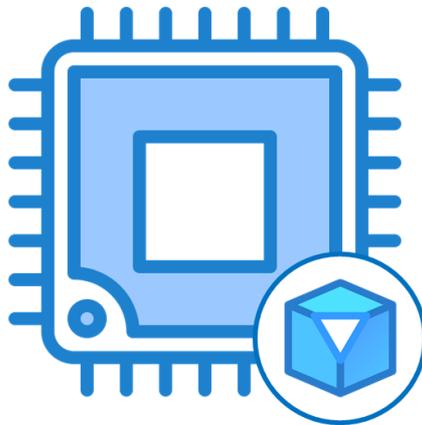


H2020-FETOPEN-2018-2020



**Hardware-Assisted Decoupled Access
Execution on the Digital Market:
The EDRA Framework**

Grant Number 851631

D1.1 – Project overview, web-site, and logo

WP1: Project management



Due date:	PM3
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Reviewer(s)	Andreas Brokalakis Dionisios Pnevmatikatos

Dissemination level	
PU	<i>Public</i>

Disclaimer

This deliverable has been prepared by the corresponding Work Package of the Project in accordance with the Consortium Agreement and the Grant Agreement No 851631. It solely reflects the opinion of the parties to such agreements on a collective basis in the context of the Project and to the extent foreseen in such agreements.

Acknowledgements

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More information

Public EDRA reports and other information pertaining to the project will be continuously made available through the EDRA public web site under <http://www.edra-project.eu>.

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Executive Summary

Deliverable D1.1 covers an update of the workplan, and details the project management approach, its website, logo, and social media presence for promoting EDRA to the public. On the management side, this deliverable describes our collaboration tools and infrastructure for reporting, code versioning, and AWS account configuration. Regarding project publicity, D1.1 presents the EDRA website and its social media accounts that facilitate direct communication with people interested in the project details.

List of Acronyms and Naming Conventions

AWS	Amazon Web Services
AMI	Amazon Machine Image
AFI	Amazon FPGA Image
DAE	Decoupled Access Execute

1 Updated project plan and timeline

EDRA consists of two major phases, namely system integration for deployment to the AWS marketplace, and project dissemination in well-established venues and summits.

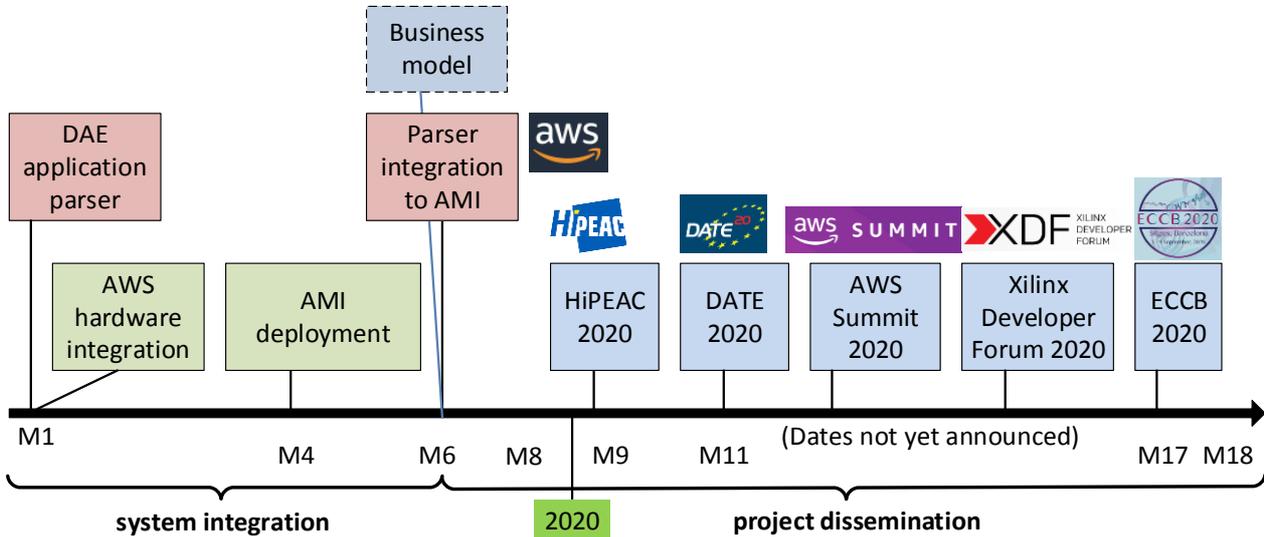


Figure 1 - Project overall timeline.

