

# Project in Control: An Innovative Approach

Jos van Rooyen  
 Bartosz ICT BV  
 Arnhem, the Netherlands  
 jos.van.rooyen@bartosz.nl

**Abstract**-Nowadays, companies are still struggling to execute and deliver IT-projects successfully. Several reasons can be mentioned. The main question, however, is how the business can gain confidence in the new or adapted IT-system? This article describes an approach where, from a business point of view, the IT-system is monitored to assure that the business can use the IT-system in its daily operations. The approach is developed in practice, during several projects over the last 5 years. The experiences are collected and structured in such a way, that projects and companies can apply the method into their own organization. All the companies who applied the approach were successfully Ready for Shipment.

**Keywords**-Quality Monitoring; Change Management; Integrity; Ready for Shipment and Practical Based Approach.

## I. INTRODUCTION

Nowadays, companies are still struggling to execute and deliver IT-projects successfully. Often, requirements are not met, business operations are poorly prepared and the business processes are not supported well by the delivered IT-system. IT and business are not aligned, project's deadlines are far from planned and the budget is exceeded significantly. No wonder new projects are welcomed with skepticism.

The causes of failed projects are all recognized and nevertheless the IT industry is still struggling with this issue and apparently not able to change this. Is it possible to change this at all? How to gain more control to successfully implement an IT-system? How to avoid decrease of quality when the time pressure on the project increases? How to ensure that the end-users are well prepared, accept the new system and actually experience added value?

This article describes an approach to improve the success rate of IT projects. Instead of focusing on IT, in this approach, the business processes are leading and taken as a starting point. From there, it is derived how it can be supported automated or manually and how that together affects the organization. The approach is not the ultimate solution, but the experience till now is that by applying the described approach, the success rate of the IT-projects will increase significantly. How to achieve this? By not looking at IT solely! The approach that will be described is a Practical-Based Approach. The approach was developed in practice during several projects over the last 5 years. Table I shows the number of projects, the domain where the

approach is applied and the size of the projects. The experiences are collected and structured in such a way, that projects and companies can apply the method into their own organization.

The paper has the following structure. Section II describes the cause of failure of IT-projects. Section III describes the integral approach. Section IV presents the application of the approach. Section V concerns the related work. Finally, in Section VI, conclusions and future work are mentioned.

## II. CAUSE OF FAILURE IT-PROJECTS

A much referred cause is the shaky base of the project. The business case is not specific enough [8]. Requirements are incomplete, ambiguous or even unclear [1][10][11][12][13]. A more soft cause is the alignment of business and IT [4]. The business is not understood by the IT department and vice versa. How can a system be developed, if you do not know what process will be supported or by whom it will be used?

Another cause is the skill of the project member [9]. Despite the fact that a lot of methods, processes and techniques have been developed, the quality of the individual skills determines the end result. The system development process is lengthening. Many projects are, e.g., outsourced to low-wage countries. As such, this does not have to be a problem; but, it complicates communication because of the distance and different languages it brings cultural differences and, as stated before, results in wrong products. If the IT-project is not sure what it wants, how to expect that others deliver the right product? A well known example is the annotation of numbers. Are you talking about inches or cm?

One final cause to be mentioned here is the one-sided way of looking to projects. Very often the technology is leading. High tech solutions and state-of-the-art are the miracle words and triggers. Developers tend to forget for whom they are developing software and in what context their contribution is used. It is obvious that there is no fit as long as it is not considered and treated in coherence along, with the to be supported processes and the organization for which it is meant for.

Despite the fact that project management methods, development methods, techniques, development

environments etcetera are improving enormously and expanding continuously, this does not seem to result in more successful projects. On the contrary, from publications it is derived that the percentage of successful projects hardly exceeds 45% [1].

Considering all the above, there is no single cause for the failed projects. One thing is for sure. You cannot blame the IT only [7]. The business does not know exactly what they want, they are not responsive enough, rely too much on others such as vendors and bring in new requirements as the project is already underway [2][3][5]. The processes should be taken as a starting point. What is required for example to implement a procurement process? A new system itself is not enough. What about the users, workflow, offices and communication? Herein lays the core causes of the problems that occur. IT should not be looked at solely from an IT-perspective, but from a business perspectives instead and, as an integral part of the triangle: IT, Processes and Organization.

The question is: “How to solve this?” The answer is not straightforward. Having made mistakes in the past and having learnt from them, an integral approach has been developed, where elements of different fields and skills are applied and combined. Fields such as, Change Management, Testing and Quality Assurance. Elements from the fields Testing and Quality Assurance have been clustered under the header of Quality Monitoring. The application of the combination of the elements from different fields ensures that projects can be implemented more successful. An integral approach, in which from the business perspective to look at IT and the consequences for the organization, has been proven to be a successful one. Herein lays the unique character of the approach. The approach has been developed over the last few years during various projects and gradually evolved to what it is today. One thing is for sure, the development of this approach will continue for years.

