



Arts in the Digital Age

Scoping of the digital arts and culture scene in Jordan

March 2022

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Acknowledgements

Interviewees and representatives from sub-sectors in the creative industries namely visual arts, music, performance arts, architecture and design and photography participated in the realization of this scoping. The British Council in Jordan and artmejo express their gratitude to all the participants who generously contributed their time in order to ensure that this document reflects a broad spectrum of opinions, experiences and case studies.

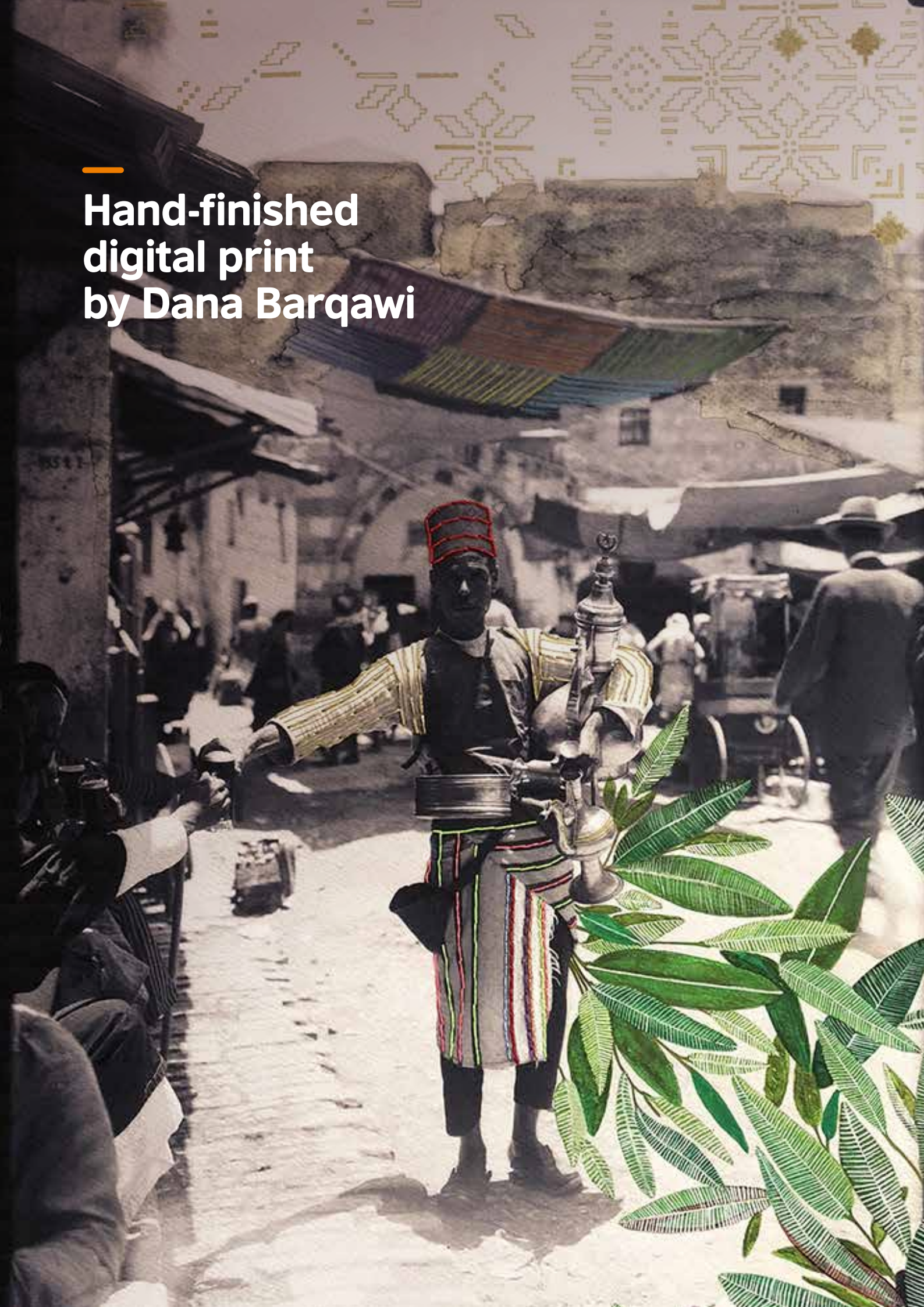


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**Hand-finished
digital print
by Dana Barqawi**



Foreword

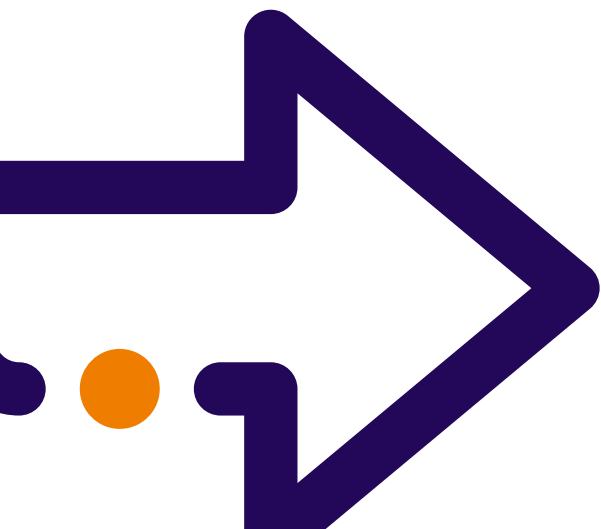
The British Council is the UK's international cultural relations organisation. We build connections, understanding and trust between people in the UK and other countries through arts and culture, education and the English language. We've been doing that here in Jordan since 1948 through our office on Rainbow Street in Amman.

One of the core pillars of our work in Jordan is arts. Through our arts and culture programmes we connect arts organisations and cultural leaders in the UK with their Jordanian counterparts. We build intercultural confidence and competence of creative professionals and organisations, enabling them to collaborate internationally. We change attitudes towards major global challenges, particularly attitudes of young people, through access to culture and creative expression, including the protection of cultural heritage and social inclusion. And that's what drove us to instigate new models of collaboration between arts and digitalisation, building on our research and innovation with the aim of developing new communities of practice and increasing UK-Jordan links and initiatives in the arts.

The title of this report, Arts in the Digital Age, is the subject of a research commissioned by the British Council in Jordan to explore the definition and reality of Digital Arts in Jordan. In direct response to consultation with local artists, organisations, and cultural practitioners, this area has been identified as a priority for the British Council.

Arts in the Digital Age aims to explore how digital technology can affect and promote artistic creative practice and production in Jordan; its role in developing more diverse audiences, and in return, how the cultural and artistic sector can unleash the creative side of the technology industry.

Following the crisis of Covid-19, the arts and cultural sector globally witnessed a shift towards digital and hybrid programming, signalling the importance of developing capacity in this area to respond to any skillset shortage. We wanted to take an evidence-based approach to better understand the landscape and to map out this loosely defined area so we could narrow down the scope and priorities that sit under the heading of Arts in the Digital Age.



A summary of the findings of this scoping exercise, conducted by artmejo, has already been presented during the UK-Jordan Arts in the Digital Age Online Forum which the British Council organised in February 2022. The forum helped facilitate exchanges of expertise and ideas between Jordanian and UK professionals, artists and entities with a focus on digital arts.

Our vision is that this report, and connections made from the forum, will help improve conditions for arts and digital collaboration between the UK and Jordan. We want to encourage other stakeholders and organisations in Jordan to examine the findings of this report and work with us on future recommendations.

This scoping research and the online forum constituted our first attempt at the British Council to understand the relationship between arts and the digital age in Jordan.

It is clear that the definition of digital arts and practice can differ considerably between the Jordanian and UK context. However, there is a consensus on the need and desire to connect, learn and co-create more opportunities for collaboration which we at the British Council will support in partnership with Jordanian arts and cultural organisations and leaders.

I want to thank artmejo for conducting this research on behalf of the British Council and all our stakeholders and partners for taking part in the interviews, surveys and validation meetings.

We hope you find the report stimulating and helpful and we encourage you to make use of the analysis and findings to support the further development of arts and culture in Jordan in this digital age.



A stylized, handwritten signature in black ink, consisting of a series of loops and a long horizontal stroke.

Summer Xia

*Country Director, British Council,
Jordan and Levant Cluster Lead (Iraq, Jordan,
Lebanon, Occupied Palestinian Territories,
Syria, Yemen)*

Introduction

This research has been commissioned by the British Council in Jordan, prepared by artmejo led by Hind Joucka as the consultant.

The information contained within this document came as a result of scoping of the local cultural scene in Jordan and its adoption of digital technologies within its practice through one-to-one interviews, surveys and a virtual validation meeting with practitioners from each sector.

Through conversations with key stakeholders in the culture sector namely visual arts, music, performance arts, architecture, design and photography, this document aims to present the following:

1. Establish an understanding of the creative industries in Jordan and modes of its merging of digital technologies within its practices, programming, curation and dissemination.
2. Identify the key challenges and needs that are currently facing the sector when employing digital technologies.
3. Establish opportunities for growth led by the British Council in Jordan in addition to actions that can be proposed and implemented jointly with a range of stakeholders.



Executive Summary

This report aims to analyse the creative scene in Jordan and its use of digital technology within its practice. It focuses on the understanding of digital art's definition in the local scene and how digital technology has been impacting artistic and creative practice. The research will inform the future plans of the British Council in Jordan's arts programme in building a lasting benefit to the Jordanian arts and cultural sector through evidence-based programming that builds mutually beneficial partnerships and exchanges with the UK cultural sector.

What does digital art mean to creatives in the scene? How are creative practices being developed through the incorporation of new technologies? We will look into examples of digitally produced visual compositions, music productions, manufactured designs and activities that have been hosted across the kingdom to encourage these productions. Contributing to about 12 per cent of the national GDP, Jordan's ICT has developed into one of the leading sectors in the region,¹ but how has this translated into the arts and culture industry? Has technology affected the quality of creative projects produced? Within all the various art sectors, we will find different calibers of creative output with different camps supporting and criticizing them.

We can't talk about digital art without going into the recent changes in NFTs (non-fungible tokens) on blockchain technologies. NFTs have been making headlines as many creators join the hype to profit from it amid the rush to mint, sell, and trade these NFTs among art enthusiasts. Artists around the world are becoming part of the movement and selling their unique digital art on these platforms. Has this reached local creatives? To what extent? A handful of local artists have been promoting their sellable NFT artworks on social media platforms, but to what extent is it working for them and will we see a rise in more artists joining them in the coming years?

This paper also looks into the impact and implications of the pandemic on creative practices, and how it has affected the way cultural practitioners and institutions have responded in the way they produce, curate, and disseminate their work to their audiences. Creatives started publishing their work online through social media platforms such as Instagram, Youtube and Facebook, which has opened doors for them to reach bigger audiences.

What are the challenges and opportunities that lie within digital media being incorporated within creative practice? How can the technology sector collaborate with the arts and culture sector to limit some of these challenges?

1. Art and digital

1.1 What is digital art?

Digital art, once called computer art or new media art, usually refers to art made using software, computers, or other electronic devices. Anything produced or made through digital media, such as animations, photographs, illustrations, videos, digital paintings, and such can be classified as digital art. Digital art is defined as an artistic work or practice that uses digital technology as part of the creative or presentation process.

Despite the rising popularity of digital art and its advantages over traditional art on an international level, it is still unclear what the impact digital art has on creative production by artists today.

Compared to traditional art, the most significant advantage of digital art is its convenience. Many artists started learning traditional art when they were young but have gradually spent more and more time on digital art. These artists shared similar opinions that the biggest advantage of digital art is its convenience. The artists can bring their iPad anywhere and not worry about any extra overspending. It is easy to publish and share the works via social media once they are done. The works can be printed in many places: shirts, mugs, and so on. Most importantly, it is easy to correct any mistakes during the process. Digital art is also more viable than traditional art considering economic cost and potential incomes.

Globally, there has been much debate and varying opinions on whether or not digital art counts as real art. By 'real', we mean that the end product uses actual physical items and is made using physical tools.

This conversation extends beyond that, where discussions pertaining to the legitimacy of the art rather than its tangibility undermine the creative process of producing art digitally.

Digital art started in the 1960s as a new form of media art. Some artists and historians think that digital art is a new way of using machines to create art and traced back the starting period of digital art to the beginning of the 20th century. The first use of the term 'digital art' was in the early 1980s when computer engineers devised a paint programme which was used by the pioneering digital artist Harold Cohen. This became known as AARON, a robotic machine designed to make large drawings on sheets of paper placed on the floor.

