

## **Intellectual Property and Innovation in the Digital Economy: A Systematic Literature Review of Appropriation, Protection, and Value Creation**

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### **Abstract**

Intellectual property (IP) has traditionally been understood as an institutional mechanism for protecting inventions, creative works, brands, designs, and commercially valuable knowledge. However, the rapid development of digital technologies, platform-based business models, artificial intelligence, data-driven innovation, and open innovation has transformed the strategic and economic significance of intellectual property. The relationship between innovation and intellectual property is consequently no longer adequately explained through the conventional assumption that stronger legal protection necessarily produces greater innovation. Instead, contemporary scholarship increasingly conceptualizes intellectual property as part of a broader system of appropriation, knowledge exchange, commercialization, collaboration, and value creation. This systematic literature review synthesizes research concerning the changing role of intellectual property in innovation and digital economic environments. The review organizes the literature around five interconnected themes: intellectual property as an appropriation mechanism; strategic selection of formal and informal protection mechanisms; intellectual property and open innovation; digital transformation and copyright; and intellectual property as a source of value creation and competitive advantage. The review further examines methodological and theoretical tendencies within the literature and identifies significant gaps concerning artificial intelligence, data ownership, platform ecosystems, algorithmic licensing, small and medium-sized enterprises, and the interaction between intellectual property protection and knowledge diffusion. The synthesis indicates that intellectual property produces different effects depending upon technological characteristics, industry structure, organizational capabilities, institutional environments, and innovation strategies. Rather than viewing IP protection as an isolated legal function, the literature increasingly supports an integrated perspective in which patents, copyrights, trademarks, trade secrets, licensing arrangements, and informal mechanisms operate as complementary elements within broader innovation strategies.

**Keywords:** intellectual property; innovation; patents; copyright; trademarks; trade secrets; digital economy; open innovation; knowledge appropriation; systematic literature review

## **1. Introduction**

Intellectual property occupies a distinctive position at the intersection of law, economics, management, technology, and public policy. Intellectual property rights provide legal mechanisms through which particular forms of knowledge, creative expression, technological invention, distinctive signs, and commercially valuable information can receive protection against unauthorized use. At the same time, intellectual property is not simply a legal construct. It is also an important component of innovation strategy, commercialization, investment, technology transfer, competitive positioning, and organizational knowledge management.

The relationship between intellectual property and innovation has attracted substantial scholarly attention for several decades. Early economic approaches generally emphasized the role of temporary exclusivity in creating incentives for inventive activity. The basic rationale was that innovators may underinvest in research and development when competitors can immediately imitate successful inventions. Legal protection can potentially address this problem by allowing innovators to appropriate a portion of the returns generated by their investments. The patent system is therefore frequently understood as an institutional mechanism intended to balance private incentives and public access to knowledge.

However, the relationship is considerably more complicated in practice. Not every innovation is patented, and not every patent generates commercial value. Firms may use secrecy, lead time, complexity, complementary assets, contractual arrangements, trademarks, copyrights, or combinations of these mechanisms to protect and commercialize knowledge. The importance of these mechanisms varies across industries and technological environments. In some contexts, patents are central to commercialization and investment; in others, rapid product development and market entry may be more important than formal legal protection.

The emergence of open innovation has further complicated the conventional understanding of intellectual property. Open innovation involves organizations using both internal and external knowledge in their innovation processes and combining internal and external pathways to markets. Such environments require firms simultaneously to protect certain knowledge and facilitate the transfer or sharing of other knowledge. Intellectual property can therefore operate both as a protective boundary and as an exchange mechanism.

Recent technological developments have intensified these tensions. Digital technologies have reduced the marginal cost of reproducing and distributing creative works. Software, digital media, databases, online platforms, and artificial intelligence

have consequently generated new questions concerning copyright ownership, infringement, licensing, data access, and the boundary between protected expression and unprotected information. Contemporary scholarship increasingly examines intellectual property within broader digital ecosystems rather than as an isolated legal institution.

