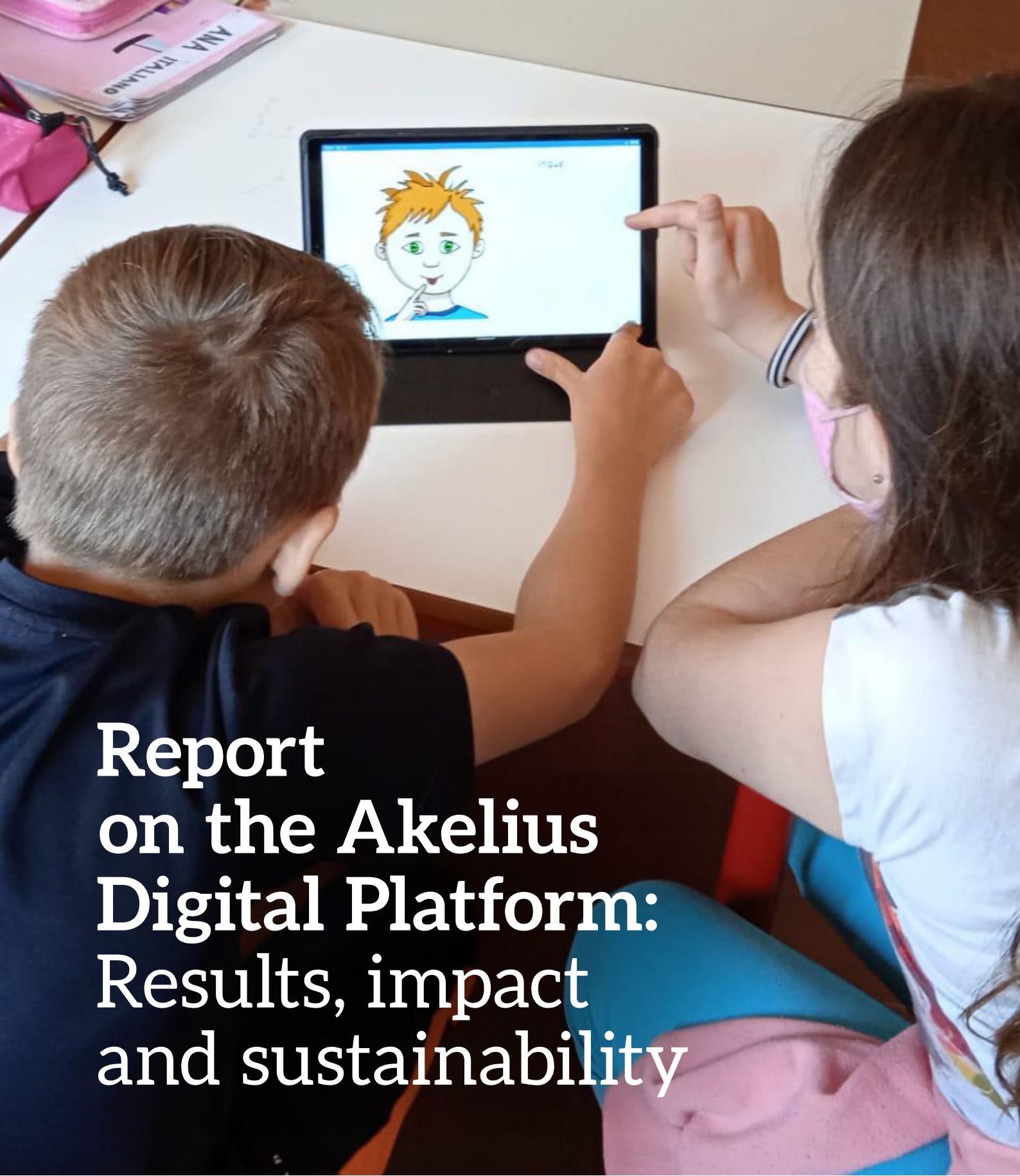


A photograph of two children, a boy and a girl, sitting at a desk and looking at a tablet. The boy is on the left, wearing a dark blue shirt, and the girl is on the right, wearing a white shirt and pink glasses. They are both pointing at the screen of the tablet. The screen displays a cartoon character with orange hair and green eyes, wearing a blue shirt. The background shows a desk with some papers and a pink bag.

Report on the Akelius Digital Platform: Results, impact and sustainability



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Executive summary

This report summarizes the main evidence from the scale-up of the Akelius e-learning app implementation project (June 2022 – June 2023), to support newly arrived students in Italy in primary and lower secondary schools. This initiative was embedded in UNICEF's response to the Ukrainian emergency. As part of the project, an evaluation of its implementation, impact and sustainability was conducted to draw insights and suggestions for future activities.

TOTAL BENEFICIARIES REACHED:

- **55 ICs** (80 primary and 48 lower secondary schools) and 5 OoS settings involved in the project.
- **456 ICs' teachers** (2/3 from primary school and 1/3 from lower secondary schools) and **13 OoS settings' teachers** trained on the use of the Akelius e-learning app.
- **1036 students** (736 from ICs and 300 from OoS settings) participated in the scale-up and **373 learning activities** were conducted.

POSITIVE EVIDENCE:

- Teachers used a **combination of approaches** to teaching Italian L2 with the Akelius app, which enhanced the use of the app.
- Designed and developed **two learning outcomes assessment tests** tailored to the Akelius app.
- **Students' positive and widespread learning outcomes.**
- **Positive collaboration** with the Ministry of Education Regional Offices.

CHALLENGES:

- A minority of teachers in ICs have **specific skills and training in teaching ITA L2.**
- Some ICs reveal **organizational difficulties** in managing technology tools (e.g. insufficient IT staff).
- According to school directors, a minority of teachers have **adequate digital skills.**
- According to teachers, there is a **lack of resources and time to teach ITA L2.**

Highlights on impact evaluation

Akelius app use impact evaluation on beneficiary students focused on the app contribution to ITA L2 mastery improvement. This contribution emerged as consistent, visible and recognizable. In fact:

- **the factors external to Akelius app which could reduce app's contribution to ITA L2 improvement had a moderate overall influence;**
- **the external factors which reduced the increase of ITA L2 proficiency and therefore could increase Akelius e-learning app contribution, had a low (negative) influence on ITA L2 proficiency improvement;**
- **finally, the external factors which supported the increase of ITA L2 proficiency and operated also as internal factors reinforcing both Akelius e-learning app use and ITA L2 reading and listening proficiency improvement, had a high or moderate influence.**

Highlights on sustain- ability

Sustainability evaluation considered technological, organizational, professional and financial dimensions. The **professional** dimension (including digital skills, skills related to Akelius app use, ITA L2 teaching skills, personal motivation and engagement in using Akelius e-learning app) emerged as the core requirement for Akelius app use sustainability after project's conclusion and, in general, without scale-up project's support. For the other dimensions, the essential requirements for Akelius app use sustainability are the following:

- **Technological:** internet connection, number of devices, students' number and platform use scheme
- **Organizational:** IT expert, suitable spaces for small group or individual use of the Akelius e-learning app, tablet storage secure place in classrooms.
- **Financial:** post-scale-up, each educational institute is expected to contribute €4,924 for tablet replacements only.



