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## **Introduction**

Purpose: Section 801 of the FY20 National Defense Authorization Act (NDAA) establishes the requirements for a pilot program on the subject of intellectual property (IP) to “assess mechanisms to evaluate intellectual property (such as technical data deliverables and associated license rights), including commercially available intellectual property valuation analysis and techniques”. More specifically, Section 801(b)(1)(b) calls for an activity to “recommend criteria for the consideration of types of commercial products, commercial services, or nondevelopmental items that can [sic] used as an alternative to a product or service to be specifically developed for a selected acquisition program”. In order to provide a reasonable recommendation, a baseline value estimate for the potential IP being developed must be determined for comparative purposes. This requires the procuring office and acquisition workforce analysts to understand and properly apply currently available IP valuation estimating techniques and best practices that are utilized in the commercial world.

With the substantial emphasis recently placed by the NDAA on this subject matter, it is imperative to prepare and educate the acquisition workforce on how to properly value and price IP. It is also reasonable to anticipate that acquisition programs could benefit significantly from the potential cost savings and efficiencies to be gained from leveraging IP valuation data in conjunction with analysis of alternatives. This paper outlines some IP considerations and challenges within the context of government contracting and examines the most commonly used valuation analysis techniques, best practices, and emerging trends.

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## **What is Intellectual Property? Four Categories of Intellectual Property Rights**

IP Overview: The World Intellectual Property Organization (WIPO) defines IP as, “creations of the mind, such as inventions; literary and artistic works; designs; and symbols, names and images used in commerce.” IP can be further subdivided into several broad categories: patents, copyrights, trademarks, trade secrets, and registered industrial design. To encourage creativity and innovation and facilitate technological progress, IP has certain legal protections in place to incentivize its owner and/or creator with financial benefits and prestige. Due to its intangible nature, there are additional complications and nuances with regards to legal protection of IP versus tangible goods and property.



Figure 1 Source: [www.business2community.com](http://www.business2community.com)

Government procurement is primarily concerned with patents, trade secrets, registered design and copyrights. A patent is a property right granted by the United States Patent and Trademark Office (USPTO) for an invention that excludes others from making, using, or selling it. Copyright protection concerns “original works of authorship” and includes computer software and technical data. Under 17 USC Section 105, “Copyright protection under this title is not available for any work of the United States Government, but the United States Government is not precluded from receiving and holding copyrights transferred to it by assignment, bequest, or otherwise.” Therefore, contractors generally retains ownership of the rights to any technical data or computer software that is developed under a government contract. The government then negotiates a licensing agreement that defines the “data rights” to access and use the technical data and/or computer software.

### **Intellectual Property and Government Contracting**

Within the context of government acquisition, the considerations around IP typically revolves around usage rights for patentable subject matter, technical data (data rights), and computer software. The FAR and DFARS contain very specific clauses regarding allocation of these noncommercial data rights for example, FAR 52.227-11 and FAR 52.227-13, which distinguishes the patent right ownership by the contractor and by the government, respectively. This stands in contrast with private sector practices, in which these rights are highly negotiable and can results in very specifically tailored agreements depending on the circumstances.

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The definitions for technical data and associated usage rights are defined in FAR 52.227-14 and DFARS 252.227-7013/7014. FAR 52.227-14 defines technical data as “recorded information (regardless of the form or method of the recording) of a scientific or technical nature (including computer databases and computer software documentation). This term does not include computer software or financial, administrative, cost or pricing, or management data or other information incidental to contract administration.” It includes information about processes, procedures, items, and other potentially valuable data that could be subject to patent or copyright protections. When developed or used during execution of a federal contract, it is essential to define how the contractor will maintain ownership and licensing rights over this data and how it will be transferred to the government. Considerations include how and when the data is developed, the source of funding, and many other factors.

In general, the contractor will retain ownership over any technical data and software created under a government contract and the government will negotiate a usage license level defined by DFARS 252.227-7013. The most common types of rights seen in practice are: unlimited rights, government purpose rights, and limited rights. Unlimited rights are the least restrictive of these and allows the government to do what it wants with the data including giving it to third parties. This right is often the result of data or software that was developed under the part of the contract that is fully government funded. Government purpose rights is more restrictive than unlimited rights and allows internal government use of the data and/or authorize others to use it under a governmental purpose. This can include international and multi-national defense organizations and foreign governments. A government purpose rights license expires in 5 years (unless negotiated differently) and can be exercised to increase competitive procurement but NOT for commercial purposes. Upon expiration, the government then retains an unlimited rights license for the noncommercial software and technical data. Limited rights is the most restrictive and only allows for usage within the government. Under a limited rights license, the government may not release or disclose the data to a party outside of the government unless it has obtained written permission of the contractor. The term “restricted rights” refers to a set of rules on how the government can use noncommercial software. There is also a definition under DFARS 252.227-7013 called “specifically negotiated license rights” that allows for negotiation between the government and contractor regarding the appropriate data rights (which should be documented in a license agreement), but shall not be more limiting than limited rights.

