

A traditional Bulgarian folk painting of a castle with red domes and a cross-shaped window. The painting is on a textured, brownish background. The castle is yellow with red domes and a large cross-shaped window. There are green trees and a patterned archway in the background.

# **Educational applications on top of digital libraries for cultural heritage**

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## Presentation overview

- SINUS project
- “Virtual encyclopedia of the Bulgarian iconography” multimedia digital library – the SUNUS learning objects source
- SINUS use case e-learning scenario
- A real situation (use case) demonstrating the SINUS scenario
- LOGOS project learning materials



## SINUS project (1)

- Research Project “**Semantic Technologies for Web Services and Technology Enhanced Learning**” (No. D-002-189)
- Financial support: National Science Fund of Bulgaria
- Partners:
  - 2 BAS institutes: Institute of Mathematics and Informatics and Institute of Information and Communication Technologies
  - 1 software company: Active Solutions Ltd.
- Duration: 3 years (2009 - June 2012)



## SINUS project (2)

### Objectives:

- To develop an environment for extending, binding and using heterogeneous multimedia digital libraries, accessible as web services. Extensions of the DL in the following directions:
  - a/ Enrichment of the built-in domain knowledge, through /additional/ ontological models and extended search functionality;
  - b/ Enrichment of search results visualization – explicitly controlled and content-based sorting of found objects, explicitly controlled and content-based display of additional descriptive (metadata based) information.
- Development of **specialized e-learning facilities**, allowing learning-by-authoring of specific learning materials by intensive use of multimedia digital libraries.

# “Virtual encyclopedia of the Bulgarian Iconography” MDL

- Information content and digital objects with a detail semantic description synchronized with CIDOC Conceptual Reference Model standards
- Functionality
  - Content creation: add (annotate and semantic indexing), store, edit, preview, delete, group, and manage multimedia digital objects (images, text, sound, video) and collections;
  - Manage metadata (ontological and technical);
  - Innovative tools and techniques for navigation, preview, access, and browse of digital objects, collections and their descriptions;
  - Simple and extended keyword search, complex semantic and context-based search, selection and group of objects;
  - Multilinguality (English and Bulgarian);
  - Protection and preservation of the digital content (Watermarking, CopyRights);
  - Administration and data tracking services; analysis services;
  - Data export;
  - Personalized and adaptive access to the digital content

# Object preview



**VIRTUAL ENCYCLOPEDIA OF BULGARIAN ICONS**

UK BG Hello, admin! Home Search objects View objects Profile Log out

**St. Nicholas the Wonderworker**

Type: *Icon*

Period: 1834 year

Author: *Dimiter Molerov*

School: *Bansko Iconographic School*

Dimensions (cm): 82 / 40 / 2

**Location**

Country: Bulgaria  
Province: Blagoevgrad  
Village: Gostun  
Church: St. Prophet Elijah

**Source**


Country: Bulgaria  
Province: Blagoevgrad  
Village: Gostun  
Church: St. Prophet Elijah

**Description**

A down-to-the-waist portrait of Saint Nicholas in archieratical vestments and with a mitre on his head. He is blessing with his right hand and in his left hand he holds a closed book. The painting in the composition is made with a professional skill and betrays the hand of a gifted iconographer.

**Iconographical technique:** *Combined*

AN egg-and-oil technique, with *velaturas* and *gliding*. The varnish cover is laid unevenly and is broken as the result of a previous cleansing.



