

PORTFOLIO MANAGEMENT IN NON-PROFIT ORGANIZATIONS

The case of the Municipality of Groningen

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Abstract: The purpose of this research is to develop a method to support governing the information function, and in particular, the planning and prioritization of IT projects. The municipality of Groningen acts as case organization.

Core of the methodology forms the 'Hourglass', which provides the overview of IT and service programs. The Hourglass, supports the municipal council to supervise the College program, which again is based on a long term strategy. Based on the Hourglass, the municipality Board of Executives delegates the authority to implement to Municipality Secretary to manage the approved program accordingly. The Municipality Secretary again reports back to the Board of Executives. The Hourglass model consists of eight layers, being the Council, Municipal Executives, Municipal Secretary, AMT (General Management Team), Control meeting, Management, Middle management and the employees. These layers all play a subsequent role in the development of the project portfolio. Consequently, the Hourglass provides a transparent methodology to develop and trace the IT project portfolio of the municipality of Groningen.

The Hourglass methodology has been derived through literature review and case research of the municipality of Groningen. Literature regarding characteristics of the organization itself and external literature has been used. Within the municipality the characteristics of projects and programs were studied and key decision makers were interviewed. The Hourglass methodology has now been operational for one year.

This research also contains a method to prioritize the proposed projects in a portfolio model. By using the prioritization technique, the implications of new projects for the organization can be significantly better assessed. It is also an instrument for finance, resource planning and scheduling. Through the Hourglass model, successful and timely completion of projects has increased significantly.

The scientific relevance of this research concerns the development of portfolio management methodologies in non-profit organizations. Benefits are often more difficult to determine in non-profit organizations. Particularly, when investments decisions should not be solely restricted to efficiency investments and includes additional or better government services. Furthermore, the various constituents of the Hourglass model will also be of interest to other organizations, being profit or non-profit.

Keywords: Project portfolio management, ICT project prioritization, non-profit, municipalities.

1 Introduction

At the municipality of Groningen internal business reviews indicated that it is important to organize the resources supporting the primary process and the government of the I&A organization. Conclusions from this research were to further organize the government of the I&A function and to develop a method for planning and prioritization of I&A projects (BOIA report, 2008). The purpose of this research is to propose a method to govern the I&A function, and particularly the section on planning and prioritization of I&A projects. The municipality of Groningen acted as case study organization. In the context of this organization the methods are developed to govern the I&A function, the ICT projects and how to apply this control. First there is a literature review. Furthermore, interviews were held with the involved employees and documents of the organization were reviewed. Finally, this thesis research has led to the development of an I&A control method including a project portfolio and prioritization method.

2 Portfolio Theory

Research of Jeffery and Leliveld indicated that 41% of their surveyed organizations have little overview of their spending on ICT, 46% of the organizations do not have their applications and infrastructure properly identified, 47% of organizations do not have a central overview of ICT projects, 57% had no criteria for these projects together to weigh and that 41% of the organization did not calculate the periodic return on investment (ROI) for each project (Jeffery and Leliveld, 2004). Given these problems, there is definitely a need for additional control over ICT and portfolio theory could possibly provide this control.

Portfolio theory is rooted in finance where portfolios of stock are defined to reduce risks. In 1990, Markowitz, Miller and Sharpe received the Nobel prize for their work in this area. Many propagate the use of portfolio theory to reduce risks associated to IT investments. For instance, Maizlitz propagates portfolio management to assess IT (Maizlitz, 2005). Portfolio management should particularly be considered if the strategic contributions of IT remain uncertain, transparency of investment funds remain insufficiently transparent, when there seem to be too many projects, in case incomplete criteria for the assessment of IT projects are applied, or if there is inadequate IT control (Maizlitz, 2005). Maizlitz research indicates that most organizations could benefit from portfolio management (Maizlitz, 2005).

From the literature, several portfolio management and project descriptions can be defined. Portfolio management comprises all structured processes for evaluating projects in a portfolio (diagram) along different dimensions. This primarily concerns the composition of the portfolio, the total number of projects (Simon et al, 2010). Cooper defines portfolio management as a dynamic decision-making process in which an organization continuously evaluates projects, selects and prioritizes. Projects could be accelerated or stopped by dividing the available resources (time, money). The process is characterized by uncertain and constantly changing information, multiple goals, strategic considerations and sensitivities and different decision makers (Cooper et al, 1999).

