utilization of a new methodology for patent descriptions, thus providing basic data on how to prepare patent specifications in future.

I Introduction

Recent years have seen a large number of patent applications for items with sophisticated mechanisms such as technology-concentrated products or miniature machines as well as for machines, devices and others which act in a sophisticated manner, such as an intelligent robot. Furthermore, in an area of biotechnology dealing with proteins three-dimensionally, the configuration can only be recognization in a form of microscopic photograph.

In the existing patent specification, inventions must be expressed with sentences and monochrome plain views, and the sentences are always wordy and lengthy in describing such inventions, making it difficult to understand the details of such patent applications,.

It is now possible to facilitate understanding by utilizing multimedia to describe the technical details. Since in reality private companies and other have already fully utilized multimedia technology in research and development, it seems quite natural to make full use of multimedia in describing patents and other industrial property rights as the crops of research and development.

It is also, however, true that there are many problems to be solved. Technical problems emerge such as how to store and secure the data. When we look at an aspect of patent specifications as legal documents, there are problems such as how to determine the scope of the right, or how to disclose proprietary information to others.

Now we give a further evaluation of the feasibility of the new descriptions, the effect they will have, the problems that will arise, and other matters on the basis of the utilization of multimedia technology.

II Status of Utilization of Multimedia Technology in Companies

High-performance personal computers (PC) are available at a reasonable price, together with the dissemination of network infrastructures such as LANs and the Internet, while electronic tools are used in place of paper documents in doing business.

1 Utilization of Multimedia by Manufacturers of Machinery

Recent years have seen fierce competition among manufacturers because of deregulation of the market as well as shorter product cycles. Under these circumstances, manufacturers find it necessary to strengthen their competitiveness, using three-dimensional CAD (hereinafter referred to as 3D-CAD) to be used in every section involved in the stages of appropriate design and development, to optimize system structures, and achieve shorter design periods and faster development. Design planning, mechanical engineering, system design, and mold design etc, are included in the section where 3D-CAD is particularly widely used.

The aim of 3D-CAD is to shorten the development terms. Before manufacturers develop a new product and finalize the specification for commercial production, they

have prepared prototypes based on developed ideas, which are then subjected to experiments and evaluation for determining the design specification. Such a process requires the repeated preparation of prototypes and a longer term for design specifications. After the design specifications are finalized, production drawings must be prepared based on the specifications to allow evaluation in terms of production, thus prolonging the whole process until the production line is finally set up.

The utilization of 3D-CAD reduces the number of prototypes to be prepared and facilitates finalization of the design specifications by conducting an analysis of structures and dimensions as well as simulations on the basis of the CAD drawings.

Furthermore, 3D-CAD data enables simultaneous evaluation of product design and the production line, making it possible to evaluate product design together with production technology. For example, while the design section is engaged in planning a design, the mold section can take care of model design matters at the same time by using information provided from the design section. The common utilization of 3D-CAD information becomes available in such a way that other sections can have access to the 3D-CAD information stored on their home page.

Another purpose of 3D-CAD utilization by manufacturers is to improve order and delivery procedures for parts. In general, a final product is a combination of parts, and it is rare to develop and design all the parts within one company group. If all the parts happen to be produced within one company group, they are usually developed and designed within different sections. Thus, change in configurations and the like with a final product will influence the development of each part.

However, the common utilization of 3D-CAD data by those people in charge of parts development and those in charge of final product development enables a quick response to changes in configuration and the like in the final product and parts.

Unlike on two-dimensional screen, a three-dimensional model offers a product image that is understandable to anyone, allowing staff in marketing and sales sections to participate in work at the design and development stage to offer products which can better meet customer needs.

2 Utilization of 3D-CAD in Pharmaceutical Companies

Drugs have long been developed on the basis of natural organic compounds derived from microorganisms, plants or animals. Among compounds found in natural sources, compounds having an effect of a target drug are selected to give lead compounds (candidate compounds of a drug). Such selected compounds are in turn subjected to partial revision or modification to intensify the effect, to improve absorption and reduce toxicity as part of optimizing the compounds.

Selection of the lead compounds and their optimization involved repetitive research processes on a trial and error basis, consuming a great deal of time and requiring much work. However, the development of H2 blockers (anti-ulcer drugs) and ACE blockers (anti-hypertensive drugs) has heralded the practice of rationalized research processes. At present, in vitro experiments and advanced computer chemistry have made it possible to provide data on the structure analysis of compounds and receptors/enzymes when designing the structure and estimating actions of synthesized compounds to a certain extent, thus leading to a reduction in the time necessary to find and optimize the lead compounds.