Figure 1 shows the overall project timeline; compared to the timeline listed in the DoA, Figure 1 also lists all planned dissemination activities, as soon as a first version of the EDRA framework has been deployed to the AWS marketplace. The system integration phase commenced in M1 focusing on (i) the DAE application parser, and (ii) the AWS hardware integration. The DAE application parser will convert legacy applications into a DAE representation with High Level Synthesis (HLS) directives, ready to be processed by the Xilinx SDAccel CAD toolchain for accelerator generation and optimal mapping to the available hardware resources. On the other hand, hardware integration also started on M1, and focuses on evaluating the available software / hardware interfaces that the AWS F1 instances expose to developers for task offloading to FPGA accelerators.

The project plans to deploy a first version of the EDRA AMI to the AWS marketplace on M4 that will enable micro-benchmark DAE acceleration on F1 instances. The application parser is planned for integration to the deployed EDRA AMI on M6, supporting DAE hardware acceleration of the RAxML (Randomized Axelerated Maximum Likelihood) program for sequential and parallel Maximum Likelihood based inference of large phylogenetic trees [7]. On M6, the project targets also to report its business plan, along with a first charging policy to customers, depending on their background (solo users, research institutes, large enterprises).

Starting on M9, EDRA plans to attend well-established research events and summits with a booth and / or workshops for hands-on demonstration of the framework from attendees, in order to disseminate first results and future plans towards its first public stable release. These are the primarily targeted venues for attending until M18:

- DATE 2020, France (March 9-13)
- AWS Summit 2020 (details are not yet available)
- ECCB 2020: 19th European Conference on Computational Biology, Barcelona (September 5-9)

If possible, EDRA plans also to attend the following venues for further project dissemination and demonstration:

- Xilinx Developer Forum 2020 (details are not yet available)
- HiPEAC 2020, Italy (January 20-22)

It is noted that during the dissemination phase, the EDRA team will of course continue updating the deployed EDRA AMI, in order to enhance its performance and robustness, effectively leading to its first stable release, ready for download by end users and enterprises.

2 Management and collaboration tools

2.1 Meetings and Reporting

Since this is a single partner project, management goals are simple and in the first phase correspond mainly to achieving timely progress on the technical work and meeting the deliverable deadlines. The EDRA team from M1 has scheduled project weekly meetings, in order to monitor and enhance collaboration and ensure the timely overall project progress according to the original Gantt chart.

2.2 Support tools

2.2.1 Online storage and file sharing

The EDRA project will use the datacenter infrastructure of the Telecommunication Systems Research Institute for secure online document archiving, which is based on a locally deployed Seafile backend file storage cloud environment.

2.2.2 Meetings and virtual presence

While the work team is in close proximity, travels and other obligations occasionally necessitate virtual presence. In such cases, we will use Skype (or other similar tools). Since the work team is small these tools are sufficiently reliable and free of charge.

2.2.3 Development and versioning

As it was described in the original proposal, EDRA is based on two main “development tracks”, namely the software framework for automatic code transformation into DAE-compatible executables, and the hardware updates required for mapping all accelerators to the AWS FPGA based F1 machine instances. EDRA utilizes a git code versioning system based on the Gitlab platform¹ [5] for both software and hardware development.

Regarding hardware implementation, EDRA employs a hybrid on-premises and cloud approach. Development is realized locally using private infrastructure taking advantage of existing servers and already deployed and licensed software/hardware development tools. Once initial test and debugging are complete (including hardware emulation), the deployment of the accelerated applications is carried out on the cloud, in Amazon’s F1 instances. Since TSI already owns development servers and tools, this is the most economically viable solution, as the cost of deploying advanced AWS machine configurations for FPGA application development (a minimum 8-core, 122GiB RAM and 480GB storage required to support the Xilinx SDAccel toolchain for the specific FPGA devices in the F1 instances) can become overwhelming.

2.3 Project coordination and contact

The *Project Coordinator (PC)*, **Dionisios Pnevmatikatos**, is responsible for the general / administrative management. The PC will monitor the planning, progress, and deliverables issues of the project with respect to the objectives and plans.

Name	Dionisios Pnevmatikatos
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Place	Chania, Crete
Post Code	GR73100
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¹Deployed to the datacenter infrastructure of the Telecommunication Systems Research Institute

Dimitris Theodoropoulos is responsible for the technical management, and the overall business plan of the project.

