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| BCIS301-AMIC700 |
| Factors that affects IT Implementation?” |
| Assessment 1 |

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# Introduction

In this assignment, our group find four case study articles to analysis the reason why IT project fail or success. According to the articles we select some sentences related to the failure or successful. And then do summarized for the sentences and then select the keywords.  
Base on keywords we defined some supergroup to categorize the main factors for failure or successful. Furthermore, we use these factors and factor groups to create a check list tool to help organization do project better.  
They can use tool to check many necessary processes, if they done these things, it will increase the percentage of project success.

# Structure

## Report features

The structure of this report will consist of two features.

### Pre and Post, Analysis and Tool

This is key since the time different between them was so different almost a month before the completion of post. The time difference changed a lot of what was planned into a far more refined outcome.

### Factor Groups

So much information in the tool is packed into each factor group so a break down per group is needed at least twice. Topic will have to address an aspect in the tool and this aspect will be under each factor group heading.

# Methodology

## Introduction

First, our team selected four data sources. Two of them are reports written by the project organization, analysing the situation of their projects and the reasons for their success or failure. The other two are case studies that we have found through the network. They also analysed the reasons for the failure or success of the project.

## Sources for Data

The specific information for the four data sources is as follows:

1. Report of the Ministerial Inquiry into the Novopay Project. Published by New Zealand government in 2013. It details the process of the entire project and the reasons for the failure of the analysis project.
2. Queensland Health Payroll System Commission of Inquiry: Report. Which published by Queensland Department of Justice and Attorney-General in 2013. It describes the plan and process of the project. Finally, a detailed analysis report and summary was made.
3. Critical success factors across the stages of ERP system implementation in Sohar University: A case study. Published by International journal of management and applied research in 2016. This is a successful project case study. It also details the goals of the project and the development process. Finally, the reasons for refining and the precautions are summarized.
4. The National Programme for IT in the NHS: A Case History. Which published by University of Cambridge in 2014. This is a case study of a failed project. It mentions the project's plan and the opening process. At the end of the summary, several important considerations were also given. These considerations are critical.

## Why uses these documents?

We selected three of these four articles about the failure of the IT project and one of the successes. Because we feel that the failed case is more analytical, and it allows us to circumvent some important issues in future projects. Not only that, but we also analysed a successful case that tells us what factors of success of the IT project is.

After we selected the data source, we read all the literature in its entirety. Not only that, we use quantitative analysis and thematic analysis. We selected all the sentences related to the IT project and then abbreviated them. Then we find the keywords for each sentence. Then we analysed all the keywords, deleted many of the same results, and used the keywords to analyse the corresponding professional words. For example, lack of management, lack of planning and lack of communication, and so on. Then we are categorizing the meaning of these words. The name of the classification that was finally summarized is called supergroup. In the supergroup, we have also removed the problem that does not meet these factors. The supergroup allows employees to check for specific items while analysing the project. Through these few steps, we finally made a checklist. We call this the project evaluation tool. When organizing a project, employees can analyse the risk profile of the project by comparing this list. If the development project is carried out in strict accordance with the checklist, we can greatly improve the possibility of project success.

## Analysis Methods

### Quantitative analysis

Quantitative analysis is a method of analysing the quantitative, quantitative, and quantitative changes in social phenomena. In enterprise management, the quantitative analysis method is based on the enterprise financial statements as the main data source and processed according to a certain mathematical method to obtain the enterprise credit results. Quantitative analysis is an analysis conducted by an investment analyst using a mathematical module to quantify a company's data. It analyses the company's operations and makes an investment judgment. The main objects of quantitative analysis are financial statements, such as the balance sheet, profit and loss statement, and retained income statement. Its function is to reveal and describe the interaction and development trend of social phenomena.

### Thematic Analysis

Thematic Analysis is a kind of information analysis method that uses systematic steps to observe the context, culture or interaction relationship. It is also an analytical method that sees and understands the feelings and makes the truth appear.

"Theme" represents the elements that often appear in text, including the meaning of claims, idioms, or contextual contexts, and "thematic analysis" is the process of recreating these themes. From the text of the interview, the recurrence and commonality are the common theme we are looking for, so the whole analysis process follows the "whole-part-the whole" back and forth between the text and the interpretation.