The development of drugs with the help of computer chemistry is common practice now, and high-tech tools such as molecule design / drug development support systems, bio-informatics, and toxicity assessment systems have been making rapid progress. These tools by which pharmaceutical companies are conducting drug development have been available through multimedia using text files, images, graphics and animation. Recent progress in genetic engineering and protein engineering has provided new techniques for developing drugs.

The prime recipients on which a drug has an effect in the body are proteins (receptors and enzymes). Proteins, which are identified by amino acid sequences (primary structure), do not exhibit their functions until their chains are folded in ways that are specific to the proteins in question to give a cubic structure (three-dimensional structure). The functions cannot be directly clarified through their amino acid sequences unless known proteins of analogous structure are available. Thus, it is indispensable to obtain an exact understanding of the three-dimensional structure of the protein to understand the function of proteins when developing drugs such as inhibitors.

Advances in genetic engineering has enabled the mass-production of proteins which would be otherwise only be available in small quantities in the body. Likewise, advanced protein engineering has made it possible to clearly understand the three-dimensional structure and

functions of proteins, in parallel with advances in X-ray crystal analysis and nuclear magnetic resonance (NMR). On the basis of these advances in molecular biology and structural biology, techniques have been now developed to estimate the functions of the protein through the three-dimensional structure when designing compounds controlling these functions. For example, in the field of the development of drugs, researchers reproduce the three-dimensional structure of proteins on a computer screen to design drugs graphically by simulating the biding modes of compounds at their action sites.

The mid-1990's onwards have seen rapid progress in combinatorial chemistry, a technique for developing drugs through selection of the lead compounds on the basis of information on the correlation of their activities with the structures of synthesized compounds. Combinatorial chemistry is expected to greatly accelerate the development of drugs in combination with progress in high throughput screening (HTS), which is an advanced assay method to test the efficacy of synthesized compounds. Tools supported by multimedia are indispensable for dealing with a huge number of compounds and assay results (results of efficacy tests).

Many databases on genes and proteins have been created in the world, integrating a huge quantity of collected data from academic literature and information, remarkably substantiating the content both in terms of quality and quantity. Such databases are easily accessible through the Internet. Bio-informatics plays a vital role in the field of genome drug development, a good example of which is a database system built by NCBI (the National Center for Biotechnology Information).

The above techniques for developing drugs are not available independently, but work in a correlative fashion. A pharmaceutical company makes effective utilization of such databases in view of its strategy for research and development as well as with profiles of its target drugs, and builds its own multimedia networks to proceed with its development of promising drugs.

III Preparation of the Next - generation Specification for Demonstration and Its Evaluation

In order to illustrate a specific image of the Next - generation Specification, we have prepared a specification for demonstration (hereinafter referred to as 'Specification for Demonstration') and evaluated the details.

1 Summary of the Next-generation Specification for Demonstration

The Specification is able to offer simultaneous presentation of a specification (text), drawings (still pictures) and animation on the "summary" screen for demonstration. A phonetic explanation can also be made available. The screen can be automatically switched as the explanation proceeds, thus eliminating the need to search for the pictures to be explained, so a summary of the technical details can be grasped without interruption of understanding.

Animation
Drawing
Specification

On the "embodiments" screen, clicking on a paragraph number in the Specification provides a phonetic and animated explanation of the paragraph, and demarcates in color the explanatory parts in the drawing. Clicking on marks in the Specification indicates and emphasizes the corresponding marks given in drawings, thus eliminating the need to search for explanatory parts or marks in the drawings, and so offering continuous reading of the Specification without interruption.

Number of paragraph
Emphasized indication of drawing

2 Evaluation of the Next-generation Specification for Demonstration

(1) Comparative Evaluation with Conventional Description by Text and Drawings

The Specification for Demonstration is able to offer animations by which an object in action can be viewed, thus making it possible to gain a better understanding of the object than by conventional explanation by text and drawings.

Further, phonetic explanation eliminates the necessity of repeated references with text and drawings in reading a conventional specification, and changes in color of explanatory parts as the explanation proceeds makes it unnecessary to search for marks in drawings, which is an advantage over a simple color explanation.

Especially, in the specification of a complicated machine in which explanation is given with reference to many drawings, it is quite troublesome just to look for marks in the drawings. The Specification for Demonstration, however, replaces a drawing every time a particular drawing is explained, thus offering uninterrupted understanding.

