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# Half Double Institute

Success with Half Double Projects



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### **CONFLICT OF INTEREST**

The authors declare no conflict of interest regarding the funding agency, the Danish Industry Foundation, or any other parties involved in Project Half Double.

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## 1 Introduction

The purpose of this report is to present additional results on the success of Half Double (HD) projects through supplementary analyses of existing data (Rode & Svejvig, 2023) as well as new research conducted in collaboration with Aarhus University and the Technical University of Darmstadt (Svejvig, Kock & Hansen, 2024). This has led to new perspectives and evidence on how well Half Double projects perform.

This report has not undergone academic peer review, indicating that the findings presented should not be viewed as finalized research outcomes. Instead, they should be considered preliminary results. The general research design and methodology are outlined in Appendix D and research limitations in Appendix E.

There is always some degree of uncertainty associated with research findings, especially when it is not peer reviewed. This is also the case for this report, which is why it is vital for readers to carefully evaluate the limitations and understand the research methodology employed in this report.

## 2 How successful are Half Double projects?

### 2.1 Measurements of success in Half Double projects

In this section, we present additional results on Half Double projects' success through supplementary analyses of existing data. To understand how these results came about, it is important to understand how absolute success is defined and measured, how the success data is calculated in an additional way, as well as what this means for the interpretation of the success of Half Double projects. First, we look at the definition and measurement of success in Half Double projects. Absolute success refers to the number of success criteria of the Half Double project and the degree to which the criteria are fulfilled (Dahler-Larsen, 2013; Takagi and Varajão, 2022). Please note, that we employ the same conception of absolute success as in the latest report (Rode & Svejvig, 2023: 21). This conception of absolute success is generic in the sense that it is not restricted to either project success (effectiveness) or project management success (efficiency) but is dependent on the initial success criteria set at the beginning and evaluated at the end of the Half Double project.

Specifically, each project establishes a set of initial success criteria at the beginning of the project. These success criteria are expressed through a number of Key Performance Indicators (KPIs) and are established by the project leader, the project owner, or other relevant actors in the project. This is often done when building the impact case (Half Double Institute, 2022: 20). The total number of KPIs varies from project to project. Following project completion, the KPIs are evaluated by central project stakeholders like project managers and consultants in cooperation with researchers when pertinent (Rode & Svejvig, 2023: 21). Each KPI is evaluated on a scale from 0-100%, where 100% is complete fulfilment of the KPI. This is done either through an objective quantitative estimation or a subjective quantitative estimation (Chiesa & Frattini, 2007: 285).

The absolute success for the project is calculated as the average of each KPI fulfilment. Thus, we get an aggregated measure for success for each project in percent ranging from 0-100% fulfilment of the project's KPIs. Absolute success can further be categorized into the three levels shown in Table 1: low success,



Operationalization	Categorization	Percent
Low success	Few (less than 1/3) of the success criteria are fulfilled or ful- filled to a low degree (less than 1/3)	< 33.33%
Medium success	Some (between 1/3 and 2/3) of the success criteria are fulfilled or fulfilled to some degree (between 1/3 and 2/3)	> 33.33% < 66.66%
High success	Many (more than 2/3) of the success criteria are fulfilled or ful- filled to a high degree (more than 2/3)	> 66.66%

#### TABLE 1: CONCEPTUALIZING SUCCESS IN HALF DOUBLE PROJECTS

medium success, and high success. Projects are defined as *successful* if they achieve more than 66.66% of their initial KPIs (high success). Likewise, projects scoring under 66.66% are defined as *unsuccessful* (low and medium success).

Next, we look at how the absolute success data is calculated using an additional method. Previously, we have only used absolute success as a categorical variable (Rode & Svejvig, 2023: 22). This means, we used the definition of absolute success, as it is described in Table 1. By doing so, we lost some detail, as we would only know if a project had achieved low, medium, or high success. Now, instead of only looking at the categorical variable, we have calculated the data anew and created an additional detailed variable that shows the projects' individual aggregated scores. Thus, we use the same data as in previous reports (Rode & Svejvig, 2023), but by calculating it this way, we get more details on the performance of each project.

Lastly, how does this additional detailed variable of absolute success influence the success of Half Double projects? First, as already mentioned, we get more details on how well projects within each success category perform. Second, we are able to calculate more descriptive measures that can tell us more about the performance of Half Double projects in general, and thereby how well the projects perform in meeting their KPIs.



#### FIGURE 1: HALF DOUBLE PROJECT SUCCESS



## 2.2 Half Double projects achieve their KPIs to a high degree

In this section the additional results of the absolute success of Half Double projects will be presented. Absolute success evaluations were conducted in 27 out of 28 Half Double projects, since we lacked data from one of the projects.

