

GameTable

Computational Techniques for Tabletop Games Heritage

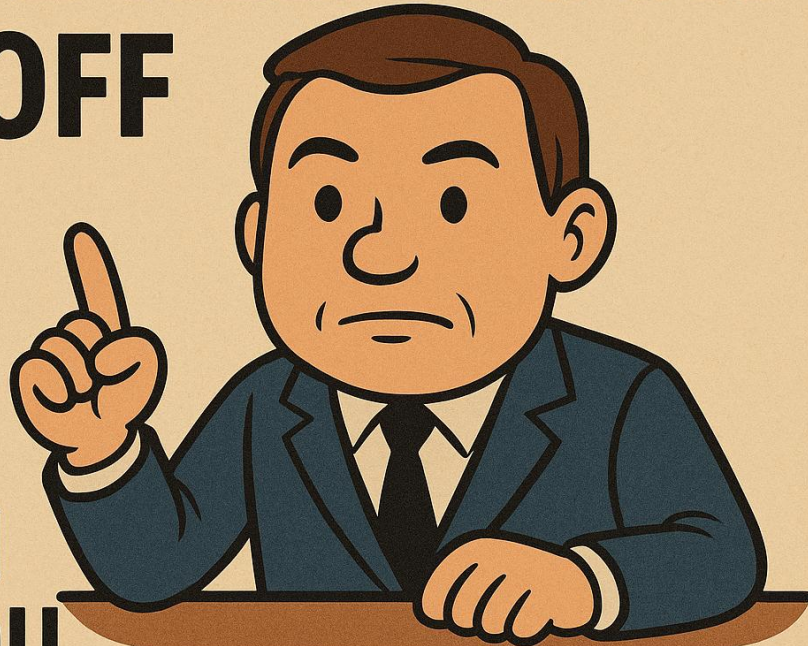
MC4 meeting

Please keep your mic off

**PLEASE KEEP YOUR
MIC OFF**



**UNLESS I
INVITE YOU**



TO SPEAK

Agenda

- **(1) Some (updated) Data on GameTable**
- **(2) GP3 Overview**
- **(3) Grants Awarded during GP3**
- **(4) WG1 GP3 activities**
- **(5) WG2 GP3 activities**
- **(6) WG3 GP3 activities**
- **(7) WG4 GP3 activities**
- **(8) WG5 GP3 activities**
- **(9) GP4 budget and objectives**

Reminder: GameTable Objectives

#	Objective Number	Objective Description
1	Challenge	explore new ways to study games across diverse fields such as history, archaeology, mathematics, and education, in collaboration with AI researchers. Together, we will design algorithms, methods, and techniques capable of emulating human-like gameplay across a wide range of tabletop games to unlock new insights for research within these disciplines.
2	Secondary objective 1	Identify AI techniques that can answer archaeological and historical research questions and facilitate future research on games of the past through the creation of digital tools.
3	Secondary objective 2	Understand the ways that cultural processes can change gameplay, and explore the ways that games have had an impact on cultural change. Provide methodologies to connect artefacts with specific kinds of gameplay and create innovative techniques for studying gaming cultures of the past.
4	Secondary objective 3	Improve standard approaches for the analysis of tabletop games in developing interaction between AI search techniques and the mathematical aspects involved in these techniques.
5	Secondary objective 4	Provide explainable approaches for the strategies performed by the AI agents and elements of comparison between tactics and strategies.
6	Secondary objective 5	Design AIs using a variety of strategies, simulating how humans experience gameplay. Learn from human in-game communication and teach AIs how to interact with AIs and humans.
7	Secondary objective 6	Provide reconstructed games for use by cultural institutions in their educational programs and create accessible digital tools to engage the public with heritage games.
8	Secondary objective 7	Extend General Game Playing (GGP) research by developing a framework to model imperfect-information games.
9	Secondary objective 8	Develop procedural generation techniques of higher quality games and puzzles than are currently being achieved with existing approaches and provide automatic evaluation, play testing and balancing of tabletop games.
10	Secondary objective 9	Generate innovative and original high-quality games for commercialisation.
11	Secondary objective 10	Develop effective educational strategies for teaching Game AI and pedagogical programs and activities among students at all levels of education.
12	Secondary objective 11	Establish a robust network of European researchers, through the organisation and coordination of open and multidisciplinary events, fostering enduring collaborations that extend beyond the duration of the project.
13	Secondary objective 12	Promote a collaborative research agenda aimed at facilitating the inception of new projects that leverage combined expertise, skills, and human resources. This strategic approach will enable the Action to effectively address the challenges posed by the Action.
14	Secondary objective 13	Attract the next generation of young researchers and innovators in games, and support them to learn about the manifold subjects, topics and possibilities in the fields to contribute to the improvement of computer science, mathematics, history, anthropology, and archaeology.
15	Secondary objective 14	Promoting Young Researchers and Investigators (YRI) in increasing their visibility through conferences and workshops.
16	Secondary objective 15	Develop collaborations between YRIs and experts from various fields in supporting researcher mobility by encouraging researchers to participate in training schools and through the intensive use of Short-Term Scientific Missions (STSM). The Action will strive for a fair and diverse membership.
17	Secondary objective 16	Significantly improve gender equality in the Action.
18	Secondary objective 17	Disseminate the results of the Action activities to the scientific community and to the public.
19	Secondary objective 18	Achieving geographical and demographical diversity, with special attention to gender balance and COST Inclusiveness Target Countries (ITC), throughout the Action.
20	Secondary objective 19	Identify and interact with stakeholders. Stakeholders will be actively identified among Action members and their networks but also beyond.
21	Secondary objective 20	Form an educational programme to offer training in the different multidisciplinary areas embedded in this Action.

