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LOW-CODE ADOPTION FRAMEWORK

Reply has developed a framework with the objective of supporting its customers in the adoption of low-code, maximising its effectiveness and positive impact within each company.

LOW-CODE ADOPTION FRAMEWORK

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INTRODUCTION

The current socio-economic context within which companies find themselves operating is characterised by a pace of change that has never been so fast – and there are no signs that it is slowing down. This complex scenario has led to a change in the way companies are doing business, with a much stronger focus on offering digital and constantly evolving products and services. This transformation must, however, be reflected in an evolution of the way in which digital products and services are developed, as the current development approach has highlighted a marked gap in the number of professionals available, in the order of 40M worldwide. The solution to the problem at this time is to increase the productivity of IT developers and to expand the working group, involving business and domain experts and creating the figure of the so-called Citizen Developer. This can be achieved by adopting a low-code/no-code approach.

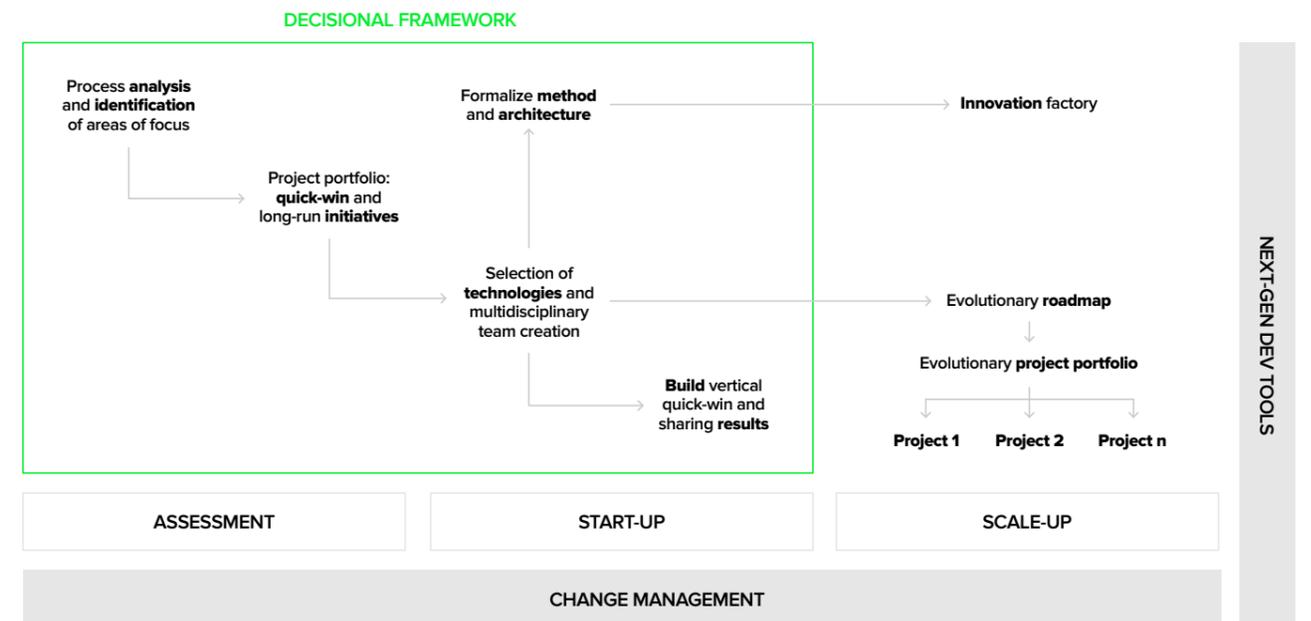
Low-code applies an agile and collaborative methodology to the entire application life cycle. This approach allows the business and IT to work together to reduce the risk of project failures, developing applications in a shorter time frame and drastically accelerating the Time To Market (TTM), as well as increasing the quality of the final product.

The adoption of this approach affects various stakeholders within a company, both IT and business, work processes, typically Demand&Delivery, as well as the organisational model. For this reason, the application of a framework ensures a structured approach that allows all the critical aspects of the adoption journey and the corresponding key points to be taken into consideration, so that an adoption strategy can be defined that is closely tailored to the customer’s specific needs.

