The European Patent Office has launched the preparatory works for the elaboration of its Strategic Plan for the period 2019-2023. This major initiative will be conducted in an open, transparent and inclusive process with all its stakeholders. The Strategic Plan will be submitted for adoption to the Administrative Council of the Organisation in June 2019.

It will steer all the activities of the Office for the coming years in different sectors, be translated into concrete actions and projects, be subject to a regular monitoring and be reported openly on progress and achievements.

The Office is therefore eager to gather your views and opinions. They will contribute to the development of the Strategic Plan and help to define the future priorities of the Office.

Please send your contributions to the consultation via the filled out PDF template to: consultationSP2023@epo.org

The closing date for content submission is 15 March 2019.
A. I am providing comments **on behalf of an organisation**

Organisation name and contact person

| Empolis Information Management GmbH, Michael Wischemeyer |

☑ On behalf of the organisation I agree to the publication of its comments on the EPO website.

B. I am providing comments **as an individual**

First name | Last name

☐ I am providing comments on my personal behalf and agree to their publication on the EPO website

I belong to one of the following categories:
☐ patent applicant: individual
☐ patent applicant: company
☐ patent applicant: institution
☐ professional representative / patent attorney
☐ in-house patent agent
☐ law firm
☐ association of IP / patent professionals
☐ IP / patent office
☐ inter-governmental organisation
☐ non-governmental organization
☐ academy / university
☐ other
Topic 1 – Evolution of the patent system and future challenges

During the last decade, the patent system has experienced great challenges, such as a growing number of patent applications at the global level, the increasing complexity of multi-sectorial applications that integrate more and more digital components, or the development of diverse prior art in different languages. In the meantime, new technologies have helped patent offices around the world to offer new services that aim to better master the workload and simplify the life of users.

Guiding questions:

1. What are in your view the main current and future challenges of the patent system that the EPO should be ready to face? What should be its key priorities in the coming years?

2. How do you see the impact of the fourth industrial revolution technologies (e.g. Artificial Intelligence, Blockchain, etc.) on the functioning of the patent system?

3. Do you think that the current products and services offered by the EPO in general are still the right ones for fulfilling its tasks in supporting innovation? How could we maximize the impact of the patent system in the innovation system?

Your comments (unlimited number of words)

machine learning techniques. There has been a huge growth of patent families and scientific papers in AI in recent years and it is expected that this trend will continue.

In the context of IP, AI comes in three facets:

- As a powerful tool to analyze, classify and evaluate data
- As a form of IP
- As a creator of IP

AI as a subject of IP is characterized by a few challenging trends in technology which do not only require advanced technical skills, but also raise legal questions. For instance, there is a growing number of computer-implemented inventions as well as a potential for the infringement of IP rights by AI systems. In addition, there is the fear that large rich companies will overflood the market and patent offices with applications with the consequence that no knowledge transfer will take place anymore. On the other hand, patents dealing with AI could support innovation in certain areas and increase the level of prior art.

It can also be observed that AI leads to the connection of domains which had been previously unrelated. This convergence of formerly separate fields can be found in biology in the field of, for instance, neurorobotics, or in the field of data-driven farming where AI methods and agriculture are combined to increase productivity.
In any case, the complexity of innovations will steadily grow which requires experienced staff.

AI as a tool for patent examination can be utilized for several demanding tasks the EPO is currently being faced with, like:

- Automated search of patent prior art
- Automatic classification of patents
- Examination and formalities check
- Machine translation
- Generation of reports
- Communication with applicant, monitoring of administrative tasks.

AI as creator of IP has become a realistic item since Generative Adversarial Networks (GAN) have shown the possibilities not only to learn and reproduce but also to generate new objects, such as paintings, drawings or music. It is foreseeable that this kind of Artificial Superintelligence (ASI) will be able to generate IP. This would lead to a dramatic increase of filed patent applications.

As opposed to AI, the situation for technology to manage secure digital data is rather different. One example of that is Blockchain technology. The EPO will be faced with two aspects of this technology in the future:

- So far, there has been no growth in terms of related patent applications. However, as in the case of AI, the technology itself may turn out to be very useful for the management of IP. EPO needs the necessary knowhow to do the patent examination of such patents properly.
- The Blockchain technology itself may be useful for the EPO for storing and managing IP rights and for process automation (provided the security is good enough) to prevent manipulation or any kind of misuse.

