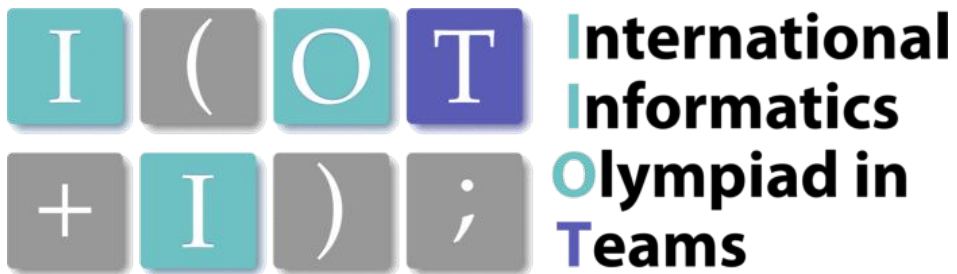

Fostering Informatics Education through Teams Olympiad

Nadia Amaroli, Giorgio Audrito, Luigi Laura • IOI 2018, Tsukuba



What it is

Aims

History

Competition Structure

Organizational Structure

How to join it

Our experience report

Conclusions

What it is

Aims

Informatics skills

- secondary students motivation and teachers involvement
- problem solving skills
- technical English

Soft skills

- teamwork
 - contacts within and across countries
 - communication
-

History

Italy

- **2010:**
1 region
7 teams
- **2018:**
20 regions
+400 teams

International

- **2017:**
Italy, Romania, Russia
 - **2018:**
Italy, Bulgaria, Moldavia,
Romania, Russia,
Sweden
-

Competition Structure

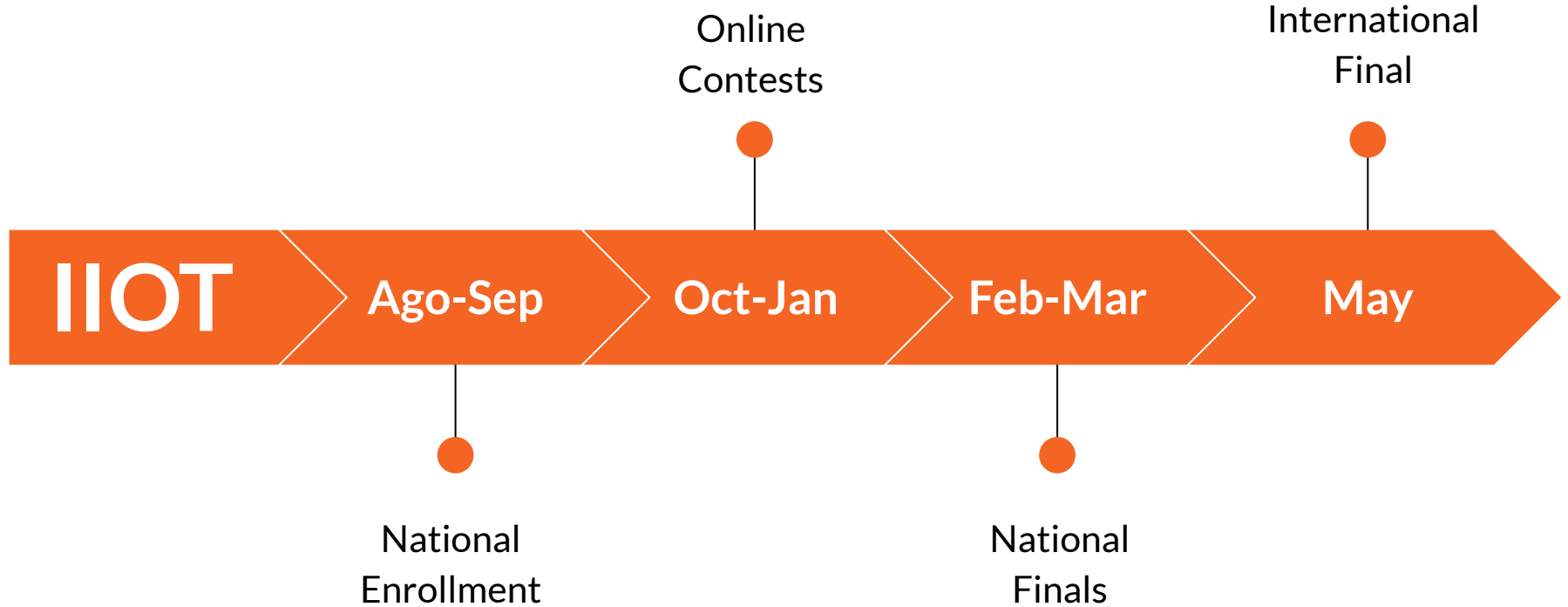
Contestants

- Secondary/high school students
- Students < 20

Teams

- 4 students and 2 reserves
 - from the same school
 - no more than one student awarded in the national individual competition
-