When organizations work with project portfolios, this provides information on the individual projects, however, also on the performance of portfolio as a whole. For example, the number and type of these projects, how funds are used, the variation in the service of relevant ICT services and the costs of ICT provision are provided. There is also information about the percentage of successful projects, the number of ongoing projects and how many hours have been estimated from various ICT disciplines. This can be used as control information for the I&A office or ICT governance function (Kaplan, 2005).

Bonham further states that a 'Project Management Office' (PMO) audit team should have an input on the prioritization of the portfolio. After a periodic review on these projects, the project will have to be reviewed again if they are in line with the organization, technology and control of consistency of other projects. This turns out the final score higher or lower of the project and for the management it provides better insight to see how the projects relate to each other. The aforementioned PMO is about the information on projects in an organization. Main target is to control and monitor the projects. A PMO team can help an organization to get a grip on the portfolio so that it's set its objectives more

efficiently and can achieve them at lower cost. PMO is not about managing projects, but about the why, which and how of doing projects. PMO should be seen as a layer on the projects before, but can also operate in an internal project. The PMO can generate management information that can help management to decide on the projects (Bonham, 2004).

There are several ways to prioritize projects. Mathematical formulas can be used to maximize portfolio to an optimal portfolio to develop income-generating (Wen & Shih, 2006; Bardhan et al, 2004; Kim et al, 2009). In practice, this method is not often applied in prioritizing projects. Reasons are because the prioritization can not be applied to projects where the long term benefits of ICT investment in the beginning can not be identified, when there are not enough financial details of the project be present and the earnings of the ICT project are not quantifiable (Wen & Shih, 2006). Methods with a multi-criteria approach assess quantitative and qualitative consequences of an investment project (Renkema & Berghout, 2005). Scoring methods are seen as multi-criteria approach that can help managers evaluate ICT investments based on the objectives of the organization (Wen & Shih, 2006). In this scoring method, projects are compared and assessed on values, then the total scores is listed (Wen & Shih, 2006; Kim et al, 2009). Scoring methods are particularly interesting because it offers a way to also include the non-financial criteria in the value adding (Wen & Shih, 2006). Ghasemzadeh and also use the scoring method in their project portfolio technique. The total weighted score is the final score of the project and then placed in the overall list (Ghasemzadeh & Archer, 2000).

3 Characteristics of Municipalities

Government agencies differ from commercial organisations in many ways and also in their administration. The Netherlands is a decentralized unitary state. The Dutch government comprises three levels of government. Besides the central government, there are 12 provinces and 431 municipalities. The provinces are to ensure implementation of state policy in regional plans. The municipalities ensure the quality of the immediate environment of the citizens. The provinces and municipalities are also referred to as 'local governments'. The municipalities are the basic cells of democracy, they are of all governments the closest to the citizen. The municipality is autonomous, meaning that it is competent for the local economy at its discretion to regulate and control. On the other hand, the municipality is obligated to co-operate to assist the implementation of the 'higher' rules by the Central government, once a task at a higher law is regulated, municipalities are required to implement them.

The City Council represents the highest management in the municipality. This council represents the citizens of the city, formulates policies and sets priorities. The council ensures whether Municipal's Executive Board has achieved the envisioned policies and goals. City Council and Municipal Executives are also engaged in the municipality's administration. It sets the rules and carries them out'. In this context the municipality answered questions and requests, and responds to complaints and objections. The municipality is not a business, but technically many processes work in a similar way as in businesses.

The Municipal Secretary is the highest civil servant in the municipality forms a Management Team together with the directors of the various departments in the municipality, named General Management Team or AMT.

4 Portfolio Method Design

From the goal of this research it is essential that the I&A projects are planned and prioritized. All corporate wide projects that meet the definition of 'project' will have to be weighted broad community of interest, constraints and impact. The portfolio method was developed that each department has a department portfolio and a large corporate portfolio can be made. There will always be more demand required for ICT projects than one organization can handle. It is therefore necessary to make choices and why those projects should be performed and why (Glaser, 2006). To effectively apply the prioritization there are four necessities, namely a good project for the project, an existing ICT strategy in an organization that the choices. A process designed to evaluate project proposals and an opportunity to compare and to take steps to the scope of the project to adapt (Glaser, 2006).

