



# Reducing Systems Implementation Failure: A conceptual Framework for the Improvement of Financial Systems Implementations within the Financial Services Industries

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**Abstract** The financial industry continues to change, become more global, complex and important to economies all around the world. The industry continues to be in flux and the world financial crisis has resulted in changes that have changed the industry for good. The need for agile, accurate and detailed financial systems has never been so important. This research discusses the issues associated with implementing financial systems within financial services companies, a conceptual framework has been built that will help reduce the risk of implementation failure in future financial systems implementations. Financial experts can use the framework to reduce system implementation risk; help deliver projects on time to budget whilst meet the functionality requirements of stakeholders.

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**Keywords** Financial information systems · Risk management · Implementation failure · Risk identification

## 1 Introduction

There are many challenges faced by finance staff implementing systems within financial service firms. Some of these challenges are listed below:

- System failures cause serious issues for finance departments and can be very costly.

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- 25 • Finance staff is chosen to be involved in systems implementations due to their  
26 functional finance expertise and not according to their skill set to implement  
27 systems effectively.
- 28 • Finance systems within financial services tend to be specialized and need  
29 extensive input and involvement from financial experts to ensure the system  
30 works, this is not always the case so increases the implementation risks.
- 31 • Simon [1] states that 49 % of implementations have budget overruns, 47 % of  
32 implementations have higher maintenance costs and 41 % fail to deliver the  
33 expected business value or return on investment.

34  
35 The research study has the objective of creating a framework for reducing the risk  
36 of failure of the implementation of financial systems.

## 37 2 Literature Review

38 A strong financial services industry is an important factor in ensuring that the  
39 economies of the world function efficiently. “Financial systems facilitate the  
40 transfer of economic resources from one section of the economy to another” [2].  
41 Over recent years we have seen a financial crisis that rocked the world’s econom-  
42 ies and saw the collapse of some of the industries largest players. Lehman  
43 Brothers collapse in 2008 sent shockwaves through the global financial systems  
44 industry. We saw emergency consolidations, huge government interventions and  
45 nationalization of some banks. The current situation regarding the European  
46 banking system is not stable. The financial trilemma indicates that the three  
47 objectives of financial stability, cross-border banking and national financial  
48 supervision are not compatible [3].

49 Over recent times, the deregulation of ‘financial regulation’ coupled with the  
50 transforming use of information technology transformed the business models  
51 banks used by banks. Online banking, on line brokerage services, and more  
52 sophisticated products transformed a highly predictable conservative business into  
53 a dynamic one. The increased risk of increasingly large sized banks, internation-  
54 alization and increased product complexity was made possible through the con-  
55 tinuous de-regulation of the industry. The Regale–Neal Act of 1994 reduced the  
56 barriers for geographical expansions of firms in the US and allowed interstate  
57 banking and The Gramm–Leach–Bliley Act of 1999 expanded the permissible  
58 activities of commercial banking as stated by Hendrickson [4]. Both acts led to  
59 merger and acquisitions amongst financial institutions and the creation of very  
60 large international businesses. The Glass–Seagull Act of 1933 did not allow  
61 commercial banking firms to participate in investment banking actives, but the act  
62 was repealed partly in 1994 and then the final parts repealed in 1999. The effect of  
63 this was to further increase the risk within the industry as people’s monetary  
64 deposits where then being linked to more risky investment activities. The new



65 truly 'global financial industry' continued to attract the very best talent which then  
66 led to advances and more exotic product innovation.

67 Following the recent and on-going financial crisis we have seen governments  
68 trying to reverse the de-regulations of previous years; a number of laws have been  
69 introduced for example; the US House of Representatives passing the Wall Street  
70 Reform Act and Consumer Protection Act of 2009 [4]. The success of the mea-  
71 sures governments are taking to try and re-regulate banks is questionable. Despite  
72 the huge attention and increased focus on audit, sign-offs and disclosures that  
73 accompanied the two acts cited, we are still seeing huge trading issues within  
74 leading institutions. Examples include the unauthorized rogue trading at UBS  
75 costing the firm \$2 billion instantly [5], JP Morgan losing \$5 billion via incorrect  
76 trading losses [6] and Barclays being fined a record amount of \$453 million for the  
77 manipulation of LIBOR rates [7].