Reminder: GameTable Deliverables

- A public **website**.
- **Tutorials** and **videos** to promote the results and activities.
- **Reconstructed rulesets**.
- **White papers** from each WG leader after the first two years.
- **Book(s)/survey(s)** papers.
- **Educational** materials such as **booklets**.
- **Two public events** in partnership with **museums** or other **cultural institutions**.
- **Digital Exhibition** to highlight impactful games in world history.
- A **system** tailored for **public** and **non-computer science researchers**, designed to study, analyse, evaluate, and play any tabletop game.
- **Vision papers** on future challenges and avenues for research.
- **Publications** in peer-reviewed journals and conference proceedings. Each WG will produce a minimum of five (open-access) articles/reports/documents.
- **Interdisciplinary collaborations** between the WGs will be a priority to present scientific results at conferences.

Website & results update

The website and its results data have been updated

45 publications — 10 (2024), 16 (2025), 19 (2026)

36 other outputs — funding, workshops and outreach

46 grant records — 24 STSM, 14 dissemination, 8 YRI

21 media features · 101 archived news & events

Publications, reports, funding and MC slides are now easier to find
Search, WG filters and chronological archives

As of 12 October 2026 · Includes accepted papers and grants awaiting reports

How many were we on MC3 (15/09/2025)?

- **336 members**



- **41 COST Countries + 15 International Countries**
- **WG1: Game-playing AI (136 members)**
- **WG2: Cultural Heritage of Games (171 members)**
- **WG3: Procedural Content Generation (126 members)**
- **WG4: Mathematics in Games (110 members)**
- **WG5: Implementation, Dissemination and Education (190 members)**

How many are we?

- **389 members!**
(+15,8%)



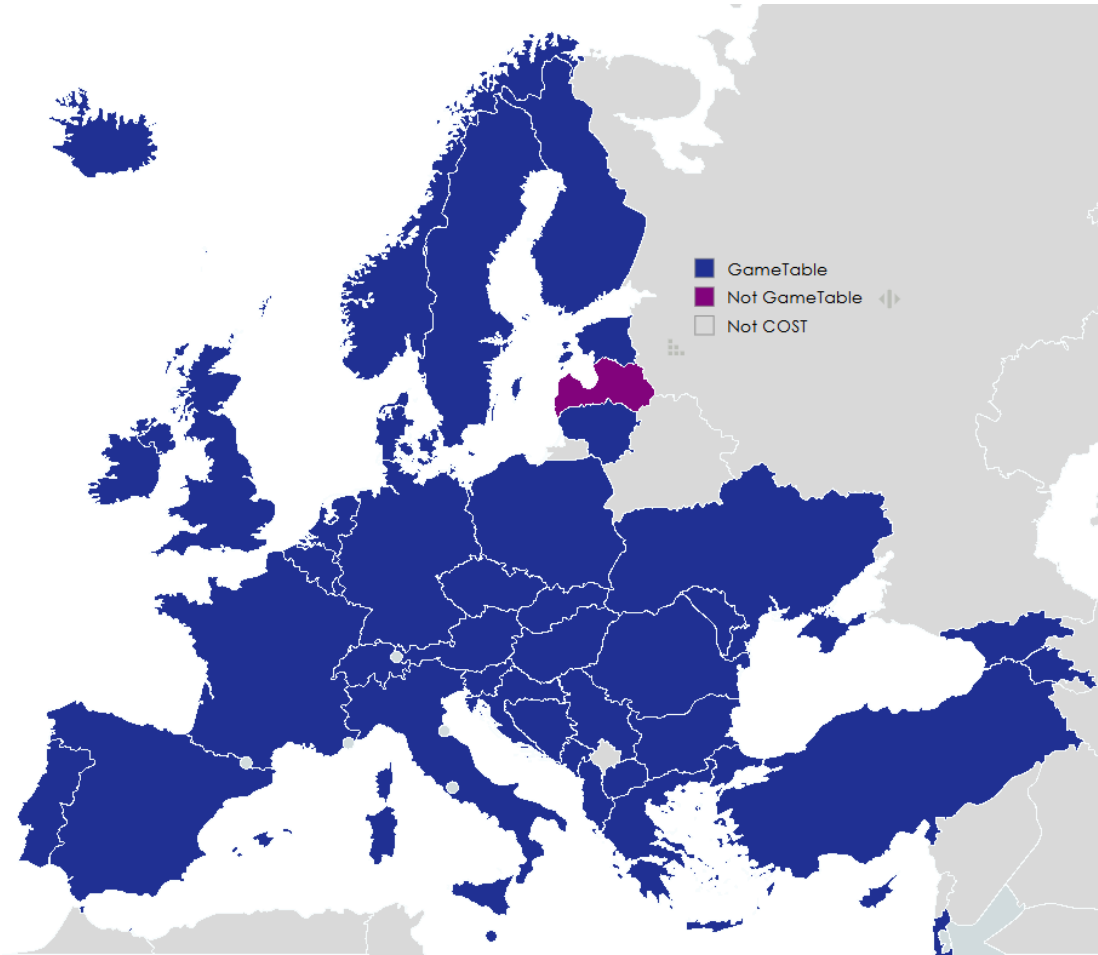
- **WG1: Game-playing AI (157 members)**
- **WG2: Cultural Heritage of Games (201 members)**
- **WG3: Procedural Content Generation (141 members)**
- **WG4: Mathematics in Games (120 members)**
- **WG5: Implementation, Dissemination and Education (224 members)**

How many COST countries?

- **41 COST countries (24 ITC):**

Portugal, Spain, Italy, Malta, Greece, Cyprus, Turkey, Israel, Albania, North Macedonia, Bulgaria, Serbia, Bosnia and Herzegovina, Croatia, France, Switzerland, Slovenia, Austria, Slovakia, Czechia, Poland, Germany, Belgium, Netherlands, United Kingdom, Ireland, Denmark, Finland, Sweden, Norway, Iceland, Hungary, Estonia, Ukraine, Lithuania, Romania, Montenegros, Armenia, Luxembourg, Moldova, Georgia

