

# *Art and Technology as a Source of Inspiration in Design: from Pavel Janak to Giacomo Balla*

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## **A**bstract

*The seamless interplay between art and technological advancement from the late 19<sup>th</sup> to the mid-20<sup>th</sup> century is the focus of this article, which examines the influences of pivotal art movements such as Cubism, Art Nouveau, Abstract Art, and Futurism on design inspiration. Through an analysis of the works and methodologies of notable figures like Pavel Janák and Giacomo Balla, the study highlights the symbiosis between the evolution of art and the innovations of the contemporary technological landscape. These movements mirrored their times, from Cubism's analytical breakdown of form corresponding with industrial fragmentation, to Art Nouveau's organic motifs that contrasted against mass production, and from Abstract Art's introspective dive coinciding with psychological advances, to Futurism's celebration of dynamism in tandem with the era's mechanistic obsession. Insights gleaned affirm the integral role of technological progress as both catalyst and canvas for artistic expression, culminating in a legacy that provides a foundation for ongoing creative dialogue in the face of the digital age's new technological frontiers. The article proposes that the narrative of Modern Art is not solely a historical recount but a continuous inspiration, influencing future design and innovation.*

## **K**eywords

*Futurism, Design, Modern Art, Art Nouveau Visionary, Futuristic Design.*

# Introduction

The chronicle of art from the closing decades of the 19<sup>th</sup> century until the cresting half-way mark of the 20<sup>th</sup> century marks a profound and encompassing transition within the artistic universe. *Dubbed Modern Art*, this period encapsulates a profound rethinking and reconceptualization of the artistic tradition. Scholars such as [Henderson \(2018\)](#) assert that from 1880 to 1960, the art world underwent an evolution of such caliber that it reconfigured the existing artistic norms into avant-garde articulations, leaving an indelible impact on the annals of art history. [Sternberg et al. \(2013\)](#) put forth the discourse surrounding the precise delimitations of this period, with some inclinations toward defining Modern Art within the confines of the 20<sup>th</sup> century. Nonetheless, Brettell’s scholarship commonly earmarks the advent of Impressionism as the movement’s auspicious beginning ([Brettell, 1999](#)), leading to the 1960s which Harrison designates as the threshold bridging to postmodernism ([Harrison, 2003](#)).

As [Osborne \(2013\)](#) delineates, Modern Art is an eclectic array of radical movements—from the spontaneous and wavering brushwork of Impressionism to the strict and calculated forms of Cubism, meandering through the unconscious exploration of Surrealism, and reaching the uninhibited expressionism of Abstract movements. Each of these styles serves as separate conduits to a grand cultural evolution. Their philosophies were made manifest by visionaries like Pavel Janák and Giacomo Balla, who stood as contrasting embodiments of the profound diversity and conceptual richness characterizing these years of fervent change ([Crane, 1987](#); [Smith, 2016](#)).

The objective of this article is to navigate the essential tenets, pivotal influences, and the sustaining reverberations of these major art forms on subsequent artistic endeavors. With [Figure 1](#) providing a visual summary of these shifts, the article underlines how each innovative style did not emerge in isolation but was the culmination of persistent and diverse inspirations. These artistic developments, steeped in historical, societal, and cultural progressions, resist reductive classification, reflecting instead the intricate weaving of art into the tapestry of broader technological advancements and the cultural landscape of their time. This essence underscores the significant yet nuanced underpinnings that framed the art movement’s emergence and persistence, charting a course of influence that remains palpable in the contemporary appreciation and practice of art.

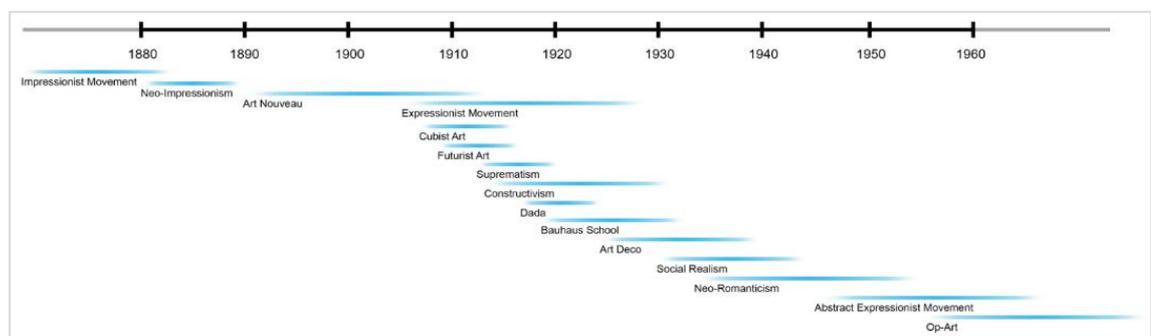


Figure 1: A general overview of the evolution of art styles.

# Methodology

This study primarily employs a qualitative research methodology to investigate the role of art as a source of inspiration in design, focusing on the period from the mid-nineteenth to the early twentieth century. The qualitative data collected from research databases, combined with the analysis of the artists’ works and philosophies, was synthesized to provide a comprehensive understanding of how art served as a source of inspiration in design during the specified period. Interpretation of the findings aimed to highlight the enduring significance of these historical art movements and their ongoing influence on contemporary artistic endeavors.