To ensure a proper prioritization, projects have to be set against a criteria and must be weighed.

Principle is that all projects are valued and prioritized for implementation before they are performed. This is done in phases so that projects which are located further into the future can be mapped (Glaser, 2006).

In the prioritization process the information manager of the department will inform the project leader and the commissioner to take the lead in prioritizing. They apply the criteria, weigh the issues and determine priority. This will create the department portfolio. It is the joint portfolio manager for the municipality to draw a broad corporate portfolio based on the department portfolios. It is therefore possible that the corporate portfolio manager recommends a re-prioritization when a common factor of weighting would change.

4.1 Prioritization Criteria

The portfolio manager will on the basis of these components create an optimal portfolio selection which best fits the needs of the municipality. Prioritization is used to see what projects should be executed first. Decision criteria support this prioritization. When developing a prioritization process it is important that the criteria are kept simple and specifically designed for the specific organization. (Bonham, 2004).

There are different ways of prioritizing projects. Mathematics can be used to maximize portfolio to an optimal portfolio to develop income-generating (Wen & Shih, 2006; Bardhan et al, 2004; Kim et al, 2009). In practice, this method is hardly applied. The criteria in our method have been identified through interviews with project leaders, department heads, principals, information managers and policy makers. This has resulted in two main categories of criteria, being, 'necessity' and 'business'.

Glaser (2006) calls the PID (Project Initiation Document) the beginning of the project prioritization process, the proposal must meet to a number of requirements before they are read, then the project proposals can be assessed. The prioritization technique gives the organization its important points on which should be scored for the proposal to bring into the project portfolio, each proposal receives a score for each area that the organization has been established. A scale of 5 (significant contribution) to 1 (minimal or no contribution) is used. Then the scores added up and the projects with the highest scores are included in the portfolio (Glaser, 2006).

4.2.1 The 'necessity' criteria

For the 'need' criteria the author of the PID is requested only one criterion from 1 to 5, and is the most heavy weight selection. These 'necessity' criteria are based on interviews. These are listed in the table below.

Necessity	Weight	Description	Score		
			0	1	2
Legal Necessity	24	Where there is a change in existing legislation or new legislation in response to the project. Example: under usual Law Disclosure of public law restrictions is a digital registration is required.	Project has no legal necessity.	The Legal necessity of the project is not clear.	Project is a legal necessity.
Political priority	18	When a change in existing local policy or new local policy response to the project.	Project has no political priority.	Project has partly a political priority	Project has a high political priority.
Public interest	18	When the project is directly relevant to citizens. This can be both direct and indirect interest. Example: expansion of digital services on the website.	Project has no interest for civilians.	Project has partly interest for civilians.	Project has high interest for civilians.

Necessity	Weight	Description	Score		
			0	1	2
Organizational necessity	12	When the project is important for the development of the organization. Example: Replacement of an application by another application, making the organization work more effectively.	Project has no organizational necessity.	Project has a partly organizational necessity.	Project has high organizational necessity.
Technical necessity	12	When a project must be carried out technically. Hardware/software is replaced/outdated or support is stopped; project is technically necessary or prerequisite for other project.	Project has no technical necessity.	Project has partly technical necessity.	Project has high technical necessity.

Table 1 – Necessity criteria

4.2.2 The 'business' criteria

For the 'business' criteria the author of the PID is requested on all criteria (6-10) indicating the status of the project. The following table shows the ranked criteria listed as 'business'.

Business	Weight	Description	Score		
			0	1	2
Communality	8	The implementation of the project affects a large part of the organization. For example the introduction of the 'Complaints' system for all departments.	No commonality, it is department related.	Some commonality between departments.	High communality (affects all departments).
Time	6	A project that is on pressure and has certain deadlines.	No direct affect on the organization.	Project should be completed within two years.	Project should be completed within one year.
Return	6	Projects with a return on investments. Quantified in the business case.	Project does not get finances returned.	Project possibly gets finances returned.	Project gets finances returned.
ICT Vision	3	Project that is part of the ICT vision.	Project does not fit in the ICT vision.	Project partly fits within the ICT vision.	Project fits within the ICT vision.
Finance	3	The funding base of projects.	Finance and budget is not arranged.	Finance and budget is maybe arranged.	Finance and budget is arranged.