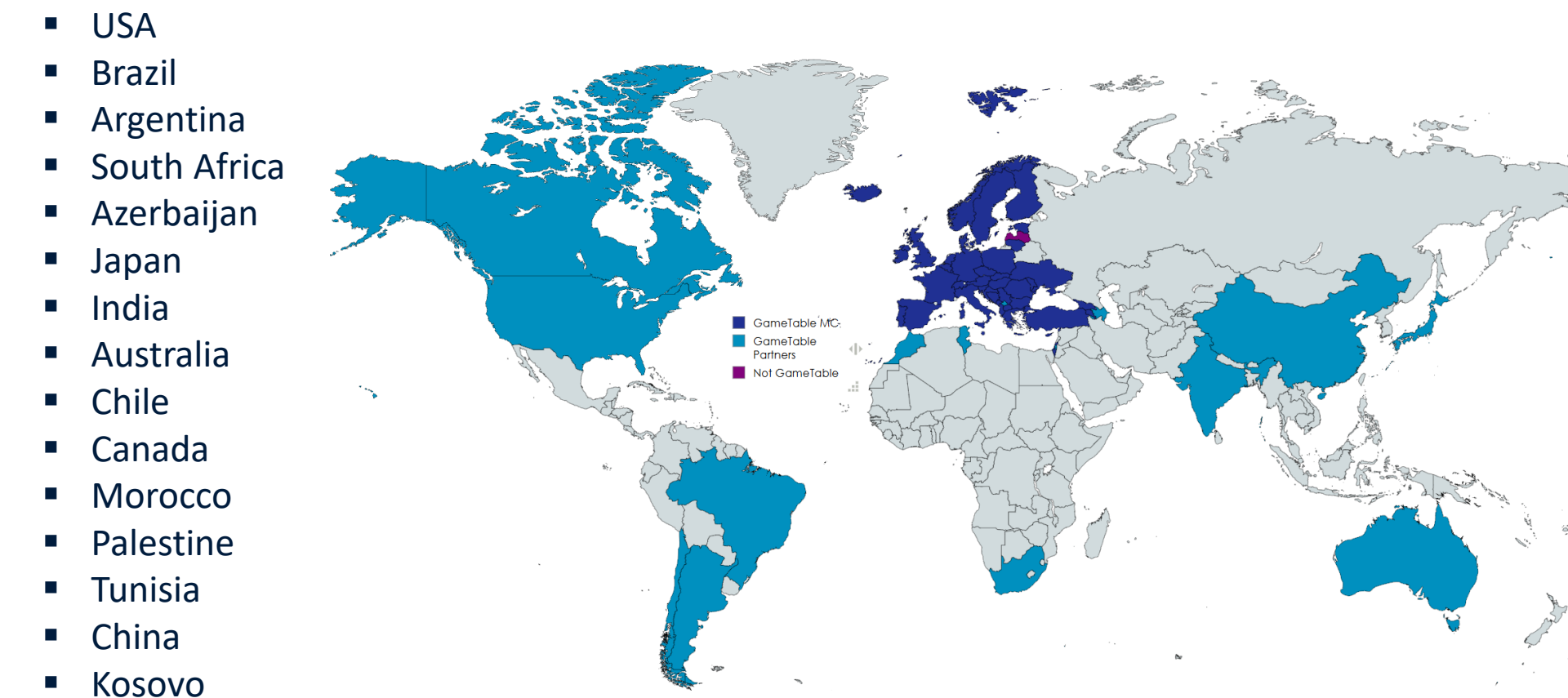
- **Only 1 more is remaining:**
Latvia



And in the world?

15 International Partner Countries:

- USA
- Brazil
- Argentina
- South Africa
- Azerbaijan
- Japan
- India
- Australia
- Chile
- Canada
- Morocco
- Palestine
- Tunisia
- China
- Kosovo



ITCs? Gender Repartition? Young members?

	Total	ITC	Not-ITC
Countries	41	58%	42%
MC members	59	56%	44%
WG members	356	56%	44%

	Female	Male	Not To Say
Gender	37,79%	60,15%	2,06%

	<40	>40
Age	46,53%	53,47%

Connect-Two



Connect-Two is a GameTable initiative to spark collaboration across Working Groups.

Sign up and select groups of interest:

- Each month you're matched with a new member.
- Meet informally to exchange ideas and explore overlaps.
- The aim is simple: low-pressure conversations that can revive ideas, share perspectives, or even spark new collaborations.
- **Around 100 participants, and 1200+ Matches!**

GP3 Overview

Work plan for GP3

1	Offer digital reconstructions of ancient games to cultural institutions, empowering them to include interactive educational content in their programs and engaging the public with digital heritage tools.
2	Foster multidisciplinary training programs that educate students and researchers on Game AI and cultural heritage, integrating archaeology, history, and computer science through hands-on learning and projects.
3	Develop capacity for collaborations between AI and heritage researchers to build capacity for cross-disciplinary research resulting in conference/workshop papers and built towards an edited journal special issue on AI and heritage games.
4	Explore the ways that games impact social life and physical experiences; focusing particularly on connecting artefacts to gameplay and connecting people with their cultures through interactions with gaming objects and gaming culture via heritage institutions and education.
5	Explore the influence in game material culture on scientific education in its multicultural and disciplinary approaches and the lesson it gives in technical approaches, in example ethnomathematics with aims to bridge work in WG2, 4, and 5, contributing to outputs of each group like the WG5 virtual exhibition or educational materials or a comprehensive written publication on mathematics in games.
6	Develop AI algorithms that can efficiently play a variety of games including imperfect-information games, taking into account the possible strategies that are human-like to make the topic more approachable to general audience and useful as a research base.