Rights in Noncommercial Computer Software and Technical Data			
Rights Category	Applicability: Technical Data or Computer Software?	Permitted Uses Within Government	Permitted Uses Outside Government
Unlimited Rights	Both	Unlimited—no restrictions	
Government Purpose Rights	Both	Unlimited—no restrictions	Only for government purposes—no commercial use
Limited Rights	Technical data only	Unlimited except cannot be used for manufacture	Emergency repair or overhaul, evaluation by foreign government
Restricted Rights	Computer software only	Only one computer at a time, minimum backup copies, modification	Emergency repair or overhaul, certain service or maintenance contracts
Prior Government Rights	Both	Same as under previous contract	
Specifically Negotiated License Rights	Both	As negotiated by the parties but must not be less than limited rights in technical data, and must not be less than restricted rights in computer software	

Figure 2: Rights

The level of license rights maintained by the government typically depends on factors such as source of funding (government, private, or mixed), the nature of the data (commercial or noncommercial), and other negotiated contract terms. If the government exclusively funded the project, then it will generally have unlimited rights to the noncommercial technical data, computer software, and related documents. It will also have unlimited rights to the data related to the item, component or process that was developed exclusively with government funding, configuration data (form, fit, and function), and any relevant updates or changes to the data (such as engineering change proposals). For mixed fund contracts, the Government typically has Government purpose rights. If the data was developed on a fully contractor developed project, the Government usually acquires restricted rights for the computer software and limited rights for the technical data. For COTS (commercial off the shelf) software, the government’s licensing rights are defined in the Terms & Conditions, End User Agreement, or other standard commercial licensing agreements. A thorough and mutual understanding of these rights from both the government and contractor at the onset of the contract will prevent or reduce any misunderstandings and legal issues later on in the future, and may prevent potential misuse of the technical data.



### Considerations for Your Own Procurement

As early as possible, (optimistically even before the solicitation) determine what is needed from the intellectual property acquisition.

An intellectual property (IP) plan is an option for preparation:

- Determine your needs, when you need them, and assess any risks
  - Is there already a commercial market solution that we can utilize?
  - Will new intellectual property be developed as part of the transaction?
    - If so, is there a commercial market for the new innovation?
  - Is there a danger of vendor lock-in based on maintenance/service of the IP?
  - Are there any risks associated with the vendor retaining the IP rights, and what threats are there if the vendor does not maintain those same IP rights?
- Decide on the type of rights to explore regarding the IP
  - Think about, characteristically:
    - Pricing can inform what types of rights we can afford – consider the requirements and lifecycle costs.
    - Competition depends on how much rights the Government would like to maintain.
    - The more opportunities for commercial use of the IP by the market, the more rights should be left with the market.
    - The more improvements after sales and development that are expected, the more reason to leave the IP rights with the marketplace.
    - If the risk of vendor lock-in is high, the greater the need to retain IP rights.
    - The greater the uncertainty regarding the future, the bigger the obligation to retain IP.
- Formulate the terms of the agreement, depending upon what rights to the IP will be explored.

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### **Outside the Box Thinking**

Below are a few commercial non-traditional possibilities to consider when developing your IP plan:

#### **Cost Sharing Agreements**

- A Cost Sharing Agreement (CSA) is an agreement pursuant to which parties agree to share the costs of developing IP in exchange for obtaining the right to exploit the developed IP in their respective territories.
- The parties to a typical CSA could be a U.S. parent company of a multinational group, where the CSA grants the right to utilize the developed IP in the U.S., and an offshore or foreign subsidiary, where the CSA grants them the right to exploit the developed IP in the rest of the world.