Introduction and methodology

UNICEF¹ is promoting, in collaboration with the Akelius Foundation and in partnership with the ISMU ETS Foundation, the Akelius Digital Language Learning Courses, an e-learning app for teaching ITA L2 in primary and lower secondary schools. The initiative, built on the early results of the pilot phase launched in September 2021 and documented by UNICEF Innocenti – Global Office of Research and Foresight, was conceived as a scale-up of the Akelius project and embedded in UNICEF's response to the Ukrainian emergency, in order to support the Italian language learning and inclusion of Ukrainian refugee children in Italy.

¹ UNICEF Europe and Central Asia Regional Office (ECARO), National Response in Italy

Evaluation activities, a summary of the results given here, supported the implementation of the project and consisted of three areas of work. First, an analysis of the results achieved by the project was conducted, for which ISMU adopted an evidence-based approach and used quantitative techniques to collect monitoring data from activities and data from schools and teachers' feedback questionnaires. Evidence from schools and teachers' questionnaires also supported the provision of recommendations developed by UNICEF Office of Research – Innocenti, in collaboration with UNICEF and ISMU Foundation.

A second evaluation task consisted of assessing the Akelius learning app's impact on primary schools students' improvement in ITA L2. This evaluation adopted a theory-based approach and was developed using a simplified contribution analysis scheme. The scheme played a pivotal role in ITA L2 learning outcomes measured through specifically created formalized tests.

Finally, the third evaluation task provided by ISMU was focused on the Akelius e-learning app's sustainability by both schools involved and not involved in the scale-up project without the Akelius project's support. Four dimensions of sustainability have been explored: organizational, professional, technological and financial.

The content of this report, then, is a synthesis of the three in-depth investigations carried out after the scale-up phase, which flowed into as many reports² describing the articulated research work in a timely and detailed manner. Figure 1 summarizes the tools and information sources fed into the three evaluation strands.

² See the detailed reports link:

- 🔗 [Report on the Akelius e-learning app implementation and results - Fondazione ISMU](#)
- 🔗 [Akelius project: evidence generation on impact report - Fondazione ISMU](#)
- 🔗 [Report on the Akelius platform use sustainability - Fondazione ISMU](#)

Fig. 1 Summary of the data collection methods and source

				
Results Evaluation	Documents review the contents and mode of operation of the Akelius e-learning app	Monitoring data about teachers' training; students' demographic data; ITA L2 courses	2 surveys with items on the three different areas of assessment, 311 questionnaires filled from school directors (50) and teachers (261) 1 survey of teachers' satisfaction with the training conducted (443 questionnaires completed)	347 Italian L2 learning assessment tests taken by elementary school students
Impact evaluation	Document review to inform the initial phase of the evaluation and the development of the TOC model and CAFo	11 participatory sessions with 34 school staff from 24 schools to validate the project ToC model and CAF	2 surveys with items on the three different areas of assessment, 311 questionnaires filled from school directors (50) and teachers (261)	347 Italian L2 learning assessment tests taken by elementary school students
Sustainability evaluation	Document review to gather the necessary elements for defining the conditions of sustainability	11 Interviews with the referring teacher(s) of a group of schools participating in the project	2 surveys with items on the three different areas of assessment, 311 questionnaires filled from school directors (50) and teachers (261)	Analysis of project financial data



CHAPTER 1

Scale-up implementation

ISMU promoted actions in schools and out-of-school settings (Ukrainian schools and associations) and training courses for teachers on the Akelius e-learning app and the Help Desk (HD) service. In particular, the HD's intervention areas included: a) formalizing schools' participation in the Akelius project; b) distributing tablets to schools; c) supporting teachers in accessing and using the Akelius e-learning app; d) drafting of FAQs; e) Keeping contact between school and Unicef; f) supporting monitoring and data collection. ISMU also carried out monitoring activities and a dedicated website to collect materials and tools to support teachers.

1.1 Schools and Out-of-School settings

The project involved **55 ICs (Istituti Comprensivi)**³, with 80 primary schools and 48 lower secondary schools, based in 7 Italian provinces (Bologna, Cuneo, Milan, Frosinone, Rieti, Rome and Trieste⁴). In terms of **geographical distribution**, the participating ICs were almost equally present in regional capitals (24) and provincial municipalities (26).

The project was also addressed to 5 out-of-school (OoS⁵) settings based in 4 Italian provinces (Milan, Reggio Calabria, Rome and Venice), 4 of them being Ukrainian schools, and one was an association that supports foreign people.

1.2 Teachers participation

A total of **456 teachers** were involved, of whom 65% in primary schools, 30% in lower secondary schools, and the rest in kindergartens or in AIPI cooperative⁶ (which regularly runs courses in schools in Bologna). Teachers have been trained to integrate technology into teaching and to use the Akelius e-learning app in a blended learning modality. In addition, **13 teachers** (10 Ukrainians and 3 Italians) were involved in out-of-school settings and equally trained.

ISMU organized 21 editions of the training course, reaching a total of 449⁷ teachers, plus three extra training courses for 13 out-of-school teachers. Each edition consisted of four sessions of 2 hours each and offered the theoretical basis for teaching Italian as a second language, with examples and operational proposals (e.g. how to build a work unit). In addition, a particular focus was reserved to blended learning

3 The “Istituto Comprensivo” is a public education institution that includes generally one or more primary and lower secondary schools.

4 These provinces are based in the following Regions: Emilia Romagna, Friuli Venezia Giulia, Latium, Lombardy and Piedmont).

5 The out-of-school (OoS) settings are Ukrainian associations providing Italian courses as a second language for Ukrainian refugee children.

6 AIPI” stands for “Agire Insieme Per l’Intercultura” (acting together for interculture) and is UNICEF’s implementing partner for the Akelius implementation since the pilot phase in 2021 in Bologna. It is a social cooperative located in Bologna, composed by educators who deliver Italian language classes for students with a migratory background within Comprehensive Schools, in collaboration with the Provincial Education Office and the Municipality of Bologna.
<http://www.aipicoop.it/>

7 These are joined by seven teachers who did not participate in a training course, but were involved by colleagues in their schools and with their support were trained so that they could experiment with the Akelius e-learning app.

as an effective and inclusive way of using the e-learning Akelius app to support face-to-face teaching. Materials and tools have also been provided to support teaching programming and facilitate the selection and use of Akelius's activities.