## Cubism: The Fragmented Perspective

Cubism's emergence as a pivotal art movement in the early 20<sup>th</sup> century signified a momentous shift from traditional representational art to a modality that disrupted and reconceptualized visual perception (Cottingham, 2004; Sgourev, 2013). Under the pioneering influence of Picasso and Braque, this transformative approach dismantled the singular, fixed perspective that had dominated art for centuries. Instead, it introduced a multiplicity of viewpoints, establishing a novel framework that would serve as the bedrock for the burgeoning abstract art movement (Henderson, 2018). Through the deconstruction of figures and forms into geometric abstractions, Cubism imparted an enhanced dimensional awareness, emphasizing the transient essence of objects rather than a mere surface representation (Carlson, 2014; Dufour & Steane, 2014; Juneja, 2018).

At its philosophical core, Cubism was underpinned by a search for a deeper truth within the fabric of reality, a quest to capture the subject's manifold qualities through simultaneous, multiple angles (Brand & Brand, 2021; Ginev, 2020). This reimagined understanding of space and time — achieved through the fragmentation and synthetic reassembly of form— sought to grant observers a more immersive and multifaceted experience of the physical world (O'Brien, 2018). The catalyst for Cubism's innovative pursuit stemmed from a broader dialogue with the contemporary milieu, specifically the radical societal and cultural shifts precipitated by the industrial revolution and the apprehensive climate preceding World War I (Cran, 2016). In light of these vast changes, Cubist artists drew inspiration not only from the nascent technological landscape but also from the diverse aesthetics of African and Iberian art, and the emerging scientific perspectives on relativity and spatial plurality.

Cubism's interrogation of perspective transcended the canvas, mirroring the complex and fractured nature of an industrializing society in flux. As traditional conceptions of life and art were being questioned, Cubism reflected and contributed to this period of challenge and change, effectively symbolizing the diverse fragments that constituted modern existence. Its enduring influence pervaded the sphere of design; the geometric shapes and fragmented forms of Cubism inspired innovation in architecture, furniture design, and beyond. The movement's affinity for abstract patterns and dynamic structure infused the design world with a fresh lexicon of forms, fundamentally reorientation the design ethos towards the future.

### 1. Some Famous Arts of Cubism

Within the cubist movement, several artworks stand as milestones, crystallizing the ideals and innovations of this genre. Picasso's *Les Femmes d'Alger (O. J. R. M.)* is undoubtedly one of the seminal works marking the genesis of Cubism. Its representation of five disrobed women, composed through geometric abstraction, starkly deviated from the conventional perspective and figurative norms, catalyzing the sea change in artistic representation (Foster, 1979). Similarly, Georges Braque's *Violin and Candlestick* serves as a quintessential piece within the Analytical Cubism phase, wherein objects are dissected into intersecting planes, offering to the viewer a multiplicity of perspectives within a single frame and thereby redefining the very concept of spatiality and time in art (Collomosse & Hall, 2003; Figure 2).

A foray into the realm of sculpture finds Picasso's *Head of a Woman* forging new possibilities for three-dimensional art under the Cubist doctrine. This piece, which presents a reconfiguring of Fernande Olivier's traits into an assortment of angular forms, speaks to the core of Cubist sensibilities - the breakdown of forms into discrete geometric shapes. This stalwart approach extends beyond painting, transposing the principles of Cubism into a tangible, spatial format. The *Head of a Woman* sculpture is emblematic of the transcendence of Cubist principles beyond the painted canvas into more sculptural expressions of volume and form. The corresponding painting version of this subject, noted for its muted, earthy palette, further delves into the depth and complexity of Cubist composition. Housed in the Hermitage Museum, Saint Petersburg, Russia, Picasso's *Head of a Woman* encapsulates the pioneering spirit and enduring heritage of the Cubist movement - its ongoing resonance in the unfolding narrative of modern art (Figure 3).



Figure 2: Left: *Les Demoiselles d'Avignon* (1907) - Pablo Picasso, Right: *Violin and Candlestick* (1910) - Georges Braque.



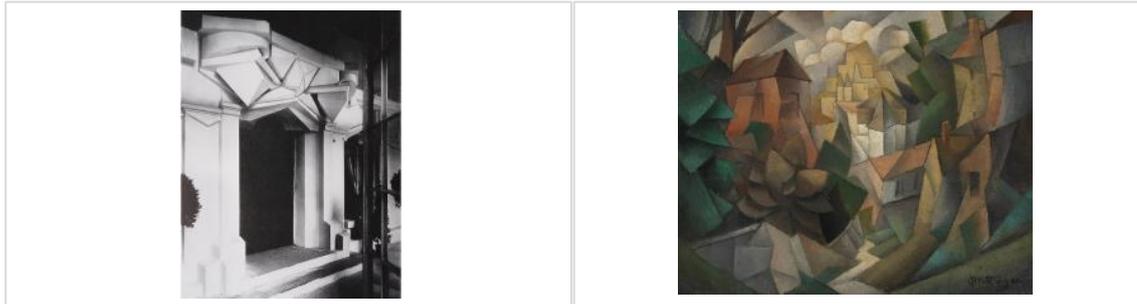
Figure 3: Sculpture and Painting "Head of a Woman", Fernand Lévy (1909).

## 2. Cubism, Architecture and Design

Pavel Janák, the distinguished Czech architect and proponent of Cubism (1882-1956), profoundly incorporated the movement's ethos into architecture, utilizing burgeoning technological advancements to realize his designs. His work juxtaposes traditional forms with radical geometric structures, acute angular lines, and sharp contrasts, driven by the advent of modern technology (Wang & Chizzoniti, 2021). Janák's innovative use of new building materials and techniques is showcased in the Jakubec's House, celebrated as a pioneering example of Cubist architecture. Rigorous in concept, yet feasible only through the technological strides of his era, Janák adeptly layered Cubist sensibilities onto the Baroque canvases of historic buildings, such as Fára's House in Pelhřimov.