A conventional text-oriented specification has an inherent problem that the concept and understanding of those who prepare the

specification may differ from those who read the specification. The Specification for Demonstration causes less discrepancy in understanding between them because it provides a drawing every time a drawing is explained, or indicates explanatory parts in color.

Although the Specification for Demonstration has been shown to offer much better understanding, inherent problems have been pointed out: The Specification is so easily understandable that people are not willing to read a conventional specification. Also, there is concern that just reference to the Specification may give people a feeling of fully understanding the details although they may overlook precise matters such as an exact understanding of the scope of patent right, which are actually very important.

Patent examiners and patent attorneys dealing with patent specifications and other related documents as specialists consider that the contents of the Specification are insufficient, and that the Specification alone is no substitute for a conventional specification. They may find it easier to deal with a conventional specification.

Such specialists find it no problem to read and understand the Patent Gazette. The Gazette, however, would pose a serious problem as technical information if other people or even technical people should find it difficult to read. Although abstracts are available that provide summarized information, they may fail to give sufficient information to a third party. It is necessary to create an environment where information on patent or other proprietary rights and technology can be easily accessed not only by specialists but also people in general. For example, OHPs used to be used for presentations in general, but now presentation software such as Power Point is used in place of OHPs. In a similar way, multimedia may need to be used to make presentations easy and understandable also in the patent business.

One practical approach is to utilize the Specification in combination with a conventional specification; for example, the Specification can be used as a supplementary material for a technical interview with a patent examiner of the Japanese Patent Office, or can be used in place of an existing abstract.

However, even if the Specification is useful for understanding technical details, utilization in combination with a conventional specification could be an additional burden not only for those referring to it but also to those who must prepare it. The Specification will not be used in practice until it offers advantages such as less burden not only on those who refer to it but also to those who prepare it. There must be some benefit for those who prepare the Specification, such as less burden in preparing documents.

(2) Benefit for an Applicant

The Specification would offer no particular benefit if only for ease of understanding technical details, but could offer a great benefit if it could be used as documents showing grounds for amendment. For example, in a case where a computer program is prepared on a trial basis but is not at the stage of completion or there is not sufficient time available for studying claims, claims made tentatively could be applied together with a sample of the computer program to add claims by subsequent amendment. If such application were feasible, applicants would benefit greatly.

If a specification is kept unchanged in its form and application documents utilizing a phonetic presentation or electric images can be given the same treatment as part of a specification and attached whenever necessary and approved as grounds for subsequent amendment, then such documents may be actively used as attachments.

Approval of such amendment would accelerate application procedures, resulting in a great merit. Most of the recent venture capital firms are based on the application of networks. Naturally, those in Western countries are financed on the basis of patent applications. Under these circumstances, it is important to apply for patents before setting up the business. The Specification would be useful for converting something valuable in business that is not yet completed, into some proprietary right at the earliest opportunity.

If technical data, experimental materials, academic reports and others owned by researchers and technical people can be utilized in patent applications as they are, then procedures would be facilitated and applicants would benefit.

When drawings for application are prepared, some parts may be discarded which are understandable to those skilled in the art. There may be, however, some cases where the discarded parts are later thought not to be discarded and result in serious problems. Such discrepancies could be avoided if design data and others were attached to drawings in a specification from the beginning of the application.

If such attachments could be made available on a working level when preparing patent specifications in future, it may lead to a substantial improvement in the application procedures, even though problems such as availability of technology, time and costs

remain.

If those who prepare patent specifications suffer a great burden even though the specifications are easily understandable, practical problems may emerge. It is necessary to weigh the balance between such burden and ease of understanding of specifications, though specifications should always be easily understandable to a third party.

Of the Specifications prepared this time, the parts, which are preferably illustrated by the use of multimedia, may be related with the pictures that are replaced for every explanation related with the drawing. Pictures may be prepared quickly if a real object is captured for the pictures that are replaced as the explanation and pictures proceed. The processes and structure of the object in motion can be explained easily by letters.

IV Problems to Be Solved

1 Technological Problems

(1) Preparation and Transformation of Data

When multimedia technology is utilized in preparing the Next-generation Specification, data such as text, still pictures, animation and graphics should be such that they can be easily prepared or converted by an applicant.

(i) Preparation of multimedia data by an inventor

Today, multimedia technology has been utilized in various ways in such sections as R&D, manufacturing and marketing departments. There is a strong possibility that design/drawing data, data for in-house presentation or data for academic meetings prepared in a company could be used as data constituting a patent specification.