Only 16% of the teachers⁸ attended, before the Akelius project, specific training in teaching ITA L2, while 23% were language facilitators or teachers of ITA L2. More than half of the school teachers affirmed that they have appropriate digital skills to use the Akelius e-learning app. In the follow-up survey, teachers provided interesting feedback on their experience using the app. For example, they rated its use to support their teaching goals, especially when working with students without Italian citizenship, with an average score of 3.4 (on a 1-5 scale). The Akelius e-learning app was considered a helpful tool for monitoring students' progress in learning Italian as a second language (3.1/5). Among OoS teachers, 4 reported the highest level of general appreciation.

1.3 Students involvement

The scale-up project involved **1036 students**, of which 736 were in ICs and 300 in OoS settings. Among IC students, 467 attended primary schools, 261 lower secondary schools and 8 the last year of kindergarten. Of the OoS students, 152 were in primary schools while 122 were in lower secondary education (for some students, the information is missing as they were Ukrainian refugee children not placed in schools when the course was being organized with the organization).

Of the students involved, 46% were females and 57% males, while the students' average age value was 10 years old. The most represented students' nationality was Ukrainian (36%), followed by Egyptians (10%), Bangladeshis (8%), and Peruvians (8%). Smaller percentages for more than 50 nationalities were registered⁹.

⁸ The information is available for 443 teachers.

⁹ Including Italian citizenship acquired by some students with migratory backgrounds involved in the project.

Fig. 2 Students' nationalities (absolute value)



Source: ISMU Foundation on students' data.

In absolute terms, the number of Ukrainian students involved in the project was 372, of which 296 were in OoS settings and 76 in ICs. Ukrainian students were relatively evenly distributed by gender (54% male and 46% female), while variability was more significant for age. In fact, in OoS settings, the age ranged from 5 to 18 years old, while it was 6 to 15 years old in ICs. The greatest concentration was between 10 and 11 years old in OoS settings and between 12 and 13 in ICs.

1.4 Learning activities with the Akelius e-learning app

Teachers implemented **473 learning activities** in different formats and durations. A total of 4,479 hours of learning activities were delivered, with an average duration of 12 hours. The learning activities in using the Akelius e-learning app consisted of group activities (44%), individual outside the classroom (31%), and direct use within the

classrooms (25%), and for 68% of the teaching activities, the Akelius e-learning app was used for more than half of the duration of the lessons.

All ITA L2 learning activities were implemented according to student's ITA L2 proficiency levels established by the Common European Framework of Reference for Languages (CEFR): 34% of the courses were PreA1-A0 level, 40% were A1, 17% were A2, and 9% B1. Teachers assessed students' language needs and skills (reception, production and interaction, both oral and written) on the basis of their own experience and know-how and assigned an overall entry-level to each student.

The time needed to bring tablets to the classroom, distribute them and begin using the Akelius e-learning app for all school levels was, on average, very limited since it did not take more than 10 minutes.

1.5 Learning Outcomes

Student's proficiency in ITA L2 was evaluated at the end of the activities in two ways. First, teachers provided a final assessment of each student based on the teacher's observation of the students' everyday use of the Akelius app and on improving ITA L2 fluency. Although the levels of the courses followed the CERF (as described in the table below), teachers used a scale for the final assessment, which included intermediate levels, to better evaluate students' progress.

Considering that according to teachers' initial assessment as well, the table on the next page shows that about half of them increased their final skills compared to the course level.

Tab. 1 Students course level with teachers' final assessment (absolute value)

COURSE LEVEL	TEACHERS' FINAL ASSESSMENT							Total
	PreA1	Between PreA1 and A1	A1	Between A1 and A2	A2	Between A2 and B1	B1	
PreA1-A0	51	76	23	39	13	9	9	220
A1	10	42	156	59	26	19	7	319
A2	0	1	8	42	52	11	15	129
B1	0	0	2	9	5	12	17	45
Total	61	119	189	149	96	51	48	713

Source: Elaboration of monitoring data by ISMU Foundation.

In addition, an Italian language placement test was specifically designed and delivered by experts and focused on key skills for primary school students to provide a standard assessment shared by all teachers. The test assessed only the **reception skills** (according to the project evaluation choices) and involved 347 out of 619 primary school students who participated in the scale-up (63%)¹⁰.

The students' results in the tests were very positive: 181 reached the B1 level in the reading test and 227 in the listening test. Specifically, the students who improved their ITAL2 proficiency in reading test compared with the level of the activities performed are: **34% increased their proficiency by 1 level, 41% by 2 levels, and 16% by 3 levels**. Results on listening proficiency show a similar trend (see Tab. 2 on the next page).

¹⁰ Out of the total number of primary school students, 69 did not have access to the test because they participated in the 2022 summer courses at Prestigio School when the test had not yet been implemented.

Tab. 2 Students' results in reading and listening test level (absolute value)

	READING TEST LEVEL				LISTENING TEST LEVEL			
COURSE LEVEL	A1	A2	B1	Total	A1	A2	B1	Total
PreA1-A0	4	49	46	99	4	35	60	99
A1	10	66	73	149	6	49	94	149
A2	2	15	32	49	1	10	38	49
B1	2	8	13	23	0	5	18	23
Missing information	2	8	17	27	0	10	17	27
Total	20	146	181	347	11	109	227	347

Source: Elaboration of monitoring data by ISMU Foundation.

Students' results seem relatively consistent and homogeneous among the tested skills since, considering the same students, the results of the reading and listening tests are similar. These improvements seem quite considerable and may be explained by several variables: a) teachers' initial assessment and identification of students' course levels; b) the skills tested (reception skills only); the features of the best-performing students; c) the modalities of Akelius learning activities implementation. Focusing on reception skills, it is widely known that foreign language learning proceeds asymmetric, especially in the first learning phases when newly arrived students generally **improve their reception skills** (listening and reading) more easily and quickly than production skills (speaking and writing)¹¹.

