Module Human Resource Management

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Abstract

The module Human Resource Management addresses the HRM aspects of systems architects, such as the profile of an architect, selection, education, appraisal and motivation.

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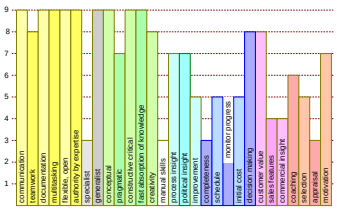
Chapter 1

Function Profiles; The Sheep with Seven Legs



1.1 Introduction

Many human resource and line managers struggle with the questions:

- What people have the potential to become good system architects?
- How to select (potential) system architects?

Employees thinking about their careers might similarly wonder if they have the capabilities to become a good systems architect.

We list a number of characteristics of individual humans. We map the these characteristics on different jobs, such as system architect, developer, and line manager, indicating the relative importance of this characteristic for that job. We first discuss the different jobs and their typical characteristics in 1.2 to 1.7. Then we elaborate the characteristics in 1.8.

The attention for this subject is increasing. Recent research is being carried out by Keith Frampton, see amongst others [1].

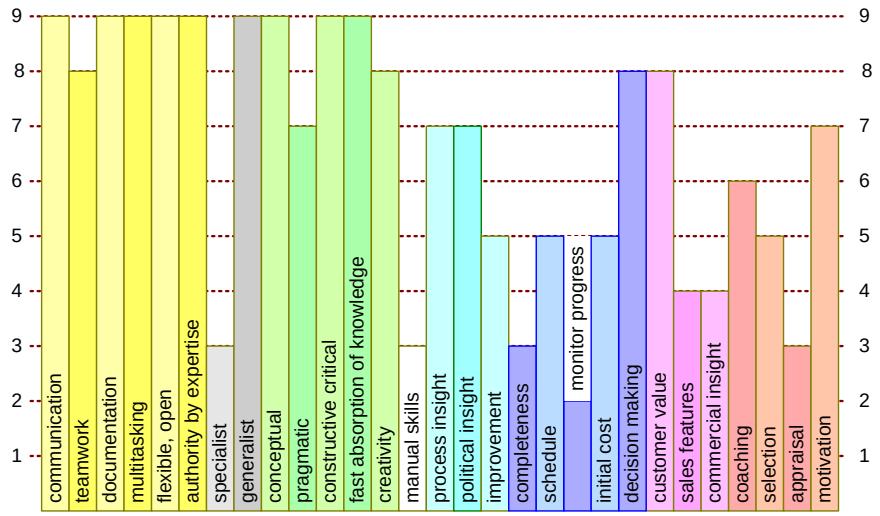


Figure 1.1: The function profile of the systems architect

1.2 Systems Architect Profile

The profile of the "ideal" system architect shows a broad spectrum of required skills. Quite some emphasis in the skill set is on *interpersonal skills*, *know-how*, and *reasoning power*.

This profile is strongly based upon an architecting style of technical leadership, where the architect provides direction *(know-how* and *reasoning power*) as well as moderates the integration (*interpersonal skills*).

The required profile is so requiring that not many people fit into it, it is a so-called **sheep with seven legs**. In real life we are quite happy if we have people available with a reasonable approximation of this profile. The combination of complementary approximations of such ideal architect allows for the formation of architecture teams. Such a team of architects can come close to this profile.

1.2.1 Most discriminating characteristics

In practice the following characteristics are quite discriminating when selecting (potential) systems architects:

- Generalist
- Multi-tasking
- Authority by expertise

- Balance between conceptual and pragmatic

Generalist The first reduction step is to select the *generalists only*, reducing the input stream with one order of magnitude. The majority of people feels more comfortable in the specialist role.

Multi-tasking The next step is to detect those people that need undisturbed time and concentration to make progress. These people become unnerved in the job of the systems architect, where frequent interrupts (meetings, telephone calls, people walking in) occur all the time. Ignoring these interrupts is not recommendable, this would block the progress of many other people. Whenever the people with poor multi-tasking capabilities become systems architect, then they are in severe danger of stress and burn out. Hence it is also the benefit to the person self to assess the multi-tasking characteristic fairly.