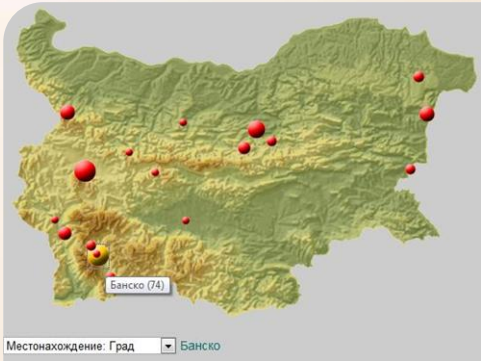
[original source]

# BIDL Functionality

**Инструменти**

- Преглед на обекти
  - според заглавие
  - според автор
  - според школа
  - според техника
  - според основа
- Преглед на автори
- Преглед на иконописни школи
- Преглед на иконографски сцени
- Преглед на персонажи по каноничен тип
- Преглед на персонажи
- Преглед на региони (местонахождение)
- Преглед на градове (местонахождение)

- Търсене на обекти
  - по заглавие
  - по автор
  - по школа
  - по период
  - по местонахождение
  - по място на създаване
  - стандартно
  - разширено
- Колекции



Благовещение ☺    Благовещение ☺    Благовеславъц Христос ☺    Благовеславъц Христос ☺

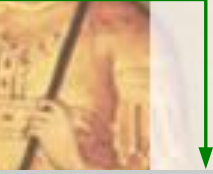
Благовеславъц Христос ☺    Влизане в Йерусалим ☺    Въведение Богородично ☺    Въздвижение на честния кръст ☺

Възкресение Лазарово ☺    Възкресение Лазарово ☺    Възкресение Христово ☺    Възнесение на Пророк Илия ☺

Възнесение Христово ☺    Дяконски олтарни двери ☺    Исус Христос ☺    Кръщение Христово ☺

1 2 3 4 5 >>>

№	Author	
21.	Teacher Stoyu and Teacher Nedyo	2
22.	Toma Vishanov-Molera	28
23.	Tsanyu Zachariev Senior	1
24.	Unknown	152
25.	Vassil Genkov	1
26.	Yoaniky (Yonko) Papa Vitanov	6
27.	Zacharya Tsanyuv	17
28.	Zahari Zograph	2
29.	Zograph Serafim	1



**Author: Toma Vishanov-Molera (28)**

**Author biography:** Toma Vishanov-Molera, born around 1750, painter of icons and murals, founder of the Bansko school of art. He grew up in the family of the clergyman Vishan. Around 1765 he went to Vienna, where he studied painting. It is not known who were his teachers there or when he returned to Bansko. His fellow villagers called him *the Moler, Moler* (from German *Malerei* 'painter'), whence the entire family's surname. Under the influence of the European 18th century art Toma Vishanov painted his works in a new manner, unknown until then in Orthodox art. The figures are realistic, vivid, expressive. Toma Vishanov is an innovator in the early period of Bulgarian Renaissance. His ideas on art were not understood and at first were rejected by his contemporaries. His work has not been studied extensively. He died after 1811 in Bansko.

Saint Great... ☺    St. John the Baptist ☺    St. Marina and St. Parasceve ☺    St. Trinity... ☺    St. Tsar Constantine... ☺    The Annunciation ☺

The Baptism of Jesus Christ ☺    The Beheading... ☺    The Blessing of Christ ☺    The Circumcision of Christ ☺

**Търсене по период:**

Период

▶  Година

▶  Век

▶  начало

▶  среда

▶  край

▶  първа половина

▶  втора половина

▶  Година

▶  Век

▶  начало

▶  среда

▶  край

▶  първа половина

▶  втора половина

Век: 19 [нов прозорец]

2. Въздвижение на честния кръст  
Век: 19 [нов прозорец]

3. Сложна икона с 12 евангелски сцени  
Век: 19 [нов прозорец]

4. Св. Антоний и св. Евтимий Велики  
Век: 19 [нов прозорец]

5. Въздвижение на честния кръст

**Инструменти за редактори**

- Добавяне на обекти
- Проверка за съпадение на изображения

**Инструменти за администратор**

- Потребители
- Сурови статистики
  - за вход / изход / потребителски настройки
  - за редакция на обекти
  - за преглед на обекти
  - за търсене на обекти
  - други административни дейности
- Статистики с групиране
  - за вход / изход / потребителски настройки
  - за редакция на обекти
  - за преглед на обекти
  - за търсене на обекти
  - други административни дейности
- Експортране в XML
- SINUS

