

Cinello

THE TECHNOLOGY BEHIND

THE NEW ORIGINAL DIGITALS

Cinello developed the patented technology that allows collectors to become the true owners on an original and authenticated digital limited edition and to display it on a high-end monitor at the best resolution available on the market at the time of production.

It uses a proprietary and patented unbreachable multi-security level encryption that provides the best level of digital protection which prevents any attempt of unauthorized duplication and dissemination. In seeking uniqueness, the digital artwork content is authorized and certified by the artists or by the museum owning the artwork and/or its copyright. The works are only produced in limited edition numbers that are under the full control of the artist or the copyright holder and managed by Cinello. By having this limited number of certified digital multiples on the market, the digital limited edition artworks will naturally increase in value, attracting collectors looking for scarcity in collecting digital assets.

The Cinello's objective was to define the design, the engineering and deployment process of the limited editions, a patented digital management system which provides an encrypted and easy-to-display certified edition of original digital artworks in a high image resolution while preserving the original size of the artwork.

Cinello is an ad-hoc solution for collectors, museums, public and private institutions interested in owning or exhibiting immovable masterpieces from artistic heritage and contemporary artists.

All revenues from the digital limited editions (sales and exhibitions) are shared equally with our partners to ensure a new revenue stream without introducing any restrictions on ownership or current rights.

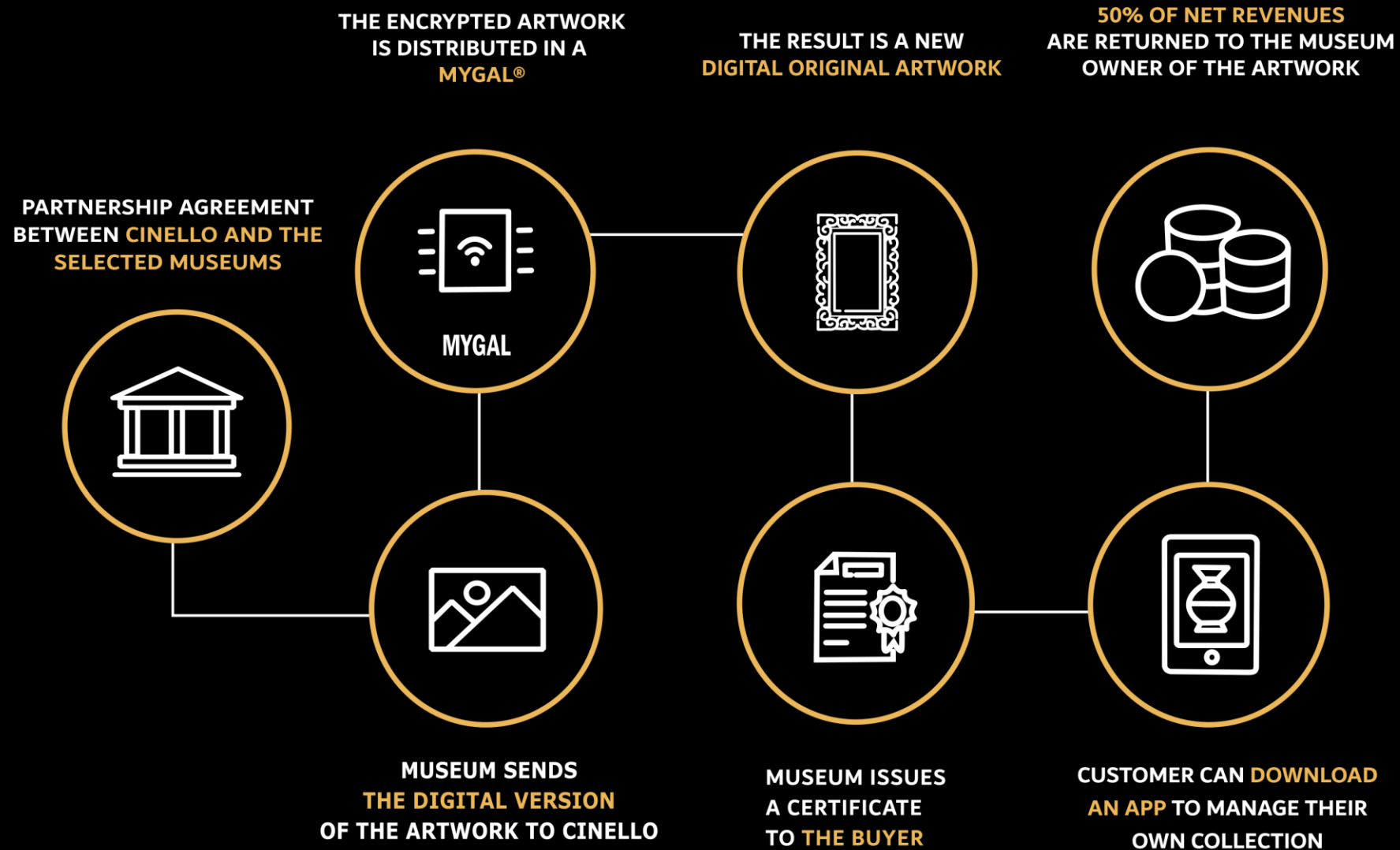
Picture of a digital limited
edition



Michelangelo Merisi da Caravaggio
Limited Edition, DAW's 1/1 of 13
Gilded & Framed (Basket of Fruit)
11x14 (27x35)
Available in limited edition only. Milan

M. Merisi a.k.a. Caravaggio,
Basket of Fruit (c. 1597-1600)

THE BUSINESS MODEL



THE PATENT

Cinello has patented a new technology for the digital limited edition, produced as a digital version of the native masterpiece in the original size.