Hence, our recommendation is to make use of AI, Blockchain and Data Science in areas where these technologies help to accelerate processes or to increase quality.

Additionally, the demographic evolution of the population will force a situation where less qualified staff will be available. Studies from the Boston Consulting Group have shown a tremendous lack of qualified and skilled resources from 2030 onwards in industrialized states.

This can be summarized as more work for the same or less staff members which requires a higher degree of automation in all processes. The following key priorities for EPO can be identified:
• Review systems and their architecture, plan for flexible, expandable systems, which allow for continuous integration and new microservices as improvements.

• Work data driven, make use of available data to analyze new data

• Reduce efforts by efficient preselection of candidates for patent examination

• Push your own digital transformation forward, become more agile to speed up and scale, take calculated risks to improve faster and better, do experiments, learn fast, iterate, deliver quickly

• At the same time do not separate research and data science from business owners and day to day delivery

• Review company culture and employee mindset. Adapt if necessary

• Outsource hosting and other work where suitable.

Moreover, we propose to evaluate the possibility of an additional service for the public which provides a patent check tool for public inventors. A draft of a patent application could be sent to the service which will deliver a first evaluation of the chances to get a patent or will return a list of relevant documents. This service will have the following benefits, both for the applicant and the EPO:

• Reduction of the number of applications filed towards EPO
• Applicants can concentrate on the improvement of the invention instead of comprehensive searches.
• Non-efficient work on inventions with low chances to get a patent will be reduced.
• A better quality of patent applications can be achieved.

In addition, useful information about technical fields, existing patents, commercial use and “white areas” could be disseminated to support innovation.
**Topic 2 – Delivering high quality products and services**

High quality products and services are firmly established as an integral element of the EPO's identity, incorporating attributes such as timeliness, consistency and predictability. Every year the EPO delivers a dedicated quality report that gives the public and our stakeholders a full evaluation of how quality is evolving. It concerns not only the granting of high-quality patents to its applicants, but the quality and comprehensiveness of the patent information delivered to the public.

We want to improve further, based upon a common understanding of quality, while making the patent granting process more efficient for our users.

Guiding questions:

1. Which aspects of the EPO patent granting process should be improved (mastering prior art, timeliness, quality, procedures, costs, accessibility, coherence, etc.)?

2. Have you identified any shortcomings when using any of the EPO’s automated services (e.g. Espacenet, Federated Register, Patent Translate)? Are there any IT initiatives you would like to see developed by the EPO?

3. Do you have any suggestion on how the EPO could work more efficiently or develop more collaborative models?

4. How could we better support the European Patent Network and develop international partnerships in order to maximize the impact of our cooperation activities?

*Your comments (unlimited number of words)*

We have studied the EPO’s published quality report for 2017 from the EPO’s Website. Seeing the challenges mentioned in topic 1 in our opinion the process needs more digitalization, automation and co-operations with the public.

We have observed that innovation in modern technologies is often produced by start-ups with limited resources. Some of them publish their ideas in social media and conferences and sell consulting with the aim to be acquired by larger companies. This demeanor forces stakeholders in the relevant technical sectors to monitor and find these activities rapidly. Also, some of the start-ups claim that the patent granting process takes too much time for them and is too costly.

Generally, we view the implementation of an innovation lab at EPO for both, EPO itself and externally for its partners, national offices, applicants and research institutes as promising means to find service improvements as well as ways for acceleration, work reduction and quality improvements.
The introduction of such an innovation lab has two aspects. The first one deals with the optimization of the patent grant process in terms of quality and timeliness and the second one covers the improvement of the patent examination process.

In such a lab the single steps of the patent grant process workflow would be continuously analyzed and improved, e.g. using AI and Data Science technologies. Findings would be published, and the public would be invited to comment on it or to make suggestions for further improvements.

For the second aspect we have already setup a common document with the EPO about the implementation and operation of an EPO Data Science Lab. In the following, we provide more detail on this aspect. Please note, that this relates to an idea we have already mentioned in Topic 1 and that the overall patent grant process will also benefit from this service in terms of timeliness and quality.