Computers and technology are playing an increasingly significant role in our creative activities. And as technology evolves, its uses to create art grow with it. It goes from digital photography, to illustrations produced on tablets with drawing software, to images made or generated by an autonomous system based on algorithms. Technology can even be a creative entity on its own, a subfield of artificial intelligence which is called computational creativity.

More and more types of digital art emerge as technology advances. Up until recently, digital art has become a part of daily life and greatly impacts traditional art. Some common types of digital art include 2D Computer Graphics, Digital Photography, Photo-painting, 3D Computer Graphics, Pixel Art, Digital Photography, Digital Collage, 2D Digital Painting, and 3D Digital Painting.



1.2 The global digital art market

The global online art market consists of buyers and sellers trading via the internet in works of art, antiques, digital artworks, and collectibles that are commonly associated with the arts and culture sector. Online transactions represented around a tenth of the global art market value in 2019², however, this changed drastically in the wake of the Covid-19 pandemic. While the total art market value dropped by nearly US\$14 billion in 2020 over the previous year, total sales of the online art and antiques market³ roughly doubled, reaching over US\$12 billion and accounting for almost a quarter of global sales.

On a wide scale, digital exhibits are becoming increasingly popular in international museums and art institutions. It increases the world-wide accessibility of those iconic works, and it's a way of keeping up with this digital age and delivering new experiences to a more tech-savvy audience.

Case studies from the global digital art market

Bassins de Lumières

Founded in Paris, France, in 1990, Culturespaces is the largest private organisation managing public French museums and one of the key players in Europe's cultural landscape. What makes the Culturespaces art experiences so distinctive is the adaptive re-use of old public spaces and the transformation of these infrastructures into innovative giant video canvases.

In 2016 the French cultural organisation communicated on its first agreement with Barco on the supply of 170 video projectors to enable immersive multimedia experiences at Carrières des Lumières museum in Les Baux-de-Provence, and Atelier des Lumières in Paris.

And last year, they opened a new exposition, called Bassins de Lumières, in Bordeaux, France. The digital art museum rotates exhibits on classic painters. The works are being brought to life by more than 100 projectors as a visually astounding spectacle, and audio tracks from classical musicians accompany the sensory-immersive experience.

ARTECHOUSE

In 2017, noticing a lack of resources available to artists who are using new technologies to create, co-founders Tatiana Pastukhova and Sandro Kereselidze debuted ARTECHOUSE. This first-of-its-kind innovative art space, with permanent locations in DC, Miami, and NYC, is home to 21st century artists who work with innovative technology and new forms of creative expression. One of the artists they like to work with is Refik Anadol. This media artist loves to experiment with large-scale installations of light and projection, but also uses artificial intelligence as an artistic tool. He's well known for working with data visualization and creating data-driven work. In his 2019 work 'Machine Hallucination', for instance, you'll see a 30 minute video of an AI machine that processes millions of architectural images of the iconic New York City skyline and visualizations of the open source data about this city.





ICDBrookfield Dubai

The ICD Brookfield Place Arts programme serves multiple purposes. First and foremost, it's an opportunity for us to discover and support local and regional talent, shining a light on both emerging artists as well as more established talents through our year-round programming. No matter what time of year you come to ICD Brookfield Place, there will always be something exciting to see, whether it's an art exhibition, live music concert or workshops and conversations around the biggest trends of the day.

In early 2022, ICD Brookfield Place in Dubai hosted Jason Seife, a multifaceted master of drawing, painting and graphic art. 'Generascope' is a first-of-its-kind exhibition that brings together both the physical and digital worlds by merging hand-painted images – which hark back to the beautifully intricate patterns of old Persian rugs and carpets – with a reflection algorithm created in collaboration with developer Andrew Cassetti.

This offers exciting new perspectives on Seife's work and blurs the boundaries between how we interpret analog and digital art.

The inspiration behind 'Generascope' stems from Jason's interest and research into NFTs, or 'non-fungible tokens', which have recently taken the art world by storm. The reflection algorithm creates uniquely-generated interpretations of Seife's work, which are then put up for auction as NFTs for fans and art lovers alike.

The exhibition itself will feature large-scale digital animations of these unique artworks, as well as a selection of Jason's own paintings and more.

2. Creatives and digital technologies in Jordan

2.1 Visual arts

On a local level, the definition of digital art is that it uses technology in its production and its exhibition. It could be transferred to or consumed in the digital realm, and it could be either physical art that is digitized or art that is generative; created through a computational formula. Generally, most of the local interviewees identify digital art as just another medium of art.

Artists in the kingdom are apprehensively dipping into the trend and the scene has been seeing new experimentations within that realm. Digital technology is impacting creative output positively, providing more space for artists to develop their practice. The initial costs of equipment may be more expensive than traditional art, but the long-term costs are close to nothing, and can present infinite numbers of reproduction amendment and customization.

Experimentations in digital art are becoming more substantial, but adherence to the media is minimal. Some artists working in digital art explore certain concepts and themes that fit into the digital arts model such as video installations and audio recordings. These artists create a concept and then implement it in the media most consistent with the theme, either digitally or in any other way that is relevant to the production of the project.

Case studies

Andrei Snobar, founder of Andrei Visuals

Andrei Visuals is an artist collective and creative company based in Amman, Jordan. They have been working as an interdisciplinary team of architects, visual artists, musicians and technical experts from various fields. Together, they develop bespoke media installations for public spaces, including architectural mapping, augmented sculptures, immersive concepts and interactive visuals. They turn visuals to stories that find their expression in vivid, contemporary artwork. By experimenting with the syntheses of digital media and material objects and spaces, they discover new forms of artistically conveyed studies of a living environment that is ever-changing. The company works with commercial entities to create these digital installations, and have never been exhibited in galleries within the traditional sense of hosting an exhibition.



'FLUX', exhibited at Amman Design Week, 2017

Image © Andrei Snobar





Plan for Greater Baghdad by Ala Younis at the Venice Biennale. Courtesy la Biennale di Venezia

Image © Alessandra Chemollo

Ala Younis

Ala Younis is an artist with curatorial, film and publishing projects. Using objects, film and printed matter, Younis often seeks instances where historical and political events collapse into personal ones.

Alaa's work defies conventional standards of what is and isn't considered 'real' art. Her work incorporates 3D digitally printed sculptures within her interventions in order to push the boundaries of traditional art.

According to her, this too is considered art, and deserves to be exhibited in galleries and museums despite what local critics think.



Meet Me Here 8, Plexiglass Print & Augmented Reality Video, 2019

Image © Shaun Rabah

Shaun Rabah

Shaun works predominantly in video and augmented reality art experimenting with 'phygital' art.

His work merges his art on canvas with video, where he urges viewers in a physical exhibition to explore his work through the use of an augmented reality app that adds a digital layer to the traditional artwork, bringing it to life.



(x)odus, virtual reality installation

Image © Solenne Tadros

Solenne Tadros

A creative technologist, designer, artist, social activist and storyteller, Solenne uses various mediums to construct her projects. From physical computing and graphic design to coding and most recently, exploring the applications of 3D modeling and virtual reality.

She has been featured in international exhibitions in Rotterdam and New Orleans and publications such as Vogue, Mille and Womana and has recently exhibited her work in her home country Jordan at Wadi Finan Gallery.

The other side of the spectrum is much more extensive, where artists use computer softwares to create artworks such as portraits, landscapes and collages digitally to be produced and exhibited physically. They explore concepts and themes within this production process and disseminate to galleries and museums. This is the case, even though according to the majority of our research interviewees, digital artists in Jordan feel underrepresented in galleries and physical art spaces.

Established galleries and museums in the city are yet to recognize the full potential of digital art in comparison to what is called 'traditional arts' which includes sculpture, paintings and installations.

Few have recently been embracing alternative media like video and sound installations after recognising the worldwide shift in contemporary art movements. The reluctance lies mainly within for-profit galleries that survive on sell-able art to clients and collectors.

Gallerists and curators work on presenting artists whose work audiences will be interested in seeing and potentially acquiring in order to ensure an economically sustainable business revenue model for their art practice - the more it is in demand, the higher the chances of exhibiting it.



I don't see digital art as an art, because of the value of it. I'm a traditional person, when I see a painting or a sculpture I appreciate it more. As collectors, people share my perspective and would rather invest in 'real' art.

Gallerist

Digital art is still not in high demand, because of its valuation. It is art mostly created by emerging, up and coming artists which puts it at the base of its value, it can be recreated and reproduced which affects its uniqueness and originality, and it does not include material found in other 'original' artworks. The local scene seems to be stuck in a loop of supply and demand, where artists focus on 'original' artworks and create art that they think will be sell-able in order to ensure sustainability.

Here lies the question of audience development for digital productions. Globally, the biggest art market in visual arts is the modern art market which includes artistic work produced during the period extending roughly from the 1860s to the 1970s, and denotes the styles and philosophies of the art produced during that era. Within this era, artworks mostly employed media such as oil, acrylic and mixed media on canvas. International and Arab modern art remain to be the highest valued artworks, only accessible to an elite audience who can afford them.

While audiences in Jordan do not necessarily focus on international and Arab modern art, audiences are still more perceptible towards 'original' or tangible art that is primarily oil on canvas, acrylic on canvas, or charcoal on paper. Local collectors are reluctant to purchase digital artwork as investment art, for its ability to be replicated and edited digitally.

This has led some Jordanians to move into multimedia art. Adding hand-finished touches and paint on printed digital artworks has been a driver for more audiences, specifically young collectors to start appreciating this artform. Adding hand-finished elements includes unique, specialized aspects to the final artwork and limits the aspect of reproduction into limited editions.

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**Hand-finished
digital print by
Zaina El Said**





Hand-finished digital print

Image © Zaina El Said

Zaina El Said

Zaina began painting, mainly drawn to geometry and calligraphy, but it wasn't until 2014 that she took a major turn and delved into the world of collage art. Using different material on canvas was a starting point which led to creating whole pieces from cut out magazines, newspaper, CD covers and any available material she found. It was the different textures and eclectic and surreal result that she was drawn to achieve. Collage art was a way to assemble worlds from already existing places and people. Moving forward with the collage technique, Zaina switched to digital collage and transformed her works to digital, and mixes both digital and hand cut finishes in her works.



Hand-finished digital print

Image © Dana Barqawi

Dana Barqawi

A young emerging artist, Dana's work brings old photographs from Palestinian archives to life by adding her digital art to them to tell a story. She includes gold leaf paper, paint and sometimes embroidery finishes. Growing up with women who painted, sewed, designed and made art, Dana extends herself through artistry and has a long-standing fascination with detail.



Hosting digital art as part of exhibitions in private and public institutions is no easy feat. We lack the technical knowledge and facilities to have that background but would like to have more installations as part of an exhibition to give an experience, to share knowledge and provide awareness.

Gallerist

Activities in digital visual arts

In Jordan, private galleries expressed their initial hesitation to adopt exhibitions displaying digital art, however, some are already being the frontrunners in representing new media and NFT artists and have started to adopt phygital art, which is a hybrid of physical and digital productions. Similarly, public institutions such as museums and foundations based in the capital city have felt that they need to quickly adapt to new trends and have started creating events, talks, festivals and workshops to provide platforms for new age media. Here, museums and foundations have a pressing question of relevance to the global art scene and where they fall into that.

While these activities mainly represent Jordanian artists, creatives exploring digital media within their work are primarily from other Arab countries in the region.

Essentially, exploring the chances for presenting digital art has proven difficult for most institutions, as they expressed a lack of knowledge in producing, curating and implementing digital programmes. Most do not have the technical expertise or the correct contacts for technical consultation.



Darat Al Funun

The Dara has been holding online and offline talks since 2017 about the nature of painting in a post-internet age, and how imagery is being increasingly created and consumed digitally. The conversations with prominent artists aimed to answer questions such as what direction is painting going today? Are there any schools of art or reviving movements in painting? How do painters situate themselves in and influence this context and age?

One of their recent online talks hosted pioneering artist, writer, activist and programmer, Samia Halaby who recently released her first NFT collection, titled the YAFA series. A homage to the city of her childhood, the work is a group of stills harvested at various dates from a programme she wrote in C language between 1992 and 1996. In this conversation, Halaby will speak about her recent ventures into blockchain technology, the politics around digital art, and her long history with technology.

By the mid 1960s, she launched a series of experiments that would initiate a career-long investigation of the materialist principles of abstraction: how reality can be represented through form.

