PROJECT PERFECT
Pty Ltd

Functional Decomposition User Guide

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1.0	1 Feb 09	Initial Version

Functionality

Overview

This section explains Functional Decomposition for those who have not used the process in the past

System structure

An IT program has a number of components:

Components	Description
Data	The information used in the system
Functionality	How the data is manipulated
Business Rules	The controls around how the functionality is applied

Data

Data can be defined as

"The people, places and things that we want to keep track of"

There is other data of course such as transaction logs, and information the system needs to operate internally, but for the purpose of these guidelines, the explanation above will suffice.

Some examples may be:

- Clients
- Products
- Phone numbers
- Prices

Note that each is a noun. This is important to remember.

Business Rules

Business rules are the policies that are applied within the system. For example a business rule may be that if a client does not have a transaction for 12 months, the client is made inactive. Another may be that all credit terms are 30 days.

Functionality

Functionality covers the actions that can be performed in the system. Examples may be:

- Adding a client
- Changing client details
- Issuing invoices
- Managing stock levels

Note that each statement starts with a verb. Data are nouns and functionality start with verbs. Functionality is about doing something.

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Functionality, Continued

Relationship to process

Functionality is static and business process is dynamic. Business process is a collection of functionality organised in a sequence that suits the situation.
To give an example, a business process may be to process a refund. One step may be to create a credit note. Another business process may be to cancel an order. One step may be to create a credit note. Yet another business process may be to fix an incorrect price. Once again we create a credit note.
Think of functionality as the Lego pieces and a business process is what you build. The same piece of Lego can get used in lots of things.

Recording functionality

Typically, when we do a functional decomposition, we break apart the business processes to identify the functionality. We might record the same piece of functionality in many places but in order to ensure we have found all the functionality, we need to break apart each process and examine the components.

Manual or system

In recording functionality we will record systemised processes and manual processes. This is to be expected. One does not make sense without the other. In some cases, we might even be unsure of which camp a function belongs to. For example, 'Send a fax' could be accomplished either manually or through a system function depending on the software.
Part of the reason for doing a functional decomposition is to identify what can be systemised.

Functional Decomposition

Overview

Functionality can be organised in a tree type structure. The trunk has branches; branches have twigs; twigs have leaves. It may not be immediately obvious, but functionality can be organised in a hierarchical manner.
A sample is provided as Appendix A

How to organise

There is no right way to organise the hierarchy. Two different groups may organise the same area in two different ways. Take the following example of a motor registry that processes car registrations, licenses and other transactions.
Hierarchy 1. In the first case we could organise the functionality by the three areas mentioned above – Registrations, Licenses and Other.
Hierarchy 2. In the second case we could organise by New Business, Renewals, Other Transactions
There are arguments for both approaches. For example, it could be argued that it is easier to work through all the functionality around registrations before moving onto the next category – Licenses. On the other hand it could be argued that there is a lot of commonality in registering new clients regardless of whether they are getting a license, registration or any other service.
The best structure is the one that works for you on the day.

Level 0

The top level is defined by the scope. By the time this exercise is undertaken, the Intermediate Scope document will have been prepared. Use this as level zero.
On some occasions, the project is so massive that it might make sense to actually start with a number of areas at level zero. For example, if you were trying to do a functional decomposition for an ERP system, it would probably make sense to do one for Financials, one for Distribution, one for Sales etc.
The top level should be driven by the breadth of understanding within the workshop. If you are doing a functional decomposition workshop with Accounts Payable people, it is appropriate to make Accounts Payable level zero.

Level 1

Level 1 is typically a grouping of related functions. It does not necessarily start with a verb. From the example above, it could be Licenses, or Registrations. Other examples may be:

- Client management
- Warehouse
- Human Resources
- Recruitment

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Functional Decomposition, Continued

Level 2

Level two is where the action starts. From here you start to break down each area. All functions should start with a verb. For example, if level one was 'Recruitment' level two could include:

- Identify vacancies
- Prepare resource requirements
- Advertise for resources
- Review responses
- Interview resources
- Employ resources
- Induct resources

Level 3

Each of the items above may be taken down a further level(s). For example, 'Interview resources' may be broken down to:

- Book interview
- Discuss approach to interview with the manager
- Carry out interview
- Record results
- Produce shortlist

At this stage we might decide that we have not actually completed the process. There is a second interview to be carried out before an offer is made to the candidate. We might feel that the level two 'Interview resources' should in fact be modified. It should become 'Interview resources by HR' and another level two of "Interview resources by Manager' included.

How many levels

A good way to understand when to stop is to say the minimum level you should ever go is the smallest function that makes sense to the user. If you ask a user about setting up a new client, they will probably tell you they record the client name and address. They will not tell you they record the salutation, first name, middle initial and surname. Nor will they tell you they record address line 1, address line 2, suburb, state, postcode and country.

The bottom level should never go below 'Record client name' and 'Record client addresses. This means you should never get below level five or six. Mostly you will stop at level three or four. Occasionally you might even stop at level two.

Approach to Functional Decomposition

Overview

Typically it is best undertaken in a workshop environment. A group of people can very quickly put together a functional decomposition down to level two or three.