GP3 budget

01/11/2025 – 31/10/2026

Budget

249,999 euros

(+11,6% compared to GP2 Budget)

Financial and Scientific Administration and Coordination (FSAC) - 15 % = 32,608.68€

Real GP3 Budget = 217,391.22 €

(current) GP3 budget

Total	Grant budget (a)	Expenditure					Delta (g=f-a)
		Actuals (b)	Accruals (c)	Total (d=b+c)	Forecast (e)	Total (f=d+e)	
Meeting	129 822.16	92 450.69	49 227.81	141 678.50	12 440.00	154 118.50	24 296.34
Training School	36 386.00	27 114.27	0.00	27 114.27	0.00	27 114.27	-9 271.73
Short-Term Scientific Mission Grant	22 000.00	19 970.00	3 850.00	23 820.00	7 275.00	31 095.00	9 095.00
Virtual Mobility Grant	13 590.06	0.00	0.00	0.00	0.00	0.00	-13 590.06
Young Researcher and Innovator Conference Grant	10 566.00	2 200.00	1 500.00	3 700.00	0.00	3 700.00	-6 866.00
Inclusiveness Target Countries Conference Grant	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dissemination Conference Grant	5 000.00	5 948.00	0.00	5 948.00	1 500.00	7 448.00	2 448.00
Dissemination and Communication Products	27.00	27.00	0.00	27.00	0.00	27.00	0.00
Other Expenses Related to Scientific Activities (OERSA)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Virtual Networking Support Grant	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Networking expenditure	217 391.22	147 709.96	54 577.81	202 287.77	21 215.00	223 502.77	6 111.55
Eligible Networking expenditure	217 391.22	147 709.96	54 577.81	202 287.77	15 103.45	217 391.22	0.00
FSAC 15% of Eligible Networking expenditure	32 608.68	22 156.49	8 186.67	30 343.16	2 265.52	32 608.68	0.00
Eligible Costs	249 999.90	169 866.45	62 764.48	232 630.93	17 368.97	249 999.90	0.00

All our e-votes during GP3

Adapting the Dates for the Next WG5 Meeting “Crossroads of Play” in Istanbul Eric Piette (Action Chair)	MC-Voting	Closed	✓ Approved	19/07/2026 26/07/2026	 View vote	Options ▾
Adapting the dates for the small GameTable meeting during the European Heritage Days in Greece. Eric Piette (Action Chair)	MC-Voting	Closed	✓ Approved	14/07/2026 21/07/2026	 View vote	Options ▾
An Additional GameTable Meeting in Nitra Eric Piette (Action Chair)	MC-Voting	Closed	✓ Approved	14/07/2026 21/07/2026	 View vote	Options ▾
Request for Approval: Small Meeting (3 people) at the Mariemont Museum (Belgium) Eric Piette (Action Chair)	MC-Voting	Closed	✓ Approved	29/05/2026 05/06/2026	 View vote	Options ▾

GP3 Meetings/Training Schools



GP3 budget per past meeting

Pragues (WG1-3)

21 reimbursed

17,024.89€

Planned: **19,822€**

Berlin

6 reimbursed

3,214.65€

Planned: **4,330€**

Alicante (WG2)

18 reimbursed

14,144,76€

Planned: **14,186€**

Morlanwelz

3 reimbursed

685,34€

Planned: **1,956€**

Maastricht (WG1-3)

24 reimbursed

19,396.80€

Planned: **19,860€**

Linz (WG4)

19 to reimburse

14,866,36€

Planned: **24,230€**

Vilnius (WG2)

16 reimbursed

16,308,39€

Planned: **19,119€**

Nitra (Core)

10 reimbursed

9,490,94€

Planned: **19,440€**

Cork (WG5)

6 reimbursed

27,115.27€

Planned: **36,386€**

Athens (WG5)

6 reimbursed

6,751,24€

Planned: **7,985€**

Istanbul (WG5)

39 reimbursed

>40,000€

Planned: **23,166€**

Louvain-La-Neuve

6 reimbursed

~4,000€

Planned: **0€**

GP3 Grant Awarding

GP3 Grants

Branislav Kovar	DCG	Grant letter sent	Discoveries of game boards and game accessories in the border region of the province of Pannonia in the Roman Period	1500.00	20/10/2026 24/10/2026
Branislav Kovar	STSM	Paid	Game boards from the Roman Period to the Middle Ages in Central Europe – heuristics, analysis, and synthesis	3970.00	01/06/2026 05/07/2026
Daniela Trinks	DCG	Paid	CA22145 Dissemination Conference Grant	1083.00	04/08/2026 08/08/2026
Francesca Berti	STSM	Grant letter sent	Games as Living Heritage: Inside the "Stewart Culin Archival Collection"	4000.00	10/10/2026 30/10/2026
Hatice Büber Kaya	STSM	Report submitted	Adapting Traditional Games into Digital Educational Mini-Games: A Transferable Suitability Rubric, Adaptation Model, and Generative-AI Scaffolding	3850.00	10/09/2026 28/09/2026
James Goodman	DCG	Paid	Presenting cross-disciplinary Gametable work at Foundations of Digital Games conference	2200.00	09/08/2026 13/08/2026
Julien Hiquet	STSM	Paid	Producing interactive content on Patolli game among the Maya for the Online exhibition of CA22145 Game Table	4000.00	07/09/2026 21/09/2026
Merve Kara	YRIG	Grant letter sent	Exploring the Integration and Effectiveness of the 'Game Friendly School' Project in a Primary School Context	1500.00	30/09/2026 02/10/2026
Oksana Ruchynska	STSM	Paid	Board Games in Chersonesos Taurica from the Roman to the Late Antique Periods	4000.00	20/04/2026 11/05/2026
Oksana Ruchynska	DCG	Report approved	Dissemination Conference (DCG)	2440.00	13/09/2026 19/09/2026
Ondřej Kubiček	YRIG	Paid	CA22145 YRIG Conference Grant	2200.00	23/04/2026 27/04/2026
Summer Courts	DCG	Paid	Rolling the Roman Dice: Experiencing Ancient Chance with AI	225.00	03/04/2026 03/04/2026
Summer Courts	STSM	Report approved	Power Games: Games Other than Chess in Early Islamic Qusur and Urban Contexts	4000.00	07/09/2026 27/09/2026
Tiago Hirth	STSM	Paid	Towards Creating an exhaustive Puzzle Data Base for AI and Game Heritage	4000.00	01/02/2026 28/02/2026
Tim Penn	STSM	Grant letter sent	"Gameboards from the Roman Period in the Carnuntum - ludic finds in context"	3275.00	15/10/2026 28/10/2026

Planned:

STSM = 22,000€

DG = 5,000€

YRI = 10,566€

ITC = 0€

Reality:

STSM = 31,095€

DG = 7,448€

YRI = 3,700€

ITC = 0€

Difference = -4,677€

A word from the GA Coordinators

Overview: A total of 15 grants

8 STSM

2 YRIG

5 DCG

Grants in 2025

8 STSM

6 YRIG

1 DCG

We did not receive any ITC, same as last year.