ВЪРТУАЛНА ЕНЦИКЛОПЕДИЯ НА БЪЛГАРСКАТА ИКОНОГРАФИЯ

Здравейте, тма!    Начало    Търсене    Преглед на обекти    Настройки    Изход

Колекции - Църквата "Св. Троица", гр. Банско (33)

Благовещение ☺    Рождество Иоаново ☺    Рождество Богородично ☺    Св. Иоан Кръстител ☺    Св. Пророк Илия ☺    Исус Христос ☺    Уборс ☺    Свети Великомъченик... ☺

Възнесение Христово ☺    Св. Богородица Пътеводителка ☺    Христос Вседържител ☺    Възкресение Христово ☺    Св. Апостол Андрей ☺    Св. Апостол Петър ☺    Св. Апостол Павел ☺    Св. Апостол Яков ☺

Св. Апостол Тома ☺    Св. Евангелист Марко ☺    Св. Евангелист Матей ☺    Св. Евангелист Лука ☺    Св. Евангелист Йоан Теолог ☺    Св. Пророк Илия ☺    Св. Архангели... ☺    Св. Великомъченик... ☺



# SINUS e-learning scenario (1)

## Scenario characteristics:

- *Learning goals:*
  - improving and mastering domain knowledge;
  - development and application of learners' analytical skills;
  - mastering professional DL usage.
- *Learning tasks:* development of educational projects for assigned analyses of given characteristics of the objects under study by:
  - Constructing multimedia collection of DL objects to be analyzed;
  - Comparison of objects characteristics;
  - Development of the project as a multimedia document (text + collection of objects).





## SINUS e-learning scenario (2)

### Scenario characteristics

- *Used methodology:* project development using the theoretical and experimental methods such as *analysis, comparison and differentiation*, and interactive methods - group work, discussion and debate.
- *Basic resources:* primary annotated digital resources, semantically annotated digital resources, learning resource, semantic resources (ontologies), profiles of users.
- *Users:* the developers of various resources and the consumers of those learning resources.



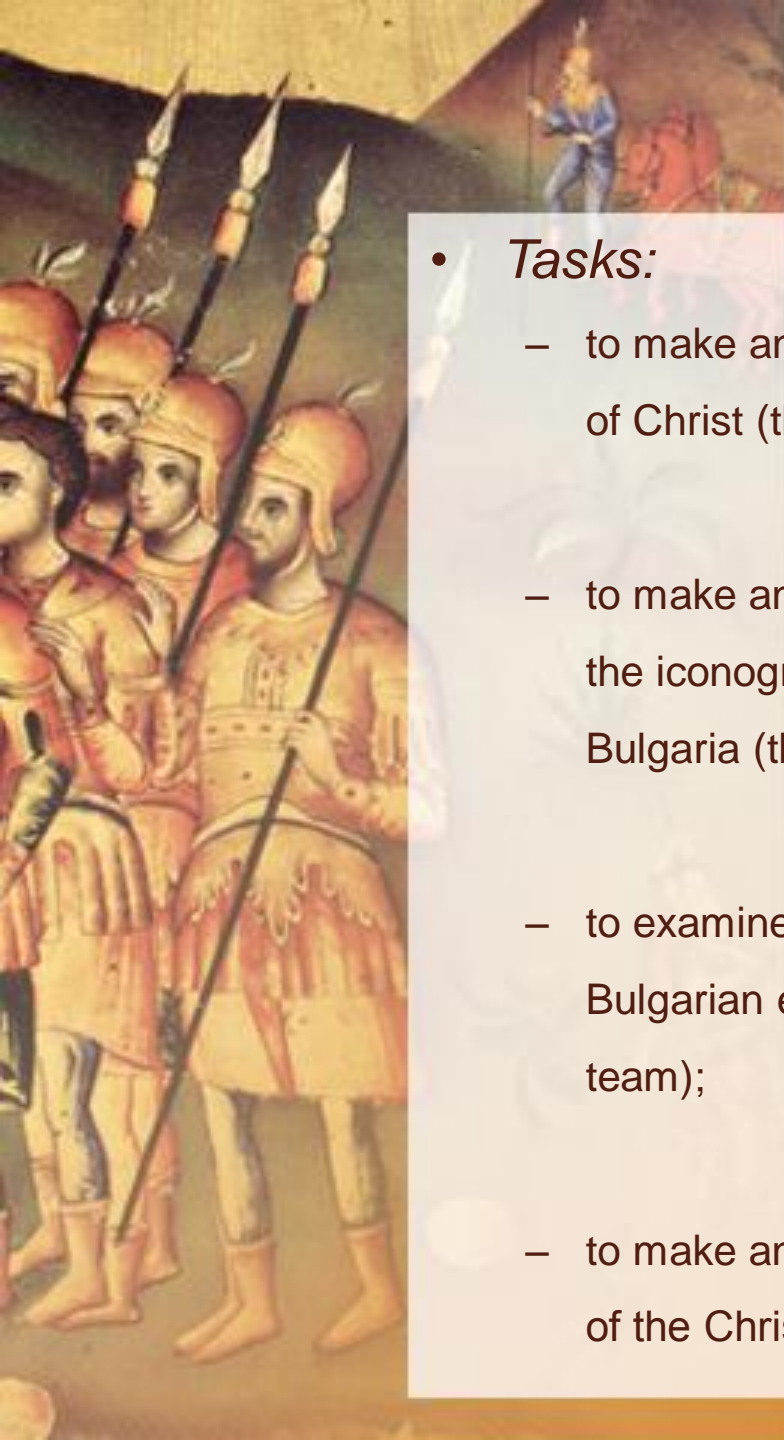
## SINUS use case (1)