THE THREE PHASES OF THE FRAMEWORK

The objective of the framework developed by Reply is to identify the most critical aspects for the customer in its low-code adoption journey, to verify its level of

maturity and to assess where the low-code approach could be used to maximise its effectiveness and positive impact.



The framework consists of **three phases**:

1. ASSESSMENT

The purpose of the first phase is to analyse the current state of the company and understand whether low-code can be used to speed up processes or to solve specific problems. These can either be technical and thus related to the software development

process, or business and thus related to work processes (e.g. back-office file management; marketing data analysis, etc.).

Starting from the analysis of the current ecosystem, through a series of meetings with the main stakeholders and the consequent identification of the customer’s needs and objectives, it is possible to highlight general or customer-specific areas (Sales, Marketing, HR, Procurement, etc.)

and the related processes where the low-code approach can be applied effectively. Some of the questions to ask the customer (differentiating by area/department), for example, include: How do employees interact with the systems on the various company processes? Which applications are used outside the IT domain (aka Shadow IT)? What are the requirements and needs that impel employees to use other tools?

Based on an as-is analysis, the framework helps us to answer the following questions:

- What changes can I achieve by adopting the low-code approach?
- What benefits can I obtain from using this development methodology?
- How oriented am I towards implementing such a typology?
- What is my level of digital maturity?
- What are the processes, areas and domains where it would potentially make sense to apply the low-code approach?
- What are the main KPIs of the areas identified (e.g. time to market, product/service development costs, maintenance costs/effort, etc.)?

2. START-UP

The second phase involves the selection of one or more products that meet the requirements compiled in the first phase. The selection may be accompanied by the development of some POCs (selection of 2/3 platforms) on the identified focal points, to highlight the strengths of the selected platforms.

The methodology on the customer’s characteristics is also detailed in the start-up phase. An initial Training and Onboarding phase of the company departments that are directly involved begins during this phase as well.

3. SCALE-UP

The third phase supports the customer throughout the entire process of adopting the low-code approach, starting from a non-adoption situation, to a level of maturity where the low-code model can be used in specific areas identified during this phase.

The scale-up phase defines how the platform will be used by the company during the development phase, based on the company’s ability to involve the business in its application development approach.

ASSESSMENT

The objectives of the assessment phase are:

1. To determine the maturity level of key customer stakeholders in the low-code

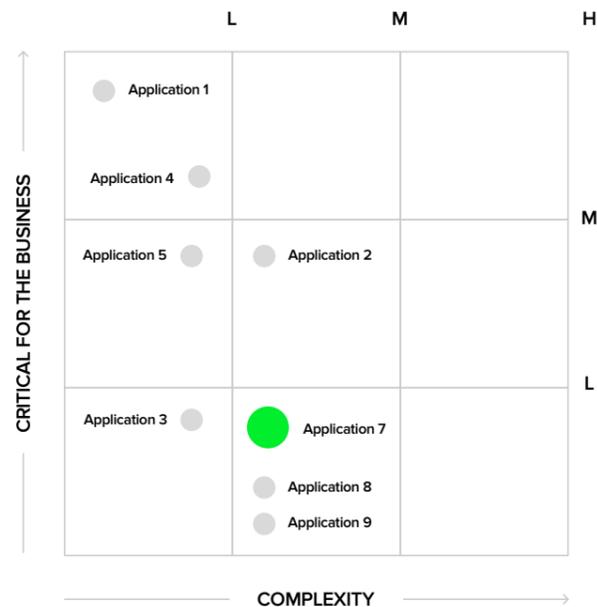
environment, mapping it within predefined levels that help build the evolution path of the organisation and of the work processes (see the table below).