# Data Analysis

## Agreed method

Based on the methodology we agreed to use pre-defined themes to improve the similarities in the outcome. To make sure we had enough variation in the themes we had 64 different themes and 6 Theme categories.

## Methodology

This is slightly different to normal thematic analysis and is roughly based on Critical Success Factors or CSF.   
The main difference being we generated out themes first to sort our exerts, the main reason for doing this is because we are in a group and where assigned different reports.

The massive advantage to CSF is that it already has a set criterion for what a factor is:

1. Specific. "99.99 percent of products are defect-free" is better than "produce better quality goods."
2. Measurable. "Recruit top employees" is a valid goal, but how do you quantify "top"? Saying, "Half of our IT department will have at least two certifications" is a goal you can measure.
3. Achievable. "Become a bigger name than Disney in the entertainment industry" is probably overly ambitious for a start-up filmmaker.
4. Relevant. Suppose you run a small boutique operation and prefer to stay small. Even if everyone tells you success is measured by growth, CSFs about doubling your size are not relevant to your goals.
5. Time-bound. Good CSFs have deadlines, whether it is next week, next year or five years down the road. (Sherman, 2019)

This will help us massively when selecting a solution since it will address each point.

## Relevance of data

### Volume of data

We were very liberal with the data volume; the goal was at least a sentence but the more context the better. This was how we reached out goal of 150 exerts.

### Data reduction/grouping

Every piece of data had to describe “What are the factors that affect IT Implementation?” or more generally.

### Relevant categories

Reductions in our predefined categories have to be made but until we know a underlying theme of the analysis we can’t make this call.

## Pre-analysis

### Themes identified

|  |
| --- |
| 1. Lack of Customer Involvement |
| 1. Lack of User Involvement |
| 1. Lack of Stakeholder Involvement |
| 1. Too many Vendors |
| 1. Virus & Hacking |
| 1. Lack of Senior Management Involvement, Support &Commitment |
| 1. Unrealistic Expectations |
| 1. Lack of Management Skills |
| 1. Failing to Understand Change |
| 1. Poor Leadership |
| 1. Poor Organizational Culture |
| 1. Poor Internal |
| 1. Marketing |
| 1. Lack of Employee Incentives |
| 1. Inappropriate Governance |
| 1. Inexperienced & Unskilled Team |
| 1. Lack of Project Management Skills |
| 1. Lack of Technical Skills & Knowledge |
| 1. Too much Attrition in Team |
| 1. Change of Key People |
| 1. Poor Team Commitment |
| 1. Attitude Change in Programmers |
| 1. Too Much Optimism |
| 1. Unclear Project Objectives and Goals |
| 1. Project Complexity |
| 1. Project Size |
| 1. Lack of Performance Measures |
| 1. No Business Case |
| 1. Misfit between Project type and PM style |
| 1. New/Immature Technology |
| 1. Misalignment of IT with Business Processes |
| 1. Poor Testing |
| 1. Poor Technology Tools |
| 1. Poor Integration |
| 1. Poor Data Migration |
| 1. Inappropriate Data Model |
| 1. Too Many Bugs |
| 1. Poor Trouble shooting |
| 1. Scope Creep |
| 1. PM Methodology/Process Used |
| 1. Lack of Risk Management |
| 1. Ineffective Communication |
| 1. Changing Requirements |
| 1. Schedule Overrun |
| 1. Cost Overrun |
| 1. Poor Quality |
| 1. Lack of Resources |
| 1. Poor Project Planning |
| 1. Inappropriate Estimations |
| 1. Poor Design |
| 1. Unrealistic Schedules/Deadlines |
| 1. Unfavourable Contract |
| 1. Poor Coordination |
| 1. Changing Priorities |
| 1. Ineffective Project Change Controls |
| 1. Vague Requirements & Scope |
| 1. Conflicts Among Stakeholders |
| 1. Incorrect Assumptions |
| 1. Poor Project Monitoring |
| 1. Stakeholder Politics |
| 1. Incorrect Status Reporting |
| 1. Poor Documentation |
| 1. Too Late Investments |
| 1. Effect of Big-Bang Approach |

### Themes categories

|  |
| --- |
| 1. Environmental Factors |
| 1. Team Factors |
| 1. Project Factors |
| 1. Technology Factors |
| 1. Poor Management Factors |
| 1. Organizational Factors |

## Post-analysis

We turned what was themes first into factors aligning it with the research we had don into factors.  
The theme categories completely changed but only some of the themes where changed, the result was 21 factors and 4 factors groups.