In a case where data used in a company can be utilized to constitute a patent specification, data prepared by technical people can be easily converted into data constituting a specification to save money. On the contrary, if such data cannot be converted for the purpose and data must be prepared separately when applying for a patent, the preparation and transformation of such data would place a heavy burden on the applicant, consequently leading to less effective utilization of multimedia in preparing a patent specification.

(ii) Approval of standard technology which can be utilized on a patent application

Various multimedia tools are utilized by technical people, and it is considered difficult to convert such forms into an acceptable form for the Patent Office. Further, it may be difficult to standardize all the multimedia tools such as 3D-CAD, CG or video camera, each of which has a different application, although a commonly acceptable standard would remove such difficulty.

One possible solution to these problems would be for the Patent Office to accept an application prepared by multimedia tools that are acceptable to some extent by the Patent Office, and for the Patent Office to convert the application to standard software. (or software may be developed by the Office) This would require technical staff with software expertise, adding substantially to the cost.

(2) Data Capacity

When much data such as color CG and animation is contained in a patent application utilizing multimedia technology, the data to be transmitted may amount to several hundred megabytes or gigabytes. Recording media such as FD, CD-ROM and DVD could be used for patent applications given the present status of electronic tools. However, the intermediate presence of information recording media may complicate the services of an applicant, patent attorney and others, and result in wastage of resources. Hence, a new technology is required that enables much data to be sent constantly and quickly, without resorting to an intermediate recording media.

(3) Security

The data constituting a patent specification should be easy to prepare and convert by an applicant, and once submitted, should not be possible to revise voluntarily. An applicant may need to revise data according to amendment procedures after making a patent application, but such amendment should not be allowed whenever an applicant wants to make amendments. However, if subsequent amendment after data application is not allowed, it may pose a problem.

A patent specification, once made, should be kept by some security system and special measures should be taken, for example, access to the data should be restricted.

The existing electronic application system by PC directly connects an applicant's PC and the server in the Patent Office through an ISDN line, thus preventing the possibility of leakage of the transmitted file to the outside. However, when an applicant's PC is connected with the Internet, details of the transmitted file could be leaked through illegal access to the outside before publication of unexamined application. Hence, when multimedia technology and the Internet are used in the application system, further precautions to network security must be taken.

(4) Retention and Reproduction of Data

Multimedia technology will give more freedom to description in a patent application and will make it possible to describe more appropriately an invention which would otherwise be difficult to explain appropriately. However, unlimited utilization of multimedia technology may make it difficult to investigate prior art and lead to useless retention of data by the Patent Office, an applicant or patent attorney. A restriction may be needed by which various types of data may be allowed only for reasons that justify utilization of multimedia technology. Justifiable reasons include cases where data available other than in a form of text or still pictures is required due to the characteristics of the invention or there are special effects in understanding the invention.

(5) Investigation of Prior Art

One advantage of specifications utilizing multimedia technology when preparing a patent application is to facilitate understanding of an invention that would otherwise be difficult to understand (for example, an invention on the stereo-structure of proteins). Explanatory sentences of an invention can be omitted by using multimedia technology to incorporate animation or graphics into a patent specification, thus saving time and labor of the applicant for preparing the explanatory sentences, and also making the invention easier for the patent examiner and people in general to understand.

In order to fully utilize the advantages of multimedia technology in preparing a patent specification, it is necessary to evaluate measures by which people in general or patent examiners can grasp easily and appropriately a patent application described in animation or graphics in particular. When investigating prior art for developing new products in a company or for examination by an examiner, it may be necessary to prepare related conditions including technological support for understanding patent applications utilizing multimedia technology.

2 Challenge in Laws and Regulations

(1) Utilization of Multimedia in Existing Examination and Judgement

As of April 1, 1999, the Patent Office started a system of "Utilization of Multimedia Data of Supplementary Explanation for Examination and Judgement" and accepted patent applications for the following purposes:

* Utilization as a presentation tool for interview at the time of examination or hearing,
* Written submission of evidence as supplementary data for examination, hearing or others

However, the media to be submitted must meet the following:

* Data contained in media should be of large volume
* Data cannot be renewed such as by addition or deletion
* Data can be easily reproduced
* Media are commonly available and reasonable in price, specifically, CD-R (recordable disks), CD-ROM, or DVD-video (data can be reproduced by DVD player commonly available in Japan).