Competition Timeline



National Structure

Leader Schools

- Secondary or High School
- Headmaster as National Coordinator

National Committee

- Ministry of Education
 - Leader school Headmaster
 - Leader school Teacher
 - Scientific Coordinator
-

International Structure

International Committee

- people from regular NC

International Scientific Committee

- regular NC Scientific Committee

General Assembly

- people from NC and teams leaders, regular and guest
-

International Structure

International Coordinator

- Representing and promoting
- Institutional email maintenance
- Communication and co-operation within the IC members
- Establish links with other International and/or Informatics Olympiad

International Secretary

- web site maintenance
 - protecting and upholding IIOT regulations
 - enrolling Nations
-

How to join it

Officially

- to attend it
- hosting your national competition on your own

Unofficially

- to try your ability and check the tasks
- subscribing to the training platform
<http://training.olinfo.it>

Experimentally

- to try it with few teams
 - free hosting on Italian or Romanian platform
-

Officially

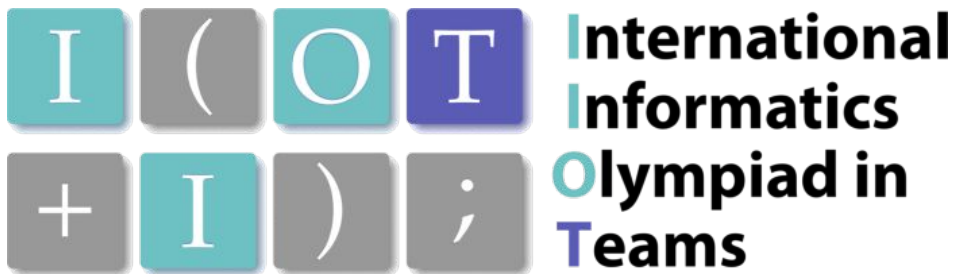
- to attend it
- hosting your national competition on your own

Guest

- not hosting a future IIOT edition
- International Final fees
- no participation at the IC

Regular

- hosting a future IIOT edition
 - International Final for free
 - participation at the IC
-



What it is

How to join it

Our experience report

Technical and scientific issues

Impact in Italy

Conclusions

Our experience report

Technical issues

Massive participation

- CMS on Google Cloud Platform
- DB and main: *standard with 50GB SSD*
- CWS: *3x preemptible standard*
- Workers: *8x preemptible high-CPU*

Contest fairness

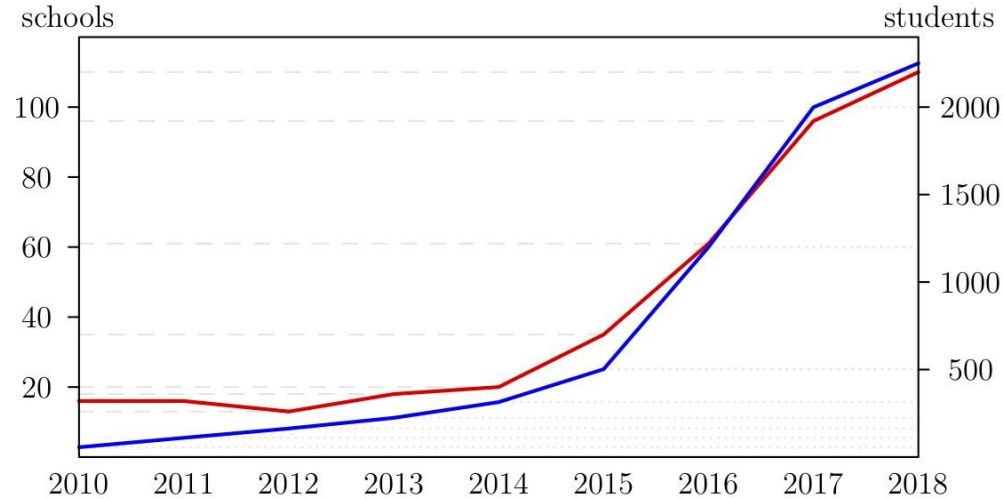
- Predictable execution times
 - Teachers collaboration on internet control
 - Semi-automatic plagiarism check with JPlag
-

Scientific issues

Students engagement

- Amusing narratives
 - Widely varying scopes (technical and logical)
 - Progressive syllabus
 - Subtasks
 - Teachers engagement
-