11 Cfr. Council of Europe, Common European Framework of Reference for Languages: Learning, Teaching, Assessment. Companion Volume with New Descriptors, available online <https://rm.coe.int/cefr-companion-volume-with-new-descriptors-2018/1680787989>

1.6 Implementation challenges

The scale-up implementation project experienced several challenges. Few teachers in schools had **specific skills and training in teaching ITA L2**. Indeed, school directors reported that ITA L2 teaching courses were mainly conducted by internal staff with or without specialization in ITA L2 teaching (42% and 60%, respectively) and only 30% by external teachers with a specialization in ITA L2 teaching. Some schools had **organizational difficulties** in managing technology tools, especially for the following reasons:

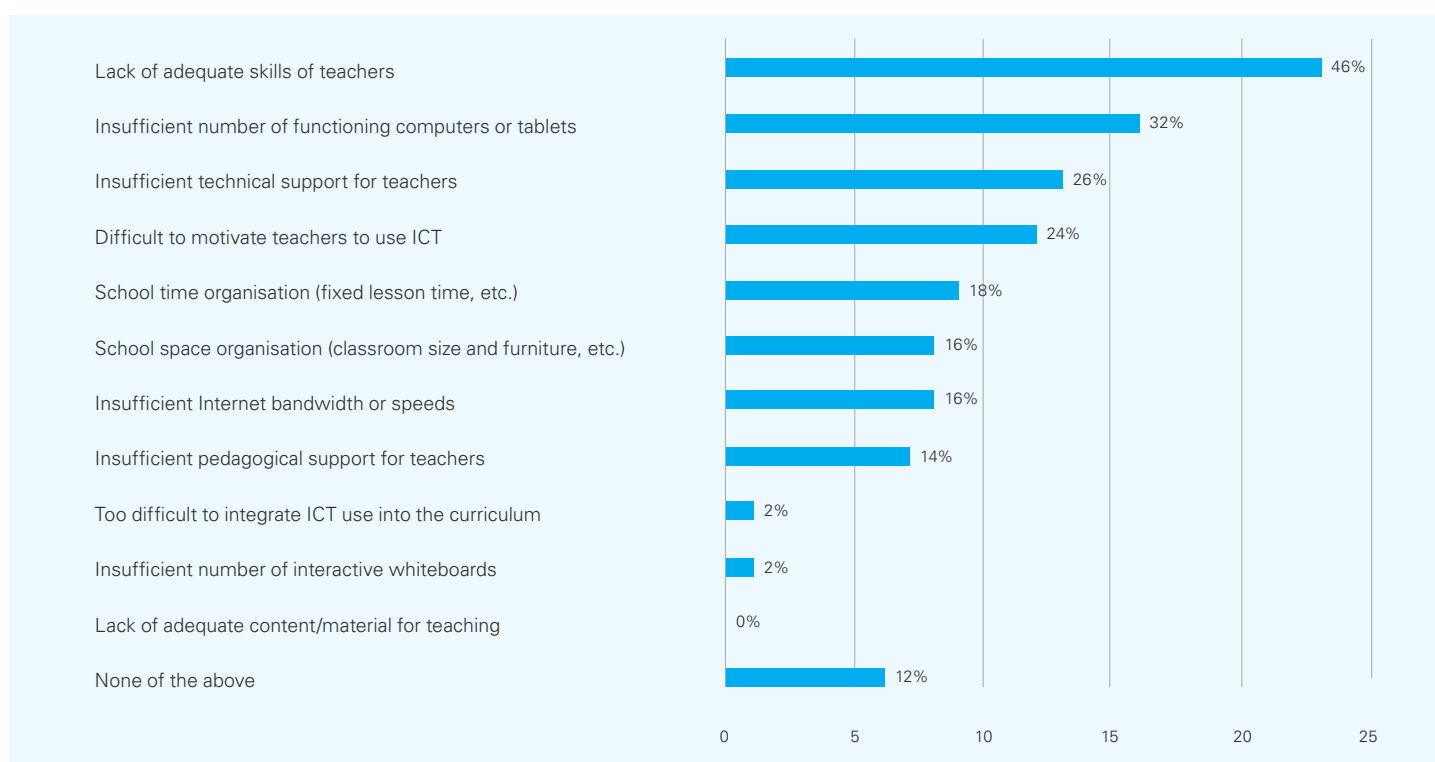
- a) **Insufficient IT staff: only in 7 ICs did the ICT responsible¹² have a full-time position;**
- b) **Management of devices not precisely defined: less than half of ICs (48%) had a protocol that provided precise guidelines for the use and management of technology tools, and almost all ICs reported storing them in specially dedicated secure spaces, but management of device charging and responsibility at each stage of device management (e.g., transportation to the classroom) often must be negotiated within the school.**

According to school directors, teachers do not always have adequate ICT skills and, in these cases, their motivation in using ICT was not easy to generate: the "lack of adequate ICT skills" in teachers is mentioned as the most relevant challenge (46%), followed by the "insufficient number of working computers or tablets" (37%), the "insufficient technical support for teachers" (26%), the "difficulty in motivating teachers to use ICT" (24%) and the "organization of school time" (18%).

According to teachers, the lack of resources and the relevant time constraints negatively affect teaching ITA L2 to students with a migratory background.

¹² In general, the ICT responsible is an IT technician.

Fig. 3 Percentage rates of the main implementation challenges



Source: Elaboration of school questionnaire data by ISMU Foundation.

1.7 Positive aspects of using the Akelius app

Several positive elements related to the use of the Akelius e-learning emerged from the scale-up. First and foremost, the favourable feedback from teachers, who scored 3.4 (out of 5), indicates that Akelius supports their teaching of ITA L2 to students with a migratory background.

Second, teachers and school directors appreciated the introduction of Akelius as a teaching support tool, especially regarding Akelius's incentive to use digital technologies in teaching. The scale-up project encouraged school teachers, students and school directors to address digital teaching (and learning) seriously. The project, with the compulsory use of a platform involving well-functioning tablets, internet connection, and other equipment, highlighted how much a blended environment can help improve students' learning. This assumption seems confirmed by the widespread positive learning

outcomes among the beneficiary students as measured by the final reading and listening tests¹³.

Third, the design, development and presentation of two learning outcomes tests tailored explicitly to the logic and content of the Akelius e-learning app are a key legacy of the scale-up project. These tests can be used in future editions as part of the evaluation design to verify skill increases not only after but also before starting the Akelius app use when they can support teachers in correctly identifying the students' proficiency levels in Italian and assigning them to the most appropriate course level.

The last positive aspect is the relevant contribution of the Akelius app to improving teachers' skills in managing learning processes in a blended environment. The project allowed and stimulated teachers to implement different teaching schemes, which are, in turn, the evidence of a favourable judgment of the project and of the Akelius app's capacity to match both students' learning needs and schools' organizational conditions. The use of the Akelius e-learning app in a high number of schools over an entire school year has, therefore, allowed us to identify implementation aspects and conditions that can facilitate its use as well as the actual and potential significant challenges.

Finally, the support of regional school offices has been a positive element for the project regarding dissemination and recognition within schools.

13 Assuming the use of the Akelius app has been one of the causes to this improvement of learning outcomes. For more extensive explanation see the Impact report.