Table 2 – Business criteria

The scoring method, projects are compared and assessed values, then the total scores are posted in a list (Wen & Shih, 2006; Kim et al, 2009). Ghasemzadeh & Archer also weigh on the basis of scores in their project portfolio technique. The total weighted score is the final score of the project and then placed in the overall list (Ghasemzadeh & Archer, 2000). This is also the methodology applied for the municipality of Groningen. The prioritization technique indicates that the proposal should be scored to add to the project portfolio, each proposal receives a score for each area that the organization has been established. A scale of 5 (significant contribution) to 1 (minimal or no contribution) is used. Then the scores are added up and the projects with the highest scores are included in the portfolio (Glaser,

2006). In the context of the municipality of Groningen it has chosen a scale of 2 (significant contribution) to 1 (minimal or no contribution) and have all projects included in the list, the complete list of prioritized projects arises and because the scoring methodology is used, a list of the top scoring projects are placed on the top of the list. An example of how the criteria are applied is described in figure 2 where the project portfolio sheet is displayed.

4.2.3 Prioritization Instrument

When the criteria is determined, it will be added to the instrument. Figure 1 displays the score model. In this process it is asked for each criterion what the project contributes to an objective and what the necessity of the project is. Also asked is the impact that the project has and if the constraints (ROI, guaranteed funding) are met.

Necessity		Example: Central Registration of Data		
01	Legal Necessity	- weight: 24	score: 0 - 2	x 2= 48
02	Political Priority	- weight: 18	score: 0 - 2	
03	Public Interest	- weight: 18	score: 0 - 2	
04	Organizational necessity	- weight: 12	score: 0 - 2	
05	Technical necessity	- weight: 12	score: 0 - 2	
Business				
06	Communality	- weight: 8	score: 0 - 2	x 1= 8
07	Time	- weight: 6	score: 0 - 2	x 2= 12
08	Return	- weight: 6	score: 0 - 2	x 0= 0
09	ICT vision	- weight: 3	score: 0 - 2	x 2= 6
10	Finance	- weight: 3	score: 0 - 2	x 2= 6
				-----+
Total score				80

Figure 1 - Example scoring model

Only one criterion can be rated 1 to 5. Implying there can be only one dominant need. Furthermore, the legal necessity is prevailing and dominant over the other four criteria. When there are several top scoring necessities, for example, all have 'legally necessary'; criteria from the column 'business' may still have impact. Example: when a project on the basis of legal necessity in 2010 and another project has to be finished in March 2011, the project with the greatest pressure will receive a higher priority. To all of the criteria 6 and 10 ratings can be assigned. All ratings have an option to score 0, 1 or 2. The overall scores determine the priority in the portfolio. Therefore, it is possible that multiple projects with similar scoring totals and identical priorities coexist.

By using the prioritization technique the portfolio of projects can be better assessed. It is also an instrument for financing, capacity planning and scheduling. Through applying the method successful and timely completion of projects has improved significantly. The support capacity of I&A is limited . When there is additional insight in the planning and prioritization of the projects, this capacity can be better used and controlled.

The prioritization of projects will give an overview of the projects that contribute most to cost savings. Under severe budget cuts, the portfolio as a tool can be used to effectively deal with the resources and the depletion of resources in better monitoring, especially when the portfolio contains many projects and many interests are involved and the limited resources. There are also many shared interests and similar starting positions. Much business is common, similar or identical in their processes. The budgets are always limited which also under the influence of economy cycles is cut. Prioritization of projects is necessary for this reason alone. However, there are more reasons to prioritize and control: there is limited manpower to implement, projects overlap and the absorption capacity of the organization has its limits (Bonham, 2004; Glaser, 2006; Berenschot, 2001).

In these method prioritization criteria is established, based on interviews with employees involved in the projects of the organization, then the weight numbers were developed. The prioritization tool, the project portfolio included for this research, is realized in an excel sheet. The organization has presented two blocks of criteria developed: the first block of five criteria is the 'necessity' of the project (in order: Legal need, Political Priority, Public Interest, Organizational need, Technical need). Furthermore, the second block has five criteria that concern the 'business' (Communality, Time, Return, ICT Vision, Finance).