What did we do?

- Set up calls for applications with deadlines, every 2-3 months, with a total of 3 calls for STSM. This allowed people to apply in January and February and was very helpful to fill up those first months with more missions.
- Other grants applications were handled on a rolling basis.
- We mentioned in the calls that the evaluation process would take up to a month, so that people knew that they could not organise their missions right after the deadline. This organization has been successful for managing communications easily.

Evaluation

- Meet up and discuss online each STSMs applications every two months, when not possible communicate through emails
- Overall, communications worked well between GA coordinators, Core Group and applicants.

A word from the GA Coordinators

Advertising:

- The GA Coordinators took care of the publishing of the calls and their advertising on all our channels, including emails, Discord, Facebook, Instagram and the Gametable website. The communication team supported us in the process.
- The GA Coordinators took care of setting up doodle and/or meeting days with the rest of the core group

Note for the applicants:

- read the calls published on the Gametable website, prepare each document thoroughly. Documentation is important for COST officers
- always use letter head documents (e.g. Invitation from host, conference certificate of attendance)
- remember to provide a breakdown of the budget for STSM. This will allow more people to be able to apply. For calculating the expenses, applicants can also refer to the DA of each countries. You can easily find the DAs document on the official COST website. In the breakdown you can include travel expenses, and conference fee or VISA expenses as well.
- If applicants need to change their dates they should contact us immediately. If dates overlap with COST meetings this would result in the applicant receiving a 50% DA on the days they attended the conference. Always looking up these issues with us and with the Grant Holder Manager (Alois)

ANY REMARKS ON OUR WAY OF COMMUNICATING? ANY TIPS FOR FUTURE YEAR? FEEL FREE TO ASK US NOW!

WG1-3

**Dennis Soemers
&
Jakub Kowalski**

WG1+3 activities during GP3

- Dissemination Grant: James Goodman presenting joint work with Summer Court, “A Ludic filter for game reconstructions: Do modern rules for Pente Grammai work?” at the Foundations of Digital Games, 2026.
- YRI Conference Grant: Ondřej Kubíček presenting joint work with Viliam Lisý, “Look-ahead reasoning with a learned model in imperfect information games” at the Fourteenth International Conference on Learning Representations.
- Sadly no STSM :(
- IP GP3 Opening Meeting: February 19–20, Prague → devoted mainly to cross-WP collaborations, including how CS can successfully support Archeology
- IP Games & AI Meeting: June 17–18, Maastricht → mostly focused on inside-CS group presentations and grant application discussions
- Cross WG participation: Several members of WG1+3 took part at other IP meetings and trainings

WG1+3 GP3 Outputs

During GP3:

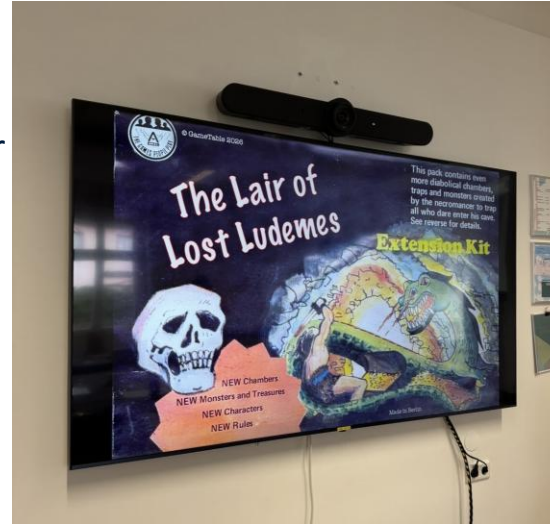
- Crist, W., Piette, E., Jeneson, K., Soemers, D.J.N.J., Stephenson, M., van Goor, L., Browne, C. (2026). Ludus Coriovalli: Using Artificial Intelligence-Driven Simulations to Identify Rules for an Ancient Board Game, Antiquity Journal
- Stephenson, M., Newcombe, A., Piette, E., Soemers, D.J.N.J. (2026). Best Agent Identification for General Game Playing, IEEE Access
- Goadrich, M., Morenville, A., Piette, É. (2026). Valet: A Standardized Testbed of Traditional Imperfect-Information Card Games, Computers and Games (CG)
- Goodman, J., Courts, S. (2026). A Ludic filter for game reconstructions: Do modern rules for Pente Grammai work?, Proceedings of the 21st International Conference on the Foundations of Digital Games
- Martins, J., Cardoso, F., Hartz, C., Skorupska, K., Kowalski, J. (2026). Real-time Procedural Generation of Coherent Infinite Multi-biome 2D Landscapes, IEEE Conference on Games

WG2

**Walter Crist
&
Tim Penn**

WG2 activities during GP3

- Ludii Redevelopment meeting, joint with WG1, Berlin
 - Focus on redevelopment of Ludii database for accessibility and ease of updates.
 - Updates now being implemented by Alois.
 - Thanks to Jacob Schmidt-Madsen for hosting!
- Meeting in Alicante (late April)
 - Adjacent to Board Game Studies Colloquium
 - Promotion of JOCCH issue, ludus latrunculorum tournament, future plans
 - Thanks to Raimon Graells i Fabregat for hosting!
- Joint meeting with WG 5, Vilnius
 - Focuses on tournament & the digital exhibition/showcase
 - Thanks to Indrė Jovaišaitė-Blaževičienė for hosting!