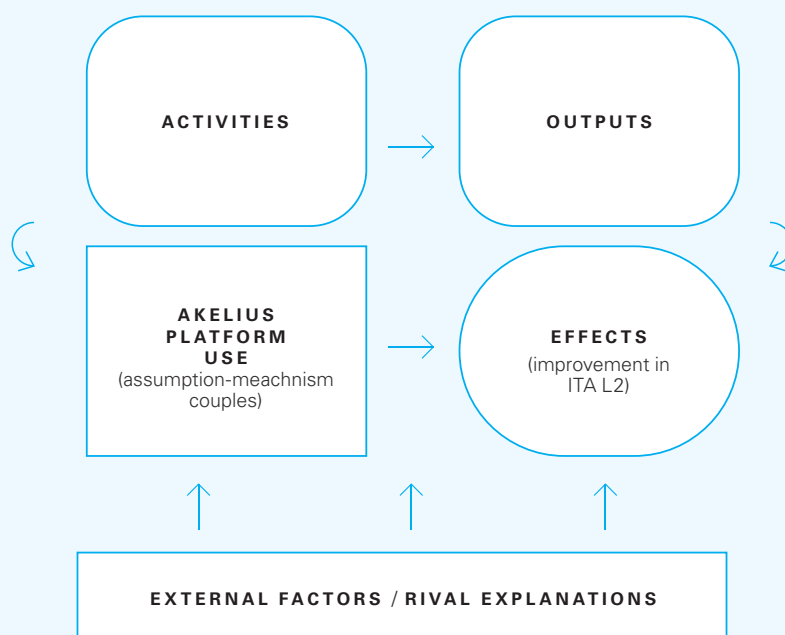
CHAPTER 2

Evidence of impact of the Akelius scale-up project

2.1 Evaluation approach and methodology

The *Evidence Generation of Impact* activity adopted a simplified Contribution-Analysis as an overarching approach (Mayne, 2001), as represented in Figure 4 below. The analysis has been targeted to identify the extent to which the Akelius e-learning app contributed to the increase in the proficiency in Italian as a second language (ITA L2) of the primary school NAI students who used it in blended learning settings. The increase was intended to be the difference between i) the level of proficiency in ITA L2 at the beginning of the use of the platform and ii) the level achieved at the end of the school year. 2022/2023.

Fig. 4 Representation of the evidence combined into the contribution story.



Source: ISMU Foundation on students' data.

The evaluation relied on a **mixed-method approach** based on qualitative and quantitative data collection and analysis methods. The evaluation drew from different sources of information: the desk review of relevant documents; 11 participatory sessions with 34 teachers from 24 selected schools involved in the project to refine and validate the Akelius project Theory of change integrated with Contribution Analysis¹⁴ key elements; two surveys, one targeted to the school directors and one to the teachers participating in the project; the results of the listening and reading proficiency tests administered to the primary school students who had used the Akelius e-learning app during the school year 2022/23.

14 A program's Theory of Change (Weiss, 1995) is the set of assumptions (internal to the program) that explain both the steps that lead to the medium- to long-term outcomes and effects and the links between the activities and outcomes of each step. Instead, the specific analytical elements of Contribution Analysis are the mechanisms (i.e., what makes a program work in a particular way) and the rival explanations (i.e., anything that is external to the program but has influence, either positive or negative, on the effects).

The starting point for identifying Akelius e-learning app *contribution story* was to measure **its gross effect**¹⁵ on NAI primary school students: **94% of students progressed in listening skills** by either one, two or three levels (for instance, focusing on the group who attended A1 courses, 63% improved by 2 levels and 33% by one) and **91% improved their reading skills** by either one, two or three levels (for instance, in the A1 group 44% improved by one level and 49% by two).

2.2 Main findings

As reported in Table 3 on the next page, the main evidence from the Scale-up analysis allowed us to confirm that **expected activities were implemented** and **related outputs were produced**.

¹⁵ The effect includes both the consequence of the program's effect (in this case, the use of the Akelius app) and variables external to the program.

Tab. 3 Activities and outputs generated by the project

ACTIVITIES	OUTPUTS
• Identification of schools: YES (see Chap. 2 Scale-up Report) • Identification and recruitment of teachers: YES (see Chap. 3 Scale-up Report) • Teachers' training (for using AK Plat): YES (see Chap. 3 Scale-up Report) • Involvement of students: YES (see Chap. 4 Scale-up Report) • Distribution/activation of tablets: YES (see Par. 5.1.1 Scale-up Report) • AK app integrated use in dedicated ITA L2 out-of-class group or individual courses (Pre-A1/A0, A1, A2, B1); AK app integrated use in-class ITA L2 activities, individual or group (Pre A1-A0, A1, A2, B1): YES (see Chap. 5 Scale-up Report) • School-dedicated Helpdesk: YES (see Par. 1.2. Scale-up Report)	• Public schools and OoS settings involved in the project: 55 ICs (only schools), including 80 primary schools and 48 lower secondary schools • Teachers involved and recruited: 456 • Teachers training courses delivered: 21 editions • Teachers involved and trained: 443 • Students involved (of which Ukrainian): 1036 (36% Ukrainian) • Tablets distributed to students and teachers: 968 (774 to ICs) • ITA L2 courses delivered (schools/OoS settings; by level): 373 courses completed, of which 34% pre-A1/A0 level; 40% A1; 17% A2; 9% B1

Another key ingredient in the Contribution Analysis is to identify, on an empirical basis, the hypotheses and related implementation mechanisms that link students' use of the Akelius app with improved proficiency in Italian L2. On this, the teachers' sessions identified the **five *assumption-mechanism* couples¹⁶ that were effectively in action during platform use**, ordered by relevance, and put concerning ITA L2 test results (Tab. 4).

¹⁶ The key assumptions underlying the intervention and explaining why it should produce the desired changes, and the processes that translate each assumption into practice within the intervention.

Tab. 4 Assumption-mechanism couples in action during Akelius project (AA use)

RELEVANCE	ASSUMPTIONS	MECHANISMS
1	Students are stimulated to use the Akelius e-learning app by the richness and variety of its contents (especially in a blended learning environment) as well as by teachers (whose supporting role is very important anyway) .	Blended learning based on the Akelius e-learning app is supported and guided by the teacher(s) but also offers students plenty of room for autonomous and personalized learning activities based on their interests and curiosity as well as on ITA L2 proficiency level .
2	The use of the Akelius e-learning app by Newly Arrived (in Italy) students (in a blended learning environment) improves their proficiency (skills, ability to communicate) in ITA L2.	NAI students' use of Akelius e-learning app in blended learning pathways is consistent with individual learning styles and rhythms, supports individualized teaching and learning, may enhance the autonomy of students in defining and achieving their own learning outcomes.
3	Teachers understand and appreciate the added value of adopting the Akelius e-learning app (and blended learning in general) and integrating the Platform use into their teaching strategies.	The compliance of the Akelius e-learning app to the GRR model (Gradual Release of Responsibility: AA Handbook, p. 13) allows for a collaborative and positive learning environment among students/teachers which is appreciated by teacher(s) and makes students feel comfortable ... [see assumption 3] The holistic approach of the Akelius e-learning app and its key principles (AA Handbook, p. 20) support students' learning in such a way that teachers ... [see assumption 3].
4	The structure and contents of the Akelius e-learning app enhance the lessons (allowing for <i>blended learning</i> practices) and encourage students to learn ITA L2.	Being alternative (to traditional learning platforms), interactive, rich in numerous and diverse multimedia resources, the Akelius e-learning app is able to enhance ... [see assumption 4].
5	The use of Akelius e-learning app in a blended learning environment is consistent with the key principles of (foreign) language learning.	The key principles of foreign language learning (safe and <i>warm</i> learning environment; target-language modulation; focus on communication and practical activities; <i>scaffolding</i> ; blended learning) are embedded in Akelius e-learning app, and thus, their adoption by teachers is made easier and more feasible.