Figure 1 presents the absolute success of Half Double projects. Figure 1a presents absolute success as a categorical variable (exactly like in previous reports: Rode & Svejvig, 2023). 20 out of 27 HD projects fulfilled over 66.66% of their KPIs meaning they were successful. A total of seven projects are unsuccessful as they achieve less than 66.66% of their KPIs. Figure 1b shows in more detail the performing scores of Half Double projects. Strikingly, eight projects score between 95-100% in fulfilment, and 10 projects between 85-94%. This shows that successful Half Double projects achieve their success criteria to a very high degree and are indeed very successful.

Furthermore, if you look at Figure 2, you can see a more detailed distribution of the absolute

success of Half Double projects (for readers seeking an exhaustive presentation of the frequency distribution concerning the projects' absolute success, please see Appendix A). It is clear from the histogram as well as the boxplot that many Half Double projects have a high achievement of their KPIs (please refer to Appendix B for an explanation on interpreting the boxplot). However, it is important to keep in mind that this could be due to project actors setting the bar too low when defining the KPIs for the project.

To understand how Half Double projects perform in general, we calculated different statistical measures shown in Table 2. Most notably, the mean (which is depicted in the boxplot as 'X') shows that Half Double projects on average achieve approximately 81% of their initial KPIs. This is not to be confused with the absolute success rate (Rode & Svejvig, 2023: 22), which is the percentage of Half Double projects that achieve more than 66.66% of their success criteria. In this case, and as previously stated (Rode & Svejvig, 2023: 22), the absolute success rate is 74%, because 20 out



FIGURE 2: DISTRIBUTION OF ABSOLUTE SUCCESS FOR HALF DOUBLE PROJECTS



of 27 projects fulfil more than 66.66% of their KPIs. Thus, the 74% represents the share of Half Double projects that are successful or have achieved "high success". In contrast, the 81% reflects how well *all* Half Double projects perform in meeting their success criteria. In sum, the 74% represents the share of successful Half Double projects (*absolute success rate*), whereas the 81% represents the average fulfilment of success criteria (*average absolute success*).

ABSOLUTE SUCCESS (PERCENT	.)
MEAN	80.93
MEDIAN	89.00
STANDARD DEVIATION	22.13
MINIMUM	19
10%	51
25% (Q1)	70.5
50%	89
75% (Q3)	96.5
90%	100
MAXIMUM	100

TABLE 2: DESCRIPTIVE STATISTICS FORABSOLUTE SUCCESS

## 3 Impact, flow, and leadership make a difference

In this section, we present results on the performance of Half Double projects, based on a study of a large sample of 351 projects nested in 92 project portfolios (Svejvig, Kock & Hansen, 2024). We studied the relationship between project success and the Half Double Methodology, represented by its three core principles: *impact, flow,* and *leadership*. The results are presented in Figure 3.

Figure 3a shows the relationship between the Half Double Methodology overall and project success, and it depicts that projects employing the Half Double Methodology are more likely to achieve success (please refer to Appendix C for an explanation on interpreting the scatterplots). Specifically, the Half Double Methodology's principles explain 36% of the variation in project success, which is guite high in social sciences. This means that although 64% can be attributed to other factors (e.g., project leader experience, governance, or external factors), the Half Double Methodology alone can account for 36% of the project's success. To sum up, this implies that the greater the implementation of Half Double principles in a project, the more likely it is to achieve success. However, not all aspects of this success can be solely attributed to Half Double. Other factors, such as the project leader's knowledge and experience, also significantly influence the projects' success.

Figures 3b-d show the individual Half Double principles' effect on project success. The analyses show that impact, flow, and leadership all positively relate to success, meaning they individually provide a greater chance of project success even if only one is employed. This supports the relevance of all three principles, and the analyses suggest that the leadership principle has the highest importance for project success. It should, however, be noted that the principles are not independent of each other and should be seen as complementary. This means that they have a larger effect on project success when employed together; the more Half Double principles employed, the better.

Additionally, we investigated whether any project-level factors affect the relationship between Half Double Methodology and project success. We analysed the following factors: the project's novelty, both in terms of technological and market novelty, as well as project size, both in terms of project duration and project budget and, lastly, whether the project was an IT project or a new product development (NDP) project. The analysis showed that only the project budget affected the relationship: the benefits of Half Double Methodology







principles become stronger for larger projects and slightly weaker (but still positive) for smaller projects. The other factors did not alter the performance effect, suggesting that Half Double principles are equally useful for different degrees of novelty and across different types of projects (i.e., IT, NPD, and others). Furthermore, we controlled for portfolio-level factors such as industry, technological and market turbulence as well as firm size. None of these factors significantly changed the positive effect of the Half Double Methodology.