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3 Public presence

3.1 Logo

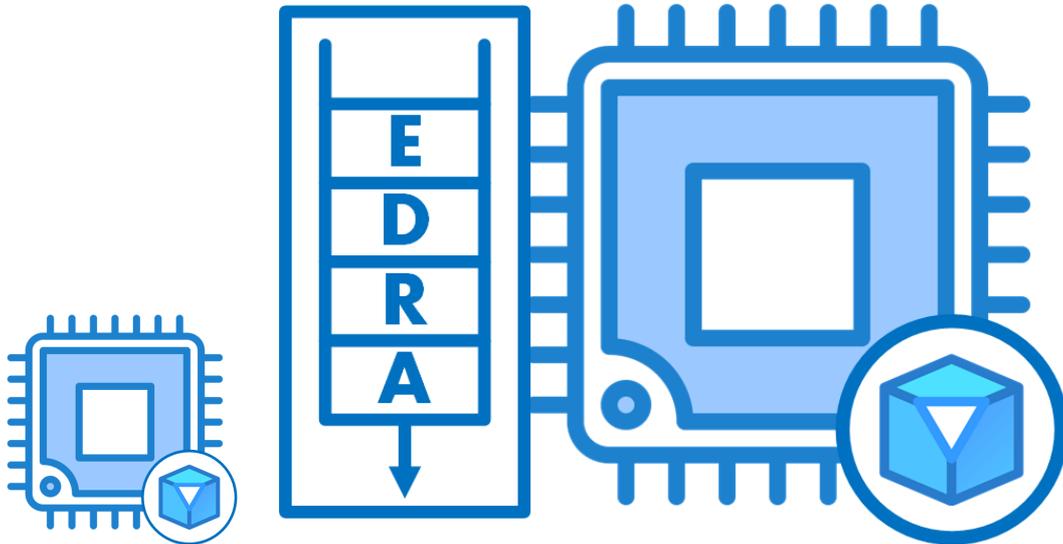


Figure 2 - The EDRA logos; the left one will be used for small icons, and the right one for high-definition, wide-screen devices.

Figure 2 depicts the EDRA logos; the left one will be primarily used for small icons (e.g. website tab, Twitter / LinkedIn accounts), and the right one for high-definition wide-screen devices.

3.2 EDRA website

EDRA designed a simple yet intuitive website, in order to provide information regarding the overall project objectives and expected impacts. The website is hosted at the Technical University of Crete's datacenter infrastructure, which provides and maintains a WordPress-based [2] platform for launching secure websites. The EDRA website is available in the following address:

<https://edra-project.eu/>

Towards enhancing security and trust to visitors, the project website supports SSL encryption with certificate provided by Let's Encrypt [1]. Currently, the website is divided into the following sections:

1. The EDRA framework: This is the first page (Figure 3) that briefly presents the overall project focus and target.

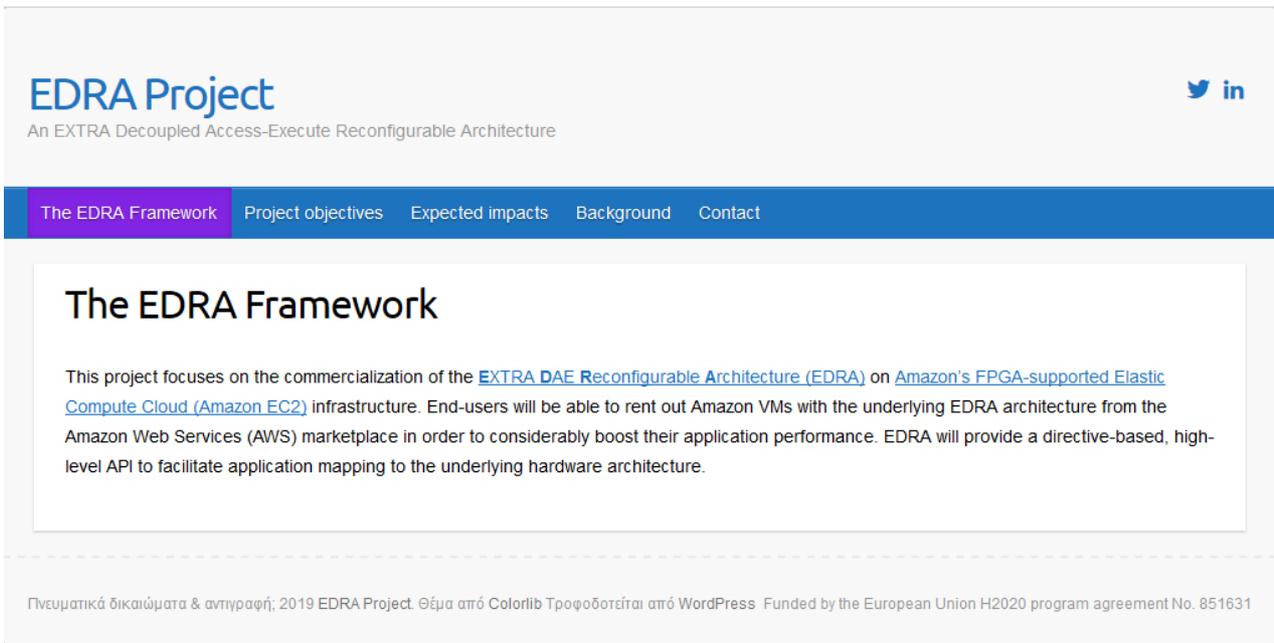


Figure 3 - The EDRA framework home page.

2. Project objectives: This page (Figure 4) focuses on the project objectives and the means to achieve them.

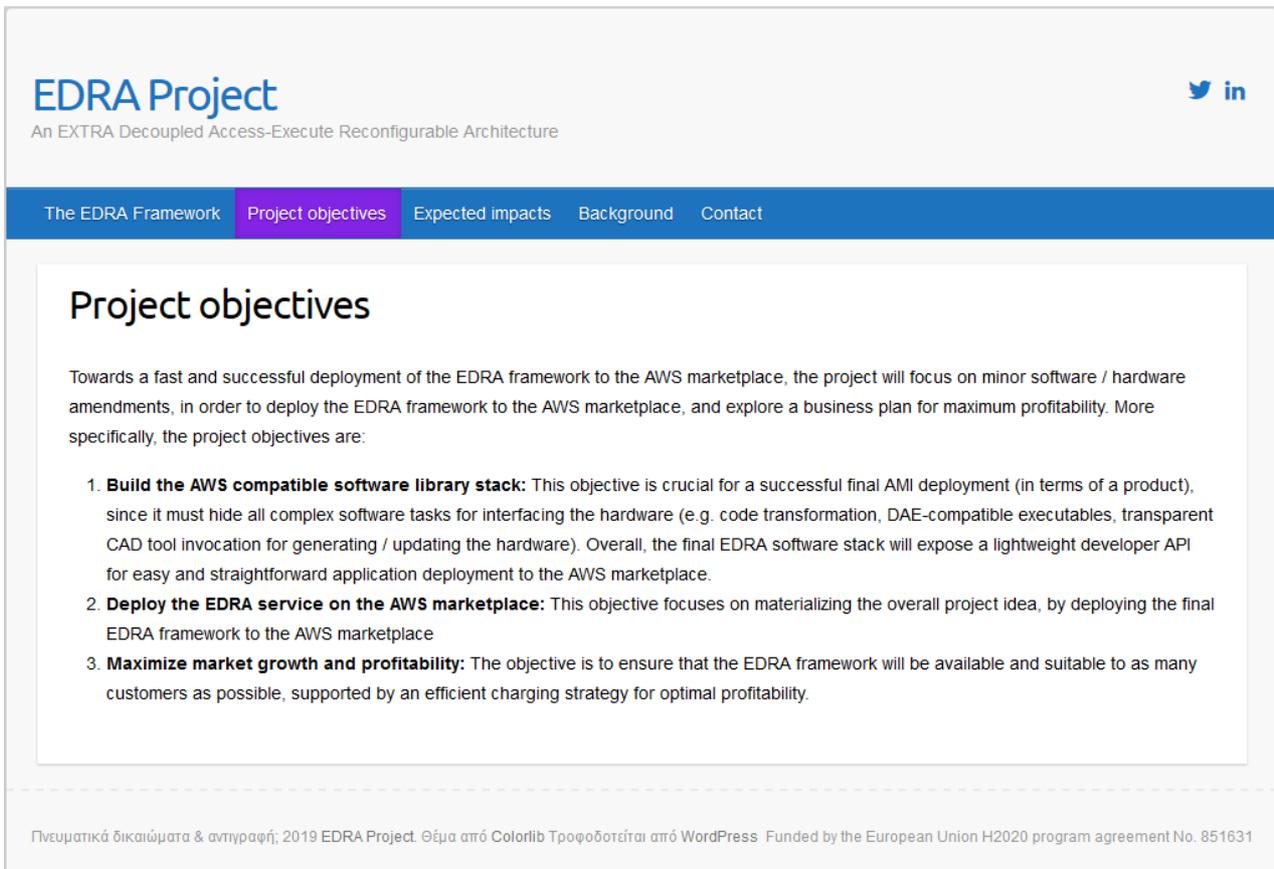


Figure 4 - Project objectives page.