WG2 Outputs

Out in 2025/26 (GP3) (selection)

- Carè, B. (2026). Graffiti in the shadow of the Acropolis. Gaming, people and urban landscape, *Frontières Revue*
- Condorelli, F. (2025). From One Picture to Lost Play: Reviving Ancient Games with Artificial Intelligence for Digital Heritage Conservation, *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, XLVIII-M-9-2025, pp. 361–366. DOI: 10.5194/isprs-archives-XLVIII-M-9-2025-361-2025.
- Crist, W., Gasimov, A. (2026). Who Knows the Rules? Variation in Traditional Board Games in Azerbaijan, *American Journal of Play*, 18(2), pp. 220–245.
- Crist, W., Piette, E., Jeneson, K., Soemers, D.J.N.J., Stephenson, M., van Goor, L., Browne, C. (2026). Ludus Coriovalli: Using Artificial Intelligence-Driven Simulations to Identify Rules for an Ancient Board Game, *Antiquity*
- Goodman, J., Courts, S. (2026). A Ludic filter for game reconstructions: Do modern rules for Pente Grammai work?, *Proceedings of the 21st International Conference on the Foundations of Digital Games*, pp. 1–4. DOI: [10.1145/3815598.3815709](https://doi.org/10.1145/3815598.3815709).
- Penn, T., Kovár, B., Sebesta B. (2025) A gameboard from Gerulata (Rusovce) in the context of Roman-period gaming finds in the north of the Carpathian Basin, *Slovenská archeológia*.
- Penn, T. (2026). 'Board games and social space at Aphrodisias: the view from the theatre.' *Turkish Journal of Archaeology and Ethnography* 91, 11–40. <https://izlik.org/JA75LF48HF>
- Truzzi, I. (2026). Los alquerque de la Catedral de León como evidencia de prácticas lúdicas y de apropiación social del espacio en un contexto religioso medieval. in *Nova et vetera studia de re diplomatica, historica et de arte*, ed. J. Domingo Perez. Leon, pp 43-92

In press:

- B. Kovár, T. Penn, S. Courts, and J. Rajtár (Accepted). 'Roman gaming equipment from Iža (Celemantia).' In L. Benediková, B. Kovár and A. Bistáková (eds.). *Iron Age Legacies: Current Approaches to the Period in Central Europe. Essays in Honour of Gertrúda Březinová on Her 70th Birthday*. Sidestone Press, Amsterdam.

Accepted:

- Crist, W. and A. de Voogt. *Moving Along: Game Pieces in Material Culture*. Oxford: Oxford University Press.

Under review:

- Crist, Walter and E. Piette. Changing the Game: Measuring Ancient Gameplay Experience in the Royal Game of Ur and Twenty Squares. *Nature Humanities and Social Sciences Communications*.

In prep:

- S. Courts, W. Crist, T. Penn, É. Piette, D. J. N. J. Soemers and V. Volz (eds.) 'Special Issue: Computational Techniques for Games Heritage.' *Journal on Computing and Cultural Heritage*. [Call for papers](#). [Joint with WG1]
- B. Carè, T. Penn, W. Crist, B. Kovár, D. Moullou (eds.), *Past Moves, Present Finds: The Archaeology of Games in Their Social Context*, Interdisciplinary Contributions to Archaeology, Springer, in preparation. [Joint with WG5]
- Crist, W. Gasimov, A. Aghalarov, M., and T. Penn. Archaeology of Games in Azerbaijan. *Azerbaijan Journal of Archaeology and Anthropology*.
- Rautureau, A., É. Piette, T. Penn, S. Courts, J. Goodman, A. de Voogt, D.J.N.J. Soemers, W. Crist, J. Schmidt-Madsen, and G. Todd. Human-like game AI: Beyond behavioural alignment. *IEEE Transactions on Games*.

Granted:

- Tim Penn, Eric Piette, Walter Crist — *Ludus ex machina: studying ancient games through human-like AI play agents* (Schmidt Sciences, Humanities and AI Virtual Institute, \$24,018). [Joint with WG1]
- Ilaria Truzzi – Travel grant for games-related research (British Archaeological Association, £500).
- B. Kovar ‘Computational Techniques for Tabletop Games Heritage, project MVTs B’ (Slovak Academy of Science, €1,500).

Outcome pending:

- Rachel Banes, MSCA Fellowship application;
- B. Kovar, Submission to Game in Lab application.

WG4

**Lisa Rougetet
&
Tiago Hirth**

WG4 activities during GP3

- STSM: Tiago Hirth – 2nd Feb to 28st Feb 2026, USA --> study the Slocum mechanical puzzles collection, Martin Gardner Papers at Stanford. Present work and dissemination of Game Table at G4G
- Cross WG participation: Several members of WG4 took part at other IP meetings and trainings
- IP meeting: June 31st – July 1st Linz --> collaboration and work on the Handbook



WG4 outputs

During GP3:

- Lisa Rougetet, Tiago Hirth. (2025). “ Mathematical Games from the Sphinx “, 1931-1939, *Proceedings of the XVIII Recreational Mathematics Colloquium*, January 2025 (Published Oct. 2025)
- Lisa Rougetet, Tiago Hirth. (2026). “ Maurice Kraitchik (1882-1957) and his contributions to recreational mathematics “, *Historia Mathematica*, Vol. 75.
- Miloš Stojaković, L. Wulf: “On the multi-robber damage number”, *Discrete Mathematics & Theoretical Computer Science* 28:3 (2026), #16.
- Timur Koparan, Ezgi Taylan Koparan. (2025). “How Mathematical Games Shape Pre-Service Teacher's Generalization Practices: A Qualitative Case Study”, *Revista de Revista de Educación*, 413. July-September 2026, pp. 187-217.
- Alda Carvalho, Alfie Davies, Carlos P. Santos (2026-Pre-print) “Atomic weight and infinitesimals in dicotic misère play”, *Discrete Mathematics*.
- Jakob Führer, Georg Grasegger, Paul Hametner, Oliver Roche-Newton (2026-Pre-print) “The minimum degree question for the Maker Breaker Domination Game”

WG5

**Dorina Moullou
&
Barbara Caré**

WG5 activities during GP3

Meetings

WG2-WG5 joint meeting
Vilnius, July 01-02, 2026



WG5 activities during GP3

Meetings

WG5 meeting
Istanbul,
September 29-30-
October 1, 2026



WG5 activities during GP3

Organisation of Conference sessions

- S#32 *Replay: Computational Heritage of Games*, 53nd CAA International Conference in Vienna, April 3, 2026 (B. Carè, S. Courts, W. Crist, B. Kovar, D. Moullou, T. Penn)
- S#421 *Playing the Past: Interdisciplinary Perspectives on Ancient Board Games, Society, and Learning*, 32nd EAA Annual Meeting in Athens, August 26-29 (B. Carè, D. Moullou)
- S#20 *Reconstructing Play: Digital Technologies and the Archaeology of Games*, 31st Annual Conference CHNT, Vienna, November 11-13 (B. Carè, W. Crist, D. Moullou)



WG5 outputs

Training School



May 25–27, 2026 at University College Cork, Ireland.