A recent systematic review of innovation strategy and intellectual property research identified significant fragmentation within the field and highlighted major research themes involving innovation strategies, protection mechanisms, knowledge, interorganizational collaboration, and value creation. The review also identified knowledge-based and resource-based perspectives as important theoretical foundations for understanding the relationship between IP and innovation. Similarly, research on intellectual property value management has emphasized that the strategic value of IP extends beyond legal protection to include commercialization, licensing, and organizational capabilities.

The digital economy has also created an expanding body of scholarship concerning copyright. Recent literature emphasizes that digitization affects not only infringement and enforcement but also the supply of creative works, reuse, licensing models, and relationships among creators, consumers, and intermediaries.

Against this background, the purpose of this article is to synthesize the literature concerning the evolving relationship between intellectual property and innovation. Rather than concentrating exclusively on a particular form of IP, the review adopts a broader perspective covering patents, copyrights, trademarks, trade secrets, and related appropriation mechanisms.

The review addresses four principal research questions:

**RQ1:** How does the literature conceptualize the relationship between intellectual property protection and innovation?

**RQ2:** What intellectual property mechanisms are identified as important for appropriating value from innovation?

**RQ3:** How has digital transformation altered conventional approaches to intellectual property protection and commercialization?

**RQ4:** What theoretical, methodological, and contextual gaps remain in the literature?

## **2. Conceptual Foundations**

### **2.1 Intellectual Property as an Appropriation Mechanism**

One of the central ideas connecting intellectual property with innovation is the concept of appropriability. Innovation requires resources, including financial capital, human expertise, organizational capabilities, and research and development expenditure. If competitors can easily imitate an innovation without bearing comparable development costs, the innovating organization may have difficulty recovering its investment.

Teece's appropriability framework is particularly influential in explaining this relationship. The framework emphasizes that firms differ in their ability to capture returns from innovation depending upon the strength of appropriability regimes and the availability of complementary assets. Legal protection may therefore contribute to value capture, but legal rights alone do not guarantee successful commercialization.

The literature consequently distinguishes between **innovation creation** and **innovation appropriation**. A firm may successfully generate a technically superior invention but fail to obtain significant economic returns if it lacks manufacturing capacity, distribution networks, complementary technologies, branding capabilities, or effective commercialization strategies.

Intellectual property should therefore be viewed as one component within a broader appropriation system. Patents may prevent competitors from directly exploiting particular inventions, while trademarks create differentiation, copyright protects expressive works, and trade secrets protect valuable confidential information. These rights may interact with contractual and organizational mechanisms.

This perspective challenges a simplistic assumption that stronger IP protection automatically generates greater innovation. Instead, the economic consequences of IP protection depend on the characteristics of the technology, the competitive environment, the cost of obtaining and enforcing rights, and the firm's ability to commercialize protected knowledge.

## **2.2 Formal and Informal Protection Mechanisms**

The literature commonly distinguishes between formal and informal mechanisms of knowledge protection.

Formal mechanisms include patents, copyrights, trademarks, industrial designs, and other legally recognized rights. Informal mechanisms include secrecy, complexity, lead-time advantages, organizational routines, and contractual restrictions.

The choice between these mechanisms is rarely binary. Firms frequently employ multiple forms simultaneously. For example, a technology company may patent a core technological invention, maintain certain manufacturing processes as trade secrets, register trademarks for its products, and use copyright to protect software and documentation.

The relative importance of these mechanisms differs considerably across sectors. Pharmaceutical firms may rely heavily on patents because substantial research and regulatory investments require mechanisms capable of supporting extended periods of market exclusivity. In software industries, by contrast, copyright, trade secrecy, rapid product development, network effects, trademarks, and contractual restrictions may collectively constitute the appropriation strategy.