As described in Table 5, according to the Contribution Analysis scheme, the main **rival factors/explanations**¹⁷ in force during Akelius e-learning app use were identified: the degree of influence of each rival on ITA L2 final testing results was empirically assessed.

Tab. 5 External factors/rival explanations in force during AA use

EXTERNAL FACTORS/ RIVAL EXPLANATIONS	TEACHERS SESSIONS 2 RANKING (N=16)	SCHOOLS SURVEY (N=50)	TEACHERS' SURVEY (N=261)	DEGREE OF INFLUENCE (ON ITA L2 PROFICIENCY IMPROVEMENT)
Students' daily use/exposure to ITA L2 outside the Akelius project (at school, with friends, with parents)	1	Rival not included in the survey	This rival was not in force (it had a positive influence only for 17% of teachers, against 48% of them who rated it as marginal/low influence)	This rival had a moderate (positive) influence on ITA L2 proficiency improvement.
Students' motivation in ITA L2 learning	2	Rival not included in the survey	This rival was strongly in force (66%); (Students') Parents awareness of ITA L2 learning importance (not in force: 28%)	This rival had a high (positive) influence on ITA L2 proficiency improvement, acting not only externally but also being a consequence of AA use positive experience.

¹⁷ The events and conditions unrelated to the intervention that influenced the results of the project by hindering or facilitating them, therefore affecting (positively or negatively) the ability of the intervention to contribute to the results.

EXTERNAL FACTORS/ RIVAL EXPLANATIONS	TEACHERS SESSIONS 2 RANKING (N=16)	SCHOOLS SURVEY (N=50)	TEACHERS' SURVEY (N=261)	DEGREE OF INFLUENCE (ON ITA L2 PROFICIENCY IMPROVEMENT)
Student's background, i.e.: - origin and mother tongue - psychological and emotional state	3	Rival not included in the survey	Rival not included in the survey	This rival had a low influence on ITA L2 proficiency improvement (because students' background was generally distant from ITA L2)
Other curricular or extra-curricular projects (not on ITA L2) involving the same students and/or teachers during the implementation of Akelius project (but coordinated with Akelius e-learning app activities)	4	Rival not included in the survey	This rival was in force (42%)	This rival had a moderate (positive) influence on ITA L2 proficiency improvement
Teachers' motivation in using/supporting the use (by students) of the Akelius e-learning app in a blended learning environment (also in innovative ways)	5	Principals' endorsement of Ak platform use (76%6) positively influenced teachers' motivation; Teachers with ITA L2 formal qualification (internal or external) are prevailing (78%) in non-Akelius project activities	This rival was in force (51,5%); principals' endorsement (influencing motivation) was strongly in force (64%)	This rival had a high (positive) influence on ITA L2 proficiency improvement; it acted not only as an external factor, but it has also been fed by colleagues and principals' support as well as by AA use positive experience

EXTERNAL FACTORS/ RIVAL EXPLANATIONS	TEACHERS SESSIONS 2 RANKING (N=16)	SCHOOLS SURVEY (N=50)	TEACHERS' SURVEY (N=261)	DEGREE OF INFLUENCE (ON ITA L2 PROFICIENCY IMPROVEMENT)
Teachers' commitment (required) in the preparation and planning of the lessons using the Akelius e-learning app	6	See the cell on the previous page	Principals' endorsement (influencing motivation) was strongly in force (64%)	This rival had a moderate influence on ITA L2 proficiency improvement: see here above cell for the way in which it acted
Students' participation in other ITA L2 structured learning activities (during the implementation of the Akelius project)	7	This rival was in force (58%)	This rival was in force (37%)	This rival had a moderate influence on ITA L2 proficiency improvement
Physical spaces availability and suitability (for ITA L2 courses, especially in primary schools)	8	This rival was strongly in force (68%)	This rival was in force (40%)	This rival had a high influence on ITA L2 proficiency improvement, allowing AA to be used in suitable spaces/areas (it also acted as a process factor)

2.3 Conclusions

The **contribution** of the Akelius e-learning app to the students' results emerged from the evaluation as **consistent, visible and recognizable**. In fact, the most relevant expected ***assumption-mechanism couples*** underpinning the platform use (and considered responsible for generating ITA L2 improvement) have been working and operating during the **project's implementation**. In addition, most of the ***external factors/rival explanations*** that generated ITA L2 proficiency improvement did not make Akelius' **e-learning app contribution marginal**.

More in detail:

- **the externals/rivals which supported the increase of ITA L2 proficiency and that could reduce Akelius e-learning app contribution mainly had a *moderate* influence on ITA L2 proficiency improvement** (such as: students' daily use/exposure to ITA L2 outside the Akelius project; other curricular/extra-curricular projects not on ITA L2 involving the same students/teachers during AA use; students' participation in other ITA L2 structured activities, during Akelius project; school experience in delivering ITA L2 courses outside/before Akelius project);
- **the externals/rivals which reduced the increase of ITA L2 proficiency and that could increase Akelius e-learning app contribution had a *low negative* influence on ITA L2 proficiency improvement** (such as: students' background; school experience in delivering ITA L2 courses in a blended environment; average duration in hours per student of Akelius e-learning app use);
- **the external/rivals which supported the increase of ITA L2 proficiency and also operated as internal factors reinforcing both Akelius e-learning app use and ITA L2 reading and listening proficiency improvement had a *high or moderate* influence** (such as students' motivation; teachers' motivation and commitment in using Akelius; physical spaces availability and suitability; well-working internet connection; teachers' skills; tablets cables, plugs, technical equipment; digital technologies).