In the analysis we also investigated if the Half Double Methodology principles affected certain dimensions of project success more than others. We found no strong differences between the four different project success dimensions (efficiency, effectiveness, learning, and agility), except that the Half Double Methodology principles affect agility a little more strongly, meaning that the Half Double



Methodology has greater effects on success in projects that evaluate success in terms of agility.

In summary, the results provide strong empirical evidence that the Half Double Methodology principles contribute significantly to greater project success, even when controlling for different project and portfolio characteristics such as project novelty, size, and type.

## 4 Conclusion

The aim of this report was to present additional results on the success of Half Double projects through supplementary analyses of existing data (Rode & Svejvig, 2023) as well as new evidence from a study conducted in collaboration with Aarhus University and the Technical University of Darmstadt (Svejvig, Kock & Hansen, 2024).

As we employ a new detailed variable to measure absolute success, we acquire additional insights into the performance of the projects. Most notably, the average fulfilment of success criteria (KPIs) within Half Double projects is 81%. This, coupled with the absolute success rate of 74%, indicates that Half Double projects demonstrate high performance in terms of success.

Furthermore, we find strong evidence that the Half Double Methodology and its principles significantly enhance project success, and as the number of Half Double principles implemented increases, so does their positive impact on project success. Specifically, the Half Double Methodology explains 36% of the variation in project success, which is quite substantial. The practical implications of this study are:

- Projects that employ the Half Double Methodology achieve their KPIs to a very high degree.
- Even using a few Half Double principles will elevate a project's success. However, the more principles employed, the better.
- Half Double Methodology can improve project success and is equally useful for different types of projects (e.g. IT, NPD, and others).
- Half Double Methodology works in different industries, degrees of technological and market turbulence as well as firm sizes.

As this report has not undergone academic peer review, we once again encourage the reader to carefully assess the limitations and comprehend the research methodology employed herein (see Appendix D and Appendix E), given the inherent uncertainty in the findings.



## Appendices

## Appendix A: Frequency distribution of absolute success

Score	Frequency	Percent	Cumulative
			Percent
19	1	3.7	3.7
33	1	3.7	7.4
42	1	3.7	11.1
57	1	3.7	14.8
60	1	3.7	18.5
61	1	3.7	22.2
66	1	3.7	25.9
75	1	3.7	29.6
83	1	3.7	33.3
88	4	14.8	48.1
89	1	3.7	51.9
90	2	7.4	59.3
92	2	7.4	66.7
93	1	3.7	70.4
96	1	3.7	74.1
97	1	3.7	77.8
98	1	3.7	81.5
100	5	18.5	100
Total	27	100	

## TABLE 3: DISTRIBUTION ABSOLUTE SUCCESS OF HALF DOUBLE PROJECTS

### Appendix B: Boxplot explanation

A boxplot provides a visual summary of the distribution of a dataset. Here is a short introduction on how to interpret one. The median (or the middle value of the dataset) is represented as the line inside the box. Half of the observations (in this case absolute success for each project) fall below this line and half above it. The interquartile range (IQR) is represented as the blue box, which contains the middle 50% of all observations. The bottom of the box signifies the first quartile (Q1), while the top signifies the third quartile (Q3). Specifically, the first quartile is 70.5 in our dataset, which indicates that 25% of the projects have achieved less than 70.5% of their success criteria. Furthermore, the whiskers that extend from the box represent the range of the dataset. Any outliers (in this case only one) are represented as a dot beyond the whiskers.

## Appendix C: Scatterplot explanation

A scatterplot is an illustration that visualizes the connection between two variables. Each dot in the graph represents a specific observation (here a project), which has two different numeric values for success and Half Double principles represented on the vertical and horizontal axis, respectively. The trend line shows the best linear fit to the data and indicates how strong the linear relationship between the two variables is. The steeper the line is, the stronger the relationship.

To exemplify, in Figure 3a we can see that if we move 1 point to the right on the horizontal axis (meaning the Half Double Methodology is employed more strongly), the dots follow an upward trend on the vertical axis (also depicted by the upward going trend line). This means that the more a project employs the Half Double Methodology, the more likely it is to achieve success.

## Appendix D: Research design

### Research methodology for section 2

The research methodology employed in the first part of this report is outlined in the June 2023 report upon which these additional results are based: "Project Half Double: Evaluation of Phase 3 and Consolidation of Phases 1, 2 and 3" (Rode & Svejvig, 2023). However, we will briefly summarize the research methodology in this appendix.



Project Half Double (PHD) uses action design research (Sein et al. 2011), which implies close collaboration between practitioners, consultants, and researchers to design, intervene, and evaluate (Sein et al. 2011). PHD researchers used a Project Evaluation Framework to evaluate the Half Double Methodology. This evaluation framework was designed by researchers and adapted throughout the project (Svejvig and Hedegaard 2016, Rode et al. 2022).