#### **Escrow Arrangements**

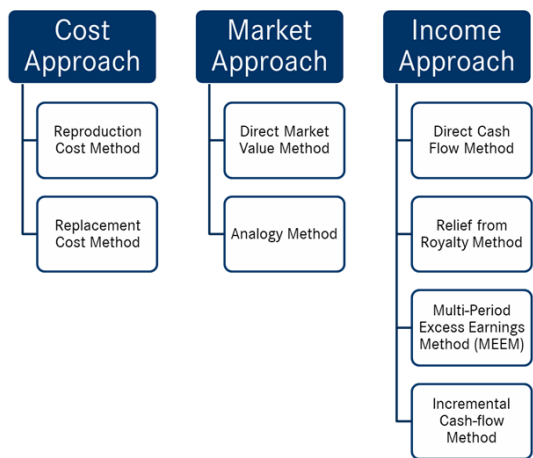
- Intellectual property escrow is the use of an escrow service company that assists in gaining an additional layer of security for the IP. The escrow companies help protect the treasured IP, which also reassures potential licensees that an investment made in the technology is safe.
- The escrow service acts as a security guard. Information technology is one of the most common arenas for escrow in tech transfer. This is because typically because the software and source code may reside on the inventor's server and cloud, there is a risk of it being wiped out in a catastrophe. If something happens to the protected technology, or something happens to the developer, the licensee would still have access to that technology.
- Escrow is held by a third party, known as the escrow agent, on behalf of involved parties to the transaction. The contents in the account will only be released after an event or nonevent based on predetermined criteria.
- Possible example with U.S. Government: data that you would need to avoid obsolescence is put in an escrow account. The 3<sup>rd</sup> party holds the escrow (is the guardian). Events are predetermined that would cause the data in escrow to be released – examples: company stops producing, or the company enters bankruptcy, or if the company stops supporting the product.

### **Common Approaches for IP Valuation**

In the commercial realm, proper valuation of IP is vital for finance and accounting purposes and is a key consideration in mergers and acquisitions. In government contracting and procurements, proper valuation of IP serves an important role in analysis of alternatives and determining the true acquisition and lifecycle cost of a program. There are several feasible approaches when it comes to IP valuation with the most common being the cost, market, and income approach. Each methodology has its advantages and drawbacks and should be applied as appropriate within the

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context of the acquisition. There are other less common approach for IP valuation and emerging trends which will be discussed subsequently.



**Commented [WD1]:** Should discuss this chart – in the market and income sections we don't detail all these methods. Also broke out relief from royalty as an "other approach" since it was a combo of market and income. Maybe consider removing or finding a different chart...

Source: <https://medium.com/@patnaik632/valuation-of-intellectual-property-57318717906e>

## Cost Approach

Amongst the different IP valuation methodologies, the cost approach is perhaps the simplest and most straight forward. It works based on the principle of substitution, meaning the value of the IP should not be greater than what it would cost to acquire it somewhere else, either from purchasing or having it developed by a different source or replacing it with a similar product of equal functionality and utility. There are several different practical approaches to the cost valuation method, including analysis of reproduction cost and replacement cost. Reproduction cost accounts for the effort that would be required to create an identical version of the IP, whereas replacement cost considers how much would be required to create or purchase a similar piece of IP.

When applying the cost approach to estimate the value of IP, whether from a historical or future cost perspective, one needs to assess the total required expenditures needed to reproduce or replace the asset. This includes developmental expenses such as engineering, programming, and design time and associated overhead and administrative expenses such as indirect labor, attorney fees, patent application fees, etc. adjusted for inflation. The challenge with using a historical cost basis is that previous projects might not be directly comparable and using future costs relies on the accuracy of the projections.

A major drawback to the cost approach is that it fails to account for potential economic benefits that might result from ownership and application of the IP. Since these methodologies only considers the cost elements in IP development, they don't account for the actual usefulness or

practicality of the IP and could result in overvaluation of IP that is essentially useless or undervaluation of IP that might have unanticipated applications and revenue stream.

These characteristics means the cost model generally produces the lowest valuation out of all the available methodologies in the real world. One would not reasonable expect companies whose business model heavily (or solely) relies on leveraging their IP assets for competitive advantage to favor this method of value estimation. This is especially true for IP and technology with potential industry disrupting implications. Therefore, it is most appropriate to apply the cost methods for estimating non-proprietary or relatively simple IP and IP that have no foreseeable market applications and no identifiable potential income streams. In general, this approach provides a means for estimating the lowest possible value for the subject IP and should be supplemented by other methodologies whenever possible.