CHAPTER 3

3. Sustainability

The schools for which the use of the Akelius e-learning app will have to be sustainable (without the Akelius project's support) are not only *those involved in the scale-up project* but also schools which did not participate in the scale-up project (and therefore, totally new to Akelius e-learning app). These two types of schools will be kept distinct in the analysis. Focusing on sustainability as defined above means identifying *the main conditions an average school (already involved/not involved in a scale-up project) must comply with to allow Akelius e-learning app use to be sustainable without scale-up project support*. This assumption is consistent with a definition of sustainability as the *ability/possibility for an activity (or a set of activities/actions) to continue after the conclusion of dedicated funding and/or in the absence of support (of any kind) it has temporarily received*.

Four **dimensions** of sustainability have been identified:

- **Technological:** covers the availability of technological devices (tablets, computers), a stable and well-operating Internet connection, power cables and electrical outlets, as well as to electricity;
- **Organizational:** includes the different schemes which may be implemented for using the Akelius e-learning app in Italian public schools (primary and lower secondary) (e.g., group/individual courses; in/out of classroom; during school time or not; employing specialized/not specialized or volunteer teachers); the level of endorsement by school-directors; the availability of suitable physical spaces for using the platform;
- **Professional:** refers to teachers' digital, teaching ITA L2 and relational skills but also to teachers' motivation and engagement in using the platform in a blended learning mood;
- **Financial:** pertains to the project's sustainability from a financial point of view. It involves comparing the project's inward and outward cash flows and evaluating the movement of money into and out of the project over a specific period.

For each dimension, the conditions defined as *essential requirements* have been identified with a distinction between:

- a) **schools involved in the 22/23 scale-up project (whose use of the Akelius e-learning app in the 2023/24 school year can rely on the support received from the project);**
- b) **schools not involved in the 22/23 scale-up project and therefore expected to use the Akelius e-learning app without any support.**

3.1 The technological dimension

Starting from the **technological** dimension, the two essential requirements (for Akelius e-learning app use without the project's support) are the availability of

- a well-operating internet connection
- a number of devices (tablets) corresponding to – or, at least, consistent with – the number of students involved.

These two requirements are crucial for both schools involved in the scale-up (assuming they will no longer benefit from the project's support in case of continuation) and schools not benefit from the scale-up support.

The key role of a robust and stable **internet connection** is confirmed by the answers to the specific question in the survey targeted to schools involved in the 22/23 scale-up (N=50): "Internet connection quality and affordability" is rated 5 (the top score) by 36% of respondents and 4 by 40% (2 and 3 scores concentrate only the 24% of schools).

More in general, the key role of the two above-mentioned technological requirements (together with, see below, one related to the professional dimension) is clear also from the answers to the question "After the end of the project, to continue using Akelius e-learning app (without project's support) it should be necessary to ..." (more than one answer was possible). The table below presents the answers to the question posed again to scale-up schools only, whose results may be even more extended to schools not involved in the 2022/23 scale-up project.

Tab. 6 Conditions for continuing using the Akelius e-learning app after the scale-up project conclusion (schools involved in scale-up, N=50)

After the end of the project, to continue using the Akelius app in your school (without the support of the project) there should be necessary:	
Supply teachers with practical didactic materials on using the Akelius e-learning app/course	68%
Deliver training courses for teachers on the Akelius e-learning app use	64%
Purchase new digital devices and related support tools/gadgets (e.g. tablets, headphones, covers)	40%
Arrange places/spaces for storing digital devices	24%
Improve internet connection	14%
Hire staff specialized in IT and technical support for digital devices	12%
Nothing; optimal conditions already exist	12
Increase the number of electrical plugs	10%
Other	4%

Source: ISMU Foundation on students' data.

3.2 The organizational dimension

The **organizational dimension** of sustainability has been declined along two sub-dimensions:

- a material/structural sub-dimension, basically regarding learning spaces;
- a soft sub-dimension covering Akelius e-learning app use schemes/models (how many students, where, when) and non-teaching skills (typically digital technologies technicians/experts).

In general, the collected evidence shows that no special organizational requirements are needed to make the use of the Akelius e-learning app feasible/practical.

In general, the collected evidence shows that no *special* organizational requirements are needed to make the use of the Akelius e-learning app feasible/practical.

In relation to *the material/structural* sub-dimension, the availability of a computer-dedicated classroom (a resource in all the schools whose school directors have been involved in the interviews) does not emerge as an essential requirement. It is usually mentioned as an accessory, useful, or asset that can make the Akelius e-learning app use easier, but it is not a resource a school *must* have.

As for the *soft* sub-dimension:

- The availability of experts dedicated to tablets (and Akelius technologies in general) care and maintenance is mentioned as a requirement for (Akelius e-learning app use) sustainability. These experts (IT technicians) should also, in the absence of the Akelius project's support, play the role that Fondazione ISMU Help Desk had in the scale-up, supporting teachers and Akelius school directors in managing platform technical issues;
- Akelius e-learning app delivery/use schemes by teachers/students do not emerge as an essential condition, although interviews and school survey show a clear tendency to give priority to small-group or individual use of the platform by students.

Platform's small-group or individual use implies that, for storing tablets, the more suitable solution is multi-loading padlocked cabinets located in the students' classrooms and not in the computer room (or another common space). This solution, which refers to the material/structural sub-dimension of organization, would allow teachers to easily manage tablet distribution to the *single* student (in case he/she would continue to work in the classroom) or to the small group members (who could bring the tablets to the chosen/pre-booked classroom).

3.3 The professional dimension

Regarding the **professional dimension**, teachers' skills and motivation (using the Akelius e-learning app) are the two essential requirements for both new and scale-up schools.

Digital skills are considered more essential by the schools where ITA L2 teaching skills are supposed to be consolidated *prior* to the Akelius project, while ITA L2 teaching skills emerge as more crucial in schools for which the platform's intuitiveness and simplicity are linked to the possession of basic digital skills. To understand this point, it is important to highlight that ITA L2 teaching is delivered in many diversified ways in Italian school practices, depending on the available *human and financial resources*. As for teachers, ITA L2 courses may be delivered by:

- school ordinary teachers with or without specific training (on ITA L2);
- school (so-called) support teachers¹⁸ with or without specific training (on ITA L2);
- external (that is, belonging to private or Civil Society Organizations) teachers generally with specific and certified training (on ITA L2).

However, in general, **ITA L2 teaching skills** are considered, by the teachers who participated in the survey, more relevant for using the Akelius e-learning app than digital skills (with the exceptions of *Using teaching-supporting devices like tablets, computers, smart-boards, basic level and Embracing game-based learning*) and relational skill. This is consistent with what has emerged from school directors / teachers-referent interviews and should be considered a key point for the sustainability of the Akelius e-learning app use.