WG5 outputs

Educational programs

European Heritage Days

Study Day
September 25, 2026 at
HOU, Athens

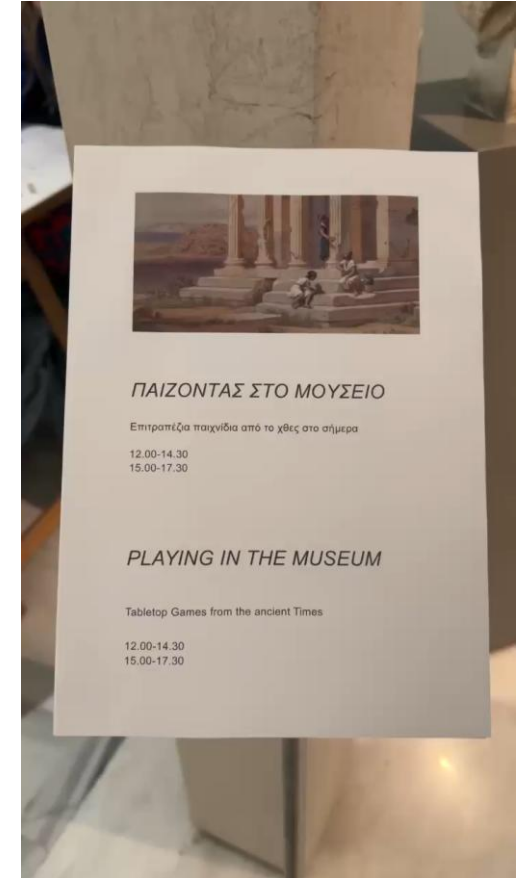


WG5 outputs

Educational programs

European Heritage Days

September 26, 2026 at
The Benaki Museum,
Athens



WG5 outputs

✓ Books, Research Papers & Outreach Publications

B. Carè, T. Penn, W. Crist, B. Kovár, D. Moullou (eds.), *Past Moves, Present Finds: The Archaeology of Games in Their Social Context*, Interdisciplinary Contributions to Archaeology, Springer, in preparation.

B. Carè, D. Moullou (eds.), **NEW BOOK**, Bloomsbury (Call to circulate soon)

N. Akkus, E. Ozturk, J. Sikorska, B. Carè, D. Moullou, *Heritage Games and Education*, EERA (European Educational Research Association) Blog

Forthcoming:

B. Carè, *Board Game Studies*, in M. Mochocki, E. Gdaniec (eds.), *Living Handbook of Historical Game Studies*, in preparation.

B. Carè, A. Rizzi, A. Cambiaghi, A «Recently Invented Ancient Game», in preparation.

GP4 Plan

Work plan for GP4?

1	Develop best practices and increase capacity for documentation of living and endangered traditional games and to learn about the strategies and approaches to play that will inform human-like AI techniques
2	Consolidate and disseminate the digital reconstruction of heritage games. Finalise and present digital reconstructions of ancient and traditional games for use by museums, cultural institutions, educators, and the wider public, with particular emphasis on accessible and interactive educational applications.
3	Strengthen the educational use of Game AI and heritage games. Develop and test educational approaches, teaching materials, and hands-on activities that integrate archaeology, history, cultural heritage, mathematics, and Game AI, and make these resources available for future training and educational programmes.
4	Complete the WG5 digital exhibition and associated public-engagement outputs. Bring together the work undertaken during the Action into a coherent digital exhibition on heritage games, highlighting game material culture, reconstruction, gameplay, AI applications, and the educational potential of games.
5	Advance research on human-like AI across a broad range of games, including traditional games with perfect and imperfect information. Publish a vision paper outlining key research directions, alongside research papers exploring AI approaches that reflect human strategies and decision-making.
6	Consolidate interdisciplinary research on AI and heritage games. Strengthen collaboration between archaeologists, historians, mathematicians, educators and AI researchers, focusing on how AI methods can contribute to the study, reconstruction and interpretation of games of the past while recognising uncertainty in archaeological and historical evidence.
7	Produce joint scientific outputs from the Action. Transform the work of WG5 into sustainable academic outputs, including conference/workshop papers and the preparation of a collective publication or edited volume/special issue dealing with heritage games, AI, reconstruction, education, and public engagement.
8	Explore the relationship between games, material culture and social experience. Further investigate how gaming objects, rules and practices reflect cultural and social processes, and how interaction with reconstructed heritage games can help connect contemporary audiences with past cultures.
9	Ensure sustainability of the network beyond the COST Action. Establish a continuation strategy for collaboration between Game AI and heritage researchers, including preparation of future research proposals, continued researcher mobility and training, and maintenance of links with museums, educational institutions and other stakeholders.

Main GP4 idea

- **GP1 & GP2:** Focused on strengthening communication, networking, and synergies among GameTable members.
- **GP3:** Moved into concrete action and achieve many GameTable objectives.
- **GP4:** Will focus on the final event and achieving all remaining objectives.

GP4 budget?