### **Market Approach**

The market approach for IP valuation is based on the principle of economic equilibrium, where the market forces of supply and demand is used to determine the price of the asset. This approach leverages publically available market data involving the sales, transfer, licensing, and transaction of similar IP assets in order to estimate the price of the subject IP. Whenever possible, this should be the first approach used for estimation because the commercial market is often the best indicator of value whether for IP or any other goods and services. In order to properly apply this method, there needs to be an active IP market, similar enough IP assets that have been exchanged, transparent pricing data, and techniques to quantify the differences between the IP assets. Because of these properties, this approach is most effective for estimating valuation of IP assets that is marginally different than existing IPs and not suitable for estimating the value of newer developing or disruptive technology.

In practice, there are several challenges that prevents the market approach from being optimal. First, the marketplace for IP is sparse compared to traditional goods and services so it is often difficult to identify previous transaction involving IP that is similar enough to use as an equitable comparison. Many of the transactions are also conducted privately and under non-disclosure and other confidentially agreements so the negotiated value will be non-public or lack transparency. For government procurements and military weapons platforms, these challenges are amplified as there is often not many comparable IP to be used for comparison.

If an acceptable analogous is identified, analysts needs to consider and account for all of the differences between the IP packages and any relevant associated procurement conditions. Because each IP asset is unique by nature, and market activity for these assets is relatively infrequent, these adjustments are almost always required.

The market approach does not take into consideration any future income premiums that the subject IP might offer over the analogous IP so it could result in a lower valuation than the income approach. It is reliant on general market information and does not take into consideration any unique non-market driven factors that might have influenced previous transaction data. On the



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same note, it is also susceptible to market sentiments and moods at the time of the transaction so IP that was exchanged in a thriving market might have been overvalued and those that were exchanged in during downturns could be undervalued. Because this method estimates value based on data from actual sales of similar assets, it is becoming a more preferred approach, especially as the marketplace for IP matures and additional transaction data becomes available.

### **Income Approach**

The income method values the IP asset on the basis of the amount of economic income that the IP is expected to generate, adjusted to its present day value. This method is the most commonly used method of IP valuation.

The basic parameters of the income approach are:

- Project the future income stream or cost savings generated by the IP asset
- Determine the duration of the income stream or cost savings
- Calculate a present day value taking into consider the risk or discount rate associated with the income stream generation

Complexities regarding the income approach come in identifying the various measures of economic income that can be used in this sort of analysis. These can include: net revenues, gross income, gross profit, operating income, income before tax, operating cash flow, EBITDA (earnings before interest, taxes, depreciation, and amortization), net cash flow, expected incremental income, etc.

One of the most common errors in applying this approach is the lack of differentiation between the income generated by the total business enterprise, and the value of the income generated by the IP within that business. When valuing IP, in order to use the income approach, it is critical to be able to separate the stream of income that the IP is generating from the value of the business as a whole and then apply an appropriate discount rate and life span.

A key benefit of the income approach is that it provides the analyst the ability to perform sensitivity analyses by adjusting the various parameters, such as income levels or discount rate. This allows the expert to better understand the performance of the various factors driving value, and enables estimates of upper and lower limits to a range of value.

Advantages of Income Approach over the other approaches:

- No need for market transactions – captures expected future returns to owner without the need for comparable market transactions.
- Forecasted cash flows required – based on cash flows or earnings generated by the technology; or based on the costs saved by the technology.
- The income approach calculates the present value of cash flows from an IP asset, on the basis of discount rate which takes into account the systematic risk.
- It shows the relationship between returns on investment on a security and the returns on overall market portfolio.

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Disadvantages of Income Approach:

- Requires subjective cash flow allocation
- Translation of theory into practice requires assumptions which are limiting
- Relevant information is not always readily accessible from internal reporting systems.

## **Other Approaches**

### Value Approach

View the IP from a variety of different angles (360 degree view) and ask questions:

- Will this save lives? How do you value a life?
- The multiplier effect: will gains in total output or sales be greater than the spending that caused it?
- Do not forget to consider qualitative characteristics (describes information)
- Are there maintenance costs? If so at what amount, and how long will those costs apply?
- Will this equate to a product that impacts size and weight? This will make life for the warfighter easier, how do we value that?

### The Relief from Royalty Approach

This method is a combination of the income approach and the market approach, where comparable market royalty rates can be found. This tactic is the calculation of the present value of a stream of royalties that the IP owner would have received (or that an infringer has been relieved from paying).