In prospective terms, for schools involved in the scale-up, school directoes/teachers-referent mostly report that the use of the Akelius e-learning app would be feasible by their own school, after the 2022/23 participation in the scale-up, even without the support provided by the project. The main motivations for this position are

¹⁸ The support teacher is a special needs teaching assistant who works with SEN students but also with the whole class or with non native students.

the simplicity/intuitiveness of the platform (how to use it and how to move through it) and the participation of teachers in ISMU training on the Akelius e-learning app. Should new (that is, *not-trained*) teachers use the Akelius e-learning app in the scale-up schools (in 2023/24 and in the following years, therefore not benefitting ISMU training), the implementation of *peer-to-peer* training by teachers involved in the scale-up is mentioned as a requirement.

3.4 The financial dimension

The **financial sustainability** was assessed by comparing its cash flows with a focus on inward and outward movements of money. §The Discounted Cash Flow method was used with a 4% Financial Discount Rate and a ten-year horizon, anticipating the Akelius e-learning app's presence in the market. Comparatively, the counterfactual scenario depicted the absence of the project, where traditional language courses persist without the use of the platform and devices distribution.

The financial analysis outlines cash flows comprising outward expenses: initial investments of €308,808 for IT assets like tablets, headsets, and accessories, labour costs totalling €516,269 for project initiation and scale-up, and no operating expenses. Inward cash flows are absent rent due to the project's lack of revenue generation. The project's funding primarily stems from donations, with UNICEF as the primary contributor, securing support from the Akelius Foundation and AMAZON as well as AVSI and ISMU Foundation for project implementation.

The project's Financial Net Present Value (FNPV-C) is negative due to the absence of revenue generation, indicating a financial loss of €1,006,849. While financially unprofitable, it's acknowledged that projects with negative FNPV-C might still hold societal value, necessitating an economic analysis beyond financial perspectives.

The project demonstrates financial sustainability, ensuring no future risk of cash depletion during investment and operational phases. Positive cash flow projections align with available financing until the scale-up's end in 2024-2025. This evaluation considers inflows against outflows, including initial and replacement costs, with cumulative cash flow being +€64,570 in the first year and +€2,457 in subsequent years.

Post-scale-up educational institutions are expected to contribute €4,924 each for tablet replacements (after 5 years according to wear and tear time) and related accessories, varying between schools and OoS settings according to the number of students involved, which in the case of the scale-up are to be attributed to the 2022 events involving Ukrainian children in Italy.

Therefore, the financial sustainability analysis shows the cost per school or OoS involved, in the scale-up phase averaged 17.6 students per school. This cost (which to date corresponds to €285.16 per student) will tend to decrease as the number of students involved increases in each school year without the need for additional investment.

3.5 Conclusion

In conclusion, to sum up, the table below presents the main evidence on Akelius project's (and app) sustainability without the projects' support (with the distinction between schools involved and not-involved in 2022/2023 scale-up):

- for all the dimensions, several *essential requirements* are indicated: requirements related to **technological**, **organizational** and **professional** dimensions are formulated according to the same *logic*, while **financial sustainability** has a different formulation according to the specific method used for its assessment;
- the technological and professional dimensions of sustainability include the majority of essential requirements. In particular, the **professional dimension** emerged as a core requirement, internally articulated in at least 4 different sub-dimensions: **digital general skills; skills related to Akelius e-learning app use; ITA L2 teaching skills; personal motivation and engagement** in using Akelius e-learning app;
- due to the peculiarity of the Akelius project funding scheme, **financial** sustainability has been calculated only for schools involved in the 2022/23 scale-up: the assessment led to the quantification of the contribution (quite limited) each school should bear after the scale-up conclusion;
- **schools not included** in the 2022/23 scale-up must confront (not surprisingly) with a higher number of essential requirements than schools involved in the scale-up.

Tab. 7 Evidence on sustainability's dimensions

DIMENSIONS	SCHOOLS INVOLVED IN AKELIUS PROJECT IN 22/23	SCHOOLS NOT INVOLVED IN AKELIUS PROJECT IN 22/23
Technological	Internet connection (well operating and stable); number of devices (tablets) consistent with students' number and platform use scheme	Internet connection (well operating and stable); number of devices (tablets) consistent with students' number and platform use scheme
Organizational	IT expert (internal); suitable spaces for small-group or individual use of the Akelius e-learning app; tablet storage secure place in classrooms	External Help Desk (or equivalent service/support); IT expert (internal); suitable spaces for small-group or individual use of the Akelius e-learning app; tablets storage secure place in classrooms
Professional	Skilled teachers in ITA L2 teaching in a blended environment; didactic materials on using the Akelius e-learning app; motivated and engaged (in using the Akelius e-learning app) teachers	Skilled teachers in Akelius e-learning app use; digital device use in general; ITA L2 teaching in a blended environment; motivated and engaged (in using Akelius e-learning app) teachers
Financial	Post-scale-up, each educational institute is expected to contribute €4,924 for tablet replacements only, with distinctions between schools and "out-of-school" institutes influenced by differing Ukrainian student populations in 2022 ¹⁹	Not analyzed

19 In 2022, the first learning activities were carried out by out-of-school settings in the summer. An intensive course was held in July by the association "Scuola Prestigio" (Rome and Ostia). The summer course represented a peculiar case because of the high turnover of Ukrainian students arriving in the city or being transferred with their families to other areas of Italy or whose families had decided to return to Ukraine.

Acronyms

AA	Akelius e-learning App
CAF	Contribution Analysis Framework
HD	Help Desk
ISMU	Iniziative e studi sulla multiethnicità (Initiatives and studies on multiethnicity)
IC	Istituto Comprensivo (Comprehensive Institute)
ICT	Information and Communication Technologies
ITA L2	Italian as second language
NAI	Newly Arrived in Italy
OoS	Out of School
SEN	Special Educational Need
ToC	Theory of Change
UNICEF	United Nations Children's Fund

Essential Glossary

Theory-based evaluation (TBE): TBE is an evaluation approach based on reconstructing and testing the theories of policy makers, programme managers or other stakeholders, i.e. the collections of assumptions and hypotheses - empirically testable - that are logically linked (Evalsed, 2013).

Contribution Analysis (CA): it is a theory-based evaluation scheme developed in the 1990s that aims to establish a programme's contribution to desired outcomes. More specifically, rather than attempting to definitely and causally link a programme to their desired outcomes, Contribution Analysis seeks to provide plausible evidence that can reduce uncertainty about the difference a programme is making on observed outcomes (Mayne 2001).

Theory of Change (ToC): the ToC is a way of describing the set of hypotheses that explain both the phases (activities, steps) of a policy (or programme) that lead to a long-term goal, and the connections between the activities of a policy (or programme) and the outcomes that occur at each phase (step, activity) of the implementation process (Weiss, 1995).



The ISMU ETS Foundation is an independent scientific body that promotes studies, research, training and projects on multiethnicity and multicultural societies, with a particular attention to international migrations. ISMU works with institutions, public administration, the Third Sector, school and training agencies, businesses, international agencies and Italian and international scientific research centres.

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