78 We have seen if an industry is not regulated correctly and at the same time  
79 continues to innovate with advances in technology that the successes and benefits  
80 of the industry may be out weighted by the problems and costs that can arise. Huge  
81 international companies are not easy to audit nor is it simple to get clear trans-  
82 parency of their risk positions. In 2012 there have been number of major regu-  
83 latory interventions to try to prevent the same type of financial crisis as in 2008.  
84 Basel 11/111 will try to ensure that banks are holding enough capital, Wall Street  
85 reform and the Consumer Protection Act (Dodd-Frank law) will ban proprietary  
86 trading which was one of the main reasons banks become over leveraged and  
87 risked their existence [8].

88 So in summary the financial industry is a critical part of our society whose  
89 success can be linked directly to our prosperity. The industry's significance has  
90 grown since the 1980's and now banks are huge institutions that span the world  
91 selling often-complex products that are often difficult to control. The huge  
92 amounts of change impacting the industry will have a knock on impact on systems  
93 implementations. Ensuring internal projects are successful is one way a bank can  
94 help itself in difficult times.

95 Software project failures cost companies millions of dollars each year and often  
96 prevent key business objectives from being met. Failure estimates, defined pri-  
97 marily by cost and time budgets, overrun as high as 85 % of the original financial  
98 target. This is well documented in writings by Jiang [9]. Projects themselves are  
99 not just good implementations or bad ones. There are degrees of failure. Failures  
100 are too common when implementing financial systems and we will examine the  
101 reasons why in more depth.

### 102 **3 Research Methodology and Data Collection Methods**

103 A questionnaire was designed to collect data for this research. The questionnaire  
104 was designed for people that have implemented financial systems projects. The  
105 questionnaire required respondents to state their type of involvement in the



106 implementation and to read a set of systems implementation risks and rank risks  
107 from 1 to 13 according to its impact on the success of the overall project. Here  
108 ordinal scales have been used. Respondents were also asked to give each risk a  
109 second rating score according to how well it was executed. This score here is from  
110 1 to 5. The questionnaire asked the respondents to choose the top 3 risks that could  
111 have been improved in the implementations they took part on. The questionnaire  
112 included open ended questions for respondents to then elaborate on how  
113 improvements could be made in these areas.

114 The final part of the questionnaire asked about the reasons for implementations  
115 and asked for overall judgments. The reason for the implementation question was  
116 answered by using a very simple nominal scale where there is no relationship or  
117 ordering to the numbers used. The questionnaire was administered electronically  
118 by email. Respondents were emailed initially to check their email addresses and  
119 give their agreement to participate in the research. A pilot questionnaire was  
120 constructed and given to 3 respondents to check that the instruction and meaning  
121 of the questions was clear. Feedback was given and taken on board on the layout  
122 and format of some of the questions.

123 The primary data collected in this research has been collected using a judgment  
124 sampling method. Remenyi et al. [10] acknowledge that judgment samples are  
125 inherently subjective but justify the use of judgment samples explaining how  
126 “samples are taken where individuals are selected with a specific purpose in mind,  
127 such as their likelihood of representing best practice in a particular issue”, this  
128 means that the sample was essentially non-probabilistic. From the outset it became  
129 clear that statistical tests on this type of ‘case study’ research would have not been  
130 possible.

131 The sample size here was 40. Whilst this may appear to be a small number it  
132 does actually represent a large body of knowledge, experience and expertise in a  
133 less explored area of research. Respondents work for one of 11 top tier financial  
134 institutions, making in effect, a series of small case studies. Some of the banks  
135 include Barclays Bank, UBS, Citi Bank, HSBC, Credit Swiss, Lloyds and Bank of  
136 America.

137 The respondents were questioned from many different countries to represent a  
138 geographical spread. There is input from 9 countries but importantly, the key  
139 financial hubs around the world have been incorporated. These include London  
140 UK, Hong Kong, Singapore, New York US and Zurich Switzerland.

141 The research was split into 2 key aspects.

- 142 • A ranking of the risk categories to establish which is the most important to a
- 143 successful implementation
- 144 • A rating to show which risks are normally well executed and which ones are not.

145  
146 These aspects need to be analyzed to build the framework needed to help improve  
147 the success of future systems implementations in financial service industries.