	UNAWARE	AWARE	EXPERIMENTING	DIFFUSED	CONSOLIDATED / ADOPTED
Strategy & Organization	Is unaware of the possibility of using modern development platform frameworks	Begins learning about the benefits a modern development platform can bring to the business	Has started designing the first applications for the development of small projects	After an initial analysis phase on prototypes, has started developing applications of a more critical nature	The modern development platform has become a reality for in-house projects
Architecture	Has not carried out a study of the incorporation of a low-code platform in business processes	Is knowledgeable about which platforms can be incorporated into the business processes	Is starting to carry out the study for the architectural management of low-code platforms	Has defined the architectural rules for the use of low-code platforms	The architectural rules for using low-code are now a standard for the company with applications already in use
Development	Has heard about the low-code world but has not approached it as regards development	Has started collecting information on the rules for platform development	Has started experimenting on the platform	Has embarked on the road to adoption of the framework, by planning the creation of applications	A consolidated application development roadmap with the low-code framework is in place
Operations	Has no knowledge about how to manage a low-code platform	Has started collecting information on the rules for managing the platform	Has started testing features on the platform for application management	Has specifically started testing the platform’s features for monitoring and managing applications	Application monitoring and management methods are integrated within the customer’s monitoring processes. Applications are managed without risks to the business

2. Identify the applications subject to digital transformation based on a low-code approach, with all the information necessary to build the evolutionary roadmap, collecting information, such as:

- Areas, groups that include do-it-yourself tools, smart offices or applications that no longer comply with innovative or security standards;
- Who are the recipients of the applications (internal collaboration, b2b, b2c, etc.);
- What are the devices from which the applications are to be used;
- What macro-features are required (BPM, RPA, Web Application, WPA, Mobile Native, Testing, AI, etc.);
- What is the criticality level of the applications;
- What is the level of development complexity;
- What is the level of integration of the applications with the current ecosystem;
- Which standards will the solution need to comply with (e.g. security, GDPR, etc.);
- What is the knowledge level of the platform users or administrators.

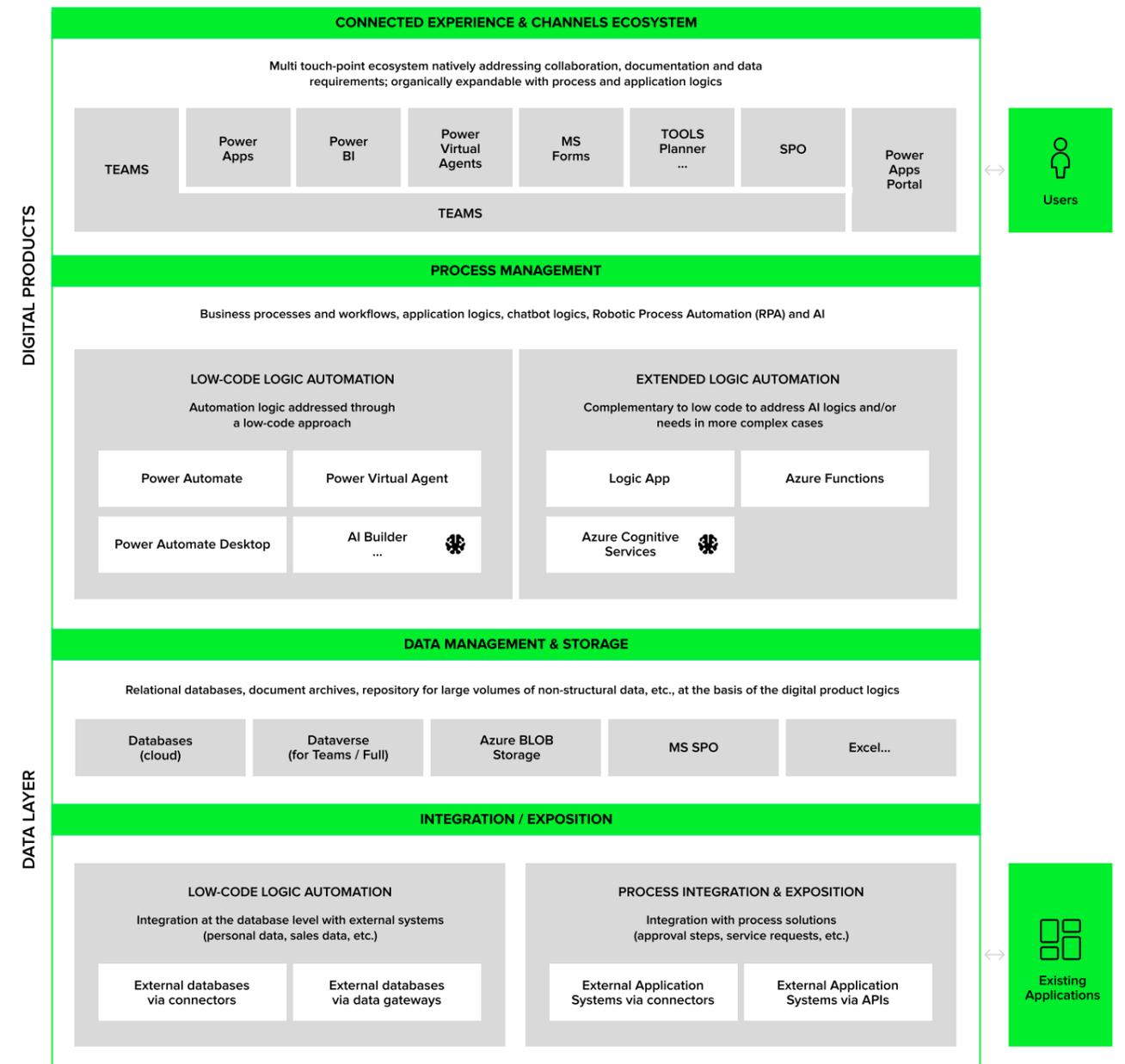
Once this information has been collected, it will be possible, using a criticality level/ development complexity diagram, to determine a basic roadmap that can be used to approach the low-code world efficiently in the subsequent phases.