Authority by expertise The attitude of the (potential) architect is important for the long term effectiveness. Architects who work on the basis of delegated *power* instead of *authority by expertise* are often successful on the short term, creating a single focus in the beginning. However in the long run the inbreeding of ideas takes its toll. Architecting based on know-how and contribution (e.g. *authority by expertise*) costs a lot of energy, but it pays back in the long term.

Conceptual thinking and pragmatic The balance between conceptual thinking and being pragmatic is also rather discriminating. Conceptual thinking is a must for an architect. However the capability to translate these concepts in real world activities or implementations is crucial. This requires a pragmatic approach. Conceptual-only people dream up academic solutions.

1.3 Test Engineer Profile

The *test engineer* function at system level requires someone who *feels* and *understands* the system. Test engineers are capable of operating the system fluently and know its quirks inside out.

The main difference between an architect and a test engineer is the different balance between **conceptual thinking** and **practical doing**. Test engineers often have an excellent intuitive understanding of the system, however they lack the conceptual expression power and the communication skills to use this understanding pro-active, for instance to lead the design team.

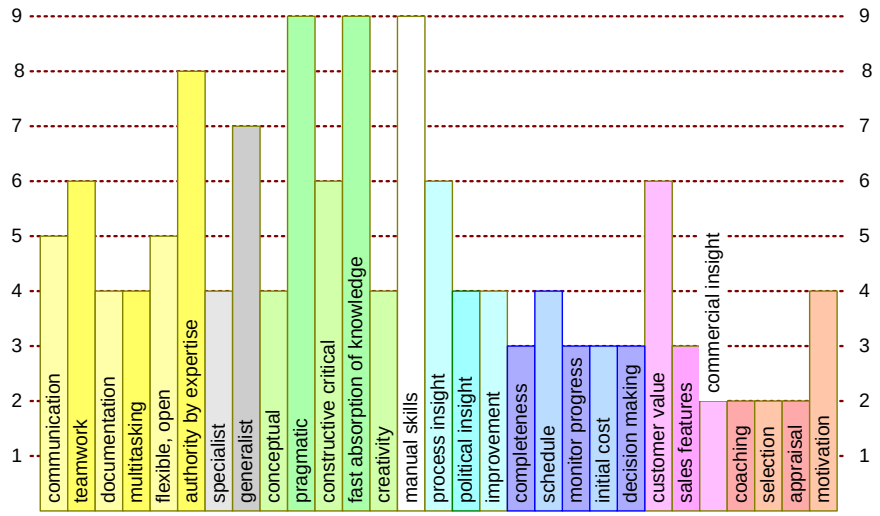


Figure 1.2: The function profile of the test engineer

1.4 Developer Profile

The core value of developers is their specific discipline know-how. Good developers excel in a limited set of specialties, knowing all tricks of the trade. On top of this they should be able to deploy this know-how in a creative way. In today's large development teams a reasonable amount of *interpersonal skills* are required as well as *reasoning power* and *project management* skills.

1.5 Operational Leader Profile

The *operational leader*, for instance a project leader, is totally focused on the result. This requires *project management* skills, the core discipline for operational leaders.

The *multi-tasking* capability is an important prerequisite for the operational leader too. If this capability is missing the person runs a severe risk of getting a burn out.

Note also that the operational leader functions as kind of gatekeeper, where the *completeness* is important.