Reliable results in patent examination are enabled by finding the relevant prior art and its context. Historically seen, efficient search was to a large extend a question of classification systems, later complemented by search systems to combine the classification and query approaches.

It is increasingly harder to achieve highest quality and security seeing the amount of unclassified prior art and the growing non-patent literature. On top of it, challenges exist in the effective analysis of Asian prior art and increasing manual efforts are needed.

Without further automation, this work load cannot be handled economically. Independently of the costs, the demand for experts in almost all fields is also a factor when aiming to hire enough personal. There is no chance to handle the expected increase of patent applications the same way as today.

The previously formulated challenge: “How to remain a timely and quality-oriented patent granting authority when prior art volumes are increasing steeply?”, is answered by the inevitable transition towards “automated” search as the opposite of a fully controlled and classification driven search.

Moving towards “finding” and less searching require the data science skills and mentality as described in the previous section. It also means that the behavior of the systems becomes less deterministic and is driven by probabilities, **the aim is to produce relevant information with very high confidence**. Adding data to the system, changing algorithms requires careful testing and measurements.

Furthermore, Artificial Intelligence (or Data Science in general) is in itself a fast-moving target and together with the required extensive benchmarking needs, there is a need for partnership(s) at several levels to tap into external think-tanks and to run the necessary tasks, e.g. machine learning and evaluation.

New ideas in Artificial Intelligence or data science, new software frameworks, new
algorithms and new collaboration models are continuously proposed. This could be in the area of environmental technology, such as the protection of the climate and reduction of pollution, or the e-Health and pharma sectors with research on medical diseases, f. e. cancer and/or Alzheimer.

The creative dynamic is moving between the large players like Google, Facebook, etc., universities, research institutes, academic spin-offs and countless smaller but innovative IT companies. Considering the accelerated innovation cycles from the data science communities, there is no chance to leverage this progress without adapting the way EPO works.

The setup time for the evaluation and at least a prototypical utilization of ideas must be accelerated. The main idea of a Data Science Lab is to gain clarity about the driving problems, the matching solutions and the needed efforts in an efficient manner before expensive and complex adaptations to production systems are started (see figure below from Expertonal. 2017, Information Services Group, Inc.).

![Diagram of Data Science Lab](image)

In our opinion the EPO needs to attract researchers and IT companies to engage with its most challenging requirements instead of only monitoring technical evaluations.

A partnership scenario is typically desirable for continuous long-term tasks and projects, which could be loosely described by explorative research-type like work. Dedicated work packages for data science specialist companies require a clear idea of what is to be outsourced and a definition of a dedicated work package.

Similarly, competitions can be held if the goal is to acquire a prediction model for a dedicated problem. Competition goals need to be set significantly above what is possible, not just “better”. Successful competitions require a well-defined/designated dataset and metrics to measure success to determine a winner. The planning of such competitions is time-intensive but allows access to highly competent people in the field.

We recommend evaluating technologies and let industrial companies, public offices and research institutes evaluate their technologies on EPOs data. Not only for
internal departments, but also for external experts the realization of experiments should be simple and seamless.

A data science lab could be established via a partnership in its own right, such a partnership will have a long-term focus to also allow working with sensitive data.

Improvements found in evaluation projects will be deployed with minimized delays into the production systems. This leads to continuous improvements instead of large-scale projects.

Generally spoken, the approach should be highly agile with clear objectives and key results to be monitored in short time periods.

The following diagram illustrates the above-mentioned points:

In summary: adequate production like testing facilities with on demand extra high capacity during testing times are required to make faster progress when working with AI systems.
**Topic 3 – Social responsibility and transparency**

As a public institution, the EPO has a duty to ensure that not only its stakeholders but the public in general are well informed about the activities of the Office and the way they are conducted. It requires facilitating access to relevant documents and undertaking processes and actions in a transparent manner.

Moreover, the EPO sees itself as being part of a wider eco-system, in which its activities have an impact on the economy and the environment. It is therefore essential for the Office to apply the best standards and to act responsibly.