148 The data was analyzed and presented by:

- 149 1. **By importance ranking**—risk factors were ranked in order of importance by  
150 respondents. An average was calculated and the results re-ordered and tabu-  
151 lated. The lower the number the more important the risk factor to an  
152 implementation.
- 153 2. **By execution rating**—an average was calculated for respondents' scores for  
154 execution. Each factor was averaged in turn. The higher the number the worse  
155 that factor was executed.
- 156 3. **A focus factor was calculated**—The importance ranking data and the execu-  
157 tion rating data were combined to create a focus factor. The two data sets were  
158 added together and averaged. The focus factor illustrates the combined  
159 importance of that factor overall. Some factors are very important and executed  
160 well. Some less important factors were executed very badly. The combined  
161 position helps the project teams to understand the importance of the combined  
162 picture.

163 A framework for reducing implementation failure was created. The proposed  
164 framework uses the importance ranking, execution rating and focus factor results.  
165 Data from the questionnaires were combined to create the overall framework, pre-  
166 readiness assessment and during the project risk assessments. The framework was  
167 reviewed with two post project reviews in order to assess the usefulness of the  
168 framework.

#### 169 4 Data Presentation and Discussion

170 When questioned about the success of software project implementations; 28 % of  
171 responses stated that the project went really well and improved the department.  
172 31 % stated that the project went well but the capability wasn't really improved.  
173 23 % stated that the project was ok but not worth the investment. In this case the  
174 respondents would not have started or commissioned the project if they had known  
175 the outcome. The most worrying scores where the next two categories. 10 % stated  
176 that the project was really poor and actually moved the department backwards.  
177 This was due to less functionality, poor reporting and poor processes. 8 % stated  
178 that the project was a complete disaster. All respondents were allowed to state the  
179 main reasons for issues with the implementations and the majority of responses  
180 state that a lack of resources and funding issues resulted in a compromise in the  
181 systems execution capability. Poor training or rushed user acceptance testing was  
182 also noted.

183 When asked to state the key things that went wrong the majority of answers fell  
184 into the following 6 categories:

- 185 1. **Scope Creep**—Project scope kept moving causing re-work, budget issues and  
186 productivity loss



- 187 2. **Budgets**—Budgets are always tight but due to issues with financial markets  
188 budgets are often cut. Scope creep without budget increase can cause lack of  
189 delivery
- 190 3. **Lack of engagement**—Poor communications resulted in the majority of the  
191 team feeling completely disengaged
- 192 4. **Poor Requirements**—The project delivered the requirements, but the  
193 requirements were incorrect and therefore the project was deemed to have  
194 failed
- 195 5. **Training**—Lack of UAT or user BAU training results in lack of adoption or  
196 resistance
- 197 6. **Leaders**—Leaders not resolving issues when problems happen. Conflict reso-  
198 lution or resources allocation then become issues that could then go off track  
199 and de-rail the implementation.

200 An analysis that examines the factors that make a system successful or not was  
201 conducted by using a questionnaire. Financial experts ranked 13 factors in order to  
202 show the most important and least importance factor in making a project imple-  
203 mentation successful overall. This data was then split and cut into sets according to  
204 the level of use, knowledge or expertise etc. For example subject matter expert  
205 responses can be compared to the responses of people leading the project. This  
206 would be useful for example to compare the level of contributions from different  
207 roles and grades of staff within the company.

208 The success of each individual factor within an implementation has been  
209 assessed along with how well it was actually executed. So overall importance and  
210 execution can be compared.

211 Figure 1 has been constructed by looking at the overall rankings submitted by  
212 the respondents. The results have been generated by adding together and then  
213 averaging the ranking ratings. For example for user participation, the sum of the  
214 ranking scores is 126 as some respondents ranked it 1st and some ranked it 10th.  
215 On average people ranked it 3.9 out of 13 but this score made it the most important  
216 out of all the factors after all the factors had been added together and averaged one  
217 by one. Top management support's overall score was 150 giving an average score  
218 of 4.7.

219 This next section looks at the execution of each factor. This does not take into  
220 account ranking but purely whether the factor was executed well or not.  
221 Respondents rated their experience with each factor from 1 (very negative) to 5  
222 (very positive). Scores were then added together and an average was calculated.  
223 Essentially the lower the score the least successful that factor was implemented,  
224 the higher the score the better that factor was implemented. The results can be seen  
225 in Fig. 2. A similar approach has been used with this data; the overall position of  
226 the factor has been calculated and then the data has been further organized  
227 according to role, use level etc.