- *Use case title:* Development of the project - ***The Iconography of Christ in the Historical Territories of Bulgaria***
- *Learning domain:* East-Christian culture and art.
- *Primary source of digital objects for the learning domain:* “Virtual Encyclopaedia of the Bulgarian Iconography” multimedia digital library
- *Users:* developers of learning resources and consumers of those learning resources (students and lecturers)
- *General scenario situation*

## SINUS use case (2)

- *Tasks:*

- to make an analysis of the theological meaning of the iconography of Christ (the Theology team);
- to make an art critical analysis of the chronological development of the iconography of Christ in the different iconographical schools in Bulgaria (the Art Critics team);
- to examine the main iconographic techniques used in the best Bulgarian examples of iconography of Christ (the Art Technique team);
- to make an icon of Christ or a part of a mural painting depicting one of the Christ's feasts (the Artistic team).



## SINUS use case (3)

- *Arts Critics team task:* Make an art critical analysis of the development in time of the iconographic image of Jesus Christ in the various iconographical schools on Bulgarian land. Steps to be performed:
  - Select a minimum of 6 iconographic object containing the image of Jesus Christ in a one-figure composition.
  - Arrange the iconographic objects in groups by school of iconography.
  - If a school of iconography's group contains objects by an eminent author and founder of the school, place these high on the list. Among the objects designated for art critical analysis there should be at least one by a prominent author/school founder, if available.
  - Ensure that the iconographic objects designated for art critical analysis are currently in good condition.
  - Ensure that at least one primitive iconographic object and at least one Renaissance iconographic object are included in the iconographic objects designated for art critical analysis.

## SINUS use case (4)

- *Art Technique team task:* Find iconographic objects containing the image of Jesus Christ in order to compare their specifics from a technological point of view
  - Find all the iconographic scenes with Jesus Christ.
  - Choose one iconographic scene with a Christ's feasts ((Holy Cross, Nativity, Epiphany, Palm Sunday, Ascension, Pentecost and Transfiguration), with the most samples (iconographic objects), minimum 6.
  - Ensure the selected iconographic objects are on solid base (wood, stone and metal, bone, glass).
  - Ensure only iconographic techniques (tempera, oil, mixed) are used in the painting of the iconographic objects.
  - Ensure the iconographic objects contain gilding.
  - Ensure the Iconographic objects are arranged by temporal characteristics, for example, century.