As part of this assessment, the number of users (internal and external) should be indicated for each application. This will highlight the coverage of the entire organisation in the roadmap, making adoption gradual so that the necessary steps can be taken for approval by all actors.

The information collected allows ICT, for each application archetype (Web B2C, Collaboration, BPM Flow, Documentation, Reporting, etc.), to activate the application components on the basis of specific use cases and to define logical reference macro-architectures that can be used as a model for future development and as support for the software selection phase.

An example of an architecture for the adoption of a specific low-code platform is shown on the following chart:



In order to orientate the qualification activity of the new requirements, a path is structured based on an initial portfolio of application archetypes characterised by a specific set of characteristics and starting scenarios,

facilitating a mapping of requirements towards specific macro-architectures and subsequently making it possible to gather – from the initiatives carried out – their retrospectives from a lesson-learned perspective.

START-UP

SOFTWARE SELECTION

An evaluation matrix will be prepared in the selection phase to analyse different customer-specific domains and functionalities. For each evaluation index, a weight will be assigned in the assessment specific to the customer / scope / ecosystem required.

Each area will have to be explored in detail in order for an accurate assessment of the platforms to be made. The choice must meet long-term requirements to enable the platform to become a reference point for the entire organisation. As part of this evaluation, one or more POCs are included to provide the customer with evidence of the platform's potential.

POC

Based on the assessment, use cases that can cover certain key functionalities for future projects developed on low-code platforms are highlighted, to emphasise those with a higher importance.

The various use cases, defined by detailing the specific functionality and its type (implementation or feasibility analysis), are then converted into the functionality of one or more applications, which will be developed in each low-code platform being analysed.

The POC demonstration phase is used to receive objective feedback from the customer concerning the results obtained from the different platforms, verifying the degree of conformity of what has been developed with respect to the requirements, indicating the degree of maintainability and customisation, and highlighting the particular and distinctive functionalities used during the implementation of the POC in the platform being demonstrated.

On the basis of the results obtained, a POC evaluation matrix is drawn up for each platform, identifying each implemented use case with a score from 0 to 4, using values justified by the effort put into its implementation and the type of functionalities used by the platform:

- **0-1 (Not implementable):** functionality not present and not implementable, reworking of the requirement necessary;
- **2 (Custom code):** the solution involves the creation of custom logic implemented with a programming language;
- **3 (Custom low-code):** the solution involves the creation of customised logic, implemented using low-code tools;
- **4 (Out Of The Box):** the solution is based on modules and components that only need to be configured.

The various evaluation matrices produced are subsequently used to carry out an objective comparison between the different platforms.

METHODOLOGY

When using a low-code platform for product development, Agile methodologies are a winner, since the main values of the Agile philosophy mirror those of these platforms.