1.6 Line Manager Profile

The *line manager* manages the intangible assets of an organization: the people, the technology and the processes. Technology and process know-how are tightly

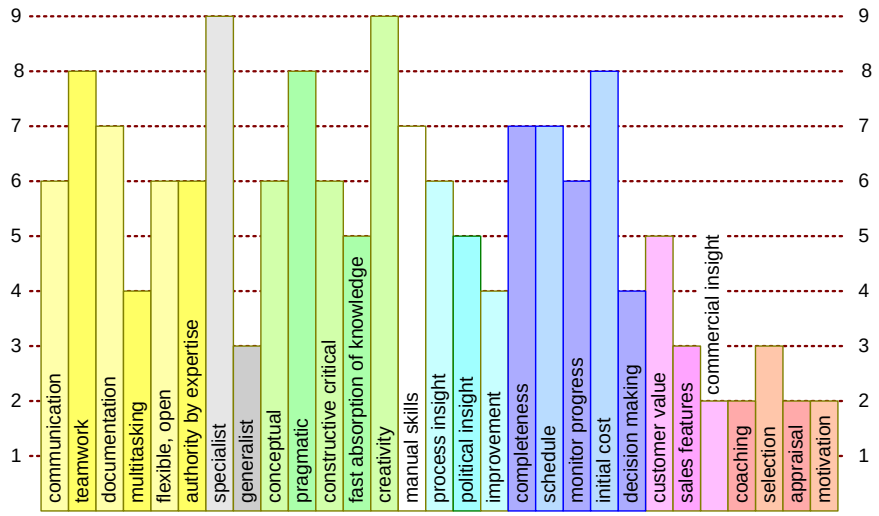


Figure 1.3: The function profile of the developer

coupled with people, this know-how largely resides in people and is deployed by people. *Human resource management* skills and *process* skills are the core discipline for line managers, which need to be supported with sufficient *specialist* know-how.

1.7 Commercial Manager Profile

The *commercial manager* needs a commercial way of observing and thinking. This way of thinking appears to be fuzzy and not logical for technology oriented people. From technology oriented perspective a strange *mind warp* is required to perform a commercial manager function.

The commercial manager is a valuable complement to the other functions, responsible for aspects such as salability and value proposition.

1.8 Definition of Characteristics

1.8.1 Interpersonal skills

communication The ability to communicate effectively. Communication is a two-way activity, presenting information as well as receiving information is important.

teamwork The ability to work as member of a team, in such a way that the team is more than the collection of individuals.

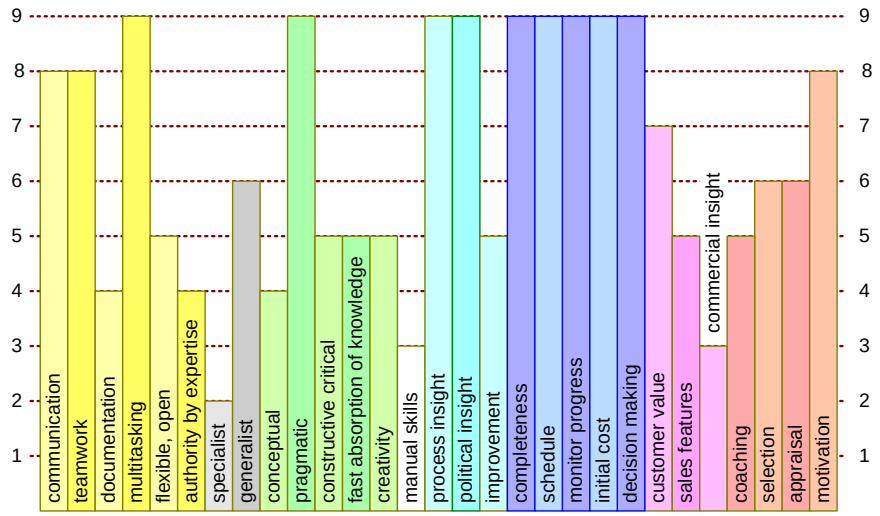


Figure 1.4: The function profile of the operational leader

documentation The ability to create clear, accessible and maintainable documentation in a reasonable amount of time.

multi-tasking The ability to work on many subjects concurrently, where (frequent) external events determine the task switching moments.

flexible, open The attitude to respect contributions of others, the willingness to show all personal considerations, even if these are very uncertain, the willingness to adopt solutions of others, even in case of strong personal opinions.

