

Research in Advanced Low-code/No-code Application Development: Aspects around the R@ISE Approach

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Summary

The R@ISE project serves as a catalyst for the development of a strong Low-Code / No-Code (LCNC) research and adoption capability for Ireland. Supported by eminent scholars, international domain experts and corporate and public sector partners, this multi-dimensional and visionary project will lead research and dissemination programmes in both core (Low Code / No Code development platforms) and applied Software Engineering (Digital Thread). The project was launched on April 4th in the University of Limerick.

Software increasingly pervades every aspect of our society and economy. Software development has never been more important, and yet organizations are struggling to find enough skilled developers. Businesses have an unmet need for code that works. Low-code is a new way for developers of all skill levels to design applications quickly and with minimum hand-coding. No-code is a way to help those who may not know how to program but want to develop an application for their specific use case.

Low-code and no-code (LC/NC) development tools enable the rapid deployment of powerful computerized functionalities without the need for a developer to have deep knowledge of the underlying platform or of computer science. LC/NC development tools speed up the delivery of applications. LC/NC tools have been used by governments around the world to handle the spread of COVID-19.

LC/NC can meet the unmet needs of government and business. Digital businesses' demand for ever-more software ever-more-quickly is the big driver of LC/NC adoption. In an influential report, Gartner predicted in 2019 that by 2023, over 50% of medium to large enterprises will have adopted low-code or no-code as one of their strategic application platforms. In 2021, Gartner forecasted that by 2025, the value of these technologies will reach \$29 billion, with a compound annual growth rate of over 20%. Gartner also predict that by 2025, 70% of new applications developed within enterprises will use no-code or low-code technologies.

Given these trends and the national importance of software, the goal of the R@ISE programme is to act as a catalyst for the development of a strong research and application LC/NC capability for Ireland. R@ISE is uniquely placed to

accelerate this development into the future of LC/NC with industry partners like Tines, ADI, Stripe and J&J. We also partner with Limerick City and County Council to embed LC/NC approach within a public policy context.

R@ISE is expected to become the research catalyst platform of a unique industry partnership supporting the development and adoption of technologies, methodologies and test beds of national strategic importance that harnesses national and international academic knowledge with industrial know-how and experience in LC/NC. R@ISE's impact will be through

1. A comprehensive platform for LC/NC development.
2. A shared cohesive vision and strategy for the growth of LC/NC research, education and tool development
3. An unprecedented level of participation and partnership of academic and industry partners committed to the LC/NC vision.
4. The extended dissemination of high-calibre and research-led insights relating to the evolving LC/NC field.

The exponential growth of high-class LC/NC deployment by small and large actors, furthering increased corporate automation and revenue generation on a national scale and beyond.

In this Track, we welcome contributions that elucidate the role of formal methods, modern development techniques like DSLs, microservices, test first, and other approaches that increase encapsulation and reuse, and anticipate the validation, verification and checks to design time instead of runtime, as well as new techniques for better, more automated integration and deployment, and generative approaches, be this from specifications, models or even natural language, perhaps integrated via technologies like ChatGPT.