Recording

The preferred way to record the information is to enter it straight into a document and project the information onto a screen. The spreadsheet we provide is an ideal tool as it has some useful macros to assist the process. It is recommended that one person facilitate the process, and another does the input. The group is likely to jump around in the early stages of the process, and does need to be kept focused on the task. If the person running the workshop is also doing the recording, they will be unable to do both tasks successfully.

The person doing the recording does not have to be an expert in the field. They just have to be able to enter information as it arises.

Training

Depending on the experience of the people, you may need to explain the concept. Once this is understood, you can actually start on the work. If you have a mix of experienced and inexperienced people, it is suggested you start the meeting with the inexperienced people 15 minutes earlier to run through the process and some examples.

Getting Started

The initial step is to determine the level ones. This is typically a bit of a brainstorming session and it is suggested you use a white board. Ask people:

> "If you had to describe the business area defined at level zero, how would you break it up?"

Some typical approaches are:

- By the organisation chart. People think of the business areas as "I do this, Jane does that."
- By existing computer systems.
- From a customer perspective. "They contact us about….."
- From a product view. "We sell widgets and fridgets"

When some ideas have emerged and a direction is becoming clearer, ask if there are common functions across the areas. For example, 'widgets and fridgets' may go to the same customers and use the same processes. Are you going to duplicate the same functions under each area?

When you get a workable structure, put it into the spreadsheet and get started. Be prepared to revise the level ones if it becomes evident your starting point is flawed.

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Approach to Functional Decomposition, Continued

Processes

People typically record the level three and beyond as processes. This is quite normal. It allows them to think through the area in a dynamic sense and make sure they have covered it all off. The fact these 'mini processes' do not fit together sequentially is not a concern.

Moving

The capture of information is likely to result in a chunk of functions from one place being moved to another. Sometimes that is moved to a different spot in the list, and sometimes to a different level. That is quite normal and should be encouraged if it adds clarity to the process. The person entering the data will need to ensure they save often, and are reasonably competent in using Excel cut and paste.
The buttons in the spreadsheet for numbering and setting colours will assist a quick cleanup.

Alternative approach

If it is not possible to use a projector to carry out the work, another approach is to get the level one and/or level two sorted out then split into groups to produce their own level three and beyond.
The danger of this project is that there may be gaps or overlaps that will need to be resolved later. It also means a lot of interpretation of results by someone who may not have participated in the group.

Documenting results

Most of the people will give good input in the workshop, but few will spend the time to examine output line by line in a document. Your best chance for success is to get the majority of the information together in the workshop. By all means circulate the result to attendees, but don't expect much feedback.

To what level

This is the hard part to manage. Some people will want to drill down to the minutest detail. You need to be disciplined to only drill down to the level you require. At different stages of a project, you require a different level of detail.

Appendix A

Overview

The following is a sample Functional Decomposition. The level 0 is 'Claim Processing'

Function No	Name	Business & Function	Brief Description
	L 1	**L 2** **L 3** **L 4** **L 5** **L 6**	
1	**Client Communication**		Information received from and sent to the client
1.1		**Receive Enquiry**	
1.1.1		Enter Client Details	Person contact details,employment category
1.1.2		Search for Previous Details	
1.1.3		Generate ID Number	System Generated (C number)
1.1.4		Search for Employer Details	Search name/Address/Trading Name/Suburb. Fuzzy search facility optional
1.1.5		Enter Notes	Preliminary details (optional)
1.1.6		Enter Type of Contact	Telephone/counter/e-mail/fax/letter
1.1.7		Set follow up date	Default that can be overriden
1.1.8		Allocate to Advisor	
1.1.9		Enter type of info requested	e.g. Wages, classifications, leave entitlements
1.1.10		Generate Std Letter	Letter to person making the enquiry based on type of info requested
1.1.10.1		Modify Std Letter	Able to edit document and add free text
1.1.11		Send Letter	
1.1.11.1		Send Fax	
1.1.11.2		Send Post	
1.1.11.3		Send Email	
1.1.12		Enquire on enquiry	
1.1.13		Change enquiry to claim	or vice versa
1.2		**Issue Claim Form**	
1.2.1		Generate Label	May be replaced by a window faced envelope
1.2.2		Enter ID of person Issuing	Automatically assigned
1.2.3		Generate Correspondence No	Automatically assigned
1.2.4		Generate Std Letter	Import from Word - add free text
1.2.4.1		Modify Std Letter	Edit std letter
1.2.5		Send Claim Form	
1.2.5.1		Auto Fax claim form	
1.2.5.2		Email claim form	