Note that this overall attitude does not mean that a flexible and open person always adopts the ideas of others (chameleon behavior). The true strength of this characteristic is to apply it when necessary, so adopt an alternative solution if it is better.

authority by expertise The personality which convinces people by providing data, instead of citing formal responsibilities. Hard work is required before authority by expertise is obtained; a good track record and trust have to be build up. Authority is earned rather than being enforced.

1.8.2 Know-how

In terms of characteristics the know-how is qualified in 2 categories, generalist and specialist.

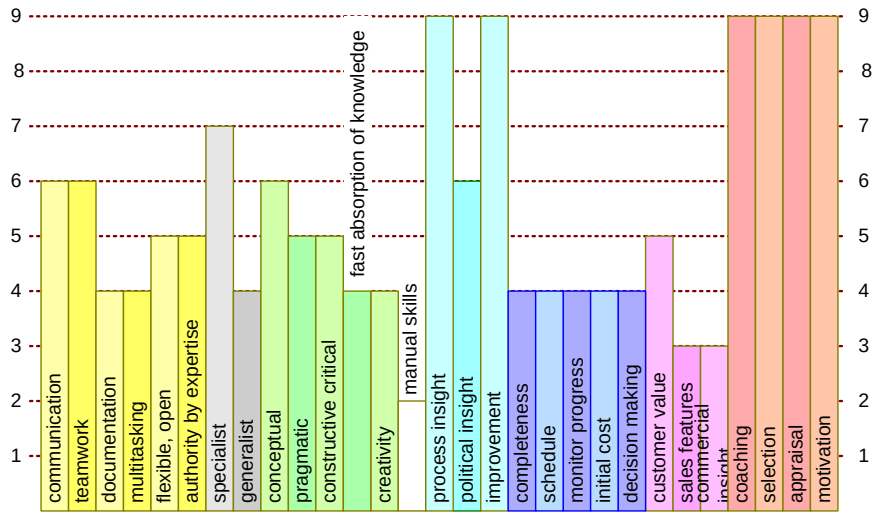


Figure 1.5: The function profile of the line manager

Generalist The persons which are always interested in the neighboring areas, how does it fit in the context? How does the "whole" work.

Specialist The persons which are always interested in knowing more detail.

1.8.3 Reasoning Power

conceptual The ability to create the overview, to abstract the concepts from detailed data. The ability to reason in terms of concepts.

pragmatic The ability to accept non-ideal solutions, to go after the 80% solution. The ability to connect "fuzzy" concepts to real world implementations.

constructive critical The ability to identify problems, formulate the problems and to trigger solutions. The term *critical thinking* is also used. Note that critics serves a constructive goal: to achieve better results.

fast absorption of know-how The ability to jump into a new discipline and to absorb the required know-how in a short time. Systems architect are never able to know all about the technologies used in the systems. This capability helps them to get the right knowledge when needed.

creativity The ability to come with new, original ideas. A specific subclass of this ability is lateral thinking: applying know-how from entirely different areas on the problem at hand.