Also influenced by the abstract movements of the Russian avant-garde, Halaby works with the conviction that new approaches to painting can redirect ways of seeing and thinking not only within the realm of aesthetics but also as contributions to technological and social advancement. Her work presents experiments in drawing, printmaking and computer-based kinetic art.

The Dara have also introduced Palestinian artist Haitham Ennasr's online project Nothing Old, Nothing New, consisting of a collection of experimental interactive video games installed onsite, drawings, text, and objects developed over six years.

Factory, by The Jordan National Gallery of Fine Arts

The Jordan National Gallery of Fine Arts, is a major contemporary art museum located in Amman, Jordan. Established in 1980 by the Royal Society of Fine Arts, the museum's permanent collection comprises over 4000 works including paintings, prints, sculptures, photographs, installations, weavings, and ceramics by more than 800 artists from 59 countries mainly in Asia and Africa.

Mainly focused on modern and contemporary visual arts from the region, the museum introduced a new platform in the fields of contemporary art, innovation and research called platform in 2018. The platform held its first festival in the same year, for new media art where prominent and emerging artists exhibited various experimentations based on the theme 'In th Margin'. The theme highlighted artists and art forms that were considered secondary and not given much attention, and provided spaces and equipment for artists presenting digital media such as video projection rooms, screens, speakers, microphones readily available for various works. The festival included a seven day programme featuring performances, concerts, talks, theater and workshops, with a collective exhibition by local and international artists. According to the director of The Jordan National Gallery of Fine Arts Dr Khaled Khreis, they wanted to recreate the image of the gallery from the archaic to the contemporary by bringing in emerging artists and younger audiences to their space in Jabal Al Luweibdeh. The team sought after artists working with new forms of art in order to give them opportunities to showcase their work, as well as present their audiences with novel artistic investigations. The average age of the gallery's usual audiences was between 40–60 years old, but according to Dr Khreis, the 70 per cent of the audiences that attended the festival were between 20–28 years old.

Following the success of the first edition of the festival, the gallery created another one in 2020 which presented the theme 'In/Out'. They will continue to represent digital artists within their capacity in technical resources and tools.

Private Galleries

In 2022, Amman boasts more than 11 privately-owned art galleries that work to champion Jordanian art and artists as well as feature regional and international artists. While rarely, galleries do exhibit digital art produced physically, however only one gallery so far created a dedicated showcase for new media and computational art. Wadi Finan Art Gallery, established in Amman, Jordan in 2008, sits as a major cultural vehicle locally and abroad. Owned and runned by Suha Lallas, the gallery hosted an augmented reality, digital art, virtual reality simulation and NFT experiences by artists Shaun Rabah, Solenne Tadros and Marah Zada earlier in February 2022. Visitors were excited to artist productions that are so fresh and out of the box, even though there was a steep learning curve to educate audiences on what NFTs are and how a virtual simulation works.





Modern sounds are what is required right now, there's a huge following for digital music. People travel to watch them. Not using digital technology is no longer an option.

Jordanian musician

2.2 Music

While visual arts and design remain to be the key players as part of the creative industry incorporating digital technologies within their practice, the performance arts sector has been working with tech since the early 2000s. That was when electronic and techno music were on the rise and local promoters started hosting electronic dance music events.

Today, the contemporary music scene in Jordan is flourishing, from independent musicians to bands, underground gigs and festivals that often take place in Amman, Petra, Wadi Rum and Aqaba. The country's talents reach competitor countries in the regional industry such as Lebanon and Egypt on yearly basis and often perform in major cities like Berlin and London with some sold out performances. Collectives, producers, electro DJs, and venue owners have curated a distinct alternative music scene, with a healthy mix of international and local talents, jumping genres from electro to funk to hip hop.

The local music scene has actively adopted digital technologies within music production, recording and dissemination as resources slowly become available in Jordan. Recording studios are often independently owned and run by individual musicians and rented out to peers in the scene. Individual musicians find alternative ways to equip themselves with audio interfaces, musical instruments, and samplers to perform and produce a variety of genres.

Within more mainstream music practices, the question of analogue versus digital arises. There are musicians who are loyal to the physical vibration of a musical instrument or even the heat from vacuum tubes in a guitar amplifier, and in contrast there are the non-traditional music creators trying to break the boundaries of familiar sounds to create music from a series of digital algorithms sampled on a pad and modulated to create a musical loop to sing onto. There are a variety of digital assets that get used here, some of which are known as Electronic Digital Instruments (or EDI) and Virtual Studio Technology (VST), which are musical instruments that use programmable software to play music.

A handful of Jordanian musicians use MIDI controllers, which stands for Musical Instrument Digital Interface. It's a way to connect devices that make and control sound such as synthesizers, samplers, and computers so that they can communicate with each other, using MIDI messages. This lets one keyboard trigger sounds on another synthesizer, and it makes it possible to record music in a form that allows for easy note editing, flexible orchestration, and song arrangement. Virtual instruments like computer programs that simulate hardware synthesizers and samplers also communicate with computer sequencing software running on the same computer using MIDI messages.

Learning how to produce and record music became readily available online through Youtube videos and musicians in Jordan seized that opportunity to be able to produce their music in their bedroom rather than booking studio time. This is true for the whole spectrum of music genres found played by local musicians in Jordan. Furthermore, it opened opportunities for people who don't play a physical instrument to create music. For example, you don't need to be a violinist to create a string section in your song, when you can use a series of virtual instruments and MIDI patterns to digitally recreate that. These digital assets have catalyzed the rate of growth of music production in Jordan and gave rise to the evolution of a new type of musician.

Recording in analogue is when we capture sound in a way that represents all the possible frequencies, whereas when we use computers to translate the sound into a series of numbers that approximate what we're hearing, we're recording in digital.

A purely analogue recording would be something that was captured on tape and produced using manual equipment. A purely digital recording would be recorded on computer programs to later be mixed, mastered and produced digitally. Recording an album with analog technology can require a whole studio full of equipment, but with digital recording technology, it's possible to record a whole album in a bedroom on a laptop. And whereas analogue technology can wear out or be damaged, digital media can last for an indefinite length of time. Nowadays, a lot of music is a combination of the two, and audiences often do not notice the difference.

Artists face difficulties in getting their hands on the right equipment because of the lack of abundance in music stores in the country as well as the imports and customs regulations they deal with when ordering this equipment. Orders take a long time to be delivered and often get held up in customs, and variable additional charges are incurred on the imports which add up to the expenses for the average Jordanian musician.



The way I shop for musical hardware is usually to post a question on Facebook asking who's traveling back from a specific country and if they can bring me a gadget I need for a project, it's hassle-free, cheaper and even saves me a lot of time than if I had to ship it into the country.

Jordanian musician



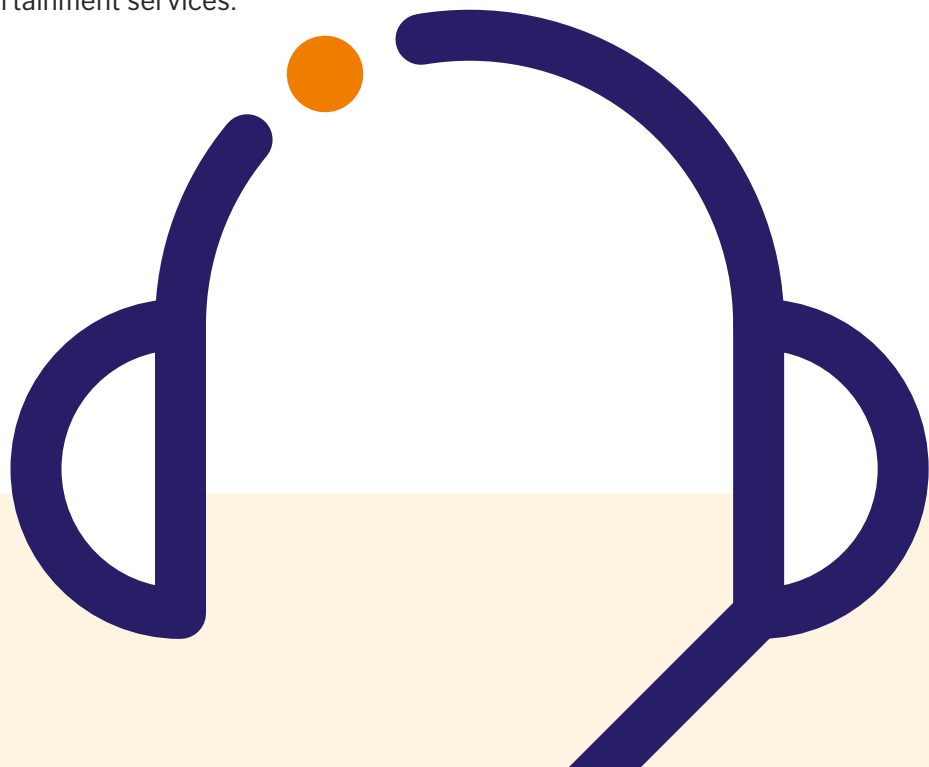
Activities in digital music

Electronic Dance Festivals

In 2003, Julian Noursi, a local Jordanian promoter created an electronic dance music festival called Distant Heat. The two-day festival was held in Wadi Rum and Aqaba. The festival brought Disc Jockey's like Armin Van Buuren and Ferry Corsten to perform for a crowd of thousands of trance fans from all over the world. The Jordan Tourism board was in full throttle to promote the festival, inviting international journalists to a seven day all-expenses paid trip to Jordan to attend the mind-blowing festival. These festivals continued until 2009, after which the scene went into hiatus. In 2017, a 24 year old visual/disc jockey and promoter Fayez Burgan opened up a brand new seasonal pop-up space called CLSTR (pronounced Cluster). This featured musicians, DJs, projection mapping screens and incredible light shows. Underground electronic music events are still happening around the capital, opening up opportunities for performances by young, up and coming talents in various venues across the capital such as Ambush entertainment services.

Goethe Institute - Mirath

Goethe Institute in Jordan launched the first phase of Mirath:Music in 2021, a regional touring sound-exhibition about the cultural heritage music in the MENA region. The exhibition takes an experimental curatorial approach with the goal to give an insight into the musical diversity of the region. Using the participating artists' individual takes on the subject and playing with musical elements from different times and places, the exhibition considers cultural heritage as something that is alive and is preserved because of its continuous and ongoing development. Musicians incorporated analogue and digital instruments within their musical productions.



Case studies

Yazan Sarayreh

Musician, singer and songwriter Yazan Sarayreh has been a full-time musician since 2016. Everything in his music is digitized (but not pre-recorded) through synthesizers meaning he plays the digital version of physical instruments like drums, guitars, piano keys, trumpet, which makes him the bassist, guitarist, singer, songwriter of all his productions.

After two years of creating a full album of songs with digital arrangements, production and virtual audio, Yazan decided to re-create the album with a physical band. According to him, looping became a bit boring and repetitive and reflected little energy in comparison to a band on stage. Brainstorming with band mates is more creative and artistic, and having more than one person on stage becomes visually more exciting for the audience. 'There's that human element and feeding off of each other, we give each other inspiration and build on it'.

Zaed Naes

Narrowing down this group's style into a genre is almost impossible, as one of the biggest independent bands in the underground music scene, Zaed Naes has been known to create experimental melodic performances since 2013. They fuse slithery melodies with groovy whirling synths, with Basel Naouri on synth and trumpet, Amjad Shahrour on bass and vocals, and Ammar Urabi on electro-acoustic drums, Zaed Naes blends contemporary electronic sounds and structures with regionally-influenced Arabic styles into a unique audiovisual project that is dark yet playful, soulful yet wild. They were one of the first bands to introduce visual projections within their performances, which back in the day was both unusual and expensive for venue hosts.

Garaseen

Garaseen was an Arabic indie electro-pop band that formed initially as a duo in 2015. The group brought new sounds to the scene and experimented with synths bringing audio-visual performances to their eager audience. They performed a sonic exhibition at the Jordan Gallery of Fine Arts' Festival Factory, including a digital visual loop installation created by artist, videographer and musician Zaid Khaled.

2.3 Performance arts

Dance and theatre

Internationally, theater and opera have long been multimedia art forms, combining traditional drama, music, and movement with lighting, sound, and projection effects. But these days, new technologies and new media are becoming increasingly visible on stages, and directors are finding creative ways to enliven and reinterpret traditional art forms.

International Case Study

RETNA x LAOpera

RETNA, born Marquis Lewis, based in Los Angeles, USA is known for large-scale paintings covered in long, geometric scripts that evoke a secret language. The artist's shapes take inspiration from Egyptian hieroglyphics, Arabic and Hebrew calligraphy, Gothic blackletter, and graffiti, among other global influences. His calligraphic murals provide the environment for the set design of Aida at LAOpera, where a major portion of his artwork was in full-stage moving panels that will help set the atmosphere, mood, and timeframe. His contribution alongside the interaction of dancers, opera singers, music, and lighting, made for a special experience in the theatrical production.