## SINUS use case (5)

- Team analysis presentation
  - With a multimedia demonstration (multimedia presentation, film) for a collaborative discussion forum
  - On the basis of the discussions and presentations a specific task for the **artistic team to draw an iconographic object** is collectively chosen.
- Project evaluation: Professor Ivanov evaluates each team according to:
  - Completeness, adequacy and correctness of the text material (choice of collection, choice of base characteristic/s of the iconographic objects to use when implementing the analysis, adequacy of the findings and conclusion of the analysis);
  - Attractiveness of the multimedia presentation of the theses and results of the analysis;
  - Questions/comments, their meaning and correctness, creative ideas and thinking.



## The LOGOS project

- Project acronym: LOGOS
- Project name: Knowledge-on-Demand for Ubiquitous Learning
- Contract no.: EU 6FP IST-4-027451
- Started: 2006 February
- Duration: 3 years
- Website: <http://www.logosproject.com/>
- Partners: 15 from 8 countries
- Coordinator: Antenna Hungaria, Hungary



## The LOGOS project - partners

- Antenna Hungaria, Hungary
- University of Brighton, UK
- Technical University of Crete, Greece
- Eduweb Multimedia, Hungary
- Consorzio per la Ricerca e l'Educazione Permanente, Italy
- European Distance and E-Learning Network, UK
- Fondation Maison des Sciences de l'Homme, France
- **Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences, Bulgaria**
- Institut National de l'Audiovisuel, France
- Budapest University of Technology and Economics, Hungary
- Laboratory of Informatics, Robotics, and Microelectronics of Montpellier, France
- Institute of Information Technologies at the Bulgarian Academy of Sciences, Bulgaria
- University of Angers, France
- EXOS Consulting, Slovakia
- Sofia Digital, Finland