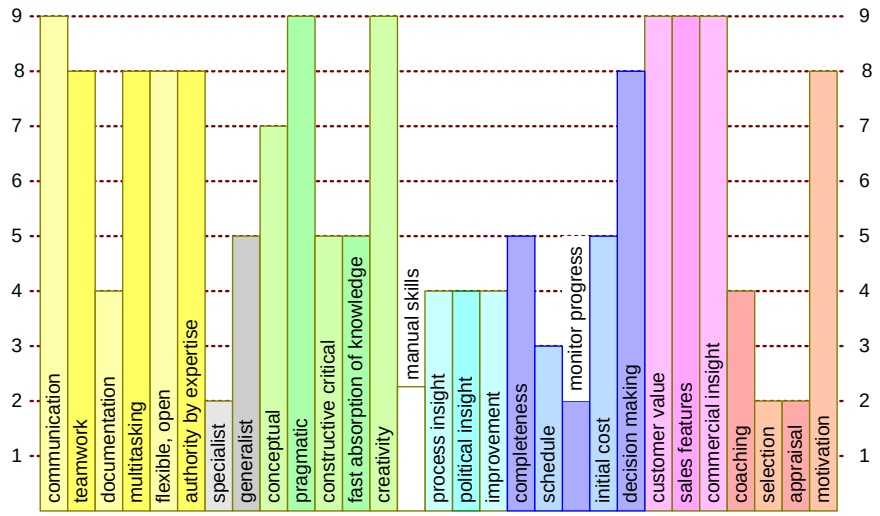


Figure 1.6: The function profile of the commercial manager

1.8.4 Executing Skills

Manual Skills The ability to **do** things, for instance build or test something. This ability is complementary to the many ”mental” skills in this list of characteristics.

1.8.5 Process Skills

process insight The ability to understand specific processes, the ability to recognize the de facto processes, the ability to asses formal and de facto processes, both the strong points as well as the weak points.

politics insight The ability to recognize the political factors: persons, organizations, motivations, power. The ability to use this information as neutralizing force “depoliticizing”: facts and objectives based decision making instead of power based decision making.

improvement drive The ever present drive to improve the current situation, never getting complacent.

1.8.6 Project Management Skills

Completeness The ability to pursue **all** information. This is often done by means of spreadsheets or databases. Large collections of issues are maintained and processed.

This ability is often complementary to, or even conflicting with, the ability to create understanding and overview: the parts view versus the holistic view.

schedule The ability to create schedules: activities and resources with their relationships, scheduled in time.

monitor progress The ability to monitor progress, the ability to chase people, and the ability to find and resolve the causes of delays.

initial cost The ability to create initial cost estimates and to refine these into budgets. The ability to understand and reason in terms of initial costs. Initial costs are the one time investments needed to develop new products and or businesses.

decision making The ability to make choices and to handle the consequences of these choices.

1.8.7 Commercial Skills

customer value The ability to see and understand the value of a product or service for a customer. The ability to asses the value for the customer.

sales feature The ability to recognize features needed to sell the product. The ability to characterize the relevant characteristics of these features ("tick-mark only", "competitive edge", "show-off", et cetera).

commercial insight The ability to think in commercial terms and concepts, ranging from "branding" to "business models".

1.8.8 Human Resource Management Skills

coaching The ability to coach other people; help other people by reflection, by stimulating independent thinking and acting.

selection The ability to select individuals for specific jobs. The ability to interview people and to asses them.

appraisal The ability to asses employees and to communicate this assessment in a fair and balanced way.

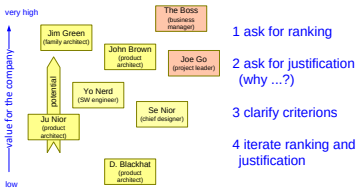
motivation The ability to make people enthusiastic, to motivate them beyond normal performance.

1.9 Acknowledgements

Pierre America applied fine tuning of translations, spelling and capitols. Lennart Hofland suggested an improvement for the description of the commercial manager. Sjir van Loo suggested an increase of coaching and selection skills of the architect. Keith Frampton pointed me to recent research about this subject.

Chapter 2

How to appraise or assess an architect?



2.1 Introduction

The responsibilities of system architects are ill defined. Either the responsibilities overlap significantly with other players in the Product Creation Process, or the responsibilities are very abstract and vague (not specific and measurable), see [3].

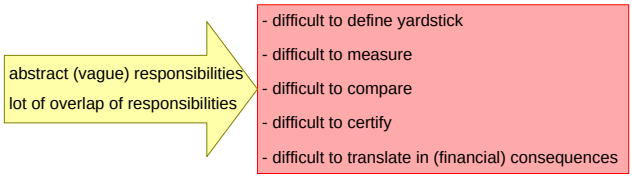


Figure 2.1: The function of an architect is difficult to evaluate

Figure 2.1 provides the problem statement: *How to asses the architect*, when it is difficult to define a yardstick, measurements, comparisons, or certifications due

to the ill defined responsibilities. The financial remuneration, which is normally based on measurements and comparisons also becomes very difficult.