The system is to be executed within the scope of the existing laws and regulations. The Patent Law has approved various types of materials to be submitted as supplementary data for examination or hearing, and has also approved various types of materials to be submitted for interview at the time of examination or judgement.

Thus, submission of data on multimedia does not pose any legal problems and is expected to facilitate smooth and exact examination and hearing procedures.

Further, facilitated utilization of multimedia for submitting data would be an advantage for applicants, reducing the work of preparing a patent specification by an applicant. Therefore, it will be necessary to fully investigate data already prepared and stored in the course of research and development by an applicant, to study which data form allows utilization of such data, and to stipulate the form in the Regulations under the Patent Law and others, in addition to promotional activities by the Patent Office.

Since written submission of evidence or articles at the time of interview are laid open to public inspection, and also since it is important to offer physical public inspection in addition to secured inspection opportunities when so required by a third party, it will be necessary to expand data forms, while considering inspection by third parties in addition to those who submitted the data or others.

(2) Utilization of Multimedia for Preparing Documents such as Request for Examination, Opposition, Written Answer, Written Opinion or Others

The following may further facilitate utilization of the existing multimedia data in the Patent Office:

Document of request for examination
Document of opposition
Written answer, written opinion and others

These documents are different from a patent specification or drawings in that they do not directly influence the scope of rights, but multimedia could be effectively used for preparing these documents to secure smooth and

exact examination and hearing procedures.

However, these documents are all subjected to rules and regulations by the Patent Law which stipulates the principle of documentary proceedings in principle, and replacement of all the documents with multimedia data would pose a legal problem. However, the existing Patent Law has provided exceptions to the principle of documentary proceeding, and by taking a broad interpretation of the exceptions, it is possible to submit all documents in multimedia data.

However, when the system is changed so that these documents can be submitted as multimedia data, it is important to fully discuss all aspects of international harmonization of the system to be changed.

This is because these documents are subjected to file wrapper estoppel, which may have an indirect influence on the scope of the right on a working level, though not stipulated in writing by the Patent Law.

Sufficient deliberation is, therefore, essential in the light of the influence on interpretation of the scope of the right. Preparation of these supplementary data as multimedia data may involve the same problem as when preparing a patent specification or drawings for this reason.

From the perspective of securing smooth and exact procedures, approval of submitting multimedia data for examination or hearing should be effective, though various discussions on supplementary means of claims in documents including possible utilization of multimedia data are required.

When utilization of multimedia data is approved as a means of supplementing items claimed in documents, with the principle of documentary proceeding remaining as provided in the existing Patent Law, there is no need to revise the Law, but only the Regulations under the Patent Law stipulating forms and others for requests for examination, etc. need to be revised. This should mean a broad interpretation of the existing system on an existing managing level.

Hence, as with the case of introduction of the electronic application system, it is essential to understand and incorporate the views and opinions of applicants and other related parties in Japan and overseas, and to establish a system that reflects such views and opinions as much as possible. Further, matters related to court procedures must be fully discussed, because opposition to decision or conclusion of trial examination are appealed to a court.

(3) Utilization as Drawings of Application Documents (supplement to items described in a patent specification)

Advanced utilization of multimedia data as a request for examination and others means to use multimedia data as a supplement to items described in a specification, namely, drawings.

Utilization of multimedia data for ease of understanding of the details of an application would benefit not only applicants (patent attorneys) who must sufficiently disclose an invention, but also the Patent Office which examines the details of an application as well as all other third parties investigating prior art.

Further, multimedia data offers an effective means of securing an invention properly because disclosures in documents including plain drawings are often difficult when trying to understand the details; depending on the application documents, patent specifications can be more easily prepared by using multimedia data which has been kept by an applicant.

The Patent Law stipulates in Paragraph 1, Article 70 that the technical scope of a patent invention shall be determined on the basis of the scope claimed in a patent specification attached with the application.

Under the conventional Patent Law, there was a conflict regarding whether detailed explanation of an invention or drawings in a patent specification should be taken into account or not. In 1994, the system was revised to include a new provision that the meaning of terms described in a scope of claims in a patent specification shall be interpreted when taking into account the description or drawings out of the scope of claims in a patent specification attached to an application (Paragraph 2, Article 70), confirming that detailed explanation of an invention or description of drawings in a patent specification can be taken into account when interpreting the technical scope of an invention.

Therefore, it is necessary to fully study the influence of utilizing multimedia data on the interpretation of the technical scope of an invention. It is clear that a drawing utilizing multimedia data is subject to the stipulations of the existing Patent Law, and few problems may be found in drawings utilizing multimedia data.