### III. THE INTEGRAL APPROACH

The distinctive character of this approach, is by looking from an integral point of view to the required business processes, the required resources (IT) and, the (future) organization. The integral approach is based on two main components, i.e., a base architecture and a 5 steps action plan. The base architecture is presented in Figure 1.

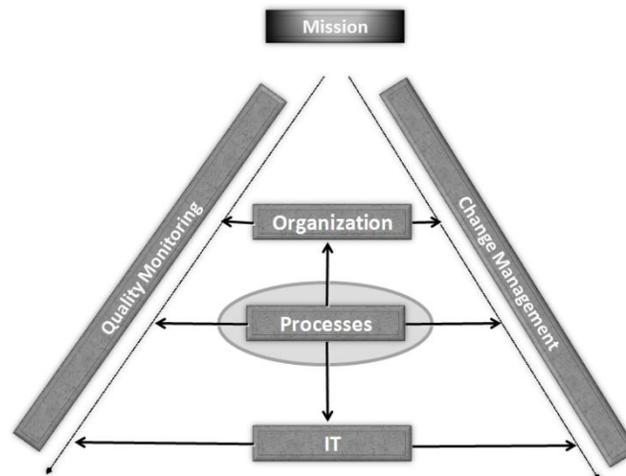


Figure 1. Base Architecture

In the end, the approach should provide enough confidence in the IT-system and organizational readiness to decide that the IT-system can be released at a certain moment in time. In such a way, that you know when the system is released, the planned activities can be continued, insight in risks is provided, knowledge about the weaknesses is present, goals as defined in the business case have been reached and assurance to the organization is achieved. This way, you can maintain focus during the project.

Every project starts with a certain goal, preferably derived from the business goals as defined by the organization [8]. The project should contribute to that goal. Often, these goals are derived from the mission statement of the organization. The goals are elaborated in a business case to a project’s objective. From this objective, the main focus is determined. This could be changes of the business processes, the functionality of the information system, changes to the business or even a combination of these three.

In this approach, the business process is always the starting point. From here, the needed changes in IT and subsequently the consequences for the organization are derived. These insights are the base for defining the Change Management plan. The input gathered from this approach, is also used in defining the Quality Monitoring plan. In order to be able to apply this approach in sequential steps, the 5 steps action plan has been developed. This roadmap will guide organizations from business case to a fine tuned implementation of an IT-system.

#### The 5 steps action plan

The 5 steps action plan consists, as the name already suggests, of 5 sequential steps that contribute to a fine tuned implementation. The 5 steps action plan is shown in Figure 2. A short description of the 5 steps is given below.

Step1: Visioning

Visioning is the preparation of a successful transition, in which on forehand the consistency between processes, IT and organization, is defined, to sustain implementation and embedding of the information system.

Step 2: Reconnaissance

During the reconnaissance step the scope of the implementation and the embedding of the information system in relation to processes, IT and organization, in consistency with the vision, is explored. The purpose of this step is to get a clear picture of the goal of the project. What material is available, what kind of development process is used and who are the most important stakeholders?

Step 3: Commitment

During the commitment step, vision and reconnaissance will be elaborated into a commitment agreement (contract, plan, quality monitor plan, change plan). This is the blueprint for the implementation and embedding of the information system.

Step 4: Realizing

Realization consists of developing, implementing and embedding of the information system in the organization, according the agreed quality level over the axes of processes, IT and organization. By observations, it might be necessary to adjust vision, reconnaissance or agreement.

Step 5: Improving

In the step of improving, the effect [14][15] of the implementation, will be evaluated and if needed, processes, IT and organization will be optimized. To do so, the Deming circle: plan, do, check and act, can be applied.

The 5 steps action plan assumes that the steps are taken sequentially. This is correct, but on basis of observations, one may need to take a step back. If it appears that the Change Management plan is not effective due to whatever reason, one should go back to the step reconnaissance and adjust the strategy.

IV. APPLICATION

From experience, the approach, as outlined, can be applied in all type of projects, like inhouse projects or offshore development (see Table I and further explanation in the next sections). This approach is not only applicable for new projects, but for releases as well. Depending on the targets, a large and solid process can be used, or a quick and pragmatic process. Independent of its size, it has been proven that the approach is suitable along with different development methods, like Waterfall [6], Agile [27], and Rational Unified Process (RUP) [28].

Keep in mind that a defined plan is not static. Depending on deviations, the plan must be adjusted accordingly and timely. One should not only regard the ideal path, but also regard the situation that deviations rise. For instance when requirements are not achieved as expected or not all defects are solved.