Locally, the research scoped various independent and public institutions operating in dance and theater, only few of which have started developing programmes with digital elements.

There is scarcity in digital performances that creatively employ computer technology and techniques within live theater and dance productions. Practitioners in dance and theater have limited technical knowledge and often shy away from incorporating digital media into their performances because of the complications that may arise when translating a show to a tech expert who has limited knowledge in theater production. That being said, most theaters have in-house technical support but this mainly comprises light and sound productions, connectivity and communications.

Activities in performance arts

IDEA Festival

Organized and curated by Studio 8, a Jordanian non-for-profit company active in the fields of dance. It was founded in 2014 by a group of young artists aiming to shape and humanize the dance art through innovation and experimentation. Partnering with local, regional and international organisations, this a curated programme that includes events, such as artistic residencies, live performances, workshops, film screenings, pop-up exhibitions, and online specials in dance and performance arts. The festival has been active since 2019, and in 2021 brought to life the 'Go-around' pop-up exhibition, which presented a digital art exhibition that shared artworks created by local artists that explore the relationship between dance, choreography, and documentation digitally.

2.4 Photography

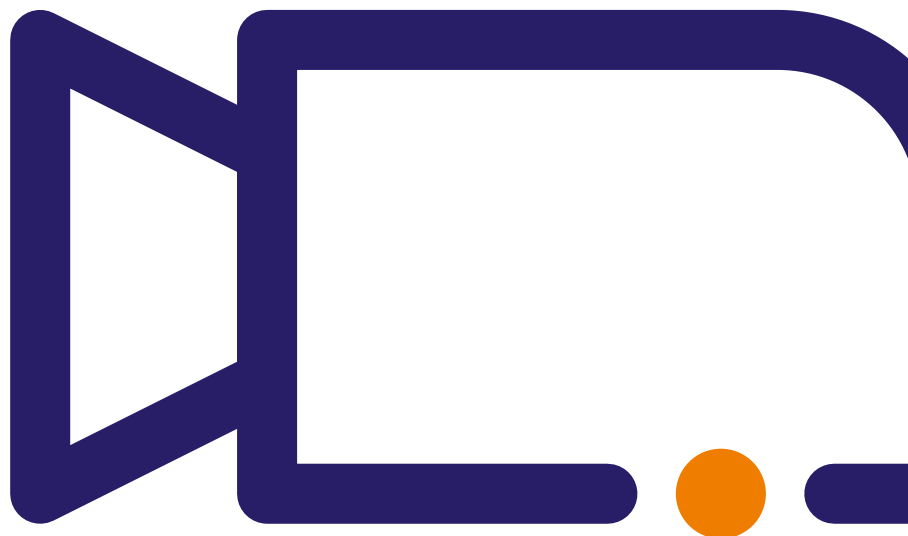
In recent decades, a new form of photography has risen to prominence: digital photography. Today's digital cameras are inexpensive, and they produce high-quality digital images. However, dedicated photography purists remain committed to traditional film cameras, sparking an analogue vs. digital debate.

Traditional film photography captures images in analogue by exposing individual frames on a roll of film to light. Film is made of plastic and layered with silver halide crystals that darken when exposed to light, capturing negatives of images. When a photographer uses up all the exposures on a roll of film, they take it to a darkroom and develop the photos using liquid chemicals. While analogue photography provides a high dynamic range when shooting and is initially low-cost, the process provides limited exposures, takes some time to be developed and has higher long-term costs.

Digital photography replicates the process of traditional film photography, but it uses an electronic sensor, rather than film, to capture images.

These digital photographs are stored on a memory card, and their resolution is measured in megapixels. You can view your images instantly on the camera screen, and can later copy, edit and enhance the images with a click of a button.

Locally and internationally, most photographers have now shifted to digital, with the scarcity of analogue adding to its high running costs and finite accessibility. Analogue remains to be considered as a high-end art form and collectives internationally have been rushing to keep the art alive. In Jordan, spaces such as Darkroom Amman and the darkroom at Jordan National Gallery of Fine Arts are ensuring that they revive the art of analogue photography and provide the expertise, tools and equipment for people to be able to use. Namely Darkroom Amman, a modern creative space promoting the revival of analogue photography. Centered in the heart of Jabal Lweibdeh, the collective is a welcoming venue for film enthusiasts and local photographers. Founded by Diana Zubi, Lina Khalid, Mohammed Hammad and Zahed Bata, the project is driven by a shared love for the process of analogue photography.



Activities in photography

Darat Al Tasweer

Darat Al Tasweer is a specialized institute dedicated to photography established in 2007 by Jordanian photographer Linda Al Khoury. It aims to stimulate, inspire and introduce the art and craft of photography and its new technologies to both amateurs and professional photographers in Jordan. The institute works with both digital and analogue artists and provides workshops to provide practical and technical knowledge about the art forms.

Organized by Darat Al Tasweer since 2011 in partnership with many local and international institutes, the Image Festival Amman brings together professional photographers from different countries, attracting and engaging a wide audience and creating opportunities for sustainable cultural exchanges.

The festival features digital and analogue film photography from all over the world. Altogether, more than 200 photographers from 25 countries presented their art works in the framework of the event. Since its inception, the Image Festival Amman attracts a wider audience every year, and involves both professional and amateur photographers.

2.5 Architecture and design

Digital technologies incorporated within engineering and architectural design have been on the rise globally, with tools and techniques rapidly proliferating within practices from the late 1980s onwards. Architecture is an insightful industry driven by impactful technological innovations. Virtual reality, 3D and 4D printing, augmented reality, and artificial intelligence are changing the way architecture is perceived as an industry.

Within the field, digital tools such as machine learning, fabrication technologies, and artificial intelligence are becoming more and more ubiquitous and pervasive. These technologies have rapidly expanded the use of these tools in architecture schools, small, independent firms and international, corporate practices. From augmented reality for construction to 3D printing architectural models to using artificial intelligence within the design process, it is increasingly rare that an architectural project does not use some kind of digital tool either for design or fabrication.

In Jordan, the majority of design houses and architectural offices integrate special software to create their designs and models such as computer assisted design (CAD) programs that make the design process faster by applying common principles of geometry and physics to architectural designs.

They utilize digital media in the process of its architectural design that helps in designing the concept, design development, and detail designing of the architecture's form and uses computer aided design, programming, simulation and images to create virtual forms and physical structures.

Some of these softwares are now considered basic tools in architecture and design education at public and private higher education institutions in Jordan. More importantly, throughout the past few years universities are slowly becoming equipped with the relevant hardware to drive these technological expansions. Universities in the country such as Petra University, Al AlBayt University and Princess Sumaya University for Technology are now well-equipped with in-house 3D printers and laser cutters available for students to use. However, faculty members seem to have limited knowledge and training in utilizing the extents of these resources and materials, leading to students graduating with qualifications beneath the required vocational skills they need to be employed at architectural firms. This has created a gap between the skill-sets the diploma provides and industry demands.

In 2017, 3D printers were allowed to enter Jordan thanks to a decree issued later that year. This came after a series of inconsistent government policies, starting with a law that was passed in 2016 that effectively bans the use of 3D printers despite the technology being hailed by many as one of the most promising innovations to emerge since the popularization of the Internet.

The government has since gradually loosened rules around 3D printer imports finally creating a decree stipulating that they be considered as any other printer, and thus allowed across the border.



Activities in architecture and design

AA visiting school

The Architectural Association is the UK's oldest and only private school of architecture, and has for decades been recognized as an influential world-wide leader in architectural education.

As part of the school's outreach programme, they hosted the Jordan Visiting School, a summer programme that aims to involve practitioners interested in the intersection of design, architecture and digital fabrication. The first edition took place in Amman in 2013 directed by Jordanian architect Riyad Joucka, AA alumni. Two other editions took place in 2018 and 2019 directed by Jordanian architect Kais Al-Rawi, AA alumni.

Every year includes a number of distinguished faculty and guests who are internationally recognized in practice and academia. The programme hosts a series of intensive, thought-provoking workshops which investigate natural and ecological phenomena which are found in Jordan and across the Middle East region. The design-research investigations of the programme aim to rethink existing architectural practices in the region, and how architecture is conceived in ecologically sensitive areas.

The programme focused on computational design methodologies and how they can relate to the abstraction and generation of natural phenomena and morphologies utilizing algorithmic and computational design methods, unveiling novel potentials in design at an array of different scales from the material, architectural to the urban.

Participants included university students and newly-employed designers and architects. According to participants, these programmes have opened up a new world of possibilities within their practice and provided them with the appropriate digital tools to conceptualize and create that were not found elsewhere.

Amman Design Week

One of the high-scale events that have been aiding the growth of design through innovation in the country is Amman Design Week that took place in Amman in 2017, 2018 and 2019. Over the past three editions, the event has brought local, regional, and international designers and innovators to Amman, and has provided free and open access to a series of large-scale curated exhibitions, student and community programs, workshops and talks, and city-wide cultural programs. Featuring local and regional designers, the week-long activation included exhibitions by professionals, mentorship programmes for students, talks and events that helped create widespread discussions within the future of design.

Case studies

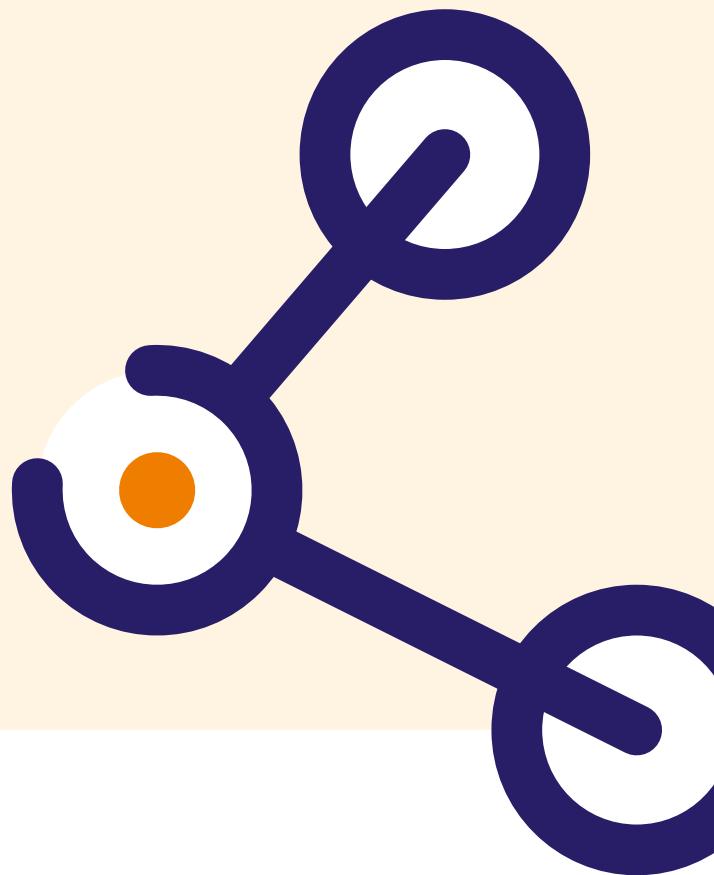
Mazen Al Ali

Entrepreneur, Architect, multidisciplinary designer and design instructor based in Amman, Jordan. Mazen is the founding Director of Rum Atelier for architecture and integrated design, specializing in design, engineering solutions, and digital fabrication using state of the art computing tools. He also launched Indeginous Culture, products that incorporate a hybrid of handmade and digital fabrication where he creates a 3D printed prototype, creates a mold for it and collaborates with local handicraft artisans to make them into jewelry designs suitable for market.

Kais Al Rawi

Subject-matter expert in generative and computational methods, Iraqi-Jordanian architect Kais Al-Rawi works at the intersection of architecture and engineering. He has worked on the structures and enclosures of complex projects at a multitude of scales and typologies, ranging from art-forms, to stadia, museums and airports. He is a licensed Architect in California and holds a Masters degree from the Architectural Association (AA) in London as well as an undergraduate degree in Architecture from Ryerson University in Toronto. Kais is now based in Los Angeles, California.