Section 2.2 formulates the success criterions for architects. These criterions are used in section 2.3 to describe an assessment method.

2.2 When is the architect successful?

In [3] the deliverables, responsibilities and activities of the system architect are discussed. Figure 2.2 summarizes this article. The deliverables of the architect are abstract paperwork or electronic information, no tangible modules or systems. The primary responsibilities are not easily measured: how sound (balanced, well decomposed, consistent, et cetera) is the system specification and design? The architect is spending most of his time on activities which do not result in one of the deliverables and most of the activities do not directly contribute to the primary responsibilities. However all of these activities are indispensable for the role of the architect and together ensure the architecture quality.

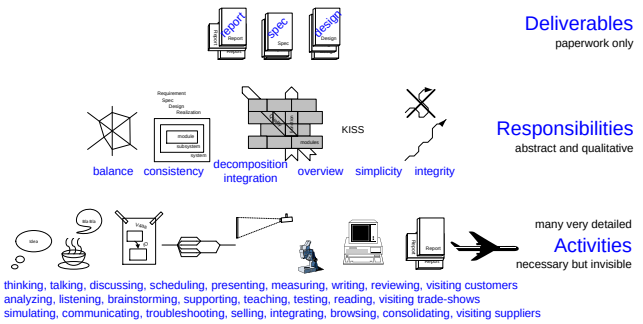


Figure 2.2: Tangible deliverables based upon many invisible activities

Figure 2.3 shows the architecting function and the criterions for successful architecting. Architecting is the transformation of problem and solution know how and often an already existing architecture into a new architecture. This process takes place in the context of many stakeholders, with their expectations, needs, concerns and constraints. The architecting is done by the product creation team (project leader, engineers, product manager and the system architect), although the architect should take the lead in this process.

The architect has played his role successful if the 2 criterions which are shown are fulfilled:

- the resulting architecture satisfies the stakeholders
- the architect has enabled the product creation team by leading the architecting process.

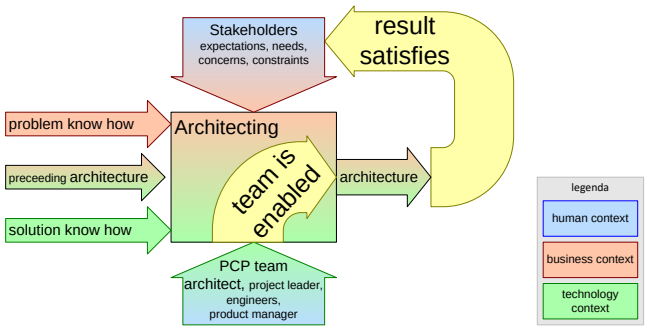


Figure 2.3: Criterions for successful architecting

2.3 How to assess the architect?

The criterions discussed in section 2.2 must be explored in order to facilitate the assessment of the architect. Most appraisal systems are based on formalized yardsticks, such as the (generic) function appraisal system, the (specific) job description and the (also specific) personal career development plan.

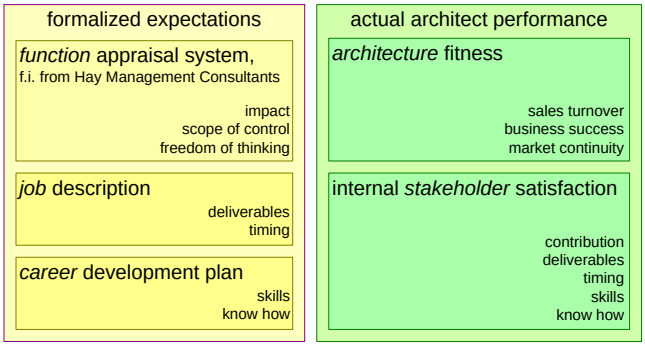


Figure 2.4: Yardsticks for architect assessment

Figure 2.4 shows the formal yardsticks at the left hand side. The main issues addressed in the yardsticks are also mentioned.

The function appraisal systems, such as defined by Hay Management, are based on parameters as *scope of control*, *impact* and *freedom of thinking*. The Hay management system is calibrated over multiple companies, domains and functions, by the active participation of the Hay Management company.