Guiding questions:

1. How could the EPO improve the information provided to the public about the role and impact of the patent system? Which actions could be envisaged to disseminate this knowledge?
2. How could we reinforce the user and civil society perspective?
3. Which actions could be undertaken by the EPO to contribute to a more sustainable environment?

Your comments (unlimited number of words)

Social media are more and more frequently used for information distribution, especially by the younger generation. In our opinion, the EPO should grow the use of media such as LinkedIn, Facebook, Instagram, YouTube, Twitter, RSS feeds and Blogs to reach a broader audience. As these media are frequently used by civil society the information should be easy in an understandable way for non-patent experts.

We consider two aspects of sustaining the environment. The first one is what the EPO itself can do to reduce the use of energy and plastic as well as the production of trash. This concerns the EPO as organization and its employees. We regard EPO as encouraged and active in this respect, e.g. with the new building in The Hague following energy saving principles and the call for tenders including environmental aspects as well.

The second aspect can have a much greater impact. The EPO is one of the most important players in the world of intellectual property, probably the most important one. EPO can be a role model for partners, such as other patent offices and vendors in the dissemination of such IP information which can foster a positive evolution of humankind. Prominent fields of innovation would be climate protection, renewable energy, environmental technologies, inventions in medicine (see also Topic 2). In such fields, EPO might even open up new collaboration models.
General section

In this section you can make comments on any topic which you think could be of interest for the EPO future strategic plan.

Your comments (unlimited number of words)
Terms of use

This public consultation invites comments from people or stakeholders who are interested in the EPO strategic plan.

Subject to your permission, we may publish contributions on our website.

Contributions that infringe the "Terms and conditions of use for the website" (and in particular Article 9 thereof) or the following conditions will not be considered for publication:

• Contributions must be in English, French or German
• Contributions must be related to the topic of the consultation of the EPO's strategic plan
• Contributions should not name individual staff members of the EPO
• Contributions should not contain personal attacks
• Contributions should not use offensive language, or contain racist, sexist or homophobic remarks
• Contributions should refrain from mentioning pending applications or revealing confidential information
• Contributions should not advertise for businesses or services
• The publication of contributions on the EPO website does not constitute an endorsement of their contents by the European Patent Organisation.

Privacy notice

Privacy statement for the public consultation on the EPO's strategic plan

The European Patent Office (EPO) is committed to protecting your privacy and the personal data you provide as part of our consultation. We will process personal data that you provide in accordance with our Data Protection Guidelines, which aim to ensure best practice when handling users' personal data.

What personal data will we collect?

If you participate in our public consultation, we will collect your first name, last name and email address.

Why will we collect this data?

Within the framework of its activities under the European Patent Convention, the Organisation is committed to improving continuously its services to the users of the
European patent system. Consulting the public on the future EPO strategy is part of this continuous effort and the personal data collected on this occasion will help the Organisation to better serve the community of users.

Who will be responsible for managing this data at the EPO?

The department responsible for managing this data will be External Communication. You can contact them by emailing website@epo.org.

Does the EPO have a designated Data Protection Officer?

Yes. You can contact them by emailing dataprotection@epo.org.

Who will we share your data with?

We will not share your personal data with anyone outside the EPO.

Will we use the data for automated individual decision-making, including profiling?

No, we will not use the personal data you provide for automated decision-making, including profiling.

How long will we keep your data for?

We will delete or anonymise your personal data as soon as we no longer need it to conduct the consultation, unless we are under a legal obligation to further process or to store it.

What rights do you have?

• Right of access: You have the right to ask for confirmation of whether or not we are processing your personal data and, if we are, to ask for access to that data and for information such as the purposes of the processing and the categories of personal data concerned.
• Right to correction: You have the right to ask for the correction of inaccurate personal data.
• Right to deletion: In certain circumstances, you have the right to ask for your personal data to be deleted without undue delay, for example if we no longer need it for the purposes for which we collected it or it has been processed unlawfully.
• Right to restriction of processing: In certain circumstances, you have the right to ask that we restrict the processing of your personal data, for example if you think that the personal data we are processing about you is incorrect or the processing unlawful.
• Right to object: In certain circumstances, you have the right to object to the processing of your personal data, in particular if we process it without a legitimate interest or use it for marketing purposes.

To exercise any of your rights, all you have to do is write to us at website@epo.org.