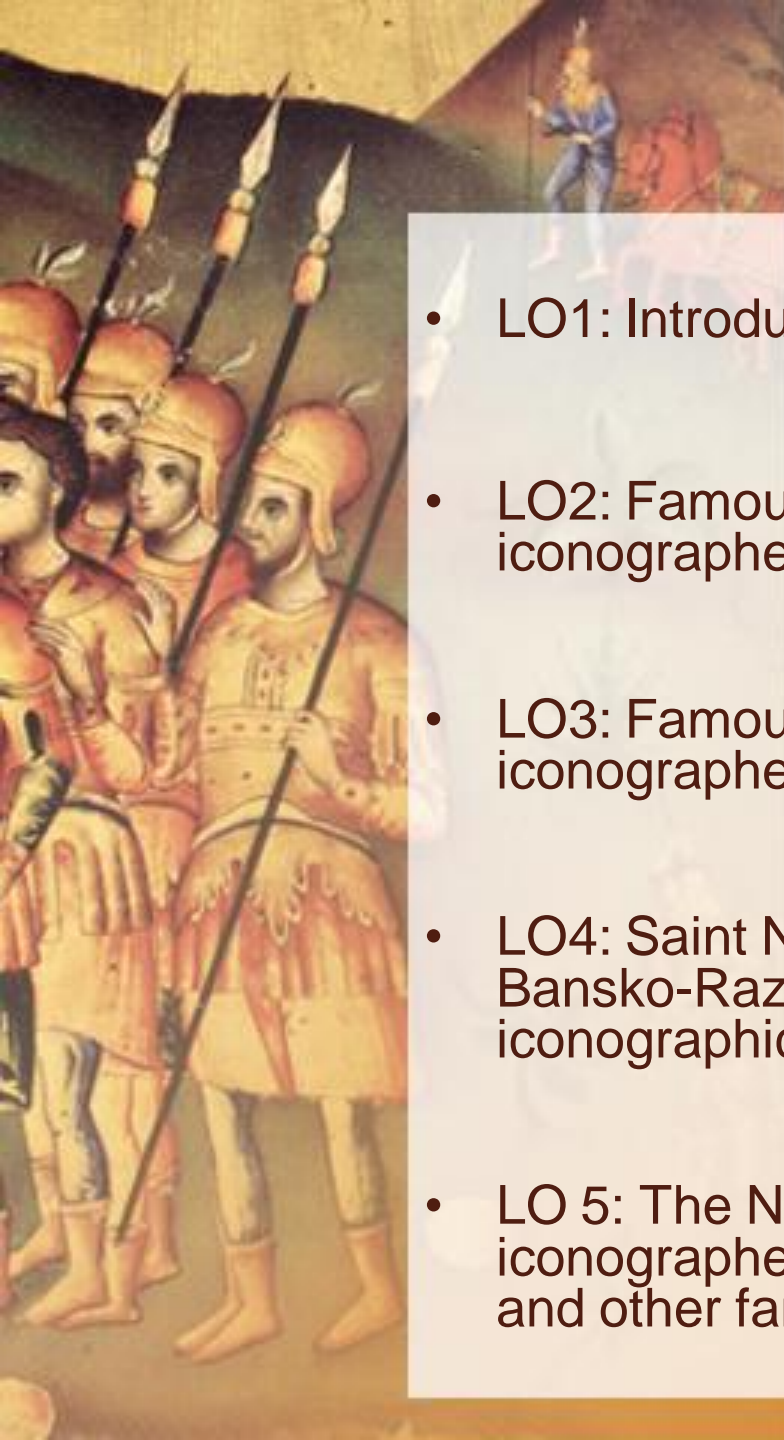
## The LOGOS project

### Aims

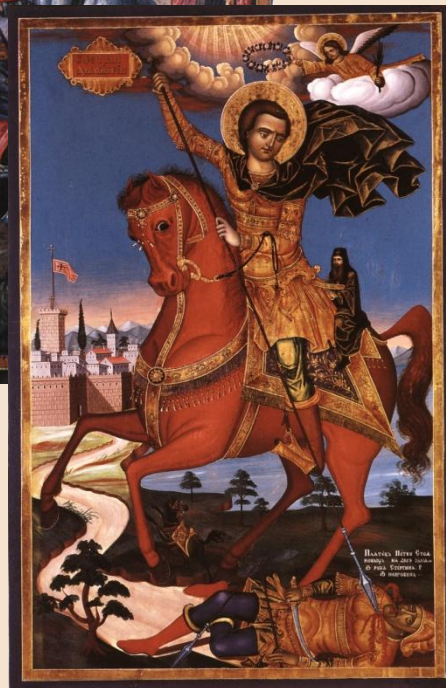
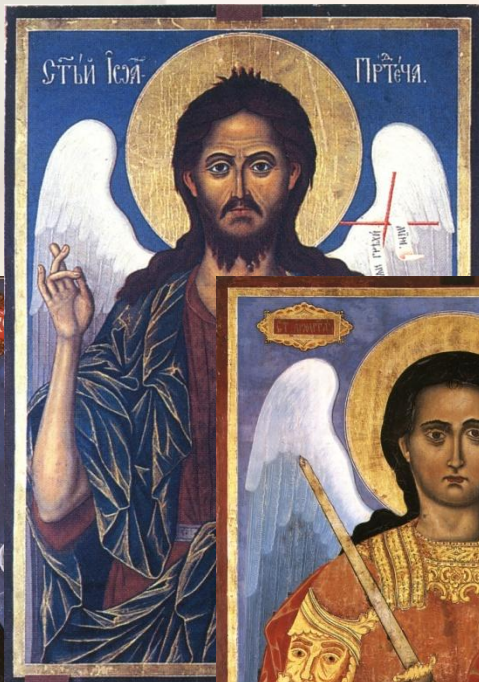
- The development of a new cross-media platform for eLearning using current Internet, mobile phone and DVB technologies for knowledge delivery
- Development of a special authoring studio **using objects from existing digital archives (digital libraries and repositories)** for new cross-media learning content