The strategic choice is also affected by the disclosure requirement associated with patents. A patent can provide legally enforceable exclusivity, but obtaining protection

normally requires disclosure of sufficient information concerning the invention. Secrecy can avoid such disclosure, although it cannot protect information that becomes independently discoverable or publicly known.

This creates an important strategic trade-off between disclosure and secrecy. The literature therefore increasingly treats IP protection as an organizational decision rather than a purely legal compliance activity.

### **2.3 Intellectual Property and Open Innovation**

The emergence of open innovation fundamentally altered the traditional conceptualization of innovation management. Under a closed innovation model, firms primarily depend upon internal research and development and seek to control knowledge throughout the innovation process. Open innovation recognizes that valuable knowledge exists outside organizational boundaries and that firms can benefit from external technologies, partnerships, licensing, research collaborations, universities, start-ups, customers, and other external actors.

At first glance, openness and intellectual property appear contradictory. If firms seek to share knowledge, why would they need exclusive rights?

The literature demonstrates that the relationship is more complementary than contradictory. Intellectual property can facilitate openness by creating clearly defined ownership rights that allow organizations to license technologies, negotiate partnerships, exchange knowledge, and structure collaborative arrangements.

A firm may therefore use IP to determine what should remain proprietary, what can be licensed, what should be shared, and under what conditions external actors may use particular knowledge assets.

Recent systematic research similarly identifies interorganizational collaboration, learning, knowledge, and value creation as important themes connecting IP with innovation strategies.

## **3. Methodology**

### **3.1 Systematic Literature Review Design**

This study adopts a systematic literature review approach to synthesize existing academic knowledge concerning intellectual property and innovation. Systematic reviews are particularly appropriate where a research domain has become sufficiently extensive and fragmented that individual studies provide only partial understanding. The review follows a structured process involving identification of the research questions, development of search concepts, identification of relevant literature, screening, thematic classification, synthesis, and identification of future research directions.

The conceptual search strategy focused on combinations of terms associated with intellectual property and innovation. The principal concepts included:

- "intellectual property";
- "patent";
- "copyright";
- "trademark";
- "trade secret";
- "innovation";
- "innovation strategy";
- "knowledge appropriation";
- "open innovation";
- "digital economy";
- "technology commercialization"; and
- "IP management".

The review concentrated primarily on peer-reviewed academic literature and major scholarly contributions relevant to intellectual property, innovation management, economics, technology management, and digital transformation.

The methodological logic is consistent with contemporary IP systematic reviews. For example, a recent review of innovation strategies and IP used predefined search terms and inclusion and exclusion criteria before conducting title, abstract, and keyword screening. That study ultimately analyzed 144 articles indexed in Web of Science. Another systematic review focusing on intellectual property value management analyzed 168 journal articles to identify major concepts and strategies.

### **3.2 Inclusion and Exclusion Criteria**

The literature was conceptually screened according to the following criteria.

| <b>Criterion</b> | <b>Inclusion</b>                                                                    | <b>Exclusion</b>                                |
|------------------|-------------------------------------------------------------------------------------|-------------------------------------------------|
| Publication type | Peer-reviewed journal articles and major scholarly works                            | Non-scholarly commercial materials              |
| Subject          | Intellectual property and innovation                                                | Studies unrelated to IP or innovation           |
| Relevance        | IP protection, appropriation, commercialization, digital IP, or innovation strategy | Purely technical studies without IP relevance   |
| Language         | Primarily English-language scholarship                                              | Non-accessible materials                        |
| Research focus   | Relationship between IP and innovation/value creation                               | Studies where IP is only incidentally mentioned |
| Time period      | Foundational literature through contemporary research                               | Materials lacking substantive relevance         |

The review was thematic rather than purely bibliometric. Accordingly, publications were examined according to their conceptual contributions, theoretical perspectives, research contexts, and principal findings.

### **3.3 Thematic Coding**

The literature was organized into five principal themes:

1. **IP as an appropriation mechanism**
2. **Formal and informal protection strategies**
3. **IP and open innovation**
4. **Digital transformation and copyright**
5. **IP value creation and commercialization**

These themes were selected because they recur across major streams of intellectual property and innovation research.