3. Expected impacts: This page (Figure 5) describes the expected impacts of the project with respect to economy and science, as well as its potential contribution to enhance the competitiveness of European industry / economy.

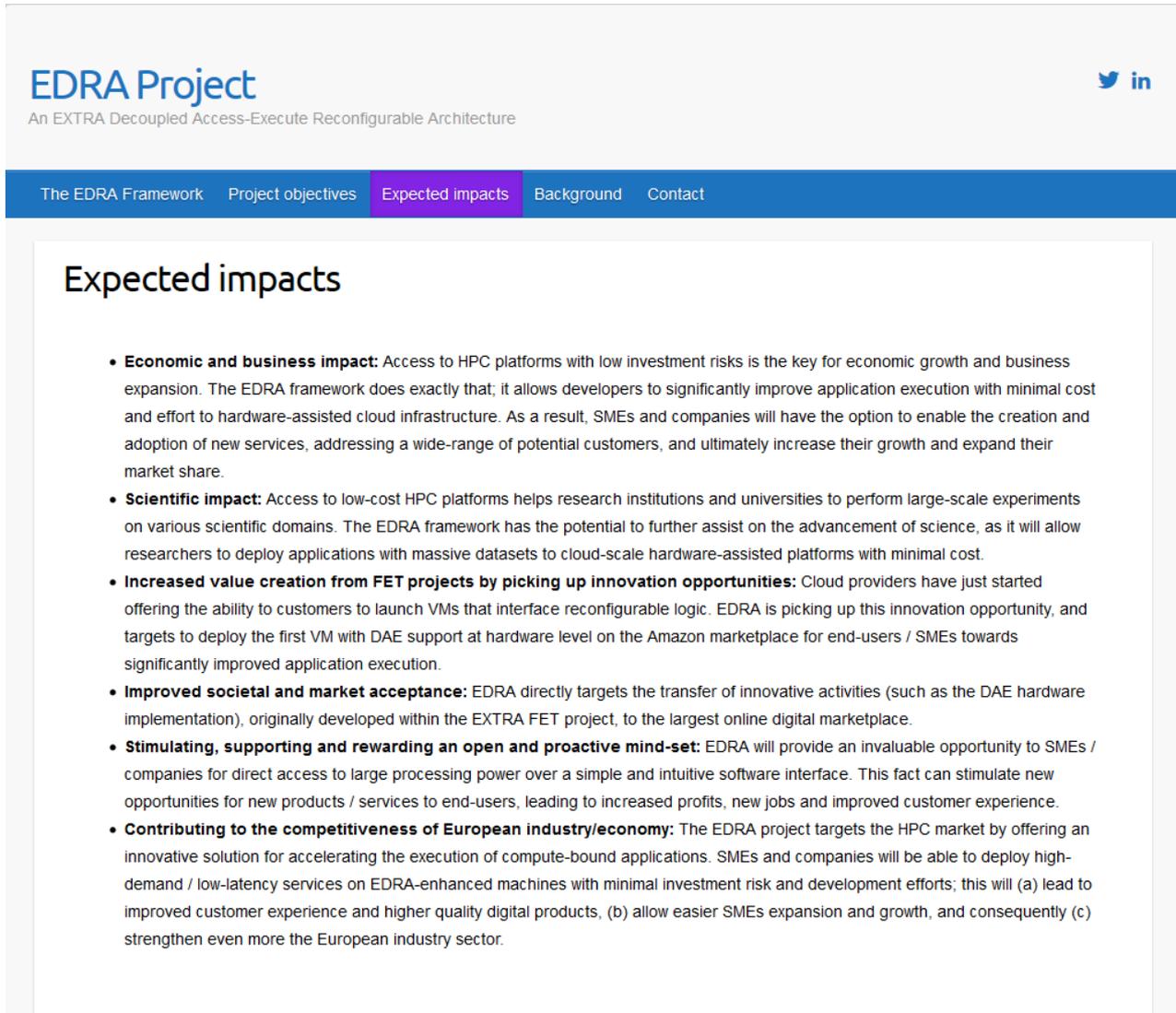


Figure 5 - Expected impacts page.