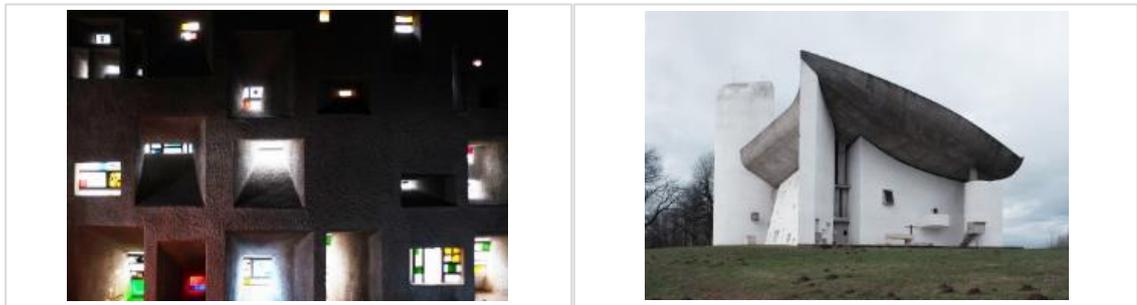


Figure 4: Left: *Jakubec House* in Jičín, Right: *Fára House* in Pelhřimov. Both designed by Pavel Janák.



**Figure 5:** Left: Raymond Duchamp-Villon (1912), *La Maison Cubiste* (Cubist House) at the Salon d'Automne (1912), detail of the entrance; *Façade architecturale* (destroyed), Right: Jean Metzinger - *Cubist Landscape*.

Furthermore, the sway of Cubism in architecture is marked by its synergy with technological innovations of the 20<sup>th</sup> century. *La Maison Cubiste*, a collaboration between Raymond Duchamp-Villon and André Mare, epitomizes this blend (Figure 5), as does Le Corbusier's forward-thinking use of reinforced concrete, a material whose potential was fully unleashed through technological innovation (Figure 6).



**Figure 6:** Ronchamp: *Notre Dame Du Haut* (France), Le Corbusier.

The era's technological achievements did not merely redefine the limits of architectural possibilities but also transformed interior spaces. The challenge of aligning the interior decor with the dynamism of Cubist structures led to the genesis of Cubist furniture, with Janák designing pieces that were revolutionary in their symbiosis of form, function, and fabrication techniques (Figure 7). This was a direct response to the manufacturing capabilities and material properties newly available.



**Figure 7:** Pavel Janák designs. Set of furniture for the Borovička family (1911-1912), Ceramic boxes displayed in a bookcase from a set of furniture for a study (1912-1914), Dressing table for Vojta Novák (Pavel Janák, 1912-1914), Chest of drawers and table mirror from the set of furniture of the sitting room of Růžena Jakubcová, *Jakubec House, Jičín* (1911-1912).



Figure 8: Crystalline box (1911), Museum of Decorative Arts in Prague, Pavel Janák.

Janák, alongside contemporaries such as Josef Gočár (Figure 9), leveraged the era's technological innovations to expand Cubism's vocabulary, which has since inspired a lineage of design thinking entrenched in the synthesis of art, technology, and functionality.



Figure 9: Table, upholstered armchairs, and interior furniture from the set of furniture for the English Club at the Municipal House in Prague (Josef Gočár, 1910-1911).

Through the perspective of Cubism, technology transformed design, offering novel ways to conceive space and structure. In capturing the zeitgeist of industrialization and scientific discoveries of the early 20<sup>th</sup> century, Cubism harnessed technology both as a tool and as an inspiration, shaping the societal and design landscapes of its time and beyond (Harding & Cramer, 2009). It continues to influence contemporary practice, epitomizing the infinite creative possibilities when art converges with technological evolution.

### Art Nouveau: A Celebration of Nature and Beauty

Art Nouveau, or *New Art*, was a pivotal late 19<sup>th</sup> and early 20<sup>th</sup>-century movement. It departed from academic art, emphasizing the integration of all arts and the creation of holistic works of art. It featured organic and natural forms, intricate lines, and a departure from historical revival styles (Silverman, 1989). Art Nouveau aimed to integrate art into daily life, blurring the lines between fine and applied arts. It emerged as a reaction to mass production and standardized objects in the late 19<sup>th</sup> century, celebrating the beauty of nature and individual artistic expression. It promoted the idea of *total art* or *Gesamtkunstwerk*, emphasizing art's role in everyday existence (Baird, 1995).

Art Nouveau drew from the English Arts and Crafts movement's focus on craftsmanship and natural materials, along with Japanese art's asymmetry and decorative motifs. It was primarily a decorative art movement, less known for its paintings (Weisberg & Menon, 2013); however, in fine art, Gustav Klimt is a prominent Art Nouveau artist known for works like *The Kiss* and *The Three Ages of Woman*. *The Kiss* features an embracing couple with intricate, ornate patterns, while *The Three Ages of Woman* symbolizes youth, motherhood, and old age (Figure 10).