The project portfolio also contains a main data set to make control and accountability possible. Besides general information such as name, number, department, division, owner, project manager, fixed budget and start and finish date (overall planning in quarters) are data that present the phase of the project, the given changes (with changing colours compared to the previous reporting) in the timetable, available budget and capacity requirements. The score and priority are mapped and the start of the project estimated hours for capacity commitment in the department, the programs and in departments, centralized corporate groups, the functional application administrators and technical application managers. They all create their own detailed plans on the basis of corporate-wide project portfolio and can therefore be controlled to the capacity of the projects.

When a project in time and capacity planning changes, it is the task of the project leader to adapt the planning, with a progress report to the PPM officer and commissioner of the project. In order to rate the quality of this control method, the criteria, use of prioritization tool and project portfolio sheet were review by the staff of the municipality of Groningen. They considered that the methodologies comply for the organization. The instrument was adapted using suggestions from the employees involved, with some additions expanded. The sheet is displayed on the next page.

ICT PROJECTPORTFOLIO 2010										Status		Necessity					Business				
Projectnr	Projectname	Department	Commissioner	Estimated projectbudget x 1000	Projectleader	Phase	Priority	Resources	Financ	Time	total score	Legal necessity	Political priority	Public interest	Organizational necessity	Technical necessity	Community	Return	ICT benefit	Finance	
41	Telephone Center	HVD	RH	300	HH	Implementation	1	88													
12	Central Registrations	BenO	GH	835	AS	Implementation	1	85	2												
44	Connection HB with MW3	DSW	JF	80	BK	Exploration	1	85					2								
25	Digitalization of Parking Tickets	RO/EZ	XY	80	BV	Implementation	1	84	2												
24	Rules Databank	DIA	RS	48	HH	Implementation	1	82	2												
14	OSOSS 2007	BenO	JB	100	HB	Initiation	2	78	2												
97	WMOO	OCSW	RK	350	NB	Implementation	2	72				2									
137	Ground information Online	MD	MK	20	FM	Implementation	2	66					2								
72	Digital City Plans	RO/EZ	XY	200	BV	Implementation	2	66						2							
36	Digital Customer Info	SOZAWÉ	JZ	100	BK	Implementation	2	66							2						
37	Wet Dwangssom	SOZAWÉ	JZ	50	HW	Implementation	2	66	2												
13	KCC UNV	SOZAWÉ	GB	40	KK	Implementation	2	63													
35	LMV-SOZAWÉ	SOZAWÉ	JZ	200	JM	Implementation	2	63													
34	Implementation Absenteeism Policy	BenO	YV	128	JW	Implementation	3	58						1							
39	Q-WIN	DIA	RS	50	PK	Initiation	3	56													
203	SP3 for Windows XP	DIA	JR	150	CI	Implementation	3	55													
38	GWS4ALL migratie Oracle10	SOZAWÉ	JZ	50	JM	Implementation	3	53													
92	Building Registrations	OCSW	PD	80	NB	Implementation	3	51													
73	Improving Parking Facilities	RO/EZ	XY	80	BV	Exploration	3	48													
22	Stukkenstroom	BSD	AB	13	MR	Initiation	3	48					1								
12	Improving building registration	RO/EZ	AW	30	PR	Initiation	3	45													
134	Implementation Micros System	MD	MK	50	GZ	Implementation	3	45													
135	Implementation Portal for Companies	MD	MK	10	AB	Finalization	3	45													
23	Cognos	BenO	ArB	4	JB	Finalization	3	40													
31	Digital Complaints Databank	BenO	MF	25	ArB	Finalization	3	40													
43	Digitalization Waiting List	DSW	JF	30	AB	Exploration	3	39													
157	E-forms	MD	FR	4	AB	Implementation	3	36													
32	100 % Letteraudit	DIA	IB	40	JB	Implementation	3	35													
93	Eduglas	OCSW	AB	40	NB	Exploration	3	33													
40	DABS	DIA	RK	10	BK	Implementation	3	33	1												
151	Pilot projectmanagementtool	MD	FR	35	AB	Implementation	3	27													
42	Eniac implementation	DSW	JF	15	JW	Implementation	3	27													
21	Digitalization Work Processes Credit	SOZAWÉ	JJ	3	HS	Initiation	3	18													