### Factors

1. Organizational Culture
2. Development Incentives
3. Project Expertise
4. Project Management Skills
5. Project Investigation
6. Project Objectives and Goals
7. Project Complexity
8. Stakeholder Politics
9. Project Risk Analysis
10. Project Monitoring
11. Deployment Testing
12. Technology Tools
13. Integration of Software
14. Trouble Shooting
15. Scope Creep
16. Management Assumptions
17. Requirements & Scope
18. Sub-contract
19. Workflow Communication
20. Schedules/Deadlines
21. Contract Status

### Factor groups

1. Implementation Factors
2. Planning Factors
3. Delivery Factors
4. Management Factors

## Difference

### Groups

The biggest difference is the better and more defined groups of themes or factors. With each one addressing different stages of development. Management factors being an overarching theme basically communication.

### Individual

The removal of at least 40 themes and the addition of at least 5 factors completes the list at 21 factors that describe an issue that went wrong or right during development.

# Discussion

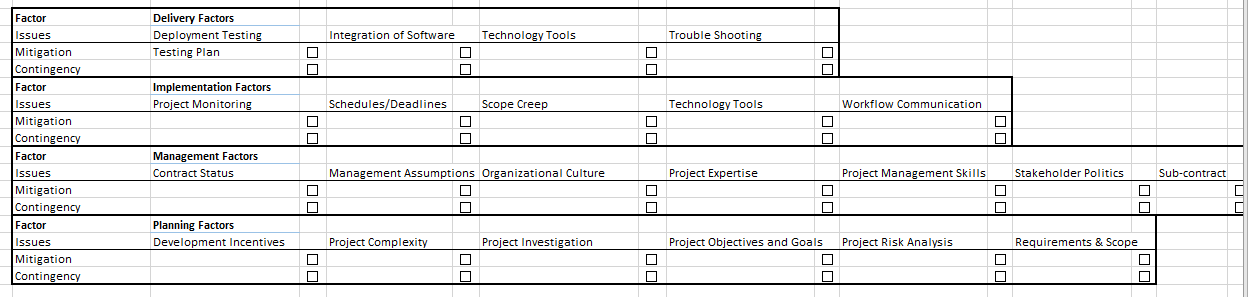
## Pre-Tool

The expectation of the tool is that it lets the client know how effective there initial planning is.  
There needs to be at least some planning or objectives to be able to use the tool.  
The tool could in theory be used at any stage of development.

Any factor under 5 citations has removed since the sample size is not big enough for the tool. The only one that was not removed was Technology Tools since it perfectly fits with system testing.

## Post-Tool

The began with just a single checklist for each factor but soon expanded it into multiple checks. Early on we kept the factors with less than 5 citations.



Although this in extensive enough to be considered a tool it offered no context to any factor

### Delivery Factors

The factors inside deliver are essentially just types of tests and can we simply have the planned testing coverage to measure the success. This offered a very specific metric to test and more importantly helps satisfy Smart.

Metric

* Functional Testing Coverage as a percentage

### Implementation Factors

The factors associated with implementation are all staged of project planning or timeline. Each could be looked at as objectives needing to be signed off on by all parties and revised. In the tool we only look if these types of plans have been formulated and finalized.

Metric

* Initial Development Plan
* Final Development Plan

### Management Factors

The factors associated with management are over arching and deal primarily with communication. They are not as Smart so the metric we measure will be weather this communication is taking place in the different factors. This will be done with 3 main types.

Metric

* Frequent Meetings
* Direct Communication
* Glossary of Information

Communicate to:

* Communicate Progress to everyone
* Communicate Risk to everyone
* Communicate to the development teams
* Communicate among the management
* Communicate deliverables especially to stakeholders.

### Planning Factors

While deliver deals with 4 factors of different testing types, planning should deal with its counter parts so the metric, we will use is the V model pre-development planning.