Exhibited as part of Amman Design Week in 2017, the structure 'Cellular Complexity' comes as a design research and collaboration between Kais Al-Rawi, Julia Koerner and Marie Boltenstern. The research investigates complex cellular systems and their potential for architectural applications that utilize efficient space-packing geometries with a special focus on emergent technologies in architecture and design. This installation received the prestigious American Institute of Architects (AIA) Merit Design Award for Built Project in Los Angeles, California in 2015.



Riyad Joucka

Riyad Joucka is an award-winning architect, entrepreneur, and researcher. In 2016 he founded MEAN* 'Middle East Architecture Network' as a network of highly skilled individuals working within an interdisciplinary collaborative platform. With MEAN, Riyad has worked on projects ranging in scale: from products to installations and buildings.

Riyad worked in Hong Kong and New York from 2012–2017 at the intersection of academia and practice, with a focused interest in design that is at the nexus of technology, material innovation, and computation.

Designed by MEAN* for Dubai International Financial Center (DIFC) in Dubai, 'Deciduous' is a 3D printed pavilion that invites audiences to revisit their relationship with nature, through an experience reminiscent of walking through an abstracted botanical form.

The structure is made from interlocking robotically 3D-printed polymer parts, made from 30,000 recycled water bottles. The polymer parts are cast into a white concrete base, 3D printed using robots. The pavilion won Architecture Digests' Design Awards 2020: Innovation & Sustainability.

**Deciduous by Riyad Joucka AD Design Awards 2020
Winner Innovation & Sustainability**

Image © NAARO



Hashem Joucka

Hashem Joucka is a mixed-media artist and multidisciplinary designer working in the intersection of science, art and technology. Most of Hashem's explorations and creations aim to reflect on the aesthetic aspect of visible regularities found in nature, and mimicking them through digital generative compositions. His work mainly focuses on collections of fractal animations generation through mathematical formulas and recursions.

He also works on a series of indoor furniture and sculpture pieces with forms derived from mathematical formulas stop. The sculpture is composed of hundreds of laser-cut wood pieces assembled and stuck together manually. The Conjuring effect caused by the fabrication process creates a gradient reminiscence to the eroded sandstone formations found in deserts such as the Sonoran and Wadi Rum.

Collections of fractal animations generator to mathematical formulas and recursion.

In mathematics, fractal is a term used to describe geometric shapes containing detailed structure at arbitrarily small scales, usually having a fractal dimension strictly exceeding the topological dimension. Reflecting on damage inflicted by the Israeli forces on Gaza in May 2021, Hashem collected 500 images of bombed estate in the city in Palestine and used them to train a class of machine learning frameworks called StyleGAN2 (GAN - Generative Adversarial Network) in order to create a series of video transitions.

While the seeds for a flourishing landscape in digital fabrication and manufacturing are being sown through these activities over the past few years, Jordan's steps are steady yet slow in comparison to neighboring countries such as the



Labyrinth

Image © Hashem Joucka

United Arab Emirates and Qatar, resulting in substantial migration of talents to countries with more favorable professional opportunities in the industry.

Reasons for 'brain drain' include, but are not limited, to:

- Limited employment opportunities
- Higher pay grades within the industry in other countries
- Difficulties dealing with customs over imports of relevant hardware equipment; time-consuming, costly and unreliable
- Niche market for sales of digitally designed and manufactured products in Jordan
- Difficult to offer worldwide shipping to a bigger audience as dealing with customs over exports of products is time-consuming, costly and unreliable

3. Technology and innovation

Since 2015, several parties and stakeholders have been engaged in visioning and planning for FabLab facilities activation in the Kingdom, including Mena3D, a local company engaged in training, design, and production in 3D printing; the Crown Prince Foundation, and the King Abdallah II Design and Development Bureau (KADDB).

Activities to educate and facilitate knowledge and resources incorporating technology, especially within design, architecture and medicine have been booming around the kingdom. Fabrication and innovation labs have been opening up, starting with FabLab Irbid, the first digital fabrication laboratory in Jordan, and one of the 20 largest facilities of its kind among the International Fab Foundation network. These FabLabs usually comprises three main sections: the clean area, industrial area, and the outdoor area. Each section includes an assorted number of machines for inventors to make use of. The clean area includes 3D printers, the electronics shop, design studio, as well as a robotics section. On the other side of the lab is the industrial area. The industrial area houses CNC machines in the metal shop, wood shop, molding shop, as well as a laser cutter.

The maker community also turns to websites like Github (www.github.com) that enable sharing of source code and hardware manufacturing files, or Thingiverse (www.thingiverse.com), Youmagine (www.youmagine.com) and others to offer repositories of designs for 3D printing and other digital fabrication methods. These platforms, and others like them, enable users to leverage existing open source code and hardware designs rather than spending time and energy independently developing alternatives.

These spaces aim to fill a gap between design manufacturing and production. They work with architects, designers and technology innovators but have yet to tap into the arts and culture scene to explore modes of cross collaboration and mutual benefit. Equivalently, creatives from the cultural sector do not have extensive knowledge about what these spaces are for and how they can profit from them in their artistic practice.



Technology is a driver for social change, we should leverage tech for the greater good of society.

Digital maker

Activities in technology and innovation

FabLab Irbid

In Amman, the Crown Prince Foundation opened up their flagship innovation platform, Techworks in King Hussein Business Park. The 'makers' space is at the forefront of the country's innovation engine and aims to bring together youth, ideas, and resources to jump-start successful innovations and strengthen the country's innovation capabilities. They offer a public, society-based digital FabLab that provides a platform for collaboration between innovators and the broader innovation community.

Al Hussein Technical University

Al Hussein Technical University, established by the Crown Prince Foundation. According to Director of Innovation at the university Yazan Hijazi, there was a need to bridge the gap between the numbers of graduates in technical fields and their rate of employment in their respective sectors. To remedy this problem, the CPF created a model of technical education that features technical skills and practical knowledge to equip them for the labor market and ensure that the university stays attuned to the ever-changing demands and developments of the industry.

TechWorks

Techworks is CPF's flagship innovation platform and Jordan's premier innovation engine with the mission of bringing together youth, ideas, and resources to jump-start successful innovations and strengthen the country's innovation capabilities. TechWorks is a makerspace, where the public is invited to use their facility's world-class array of machinery, with help from consultants who can aid in the designing, production and manufacturing process. The services they offer enable SMEs, startups, Jordanian youth and provide accessibility to the technology. According to its , they work with designers and creatives in digital fabrication. If clients dont have the design, we refer them to creatives.

Orange FabLab Programme

The first privately-run FabLab in Jordan has been created by Orange Telecommunications as a space dedicated towards teaching students the art of digital fabrication along with the accompanying design philosophies. Their tools are focused on the concept of rapid prototyping and provide beneficiaries with a wide range of solutions to tackle their creative problems and to 'make almost anything'.



Orange-Yarmouk Innovation Lab

Orange also collaborated with Al Yarmouk University through the Orange-Yarmouk Innovation Lab (OYL) that provides students with the relevant software knowledge and equipment to focus on mobile application development, web development, and game development. While the industry is booming locally, we are yet to see fruitful collaborations between the tech sector and culture sector. Both seem to be working in parallel to each other, with limited prospects for partnerships.

Creatives do not readily identify the possibilities for their work to be aided by or facilitated by the tech sector, while the tech sector focuses on working mainly with innovators and designers. However, the tech sector is welcoming future activations with artists and creatives from all cultural practices.

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The base of digital fabrication is design.

TechWorks director Ismail Hakki

Case studies

Joran Street Art Map

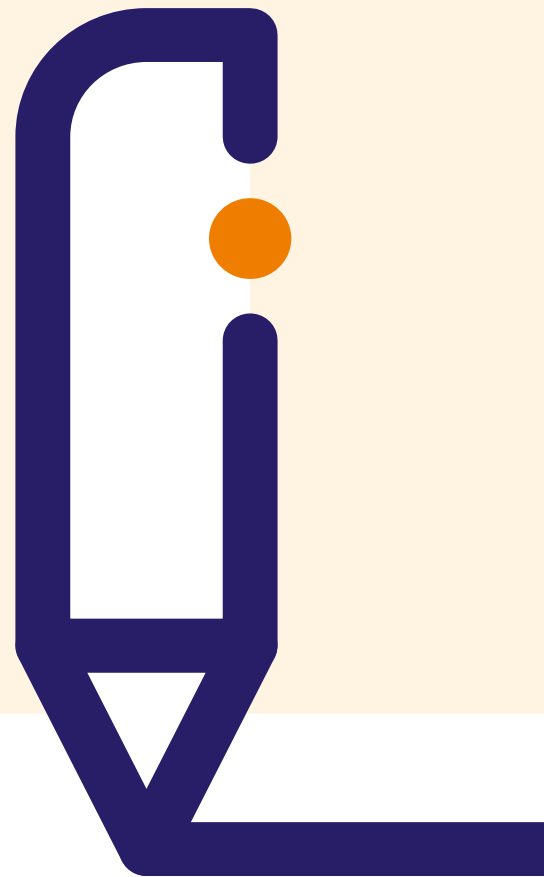
Jordan Street Art is an open source web application that documents art murals and graffiti found around the kingdom on a virtual map.

This project was founded and programmed by Ali Baker with the help of the street art community and identifies murals mainly in the capital city Amman and Irbid. The application provides a geotag of a mural and where it can be found as well as information about the artists and their portfolio.

Programmer Baker found the source code for the platform through GitHub, the largest open source collaboration and code sharing site and provider of Internet hosting for software development and version control. According to Baker he will be releasing a new update soon which aims to directly link to artists' accounts and social pages and write up more information about them and their work.

3D-Printed Braille

Student Jana Al Share' collaborated with TechWorks in Amman to create 3D-printed Braille for her visually-impaired friend to learn how to play piano. The consultants at the lab helped her design the piano key notes which were printed in layers using the machines at the open maker space lab.



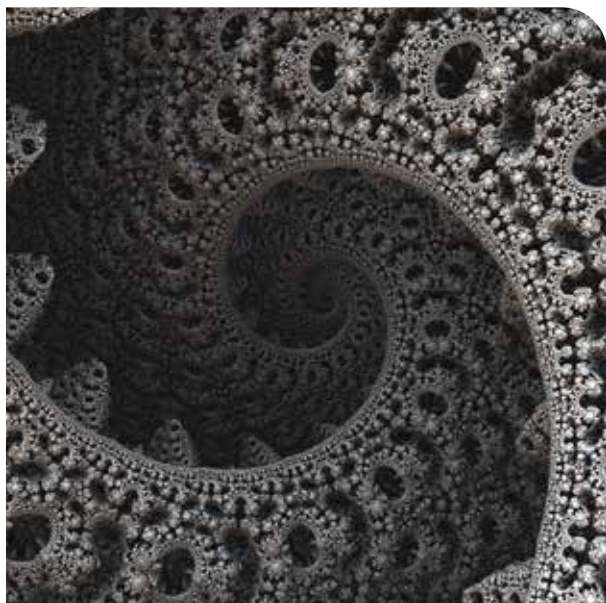
4. Digital, crypto and NFTS

With rapid global digitization came the rise of cryptocurrency. The currency began to be used in 2009 when its implementation was released as open-source software. Cryptocurrency, sometimes called crypto-currency or crypto, is any form of currency that exists digitally or virtually and uses cryptography to secure transactions. Cryptocurrencies don't have a central issuing or regulating authority, instead they use a decentralized system to record transactions and issue new units. The currency relies on blockchain, which is the underlying technology that many cryptocurrencies, like Bitcoin and Ethereum, operate on.

More recently in 2017, a new player has entered the blockchain arena: Non Fungible Tokens (NFTs). Non-fungible tokens are cryptographic tokens that represent something unique and their main use has been found in the digital art world. Forgeries are difficult when replicating physical art, thanks to the cumulative expertise of art historians and experts around the world, and the technology that can be used to rat out fakes. But when dealing with digital art, pieces can be copied much more readily, usually with just the simple duplication of a file. NFTs put an end to that, encrypting the digital source of an artwork with blockchain to ensure it remains the definitive version of that piece. You can buy NFTs on platforms such as OpenSea, SuperRare, Nifty Gateway and Foundation.

Unlike bitcoin and other cryptocurrencies, NFTs do not represent a mutually interchangeable commodity (in cryptocurrency's case, money). This means you cannot part with an NFT and have it be replaced with something of equal value later, as you would be able to get a sum of cash.