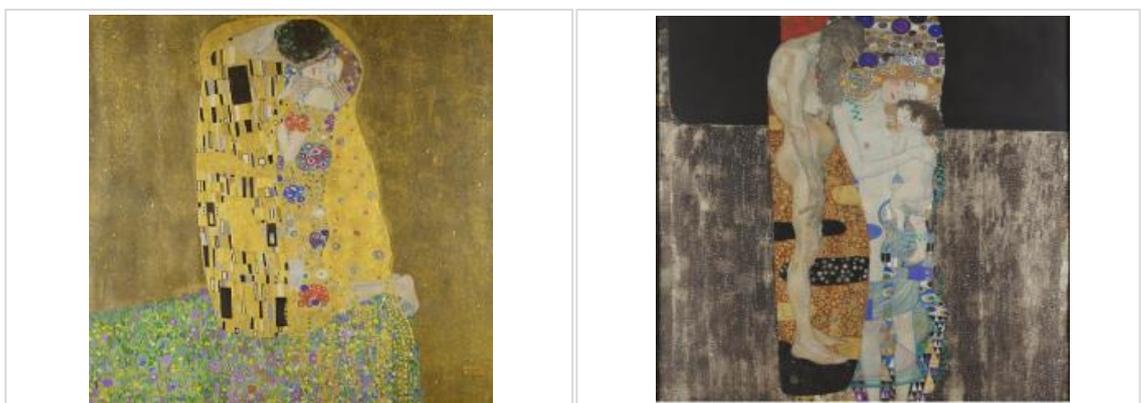


Figure 10: Left: "The Kiss", and Right: "The Three Ages of Woman" by Gustav Klimt.

## 1. Art Nouveau, Architecture and Design

Art Nouveau as a comprehensive movement, despite the variety of styles, the emergence of rationalist and anti-intellectual trends and emphasis on floral ornaments or relying on simple geometric shapes, in general, introduced leading designers in industrial beauty (Pevsner, 1984; Zevi, 1978; Giedion, 2008). Characterized by flowing organic forms, detailed lines and a departure from historically derived styles, Art Nouveau advocated the interweaving of art into everyday life, thereby dissolving the boundaries between fine and applied arts (Silverman, 1989). Moreover, in society, Art Nouveau was embraced as a symbol of modernity and progress (Makaryk, 2018; Figure 11).

Art Nouveau brought a transformative ethos to design and society, echoing the zeitgeist's shift towards modernity and progress. Its influence in architecture materialized in the form of resplendent buildings that featured elaborate facades, intricate wrought ironwork, and vibrant stained glass. Notable instances include Gaudí's Casa Batlló and Sagrada Família, which are enduring embodiments of Art Nouveau architecture (Grass, 2018; Figure 11).



Figure 11: Left: dawn and dusk bed (1901) and seat with an umbel floral design (1900) by Émile Gallé, Right: Wisteria table lamp and The Holy City (1905) – St. John's vision on the isle of Patmos by Louis C. Tiffany.

Similarly, this influence permeated interior design, where elegance and opulence were conveyed through sinuous lines and floral decorations. Art Nouveau, thus, affected an array of objects, from furniture to lighting, with creators like Émile Gallé and Louis Comfort Tiffany at the forefront, their work remaining emblematic of the movement's finesse.

Expanding its reach across Europe, Art Nouveau flourished in Scotland through the pioneering work of Charles Rennie Mackintosh (Krema, 2019). His signature aesthetic is immortalized in the Glasgow School of Art (Figure 12), a paragon of the movement's ethos featuring organic forms, floral elements, and an untraditional asymmetry that resonates with technological advancements of the era, infusing traditional craft with new possibilities afforded by developments in materials and production processes. He was influenced by various artistic movements and design philosophies of his time (Mínguez, 2007).



Figure 12: Glasgow School of Art by Charles Rennie Mackintosh. The building's facade features a striking combination of flowing lines, floral motifs, and asymmetrical composition, all characteristic of the Art Nouveau style.

Mackintosh's furniture design, such as the Rose Chair (Figure 13), became a standard of Art Nouveau elegance, characterized by elongated, natural forms and influenced by Japanese aesthetics.

This was underpinned by technological advancements that allowed Mackintosh to experiment with materials in new ways, creating furniture that was not only beautiful but also exemplified the craftsmanship and integrity espoused by Art Nouveau (Figure 12).



Figure 13: Left: Tea House Card Table. Using delicate, elongated floral forms and natural material. Middle: Hill House Chair. High back, Japanese art influence is so clear in the whole form of the chair. Right: Rose chair. High Backed, delicate forms. Natural material, and Japanese forms influence.

Mackintosh’s ingenuity in interior design (Figure 14) stemmed from a harmony of elements — light, color, and form— synthesized through the facilitation of emergent technologies, which allowed for a transformation in interior lighting and color application, as well as in the materials used for furnishing and decoration (Figure 13).

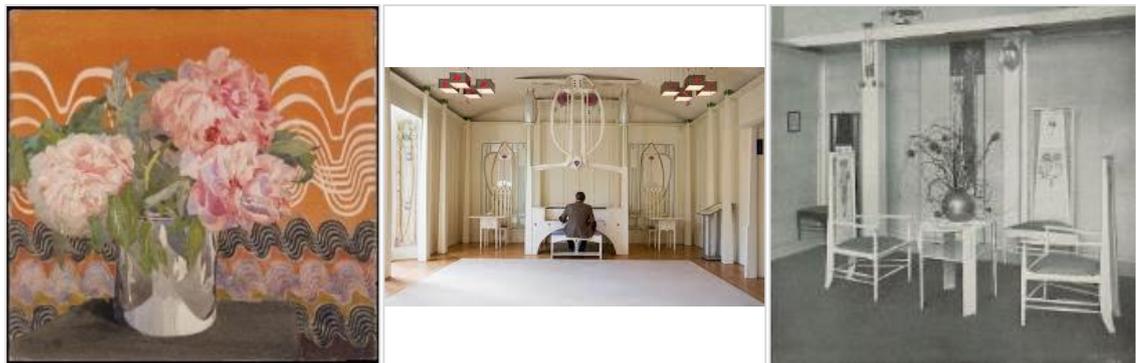


Figure 14: A Rose Boudoir Installation and artwork by Mackintosh.