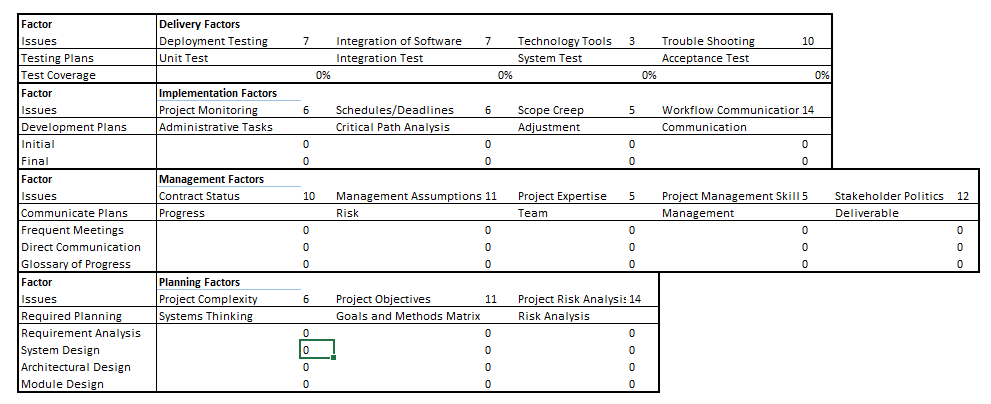
Metric

* Requirement Analysis
* System Design
* Architectural Design
* Module Design

# Outcome

## The Tool

|  |  |
| --- | --- |
| Delivery Factors | 0 |
| Implementation Factors | 0 |
| Management Factors | 0 |
| Planning Factors | 0 |
| Total Points | 132 |
| Difference | -132 |



To use the tool either enter 0 or 1 if you have completed the test task.  
The unit test

## Delivery Factors

We have 4 different delivery factors to consider, turns out that these factors align perfectly with testing plan types.

* Unit Test Plan
* Integration Test Plan
* System Test Plan
* Acceptance Test Plan

(Software Testing Fundamentals, n.d.)

These plans if executed correctly help prevent the fatal errors identified in the analysis.

Example  
“The objectives for the use of the Beta environment as a substitute for the pilot did not cover the primary in situ testing function that a pilot would typically perform” Ref: 3  
A simple functional testing coverage would solve this inside a unit test.

“During the service design and development phase, the intended pilot and phased rollout of the service were removed from the project plan”

“There was little direct customer (boards of trustees) or user (principals and school administrators) involvement in the definition of the requirements, and Datacom’s involvement was minimal.”

## Implementation Factors

A Project plan or a project schedule would solve most if not all the issues. Each factor will be addressed with a different part of the plan. (South Aftrican Goverment) (ROBERTS, 2019)

### Factor: Project Monitoring

#### Administrative Tasks Plan

Allocate time within the project plan to accommodate administrative tasks this could include status reports, team meetings, etc. There needs to be regular updates or intervals to update the management on the project progression and feedback on that progress.

Example  
“Found that Ministers were not always well served. Reporting to Ministers has been inconsistent, at times unduly optimistic and sometimes misrepresented the situation” Ref 29  
Without any agreed plan to relay at least a status update to the minister lead to failure.

### Factor: Schedules/Deadlines

#### Critical Path Analysis

Critical path analysis to identify those tasks which are critical to the success and timely completion of the project. This then can be structed into something like milestones or deadlines.  
This analysis would Identify the critical path which is defined as a series or path of activities that defines the longest path through the project and therefore establishes the minimum duration of the project. It includes the Development cost estimates by identifying the type and amount of resources required to produce the deliverables for each project component.

Example  
“Over the course of the project, Talent2 had missed agreed milestones or deadlines, which eroded trust and confidence in its ability to deliver.” Ref 34

“The objective measures of success and failure of IT projects are project completion within time and budget.” Ref 36

### Factor: Scope Creep

#### Adjustment Plan

The identification of potential plan adjustments is required when the plan does not meet previously stated project objectives but should only considered under certain circumstances.