4. Background: This page (Figure 6) essentially links EDRA with the original work conducted during the EXTRA project [3]. This information is important for visitors who would like more details on the research and the technological outcomes of the EXTRA project that EDRA will promote them to actual products on the market.

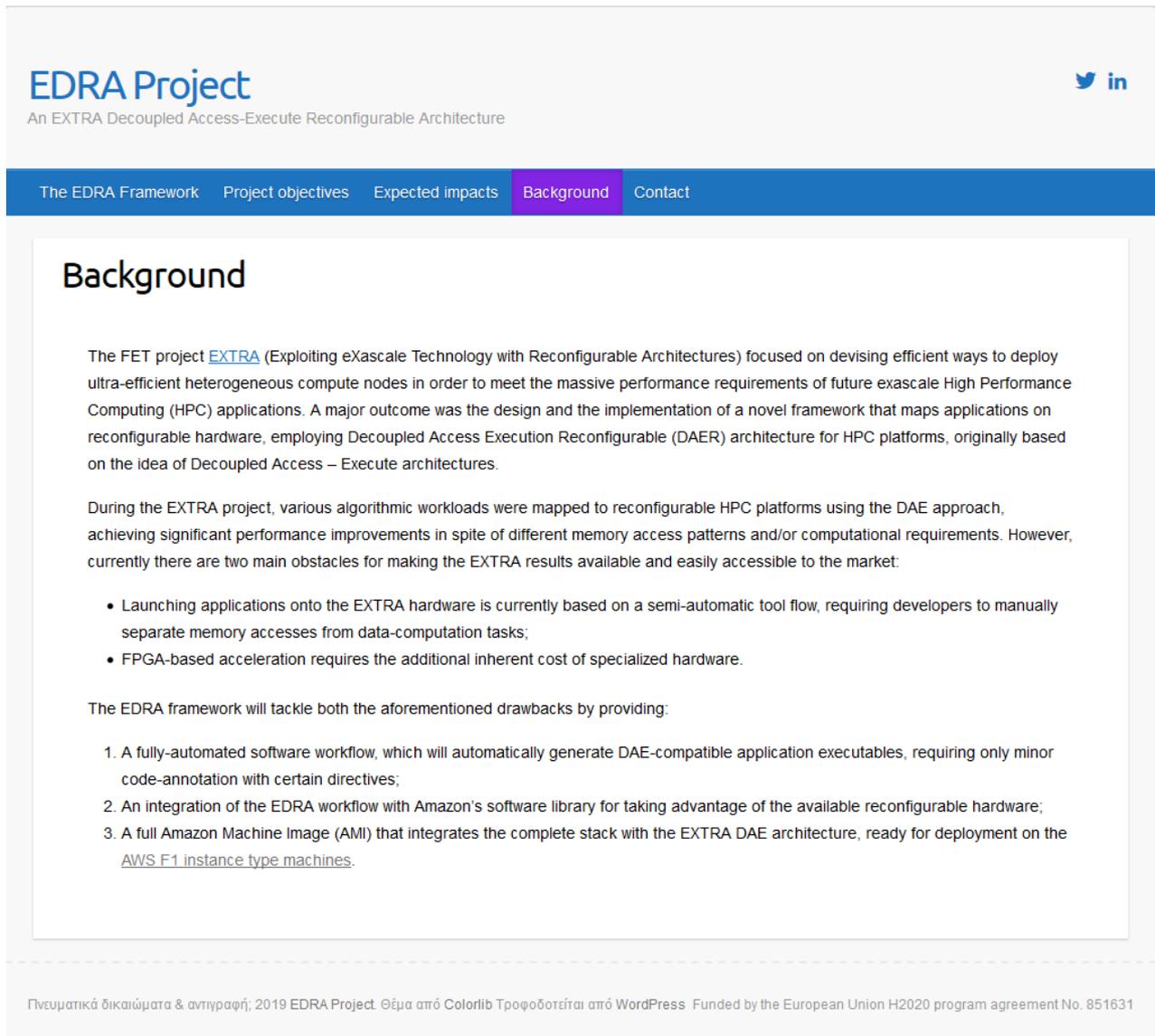


Figure 6 - Project background page.

5. Contact: This page (Figure 7) provides all required information for visitors interested in contacting the project coordinator (Prof. Dionisios Pnevmatikatos) or other members of the EDRA team.