The influence of Art Nouveau certainly transcended Europe’s borders, mirroring in the United States’ interpretation of the era’s progressivism. Architects like Louis Sullivan and the works of Antoni Gaudí inspired American approaches, blending Art Nouveau elements into designs that spoke to a new architectural language indicative of a changing society fueled by technological innovation (Figure 15).



Figure 15: Left: Entrance to the Carson Pirie Scott & Co. Building, Chicago, IL by Louis H. Sullivan, Middle: Casa Batlló (1877-1906) and Right: Casa Milà (1905-1910) by Antonin Gaudí.

Moreover, Art Nouveau revolutionized graphic design, with posters and advertisements enveloping decorative lines, stylized lettering, and vibrant hues iconic to the movement. Alphonse Mucha's posters are a definitive hallmark, merging the technological advancements in printing with the Art Nouveau style to create visually arresting imageries that continue to captivate audiences (Figure 16).



Figure 16: Left: Mucha's *Portrait of Saints Cyril and Methodius for the Roman Catholic* vs. his more recent artworks, Right: *Reverie*, poster for the publishing house Champenois, influenced by Art Nouveau.

Overall, Art Nouveau and technology coalesced, each propelling the other to new heights. As a movement deeply entrenched in the celebration of nature and aesthetics, it attracted individuals keen on integrating artistic sensibility with the technical marvels of the time, ultimately advancing the narrative of design within the framework of technological progress.

### Abstract Art: An Exploration of the Inner World

Abstract Art's emergence in the early 20<sup>th</sup> century came amid a flux of evolutions, both intellectual and technological. Notably, it dovetailed with significant advances in psychology and our understanding of perception, which eschewed former conventions in favor of explorations into the unconscious and subconscious (Bargh & Morsella, 2008). This new domain of knowledge encouraged artists to reach beyond visible reality, seeking a more intrinsic expression through abstract forms and reimagining the traditional bonds between artist, artwork, and audience.

Contemporaneous scientific achievements bolstered artists' ability to conceptualize and create with novel materials, offering fresh avenues beyond representational forms. Abstract art therefore became a conduit for showcasing the artist's inner experiences, unmediated by the observable world, aiming instead for a universal resonance (Van den Braembussche, 2009). Utilizing color, form, textural contrasts, and the spatial interplay of shapes, abstract artists embarked on a journey of emotional and cerebral exposition, extending an invitation to viewers to find individual meaning and connection within each piece (Walz, 2013).

In this era of intense innovation, pioneers like Wassily Kandinsky and Kazimir Malevich arose. Kandinsky, often epitomized as the progenitor of abstract painting, held that color and form were capable of eliciting profound spiritual and emotional reactions independently of representational accuracy. Such concepts gained momentum post-World War I, reflecting the yearning for new forms of expression. The ascension of photography also played its part, liberating artists from the onus of realism, and permitting a deeper dive into abstraction.



Figure 17: Left: *Composition VII*, 1913, and *Yellow-Red-Blue (Gelb-Rot-Blau)*, 1925 by Wassily Kandinsky.



Figure 18: Left: *Morning in the Country after Snowstorm* (1912); and Right: *Self-Portrait by Kazimir Malevich* (1912).

The repercussions of abstract art manifest not only within the realms of fine art but also in design and societal development. It instilled fresh perspectives in architectural and interior design, enabling environments that are visually and spatially dynamic. In graphic design, abstract principles artfully communicate complex notions and emotions, crossing linguistic boundaries to transmit potent, universal messages.



Figure 19: Two children looking at the picture produced inside a camera obscura (1837). Middle: *Yellow Islands* by Jackson Pollock (1952). The vision of reality effected by advent of photography. Right: *Cut with the Dada Kitchen Knife through the Last Weimar Beer-Belly* (1919).

Abstract art's impact goes beyond fine art, shaping design and society. It inspires innovative approaches in architecture and interior design, creating visually engaging spaces. In graphic design (Figure 19), abstract art principles convey complex ideas and emotions, transcending language barriers to effectively communicate messages.



Figure 20: Left: *Composition* by Piet Mondrian (1942), Middle: *Das Unbild* by Kurt Schwitters (1919), Right: *Four Portraits of Halston, Andy Warhol* (1975).

### 1. Abstract art, Architecture and Design

Fashion also reflects the influence of abstract art, incorporating its bold patterns, colors, and shapes, often spurring dialogue around creative norms and cultural discourse. Abstract art hence stands as a testament to the limitless potential for creativity, acting as a catalyst for artistic expression across diverse societal spheres.

<sup>1</sup> The year the Bauhaus was founded.



Figure 21: Left: Three Cocktail Dresses, Tribute to Piet Mondrian by Eric Koch (1965), Middle: A model wearing a red evening coat by Cristóbal Balenciaga (1954), Right: Miss Dior dress by Christian Dior Haute Couture (1949).

Eileen Gray's work represents another articulation of Abstract Art's principle in design. Integrating clean geometries and rich hues in her work, Gray's minimalistic yet impactful design philosophy, evident in the *E-1027* table, champions the capacity of design to encapsulate essence through abstraction (Badovici & Benton, 2021). In her architectural endeavors, Gray deftly balanced functional innovation and aesthetic appeal, influencing successive generations to redefine conventional design wisdom (McBrinn, 2015).



Figure 22: Left: *E-1027* table (1927), middle: *Bibendu* (1926), Right: *Blue Marine* (1920) by Eileen Gray.