Internationally, the market for NFT has been growing, sped up by the rapid digitization incited by Covid-19. In March 2021, rock band Kings of Leon released new album 'When You See Yourself' as an NFT, and in the same year, an original Banksy was burnt and destroyed before being sold via NFT for £274,000. Their eighth studio album is still readily available in all the usual formats, but fans who purchase one of their US\$50 NFT albums become the owners of blockchain tokens that grant access to limited edition extras like 'moving artwork' and vinyl versions. Also in March 2021, the auction house Christie's sold a JPEG file created by the artist Beeple for US\$69.3 million, a record for a digital artwork. The sale made headlines, and NFTs have since become red-hot. Some museums are issuing their own tokens, including the British Museum and the Academy Museum of Motion Pictures.



Spiral rotation

Image © Hashem Joucka

Cryptic Landscapes in Jordan

The Central Bank of Jordan (CBJ) enacted legislation that prohibits all banks, currency exchange companies, financial entities, and payment service providers from facilitating any cryptocurrency transactions, including Bitcoin. Consequently, cryptocurrency trading is virtually prohibited under the laws of Jordan.

In addition to the prohibition, the CBJ issued an official warning about the risks of cryptocurrency trading.

First, the CBJ emphasized that cryptocurrencies do not qualify as legal tender in Jordan. Second, the CBJ noted that ‘there is no obligation on any central bank in the world or any government to exchange its value for real money issued by them nor (is cryptocurrency) backed by underlying international commodities or gold.’ Essentially, the CBJ is arguing that there are no real assets underlying the value of cryptocurrency. The CBJ also warned that cryptocurrencies are highly volatile and face a high risk of devaluation.⁴

More recently, according to a New Business Herald report issued in February 2022, Central Bank of Jordan Governor Adel Al Sharkas said that the agency is considering whether to create its own central bank digital currency (CBDC) that would be linked with the country’s national currency the Jordanian dinar.⁵

What does this mean for creatives working in digital art in the country? Jordanians have a vague understanding of NFTs and are yet to explore more in-depth knowledge about them - but not for lack of interest. Some are dismissing it as a trend that will disappear with time, others are willing to jump on board after they learn more about it as a way of ‘keeping up with global movements’. The majority of creatives don’t think there is a market for it in Jordan, and rather would go into it to tap into international audiences. Visual artists and designers have recently started exploring the crypto and NFT realm, however, knowledge is still limited in the area as the majority of interviewees do not know how to access the NFT platforms, how to create a crypto wallet, mint an artwork, and start trading.



For me it’s like the Emperor’s new clothes - it is too abstract and intangible. Where does the money come from and where does it go?

Gallerist

Jordanian NFT creatives are currently in the experimentation phase of crypto art, working on it as a 'side hustle' in addition to their traditional art. They are mostly visual artists, designers and architects exploring the opportunities that may arise through this new technology, individually or through partnerships with galleries and curators in the region.

Neighboring Arab countries such as the United Arab Emirates, Saudi Arabia and Tunisia have hurried to jump on board the digital movement and have been hosting workshops, seminars, and phygital exhibitions merging the physical world with digital creative production.

With understanding and appreciation for the art yet to be established locally, Jordanian NFT artists are excited about its future prospects and deem it more as a long-term investment opportunity for their portfolios.

While there are infinite prospects for all types of creatives in the NFT world, local performance artists such as musicians, dancers, and theater performers have yet to tap into the trend and feel that it's irrelevant to them. They would rather focus on expanding the current state of live audience development before getting into the digital world.



Even if I don't cash out immediately, I'm looking at this as a long-term investment. This new world is not going anywhere, it will only grow with time and the sooner we plant the seeds in it the more we will reap the benefits of it in the future.

Jordanian NFT artist

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My work online started with e-commerce websites to tap into different streams of income, then I started getting into NFTs. How did I cash out? I created a crypto wallet then created an account and started minting. Once an NFT gets sold on my profile, I transfer the currency to my friend who lives in Dubai, who cashes the money app through BitOasis, MENA’s leading platform that allows you to securely buy, sell and trade cryptocurrencies. The full transaction ends up being more costly than if I trade individually because of all the exchange rate deductions.

Jordanian NFT artist

The question with regards to the legality of the process acts as the primary barrier for most of the creatives. Nevertheless, they are willing to find and go into loopholes in order to navigate the legal constraints around cryptocurrency in Jordan. A handful of artists are creating overseas bank accounts or collaborating with international curators and traders in order to get into the market.



Digital calligraphy

Image © Mothanna Hussein

5. Covid-19 and digitization

The arts and culture scene in Jordan has seen an immense shift to digital consumption in the past few years, with one of the biggest protagonists being social media platforms encouraging creative endeavors and providing an unrestricted and free of charge digital space for creatives to experiment and share their talents with wider audiences.

With the Covid-19 pandemic stirring in 2020, we witnessed a magnificent shift in how the creative sector changed the way it produces, creates and consumes art productions. While digital offerings did exist pre-pandemic, they were viewed as an after-thought to physical productions, a complimentary addition rather than a predominant factor. The local sector focused mainly on ways through which they can present their traditional arts to audiences digitally rather than incorporating digital practices within the creation of their art practices. We have seen more and more institutions and independent practitioners change their visions to suit online audiences. The pandemic ushered in a golden age of virtual media offering unprecedented access to some of the world's elite cultural establishments that were previously financially or physically inaccessible. While the world has never felt more physically isolated, digital media have offered a bridge, as well as an exciting range of experiences. Responses to Covid-19 have speeded the adoption of digital technologies - and many of the changes could be here for the long haul.

Creatives turned to social media as the main means of communicating with the public during lockdown, bringing them closer to them. In the same way that technological advances have opened-up the possibilities for people to create digital art – social media and other online platforms have made enjoying, sharing and buying art, more accessible.

Even before the pandemic, a report found that 91 per cent of galleries surveyed globally actively use social media as a promotional tool for their business, and the artists and art they exhibit. With Instagram considered by 57 per cent of this community as the most effective social media channel for raising awareness, it's clear that the consumption of art has been broadening outside of traditional mediums for some time now.⁶

On a local level, the pandemic may not seem to have had a direct effect on the way creatives produce art, but more on how they present their creative productions to their audiences. With the pandemic urging people to stay home, cultural organisations and creatives had to turn to the internet to provide access to exhibits, events, seminars and workshops virtually.



You get 15 seconds, you either win the audience or you lose them.

Jordanian musician



Shorter attention spans means that now art is being created to fit into the 15-second time frame to grasp attention. It's changing the way we produce and engage.

Jordanian musician

This effect impacted the way these institutions and individuals curate events and activities to suit the digital realm, and ensure that their audiences would enjoy and benefit from them equally as much online. Discrepancies in the cultural sector's preparedness to respond to this shift was highlighted, and few were able to react readily, promptly and efficiently. Most public institutions were especially at a disadvantage as they did not have access to the required technical knowledge and resources. Others were able to employ various digital platforms in order to engage with their public and continue serving them.

The 15 seconds rule

Music performances took a major turn from the live and physical to the pre-recorded and digital as a result of the pandemic. According to some of the interviewees, the rise of Covid-19 has hindered some of the festivals and exhibitions institutions were preparing for in 2020 and 2021. Musicians had no other way to connect with their audiences except for their online presence as intimate gigs, concerts and festivals got canceled around the world.

The impact of social media platforms such as Instagram and TikTok on creative ventures is palpable. For musicians, social media platform Tiktok has been a pivotal change in the way artists write, compose and produce their music. With approximately 1.8m active Jordanian users on the platform, its template presents short videos that allow users to share their content with huge audiences. These 15-second videos are pushed onto new viewers depending on the platform's algorithm and the engagement rate of the audiences, meaning that musicians have been restructuring their compositions to ensure that their content reaches as wide an audience as possible.

Other online platforms including Spotify and Anghami provided space for local musicians to gain fans from global audiences. These are closely tied in with video productions that present visual and artistic direction of music clips published on custom Youtube channels. A new wave of musicians such as Idreesi, Issam Najjar, Dana Salah, Hana Malhas and Zein Sajdi have been investing in these video productions either independently or through signing with regional and international record companies.

Case studies

Issam Najjar

Jordanian artist Issam Najjar gained mass acclaim when his song 'Hadal Ahbek' went viral on TikTok with 53.5 million views and 104 million views on the streaming platform Youtube. Released in September 2020, his song Hadal Ahbek has also positioned itself as one of Spotify's most streamed songs. The track currently sits on the top spot of the platform's Global Viral 50 – a chart measuring how songs are shared on the platform, blogs and social media. His TikTok hashtag '#hadal_ahbek' so far has more than 480 million views, while his music, lyric and performance videos on YouTube have more than 162 million views.

NCCA

One of the impressive examples of how cultural institutions instantly shifted gears from the physical into the virtual is how The National Center for Culture and Arts in Jordan came up with innovative ideas to what they perceived to be the 'new normal' during safety lockdowns legislated by the government in early 2020. They took the practice of Digital Theater, adopted by theaters and performance arts institutions globally during the pandemic. This is a type of performance that utilizes both 'live' actors along with digital media to create a hybrid art form where the theater production happens physically and gets transferred to the screen virtually.

The National Center for Culture and Arts (NCCA) in Amman, Jordan is recognized for its pioneering role in introducing drama into mainstream education and the enhancement of the theater and dance movements in the country. It began in 1987 as the theatre in an education programme for Noor Al Hussein Foundation, which gradually developed and prospered into the National Centre for Culture and Arts of King Hussein Foundation.

The centre collaborated with the Jordanian telecommunications company Zain, in order to create data bundles for their beneficiaries to continue hosting immersive theater performances for them. The audience tune into the performance from their phones and engage with the show in-real time. The performances took place live in a studio, while the audience interacted online.

Basita

Basita is a virtual venue that hosts online performances and cultural events. It encourages artists to be independently resilient, especially during times of uncertainty where the creative industries have suffered the most as a result of safety regulations. The platform encourages artists' financial sustainability by inviting them to share their performances online with Basita. It is free to use, and artists receive a percentage from ticket sales. It is a state of the art technology, payments are safe, easy and accessible.

Virtual Exhibitions

A handful of artists and galleries worked on hosting virtual walk-throughs of exhibitions hosted online through third-party platforms as a bid to keep the visual art scene moving. Attendance at these online exhibitions proved a success, even though sales rates were low. Most of those who presented these events during the pandemic continued hosting them post-pandemic as a supplementary platform to physical exhibitions.

LiveMusicJo

LiveMusicJo is an initiative that was created to survive the Covid-19 lockdowns in Jordan and the world by four key actors in the music scene Lama Hazboun, Mais Sahli, Hana Malhas and Mirna N. K. The initiative invited local musicians to take the virtual microphone and perform live for a duration of 30 minutes on social media platform Instagram. The page gained thousands of followers who tuned into the shows within its first week of creation and brought to its audience hundreds of live performances from home.

Radio AlHara

Radio al Hara is a music collective founded by Elias and his brother Yousef, Yazan Khalili, Saeed Jaber, and Mothanna Hussein launched in March 2020 under the name Alhara (the neighborhood). Initially, the project was meant to stave off quarantine boredom through radio transmissions but quickly amassed a cult following when people across the world were confined to their homes. Its experimental programming meant that listeners could tune in for free to everything from pre-revolution Iranian pop to Afro-funk and Bahraini wedding songs.

Jordan Female Artist Collective

A female collective created by musician and cultural activist Mais Sahli assembled a 24-person collective, which comprises everything from singers, percussionists and guitarists to oud players and pianists, are presently working on an album set to be released soon. In 2020, the collective was one of 15 bands playing at the Amman Jazz Festival that took place digitally as a result of the pandemic. Their pre-recorded set of jazz and choral took on traditional Levant folk tunes and was broadcasted on Youtube.



We went viral even though we had no budget for marketing. People were sitting at home and wanted to interact with one another and music was the answer.