Indeed, the four pillars of the Agile manifesto can also be considered as such when it comes to the low-code approach:

- **Individuals and interactions**
Thanks to the abstraction of the more technical parts, low-code makes every team member an active part. Indeed, in certain situations, the business user becomes a so-called Citizen Developer, applying a concept according to which the end users of the solution are also those who are involved in its development using IT-approved tools.
- **Working software**
Thanks to the automations of low-code platforms, the code almost always works correctly and there is no need to worry about documenting it, since it is often done automatically by the platform.
- **Customer collaboration**
The interaction between business and IT becomes the focal point in the development of the solution. Team members often have different areas of expertise and speak different languages. The visual language of low-code helps

overcome these challenges and leads to an increased collaboration with customers. Moreover, the interaction between Business and IT favours the decrease of Shadow IT practices.

- **Responding to change**
One of the biggest benefits of low-code is speed. Applications can be developed faster, changes can be made more quickly and new requirements addressed by shifting direction at any time during the course of the project. Not only is the response to change quick, but it is also easy and implementable by a larger number of people.

SCALE-UP

ADOPTION

The adoption phase includes the following activities, some of which may be performed in parallel with the assessment phase or after the reference platform has been selected:



The phases of **Governance**, **Training & Onboarding** and **Development** should be taken into careful consideration because, according to the experience gained with customers in the various projects, they represent the potential success or failure element of adopting a low-code platform.

GOVERNANCE

When adopting a platform, it is very important to define a common approach to governance across all major processes: demand, delivery, support, etc. The main objective is to make the low-code platform “THE TARGET PLATFORM” for one or more classes of applications, serving as a reference point for the entire organisation. Once the platform is recognised, certain standards need to be defined:

- Guidelines for setting up and using the platform environments;
- Authorisation and profiling guidelines;
- Reference architectures;
- Application lifecycle guidelines;
- Definition of the Centre Of Excellence (CoE) to support the technology/platform;
- Security/integration policies;
- Monitoring of resources and use of the platform.

These standards make it possible to govern, monitor and maximise the benefits of adopting this approach.

ONBOARDING & TRAINING

The onboarding & training phase can be considered to be the most important phase as it allows the knowledge related to the platform to be disseminated to those who may use it or may need to develop new applications.

This phase allows the entire organisation to be brought on board, illustrating the potential of the platform and bringing all the actors of the project team closer to speaking the same language, in other words that of the platform.

There are several actions that can be put in place to make this phase effective:

- Publication of short knowledge modules and webinars;
- Training of targeted groups;
- Onboarding sessions with a hands-on approach;
- Hackathons with several working groups;

Provision of lab environments in which to experiment independently.

DEVELOPMENT

A proper adoption process will allow the organisation to approach the development phase with different methodologies and actors:

- Development of complex applications by pro developers;
- Development of process applications in close collaboration between business, ICT and developers;
- Development of “Smart Office” applications directly by the Business.

All approaches should allow monitoring and control by ICT or by the dedicated CoE team.

REPLY'S SUPPORT

Reply, through the extensive experience gained from its low-code competence centre and the use of our framework, supports customers along the entire path of this approach, adapting activities to the specific reality of each company, on a case-by-case basis.

Reply is constantly conducting tests and analyses of the tools available on the market, studying their functionality to identify the best future generation low-code platforms. This includes OutSystems, a best-in-class, low-code platform and our partner since 2019, with ongoing projects in various domains including the Energy and Banking sectors. Initiatives range from delivery projects relating to the modernisation of specific applications, or groups thereof, to strategic low-code adoption projects characterised by a 360 degree approach that also involve organisational, training and change management structures.

The evolution of technology and the opening up of the Italian market to the adoption of innovative solutions have driven Reply to invest in this area, with a particular focus on OutSystems, leading to the creation of a technology boutique made up of highly specialised professionals to support this approach.

Based on the projects carried out, we have defined some best practices that facilitate the adoption of a low-code approach:

- The direct involvement of the entire project team (business/IT) to introduce the low-code platform operationally, thus making everyone immediately aware of the potential of the platform and the speed of development.
- Cross-role collaboration within sprints, during which features are developed by the development team, with the involvement of the business, based on pair programming joint development sessions, in order to adapt and refine the requirements directly during development.
- Facilitation of Citizen Development, promoting the training of business users who are closest to the low-code approach, assigning them specific tasks such as creating the user interface, defining the data model and building internal application functionalities.