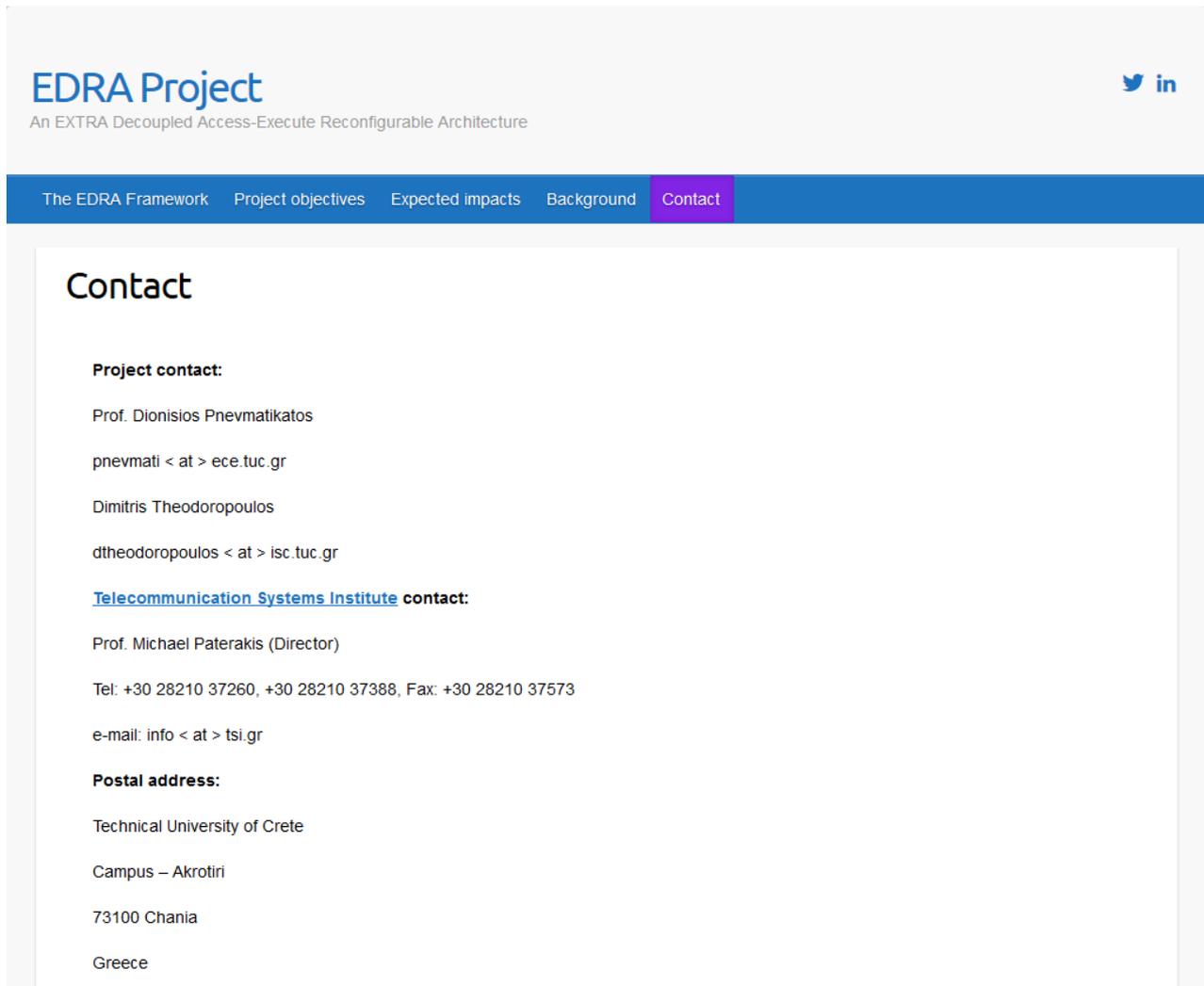


Figure 7 - Contact page.

3.3 LinkedIn account

Towards improving communication with other research projects and companies, we created a LinkedIn page for specifically announcing progress / video demonstrators, as well as providing more details to interested visitors. Figure 8 shows a snapshot of the EDRA LinkedIn account.