A mixed-method approach (Tashakkori and Teddlie 1998, Cameron et al. 2015) that combines qualitative and quantitative data is employed, and we have a pragmatist philosophy (Biesta 2010, Goldkuhl 2012).

### Research design for section 3

The research design employed in the second part of this report is outlined in the EURAM 2024 article "How successful are principlebased project management methodologies?" (Svejvig, Kock & Hansen, 2024). Here, we will explain the primary concept.

To examine whether the Half Double Methodology creates more success, a comprehensive research approach was employed, utilizing a diverse sample of project managers from various industries integrated within the project portfolios of their respective business units. The data was part of a larger research project investigating key practices and determinants of success in managing project portfolios. The final sample used for this particular study consisted of 351 project managers embedded in 92 project portfolios.

For a deeper understanding of the main findings of the study, it is important to understand how project success and the Half Double Methodology is measured.

*Project success* was measured as a construct compromising four different dimensions: efficiency, effectiveness, learning and agility.

Efficiency (Serrador and Pinto 2015) addresses the traditional understanding of project management success in terms of time, cost, and quality (Pollack et al. 2018). Effectiveness embraces benefit realization (Atkinson 1999, Laursen and Svejvig 2016) and stakeholder satisfaction (Gemino et al. 2021, Pinto et al. 2022). Learning encapsulates an often overlooked perspective, where there is a need to learn within a project as well as between projects (Rode et al. 2022). Finally, we have agility being responsive to changes in the environment, technological challenges, and changing requirements (Spagnoletti et al. 2021). The four different dimensions were measured by multiple items (i.e. statements or questions) making sure to capture the whole extent of the dimension.

The Half Double Methodology was measured using the three core principles: impact, flow, and leadership, and their underlying methods. Specifically, each principle has three underlying methods, equalling nine different methods in total. Each method was measured with three items (i.e. statements) capturing the application. For each item the intensity of its application in a project was measured with respondents being able to answer on a scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). To exemplify, the impact principle is "Stakeholder satisfaction is the ultimate success criterion" (Olsson et al. 2018: 68), and the underlying method "Pulse check" was measured using the statements seen in Table 4.

Im	nact	— F	Pulse	che	ck
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	· ·		
Item 1	During our project, we continuously gath-		
	ered customer/user feedback		
Item 2	We regularly exchanged information with		
	the key stakeholders of the project		
Item 3	We focused on the experiences of users		
	and let this understanding guide our work		

TABLE 4: ITEMS MEASURING THE METHOD "PULSE CHECK"



An important thing to note is that the term "Half Double Methodology" was not specifically mentioned in the survey, which made the authors able to use the measure in projects that did not explicitly use Half Double Methodology but may still exhibit the concept's principles.

### Appendix E: Research limitations

#### Limitations – Section 2

The research limitations employed in the first part of this report is thoroughly presented in the June 2023 report upon which these additional results are based: "Project Half Double: Evaluation of Phase 3 and Consolidation of Phases 1, 2 and 3" (Rode & Svejvig, 2023) in Appendix C. However, we present some relevant limitations here.

First, the Hawthorne effect might be at play (Roethlisberger and Dickson 1939, Baritz 1960), which means that the fact that the HD project practitioners know that they are being studied can possibly have a positive impact on their behavior and might increase the performance of the HD project.

Second, results may be affected by the increased attention and special treatment given to the HD projects because of the new methodology. It is also possible that the HD projects as part of an optimization experiment and development process have been paid more positive attention by top management compared to earlier reference projects. This can possibly give us a biased estimation due to what is called the halo-effect, i.e. when we generalize based on one perceived trait of phenomena to many other aspects and toward an overall judgment of the phenomena (Neuman 2014).

Third, the study relies on participant responses to questions but acknowledges potential misunderstandings due to differences in interpretation. Data collection may vary across individuals, potentially affecting the consistency of responses. Moreover, data often comes from select project representatives, possibly limiting its representativeness. Quantitative scoring, while attempted, may lack precision and comparability across projects. Data is based on self-reported practices, rather than observed behaviors, which could introduce bias.

### Limitations – Section 3

There are some limitations to the study on the Half Double Methodology and project success (Svejvig, Kock & Hansen, 2024) that should be noted. First of all, the data is based on a crosssectional survey, and therefore it only provides correlational evidence. This means that the study cannot establish causal links between the Half Double Methodology and project success. Specifically, this implies that there is a statistical relationship between the Half Double Methodology and project success, but we cannot be certain that there is a cause-and-effect relationship between the two, meaning that the change in one variable directly leads to changes in another variable. Establishing causality requires more rigorous evidence than what is presented in the paper. Secondly, the data is collected in a European context. and one should therefore be aware of possible cultural or national differences that potentially impact project success.



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