A secondary coding structure considered theoretical perspective, methodological approach, geographical context, industry, and principal IP mechanism.

### **3.4 Analytical Framework**

The synthesis generated the following conceptual relationship:

**Innovation inputs → Knowledge creation → IP/protection strategy → Appropriation and commercialization → Competitive/value outcomes**

This relationship is moderated by several contextual variables:

**Institutional environment + technological characteristics + industry structure + organizational capabilities + innovation strategy**

The framework implies that IP does not directly and uniformly generate innovation performance. Rather, IP affects the ability of organizations to appropriate, exchange, commercialize, and defend knowledge, which can subsequently influence innovation outcomes.

## **4. Findings**

### **4.1 Intellectual Property as a Strategic Appropriation Mechanism**

The first major theme concerns the role of IP in enabling innovators to appropriate returns from knowledge.

A substantial portion of the literature views intellectual property as an institutional mechanism for addressing imitation and uncertainty. Patents, in particular, can provide innovators with temporary exclusionary rights, thereby increasing the potential returns associated with research and development.

However, the literature also demonstrates considerable heterogeneity.

The economic value of a patent depends on several factors, including technological significance, market demand, enforceability, complementary assets, patent scope, remaining patent life, and the competitive environment.

A patent portfolio can therefore have both defensive and offensive functions. Defensively, patents may deter competitors from entering particular technological spaces. Offensively, they can support licensing, cross-licensing, negotiation, litigation, or strategic positioning.

Patent ownership can also influence access to external financing. Investors may perceive valuable IP assets as indicators of technological capabilities or potential future revenues. Nevertheless, the existence of a patent does not necessarily indicate commercial success.

A legally valid right may have limited commercial value if the underlying technology has little market demand. Conversely, a strategically important patent may generate substantial value through licensing or bargaining even when the patented invention is not directly commercialized by its owner.

The literature therefore increasingly supports an integrated approach in which IP is assessed according to its contribution to broader organizational objectives.

#### **4.2 The Strategic Combination of IP Rights**

A second major theme concerns the complementary use of multiple intellectual property mechanisms.

Organizations rarely depend exclusively on one IP right. Instead, different rights may protect different dimensions of the same product.

For example, a technology product may involve:

**Patent:** protection for technological functionality.

**Copyright:** protection for software code and creative materials.

**Trademark:** protection of product names and brand identity.

**Trade secret:** protection of confidential algorithms, processes, or commercial information.

**Industrial design:** protection of visual characteristics.

This layered approach can create a stronger appropriation strategy than reliance upon a single right.

The literature on IP management consequently increasingly emphasizes portfolios rather than individual rights. Portfolio management involves decisions concerning acquisition, maintenance, licensing, enforcement, abandonment, and integration with innovation strategy.

Recent systematic research on IP value management similarly identifies the management of IP as a multidimensional issue involving strategies for extracting value from intellectual assets.

#### **4.3 Intellectual Property and Open Innovation**

The third major theme concerns the apparent tension between proprietary control and knowledge openness.

Open innovation environments require organizations to exchange knowledge with external actors. Universities, suppliers, customers, start-ups, competitors, research organizations, and technology intermediaries can all contribute to innovation processes.

Intellectual property can facilitate these exchanges by establishing ownership and usage rights.

For example, a university may license a patented technology to a private company. A technology firm may license a proprietary platform to external developers. Two companies may exchange technologies through cross-licensing. A start-up may acquire access to a larger firm's technology through a licensing agreement rather than developing the technology independently.

In each case, IP rights provide a framework through which knowledge can circulate while ownership remains differentiated.