228 Figure 2 shows that the execution factor ranking is very different to the  
229 importance ranking discussed earlier. The lowest scores (therefore showing the  
230 least effectively executed factor) are team pressure and conflict management

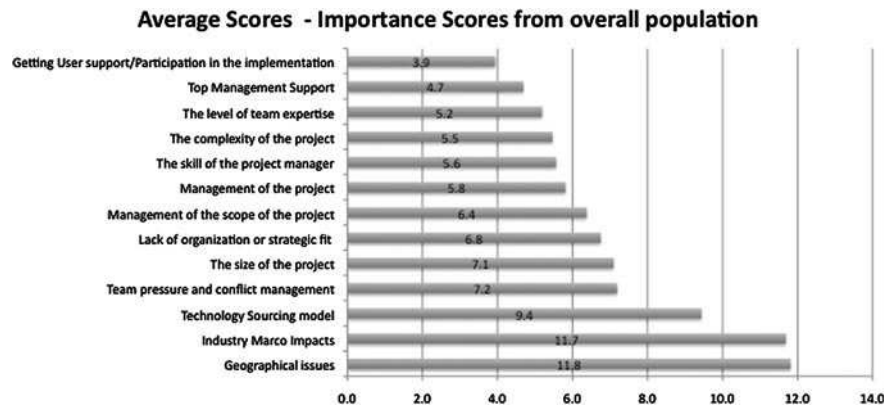


Fig. 1 Importance ranking



Fig. 2 Execution ranking

231 followed by management of scope, complexity and size of the project. The most  
232 successfully executed factors were top management support, team expertise and  
233 getting participation from users during the implementation. The latter set of factors  
234 were all ranked as the most important factors in the previous discussion.

235 The execution and importance were combined to create a joint list of important  
236 and focus for execution. By combining the two rankings and highlighting the  
237 learning points, there is the potential to reduce the negative responses, the like of  
238 which has been documented in the table below. This combined ranking puts a  
239 different emphasis on what needs to be focused on (Table 1).

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**Table 1** Areas of focus

Average of combined ranking				Total
Factors	Ranking overall	Ranking 1 and 2	Combined score	
Top management support	2	3	5	1
The complexity of the protect	4	4	8	2
Management of the scope of the project	7	2	9	3
Team pressure and conflict management	10	1	11	4
The level of team expertise	3	8	11	4
Getting user support/participation in the implementation	1	11	12	6
The skill of the project manager	5	8	13	6
The Size of the project	9	4	13	8
Lack of organization or strategic fit	8	6	14	10
Management of the project	6	12	18	11
Industry macro impacts	12	6	18	11
Technology Sourcing model	11	8	19	12
Geographical issues	13	13	26	13

## 5 Conceptual Framework

From the outset, this research set out to create a user friendly tool that could be used by professionals to better implement financial systems. Current research into the area and primary data has been combined to present a set of documents that can be used with finance teams to improve system implementations.

The framework was constructed using:

1. The importance ranking insight gained from the research
2. The execution rating insight gained from the research
3. The combined focus factor insight gained from the research

The overall framework is documented in Table 2 and starts with the main categories that cause project failures; top management support, scope change management and user participation are all examples here. The framework then explains the main risks and implications of not mitigating the risk. This is to help inform the project team of issues with system implementations. The framework then recommends the actions that need to be completed before and during a project. The use of the framework will not guarantee the success of a system implementation project but will help ensure a project is prepared, learns from basic errors other projects have made and self monitors its own progress.





Reducing Systems Implementation Failure

**Table 2** The conceptual framework

General focus areas	Implications and risk mitigating	Actions before you start	Actions during project
<p>Pre-training and readiness training <i>Stakeholders/Responsible: Project Leaders/Subject Matter Experts/Users</i></p> <p>Top Management Support <i>Responsible: Project Leaders</i></p>	<p>It's important that everyone understands why projects go wrong, how to ensure they stay on track and the risks involved</p> <p>People want to ensure that senior management support system implementation</p>	<p>(1) Project sponsor completes training and reviews readiness assessment (2) Subject matter experts and project leader complete delivery and mitigation training (3) A project delivery readiness assessment is completed (1) Ensure senior management support. Senior management complete the implementation training (2) Ensure there is public recognition of the support of the project (3) Send out communications from Exec sponsor and project lead (4) Ensure top management allocates the correct human and financial resources to make the project a success. Ensure the scope, financial budget and resources are matched together</p>	<p>Project implementation progress assessment to be completed (1) For large project implementations continuous communications of support will be required by Senior Management (2) Active participation in steering committees to ensure issues are understood and dealt with quickly (3) Scope changes are to be assessed before changes are made</p>
<p>Application Complexity <i>Responsible: Subject Matter Experts/Users</i></p>	<p>Systems are often over complicated, don't use industry standards, don't reuse existing internal software and overly customized</p>	<p>(1) Plan to use standard functionality unless this is impossible (2) Complete a full buying vs build your own assessment before design is completed (3) Assess existing software to see if anything can be reused (4) Ensure there is a plan for updating the system in the future</p>	<p>(1) Document the system development to help reduce time to resolve issues and to help hand over the software to run</p>