218,000 euros for the last grant period (GP4)

01/11/2026 – 23/10/2027

Networking Tools	Quantity	Budget
Meetings	5	EUR 118 210.00
Training Schools	1	EUR 23 880.00
Mobility of Researchers and Innovators	tbd.	EUR 27 800.00
Presentation at Conferences organised by Third Parties	tbd.	EUR 9 648.00
Dissemination and Communication Products	2	EUR 10 027.00
Other Expenses Related to Scientific Activities (OERSA)	0	EUR 0.00
Total Science Expenditure		EUR 189 565.00
Financial and Scientific Administration and Coordination (FSAC) - MAX. 15%	15 %	EUR 28 434.75
Total Grant Request		EUR 217 999.75

GP4 Grant budget?

37448€

Mobility of Researchers and Innovators

Details

Budget for Short Term Scientific Missions (STSM) Grants	EUR 27 800.00
Budget for Virtual Mobility (VM) Grants	EUR 0.00

Presentation at Conferences organised by Third Parties

Details

Budget for Young Researcher and Innovator Conference Grants	EUR 3 700.00
Budget for Inclusiveness Target Country Conference Grants	EUR 0.00
Budget for Dissemination Conference Grants	EUR 5 948.00

GP4 Grant budget?

10000€

Title	Open access budget for books and potential papers open access fees	EUR 10 000.00
Type	Scientific publication in Open Access	

GP4 events?



GP4 Event budget?

142,090€

1	Title	WG1 Madrid Meeting	EUR 19 240.00	EUR 1 940.00
	Type	Working Group Meeting		
	Dates	22/02/2027 - 23/02/2027		
	Location	Madrid (Spain)		
	Participants	20		
	Reimbursed	20		
2	Title	WG5 Bosnia Meeting	EUR 23 750.00	EUR 2 000.00
	Type	Working Group Meeting		
	Dates	05/04/2027 - 06/04/2027		
	Location	Banja Luka (Bosnia and Herzegovina)		
	Participants	25		
	Reimbursed	25		
3	Title	WG4 Brest Meeting	EUR 12 600.00	EUR 2 000.00
	Type	Working Group Meeting		
	Dates	30/08/2027 - 01/09/2027		
	Location	Brest (France)		
	Participants	12		
	Reimbursed	12		

1	Title	Ethnographic Training School	EUR 20 880.00	EUR 3 000.00
	Dates	11/05/2027 - 13/05/2027		
	Location	Rabat (Morocco)		
	Lecturers	1		
	Students	14		
4	Title	Final Conferences	EUR 51 680.00	EUR 5 000.00
	Type	Workshops/Conferences		
	Dates	06/09/2027 - 08/09/2027		
	Location	Oxford (United Kingdom)		
	Participants	40		
	Reimbursed	40		

WG1-3 plans for GP4

- **WG1 and WG3 continue to join their forces during GP4.**
- **WG1-3 meeting:** Madrid, Spain, March 2027
- **Focusing on human-like AI approaches and their applications to the cultural heritage.**

WG2 plans for GP4

Games ethnography training school, Rabat, Morocco (Mid May 2027)

- Held at NIMAR (Netherlands Institute, Morocco)
- Training provided by Prof. Alex de Voogt, leading scholar of games ethnography
 - Emphasis on how to record traditional games if encountered
 - 2 days of classroom training;
 - 1 day 'in the field', (probably around Moulay Idriss and nearby ancient Volubilis)
- Places limited (c. 14 participants, depending on travel costs)
 - Expressions of interest form will be circulated;
 - Emphasis on how applicants will use the skills gained.



Collaborations with WG1 on humanlike games AI & WG2 on exhibition/tournament.

WG4 plans for GP4

Outputs to complete during GP4:

- Summary Article Workgroup
- Guide book to Mathematical Games → next meeting in Brest, France

Handbook on Mathematical Games

Part I – Foundations: Why Games? Why Maths?

Chapter 0: What is a Mathematical Game? (Jorge Nuno Silva)

Try to give a definition of a Mathematical Game, which properties it should present to be called a Mathematical Game.

Give the structure of the book, how it was thought and how it is organized (content of each chapter)

Chapter 1: A Tradition of Mathematical Games (Lisa & Tiago)

Mathematical Game = Historical Object (relation to BGS)

Mathematical Object = Social Object (Movie Refs.; Automata; etc.)

Mathematical Games and mathematical texts

Include abstract games.

Chapter 2: Recreational Mathematics (Tiago & Lisa)

Aha! Object

Cryptics, Riddles, Puzzles, Solitaire, etc. → 1 player games

Multi-player games

Mathematical Games are a subset of Mathematical Recreations

Part II Themes & Domains

Chapter 3: Probability, Statistics, and Strategy (Carla Cardoso)

Probability. Problems with dice, Cardano, historical examples then connections to modern

probability. Dice games and chance

Expected value and decision theory

Markov chains in games

Parrondo's paradox, gambling strategies

Chapter 4: Combinatorial Game Theory (Carlos Pereira dos Santos)

Combinatorial Game Theory

Impartial vs partisan games

Sprague–Grundy theorem

Nim, Hackenbush, and beyond

Conway's On Numbers and Games in context

Chapter 5: Graph Theory and Games (Jessica Enright / Milos)

Graph Theory. Königsberg's bridges (Euler), géométrie de situation, König for historical examples

Games on graphs: Vertex pursuit, domination games

Graph coloring as game (e.g. online coloring)



WG5 plans for GP4

Meetings

- Bosnia Herzegovina
- Albania (?)

Objectives

- Production of an educational program on heritage games+ museum kit
- Preparation for the Heritage Games Tournament online
- Preparation of the Digital Exhibition
- Contribution to the General Game System
- Production of Podcasts on heritage games (Lausanne, Switzerland)
- Creation of apps on heritage games (recognition, education, play)

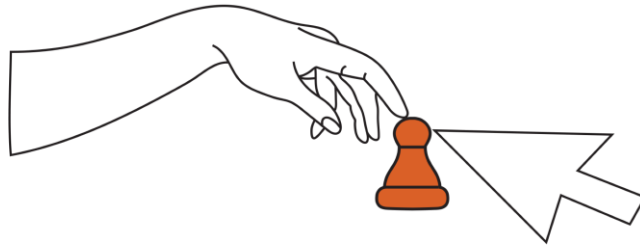
Questions?



Thank you!



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GameTable

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