Considerations

* Opportunities for optimising will be directly limited by resources
* The approach at the point of integration of projects may need to be re-addressed
* The impact of any change on all projects must be considered

“Work commenced on the requirements for the school’s payroll project in October 2008. This process was lengthy and was never actually completed. Even after Go Live, new requirements  
were being discovered” Ref 41

“The system was inadequately scoped and neither party took any effective measures to stabilise it. Both parties ignored all the warning signs of a project in serious distress.” Ref 43

### Factor: Workflow Communication

#### Communication Plan

A communications plan outlines how a project will be communicated to various audiences. Much like the work breakdown structure, a communications plan assigns responsibility for completing each component to a project team member. (Community Tool Box)

In this step, it's important to outline how issues will be communicated and resolved within the team and how often communication will be done to the team and the stakeholders or the boss.

Each message has an intended audience. A communications plan helps project managers ensure the right information gets to the right people at the right time.

“The lack of discussion by the Project Board about the State Services Commission’s guidelines for the Management Factors and monitoring of major IT projects was a major failing. There  
was a large degree of turnover in key project leadership positions throughout” Ref 47

“Communications can be instrumental for changes throughout different phases ERP implementation.” Ref 52

## Management Factors

The first thing and projects has is a project manager to not only start but manager the progress, but there are other important factors that contribute largely to a project’s outcome. It takes careful planning, attention to detail and effective communication to make a project succeed. With vigilant management and a strong project closing, a company can consistently reach project success.  
(PALMER, 2018) (Community Tool Box)

### Factor: Contract Status

#### Progress Communication

Communication should also be focused internally within the organization. Keeping an organizational history of major projects will give convenient access to improved policies and business processes. If this isn’t done, then a team may repeat mistakes that have already occurred. Listening to stakeholders and paying attention is a very important ingredient for success.

For example, will information be distributed via mail or e-mail, face-to-face meetings, is there a shared web site and a glossary of common terms.

Example  
“The tender documents did not make the overall roles and responsibilities clear enough, and did not provide an appropriate process to define the scope and requirements progressively” Ref 62

“Barriers to success such as high vendor team member turnover and frequent change of deputy governors were managed by hiring trusted, credible mediators to see the project through to fruition.” Ref 65

“The detail of all the Changes could not be pursued in evidence, and nor would it have been productive to do so. In each case, the parties willingly agreed them. The relevance of them to the Terms of Reference is the effect they had on price, on the time it took for the system to be completed and delivered, and what they reveal about the adequacy of the scoping of the system and whether the system was likely to function as a payroll system ought when it went live.” Ref 69  
Even with a term of reference no one meet to discuss the changes.

### Factor: Management Assumptions

#### Risk Communication

Project managers know that things rarely go off exactly as planned. During the planning process, it is vital to produce a risk log with an action plan for the risks that the project could face. Make sure all key stakeholders are aware of your risk log and know where they can find it. If something happens, then the team can quickly resolve the issue with the management plan that has already been set in place. This will give the team confidence when facing project risks and help the clients feel comfortable with the project’s progression.

Example  
“It is our overall view that weaknesses in project governance and leadership allowed the service to go live with a number of significant risks which the Ministry and its vendors were over-confident of managing. When these risks resulted in service issues Post-Go Live, the Ministry and its vendors were overwhelmed by their nature and scale.” Ref 71

“It was not inevitable that the appointment of a Prime Contractor would fail to deliver what CorpTech hoped from it. History has shown that the decision to transfer responsibility for the SS Initiative to a private enterprise contractor was unsuccessful, but there were several reasons for that.” Ref 74

### Factor: Project Expertise

#### Team

The core project staff, expert resources, suppliers and all stakeholders should be part of the team. Project managers can face serious trouble if inadequacy is present within the team. Inept leadership or an out-of-sync team can send a project towards failure. It is important to assign the right people to each aspect of the project and make sure that they are working well together.

All teams team should be completely informed and involved in order to have the most successful outcome, which a good way to communicate and relay relevant expert information to each team or group.