1.2.5.3	Post Claim Form	
1.2.6	Report on follow ups due/overdue (User)	Delivery mechanism to be determined. Based on time since received
1.2.7	Report on follow ups due/overdue (Supervisor)	Delivery mechanism to be determined. Based on time since received
1.2.8	Report on claim forms issued	
1.3	**Receive Claim Form**	
1.3.1	Enter Client Details	See claim form for reqd fields
1.3.2	Search for Previous Details	Search by name. Fuzzy search facility
1.3.3	Generate ID Number	
1.3.4	Enter Employer Details	
1.3.4.1	Search for previous employer details	Search name/Address/Trading Name/Suburb. Fuzzy search facility optional
1.3.5	Enter Claim Details	Checkboxes/Radio Buttons/Checklist etc.
1.3.6	Allocate to Claims Assessor	Bulk allocation option
1.3.7	Change claim to enquiry	(or vice versa)
1.3.8	Enquire on claim	
1.4	**Finalise**	Date stamp and complete (& finalised by phone call or written reply)
1.4.1	Generate Std Letter	
1.4.1.1	Modify Std Letter	
1.4.2	Send Letter	
1.4.2.1	Send Fax	
1.4.2.2	Send Post	
1.4.2.3	Send Email	
1.4.3	Enter Finalization Details	
1.4.4	Carry out QA Check	To Team Leader
1.4.5	Re-open if necessary	
1.4.6	Report on rejects	
1.4.7	Report on awaiting checks	
1.4.8	Report on time between finalization and QA	
1.5	**Record Time Spent**	
1.5.1	Record Time Elapsed since receipt	Both claim form and correspondence
1.5.2	Record Charge Time	
1.5.3	Report by claim	
1.5.4	Report by enquiry	
1.5.5	Report by user/team /state /office /everyone	
1.5.6	Report by activity	
	Targeted Compliance	
	Set up targeted group	Select industry group
	Enter Employer Details	
	Generate Std Letter	
	Modify Std Letter	

2	**Claims Assessment**	
2.1	**Determine Action**	
2.1.1	Refer elsewhere	e.g. AIRC, ATO, State Dept, OCPE
	Office to Office Referal	
2.1.1.1	Generate Std Letter	Two letters: one to client, one to agency
2.1.1.1.1	Modify Std Letter	
2.1.1.2	Enter Notes	
2.1.1.3	Finalize	See above
2.1.2	Classify as invalid claim	
2.1.2.1	Generate Std Letter	
2.1.2.1.1	Modify Std Letter	
2.1.2.2	Enter Notes	
2.1.2.3	Finalize	See above
2.1.3	Classify as Investigation	
2.1.3.1	Establish if suitable for mediation	
2.1.3.1.1	Generate Std Letter	Letters to Employee, Employer
2.3.1.1.1.1	Modify Std Letter	
2.3.1.1.2	Input mediation details	If rejected, then by whom
2.3.1.1.3	Enter Notes	
	Reclassify as investigation	
2.3.1.1.4	Finalize	See above
3	**Investigation**	
3.1	**Insert Breaches**	Include AWA
3.1.1	Link to awards	Is this an interface or is data held in CATS
3.1.2	Record Notes	
3.1.2.1	Add Notes	
3.1.2.2	Modify Notes	
3.1.2.3	Delete Notes	
3.1.3	Import Calculations	Import from Excel
3.1.4	Generate Std Letters	Courtesy, Breach 1 and 2 Letters
3.1.4.1	Modify Std Letters	
3.2.5	Set follow up date	
3.1.6	Add Payments	
3.1.7	Report on follow ups due/overdue (User)	
3.1.8	Report on follow ups due/overdue (Supervisor)	
3.1.9	Generate Std Letters	Closing letter to Client
3.1.10	Mark as Office based or Field	
3.1.11	Finalize Investigation	See above
3.2	**Litigation**	Record time spent but not by time elapsed
3.2.1	Generate Std Letters	
3.2.2	Generate Reports	Produce a small claims kit

3.2.3	Add Payments	Insert details of order
4	**System Maintenance**	All have security
4.1	**User Maintenance**	
4.1.1	Add Users	
4.1.2	Delete Users	Archive where user attached to correspondence
4.1.3	Maintain Users	
4.1.4	Inquire on Users	
4.1.5	Report on Users	
4.1.6	Associate User with Team	
	Reallocate work by user	
4.2	**Team Maintenance**	
4.2.1	Add Team	
4.2.2	Delete Team	
4.2.3	Maintain Team	
4.2.4	Inquire on Team	
4.2.5	Report on Team	
4.2.6	Associate Team with Office	
4.3	**Office Maintenance**	
4.3.1	Add Office	
4.3.2	Delete Office	
4.3.3	Maintain Office	
4.3.4	Inquire on Office	
4.3.5	Report on Office	
4.4	**Award Maintenance**	Including agreements as required
4.4.1	Add Award	
4.4.2	Delete Award	
4.4.3	Maintain Award	
4.5	**Set default times**	Set default times for follow ups
4.6	**Terminate Investigations**	
4.7	**Reopen Investigation**	Managers, Team Leaders only
4.8	**Edit standard Templates**	
5	**Action Items**	
5.1	**Add Action Items**	
5.2	**Modify Action Items**	
5.3	**Delete Action Items**	
5.4	**Report on Action Items due/overdue**	
5.5	**Report on all Action Items**	
6	**Survey**	Counter and phone
	Set up survey Information	
6.1	**Capture Survey information**	No and nature of calls, award, other items to be set up as required.
6.2	**Report on Survey Information**	Numbers against each survey item

7 Reports

7.1 Targeted stats