In the broader strokes of modern design's canvas, Abstract Art continues to encourage exploration and extrapolation, bridging the subjective with the universal and fostering an ongoing cultural and creative dialogue.



Figure 23: Left: A chamber for the daughter of Dr Caligari, and right: *Villa E-1027* (1929) by Eileen Gray.

The *Transat Chair* (Figure 23), designed in 1927, is a prime example of Gray's minimalist approach to furniture design. The chair's simple, rectilinear form and use of tubular steel demonstrate her alignment with the abstract art movement's emphasis on industrial materials and geometric shapes.

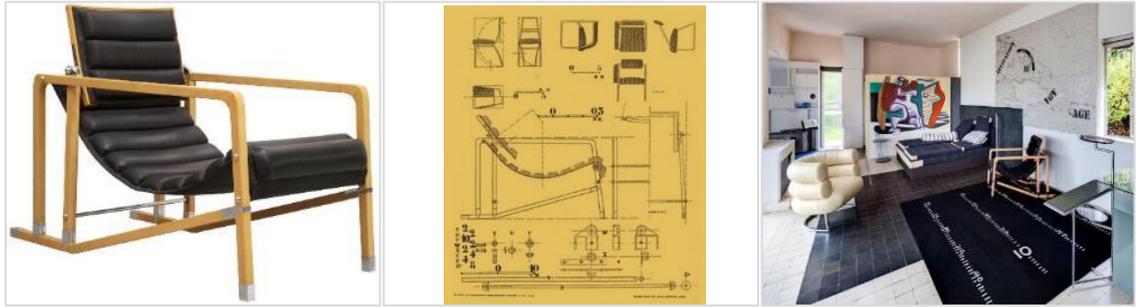


Figure 24: *Transat chair (1927) by Eileen Gray.*

Eileen Gray's furniture designs often incorporated abstract patterns and motifs, reflecting her interest in pure form and geometric shapes (Figure 24). She utilized materials such as chrome, steel, and glass, which were considered revolutionary for their time. Gray's architectural works also demonstrated her affinity for abstract art, with clean lines and minimalist aesthetics that embraced the essence of abstraction.

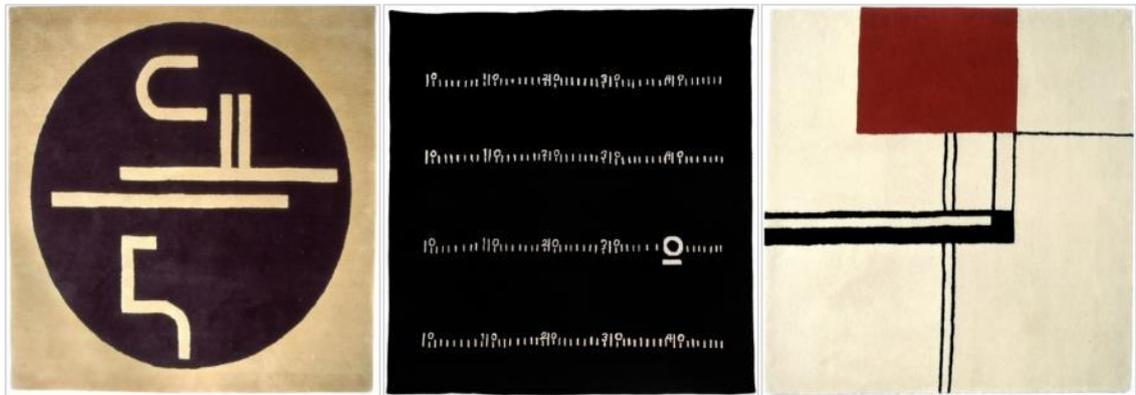


Figure 25: *Eileen Gray frequently integrated abstract patterns and motifs into her furniture designs, showcasing her fascination with pristine shapes and geometric forms. Left: St Tropez (1920), Middle: Black Board Rug (1920), and Right: Wendingen (1920) by Eileen Gray.*

### Futurism: A Vision of Tomorrow

Futurism, sprung from the dynamic shifts of the 20<sup>th</sup> century, encapsulates the spirit of an era transfigured by technology. It's a movement intrinsically linked to the epoch's industrial fervor, reflecting a community intoxicated by the thrill of velocity and the wonders of scientific progress. Futurism foregrounded a critique of the past's stagnant aesthetics and championed a future punctuated by the rhythms of machines and the allure of velocity (Childs, 2016).

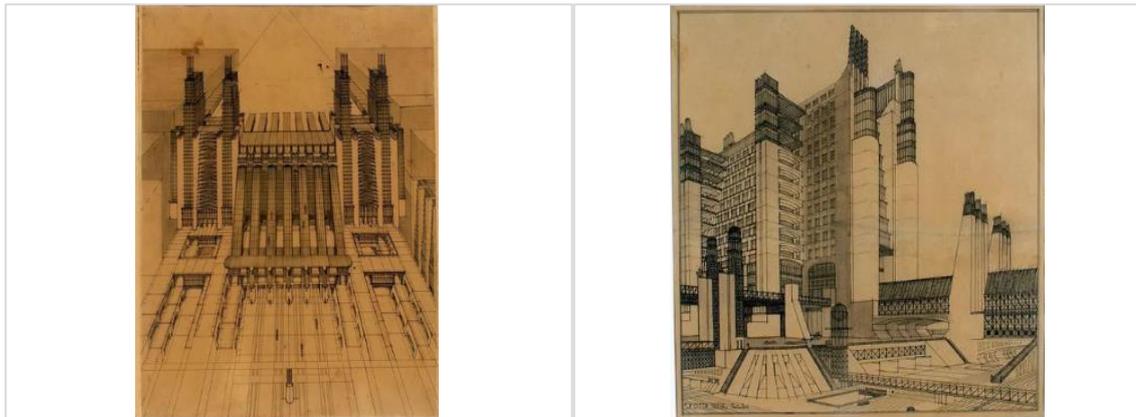
This movement, championed by figures such as Filippo Tommaso Marinetti and subsequently, Giacomo Balla, saw technology as the principal engine driving societal evolution. Futurist art was intoxicated with the dynamism of the time—its visuals echoed the bustling cadences of urban growth and the exhilarating pace of human invention (Ran, 2009).