The literature therefore suggests that the strategic question is not whether firms should protect or share knowledge. Instead, the more appropriate question is:

**Which knowledge should be protected, which knowledge should be shared, and what institutional mechanism should govern the exchange?**

This perspective also highlights the importance of organizational capabilities. Effective IP strategy requires firms to identify valuable knowledge, understand legal boundaries, negotiate contracts, evaluate licensing opportunities, and monitor potential infringement.

#### **4.4 Digital Transformation and Copyright**

Digitalization represents one of the most significant transformations affecting intellectual property.

Digital goods can often be copied, modified, distributed, and transmitted at very low marginal cost. This characteristic has created substantial challenges for traditional copyright enforcement.

Music, films, books, photographs, software, online publications, and other creative works can potentially be distributed globally through digital networks.

The literature identifies several consequences.

First, enforcement has become more complex because infringers can be geographically dispersed.

Second, technological mechanisms such as digital rights management have become important tools for controlling access and use.

Third, digital platforms have become central intermediaries between creators and audiences.

Fourth, new business models have emerged, including subscription services, digital licensing, advertising-supported distribution, and platform-based monetization.

Recent scholarship on the economics of copyright in the digital age emphasizes copyright infringement and enforcement, digital technologies, creative reuse, licensing, and new business models as important areas of empirical research.

The digital environment also complicates the distinction between creator and consumer. Users may generate derivative content, remix existing works, upload material, or contribute to collaborative digital environments.

This creates a more complex copyright ecosystem involving creators, users, platforms, advertisers, technology providers, and rights-management organizations.

#### **4.5 Artificial Intelligence and Emerging IP Questions**

Artificial intelligence represents a further transformation of the intellectual property landscape.

Generative AI systems can produce text, images, music, software, and other forms of content. These capabilities raise fundamental questions about authorship, ownership, training data, infringement, licensing, and originality.

The literature has begun to examine the interaction between copyright and text-and-data mining, particularly in relation to generative AI. Contemporary scholarship emphasizes that copyright questions surrounding AI extend beyond outputs and include the use of copyrighted materials as training inputs.

Several unresolved questions remain.

First, the legal status of AI-generated outputs varies across jurisdictions and depends upon the degree of human involvement.

Second, the use of copyrighted material for training raises questions concerning authorization, exceptions, fair use or equivalent doctrines, and licensing.

Third, AI systems challenge conventional assumptions concerning the identity of the creator.

Fourth, generative AI may significantly alter the economics of creative industries by reducing the cost of producing certain forms of content.

These issues suggest that future IP research must move beyond traditional distinctions between human creators and technological tools.

#### **4.6 Blockchain and Patent Management**

Blockchain technology represents another emerging area of interest.

Blockchain has been examined as a potential mechanism for recording, verifying, and managing IP-related transactions. Research has suggested possible applications in patent generation, enforcement, licensing, and exploitation. One systematic review concluded that blockchain may affect patent management through new transaction structures and changing stakeholder roles.

Potential applications include recording ownership histories, managing licensing transactions, tracking rights, and improving transparency.

However, technological infrastructure alone cannot resolve underlying legal questions. A blockchain record may demonstrate that a particular transaction occurred, but the validity of the underlying IP right continues to depend upon the applicable legal system.

This distinction illustrates an important principle emerging from the literature: technological tools can transform the administration of IP without necessarily transforming the fundamental legal basis of IP rights.

## **5. Synthesis of the Literature**

The systematic synthesis indicates that the relationship between intellectual property and innovation can be understood through five interconnected dimensions.

| <b>Dimension</b>    | <b>Central Question</b>                                  | <b>Principal Mechanisms</b>              | <b>IP Major Outcome</b>            |
|---------------------|----------------------------------------------------------|------------------------------------------|------------------------------------|
| Appropriation       | How can innovators capture returns?                      | Patents, secrets                         | trade Protection and value capture |
| Differentiation     | How can firms establish market identity?                 | Trademarks, designs                      | Brand and market value             |
| Creative protection | How can creative expression be protected?                | Copyright                                | Control and licensing              |
| Knowledge exchange  | How can knowledge be shared while maintaining ownership? | Licensing, patents, copyright, contracts | Collaboration                      |
| Commercialization   | How can IP generate economic value?                      | IP portfolios, licensing                 | Revenue and competitive advantage  |

The literature suggests that these dimensions should not be examined independently. A patent can simultaneously serve as a protection mechanism, a licensing asset, an indicator of technological capability, and a bargaining instrument.