## LOGOS Courseware: Style and achievements of the Bansko-Razlog iconographic school

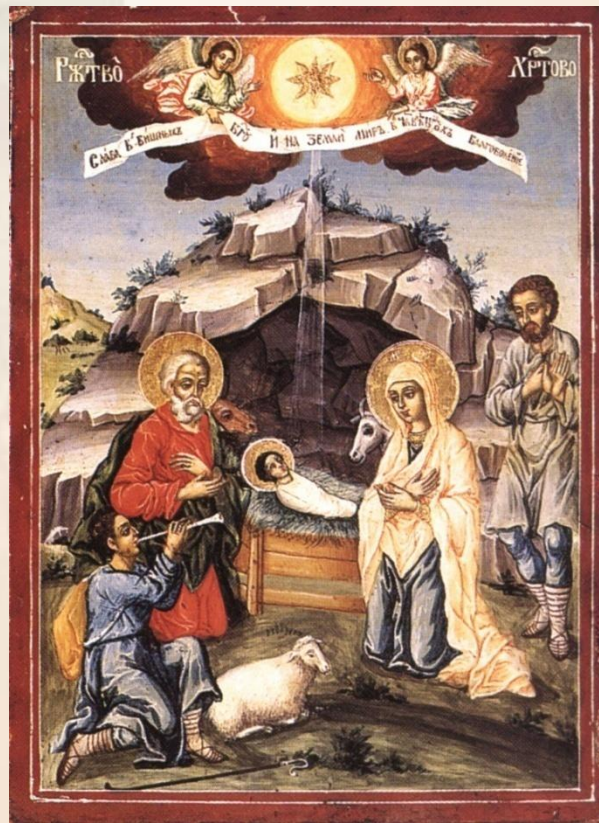
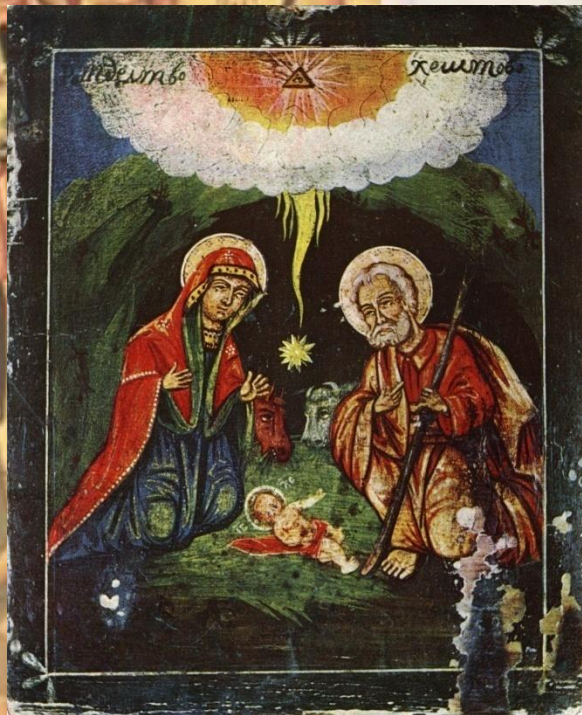
- LO1: Introduction to Bansko-Razlog iconographic school;
- LO2: Famous iconographic characters painted by iconographers from Bansko-Razlog iconographic school;
- LO3: Famous iconographic scenes painted by iconographers from Bansko-Razlog iconographic school;
- LO4: Saint Nicholas painted by iconographers from Bansko-Razlog iconographic school and other famous iconographic schools;
- LO 5: The Nativity of Christ scene painted by iconographers from Bansko-Razlog iconographic school and other famous iconographic schools.



# L02: Famous iconographic characters painted by iconographers from Bansko-Razlog iconographic school



# The Nativity of Christ scene painted by iconographers famous iconographic schools





THANK YOU  
FOR YOUR ATTENTION!

<http://bidl.cc.bas.bg>

<http://sinus.iinf.bas.bg>

<http://logosproject.com>