Giacomo Balla epitomized the fusion of Futurist philosophy with artistic practice. Through his canvases, Balla extrapolated the kinetic energy of life, employing repetition, fractured forms, and a vibrant palette to construct visuals teeming with movement and flux. His works, reflective of the movement's appetite for modernity, distilled the sensory overload of an era at the zenith of industrial acceleration.

Futurism's enduring impact is evident not just as a historical footnote but as a philosophical guidepost for contemporary creators. It remains a clarion call for the impassioned pursuit of innovation, an inspiration beckoning artists and designers to perpetually reach forward, propelled by the inexorable momentum of human progress and the infinite possibilities it holds.



**Figure 26:** Left: *In the Evening, Lying on Her Bed, She Reread the Letter from Her Artilleryman at the Front* (*Le Soir, couchée dans son lit, elle relisait la lettre de son artilleur au front*), published in *Les Mots en liberté futurists* (1919). Right: *A Tumultuous Assembly. Numerical Sensibility* (*Une Assemblée tumultueuse. Sensibilité numérique*) published in *Les mots en liberté futurists* (1919). Both of them are created by Filippo Tommaso Marinetti.



**Figure 27:** Left: *Air and train station with funicular cableways on three road levels* from *La Città Nuova*, 1914. Right: *Housing with external lifts and connection systems to different street levels* from *La Città Nuova* (1914).

Futurism's significance lies in its departure from traditional art and its emphasis on the dynamism and technological advancements of modern society. It paved the way for new artistic expressions and impacted various art forms. Futurism inspired designers to incorporate innovative techniques and dynamic patterns in their creations. It brought a fresh perspective to architecture and design, fostering a futuristic aesthetic. Futurism's influence on society can be seen in its reflection of the rapidly changing world and technological progress. It provided a platform for artists to express the essence of modern life and its challenges (Dixon, 2015).

### 1. *Futurism and Giacomo Balla: Art Nouveau Visionary*

Futurism, indeed a vanguard of modernism, channeled the new age's spirit through its bold celebration of modernity and technology. Filippo Tommaso Marinetti orchestrated this celebration, advocating for a break from the past to embrace the energetic pulse of industrial advancements. Among the luminaries of this movement stood Giacomo Balla, whose adept hand and vision placed him at the forefront of the Futurist endeavor.

Born into tradition yet not bound by it, Giacomo Balla (1871-1958) imbued his paintings with a novel force—motion. The velocity and fervor of the modern epoch were his muses. His art became synonymous with life itself, perpetually in motion—fluid, dynamic, ever-changing. With a palette that sang with vibrant colors and forms that danced in geometric jubilation, Balla's style invoked rhythm and movement, redirecting the viewer's eye across the canvas in orchestrated waves of motion, an exhortation of life as a constant flux (Figure 27).



Figure 28: Left: *Velocità astratta + paesaggio*, 1914. Middle: *Complesso plastico di frastuono + velocità (Linea di velocità)*. Right: *Farfalle in movimento e fiori futuristi*, circa 1924-25. All are created by Giacomo Balla.

Balla distanced himself from static representation—in his oeuvre *Velocità astratta + paesaggio*, *Complesso plastico di frastuono + velocità*, and *Farfalle in movimento e fiori futuristi*, the notion of stillness gives way to a dynamic symphony of shapes and hues that defy the confines of time and space. This approach is quintessentially Futuristic—taking that which is kinetic and rendering it tangible through art.



Figure 29: Left: *Dynamism of a Dog on a Leash*, oil on canvas (1912). Middle: *Abstract Speed + Sound* (1913–1914). Right: *Street Light* (1909). All are created by Giacomo Balla.

In renowned works like *Dynamism of a Dog on a Leash*, Balla deconstructed motion to its core, almost scientifically, through a succession of images that serve as frames in a film strip, capturing every infinitesimal movement. Similarly, in *Abstract Speed + Sound* and *Street Light*, he pursued the abstraction of speed and illumination, rendering sensory experiences of the urban landscape onto the canvas with fervor and precision.

Balla's night bathers and the agile hand of a violinist break free from the rigidity of form; they extend beyond the canvas, compelling the audience to see the world as Balla did—a confluence of relentless motion and progression. It is as if through his brushstrokes, we perceive the world in staccato sequences of vibrant, immersive lives lived at the speed of the era's pulsating technology.

Indeed, figures such as the Cassina 330 and decor elements in his later design works reflect a seamless transition from canvas to living space, wherein Balla's principles of dynamism infiltrate everyday objects, transforming static furnishings into embodiments of the Futurist ethos. Moving toward the discussion, it is necessary to delve into the lasting reverberations of Balla's contributions. His influence permeates the art world even today, echoing through the halls of modern design and beyond, a testament to his innovative foresight and the symbiotic relationship between human creativity and the machinery of progress.



Figure 30: Left: Cassina 330, PARAVENTO BALLA (1917). Middle: Side tables, wardrobe, rug, and ceramic plate, ceiling light (1921), Right: The corridor ends in the Studiola Rossa (1921).