Estimated - Capacity ACG					Estimated - Capacity AIM					Department			Planning						
Technical Assistance (hours)	BIS (hours)	Total (hours)	Startweek (estimated)	Endweek (estimated)	Information management (hours)	Project Leaders (hours)	Digital@Work assistance (hours)	Total (hours)	Startweek (estimated)	Endweek (estimated)	Functional Application Manager Costs	Startweek (estimated)	Information Manager	Endweek (estimated)	Q 1	Q 2	Q 3	Q 4	
50	10	60	40	1-4-11	250			250	40	1-4-11	100	5	40	1-4-11					
1000	500	1500	1	20-12-10	x	2000	x	2000	1	20-12-10	x	x	x	x	20-12-10				
25	25	50	33	1-2-11	10	100	50	160	33	1-2-11	10	30	5	33	1-2-11				
30	30	60	14	28-9-10	150	50	200	14	28-9-10	40	35	30	14	28-9-10					
80		80	1	25-8-10	20	440	50	510	1	25-8-10	x	x	20	1	25-8-10				
250		250	1	20-12-10	500		500	1	20-12-10					20-12-10					
200	100	300	13	1-10-10						1-10-10	100	300	50	13	1-10-10				
60	30	90	16	1-9-10						1-9-10				16	1-9-10				
0	0	0									40	80	60	13					
20	20	40	35		10	200	30	240	35		10	20	5	35					
10		10	37	1-1-11	10		10	20	37	1-1-11	10	20	5	37	1-1-11				
320	80	400	1	30-10-10						30-10-10	480		30	1	30-10-10				
20	20	40	30	1-1-11	10	300		310	30	1-1-11	30	60	5	30	1-1-11				
		300	300	13	15-9-10	800		800	13	15-9-10					15-9-10				
30	10	40	30	2-2-10	10	100		110	30	2-2-10	10	25	5	30	2-2-10				
250		250	12	1-3-11						1-3-11	30	130	10	12	1-3-11				
30		30	30	1-12-10	20			20	30	1-12-10	30	10		30	1-12-10				
		60	60	13	10-6-10					10-6-10	30	20	10	13	10-6-10				
50	60	110	27	1-1-10						1-1-10	30	40	5	27	1-1-10				
30		30	13		64			40	104	1				13					
											25	20	30	13					
											40	40	20	13					
40	40	80	13	1-11-10						1-11-10		6	50	13	1-11-10				
50		50	40		10	100	100	210	40		20	10	5	40					
20	20	40	13	1-7-10						1-7-10	20		10	13	1-7-10				
50		50	13	2-10-10						2-10-10					2-10-10				
40		40	40	1-12-10						1-12-10	30	35	80	40	1-12-10				
10		10	40		5			5	40		5	5		40					
					25			30	55	1									

Priority 1 -> > 80 points
Priority 2 -> > 60 and < 80 points
Priority 3 -> < 60 points

Figure 2 – Project portfolio sheet (Based on interview sessions and workshops, municipality of Groningen, 2009-2010).

5 Conclusions and Recommendations

In this study a method has been developed to plan and prioritize projects in the municipality of Groningen. This method is referred to as the Hourglass method.

Decision-making within a municipality is complex and therefore it is difficult to translate the political priorities. The Hourglass method increases decision making transparency in the organization. It is now much clearer what projects are being implemented and on what arguments the projects are based and if this supports the strategy of the organization. When monitoring business cases and projects, these have to be checked on their contribution to the city council programs. When there is delay in, for instance, nationwide projects (NUP Reporting Interview, 2009), or associated organizations stagnate (including municipalities, provinces), capacity for this project can be allocated to other projects. Through this research was shown that there is sufficient attention from the departments to create a project portfolio overview. However, it lacks the continuance in the translation of decisions (for example the college program) into the project portfolio. Ultimately, the governing mechanism I&A for departments should work in such a way that there is control on the positioning of projects from the college program and projects from the visions from organizations objectives to be included in the project portfolio. The AMT will always need to know which projects within the department are running and when a project is missing on the portfolio, it should be added and prioritized immediately. Furthermore, the portfolio overviews can be used for justification towards the Council.

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