The experience is that the architect function does not easily fit in this method. ASML has defined all their functions in this system, with a multiple ladder approach and were able to fit the *system engineer* function in an acceptable way in this model. Other companies are struggling more with the architect function, due to

the problems described in section 2.1.

The reference for the individual appraisal is the specific *job description*, which defines the *deliverables* and the *timing*. Deliverables are a poor performance indicator, lots of paper is a sign of a bad architect! However a small amount of paper is not yet a sign of a good architect. Instead of measuring the deliverables the architecture fitness can be assessed, which in turn is a measure for the architecting contribution of the architect.

Complementary is the personal *career development plan*, which defines the desired *skills* and *know how*. The measurement of skills and know how can be done by assessing the internal stakeholder satisfaction.

The right hand side of figure 2.4 shows the actual architect performance, in terms of *architecture fitness* and internal *stakeholder* satisfaction. The architecture fitness is characterized by parameters such as *sales turnover*, *business success* and *market continuity*. The internal stakeholder satisfaction is characterized by the opinion of the stakeholders of the architects role in terms of *contribution*, *deliverables*, *timing*, *skills* and *know how*.

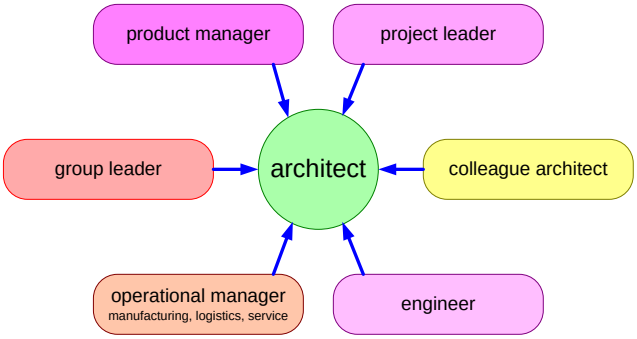


Figure 2.5: 360 degree assessment

An informal 360 degree approach can be used to ”measure” the internal stakeholder satisfaction with respect to the architect. A subset (3 to 6) of internal stakeholders is interviewed, where the performance of the architect is discussed in terms of *contribution*, *deliverables*, *timing*, *skills* and *know how*, see figure 2.5.

The stakeholders to be interviewed should have had sufficient interaction with the architect and should have complementary, somewhat overlapping viewpoints. By asking specific, but open questions, the role of the architect can be articulated.

Assessment is a relative act, in order to provide meaning to the input data, the data needs to be calibrated. This calibration can be done by comparing the architect being assessed with colleagues. It is useful to ask for a ranking with multiple colleagues, both architects and non architects. The ranking question asked to the interviewees has mostly a trigger function: by forcing a one dimensional comparison the performance in different dimensions has to be combined in a single

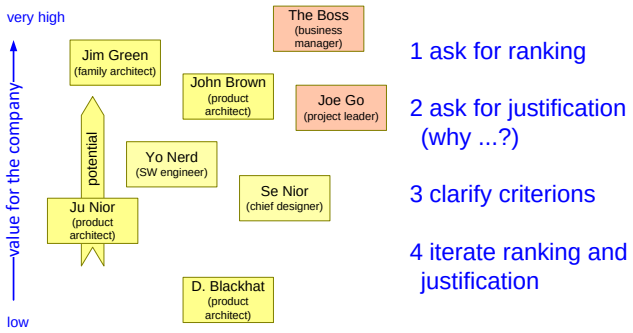


Figure 2.6: Ranking as trigger for discussions

assessment figure.

The relative position and the distance between ranked people will generate new questions: ”Why do you think that Yo Nerd has a greater value than Se Nior?". Also the differences in ranking between interviewees gives a lot of insight in the (often implicit) criterions which are used by the interviewees, for instance: ”Ju Nior is highly valued by the engineer for his excellent technical solutions, while the product manager criticizes him for not listening to the customer”.

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History

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