Mais Sahli, Co-founder of Live Music Jo

6. Education

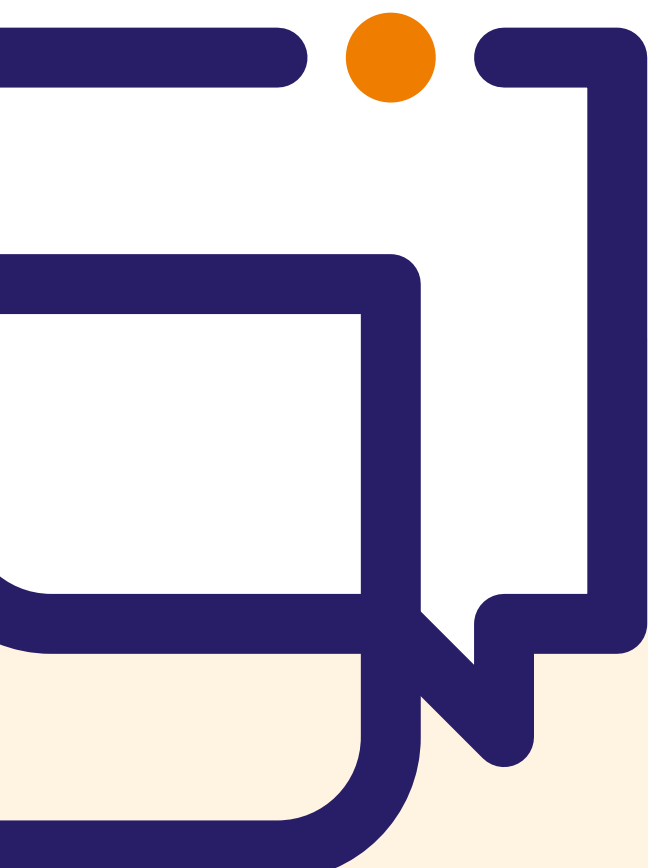
Creative digital technologies in education

The past ten years have seen a growing interest in digital design majors at higher education institutes, with the first animation design major opening in Petra University in 2016. There are few public and private higher education institutions that offer fields that fall under the digital arts. Programs include animation, game design and web development where students are exposed to different methods of digital design and learn how to meld technology and creativity.

Institutions such as Petra University, German Jordanian University, Princess Sumaya University for Technology and SAE institute offer extensive programs on computer graphics and animation, graphic design and audio visual productions.

These programs graduate animators, Graduates usually find jobs in 2D and 3D animation positions, game design and motion graphics. They work with production companies, TV channels, advertisement agencies, 3D and gaming companies such as Al Mamlaka, Roya TV, Jordan TV, Kharabeesh, Beelabs and Orix Animation.

There are limited programs that focus on digital art production and curation. Private centres such as Design Institute Amman and the Creative Art Center Amman offer short courses on digital painting and how to use digital technologies in design, namely fashion and jewelry design using 3D software.



7. Audience

In a survey disseminated and circulated within artmejo's database, a pool of 54 respondents shared their views on digital arts locally. Audiences are eager to see more experimentation in digital arts which could encourage exhibition spaces such as galleries, museums and foundations to provide a platform for more digital creatives to showcase their work. Most of the interviewees have expressed a demand for seeing 'new things' - new experimental artworks, installations, multimedia art, light installations, and creative coding. There is a thirst for seeing out-of-the-box art that breaks away from the conventional – 'from what we usually see'. Some have described the current visual art scene as 'dull', 'outdated', 'safe' and 'repetitive'. There's a gap between 'contemporary art' and the art being produced today.

Demographics

- 50 per cent of respondents are between the ages 25–34 years old
- 88 per cent of respondents are from Amman, 3.7 per cent from Irbid, 2 per cent from Zarqa and the rest are mainly from Mafraq, Ajloun and Madaba
- 42 per cent of respondents are employed, 33 per cent entrepreneurs and 13 per cent students

Involvement in the arts

- 50 per cent of respondents work in creative industries
- 48 per cent of respondents like to follow the local creative scene

- 63 per cent of respondents are connected to the visual arts scene, the rest are interested in music, audio and video productions, dance and performance arts and design
- Majority of respondents engage with the creative arts sector through online platforms like social media and through attending physical events and exhibitions

Audience and digital art

- 48 per cent of respondents define digital art as art that is made using software and/or electronic devices
- 25 per cent of respondents define digital art as a medium that is used to produce creative projects
- 22 per cent of respondents define digital art as art they can view and enjoy online, digitally
- 87 per cent of respondents take time to view art digitally
- 81 per cent of respondents would like to have a more interactive role as viewers in the process of the digital artwork
- 76 per cent of respondents think that technology affected the quality of creative projects produced
- 68 per cent of respondents think that technology affected the quality of creative projects produced positively
- 55 per cent of respondents would like to see more digital art being produced locally

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Dana Barqawi

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8. Conclusions

8.1 Challenges

Lack of technical background: Practitioners expressed interest in exploring new practices that incorporate innovation and forward thinking with digital media, but most were reluctant and did not know where to start or who to go to for experience and knowledge. There is a lack of technical expertise and knowledge-sharing across the two fields of technology and creative arts.

Shortage in expert consultancy: Dependability is in question when dealing with tech consultants when their expertise is needed by artists, curators and event hosts. Lack of time efficiency and consistency, low level of quality and high hourly-rates make it difficult to sustain certain projects and activities. Artists and designers end up outsourcing the consultancy and production from regional and international companies who have extensive experience in working with the culture sector.

Lost in translation: respondents highlighted the inefficacy of communication when it comes to cross-sectoral collaborations between cultural entities and tech organisations and specialists. From relaying curatorial visions and creative practice to technical jargon, these types of partnerships can at times end up disconcerting.

Digital visual artists face hesitation from exhibiting spaces: Some galleries are interested in knowing more about digital art and its prospects, and would be interested in hosting more digital art, but will not shift towards digital completely because they see no big market for it. Most gallerists expressed limited knowledge and technical expertise in hosting digital art exhibitions and underlined the inaccessibility of resources and gadgets required.

Galleries are interested in hosting digital exhibitions for exposure, tapping into new, younger audiences, providing knowledge, raising awareness, and supporting the art community. Not-for-profit cultural entities such as museums, foundations and institutions are getting equipped to get resources such as projectors and screens to keep up with the trends.

Limited resources: There are limited available resources for producing digital projects such as, but not limited to art installations, audio-visual music concerts, immersive theater performances and 3D projection mapping. When resources are available, they are costly to rent and/or purchase.

Discrepancy in customs and taxes: Importing relevant equipment into the country is more often than not an arduous experience stocked with vague and varying regulations, inconsistent tax rates and delayed approvals.

Economic crunch: The general difficult Jordanian economic situation (exacerbated by the pandemic) has had a visible effect on the disposable income of potential art buyers, has been felt by both galleries and individual artists, especially on digital artists who were struggling to find interested local patrons and collectors in the first place.

8.2 Conclusions

The Jordanian arts and culture landscape is currently in a transitional phase strained by economic, educational and socioeconomic constraints. The effect of the pandemic has added to this strain, yet presented ample opportunities to speed up the progression of cultural activities into the digital. While digital art practice in Jordan is slowly emerging and finding ways to establish its space in creative endeavors, it is still in the very early stages of development. This presents fertile landscapes for molding industry-related partnerships and activities.

While there is hesitation to adopt new media for art, there is palpable readiness and eagerness in the visual arts sector to explore technologies in their practice from independent artists, cultural curators and arts institutions. Even if there are issues pertaining to the economic sustainability and expenses of digital arts, practitioners are hungry for novel experimentations to present to their audience.

The already thriving music scene in Jordan is witnessing a huge and expeditious progression into new media as artists, promoters and venue hosts welcome and encourage multimedia music productions of digital audiovisual nature.

A handful of practitioners in architecture and design have already started collaborating with the tech sector and are excited about the new horizons that digital interventions are providing to their practice. There is a long way to go here, as higher education institutions gradually attempt to keep up with the fast-paced changes in innovation and integrate it within their syllabus to fulfill a growing demand in the market.

Performance arts such as dance and theater in Jordan remain to be the least susceptible to global changes into digital, despite the ample opportunities for collaboration with creatives from various artistic and technical backgrounds.

The local technology and innovation industries are in the process of situating themselves within the key players of the field on a regional level. Partnerships between them and the culture sector have yet to come into solid fruition but they are eager to explore modes for cross collaborations with artists and creatives.

Overall, Jordan seems to be open to digitization in the creative sector albeit slowly and cautiously. Much like on the international level, the future for creative digitization is promising, yet remains somewhat ambiguous. Drawing comparisons to the UK, while we see welcoming encouragement towards advancing digitization within cultural activity there, the local scene still seems to be in the early stages of its adoption. There are opportunities for growth where digital technologies can prove to aid and accelerate advancement in the arts. Besides financial burdens and commitments that stakeholders think about when treading into digital art practices, there are technical skills and knowledge that they lack that when fulfilled could help give them the right push into these new ventures.

8.3 Opportunities and recommendations

Capacity building of the skill sets and technical capabilities available in the scene through workshops, seminars and talks is crucial. Linking practitioners with experts from various fields can help open up new horizons and potentially foster collaborations and knowledge-sharing.

Finding novel ways for building long-term partnerships between the creative sector and the technology sector should be at the forefront of upcoming activities, exploring and pinpointing the world of opportunities that will open up for each sector the initiating point.

Below are recommendations inspired by conversations with cultural practitioners' suggestions.

Here are some recommendations for building cross-sectoral programmes:

ArTech programme

Develop the first nation-wide programme that brings together key practitioners from the cultural sector working in visual arts, music, performance arts, architecture, design and photography with experts from the technology sector. The short programme will focus on increasing the digital skills and capacity of arts and cultural organisations, providing practical hands-on support, developing partnerships with the technology sector and facilitating the sharing of resources and best practice. Tech specialists in e-commerce, digital strategy, social media, website design, analytics and video content production will lead a series of workshops to address the basic requirements for digitally engaging with audiences.

What: A series of workshops

Where: The British Council Jordan classes

Who: Led by tech specialists for cultural practitioners

Duration: 4–6 weeks



Art innovation lab

Collaborate with technology and innovation specialists, the technical university and fabrication labs in Amman and Irbid, to engage arts and culture practice within their agenda. Together with makerspaces, the partnership can develop a programme to demonstrate the capacity of new technology in art practice. Led by tech leaders in the industry, the programme will cover the tools, software and hardware available to digitally design and manufacture artistic projects. It will look into computational design, virtual and augmented reality, projection mapping, 3D printing and CNC milling.

What: A series of workshops

Where: Makerspaces

Who: Led by tech specialists for cultural practitioners

Duration: 4–6 weeks

Digital art residency

Art residencies are important for emerging artists, as it provides them with the time and space for reflection, to focus on their research, develop new ideas, experiment, and produce new art works. Presenting the first art residency focused on digital art practice in the country could be pivotal in graduating a new cohort of multimedia artists locally. The residency will present an open call to invite artists with digital art projects that they are looking to implement and exhibit. Chosen projects get a small grant that covers costs for art production. Projects will be given time to be researched and produced with the support and guidance of mentors in the field. The final art projects will be exhibited in collaboration with a local gallery open for public viewing. This will fulfill the gap for support in digital arts locally, and drive an eagerness to produce new digital artistic explorations. It will also help in digital arts audience development and potentially create demand for it.

What: Art residency aimed at visual artists, musicians, performance artists

Where: Creatives' own spaces and studios, exhibition at local gallery

Who: Mentors from each field aid the practices

Duration: 2–3 months



Digital theater

The scoping identified the performance arts sector namely dance and theater as the least adoptive of digital media in arts. Globally there are new stages arising everywhere, including digital, physical and the emerging world in-between. Developing a programme in collaboration with UK dance and theater specialists and institutions to facilitate workshops and produce digital programming with local practitioners could be a start. The programme will uncover innovative ways to merge choreography and dance in digital spaces such as augmented reality shows and digital immersive theater, or present digital incorporations within physical performances.

What: Digital Performance Programmes

Where: Local theater

Who: UK Dance & Theater specialists for local performance practitioners

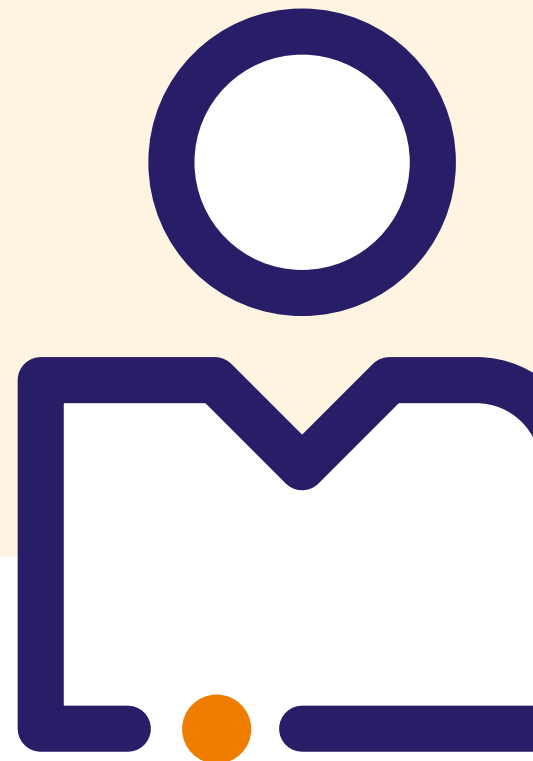
Duration: 4–6 weeks

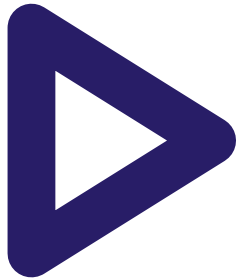
Digital Creative Database

Create an online platform that acts as a link between local creatives and tech experts and provide opportunities for potential collaborations and sharing of expertise. Individuals can sign up by adding their short biography, portfolio and contact details to enable people to connect with them.