A. Experiences

The described method has been developed over the past years and evaluated against literature [17][18][19][20][21][22]. In many projects, the approach has been applied and gradually shaped. At first an inventory of the current situation “as is” of the project was conducted. The problem that occurred was that it was difficult to determine whether the IT-system suffices the business needs. For that reason acceptance criteria were defined, including entry and exit criteria, requirements and product risks. Based on the acceptance criteria, it became possible to measure the quality of the IT-system and the Operational Readiness of the organization. Another major development was the idea to not only measure and monitor the IT-project and report findings, but also to cooperate in the improvement of all findings together with all involved parties such as business units, third party software vendors and system management.

Change management was able to made adjustments to their plan, based on the results of the quality monitoring activities. An example is the so-called known error. A known error is an accepted bug in the software of an IT-system for which a validated workaround is available. In that case, this bug will not affect the business. However

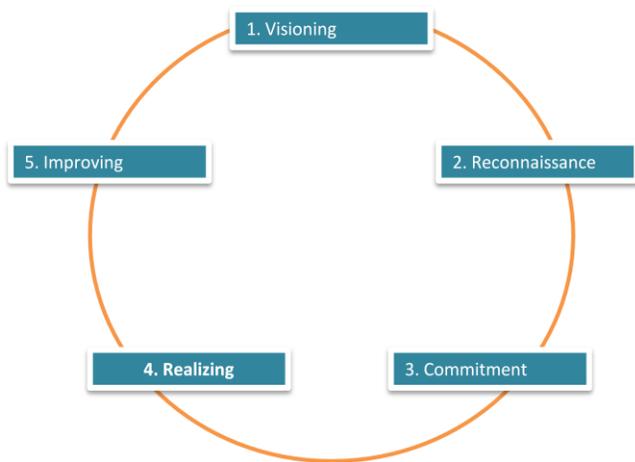


Figure 2. 5 steps action plan

Change Management has to communicate this known error to the stakeholders.

This is an example how Quality Monitoring and Change Management amplified each other. Another angle of integrality. This way, the integral approach has been matured to the current level. The projects, where this approach has been applied, are all released successfully due to the continuous improvements.

It appeared that in environments in which a lot of (third) parties are involved, the approach worked very well. Business knew what was going to be delivered, what the quality would be, and whether the users and organization were ready to support the change and to use the product. By defining and agreeing the acceptance criteria up front, it was possible to review the test process of the several third party vendors. To determine the coverage degree for instance of the applied test sets.

It is about production readiness versus product readiness. Production readiness means that the organization is ready and prepared to use the new IT-system (product readiness). That includes cultural changes, migration of information, training of employees and measurement of satisfaction of customers.

**B. Applicability**

The applicability of the base architecture is high. The approach was applied into large international complex commercial organizations. Industry, banks and insurance companies, but also in large (semi) government organizations, the base architecture proved to be a big gain. The architecture is not only applicable in the IT domain, but we believe it is applicable on projects in general. However, there is no evidence yet. The experience till now is collected in IT or IT related companies [16]. Detailed information is gathered in Table I.

Table I. FACTS & FIGURES APPLIED PROJECTS

| Domain             | No. of projects | Type of project                                | Size in million euro's |
|--------------------|-----------------|--|------------------------|
| Industry           | 2               | Third party development                        | >20                    |
| Government         | 2               | Third party development                        | >200                   |
| Energy & utilities | 2               | Third party development<br>Inhouse development | >10                    |
| Semi government    | 1               | Third party development                        | <1                     |

The integral approach has appeared to be usable in a whole, but also parts of the approach can be used autonomic. Especially the step Realizing. Reason for this is that projects already started before we were involved into the projects.

**C. Validation of the approach**

As stated before the described integral approach is a practical based approach. The experience is that validation of the approach was hard to achieve. The approach, which was chosen, is also practical based. Based on the findings the approach was expanded with new techniques. Applying these techniques in the project the effectiveness could be measured. Based on these measurements, the approach was validated. In the situation the techniques were not sufficient enough; new ideas were developed to solve the findings. On this way, the approach was validated on a continuous base.

**V. RELATED WORK**

The presented integral approach is at the moment really unique in the industry. Existing approaches are focusing on IT solely [18][23]. The presented integral approach, focus not only on IT but also on the business processes and the related organization. Another main advantage is that the presented approach, not only look to the System Development Life Cycle but also to the implementation phase and the system management phase [26]. There are some interesting developments related to parts of the presented approach. These are focusing on product quality [24]. However, there is no interaction with the involved business processes and organization. Another development is around the topic of Quality Supervision [25]. This development is focusing on improvement of the total System Development Life Cycle. The goal of Quality Supervision is to remove all waste in the chain.