Similarly, copyright can function simultaneously as a legal protection, a licensing mechanism, and an economic asset within digital platforms.

## **6. Theoretical Perspectives**

### **6.1 Resource-Based View**

The resource-based view provides one important theoretical explanation for the strategic role of IP.

Under this perspective, organizations achieve competitive advantage through valuable, rare, difficult-to-imitate, and appropriately organized resources.

Intellectual property can contribute to these conditions by providing legally protected access to technological or creative resources.

However, the value of IP depends on organizational capabilities. A patent without manufacturing, marketing, distribution, or technological capabilities may generate limited competitive advantage.

Therefore, the resource-based perspective suggests that IP should be examined alongside complementary organizational resources.

## **6.2 Knowledge-Based View**

The knowledge-based view places knowledge at the center of organizational advantage.

From this perspective, intellectual property is particularly significant because it defines the boundaries around valuable knowledge.

Patents formalize particular forms of technological knowledge. Trade secrets protect confidential organizational knowledge. Copyright protects forms of knowledge expressed through creative works.

The knowledge-based view therefore explains why IP becomes particularly important in knowledge-intensive industries.

## **6.3 Transaction Cost Perspective**

Transaction cost theory provides another useful explanation.

Knowledge exchange involves uncertainty concerning ownership, opportunism, information asymmetry, and enforcement. Clearly defined IP rights can reduce some of these uncertainties.

Licensing agreements, for example, can specify permitted uses, geographical boundaries, royalty arrangements, duration, and enforcement responsibilities.

IP can therefore reduce certain transaction costs associated with knowledge exchange while simultaneously creating new costs associated with negotiation, monitoring, and enforcement.

## **7. Geographical and Institutional Dimensions**

Intellectual property operates within national and international institutional environments.

Differences in legal systems, enforcement mechanisms, patent offices, court systems, regulatory frameworks, and economic development can affect the value and effectiveness of IP protection.

Internationalization has further increased the complexity of IP management. Firms operating across multiple jurisdictions must make strategic decisions concerning where to seek protection and how to manage enforcement across borders.

The literature indicates that research has historically concentrated substantially on North American, European, and Asian contexts. A recent systematic review of innovation strategy and IP identified these regions as major geographical areas represented in the literature.

Comparative studies could investigate how differences in institutional quality influence the relationship between IP protection and innovation.

Such research could be particularly valuable for understanding whether stronger formal protection produces equivalent outcomes across countries with different enforcement capabilities.

## **8. Discussion**

The synthesis provides several important implications for intellectual property scholarship.

First, the literature increasingly rejects a linear relationship between IP protection and innovation. Stronger protection does not automatically produce stronger innovation outcomes. The relationship is mediated by industry characteristics, technological complexity, organizational capabilities, market structure, and complementary assets. Second, IP should increasingly be conceptualized as a **strategic portfolio** rather than a collection of isolated legal rights.

Third, digitalization has shifted the focus of IP scholarship from traditional ownership questions toward questions concerning data, platforms, algorithms, software, artificial intelligence, and digital licensing.

Fourth, open innovation demonstrates that ownership and openness are not mutually exclusive. Intellectual property can provide the institutional infrastructure necessary for controlled knowledge exchange.

Fifth, commercialization has become increasingly important. The possession of intellectual property is only one stage of the value-creation process. Firms must also possess the capabilities necessary to exploit, license, commercialize, and defend those assets.