Example  
“During the initial implementation phase of NPfIT, there was no whole-of-system coding language. A universal coding language is needed when critical health care decisions are made by complete strangers, for example in Accident and Emergency Departments. For example, the word ‘diabetes’ in a patient care record could be interpreted as a family history of diabetes, a predisposition to the illness or a diagnosis. Any shorthand, assumed knowledge or incomplete information in a patient’s care records is potentially a risk to patient safety.” Ref 89

“For instance, politicians inexperienced in the creation of complex systems allow their political ambitions to influence their desire to create large projects that can be completed in the life of a single Parliament. This is, all at once, a problem of haste, design, skills and culture.” Ref 88

### Factor: Project Management Skills

#### Management

Comprehensive planning sets up a project for success from the start. All stakeholders and clients should be on board during the plan. Planning can help the team to meet deadlines and stay organized. A good plan needs good management and oversight to complete so all the management staff need to have the best communication to do this.  
This Solution is how well management collaborate on a project.

Example  
“The Ministry had overall responsibility for sector readiness other than system training, which was the responsibility of Talent2. We would have expected sector readiness preparations to include training that covered the changed responsibilities and roles, better communications and stronger support both during the project and in the period following Go Live” Ref 92

“He made no written recommendation, and there is no evidence of any analysis or consideration of the merits of the notion committed to paper.” Ref 94

### Factor: Stakeholder Politics

#### Deliverable

If a project does not have clear deliverables, then it has the potential to continue to consume resources. The project team must know exactly what they are making so the stakeholders get what they have asked for in specification. Confirmation of the project delivery, testing, and release must be agreed upon and signed off by the stakeholder.  
Deliverable acceptance testing, test builds, demonstrations for stakeholders could all work as deliverable information.

Example  
“Because they provide in-depth examinations across different stages of implementation and identify the many different types of stakeholders.” Ref 99

“Despite the many calls for NPfIT to improve stakeholder engagement, such as the 2002 Gate Zero Review, this did not happen.” Ref 101

## Planning Factors

The best way to plan a project is to break down its complexity into smaller segments, this will be applied to different stages of a project. As projects progresses the cost of change becomes much greater, so early planning is the keys to this issue. Planning each stage of development from, Requirement Analysis, System Design, Architectural Design and Module Design.

### Factor: Project Complexity

#### Systems thinking

This is an approach to problem solving by seeing wholes, by seeing interrelationships rather than things, by seeing patterns of change rather than static snapshots, by seeing problems as parts of an overall system rather than reacting to specific parts. (Cristóbal, 2017) (Team, n.d.)

Example  
“Requirements definition, design, development and testing activity were all occurring in parallel, making it very difficult to maintain a known level of quality.”

“Mr Kwiatkowski sought also to catalogue what we have described as the business process problems which confronted the system on Go Live. They, as we have said, are accepted by Ms Jones and Ms Stewart to have contributed to the problems which were experienced after Go Live. But it remains that there were problems also with the computer system itself, problems which concerned the way in which it had been designed and/ or built and ones which, business processes aside, caused staff not to be paid or to be paid inaccurately.”

### Factor: Project Objectives and Goals

#### Goals and Methods Matrix

Projects can be categorised according to how well-defined goals and how well defined are the methods of achieving these goals in a project. These categories or types of projects will have a ideal solution in mind. Mapped onto these are different priorities or approaches during development like an early test build vs direct deployment.

Example  
“Nevertheless, more empirical evidence is needed to verify our current findings that in a mandated implementation environment, excessive project selling at the project preparation phase may have negative effects during the blueprint and realization phases but often yields positive results during the operation and routinization stages. ”  
This solution is not a waste of time based on the exert.

“The implementation featured some successes with elements of the programme that were on schedule and functioning well, however it was also marked by missed deadlines, unreliable software and a lack of engagement with end-users particularly heath-professionals and patients.”

### Factor: Project Risk Analysis

#### Risk Analysis

Risk Analysis is a process that helps you identify and manage potential problems that could undermine key business initiatives or projects.