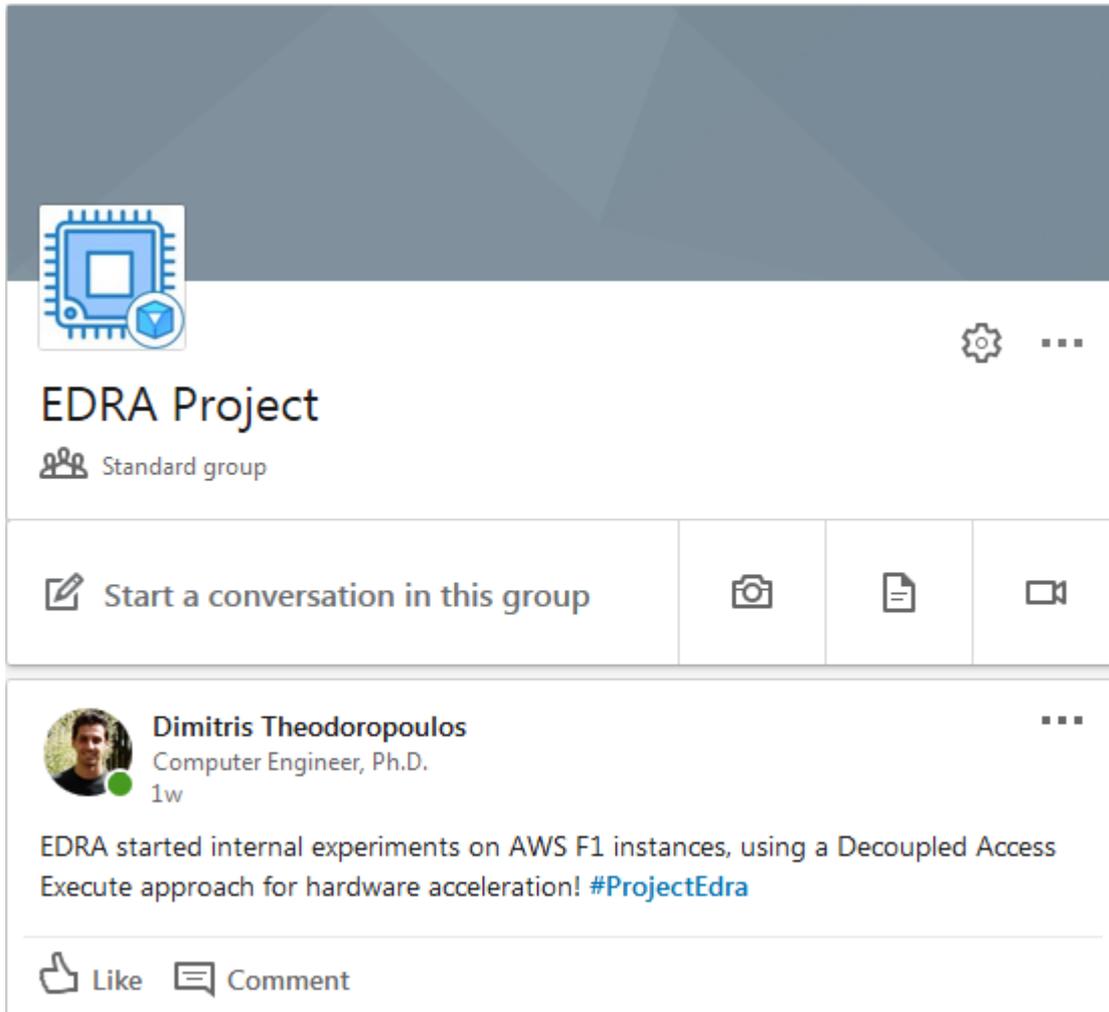


Figure 8 - The EDRA project LinkedIn page.

3.4 Twitter account

EDRA launched a Twitter account for instant messaging and updating with respect to the project progress and outcomes. It will be used as an additional communication channel with interested users who would like more details on the project. Figure 9 provides a snapshot of the EDRA Twitter account.



Figure 9 - The EDRA Twitter account.

4 References

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- [3] C. B. Ciobanu, A. L. Varbanescu, D. Pnevmatikatos, G. Charitopoulos, X. Niu, W. Luk, M. D. Santambrogio, D. Sciuto, M. A. Kadi, M. Huebner, T. Becker, G. Gaydadjiev, A. Brokalakis, A. Nikitakis, A. J. W. Thom, E. Vansteenkiste and D. Stroobandt, "**EXTRA: Towards an Efficient Open Platform for Reconfigurable High Performance Computing**" in *Proceedings of the 18th International Conference on Computational Science and Engineering (CSE 2015)*, October 2015, pp. 339-342
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- [7] A. Stamatakis: "RAxML Version 8: A tool for Phylogenetic Analysis and Post-Analysis of Large Phylogenies". In *Bioinformatics*, 2014