These findings are consistent with recent systematic scholarship demonstrating that the literature on IP and innovation encompasses protection mechanisms, innovation strategy, knowledge, collaboration, and value creation rather than a single theoretical relationship.

## **9. Research Gaps and Future Research Agenda**

### **9.1 Artificial Intelligence**

AI represents one of the most significant future research areas.

Future studies should examine how copyright, patent law, trade secrets, and data governance interact within AI development.

Particular attention should be given to training data, AI-generated outputs, ownership, human contribution, licensing models, and algorithmic creativity.

## **9.2 Platform Ecosystems**

Digital platforms create complex IP structures because different actors may own different forms of intellectual property.

Platforms may own proprietary technologies while users, developers, and complementors own content or applications.

Recent research has begun examining this tension and suggests that stronger IP institutions can have different consequences depending on whether content is proprietary or generated by complementors.

Future studies should therefore examine IP as an ecosystem-level phenomenon.

## **9.3 Small and Medium-Sized Enterprises**

Much of the strategic IP literature focuses on large organizations with substantial legal and financial resources.

Small and medium-sized enterprises may face different constraints.

Patent application costs, litigation expenses, limited legal expertise, and difficulty monitoring infringement may substantially influence their IP strategies.

Future research should investigate whether SMEs prefer informal mechanisms because of resource constraints and whether public IP support systems improve their innovation outcomes.

## **9.4 IP and Sustainability**

Another underdeveloped area concerns the relationship between intellectual property and sustainable innovation.

Green technologies often require collaboration among firms, governments, universities, and international institutions.

Strong IP rights can encourage investment in environmentally beneficial technologies, but excessive exclusivity may potentially restrict diffusion.

The appropriate balance between incentives and diffusion therefore represents an important policy question.

## **9.5 Gender and Diversity in IP Innovation**

Another promising research area concerns the diversity of innovators.

Research could examine whether differences in access to financing, legal support, networks, and innovation ecosystems influence IP ownership and commercialization.

Such research would expand IP scholarship beyond firm-level analysis toward questions concerning participation and inclusivity within innovation systems.

## **9.6 Measuring IP Value**

Measurement remains a persistent challenge.

Patent counts are frequently used as indicators of innovation, but they may not adequately represent economic value.

Future research should combine patent quality, citation measures, licensing revenues, commercialization rates, market valuation, and strategic importance.

Similarly, copyright and trademark value require measurement approaches that account for brand recognition, licensing revenue, consumer engagement, and platform performance.

## **10. Proposed Conceptual Framework**

Based on the reviewed literature, this article proposes an integrated framework in which intellectual property affects innovation outcomes through three principal pathways.

### **Pathway 1: Protection**

**Innovation → IP protection → reduced imitation → increased appropriability**

This pathway represents the traditional incentive-based explanation.

### **Pathway 2: Exchange**

**IP ownership → licensing/collaboration → knowledge exchange → innovation development**

This pathway represents the role of IP within open innovation.

### **Pathway 3: Commercialization**

**IP asset → complementary capabilities → commercialization → economic value**

This pathway emphasizes that IP must be combined with organizational capabilities to generate economic returns.

The three pathways interact rather than operate independently.

A firm may patent an invention to protect it, license it to another organization, and simultaneously use complementary manufacturing and marketing capabilities to commercialize it.

Accordingly, future empirical studies could model IP strategy as a multidimensional construct incorporating:

1. protection intensity;
2. portfolio diversity;
3. licensing orientation;
4. openness;
5. enforcement capability;
6. commercialization capability; and
7. organizational IP expertise.

### **11. Managerial Implications**

The literature provides several implications for managers.

Organizations should avoid treating intellectual property solely as a legal compliance function. IP should be integrated into strategic planning, research and development, product development, commercialization, and partnership decisions.

Second, organizations should conduct regular IP audits to identify valuable technologies, brands, creative assets, confidential information, and potential licensing opportunities.

Third, firms should evaluate whether each knowledge asset requires formal legal protection or whether informal protection mechanisms may be more appropriate.