It is not necessary to revise the Patent Law when drawings utilizing multimedia data are attached to a patent application. The matter can be handled by revising the Patent Law and the Regulations under the Patent Law so that the form of a drawing can be changed.

(4) Utilization as a Substitute for a Patent Specification

In further advanced utilization of multimedia data for drawings (supplement to items of a patent specification), multimedia data may be used in place of a specification. It may be possible that disclosure of an invention by a specification, which is a major principle of the existing Patent Law, is substituted with

multimedia data to make optimal use of multimedia data and to maximize security of an invention.

(i) Substitution by multimedia data for the detailed explanation of an invention in a patent specification

Another advanced utilization of multimedia data for drawings may be to use multimedia data in place of the detailed explanation of an invention in a patent specification.

This means that the invention itself is disclosed by multimedia data, leading to a change in the principle of the existing Patent Law, or disclosure of an invention in a documentary specification.

Therefore, regarding substitution for the detailed explanation of an invention by multimedia data, full discussion on basic issues such as how to disclose an invention is essential, together with a broad evaluation covering international harmonization of the system, application of internal priority, division, converted application, scope of amendment, interpretation of rights and others.

However, because there has been little discussion on how to disclose an invention, and because there are some inventions for which sufficient disclosure is difficult according to the disclosure in a patent specification as stipulated by the existing Patent Law and there are some inventions for which disclosure can be easily performed by multimedia data, active and constructive discussions are needed, with the influence on third parties fully considered. Most of the difficulties are related with those commonly found in drawings used in the existing patent system and not newly emerging problems, which should be also noted.

(ii) Substitution for a patent specification as a whole by multimedia data

Another advanced utilization of multimedia data for the detailed explanation of the invention in a patent specification is to use multimedia data in place of the specification as a whole, inclusive of patent claims.

As mentioned previously, since the scope of patent claims is important for defining the scope of the right, and wholesale substitution of the specification by multimedia data involves many more problems than partial substitution, it may be necessary to discuss substituting the detailed explanation of an invention by multimedia data.

(5) Conclusion

In this paper, in view of the significance of a patent specification, and the significance of technical documents and utilization thereof by information disclosure, it is necessary to study such significance from the perspective of the applicant as the person entitled to the right, from the perspective of a third party who utilizes the information, and from the perspective of the Patent Office as the body that grants the right.

In this instance, a patent specification that is easy to understand should not pose any problem to a third party or the Patent Office except for legal issues such as interpretation of the scope of right. It is well known that patent specifications are currently not easy to read by third parties, other than those who are familiar with patent specifications.

However, if preparation of an easier-to-understand patent specification may cause an applicant to bear excessive burden, it is difficult to realize the Next-Generation Specification.

The first priority should be given to benefits for the applicant, such as reducing the labor involved in preparing a patent specification.

In principle, an invention and technology should be integrated. It is generally ridiculous that a patent specification must be prepared by a specialist or may cause legal disadvantage if otherwise prepared. One possible approach toward the Specification is for various data such as drafts, catalogues, manuals and academic papers to be used as they are.

Another benefit that an applicant can enjoy is a legal benefit. The Next-generation Specification will be actively used if proprietary rights can be obtained effectively and such rights are judged to outweigh the increased cost. The legal benefit includes cases where multimedia data submitted together with a conventional patent specification can be accepted as data after amendment or give grounds for a broad interpretation of the right (for example, based on the doctrine of equivalents).

As discussed above, unlike the Next-generation Specification for Demonstration which is a sophisticated combination of animation and narration, there are several means of describing invented technology sufficiently to help an examiner or a third party to understand the technology. These include transient means based on presently-available

technology (standards), or those in special technological fields by which SGML(*1) data is linked with a party having other prior art (literature or specifications), or pictures are described as animations through application of Java(*2), or animations utilizing MPEG(*3). Such progressive utilization of multimedia technology may better reflect reality.

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(*1) Standard Generalized Markup Language: International standard of electronic documents. Language for describing the structure of data and information such as the type of accumulated data or indication of an outline, not relying on the processing of data after accumulation.

(*2) Object-oriented language developed by Sun Microsystems Inc., characterized by programs that operate on many platforms and incorporating security system for use on the Internet.

(*3) Moving Picture Experts Group: International standard of motion picture compression by which signals of pictures and sound can be converted into digital data through irreversible compression.