**VI. CONCLUSIONS AND FUTURE WORK**

This article described an integral practical based approach, from a business point of view, to collect information to determine if the organization is ready for usage of the new or adapted IT-product. The described approach is applied in several large IT-projects successfully (see Table I). All projects are released without major problems. Applying the presented approach has several advantages such as: Organization is ready for shipment, knowledge about weakspots is delivered and the organization is able to decide on a structured way to go live or not. One of the main topics for the upcoming period is to develop a structured questionnaire, which can be used in the reconnaissance step to determine the current situation. Based on the results, concrete steps can be defined. By executing a lot of projects in the coming years more experiences must be collected to validate the integral approach.

## ACKNOWLEDGMENT

I like to thank my fellow authors, Jan Fokke Mulder, Hans Somers, Hanneke Kroon van der Linde and especially Jurgen van Amerongen. I would also like to thank all the companies who have provided input and used the method in their development process.

## REFERENCES

- [1] Ernst & Young, "ICT barometer," [ict-barometer.nl/rapporten](http://ict-barometer.nl/rapporten), 2009.
- [2] K. Lindhout, "5 valkuilen bij veranderen IT," FM.NL, mei 2010.
- [3] N. Beenker, "Opdrachtgever grootste risico bij IT-projecten," [nicobeenker.nl](http://nicobeenker.nl), May 2010.
- [4] R. Poels, "Beïnvloeden en meten van business-IT alignment," Amsterdam: Dissertation VU University, 2006.
- [5] L. Dohmen, "Hoe adviseurs, coaches en goeroes onbewust verandering blokkeren," [ManagementSite.nl](http://ManagementSite.nl), 2011.
- [6] W. Turner, R. Langerhorst, G. Hice, H. Eilers, E. Remmerde, and A. Uijttendijk, "SDM – System Development Methodology," Rijswijk: PANDATA, 1990.
- [7] K. Buren, "Waarom mislukken al die IT projecten," [Persberichten.com](http://Persberichten.com), May 2011.
- [8] R. de Jong, M. Webster, A. Bouma, and A. de Jager, "Overheid gebaat bij business case," *Automatiseringsgids*, April 2011.
- [9] T. Mulder and H. Mulder, "Kwaliteit projectteams onder de maat," *Automatiseringsgids*, Dec. 2011.
- [10] R. Glass, "The Software Research Crisis," *IEEE Software* 11(6): pp. 42-47, Nov. 1994.
- [11] N. Fenton, S. Lawrence Pfleeger, and R. Glass, "Science and Substance: A Challenge To Software engineers," *IEEE Software*, pp. 86-95, July 1994.
- [12] R. Charette, "Why software fails," *IEEE Spectrum*, Sept. 2005.
- [13] R. Glass, "Facts and Fallacies of Software Engineering," Boston: Addison-Wesley, 2010.
- [14] R. van Solingen and E. Berghout, "Goal Question Metrics," Berkshire: McGraw-Hill Publishing Company, 1999.
- [15] B. Lohman and J. van Os, "Praktisch lean management," Geldermalsen: Maj Engineering Publishing, 2010.
- [16] J. van Rooyen, J. Mulder, H. Kroon vd Linde, H. Somers, and J. van Amerongen, "Project de Baas," Den Bosch: UTN Publishers, 2011.
- [17] B. vd Burgt and I. Pinkster, "Succesvol Testmanagement: een integrale aanpak," Den Haag: ten Hagen & Stam, 2003.
- [18] T. Koomen, L. van der Aalst, B. Broekman, and M. Vroon, "TMAP Next for result driven testing," Den Bosch: UTN Publishers, 2006.
- [19] K. Jung and G. van de Looi, "100% succesvolle IT-projecten," Amsterdam: Pearson Education Benelux B.V., 2011.
- [20] L. de Caluwe and H. Vermaak, "Leren Veranderen," Alphen aan den Rijn: Kluwer, 2006.
- [21] S. Covey, "The Seven Habits of Highly Effective People," Free Press, 1989.
- [22] P. Crosby, "Kwaliteit totaal," Deventer: Kluwer, 1993.
- [23] C. Schotanus, "TestFrame," Den Haag: Academic Service, 2008.
- [24] J. Hofmans and E. Pasmans, "Quality Level Management," Den Bosch: UTN Publishers, 2012.
- [25] R. Marselis and E. Roodenrijs, "the PointZERO vision," Groningen: LINE UP boek en media bv, 2012.
- [26] J. van Amerongen, "softwareapplicaties: goed gebouwd en toch niet af!?", *TNN*, pp. 35-39, Jan. 2012.
- [27] K. Beck, "Manifesto for Agile Software Development," [agilemanifesto.org](http://agilemanifesto.org), 2001.
- [28] R. Collaris and E. Dekker, "RUP op maat," Den Haag: Academic Service, 2011.