This approach provides a measure of value by determining the avoided cost of an infringer not having to pay the appropriate royalties. It is calculated by assuming that the infringer does not own the patent, trademark, or copyright and thus has avoided a royalty that the infringer should be paying for its use. Royalty rates are utilized that are based on market place transactions, in combination with a forecast of the infringer's actual or projected revenue as the income stream to which the royalties apply.

## **Conclusion/ Wrap Up**

## **References**

NDAA: <https://www.congress.gov/116/bills/s1790/BILLS-116s1790enr.pdf>

IP definition: <https://www.wipo.int/about-ip/en/>

<https://www.heerlaw.com/determining-value-intellectual-property>

Prepared by DCMA CIG – Draft posted as a resource, not official policy, guidance or direction

<https://nevium.com/ip-valuation/>

<https://www.uspto.gov/ip-policy/economic-research>

<https://www.pilieromazza.com/what-is-technical-data-and-how-do-you-protect-it/#:~:text=Technical%20data%2C%20as%20defined%20by,14%3B%20DFARS%20252.227%2D7013.>

<https://www.law.cornell.edu/cfr/text/48/252.227-7015>

<https://www.dau.edu/guidebooks/Shared%20Documents/Air%20Force%20Data%20Rights%20Guidebook.pdf>

<https://disa.mil/About/Legal-and-Regulatory/DataRights-IP>

<https://www.consor.com/articles/value-of-intellectual-property-and-intangible-assets/>

<http://www.consor.com/ip-valuation-what-methods-are-used-to-value-intellectual-property-and-intangible-assets-the-cost-approach/>

[http://www.willamette.com/insights\\_journal/18/winter\\_2018\\_7.pdf](http://www.willamette.com/insights_journal/18/winter_2018_7.pdf)

<https://faculty.darden.virginia.edu/chaplinskys/PEPortal/Documents/IP%20Valuation%20F-1401%20watermark.pdf>

<https://www.intracomgroup.com/single-post/2017/10/04/the-pros-and-cons-of-4-patent-valuation-approaches>

<https://www.pianoo.nl/sites/default/files/documents/documents/introduction-intellectual-property-rights-ppi-jan14.pdf>

[https://www.wipo.int/export/sites/www/sme/en/documents/pdf/ip\\_panorama\\_11\\_learning\\_points.pdf](https://www.wipo.int/export/sites/www/sme/en/documents/pdf/ip_panorama_11_learning_points.pdf)

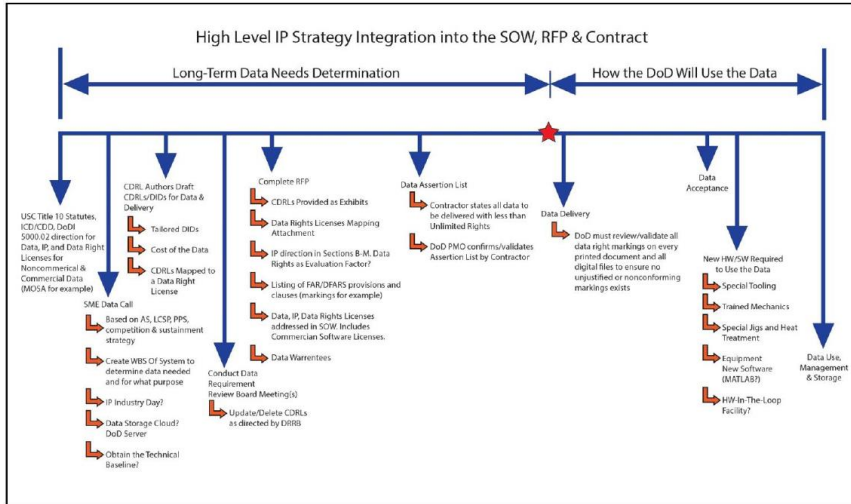
<http://www.consor.com/ip-valuation-the-income-approach/>

<http://www.intelproplaw.com/Articles/files/Income%20Approach.pdf>

<https://www.consor.com/articles/value-of-intellectual-property-and-intangible-assets/>

<https://www.omm.com/resources/alerts-and-publications/alerts/client-alert-parties-to-cost-sharing-agreements-must-share-the-costs-and-deductions/#:~:text=A%20CSA%20is%20an%20agreement,IP%20in%20their%20respective%20territories.>

Figure 1. Determining IP Needs



Source: 2019 Air Force Data Rights Guidebook

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