

FAQ (Frequently Asked Questions)

1.About Digital Imaging Systems (DIS)

Q: What is DIS ?

A: Digital Imaging Systems (or “DIS”) is a total digitization solution suitable for valuable and irreplaceable cultural heritage objects. It conducts all processes from input (digital acquisition) to output in digital form.

<Business aspects>

Q: What is business plan of DIS?

A: Products & Services

Hitachi is planning to offer **digitization of paintings** (especially large size with super high resolution) utilizing our digital imaging systems, and the **creation of super high quality replicas**.

These digitized paintings and replicas **could be utilized for value-added display of paintings in museums or art galleries, or events such as digital/replica museums**, for example.

The value-added display of paintings in museums or art galleries will enable visitors to look closer, touch, and experience art in a way that would be impossible with fragile original paintings.

-Digital imaging systems(Hardware and Software)

Hitachi is continuing to develop its digital imaging system, and has plans to offer it as a package to meet user’s requirements.

-Replicas

Hitachi is also planning to supply replicas of the Italian paintings introduced in this website, and replicas of some Japanese paintings such as the “Genji-Monogatari Scroll” , a Japanese National Treasure.

For each business model, Hitachi aims to collaborate with local solution providers or distributors in the following regions.

Our market (region)

Considering market demand and our business infrastructure and resources, we are focusing on the markets of Western Europe (mainly U.K. France, the Netherlands, Belgium, Germany, Italy, Spain), North America (the United States and Canada), and Japan.

Q: What have you done other than the present digital archive project in Italy?

A: We conducted the project of digital reproduction and restoration of The Picture Scroll of the Tale of Genji (Japan’s national treasure) and restoration of the lost screen paintings in Ninomaru Palace of Nijo Castle, *Kyoto*. The project concluded recently is digitization of *Menami* and *Ho-o* painted by Katsushika Hokusai in collaboration with Nagano Prefectural Shinano Art Museum. We printed out the digital data of Menami and Ho-o to make replicas for educational purposes.

<Technical aspects>

Q: How do you digitize?

A: We digitize an object by a single-lens reflex digital camera and lenses off the shelf and a computer-control camera mount, with DIS original shooting control software. Using the camera and lenses available in the market rather than the specialized equipments minimizes the cost and gives us the choice to use the latest model at the time of digitization.

Q: What is the characteristic technology of DIS?

A: DIS software is designed with basic image processing technology (transformation, composition and color adjustment) and know-how accumulated through our research studies and projects. It is far more advanced than other similar software in the accuracy of composition and its quality, and we have received high commendation from home and abroad.

Q: How large is the image data in pixel?

A: It depends on the object. The largest data size so far is “Nascita di Venere”, whose data size was 10 billion pixels (127800 x 80400 pixels), which is about 60 gigabytes.

Q: How high is the image resolution?

A: Pixels of the digitization recently done utilizing DIS varies from 300 ppi to 1500 ppi.

We have achieved resolutions of 1000 ppi or more with all the recent digitization thanks to the improvement in the digital shooting process and image processing technology.

Q: How many times can you enlarge the images on display?

A: It depends on the object. The images can be enlarged from 6.4 to 32 times than the life size of the originals.

Q: What is the difference from scanners?

A: Digitization by a scanner becomes very difficult, when the object is larger than the scanning size. Moreover, scanners produce strong light very close to the object during scanning, and it has a possibility to harm fragile cultural assets.

Digitization by a digital camera, on the other hand, has no limitation of the size of object. We shoot the object from a certain distance with indirect illumination. Therefore, there is no need to worry for damaging the object. We have continued developing our system to automate the digital shooting itself to minimize the time and cost.

Q: Is the image processing automated?

A: Yes. We combine several processing to complete a single image data faithful to the original with high definition quality, and each processing is automated. (Some adjustment of parameters and selection of image data need manual operations.)

Q: What is the difference between panoramic photo software and DIS software to joint images shot by a digital camera?

A: DIS software is different and surpasses than panoramic photo software in its accuracy in composition, quality of images and the size of final resolution. Especially when the resolution of final image becomes hundreds million, panoramic photo software cannot handle it, but DIS software can.

Q: How long does it take to finish a replica?

A: It takes about one month from digital acquisition (camera shooting) to complete the

replica in frame.

2.Replica

Q: Are the replicas for sale? What are the prices?

A: Yes. Price of life-size replica is from 2.7 million to 5.0 million yen. Pricing for end-users. If you are a distributor or replicas in our business region, and interested in distributing them (minimum quantity: approx. 50-100 pieces depending on the sort of paintings), please contact us separately.

Q: What is the characteristic technology to produce high definition prints?

A: To produce higher definition prints, DIS original technology makes up the definition data which is lost during printing due to the tendency of the printer's performance.

3.Others

Q: Do you digitize other objects other than paintings?

A: We are focusing on digitization of paintings, for which the characteristics of DIS are most useful.

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This is the end of Q&A.