(continued)

**Table 2 (continued)**

General focus areas	Implications and risk mitigating	Actions before you start	Actions during project
Scope Change Control <i>Responsible:</i> Stakeholders/Project Leaders/ Subject Matter Experts	Scope creep can have a disproportionate impact on productivity, cost, morale and results in projects not delivering	(1) Ensure the requirements are signed off agreeing the scope of the project (2) Ensure the sponsor, project lead, project team and users understand what success looks like (3) Ensure there is a clear and communicated process to handle scope changes	(1) Ensure detailed design is again signed off and then delivered (2) Impact assessments of any change need to be signed off by senior stakeholders. Additional funding need to be secured before any project plans are changed
Team Expertise	Without a team that can work together, with the right expertise then project will fail	(1) Get people with the skill and motivation to deliver a change project. The team needs technical and change management skills (2) The leader needs to be able to communicate with all stakeholders and sell the system. The leader needs the ability to say no	(1) Make a team effectiveness assessment to ensure we are getting the best from the team (2) Replace ineffective team members quickly (3) Risks are continuously assessed to ensure the project is delivered (4) Ensure there is an independent review and input regarding project progress
Team Pressure and Conflict Management <i>Responsible:</i> Project Leaders/Subject Matter Experts	Conflict needs to be managed carefully or fairly. These will arise so swift resolution is needed for sake of the project	(1) There needs to be a process of raising concerns in an open way to enable resolution (2) Detailed milestone plan, scope, budget and resources will be agreed upon before green light (3) Senior management need to foster open and honest discussions	(1) Complete detailed project reviews and ensure that the team agrees and signs up to schedule (2) Steering Committee will assess the progress of the project and ensure corrective action is made (3) Milestones deliverables will be assessed against original plan (4) Ensure there is an independent review and input regarding project progress

(continued)



Reducing Systems Implementation Failure

**Table 2** (continued)

General focus areas	Implications and risk mitigating	Actions before you start	Actions during project
<p>User participation</p> <p><i>Responsible:</i> Project Leaders</p>	<p>It is the users who will make the development work as they ensure the system works when it goes live. Active participation in making this happen is the only way to achieve results</p>	<p>(1) Lock in key personnel participation who are able to deliver this project</p> <p>(2) Spend time completing team building activities to ensure personality team dynamics are understood</p> <p>(3) Ensure subject matter experts sign-off requirements and UAT</p> <p>(4) Create a shared charter explaining how the project, risk management, communications and issues should be managed. Ensure all sign-off to it</p> <p>(5) End user training, UAT testing and continuous consultation needs to be at the heart of the program</p>	<p>(1) It is key to ensure the users have enough time to test and train on the system</p> <p>(2) Documentation of current processes and the new system process documentation are completed</p> <p>(3) Ensure the project team listens and understands the real issues and doesn't get completely absorbed by tasks</p> <p>(4) Test scripts are completed by the teams who will use the system going forward</p>
<p>Project Manager</p> <p><i>Responsible:</i> Subject Matter Experts</p>	<p>A quality project manager is worth every penny. They have done this before, been successful and know what it takes to deliver</p>	<p>Lock in a project manager who knows how to project manage and has experience delivering the size of project required. If large project then you need a project manager who has completed projects before, understands planning, risk management, outstanding communication skills and strong budgeting skill. Ensure that the project manager has the technical understanding of what is required</p>	<p>Ensure the project manager has the authority to deliver the project</p>

(continued)