The patent is related to a model that binds the digital file to the device used to display the file, This binding is realized through a digital encryption system where the encryption key is created starting from the unique identifier of the display system. This is a unique identifier number assigned to every existing device.

Thanks to this patented digital encryption system each digital limited edition is an upgradable version that will be numbered, certified and protected from any tampering attempt, like sharing or copying.

Authentic digital limited editions are managed by a platform that uses cutting-edge technologies to ensure all the constraints and requisites of the work of art are respected and protected, with the primary goal of maintaining the uniqueness of the artwork itself.

In the picture on the right: All the patent certificates obtained for United States, Italy, Europe and China



Cinello

AUTHENTIC DIGITAL LIMITED EDITION

Authentic digital limited edition is a phygital object, composed of both digital and physical items, protected by an international patent. This is a bundle that includes:

- A limited editions digital file, in high definition, encrypted according to the Cinello's patent and reproduced at the highest resolution available at that time;
- A MyGal® device which includes a software to decrypt the digital file and to display it on a monitor; this app stands at the core of the image and video displaying process;
- A signed and numbered COA (certificate of authenticity); this certificate legally proofs and authorizes the reproduction of the artwork as a digital limited edition by Cinello and the artist and/or IP owner of the artwork;
- A competitive high-resolution monitor where the digital limited edition is broadcasted. This is provided by Cinello or by the collector.
- A custom hand-made frame for the monitor. This can be designed and build as the customer requests. Museum frames in our catalogue are currently created by Tuscan artisans who produce exact replicas of the original masterpiece frame.



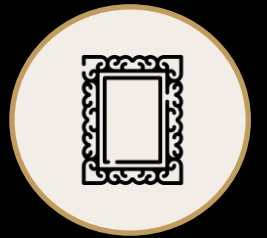
FILE



MYGAL®



CERTIFICATE OF AUTHENTICITY



DISPLAY AND FRAME

MYGAL®

The MyGal® system (device and application) stands at the core of the Cinello's solution.

This is a hardware device that hosts the software developed by Cinello which also implements the patent.

It is used to:

- Set up the network configuration
- Create the cryptographic key used by the server to encrypt the limited edition
- Download, decrypt and store the digital limited edition on its local filesystem and display it on a monitor to which the work is bound through a HDMI port.

All these operations are controlled and secured by Cinello and can be managed by the collector via the MyGal® mobile app.

As part of the MyGal® device, a TPM module is mounted on top of it during the installation process. This module is responsible for the storage of the cryptographic keys used in the entire process.

The TPM provides a cryptographic engine featuring some of the strongest commercially available cipher functions to encrypt, sign and authenticate data. Cinello currently uses a SD Card Encryption functionality to protect the proprietary software and sensitive data from cloning.



MYGAL® device

HOW IT WORKS

Starting from the purchase, the collector's steps to activate their digital limited editions are as follows:

1. User configuration. The client credentials are created on Cinello's back office and the limited edition is associated to their user. These credentials (user and password are also used to log in on the MyGal® mobile app).
2. MyGal® set up. Cinello installs the Software on the device and set up the TPM module.
3. The MyGal® device, monitor and frame are delivered to the client.
4. The client connects the MyGal® device to the monitor via HDMI.
5. The client logs in to Cinello's app and initiates the network configuration of the MyGal®. This means the MyGal® application accesses the same Wi-Fi network of the mobile used to control the app. In this phase, the MyGal® software creates a cryptographic key as expected by the patent process and automatically sends it to Cinello's server through an HTTPS connection.
6. The client requests the download of their limited edition through the MyGal® mobile app.
7. The Cinello's server encrypts the limited edition using the key created in the previous step and sends it to the client's MyGal® app.
8. MyGal® app stores the digital limited edition, re-creates a cryptographic key, decrypts the limited edition and displays it on the selected and paired monitor. By re-creating the cryptographic key at run time, Cinello's patent process ensures that if the monitor was changed, the key would be different and the work would not be decrypted or displayed.

SECURITY

Cinello's security model is implemented at different levels.

The MyGal® application and our server interacts through an authenticated https connection.

During the setup phase of the MyGal® device, Cinello saves a pair of keys (the client ID and the client Secret Keyword) on both the device and the server. These keys are used to identify and authenticate the client's MyGal® device through oauth2 standard protocol when it communicates with the server. These keys are stored on the MyGal® device hard disk as an encrypted file (using one of the secured keys stored in TPM module). When the MyGal® application establishes a connection with the server, the first step is to recognize and authorize the device itself through these keys. This way the server prevents any incoming connection from a non-authorized device.

The entire file system of the MyGal® device is encrypted with one of the secure key stored in TPM module. Thanks to this process, the content cannot be accessed without knowing the key.

The TPM module is installed in production mode and it is bound to the hardware device. Any attempt to remove this will cause the unavailability of the keys, resulting in the unusability of the device. This means the keys from TPM cannot be exported or read.

The MyGal® application is not accessible by any external device. All consoles (tty *) are disabled in the setup phase, the X11 server console switch function (CTRL + ALT + FXX) is also disabled. Therefore, even if one attempts to connect a keyboard to the MyGal® device, it is not possible to interact with it in any way. The firewall is active which limits incoming connections so that only public services are accessible. The internal services, for greater security, are exclusively responding to the localhost.