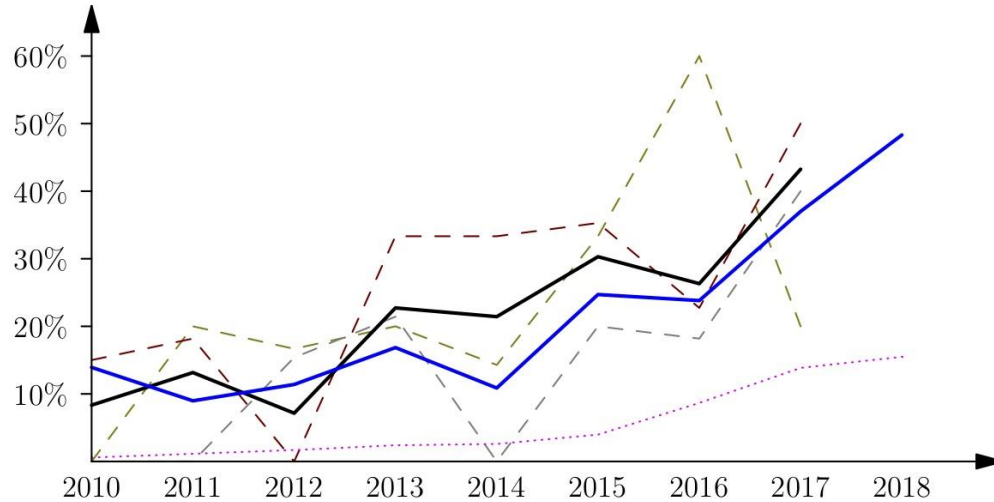
Impact in Italy



Positive feedbacks from teachers and students

Proven by participation statistics

Impact in Italy



Effectiveness of team olympiads for training

Better performances in individual contests of team contestants

Impact in Italy

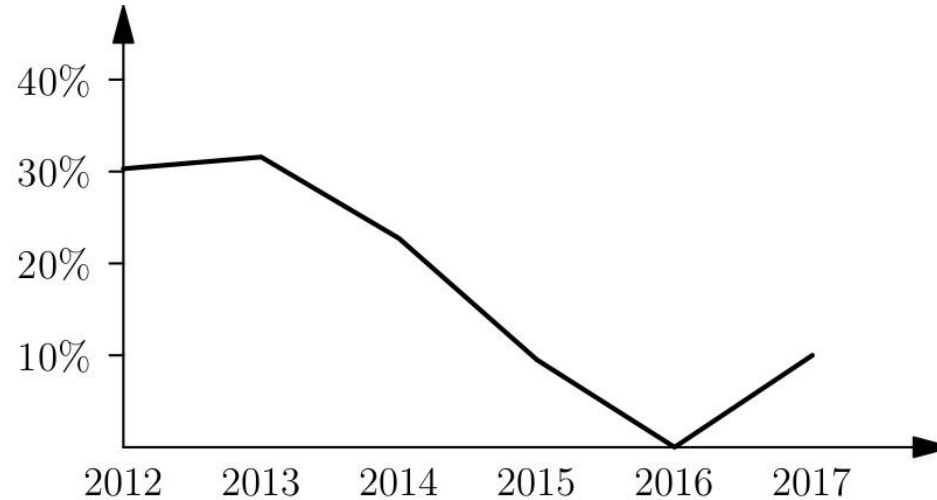
Competing explanations

- Better students participate in team contests
- Team contestants get better results

Team contestants get better results!

- Data does not include “better students”
 - Overall competition level is improving
-

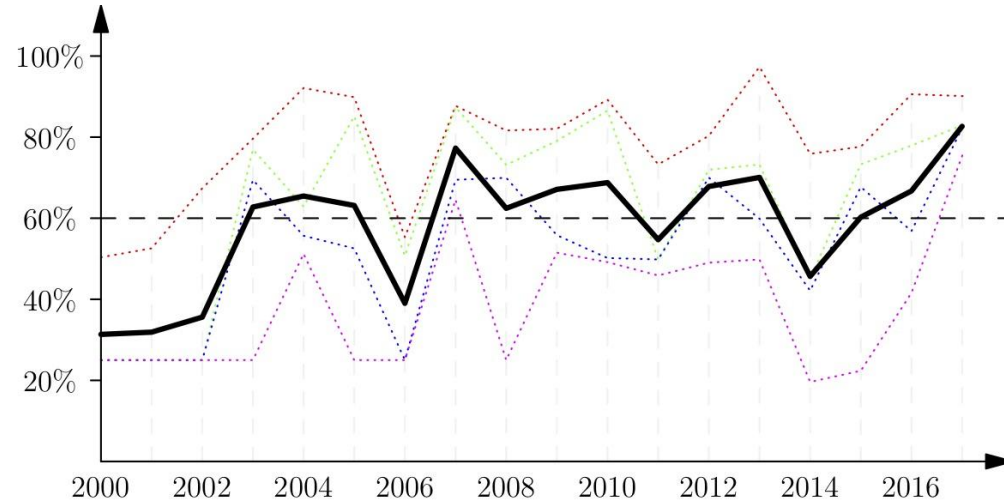
Impact in Italy



Improvement of the overall competition level

Fewer people coming from alternate selections

Impact in Italy



Improvement of the overall competition level

Improved performances in the IOI

Conclusions

- IIOT broaden the scope of Informatics contests to soft skills
- Eases teachers engagement thus improving participation
- Synergic to individual contests
- Easy to join!

Thank you!

Contacts:

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