**Table 2 (continued)**

General focus areas	Implications and risk mitigating	Actions before you start	Actions during project
<p><b>Project size</b></p> <p><i>Responsible:</i> Project Managers</p>	<p>Large projects are more complicated and this increases the risk. It's important that the project size is managed through development techniques and reduces risk</p> <p>A project that is not strategic is by nature tactical or regulatory</p>	<p>(1) Ensure roles and responsibilities are clear across the sponsor, project team and users</p> <p>(2) Break the project down into phased completions – Helps progress and de-risks the project</p> <p>(3) Bundle developments into releases, plan these in and communicate the future releases</p> <p>(1) Assessment against the end state architecture</p> <p>(2) Ensure you're clear on why the project is being completed – Technical/Strategic/Regulatory – Short/Long Term Legacy – Replace/Enhancement</p> <p>(3) Ensure the benefits of the project are clear, calculated and communicated</p>	<p>Develop prototypes of components and get buyin before all development has been completed</p>
<p><b>Organization Fit</b></p> <p><i>Responsible:</i> Stakeholders</p>	<p>The industry is going through huge levels of change and this means short term changing priorities, constrained budgets and distracted leaders/employees</p> <p>It's important that plans are kept up to date, expectations are managed and issues raised to senior stakeholders quickly</p>	<p>(1) Ensure that the last change in the industry will not impact the project</p> <p>(2) Ensure that there is a process to continue to gain on sponsor support</p> <p>(1) Complete a project plan that is realistic and has contingency with the plan</p> <p>(2) Ensure that the project plans covers a warranty period when the project goes live</p> <p>(3) Ensure that the project uses SDLC or any other structured implementation methodology</p>	<p>Continue to explain the need and reason for the project compared to the strategic need of the business</p> <p>Ensure people keep focused on the future, the project and the reasons the project is being completed. Change will continue to happen so focus on deliverable and reducing the</p>
<p><b>Industry Macro Impacts</b></p> <p><i>Responsible:</i> Stakeholders Management of the project</p>	<p>It's important that plans are kept up to date, expectations are managed and issues raised to senior stakeholders quickly</p>	<p>(1) Continue to replan and ensure activities are on track or manage expectations early</p> <p>(2) Communication and participation needs to be high to deliver the project</p> <p>(3) Selling the project and ensuring others really understand the progress is as important as the deliverable itself</p>	<p>(continued)</p>



**Table 2 (continued)**

General focus areas	Implications and risk mitigating	Actions before you start	Actions during project
Technology <i>Sourcing Model</i> <i>Responsible: Project Managers</i>	It's important that complex project vendors delivering part of the project need to be coordinated carefully	(1) Understand how we can de-risk the project by using fix price bundles of work (2) Complete a full assessment of buying products vs build in-house	Continuously ensure that the vendors are delivering to the schedules they have committed to as part of the overall plan
Geographical Concerns <i>Responsible: Project Managers</i>	Communication, training and co-ordination are difficult issues during complex projects. These are made harder due to time zone differences, and cultural differences	(1) Need a plan to ensure we keep distance locations up to date with progress (2) Ensure there is a plan in place to gain participation, engagement, testing, training and support from more remote locations	Appreciate and accommodate different time zones and spend the time to engage and motivate more remote locations



## 6 Conclusions

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259 The financial services industry is going through unprecedented levels of change.  
260 Due to the near banking collapse of 2008, banks have reduced earnings; they have  
261 greater levels of regulation, and are required to hold greater levels of capital.  
262 Leaders who are trying to manage these changes within institutions can lose focus  
263 on implementation projects. System implementations continue to be problematic,  
264 not delivering the functionality and benefits the projects promised from the outset.  
265 With reduced investment funds and distracted leaders a framework to reduce risk  
266 that is easy to use and effective will help projects deliver more. Easy to use tools to  
267 help educate leaders, subject matter experts and project leaders are needed. It is  
268 clear that issues are commonly repeated across organizations and basic to complex  
269 mistakes are continuously made. Although tools will help, it is important to note  
270 that system implementations are linked to people. People are the key factor in  
271 making it work: from senior leadership sponsorship to the expertise of project  
272 managers, from experts participating in development and the end users who will  
273 use the system, all play a role. It is important to understand that system imple-  
274 mentations are huge change projects. Change projects impact people and while  
275 people remain flawed with agendas, then projects will continue to fail. The  
276 framework produced here is therefore people focused, helping people deliver  
277 better systems, de-risking the human role in system implementations.

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