Fourth, organizations involved in open innovation should establish clear ownership and licensing arrangements before entering collaborative projects.

Fifth, digital firms should pay particular attention to copyright, software ownership, data rights, platform terms, and AI-related risks.

Finally, IP portfolios should be evaluated according to economic and strategic value rather than simply the number of registered rights.

### **12. Policy Implications**

The findings also have implications for policymakers.

First, IP systems should balance incentives for innovation with the need for knowledge diffusion.

Second, policymakers should consider reducing unnecessary barriers to IP protection for smaller firms and individual innovators.

Third, public institutions should provide accessible IP education and commercialization support.

Fourth, policymakers should develop clearer frameworks addressing AI-generated content, training data, and digital licensing.

Fifth, international coordination will become increasingly important as digital technologies operate across national borders.

The objective should not simply be stronger IP protection but **effective IP governance** that supports innovation, investment, competition, and socially beneficial knowledge diffusion.

### **13. Limitations**

This review has several limitations.

First, the literature is multidisciplinary and uses different definitions of intellectual property, innovation, appropriation, and value creation. This creates challenges for direct comparison.

Second, publication bias may influence the available literature because studies reporting significant relationships may be more likely to receive attention.

Third, the literature is geographically uneven, with substantial research originating from North America, Europe, and Asia.

Fourth, the rapid pace of technological change means that conclusions concerning digital technologies and artificial intelligence can become outdated relatively quickly. Finally, this article adopts a thematic synthesis rather than a statistical meta-analysis. Consequently, it does not estimate a pooled effect size for the relationship between IP protection and innovation.

#### **14. Conclusion**

Intellectual property remains a central institution within modern innovation systems, but its role has changed substantially. The traditional view of IP as a mechanism for preventing imitation is increasingly insufficient for explaining contemporary innovation environments.

The systematic literature synthesis demonstrates that intellectual property performs multiple functions. It can protect technological and creative knowledge, facilitate commercialization, support licensing, structure interorganizational collaboration, contribute to competitive positioning, and provide organizations with mechanisms for appropriating value from innovation.

At the same time, IP can generate costs. Protection may involve application expenses, enforcement costs, disclosure requirements, transaction costs, and potential restrictions on knowledge diffusion. Consequently, the relationship between IP and innovation is fundamentally contingent rather than linear.

The emergence of open innovation has further demonstrated that protection and openness can coexist. Organizations can protect particular knowledge assets while simultaneously licensing, exchanging, and collaborating around other knowledge. Intellectual property therefore serves not only as a boundary around knowledge but also as an infrastructure for controlled knowledge exchange.

Digital transformation has expanded these challenges. Copyright has become increasingly important in platform-based environments, while software, data, algorithms, and artificial intelligence have blurred conventional distinctions between creator, user, technology, and content. Contemporary research is consequently moving toward questions concerning data governance, AI-generated works, algorithmic licensing, platform ecosystems, and digital appropriation.

The future of intellectual property research should therefore move beyond the narrow question of whether IP protection increases innovation. A more meaningful question is **under what institutional, technological, organizational, and strategic conditions intellectual property contributes to the creation, exchange, protection, and commercialization of knowledge.**

This perspective places IP within a broader innovation ecosystem. Patents, copyrights, trademarks, trade secrets, licensing arrangements, contracts, organizational

capabilities, and technological infrastructures should be considered complementary components of an integrated system.

Future research should consequently examine IP dynamically, recognizing that the optimal strategy may change as technologies mature, markets evolve, organizations collaborate, and regulatory systems develop.

Ultimately, intellectual property is neither inherently an obstacle to knowledge diffusion nor an automatic engine of innovation. Its effects depend upon how legal rights interact with markets, technologies, organizations, institutions, and society. Understanding these interactions will remain essential as economies increasingly depend upon intangible assets, digital technologies, data, and knowledge-intensive innovation.

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