What: Online Database

Who: Creatives and Tech Practitioners





Launch virtual and physical events

Host specialists to present information about key topics in a series of seminars and lectures open to the public presented online and/or in physical spaces. These will also act as documentation and future reference for unlimited knowledge-sharing. Examples of topics include: introduction to NFTs and how to start, audience development in visual digital art, curating programmes for digital art practices and in-depth looks into international case studies in digital art.

What: A series of seminars and lectures

Where: Cultural venues

Who: Practitioners working in digital arts

Duration: 1-hour long talks

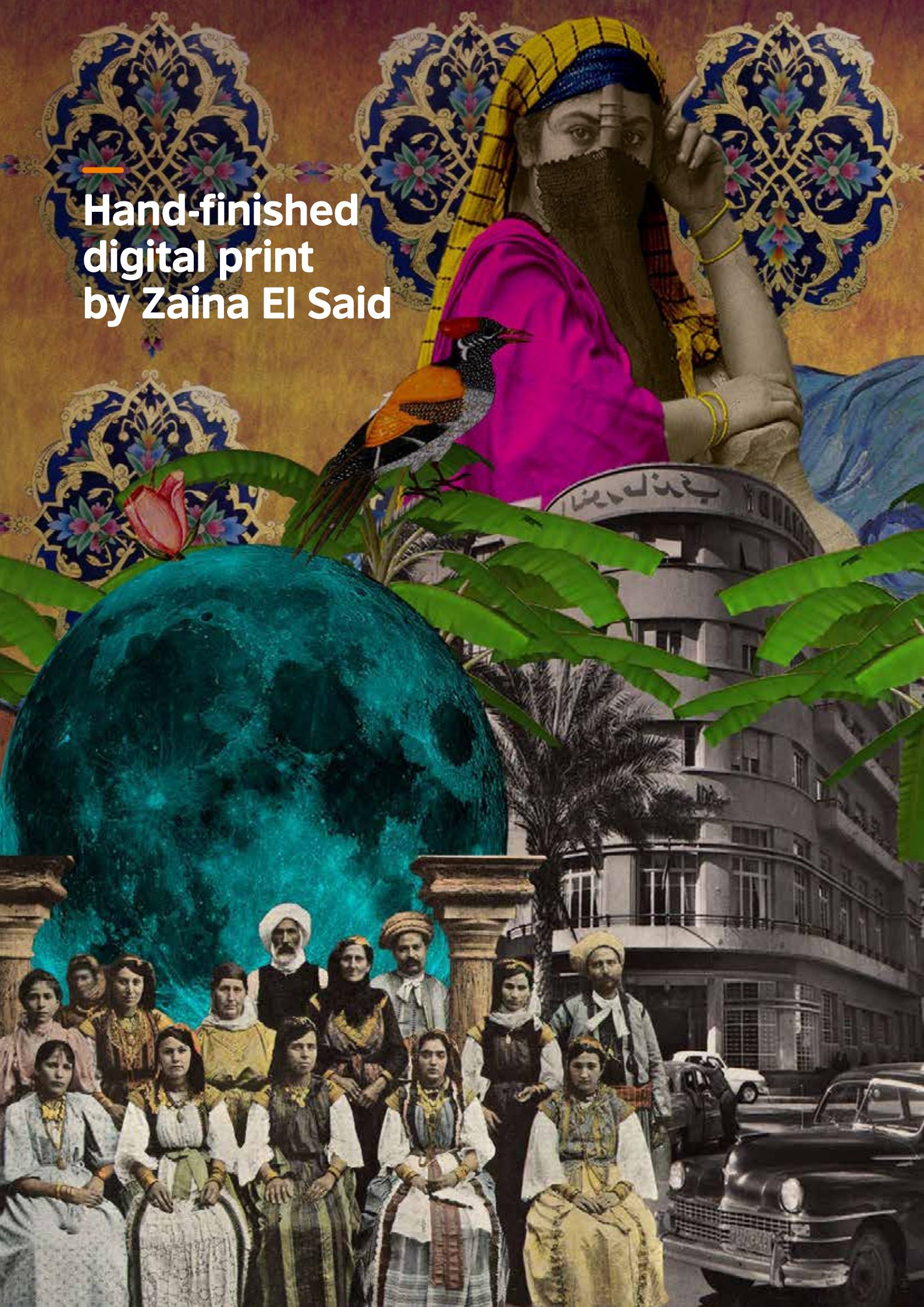
Digital creatives network

Develop an independent focus group/network comprising key players from each creative sector working in digital practices as well as tech players working on a national level. The network will work towards advancing the agenda of Arts and Digital in Jordan and play an advisory role for the British Council programme, convening on a regular basis in order to propose plans, ideas and concepts to grow and propel the digital creative scene.

What: Digital Culture Network

Who: Practitioners working in digital arts and tech
Frequency: Meet once a month

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digital print
by Zaina El Said



Scoping participants

Nadia Zakaria, Nabad Art Gallery

Suha Lallas, Wadi Finan Art Gallery

Barbara Rowell, Jacaranda Images Gallery

Khaled Khreis, The Jordan National Gallery for Fine Arts

Dina Dabbas Rifai, Dar Art Fair

Maral Tajirian, Q0de Art Space

Raida Shahin, Jodar Gallery

Joud Halawani Tamimi, Darat Al Funun

Hashem Joucka, Visual Artist & Designer

Andrei Snobar, Visual Artist & Designer

Solenne Tadros, Visual Artist

Marah Zada, Visual Artist

Suheil Baqaeen, Visual Artist and Educator for the Visually Impaired

Alaa Younis, Architect & Visual Artist

Zaina El Said, Visual Artist

Aya Mobaydeen, Visual Artist

Mike V. Derderian, Visual Artist

Dalia Ali, Visual Artist

Muthanna Hussein, Turbo

Mazen Al Ali, Rum Atelier

Rania Kamhawi, National Center for Culture & Arts

Abd Elhadi Nahleh, Studio 8

Raya Sharbain & Issa Mahasneh, Jordan Open Source Association

Ismail Hakki, Techworks

Cynthia Madanat Sharaiha, Digitales

Tamer Qarrain, Beelabs Applications & Gaming

Eddie Hasweh, Basita.live

Raed Asfour, Al Balad Theater

Linda Khoury, Darat Al Tasweer & Image
Festival Amman

Samir Odeh, Samir & Ghassan Store

Mais Sahli, Musician & Promoter

Yazan Sarayreh, Musician

Basel Naouri, Musician

Nairuz, Musician

Bisher Abu Taleb, Musician

Rana Beiruti, Amman Design Week

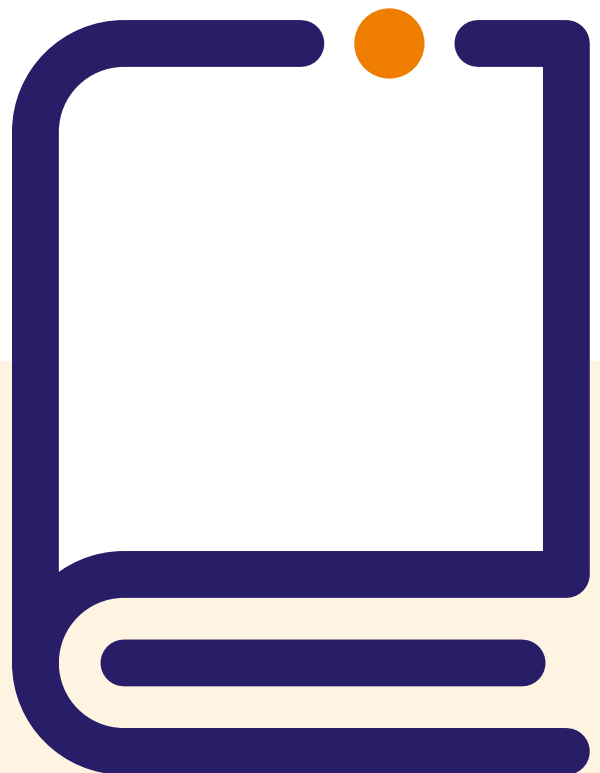
Sophia Schall, Goethe Institut

Khaldoun Hijazin, University of Jordan

Yazan Al Amarat, Petra University

Yazan Hijazi, Hussein Technical University

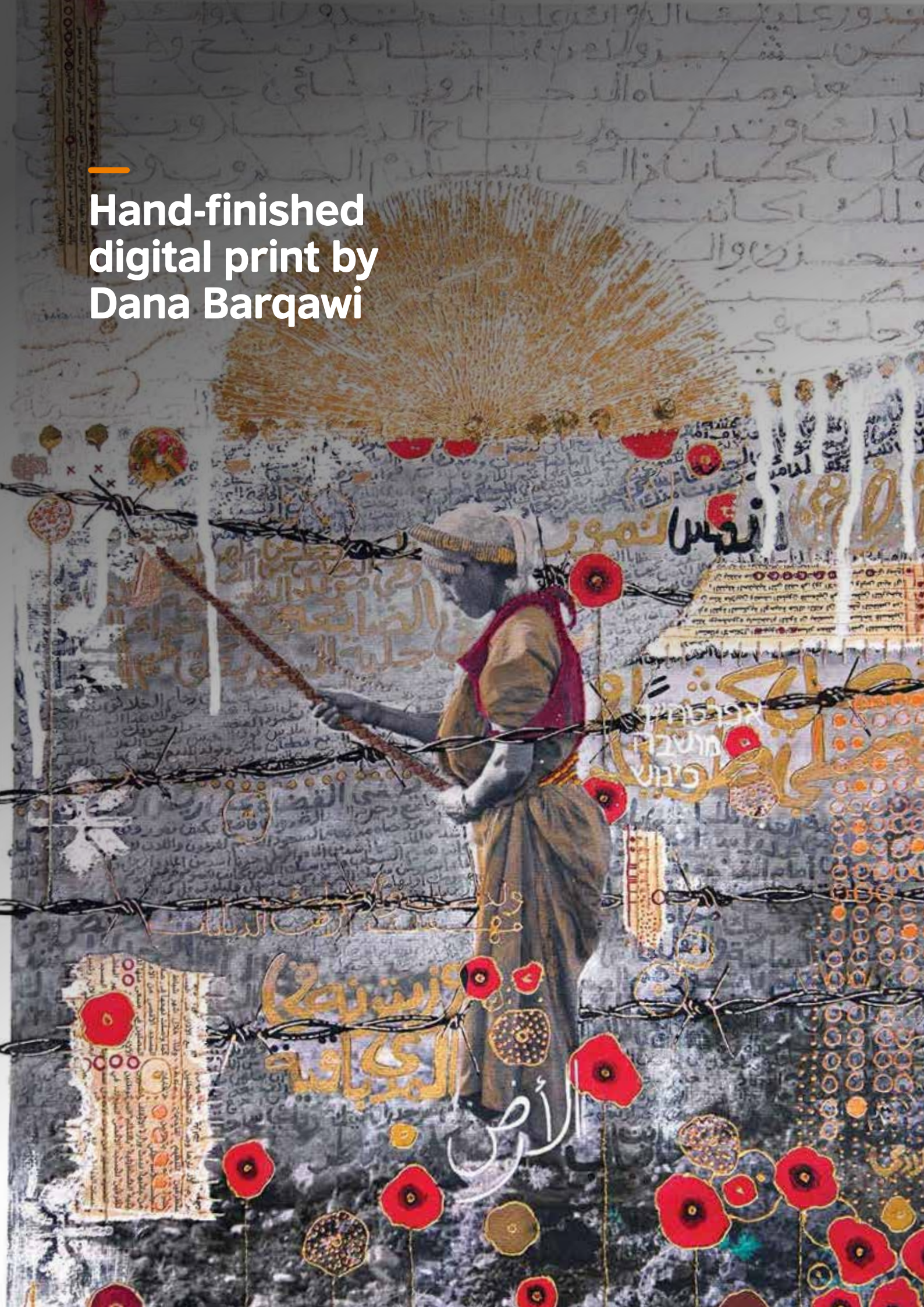
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