## Discussion

The intricate dance between art and technology across the eras highlights a symbiotic evolution—a progression where each domain perpetually informs, influences, and transforms the other. From the geometric complexities of Cubism to the sinuous lines of Art Nouveau and the dynamic energy of Futurism, the interplay of technological advancement and artistic expression is not simply correlative; it is causative, symbiotic, with each realm propelling the other toward new paradigms of thought and creation. This article, traversing the trajectory from Pavel Janák to Giacomo Balla, underscores how art has absorbed technological changes and mirrored these back through the prism of design. Figures like Janák did not merely design buildings and furniture within the aesthetic confines of Cubism; they reconceptualized the very building blocks of architecture and design, harnessing technological innovations to shape not just art and design but the very experience of space itself.

The birth of Art Nouveau, as both a rejection and a result of the Industrial Revolution's mass production, illustrates art's resilient capacity for self-reinvention. In a paradoxical twist, the very technologies and processes that alienated the artisans heralded a new art movement that embraced the organic and the unique. Artists and designers like Charles Rennie Mackintosh exploited new manufacturing possibilities, pushing the boundaries of materials and crafting methods to reintegrate art into the rhythm of daily life.

Abstract Art, amidst the tectonic shifts of the 20<sup>th</sup> century, not only captured the tumult of the subconscious but also aligned with the period's scientific curiosities about the nature of reality and perception. This period witnessed an introspective turn in art, enabled by new inventions and psychological theories which, in tandem, challenged and reframed the artist's approach to color, form, and composition.

Futurism's relationship with technology was perhaps the most overt, with the movement actively celebrating and incorporating the narrative of mechanization and modernity into its soul. Giacomo Balla, in his artistic endeavors, showcased a zealous embrace of movement and transformation—a visceral echo of the sweeping changes precipitated by technological progress. His works are a testament to the inexorable influence of the machine age on human creativity.

As we stand in an age defined by digital revolutions and artificial intelligence, the implications of these historical interplays between art and technology become ever more salient. The burgeoning fields of digital art, virtual reality, and algorithm-based design are contemporary frontiers where this dance continues, rooted in the legacy of visionaries like Janák and Balla. They have set a precedent for aesthetically assimilating technological change, thereby shaping societal and cultural experiences afresh. The case studies presented in this piece—from the fragmentation of form to the abstraction of function—reveal a pattern of adaptability and progress that is inherently human. Whether it be through the crystal textures of Cubist furniture, the whiplash curves of Art Nouveau's architecture, or the vibrant speed captured by Balla's Futurist brush, art has consistently refracted the technological into the aesthetic, moving society forward into uncharted, yet invariably beautiful, territories.

This article thus serves not only as a retrospective on the profound rapport between art and technology but also as a prologue to an ongoing narrative that continues to shape the vanguard of design and culture. The artists and movements discussed here have laid a foundation that continues to inspire, challenge, and guide contemporary creators as they navigate their own relationship with the technology of their time. In the grand story of art, the influence of technological innovation—past, present, and future—remains one of the most powerful brushstrokes on the canvas of human history.

## Conclusion

As we have journeyed through the transformative synergy of art and technology, from Pavel Janák's geometric interpretations to Giacomo Balla's dynamic abstractions, we stand witness to the profound reciprocity between the advancements in technology and the evolution of artistic expression. This narrative, chronicled through critical moments of artistic metamorphosis, demonstrates that art, in its purest form, is an ever-evolving dialogue with its sociotechnical environment. The eras of Cubism, Art Nouveau, Abstract Art, and Futurism have each contributed significantly to this dialogue by harnessing and responding to technological stimuli in their unique ways, fostering a fertile ground for the rise of unorthodox aesthetics and pioneering design practices. The artists and designers of these movements did not merely adapt to the technological currents of their times; they rode these waves with avant-garde fervor, often leading the charge into unexplored creative realms.

Cubism dissected the solidity of three-dimensional forms, giving visual form to the multifaceted perspectives of modernity, while Art Nouveau's organic curvilinear designs offered refuge from the industrial era's mechanical rigidity. Abstract Art's introspective departure from the representational charted internal landscapes amidst rapid external technological proliferation. Meanwhile, Futurism embraced the visceral, kinetic energy of an age captivated by the industrial wonder, mechanization, and the speed of life itself. The crucial insights gleaned from the discourses of Janák and Balla reveal their shared quest for artistic innovation, spurred by the reflective and perspective-altering contributions of their respective movements. Their work did not stand aloof from technology; rather, it interfaced with it in the most intimate manner, reflecting the contemporary revolutions and paving the way for future exploration and cross-pollination between different artistic mediums and technological tools.

In light of this historical exploration, one can assert that the relationship between art and technology is not a mere juxtaposition but an integral part of the human endeavor to capture, understand, and manifest our collective experience. It is a partnership that fosters the redefinition of perspective, challenges preconceived notions, and transcends barriers, enabling us to envision the world not solely as it is but as it could be. As we continue to venture forward in the digital age, filled with its own unique set of tools and challenges, the legacy of these trailblazers assures us that art will persist as a fundamental and innovative interpreter of our experience in the face of continuous technological change. The conversation between the aesthetic and the technological thus endures—with each new development in technology, a parallel evolution in art emerges.

Therefore, as we contemplate the future intersections of art and technology, let us do so with the recognition of their intertwined history—a dynamic coalescence that both honors tradition and anticipates new horizons in design. The canvas of the future lies before us, vast and uncharted, yet it is upon the scaffolding of history that we will continue to craft the masterpieces of tomorrow.

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