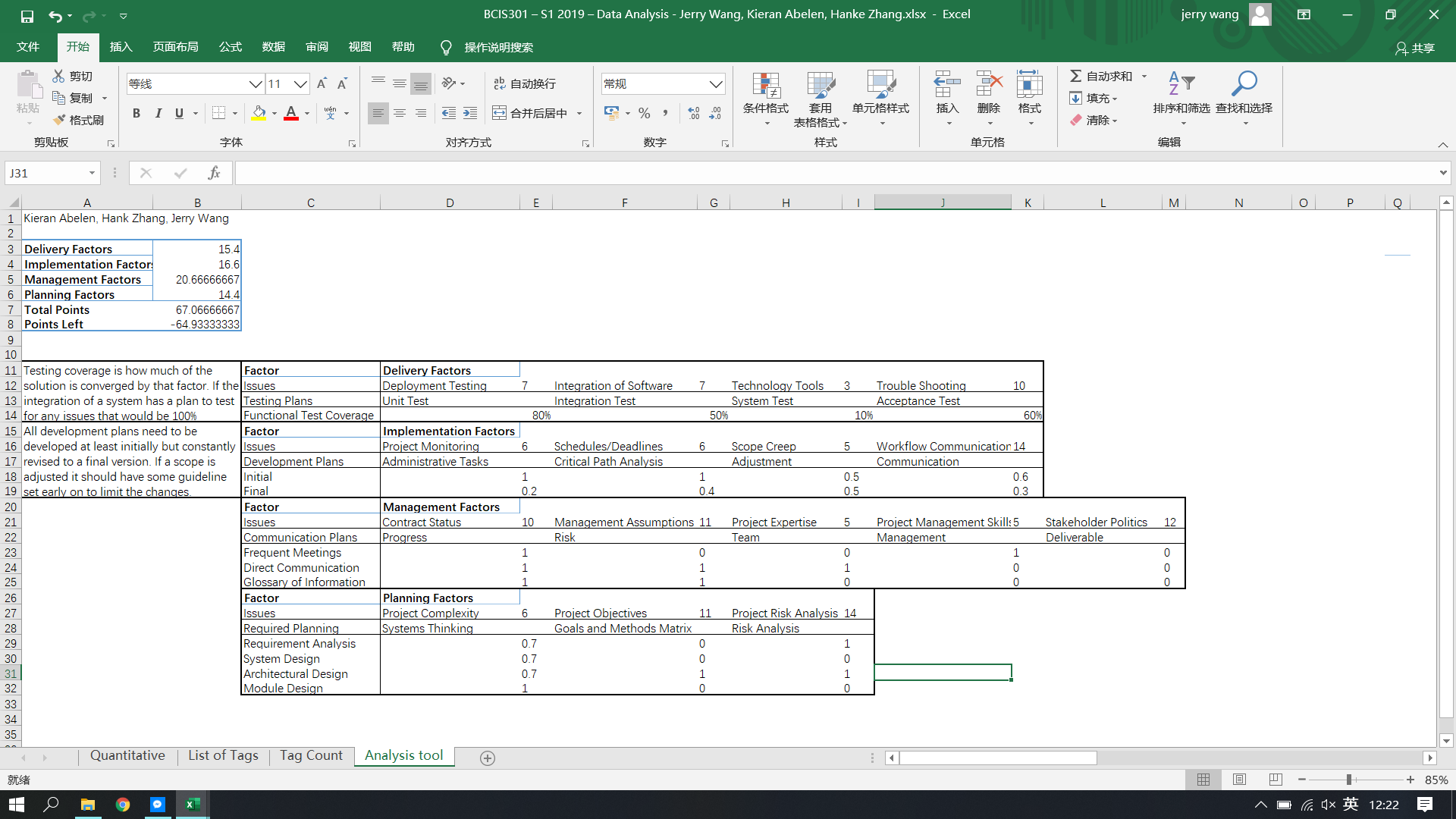
# Conclusion

We have found out 21 factors based on 3 failure and 1 successful IT projects by using strategic analysis process and group them into 4 categories which are correspondence with 4 stage of a standard project life cycle. Based on this way of working, we built a tool that can be checked with during the entire process of an IT project. For each factor, we figured out few ways to resolve problems or prevent things from going off. However, that is not to say the project will finally sure to succeed since the data where we get is from only four case studies. We could make the weight of every single factor more accurate by analysing more and more resources.

We summarized 21 common problem that emerge during each stage of IT project and built this checking list tool. A manager can work out how the project is going by filling up this tool.

**Test of Novopay project**

The screenshot below shows the result of test of Novopay by using the tool we built. The electronically version will be emailed with the data to show the process of testing.



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